DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval.This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☐ No ☐)

Deferred Submittal ☐	Addendum Number: 5	Revision Number:	CCD Number: Category A ☐ or B ☐

2. PROJECT INFORMATION:

School District/Owner: Yuba Community College District	DSA File Number: 58 C1
Project Name/School: Woodlland Community College	DSA Application Number 02 118286

3. APPLICANT INFORMATION:

Date Submitted: 01/14/22	Attached Pages? No ☐ Yes ☑ Number of pages? 271		
Firm Name: tBP/ Architecture	Contact Name: Daniel Manguy		
Work Email: dmanguy@tbparchitecture.com	Work Phone: (925) 246-6419		
Firm Address: 1777 Oakland Blvd, Ste 320	City: Walnut Creek	State: CA	Zip Code: 94596

4. REASON FOR SUBMITTAL: (Check applicable boxes)

☑ For revision or addendum prior to construction.

☐ For a project currently under construction.

☐ For a project that has a form *DSA 301-N: Notification of Requirement for Certification*, *DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

☐ To obtain DSA approval of an existing uncertified building or buildings.

☐ For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Phil Newsom

Professional License Number: C23270	Discipline: Architecture

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: _____

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ☑ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

see attached Addendum 5 for Narrative

List of DSA-approved drawings affected by this post-approval document:

see attached Addendum 5 for Dwg list

DSA USE ONLY

SSS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

FLS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

ACS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

Returned	DSA STAMP
Date:	
By:	

INSTRUCTIONS: FORM DSA 140
APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

PURPOSE: Form *DSA 140: Application for Submittal of Post-Approval Document* is an application for submittal of the following post-approval documents to DSA for review and approval:

A. Deferred Submittals
B. Addenda
C. Revisions (*NOTE:* Revisions are significant changes to the DSA-approved construction documents or redesign of previously approved items.)
D. Construction Change Documents (CCDs)

INSTRUCTIONS FOR EACH SECTION:

1. Identify the type of submitted document (including whether it is a resubmittal or not) and, when applicable, the number and category (e.g., for CCDs, reference *IR A-6: Construction Change Document Submittal and Approval Process*).
2. School District/Owner is the same as line two on form *DSA 1: Application For Approval of Plans and Specifications*. Project Name/School is the same as line one on form DSA 1. DSA file and application numbers are the same as indicated on the DSA identification stamp on the plans and the signature sheet of the specifications.
3. Enter the submittal date, whether additional pages are attached, and how many. Enter the “applicant” (the architect or engineer in general responsible charge identified on line 21 of form DSA 1) contact information including the name and address of the firm where they are employed.
4. Check the applicable boxes based on the nature of the post-approval submittal document and related project information. For projects with a *form DSA 301-N: Notification of Requirement for Certification*, *DSA 301-P: Posted Notification of Requirement for Certification*, or 90-day Letter, refer to *PR 13-02: Project Certification Process* for further information and requirements.
5. Enter the following information for the individual identified on line 21 of form DSA 1: name, California professional license number, discipline and signature.
6. For addenda, revisions, or CCDs, check the box to indicate compliance with the statement. Provide a brief description of construction scope for the post-approval document and listing of approved drawings affected by the submitted post-approval documents.

   NOTE: For addenda and revisions, a summary letter of all changes and affected DSA-approved construction documents shall be provided in addition to the brief descriptions provided in this section.

WOODLAND COMMUNITY COLLEGE
Woodland, California

ADDENDUM # 5

Date: January 11, 2022

NOTICE TO ALL PRE-QUALIFIED CONTRACTORS ONLY:

You are hereby notified of the following changes, clarifications and/or modifications to the original Contract Documents, Project Manual, Drawings, Specifications and/or previous Addenda. This Addendum shall supersede the original Contract Documents and previous Addenda wherein it contradicts the same and shall take precedence over anything to the contrary therein. All other conditions remain unchanged.

This Addendum forms a part of the Contract Documents and modifies the original Contract Documents dated ***June 25 2021***. Acknowledge receipt of this Addendum in space provided on the Bid Proposal Form. Failure to acknowledge may subject Bidder to disqualification.

A. <u>DRAWINGS:</u>

a. **C002** – updated note of unsuitable material
b. **C101** – added limits of concrete demolition
c. **C201** - added callouts for concrete
d. **C202** – clarify bus shelter note
e. **C302** – update grading points
f. **C603** – added Gas Service Trench Detail
g. **L1.0**
    i. Lighting quantities in legend have been revised to accurately reflect current lands cape plan.
h. **L2.0**
    i. Lighting quantities in legend have been revised to accurately reflect current lands cape plan.
i. **L3.0**
    i. Detail callout for 9/L4.0 Bike Rack added to plan.
    ii. Callout & Schedule Note for “Gravel Surfacing” have been revised to “Stabilize Granite Paving”.
j. **L4.0**
    i. Detail 9/L4.0 Bike Rack has been added.
    ii. Detail 4/L4.0 has been renamed Stabilized Granite Paving and updated per speci fications.
    iii. Detail 5/L4.0 Gravel Strip has been revised. Gravel strip to be ¾”, Sonoma Gold gravel. Compacted aggregate has been revised to extend 6” beyond landsc ape edging.
k. **A100** – remove 2” depression at culinary area
l. **A261 –** added signage
m. **A262 –** added signage and note for flush transition strip between floor materials
n. **A611** – clarify Ceiling Materials

o. **A831**
   i. Detail 4- call out fire rated wood cap
   ii. Detail 9- call out Preprufe 300r
p. **TA 411 –**
   i. Added sound barrier note
   ii. Updated section to coordinate w/ structural
q. **TA601** – Update lift configuration to match manufacturer
r. **TL-7** – added Theatrical lighting wire legend
s. **S1-2** - Updated details 2 and 3. Added details 13, 14, and 15.
t. **S-N2-1 -** Added references to new S1.2 details.
u. **S-S2-1 -** Added note to HDG steel at food service canopy.
v. **S-S2-2 -** Added note to HDG steel at food service canopy.
w. **S-T2-1 -** Added notes to HDG steel at trash enclosure.
x. **M502** – Revise bolted pipe clamp model number to suit hydronic pipe sizes on roof
y. **P003** – Specified manufacturer and model number for grease interceptor
z. **P202** - Show grease interceptor location and points of connection to & from civil
aa. **E004**
   i. Revised Ballast/Driver of fixture F10B to 0-10V Dimming LED Driver.
bb. **E100**
   i. Relocated existing pullbox on other side of road to reflect correct location. Rerouted conduit run to account for the change.
   ii. Revised Telecom & Primary vaults to be a Pull box instead.
cc. **E101**
   i. Added panel L1KB to the site plan and showing the feeders going into all the panels from LDP1B.
dd. **E212**
   i. Changed light fixture in Lift #2 from an F11 to an F6 fixture.
ee. **E401**
   i. Added camera in Office 960 – looking at the transaction window
   ii. Added camera in Lobby near office 960 – looking at the office 960 door
   iii. Added sheet note 2.
ff. **E411**
   i. Added (2) cameras in Culinary lobby looking at future ATM or vending machine.
   ii. Added sheet note 1.
gg. **E521**
   i. Revised component schedule. Changed the FACP from a EST-3 to an EST-4.
   ii. Updated notification appliances to current available products.
hh. **E802**
   i. Revised detail 3 to show compression fitting instead of set screw connectors.
ii. **E804**
   i. Revised detail 2 to show compression fitting instead of set screw connectors.

B. <u>Revised Specifications:</u>

a. 00 11 16 Invitation to Bid
b. 06 20 00 - Finish Carpentry – updated fabrication
c. 07 13 13 below-grade self-adhered waterproofing membrane
d. 07 13 26 pre-applied & self-adhered sheet membrane waterproofing
   i. Replace entire section
e. 07 26 16 below-grade vapor retarder
f. 09 29 00 gypsum board – added Netwell Noise Control

g. 09 68 13 carpet tile
h. 10 11 00 visual display surfaces
i. 1014 00 signage – replace cast signage with flat cut
j. 10 21 50 cubicle tracks and curtains
k. 10 28 00 – (not attached)
    i. 3.3 B. Dyson dB AB14 has been discontinued, replace w/ Dyson "Airblade V"
l. 11 06 10 theatrical rigging equipment– added motorized self-climbing truss hoist and control system
m. 11 06 40 - Theatrical Lighting Control
n. 11 06 50 - Theatrical Lighting Control - updated Bill-of-Materials
o. 12 61 62 - Theatre Seats – replace whole section
p. 14 41 00 - Wheelchair Lift
q. 22 13 16 Sanitary Waste and Vent Piping
r. 23 11 23 Facility Natural Gas Piping

C. New Specifications:

a. 10 26 00 wall protection systems

D. Delete Specifications:

a. 07 26 17 integrally-bonded underslab vapor retarder

E. Other Documents related to Bidders Questions

a. Bid Bond Form
b. E85014-0012 -- EST4 Network Firewalls
c. YCCD Fireworks Material (for reference)
d. **GL-4_v1**
e. **TL-5a** – Lighting Plot Plan
f. **UVD2.5** – Pad Mounted Transformer Guard Pipe Bollard Type w/ Removable Barrier Detail
g. **Bidders Questions**

F. Bid Extension

Bid due date and time to January 25, 2022, Tuesday, at 2:30PM (Sharp).

If you have any questions regarding this Addendum No. 5, please notify **Phil Newsom** of **tBP/ Architecture** by email at pnewsom@tbparchitecture.com and cc **David Willis** of **Woodland Community College** at dwillis@yccd.edu. All other terms and conditions of BID are to remain the same.

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
925.246.6419
Architect of Record: Philip J Newsom

END OF ADDENDUM #5

DVISION OF THE STATE ARCHITECT

ABBREVIATIONS:

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
ARV	AIR RELEASE VALVE
ASB	AGGREGATE SUBBASE
BC	BEGIN CURVE
BEW	BACK EDGE OF WALK
BM	BENCH MARK
BOC	BACK OF CURB
BOV	BLOW-OFF VALVE
BVC	BEGIN VERTICAL CURVE
BW	BASE OF WALL
CATV	CABLE TELEVISION
C&G	CURB AND GUTTER
C,G,&SW	CURB, GUTTER AND SIDEWALK
CB	CATCH BASIN
CBC	CALIFORNIA BUILDING CODE
CC	CENTER TO CENTER
CICP	CAST IN PLACE CONCRETE PIPE
CL	CENTERLINE, CONTROL LINE, CHAIN LINK OR CLASS
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
CONST	CONSTRUCT
COR	CORNER
CP	CONCRETE PIPE
CPP	CORRUGATED PLASTIC PIPE
CR	CURB RETURN
DC	DOUBLE CHECK
DCA	DETECTOR CHECK ASSEMBLY
DI	DRAINAGE INLET
DIP	DUCTILE IRON PIPE
DET	DETAIL
D/W	DRIVEWAY
DWG	DRAWING
E	EAST
EC	END CURVE
ELEC	ELECTRIC(AL)
EL, ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EQUIV	EQUIVALENT
EVC	END VERTICAL CURVE
EX, EXIST	EXISTING
EXP JT	EXPANSION JOINT
FB	FLUSHER BRANCH
FC	FINISHED CONCRETE
FEW	FRONT EDGE OF WALK
FF, FIN FLR	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FOC	FACE OF CURB OR CONCRETE
GB	GRADE BREAK OR GRADE CHANGE
INTX	INTERSECTION
INV	INVERT
IRR	IRRIGATION
JB	JUNCTION BOX
JT	JOINT-USE TRENCH
L	LEFT
LF	LINEAL FEET
LOG	LIP OF GUTTER
LT	LEFT OR LIGHT
LTB	LIME TREATED BASE
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MOC	MIDDLE OF CURVE
MON	MONUMENT
MRC	MINIMUM RELATIVE COMPACTION
MTD	MOUNTED
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OG	ORIGINAL GROUND
OH	OVERHEAD
PB	PULL BOX
PCC	PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
POC	POINT OF CONNECTION, POINT ON CURVE
PRC	POINT OF REVERSE CURVATURE
PRVC	POINT OF REVERSE VERTICAL CURVATURE
PROJ	PROJECTED
PROP	PROPERTY
PSE	PUBLIC SERVICE EASEMENT
PT	POINT
PUE	PUBLIC UTILITY EASEMENT
PVCP	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PWD	PUBLIC WORKS DEPARTMENT
R	RADIUS, RADIAL OR RIGHT
RCP	REINFORCED CONCRETE PIPE
REQ'TS	REQUIREMENTS
RET	RETAINING
RP	RADIUS POINT OR REFERENCE POINT
RPBP	REDUCED PRESSURE BACK FLOW PREVENTER
RT	RIGHT
R/W	RIGHT-OF-WAYS
RW	RECLAIMED WATER
S	SOUTH OR SLOPE
SCH	SCHEDULE
SCO	SEWER CLEAN OUT
SD	STORM DRAIN
SEC	SECTION
SEP	SEPARATION
SIM	SIMILAR
SL	STREET LIGHT
SS	SEWER SERVICE, SANITARY SEWER
STD	STANDARD
SW	SIDEWALK
SYM	SYMMETRICAL
TC	TOP OF CURB
TEL	TELEPHONE
TEMP	TEMPORARY
TFOC	TOP FACE OF CURB
TRAF	TRAFFIC
TRANS	TRANSITION
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
W	WEST
WM	WATER METER OR WATER MAIN
WS	WATER SERVICE
XFMR	TRANSFORMER
XING	CROSSING

GENERAL NOTES:

1. STANDARDS AND PLANS

A. UNLESS SHOWN OR SPECIFIED OTHERWISE, ALL CONSTRUCTION AND MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE WOODLAND STANDARD SPECIFICATIONS AND DETAILS, WITH THESE PLANS, THE PROJECT SPECIFICATIONS, AND WITH THE LATEST EDITIONS OF THE STATE "CALTRANS" STANDARD SPECIFICATIONS AND STANDARD PLANS, SIGN SPECIFICATION SHEETS AND TRAFFIC MANUAL AND THE LATEST EDITION OF THE CALIFORNIA MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES). THE CONTRACTOR SHALL OBTAIN AND USE ALL APPLICABLE ADDENDUMS.

B. IT IS INTENDED THAT THESE PLANS AND SPECIFICATIONS REQUIRE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THEIR TRUE INTENT AND PURPOSE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES OR AMBIGUITIES WHICH MAY EXIST IN THE PLANS OR SPECIFICATIONS. THE ENGINEER'S INTERPRETATION OR CORRECTION THEREOF SHALL BE CONCLUSIVE.

C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY SITE INSPECTIONS AND DETERMINE ALL ITEMS OF WORK NOT SPECIFICALLY SHOWN AS BID ITEMS, OR OTHERWISE INDICATED, PRIOR TO BIDDING. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL ITEMS OF WORK NECESSARY TO PERFORM A COMPLETE AND ACCEPTABLE JOB.

D. WHERE THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.

E. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS AND THE CITY.

F. THE MAP SHOWN ON TITLE SHEET IS FOR GENERAL INFORMATION ONLY AND IS NOT INTENDED TO REPLACE THE DETAILED SHEETS ELSEWHERE IN THIS SET OF PLANS.

2. EXISTING UTILITIES AND COORDINATION OF WORK

A. THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. LAUGENOUR AND MEIKLE ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES, NOR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS.

B. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND REQUESTING A VISUAL VERIFICATION OF THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. THE INSPECTOR AND THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR OF THE SCHEDULED TIME AND PLACE OF SUCH VISUAL VERIFICATION TO ENABLE THEM TO HAVE REPRESENTATIVES PRESENT. IF IN THE OPINION OF THE INSPECTOR A CONFLICT EXISTS, THEN THE ENGINEER SHALL: (1) MAKE ANY NEEDED GRADE AND/OR ALIGNMENT ADJUSTMENTS AND REVISE THE PLANS ACCORDINGLY; AND/OR (2) CONTACT THE UTILITY PARTY RESPONSIBLE FOR THE RELOCATION OF THE CONFLICTING FACILITY.

C. THE CITY IS A MEMBER OF THE UNDERGROUND SERVICE ALERT (U.S.A.) ONE-CALL PROGRAM. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT SHALL NOTIFY MEMBERS OF U.S.A. 48 HOURS IN ADVANCE OF PERFORMING EXCAVATION WORK BY CALLING THE TOLL-FREE NUMBER 800-227-2600. EXCAVATION IS DEFINED AS BEING MORE THAN 18 INCHES IN DEPTH BELOW THE EXISTING SURFACE.

D. UTILITY COMPANIES ARE PREPARING TO RELOCATE EXISTING FACILITIES AND/OR CONSTRUCT NEW FACILITIES WITHIN PORTIONS OF THE WORK AREA. THE CONTRACTOR SHALL COORDINATE ALL HIS WORK WITH PROJECT RELATED WORK TO BE PERFORMED BY UTILITY COMPANIES (INCLUDING GAS, ELECTRIC, TELEPHONE AND CABLE TV) AND BY OTHER PROJECT CONTRACTORS INCLUDING BUILDING, PLUMBING, LANDSCAPING, ELECTRIC AND FIRE PROTECTION. THE CONTRACTOR SHALL AFFORD THESE UTILITY COMPANIES AND CONTRACTORS REASONABLE OPPORTUNITY FOR THE EXECUTION OF THEIR WORK AND SHALL COORDINATE HIS WORK WITH THEIRS. IN THE EVENT OF DELAYS OR CHANGES IN THE WORK BEYOND THE CONTROL OF THE CONTRACTOR, TIME EXTENSIONS AND NECESSARY CHANGES SHALL BE MADE AS PROVIDED IN THE CONTRACT.

E. ANY EXISTING UNDERGROUND UTILITY (INCLUDING PIPELINES) WHICH IS TO BE EXTENDED, WHICH IS THE CONNECTION POINT FOR NEW UNDERGROUND UTILITIES, OR WHICH NEW FACILITIES CROSS, SHALL BE EXPOSED BY THE CONTRACTOR PRIOR TO CONSTRUCTION STAKING FOR PLACEMENT OF THE NEW UTILITIES. COST OF SUCH EXCAVATION AND SUBSEQUENT BACKFILL SHALL BE INCLUDED IN THE PRICES PAID FOR THE VARIOUS ITEMS OF WORK. THE ELEVATIONS AND LOCATIONS OF THE EXISTING UTILITIES WILL BE CHECKED FOR POSSIBLE CONFLICTS WITH PLANS BY THE PUBLIC WORKS INSPECTOR AND THE ENGINEER. IF IN THE OPINION OF THE INSPECTOR A CONFLICT EXISTS, THEN THE ENGINEER SHALL: (1) MAKE ANY NEEDED GRADE AND/OR ALIGNMENT ADJUSTMENTS AND REVISE THE PLANS ACCORDINGLY; AND/OR (2) CONTACT THE UTILITY PARTY RESPONSIBLE FOR THE RELOCATION OF THE CONFLICTING FACILITY.

3. FIELD VERIFICATION

WHERE NEW IMPROVEMENTS (CURB, GUTTER, SIDEWALK, PAVEMENT, ASPHALT, UTILITIES, ETC.) ARE DESIGNATED TO MATCH GRADE (±) AT EXISTING IMPROVEMENTS, THE CONTRACTOR'S SURVEYOR SHALL VERIFY THE MATCH POINT GRADES, REPORT ANY DISCREPANCIES AND ADJUST GRADES TO MATCH EXISTING.

4. CONSTRUCTION STAKING

A. BASIC CONSTRUCTION STAKING SHALL BE FURNISHED BY THE OWNER. THE CONTRACTOR SHALL BE PROVIDED WITH ONE SET OF CONSTRUCTION STAKES FOR EACH PHASE OF THE WORK. THE CONTRACTOR SHALL COORDINATE THE SPACING AND OFFSETS OF STAKES WITH THE ENGINEER AT LEAST 5 WORKING DAYS PRIOR TO THE DATE OF STAKING, AND HE SHALL REQUEST CONSTRUCTION STAKES FOR ANY PARTICULAR PHASE OF WORK AT LEAST 48 HOURS PRIOR TO THE DATE OF THE PLANNED USE OF THE STAKES.

B. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PRESERVE THE STAKES DURING THE CONSTRUCTION OF THE VARIOUS PHASES OF WORK. RESTAKING OR CHECKING OF ANY STAKES DISTURBED, DESTROYED OR REMOVED BY CONSTRUCTION, ACCIDENT, OR OTHERWISE, EVEN DURING NON-WORKING OR INCLEMENT WEATHER PERIODS, THAT ARE NEEDED FOR CONSTRUCTION OR AS A REFERENCE FOR FURTHER STAKING, SHALL BE AT THE CONTRACTOR'S EXPENSE. THE COST FOR REPLACING OR RESTORING STAKES MAY BE DEDUCTED BY THE OWNER FROM ANY MONIES DUE OR TO BECOME DUE TO THE CONTRACTOR. REQUESTS FOR RESTAKING OR SETTING ADDITIONAL STAKES MUST BE AUTHORIZED BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING SUCH AUTHORIZATION. NO REQUESTS FOR STAKES RECEIVED FROM A SUBCONTRACTOR WILL BE RECOGNIZED WITHOUT PRIOR AGREEMENT WITH THE GENERAL CONTRACTOR.

C. ALL CORRECTIVE ACTIONS PERFORMED BY THE CONTRACTOR, WHICH ARE NECESSARY DUE TO A STAKING ERROR, SHALL NOT BE PERFORMED UNTIL THE CONSULTING ENGINEER HAS BEEN NOTIFIED AND HAS HAD THE OPPORTUNITY TO VERIFY PREVIOUS STAKING AND/OR PROVIDE RESTAKING. ANY CORRECTIVE ACTION TAKEN BY THE CONTRACTOR, PRIOR TO, OR WITHOUT BENEFIT OF SUCH NOTICE, AND IF THE ORIGINAL STAKING IS PERFORMED BY OTHERS, SHALL RELIEVE THE CONSULTING ENGINEER OF ALL LIABILITY FOR THE COSTS OF SUCH CORRECTIVE ACTIONS.

D. THESE IMPROVEMENT PLANS HAVE BEEN PREPARED WITH THE INTENT THAT LAUGENOUR AND MEIKLE WILL BE HIRED TO PERFORM THE CONSTRUCTION STAKING FOR THE COMPLETE PROJECT. IF, HOWEVER, ANOTHER ENGINEER AND/OR SURVEY FIRM SHOULD BE EMPLOYED TO USE THESE PLANS FOR THE PURPOSE OF CONSTRUCTION STAKING, NOTICE IS HEREBY GIVEN THAT LAUGENOUR AND MEIKLE WILL NOT ASSUME ANY RESPONSIBILITY FOR ANY ERRORS OR OMISSIONS WHICH MIGHT OCCUR AND WHICH COULD HAVE BEEN AVOIDED, CORRECTED OR MITIGATED IF LAUGENOUR AND MEIKLE HAD PERFORMED THE STAKING WORK.

5. CONFLICTS

THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO PERFORMING ANY CORRECTIVE ACTION REQUIRED DUE TO UNFORESEEN CONFLICTS IN THE IMPROVEMENT PLANS OR DUE TO POSSIBLE STAKING ERRORS. THE ENGINEER ASSUMES NO LIABILITY FOR THE COST OR DESIGN OF ANY MODIFICATION PERFORMED WITHOUT SUCH NOTIFICATION, AND ALSO ASSUMES NO LIABILITY FOR STAKING PROVIDED BY OTHERS.

6. CONTROL POINTS AND SURVEY MONUMENTS

A. CERTAIN CONTROL POINTS WILL BE SET BY THE ENGINEER, OR ITS REPRESENTATIVE, WHICH ARE CRITICAL TO THE CONSTRUCTION STAKING OF THE PROJECT. THESE POINTS WILL BE DESIGNATED AT A PRE-CONSTRUCTION CONFERENCE BETWEEN REPRESENTATIVES OF THE ENGINEER AND THE CONTRACTOR. THE CONTROL POINTS WILL BE CLEARLY MARKED ON THE JOB SITE. THE CONSTRUCTION SHALL NOT DISTURB THE CONTROL POINTS IN ANY MANNER. IF IT BECOMES NECESSARY TO REMOVE SAID CONTROL POINTS DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS IN ADVANCE OF SAID REMOVAL TO ALLOW FOR REFERENCING SAID CONTROL POINTS AND THEIR EVENTUAL REPLACEMENT. IF CONTROL POINTS ARE REMOVED OR DESTROYED WITHOUT SAID NOTIFICATION AND REFERENCING, THE COST OF REPLACEMENT SHALL BE DEDUCTED FROM THE CONTRACTOR'S PAYMENT, AND PAYMENT SHALL BE MADE BY OWNER TO THE ENGINEER.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS AND OTHER SURVEY MARKERS DURING CONSTRUCTION. ALL MONUMENTS OR MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. WHEN THE LOCATION OF AN EXISTING SURVEY MONUMENT CONFLICTS WITH PROPOSED WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE ENGINEER MAY REFERENCE THE MONUMENT. AFTER THE MONUMENT HAS BEEN REFERENCED THE CONTRACTOR SHALL REMOVE THE MONUMENT AND LATER REPLACE IT WITH THE CITY STANDARD MONUMENT. THE ENGINEER WILL THEN MARK THE SURVEY POINT ON THE MONUMENT.

C. PRIOR TO REQUESTING CITY ACCEPTANCE OF IMPROVEMENTS, THE CONTRACTOR SHALL SET STANDARD SURVEY MONUMENTS AT LOCATIONS REFERENCED BY ENGINEER. AFTER MONUMENT IS INSTALLED ENGINEER WILL MARK THE SURVEY POINT ON THE MONUMENT.

7. OBSTRUCTIONS

A. THE CONTRACTOR SHALL REMOVE ALL OBSTRUCTIONS, BOTH ABOVE GROUND AND UNDERGROUND, EXCEPT AS NOTED IN ITEM 2 ABOVE, AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. WHEN FEASIBLE SUCH WORK SHALL BE COMPLETED PRIOR TO GRADING.

B. ALL UNSUITABLE AND SURPLUS MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS SPECIFIED OTHERWISE.

C. TREE AND STUMP REMOVAL SHALL INCLUDE REMOVAL OF THE MAJOR ROOT SYSTEM TO THE SATISFACTION OF THE CITY ENGINEER. SUCH REMOVAL SHALL BE PERFORMED WITHOUT DAMAGE TO ADJACENT TREES THAT ARE TO BE PRESERVED. STUMP REMOVAL WITHIN THE DRIP LINE OF A TREE TO BE PRESERVED SHALL BE BY GRINDING METHOD, TO A DEPTH OF 0.5 FEET BELOW ADJACENT GRADE.

D. ALL WATER WELLS AND SEPTIC TANK SYSTEMS FOUND ON THE SITE SHALL BE DESTROYED IN ACCORDANCE WITH COUNTY HEALTH DEPARTMENT STANDARDS AND PERMITS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL SUCH LOCATIONS PRIOR TO COMMENCING WORK IN THESE AREAS.

8. PUBLIC SAFETY AND TRAFFIC CONTROL

A. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL CURRENTLY APPLICABLE SAFETY LAWS OF ALL JURISDICTIONAL BODIES. THE CONTRACTOR IS DIRECTED TO CONTACT THE STATE INDUSTRIAL RELATIONS DEPARTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES, AND CONTROL OF TRAFFIC WITHIN AND AROUND THE CONSTRUCTION AREA. FOR ALL TRENCH EXCAVATIONS 5 FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE DIVISION OF INDUSTRIAL SAFETY PRIOR TO BEGINNING ANY EXCAVATION.

B. PUBLIC SAFETY AND TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE CALTRANS TRAFFIC MANUAL (SEE CHAPTER 5, MANUAL OF TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS) AND AS DIRECTED BY THE CITY ENGINEER. ANY LANE CLOSURES (VEHICLE OR BICYCLE) SHALL BE APPROVED BY THE CITY ENGINEER. SAFE VEHICULAR AND PEDESTRIAN ACCESS SHALL BE PROVIDED AT ALL TIMES DURING CONSTRUCTION.

C. THE CONTRACTOR SHALL MAINTAIN CONTINUOUS TEMPORARY CHANNELIZING DEVICES, AND FLAGGING OR FLASHING DEVICES AS NEEDED, SPACED AT INTERVALS NOT TO EXCEED 50 FEET, WHENEVER THE WORK AREA IS ADJACENT TO AN EXISTING TRAFFIC LANE AND THERE IS A PAVEMENT CUT, TRENCH OR DITCH WHICH IS OVER 2 INCHES IN DEPTH. IF THE CUT, TRENCH OR DITCH IS MORE THAN 10 FEET FROM A TRAFFIC LANE, THEN THE SPACING MAY BE GREATER, PROVIDED THAT IT DOES NOT EXCEED 200 FEET.

D. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

E. IN THE EVENT THAT ANY STREET OR PORTION OF ANY STREET WILL BE CLOSED TO EMERGENCY TRAFFIC, THE CONTRACTOR SHALL NOTIFY YOLO COUNTY COMMUNICATIONS DISPATCH AT (530)666-8900 IMMEDIATELY PRIOR TO CLOSURE AND IMMEDIATELY AFTER REOPENING OF SAID STREET OR STREET PORTION.

9. PERMITS, LICENSES AND REGULATIONS

A. PERMITS AND LICENSES OF A TEMPORARY NATURE AND NECESSARY FOR THE PROSECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR. PERMITS, LICENSES AND EASEMENTS FOR PERMANENT STRUCTURES OR PERMANENT CHANGES IN EXISTING FACILITIES SHALL BE SECURED AND PAID FOR BY THE OWNER UNLESS OTHERWISE SPECIFIED.

B. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST 48 HOURS PRIOR TO THE INTENT TO COMMENCE WORK.

C. ALL WATER WELLS AND SEPTIC TANK SYSTEMS FOUND ON THE SITE SHALL BE DESTROYED IN ACCORDANCE WITH COUNTY HEALTH DEPARTMENT STANDARDS. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM THE COUNTY.

D. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS SHOWN ON THE PLANS AND DESCRIBED IN THE SPECIFICATIONS. HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING OF ANY SPECIFICATION AT VARIANCE THEREWITH AND ANY NECESSARY CHANGES SHALL BE ADJUSTED AS PROVIDED IN THE CONTRACT FOR CHANGES IN THE WORK. IF THE CONTRACTOR PERFORMS ANY WORK CONTRARY TO SUCH LAWS, ORDINANCES, RULES AND REGULATIONS HE SHALL BEAR ALL COSTS ARISING THEREFROM.

10. STATIONING AND DIMENSIONING

ALL STATIONS REFER TO DISTANCES ALONG STREET CENTER LINE UNLESS INDICATED OTHERWISE. ALL STATIONS OFF CENTER LINE ARE PERPENDICULAR TO OR RADIALLY OPPOSITE CENTER LINE STATIONS. STREET FRONTAGE PROPERTY LINES COINCIDE WITH BACK EDGE OF WALK ALIGNMENT UNLESS INDICATED OTHERWISE. UNLESS NOTED OTHERWISE, DIMENSIONS TO CURBS REFER TO TOP FACE OF CURB AND DIMENSIONS TO BUILDINGS REFER TO FACE OF EXTERIOR WALL.

11. EARTHWORK

A. ALL EARTHWORK ACTIVITIES, INCLUDING EXCAVATION, GRADING, SCARIFYING, MOISTURIZING, FILL PLACEMENT, COMPACTION, LIME TREATMENT, ETC., SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE PROJECT GEOTECHNICAL ENGINEERING REPORT (SEE TITLE SHEET) AND IN CONFORMANCE WITH THE CITY STANDARD SPECIFICATIONS AND WITH THE GRADING PLAN.

B. THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE GRADING ACTIVITIES AND PERFORM COMPACTION TESTING FOR THIS PROJECT. THE CONTRACTOR SHALL PROVIDE AT LEAST 24 HOURS NOTICE TO THE GEOTECHNICAL ENGINEER OF THE NEED FOR OBSERVATION AND TESTING SERVICES. THE PROJECT OWNER WILL PAY FOR THE COST OF PROVIDING THESE SERVICES; HOWEVER, IF SAMPLES OF MATERIALS ARE SUBMITTED WHICH FAIL TO PASS THE SPECIFIED TESTS OR IF WORK IS PERFORMED WHICH FAILS TO MEET THESE SPECIFICATIONS, THE CONTRACTOR SHALL PAY FOR ALL SUBSEQUENT RE-TESTS AND RE-INSPECTIONS.

C. EARTHWORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CONSTRUCT THE SITE TO THE GRADES SHOWN. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATED MATERIAL OR FOR THE IMPORT OF MATERIAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN ADVANCE OF ANY CHANGES HE MAY DEEM NECESSARY TO OBTAIN BALANCED CUT-FILL GRADING.

D. ALL CUT SLOPES SHALL BE ROUNDED AT THE "BREAK" SO THAT THEY BLEND WITH THE NATURAL GROUND CONTOUR.

E. THE CONTRACTOR SHALL APPLY EITHER WATER OR DUST PALLIATIVE, OR BOTH, FOR THE ALLEVIATION OR PREVENTION OF DUST NUISANCE AS DIRECTED BY THE ENGINEER.

F. EXCAVATION AND EMBANKMENT SIDE SLOPES SHOWN ON THE PLANS AS A RATIO, E.G. 4:1, REFER TO THE RATIO OF HORIZONTAL TO VERTICAL DISTANCES. "MINIMUM" SLOPE MEANS "NOT FLATTER THAN", AND "MAXIMUM" SLOPE MEANS "NOT STEEPER THAN". ALL EMBANKMENT AND EXCAVATION SLOPES SHALL BE 4:1 UNLESS NOTED OTHERWISE.

G. TO ACCOMMODATE TRENCH SPOIL, THE CONTRACTOR'S GRADING SHALL INCLUDE UNDERCUTTING OF STREETS AS APPROPRIATE, OR SOME OTHER METHOD APPROVED BY THE ENGINEER.

H. ALL SECTIONS AND DETAILS SHOWN IN THESE PLANS ARE SOLELY INTENDED TO BE REPRESENTATIVE OF THE GRADING AND DRAINAGE DESIGN FOR THE PROJECT. IN NO WAY ARE THEY INTENDED TO REFLECT THE ACTUAL CONSTRUCTION ELEMENTS OF THE FENCING, WALLS, TRASH ENCLOSURE, ETC., UNLESS SPECIFICALLY CALLED OUT AS "CONSTRUCT" OR "PLACE" IN THESE PLANS.

I. ALLOWABLE SUBGRADE GRADING TOLERANCE IS PLUS OR MINUS 0.04' OF THE ELEVATIONS SHOWN HEREON FOR PAVING OR CONCRETE AREAS. FINAL SURFACE TOLERANCE IS PLUS OR MINUS 0.02'. ADA AREAS SHALL BE IN FULL COMPLIANCE TO MAXIMUM SLOPE REQUIREMENTS.

J. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING PROJECT CONSTRUCTION. COMPLY WITH EROSION AND SEDIMENTATION CONTROL PLAN, BMP AND CITY STANDARDS.

K. IF GRADING AND DRAINAGE CONSTRUCTION IS NOT COMPLETE DURING THE PERIOD FROM SEPTEMBER 1 TO MAY 15, THEN THE CONTRACTOR SHALL:

i. PROVIDE EROSION PROTECTION ON SLOPES THAT ARE 10:1 OR STEEPER AND IN SWALES THAT ARE 2% OR STEEPER.

ii. GRADE GUTTER SAG POINTS TO DRAIN.

iii. PROVIDE SILT CATCHMENTS TO PREVENT SEDIMENTATION IN EXISTING STORM DRAIN SYSTEMS.

iv. CLEAN DOWNSTREAM PIPES AS DIRECTED BY THE CITY ENGINEER.

v. CLEAN AND MAINTAIN ALL STREETS AND SIDEWALKS AS DIRECTED BY THE CITY ENGINEER.

L. SUBGRADE PREPARATION FOR ALL PAVEMENT SECTIONS AND FOR CURB, GUTTER AND SIDEWALK SHALL INCLUDE COMPACTION IN AT LEAST THE TOP 8 INCHES TO AT LEAST 95% RELATIVE COMPACTION AT OR ABOVE OPTIMUM MOISTURE CONTENT.

M. ALL STREET ELEVATIONS SHOWN ARE FOR TOP OF CURB (TC) UNLESS OTHERWISE SPECIFIED.

N. THE TOP 8 INCHES (MINIMUM) OF ALL LANDSCAPED AREAS SHALL BE CLEAN SOIL.

O. CLEARING, GRUBBING AND PREPARING IMPROVEMENT AREAS:

i. ALL RUBBLE AND RUBBISH AND OTHER ITEMS ENCOUNTERED DURING SITE WORK AND DEEMED UNACCEPTABLE BY THE GEOTECHNICAL ENGINEER, SHALL BE REMOVED AND DISPOSED OF SO AS TO LEAVE THE DISTURBED AREAS WITH A NEAT AND FINISHED APPEARANCE, FREE FROM UNSIGHTLY DEBRIS. EXCAVATIONS AND DEPRESSIONS RESULTING FROM THE REMOVAL OF SUCH ITEMS, AS WELL AS EXISTING EXCAVATIONS OR LOOSE SOIL DEPOSITS, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, SHALL BE CLEANED OUT TO FIRM, UNDISTURBED SOIL AND BACKFILLED WITH SUITABLE MATERIALS IN ACCORDANCE WITH THESE SPECIFICATIONS.

ii. THE SURFACES RECEIVING FILL SHALL BE STRIPPED OF VEGETATION OR THEY SHALL BE THOROUGHLY DISCED PROVIDED THAT A COMPACTABLE MIXTURE OF SOIL CONTAINING MINOR AMOUNTS OF VEGETATION CAN BE ATTAINED WHICH IS FREE OF CLUMPS, LAYERS OR POCKETS OF VEGETATION. IF PROPER COMPACTION OF THE DISTURBED SURFACE SOILS CANNOT BE ACHIEVED, THOSE MATERIALS SHALL BE EXCAVATED, TO A DEPTH SATISFACTORY TO THE GEOTECHNICAL ENGINEER, SO THAT A FIRM BASE FOR SUPPORT OF ENGINEERED FILL CAN BE ATTAINED.

iii. ALL LOOSE AND/OR SATURATED MATERIALS SHALL BE OVER-EXCAVATED TO FIRM SOIL, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, AND THE RESULTING EXCAVATIONS SHALL BE BACKFILLED WITH SUITABLE MATERIALS IN ACCORDANCE WITH THESE SPECIFICATIONS.

iv. THE SURFACES UPON WHICH FILL IS TO BE PLACED SHALL BE PLOWED OR SCARIFIED TO A DEPTH OF AT LEAST 12 INCHES, UNTIL THE SURFACE IS FREE FROM RUTS, MOUNDS OR OTHER UNEVEN FEATURES WHICH WOULD TEND TO PREVENT UNIFORM COMPACTION BY THE SELECTED EQUIPMENT.

v. WHEN THE MOISTURE CONTENT OF THE SUBGRADE IS LESS THAN OPTIMUM, AS DEFINED BY THE ASTM D1557-91 COMPACTION TEST, WATER SHALL BE ADDED UNTIL THE PROPER MOISTURE CONTENT IS ACHIEVED.

vi. WHEN THE MOISTURE CONTENT OF THE SUBGRADE IS TOO HIGH TO PERMIT THE SPECIFIED COMPACTION TO BE ACHIEVED, THE SUBGRADE SHALL BE AERATED BY BLADING OR OTHER METHODS UNTIL THE MOISTURE CONTENT IS SATISFACTORY FOR COMPACTION.

vii. AFTER THE FOUNDATIONS FOR FILL HAVE BEEN CLEARED, MOISTURE CONDITIONED, AND PLOWED OR SCARIFIED, THEY SHALL BE RECOMPACTED IN PLACE TO A DEPTH OF AT LEAST 12 INCHES TO A MINIMUM OF 90 PERCENT OF THE ASTM D1557-91 MAXIMUM DRY DENSITY.

viii. ANY UNSUITABLE MATERIAL ENCOUNTERED BELOW THE SUBGRADE SHALL BE BROUGHT TO THE ATTENTION OF AND REMOVED AT THE DIRECTION OF THE ENGINEER. UNSUITABLE MATERIAL IS DEFINED AS MATERIAL THE ENGINEER DETERMINES TO BE:

- OF SUCH UNSTABLE NATURE AS TO BE INCAPABLE OF BEING COMPACTED TO SPECIFIED DENSITY USING ORDINARY METHODS AT OPTIMUM MOISTURE CONTENT; OR
- TOO WET TO BE PROPERLY COMPACTED AND CIRCUMSTANCES PREVENT SUITABLE IN-PLACE DRYING PRIOR TO INCORPORATION INTO THE WORK; OR
- OTHERWISE UNSUITABLE FOR THE PLANNED USE.

ix. THE PRESENCE OF EXCESSIVE MOISTURE IN A MATERIAL IS NOT, BY ITSELF, SUFFICIENT CAUSE FOR DETERMINING THAT THE MATERIAL IS UNSUITABLE.

x. THE CONTRACTOR SHALL USE EXTRA CARE IN EXCAVATING UNSUITABLE MATERIAL SO AS NOT TO AGGRAVATE THE CONDITION. IF, IN THE OPINION OF THE GEOTECHNICAL ENGINEER, THE CONTRACTOR'S METHODS FOR EXCAVATING ARE INCREASING THE AMOUNT OF UNSUITABLE MATERIAL REQUIRED TO BE EXCAVATED, THE GEOTECHNICAL ENGINEER WILL REQUIRE THE CONTRACTOR TO TAKE THE NECESSARY STEPS TO CORRECT THE CONDITION.

xi. BACKFILL TO REPLACE THE REMOVED UNSUITABLE MATERIAL SHALL BE CL. II AB COMPACTED TO 90% MRC.

5

xii. REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, INCLUDING THE ADDITIONAL EXCAVATION GREATER THAN THAT REQUIRED FOR PREPARATION OF SUBGRADE, AND SUBSEQUENT BACKFILLING SHALL BE COMPUTED AND PAID FOR AT THE CONTRACT UNIT PRICE BID PER CUBIC YARD OF UNSUITABLE SUBGRADE MATERIAL REMOVAL, DISPOSAL AND BACKFILL.

P. CONSTRUCTION OF UNTREATED SUBGRADES:

i. THE SELECTED SOIL FILL MATERIAL SHALL BE PLACED IN LAYERS WHICH, WHEN COMPACTED, DO NOT EXCEED 6 INCHES IN THICKNESS. EACH LAYER SHALL BE SPREAD EVENLY AND SHALL BE THOROUGHLY MIXED DURING THE SPREADING TO PROMOTE UNIFORMITY OF MATERIAL IN EACH LAYER.

ii. WHEN THE MOISTURE CONTENT OF THE FILL MATERIAL IS LESS THAN OPTIMUM MOISTURE, AS DEFINED BY THE ASTM D1557-91 COMPACTION TEST, WATER SHALL BE ADDED UNTIL THE PROPER MOISTURE CONTENT IS ACHIEVED.

iii. WHEN THE MOISTURE CONTENT OF THE FILL MATERIAL IS TOO HIGH TO PERMIT THE SPECIFIED DEGREE OF COMPACTION TO BE ACHIEVED, THE FILL MATERIAL SHALL BE AERATED BY BLADING OR OTHER METHODS UNTIL THE MOISTURE CONTENT IS SATISFACTORY.

iv. AFTER EACH LAYER HAS BEEN PLACED, MIXED AND SPREAD EVENLY, IT SHALL BE THOROUGHLY COMPACTED TO NOT LESS THAN 90 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY THE ASTM D1557-91 COMPACTION TEST. COMPACTION SHALL BE UNDERTAKEN WITH EQUIPMENT CAPABLE OF ACHIEVING THE SPECIFIED DENSITY AND SHALL BE ACCOMPLISHED WHILE THE FILL MATERIAL IS AT THE REQUIRED MOISTURE CONTENT. EACH LAYER SHALL BE COMPACTED OVER ITS ENTIRE AREA UNTIL THE DESIRED DENSITY HAS BEEN OBTAINED.

v. THE FILL OPERATIONS SHALL BE CONTINUED UNTIL THE FILLS HAVE BEEN BROUGHT TO THE SLOPES AND GRADES SHOWN ON THE DRAWINGS.

Q. THE UPPER 12 INCHES OF ANY UNTREATED FINAL SUBGRADES SHALL BE UNIFORMLY COMPACTED TO AT LEAST 90% OF THE ASTM D1557-91 MAXIMUM DRY DENSITY REGARDLESS OF WHETHER FINAL SUBGRADE ELEVATION IS ATTAINED BY FILLING, EXCAVATION OR LEFT AT EXISTING GRADE.

R. SOIL WITHIN 1' OF THE BACK OF CURBS OR SIDEWALK SHALL BE COMPACTED TO 95% MRC FOR THE FULL DEPTH OF THE CURB.

S. IF ANY IMPORT MATERIAL IS REQUIRED, IT SHALL BE APPROVED BY THE SOILS ENGINEER PRIOR TO HAULING IT TO THE SITE.

T. SUBGRADE SOILS BENEATH SLAB-ON-GRADE FLOORS SHALL BE IN A SATURATED CONDITION WHEN SLAB CONCRETE IS PLACED, AS REQUIRED BY THE GEOTECHNICAL REPORT.

12. CONCRETE CONSTRUCTION

A. PEDESTRIAN RAMPS SHALL BE CONSTRUCTED AT THE LOCATIONS INDICATED ON THESE PLANS. PEDESTRIAN RAMP AND WALK CONSTRUCTION SHALL COMPLY WITH THE STATE ACCESSIBILITY STANDARDS.

B. ALL CURB RETURNS SHALL BE VERTICAL CURB AND GUTTER.

C. BLANK

D. AS SOON AS THE SURFACE OF THE GUTTER HAS SET SUFFICIENTLY TO PERMIT THE INTRODUCTION OF A SHALLOW STREAM OF WATER WITHOUT CAUSING DAMAGE TO THE GUTTER SURFACE, SAME SHALL BE APPLIED AND ALL FLOWLINE IRREGULARITIES SHALL BE CORRECTED BEFORE THE CONCRETE SURFACE HAS TAKEN INITIAL SET.

E. CONCRETE CONSTRUCTION SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATION SECTIONS 73, 90 AND 52, UNLESS SPECIFIED OTHERWISE.

F. PRIOR TO PLACEMENT OF CONCRETE, SOIL SUBGRADE SHALL BE MOISTURE CONDITIONED TO AN OVER-OPTIMUM MOISTURE CONTENT. COORDINATE WITH GEOTECHNICAL ENGINEER.

G. PRIOR TO CONCRETE CONSTRUCTION THE CONTRACTOR SHALL SUBMIT FOR OWNER'S APPROVAL A COPY OF THE JOINT PLAN, DETAILING THE TYPES AND LOCATIONS OF CONSTRUCTION, CONTROL AND EXPANSION JOINTS.

H. CONCRETE CONSTRUCTION, INCLUDING SUBGRADE PREPARATION, SHALL CONFORM TO THE PROJECT GEOTECHNICAL REPORT.

I. REFER TO "EARTHWORK" NOTE FOR SUBGRADE PREPARATION REQUIREMENTS. COMPACTED SUBGRADE SHALL EXTEND TO 1 MINIMUM FOOT BEYOND THE BACK OF CURB OR SIDEWALK.

J. THE GRADES SHOWN ON THE PLANS FOR SIDEWALKS OR ANY GRADES RELATING TO THE SIDEWALKS ARE INTENDED TO INDICATE THE FOLLOWING MAXIMUM SLOPES:

- CROSS-SLOPE PERPENDICULAR TO THE DIRECTION OF TRAVEL: 2.00% (50:1)
- SLOPE PARALLEL TO THE DIRECTION OF TRAVEL: 5.00% (20:1)
- THE GRADES SHOWN ON PLANS ARE INTENDED TO BE USED AS A GUIDE ONLY.

i. PRIOR TO SETTING FORMS, THE CONTRACTOR SHALL CONFIRM THAT THE GRADES INDICATED WILL RESULT IN SLOPES CONSISTENT WITH THE ABOVE CRITERIA. SHOULD ANY DISCREPANCY APPEAR TO EXIST, THE CONTRACTOR SHALL ADJUST THE GRADES TO CONFORM TO THE ABOVE CRITERIA AND SHALL INFORM THE ENGINEER OF SUCH CHANGES.

ii. PRIOR TO PLACING CONCRETE THE CONTRACTOR SHALL CHECK THE LEVEL OF THE FORMS TO CONFIRM THAT THE AS-BUILT CONCRETE SLOPES WILL CONFORM TO THE ABOVE CRITERIA AND HE SHALL PLACE THE CONCRETE ACCORDINGLY. IT IS RECOMMENDED THAT CONSTRUCTION TOLERANCES USED BY THE CONTRACTOR RESULT IN SLOPES SLIGHTLY FLATTER THAN THE ABOVE CRITERIA, NOT STEEPER; YET THE CONCRETE SURFACES MUST PROPERLY DRAIN. THE ABOVE CRITERIA AND THE SLOPES SUGGESTED BY THE GRADES INDICATED ON THE PLANS ARE INTENDED TO REPRESENT MAXIMUM SLOPES.

L. SIDEWALKS ARE TO BE SET FLUSH WITH THE TOP OF ABUTTING CURBS UNLESS NOTED OTHERWISE.

M. PCC PAVING SHALL BE CALTRANS CLASS "A" CONCRETE, AND SHALL BE CONSTRUCTED IN CONFORMANCE WITH CALTRANS STANDARD SPECIFICATIONS SECTION 90. REGULATE WATER CONTENT OF MIX SO THAT MAXIMUM PENETRATION DOES NOT EXCEED 1.5 INCHES. PAVEMENT SLABS TO BE DOWELED AT ALL JOINTS. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL SUBMIT FOR OWNER'S APPROVAL A COPY OF THE JOINT PLAN, DETAILING THE TYPES AND LOCATIONS OF CONSTRUCTION, CONTROL AND EXPANSION JOINTS.

13. PAVING

A. ALL ASPHALT CONCRETE SHALL CONFORM TO CALTRANS PERFORMANCE GRADED (PG) SYSTEM MEETING PG 64-10 FOR INLAND VALLEY AREAS. ASPHALTIC CONCRETE SHALL BE PLACED IN 3" MAXIMUM LIFTS. USE ¾ INCH MAXIMUM, MEDIUM AGGREGATE. ALL PAVING WITHIN CITY R/W SHALL CONFORM TO CITY STANDARDS. ALL AGGREGATE BASE SHALL BE CALTRANS CLASS 2, 3/4 INCH MAXIMUM; OMIT PENETRATION TREATMENT. AGGREGATE SUBBASE SHALL BE CALTRANS CLASS 2. RELATIVE COMPACTION OF BASE AND SUBBASE MATERIALS SHALL NOT BE LESS THAN 95%.

B. ALL EXISTING PAVEMENT TO BE JOINED TO NEW PAVEMENT SHALL BE SAW CUT TO A NEAT, STRAIGHT LINE A MINIMUM OF ONE (1) FOOT FROM THE EXISTING EDGE OF PAVEMENT OR FIRM, STABLE SURFACE AS DEFINED WITH FIELD INSPECTION. THE EXPOSED EDGE SHALL BE TACKED WITH ASPHALTIC EMULSION PRIOR TO PAVING. THE EXISTING BASE ROCK AND PAVEMENT SHALL BE REMOVED TO THE FULL DEPTH OF THE NEW SECTION.

A TACK COAT SHALL BE APPLIED TO ALL VERTICAL SURFACES OF EXISTING PAVEMENT, CURBS, GUTTERS AND CONSTRUCTION JOINTS IN THE SURFACING AGAINST WHICH ADDITIONAL MATERIAL IS TO BE PLACED, TO A PAVEMENT TO BE SURFACED, AND TO OTHER SURFACES DESIGNATED BY THE ENGINEER.

C. NO PAVEMENT WORK SHALL OCCUR WITHIN THE STREET RIGHT-OF-WAY PRIOR TO COMPLETION OF UTILITY POLE RELOCATION OR REMOVAL. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER WORK TO ENSURE THAT ALL UNDERGROUND UTILITIES ARE INSTALLED PRIOR TO PAVING.

D. PAVEMENT REINFORCING FABRIC INSTALLATION SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS SECTION 39-4.03, USING GRADE AR-4000 PAVING ASPHALT AS THE BINDER. BEFORE APPLYING BINDER, ALL VEGETATION SHALL BE REMOVED FROM THE EDGE OF PAVEMENT. CRACKS LARGER THAN 3/16 INCH MUST BE CLEANED WITH COMPRESSED AIR AND FILLED WITH SS1 ASPHALTIC EMULSION AND COVERED WITH SAND. ALL EXISTING THERMOPLASTIC LIMIT LINES, CROSSWALKS, AND LEGENDS APPLIED TO THE ROAD SURFACE SHALL BE SCARIFIED PRIOR TO PLACING THE OVERLAY. SCARIFICATION SHALL BE PERFORMED BY GRINDING SUCH THAT NO LESS THAN 20% OF THE UNDERLYING PAVEMENT IS EXPOSED. ALL MATERIAL RESULTING FROM THE GRINDING OPERATIONS OF TRAFFIC MARKINGS BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED AND DISPOSED OF. LARGE CRACKS, SPALLS AND CHUCKHOLES IN EXISTING PAVEMENT SHALL BE REPAIRED. THE ENTIRE OVERLAY PAVING SURFACE SHALL BE FREE OF WATER AND SHALL BE SWEPT CLEAN IMMEDIATELY PRIOR TO BINDER APPLICATION.

PAVEMENT REINFORCING FABRIC SHALL BE PHILLIPS PETROMAT, AMOCO AMOPAVE, OR AN ENGINEER APPROVED EQUIVALENT. REQUESTS FOR FABRIC SUBSTITUTIONS WILL NOT BE ACCEPTED AFTER THE BID OPENING.

E. NO SAND SEAL IS REQUIRED.

F. ASPHALT PLANING SHALL BE PERFORMED BY A GRINDING-PROCESS, COLD PLANING MACHINE WHICH SHALL HAVE A MINIMUM CUTTING WIDTH OF 72-INCHES AND SHALL BE OPERATED SO AS NOT TO PRODUCE FUMES OR SMOKE. THE COLD PLANING MACHINE SHALL BE CAPABLE OF PLANING THE PAVEMENT WITHOUT REQUIRING THE USE OF A HEATING DEVICE TO SOFTEN THE PAVEMENT DURING OR PRIOR TO THE PLANING OPERATION. THE CONTRACTOR SHALL MAINTAIN ALL CUTTING TEETH TO INSURE A UNIFORM AND CLEAN CUT.

IN ALL CASES, THE CROSS-SECTIONAL PLANED SURFACE SHALL NOT VARY BY MORE THAN 1/4-INCH WHEN COMPARED TO A STRAIGHT EDGE. THE OUTSIDE LINES OF THE PLANED AREA SHALL BE NEAT AND UNIFORM AND THE REMAINING ROAD SURFACE SHALL NOT BE DAMAGED IN ANY WAY. WHERE THE COLD PLANING MACHINE LEAVES A "SLIVER" OF UNGROUNDED PAVEMENT AT THE LIP OF GUTTER, THAT "SLIVER" SHALL BE REMOVED BY HAND PRIOR TO PLACEMENT OF THE NEW ASPHALT CONCRETE.

STREETS TO BE OVERLAID SHALL BE COLD PLANED TO THE DEPTH BELOW THE EXISTING LIP OF GUTTER SPECIFIED ON THE PLANS AND TAPERED TO ZERO AT 6 FEET FROM THE LIP OF GUTTER. BOTH ENDS OF THE STREETS TO BE OVERLAID AND SIDE STREETS SHALL ALSO BE COLD PLANED AS SHOWN ON THE PLANS (CONFORM PLANING). THE CONFORM PLANING SHALL BE MADE IN A STRAIGHT LINE PERPENDICULAR TO THE CENTER LINE OF THE STREET. ALL EXISTING ASPHALT ON CONCRETE GUTTERS ADJACENT TO PLANING SHALL ALSO BE REMOVED.

PAVEMENT FAILURE REPAIR WORK SHALL CONSIST OF GRINDING OUT EXISTING ASPHALT CONCRETE PAVEMENT AND REPLACING THE ASPHALT CONCRETE AS INDICATED ON THE PLANS. PAVEMENT REPAIRS WILL HAVE DIMENSIONS IN 6-FOOT INCREMENTS OF WIDTH TO ACCOMMODATE USE OF COLD PLANING MACHINE.

THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL PLANED MATERIAL FROM THE WORK SITE AND DISPOSE OF THE MATERIAL. THE REMOVAL CREW SHALL REMOVE ALL PLANED MATERIAL AND SWEEP CLEAN ALL PLANED AND ADJACENT SURFACES WHILE REMAINING WITHIN 100 FEET OF THE PLANER.

WHERE TRANSVERSE JOINTS ARE PLANED IN THE PAVEMENT AT CONFORM LINES, NO DROP-OFF SHALL REMAIN BETWEEN THE EXISTING PAVEMENT AND THE PLANED AREA WHEN THE PAVEMENT IS OPENED TO PUBLIC TRAFFIC. IF NEW ASPHALT CONCRETE HAS NOT BEEN PLACED TO THE LEVEL OF EXISTING PAVEMENT BEFORE THE PAVEMENT IS TO BE OPENED TO THE PUBLIC, A TEMPORARY PAVING RAMP SHALL BE PLACED TO THE LEVEL OF THE EXISTING PAVEMENT AND TAPERED ON A SLOPE OF 18:1 OR FLATTER TO THE LEVEL OF THE PLANED AREA. TEMPORARY RAMPS SHALL REMAIN IN PLACE NO LONGER THAN 7 DAYS.

ASPHALT CONCRETE FOR RAMPS SHALL BE COMMERCIAL QUALITY AND MAY BE SPREAD AND COMPACTED BY ANY METHOD THAT WILL PRODUCE A SMOOTH TRANSITION IN THE RIDING SURFACE. ASPHALT CONCRETE RAMPS SHALL BE COMPLETELY REMOVED, INCLUDING REMOVING ALL LOOSE MATERIAL FROM THE UNDERLYING SURFACE, BEFORE PLACING THE PERMANENT SURFACING. KRAFT PAPER, OR OTHER APPROVED BOND BREAKER, MAY BE PLACED UNDER THE TEMPORARY RAMPS TO FACILITATE THE REMOVAL OF THE RAMPS.

G. AC LIFT THICKNESS PER SECTION 39, CALTRANS STANDARD SPECIFICATIONS.

H. WHENEVER PAVEMENT IS BROKEN OR CUT IN THE INSTALLATION OF THE WORK COVERED BY THESE PLANS, THE PAVEMENT SHALL BE REPLACED, AFTER PROPER BACKFILLING, WITH PAVEMENT MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL PAVING. THE FINISHED PAVEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER OR CALTRANS, WHERE APPLICABLE.

I. ALL TRAFFIC DETECTOR LOOPS SHALL BE INSTALLED PRIOR TO PLACEMENT OF THE TOP LIFT OF AC PAVING. THERE SHALL BE NO CUTS IN THE TOP LIFT OF AC.

J. REFER TO GEOTECHNICAL REPORT FOR USE OF PULVERIZED CONCRETE AND ASPHALT PAVEMENT AS SUBBASE MATERIAL.

K. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER WORK TO ENSURE THAT ALL UNDERGROUND UTILITIES ARE INSTALLED PRIOR TO PAVING.

L. BETWEEN THE PLAN SPECIFIED GRADE CONTROL POINTS AND LINES, THE FINISHED PAVING SURFACE SHALL HAVE A UNIFORM SLOPE FROM SURFACE DRAINAGE HIGH POINTS AND RIDGE LINES TO GUTTERS AND DRAINAGE INLETS.

M. REFER TO "EARTHWORK" NOTES FOR SUBGRADE PREPARATION REQUIREMENTS.

N. WHEN NEW PAVING IS COMPLETED, IT SHALL BE SUBJECTED TO A FLOOD TEST SHOWING THE SURFACE FREE OF STANDING WATER OR PUDDLES. SHOULD ANY PUDDLING OCCUR, REPAVE IN SUCH A MANNER AS TO CORRECT THE PROBLEM. METHOD OF REPAVING SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL.

13. PIPELINES

A. ALL GRAVITY FLOW PIPELINES TO BE LAID UPGRADE FROM THE LOWEST POINT STARTING AT THE END OF EXISTING IMPROVEMENTS.

B. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 24 HOURS PRIOR TO BACKFILLING OF ANY PIPE WHICH STUBS TO A FUTURE PHASE OF CONSTRUCTION FOR INVERT VERIFICATION. TOLERANCE SHALL BE IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS.

C. UNLESS NOTED OTHERWISE, SITE PIPELINE LIMIT OF WORK AT BUILDING UTILITY POINT OF CONNECTION SHALL BE 5-FEET OUTSIDE THE BUILDING EXTERIOR WALL.

15. ADJUSTING EXISTING UTILITIES

A. THE CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT TO GRADE ALL EXISTING UTILITY STRUCTURES, INCLUDING VAULTS, BOXES AND MANHOLE FRAME AND COVER SETS, VALVE BOXES AND MONUMENT BOXES, WITHIN THE WORK AREA UNLESS NOTED OTHERWISE.

B. ALL MANHOLE FRAME AND COVER SETS, WATER VALVE BOXES AND MONUMENT BOXES WITHIN THE WORK AREA THAT DO NOT MEET CURRENT CITY REQUIREMENTS SHALL BE REMOVED AND REPLACED TO CONFORM TO CITY STANDARDS. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CITY INSPECTOR AND WITH THE ENGINEER.

16. SANITARY SEWER SYSTEM

A. UNLESS SPECIFIED OTHERWISE, ALL SEWER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARDS.

B. ALL SEWER SERVICES SHALL BE MARKED WITH A 2" X 2" STAKE AT THE END OF EACH SERVICE AND A 2 INCH HIGH "S" STAMPED IN THE TOP OF THE CURB.

C. ALL SEWER MAINS AND SERVICES SHALL BE AIR TESTED TO THE SATISFACTION OF THE ENGINEER AFTER AGGREGATE BASE PLACEMENT IS COMPLETED. SEWER PLUGS TO BE WING NUT TYPE, E-Z TEST OR APPROVED EQUIVALENT. MAINS SHALL BE BALLED AND FLUSHED PER CITY STANDARDS. PRIOR TO STARTING THE CLEANING OPERATION, A FINE MESH WIRE SCREEN SHALL BE PLACED AT THE EXTREME DOWNSTREAM MANHOLE TO PREVENT DEBRIS FROM ENTERING THE EXISTING CITY SEWER SYSTEM.

D. TV INSPECTION OF SEWERS, INCLUDING VIDEO RECORDINGS, SHALL BE PROVIDED BY THE CONTRACTOR. TV INSPECTION SHALL INCLUDE MAINS, SERVICES AND CLEANOUTS.

E. EACH STUB END PIPE SHALL BE PLUGGED WITH A PREFABRICATED, WATERTIGHT PLUG. PLUG SHALL BE GLADDING-MCBEAN SPEED-SEAL CLAY STOPPER OR MISSION CLAY PRODUCTS STD. BAND-SEAL COUPLING WITH PLASTIC SHEAR RING AND ABS STOPPER. "POLYCAP" AND "SPEED-CAP" STOPPERS ARE NOT ACCEPTABLE.

F. BUILDING SEWER CLEANOUTS SHALL BE LOCATED AND INSTALLED IN ACCORD WITH THE UNIFORM PLUMBING CODE AND SHALL BE EXTENDED TO GRADE.

G. ALL GRAVITY SEWER PIPE WITHIN PUBLIC RIGHT OF WAY SHALL CONFORM WITH CITY STANDARDS.

H. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL SEWER LATERAL LOCATIONS WITH THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

17. STORM DRAIN SYSTEM

A. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL THE DRAINAGE IMPROVEMENTS ARE IN PLACE AND FUNCTIONING AND ACCEPTED BY THE CITY.

B. UNLESS NOTED OTHERWISE, ALL STORM DRAIN PIPE SHALL BE PRECAST REINFORCED CONCRETE PIPE, CAST-IN-PLACE CONCRETE PIPE (CIPP), PVC, OR HIGH DENSITY POLYETHYLENE PIPE (HDPE). ALL STORM DRAIN WITHIN PUBLIC RIGHT OF WAY SHALL CONFORM WITH CITY STANDARDS.

C. EACH STUB END PIPE SHALL BE PLUGGED WITH A PREFABRICATED, WATERTIGHT PLUG.

D. THE WALLS OF D.I.'S AND OF MANHOLES FUNCTIONING AS D.I.'S SHALL BE PERFORATED WITH 4 - 2 INCH DIAMETER HOLES PER WALL AT THE LEVEL OF THE BOTTOM OF THE AB UNDER THE ADJOINING PAVEMENT TO ALLOW FOR THE ESCAPE OF ANY WATER THAT MAY BUILD UP AROUND THE INLET.

E. CONTRACTOR SHALL MARK ALL NEW AND EXISTING STORM DRAIN INLETS WITH APPROVED POLLUTION PREVENTION MESSAGES. SPECIFIC PLACEMENT OF MARKERS WILL BE AS DIRECTED BY THE CITY INSPECTOR.

18. WATER SYSTEM

A. UNLESS SPECIFIED OTHERWISE, ALL WATER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARDS.

B. WATER LINE INSTALLATION SHALL ACCOMMODATE GRAVITY FLOW PIPELINES INCLUDING SEWER SERVICES AND SHALL MAINTAIN A MINIMUM COVER OF 4 FEET FROM FINISHED GRADE WITHIN THE PUBLIC RIGHT OF WAY AND 3 FEET IN ALL OTHER AREAS.

C. FIRE HYDRANT INSTALLATION SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARDS.

D. REDUCED PRESSURE BACK FLOW PREVENTION DEVICES FOR EACH LANDSCAPE IRRIGATION WATER SERVICE WILL BE INSTALLED BY THE LANDSCAPE IRRIGATION CONTRACTOR.

E. THE WATER DISTRIBUTION SYSTEM SHALL CONFORM TO THE CITY SPECIFIC PROVISIONS. PVC WATER MAIN FOR FIRE SYSTEM SHALL BE C900, CL 235. ALL T-BOLTS ON MECHANICAL JOINT FITTINGS AND MACHINE BOLTS ON FLANGE FITTINGS SHALL BE COATED WITH MASTIC AND WRAPPED IN 8 ML PLASTIC. T-BOLTS, MACHINE BOLTS AND ALL THREAD RODS UNDER BUILDING SLABS SHALL BE STAINLESS STEEL WITH THE FITTING WRAPPED IN 8 ML PLASTIC.

F. NOT USED

G. ALL ON-SITE FIRE MAINS SHALL BE PVC CLASS 235 C-900.

19. EXISTING SIGNS

A. THE PROTECTION AND MAINTENANCE OF EXISTING SIGNS AND THE REMOVAL, PROTECTION, STORAGE AND RESETTING OF CITY TRAFFIC SIGNS THAT ARE AFFECTED BY THE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AS DIRECTED BY THE CITY ENGINEER. PRIVATE SIGNS, TRAFFIC SIGNS, AND TRAFFIC CONTROL FACILITIES EXISTING WITHIN THE LIMITS OF THE PROJECT SHALL NOT BE MOVED EXCEPT AS NECESSARY TO PREVENT THEM FROM BEING DAMAGED BY CONSTRUCTION OPERATIONS. WHEN A SIGN NEEDS TO BE REMOVED BECAUSE IT INTERFERES WITH THE CONTRACTOR'S WORK, IT SHALL BE DONE IN ONE OF THE FOLLOWING DESCRIBED MANNERS:

STOP SIGNS SHALL BE MAINTAINED IN THEIR EXISTING POSITIONS. ANY STOP SIGN WHICH MUST BE MOVED FROM ITS EXISTING POSITION AND REINSTALLED IN A NEW POSITION, MUST BE APPROVED BY THE CITY ENGINEER BEFORE SAID STOP SIGN IS MOVED

TRAFFIC SIGNS AND TRAFFIC CONTROL FACILITIES, OTHER THAN STOP SIGNS, NECESSARY FOR THE CONTROL OF TRAFFIC DURING THE PROJECT SHALL BE MAINTAINED IN PLACE IN AN UPRIGHT POSITION AND LOCATED SO AS TO PROPERLY CONTROL TRAFFIC. WHENEVER IT IS NECESSARY TO REMOVE THEM FROM THEIR PERMANENT LOCATION DUE TO CONSTRUCTION WORK, THEY SHALL BE REINSTALLED IN THEIR PERMANENT LOCATION AT THE EARLIEST POSSIBLE TIME. CONTROL OF TRAFFIC DURING THE TIME WHICH THE SIGNS ARE TEMPORARILY REMOVED SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

B. WHENEVER IT IS NECESSARY TO REMOVE A PRIVATELY OWNED SIGN OR A PUBLIC INFORMATION SIGN, ITS TEMPORARY RELOCATION AND ITS FINAL POSITIONING SHALL BE COORDINATED WITH THE SIGN OWNER AND, IF LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY, WITH THE CITY ENGINEER.

20. MAILBOXES

MAILBOXES AND NEWSPAPER TUBES WHICH ARE AFFECTED BY THE CONSTRUCTION SHALL BE REMOVED, TEMPORARILY RELOCATED AND FINALLY RESET. ALL MAILBOXES SHALL BE MAINTAINED IN AN UPRIGHT POSITION ADJACENT TO THE CONSTRUCTION AREA BETWEEN THE TIME THE MAILBOX IS REMOVED AND RESET IN ITS FINAL LOCATION. MAILBOXES SHALL BE RESET IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE LOCAL POSTMASTER; SUCH WORK SHALL BE COORDINATED WITH MAILBOX OWNERS.

21. PRESERVATION OF PROPERTY

TREES AND SHRUBBERY THAT ARE NOT TO BE REMOVED, AND POLE LINES, FENCES, SIGNS, SURVEY MARKERS AND MONUMENTS, BUILDINGS AND STRUCTURES, CONDUITS, PIPELINES, ALL STREET FACILITIES, AND ANY OTHER IMPROVEMENTS OR FACILITIES WITHIN OR ADJACENT TO THE STREET OR CONSTRUCTION AREA SHALL BE PROTECTED FROM INJURY OR DAMAGE, AND UPON ORDER BY THE CITY ENGINEER, THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN SAFEGUARDS SUCH AS PROTECTIVE FENCING OR OTHER SUITABLE BARRIERS APPROVED BY THE CITY ENGINEER TO PROTECT SUCH OBJECTS FROM INJURY OR DAMAGE. IF SUCH OBJECTS ARE INJURED OR DAMAGED BY REASON OF THE CONTRACTOR'S OPERATIONS, THEY SHALL BE REPLACED OR RESTORED AT THE CONTRACTOR'S EXPENSE. THE FACILITIES SHALL BE REPLACED OR RESTORED TO A CONDITION AS GOOD AS WHEN THE CONTRACTOR ENTERED UPON THE WORK, OR AS GOOD AS REQUIRED BY THE SPECIFICATION ACCOMPANYING THE CONTRACT, IF ANY SUCH OBJECTS ARE A PART OF THE WORK BEING PERFORMED UNDER CONTRACT. THE CITY ENGINEER MAY MAKE OR CAUSE TO BE MADE SUCH TEMPORARY REPAIRS AS ARE NECESSARY TO RESTORE TO SERVICE ANY DAMAGED FACILITY. THE COST OF SUCH REPAIRS SHALL BE BORNE BY THE CONTRACTOR.

22. RECORD DRAWINGS

A. "RECORD DRAWINGS" IS DEFINED AS BEING THOSE DRAWINGS MAINTAINED BY THE CONTRACTOR TO SHOW THE CONSTRUCTION OF A PARTICULAR STRUCTURE OR WORK AS ACTUALLY COMPLETED UNDER THE CONTRACT. "RECORD DRAWINGS" SHALL BE SYNONYMOUS WITH "AS-BUILT DRAWINGS". AS REQUIRED BY THE ENGINEER, THE CONTRACTOR SHALL PROVIDE THE ENGINEER ACCURATE INFORMATION TO BE USED IN THE PREPARATION OF PERMANENT RECORD DRAWINGS. FOR THIS PURPOSE, THE CONTRACTOR SHALL RECORD ON ONE SET OF CONTRACT DRAWING PRINTS ALL CHANGES FROM INSTALLATIONS ORIGINALLY INDICATED, AND RECORD FINAL LOCATIONS OF UNDERGROUND LINES BY DEPTH FROM FINISH GRADE AND BY ACCURATE HORIZONTAL OFFSET DISTANCES TO PERMANENT SURFACE IMPROVEMENTS SUCH AS BUILDINGS, CURBS OR EDGES OF WALKS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL AS-BUILT INFORMATION PREPARED BY SUBCONTRACTORS IS INCLUDED IN HIS RECORD DRAWINGS.

B. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE COMPLETE SET OF UPDATED "RECORD DRAWING" IMPROVEMENT PLAN PRINTS. THESE PRINTS SHALL BE READILY AVAILABLE TO THE CITY AND TO THE ENGINEER. UPON COMPLETION OF THE PROJECT, AND PRIOR TO FINAL PAYMENT, THESE RECORD DRAWING PRINTS SHALL BE SUBMITTED TO THE ENGINEER.

23. INSURANCE

CONTRACTOR SHALL MAINTAIN SUCH INSURANCE AS WILL PROTECT IT FROM CLAIMS UNDER WORKERS' COMPENSATION ACTS AND FROM CLAIMS FOR DAMAGES BECAUSE OF BODILY INJURY, INCLUDING DEATH, OR INJURY TO PROPERTY WHICH MAY ARISE FROM AND DURING THE OPERATION OF THIS CONTRACT. INSURANCE COVERAGE SHALL INCLUDE PROVISION OR ENDORSEMENT NAMING THE OWNER, THE ENGINEER AND HIS CONSULTANTS, AND EACH OF THEIR OFFICERS, EMPLOYEES AND AGENTS, EACH AS ADDITIONAL INSURED IN REGARDS TO LIABILITY ARISING OUT OF THE PERFORMANCE OF ANY WORK UNDER THE CONTRACT. A CERTIFICATE OF SUCH INSURANCE SHALL BE FURNISHED TO THE OWNER PRIOR TO COMMENCEMENT OF ANY WORK.

DSA Application #02-118286
DSA File #58-C1

agency

architecture
planning
interiors

LICENSED ARCHITECT PHILIP JOHN NEWSOM NO. 23270 REN. 10-31-23 STATE OF CALIFORNIA

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

REGISTERED PROFESSIONAL ENGINEER NEIL U. BUSCH No. 68595 CIVIL STATE OF CALIFORNIA

LAUGENOUR AND MEIKLE
CIVIL ENGINEERING·LAND SURVEYING·PLANNING
608 COURT STREET, WOODLAND, CA 95695
PHONE: (530) 662-1755 · WEB: www.lmce.net

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

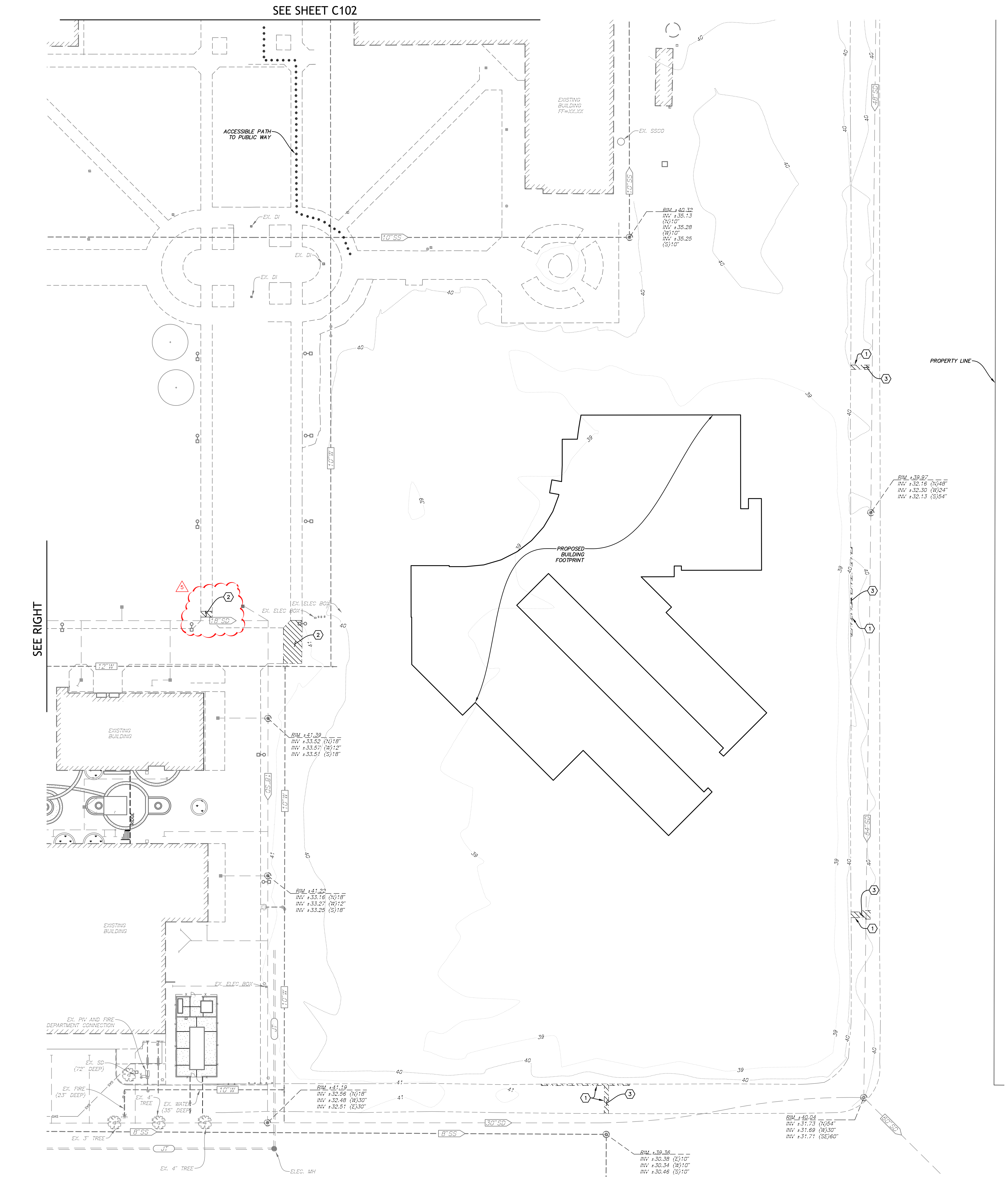
owner

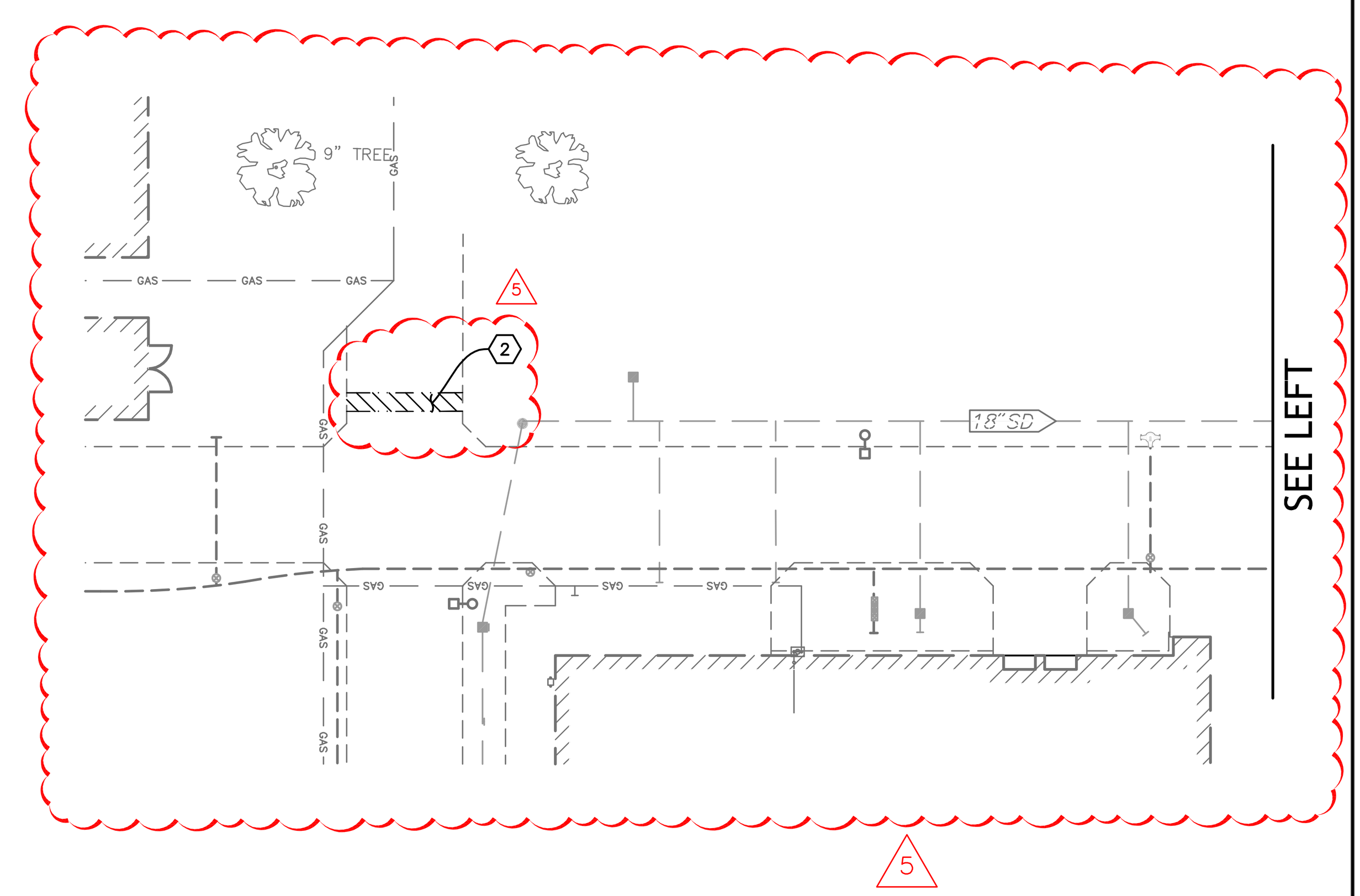
tBP project number: 22039.00
file name:
drawn by: checked by:
date: Issue Date MAY 17, 2021

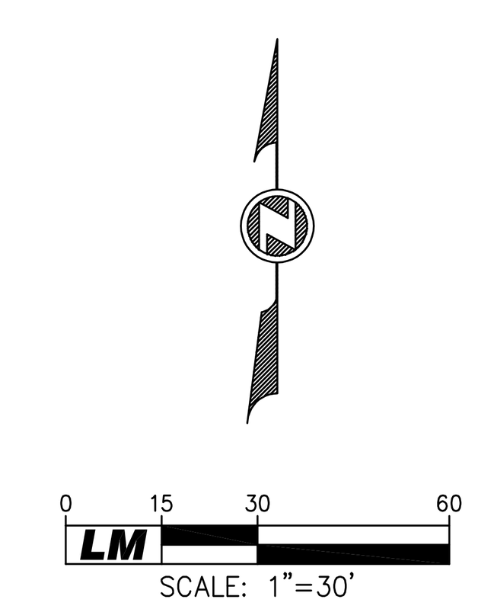
rev:	date:	description:
	05/17/21	BID SET
4	12/23/21	ADDENDUM 4
5	01/11/22	ADDENDUM 5

drawing title:
ABBREVIATIONS & GENERAL NOTES

drawing no.:
C002







GENERAL NOTES:

A. CONTRACTOR SHALL POTHOLE AND VERIFY DEPTHS AND LOCATIONS OF EXISTING UTILITIES AS FIRST ITEM OF WORK, AND NOTIFY ENGINEER OF ANY CONFLICTS.

B. CONTRACTOR SHALL COORDINATE UTILITY SHUTOFFS AND TERMINATIONS WITH UTILITY COMPANIES. CONTRACTOR SHALL PROVIDE PROOF OF SHUTOFFS PRIOR TO BEGINNING WORK.

C. THE CONTRACTOR SHALL REMOVE ALL OBSTRUCTIONS, BOTH ABOVE AND BELOW GROUND AS REQUIRED FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. WHEN FEASIBLE SUCH WORK SHALL BE COMPLETED PRIOR TO GRADING.

D. ALL UNSUITABLE AND SURPLUS MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS SPECIFIED OTHERWISE.

E. WHERE EXISTING LANDSCAPE AREAS ARE DISTURBED, REPLACE IN KIND OR EXTEND AS REQUIRED TO MATCH EXISTING.

F. THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLES, VAULTS AND VALVE BOXES WITHIN THE WORK AREA TO GRADE, EVEN THOSE THAT MAY NOT SPECIFICALLY BE NOTED. ALL DAMAGED BOXES SHALL BE REPLACED WITH NEW BOXES.

⬡ CONSTRUCTION NOTES:

1. SAW CUT LINE (—··—··—··—··—).
2. REMOVE EXISTING CONCRETE WALK. SEE SHEET C202 AND C302 FOR INSTALLATION OF REPLACEMENT WALK.
3. REMOVE EXISTING PAVEMENT. SEE SHEET C202 AND C302 FOR INSTALLATION OF NEW IMPROVEMENTS.

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

LICENSED LAND SURVEYOR NEIL U. BUSCH L.S. 8162 STATE OF CALIFORNIA

LM LAUGENOUR AND MEIKLE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
608 COURT STREET, WOODLAND, CA 95695
PHONE: (530) 662-1755 • WEB: www.lmce.net

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name:

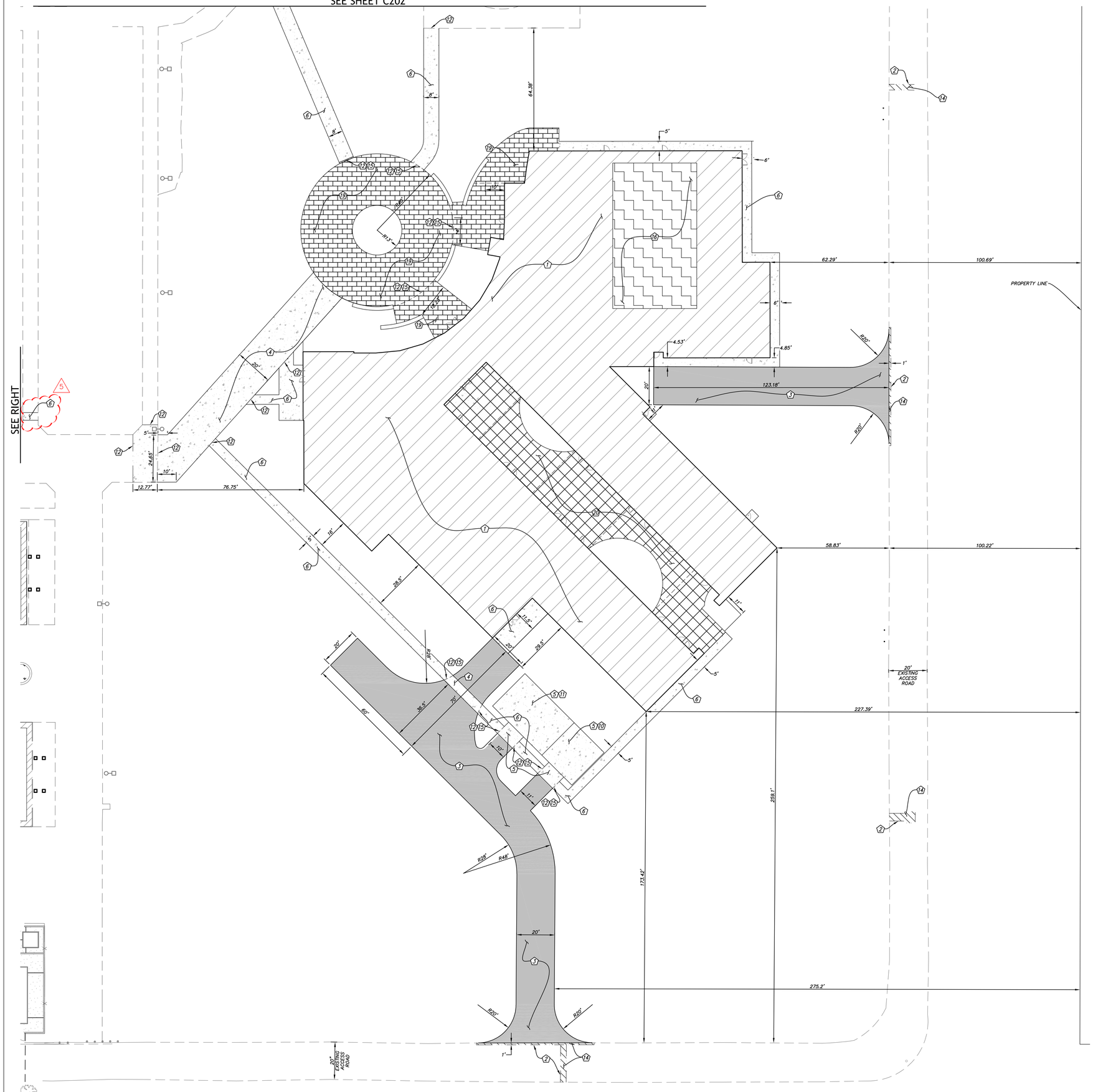
drawn by: checked by:

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/21	ADDENDUM 4
5	01/11/22	ADDENDUM 5

drawing title:
TOPOGRAPHIC SURVEY & DEMOLITION PLAN

drawing no.:
C101



GENERAL NOTES:

A. PCC SLABS SHOULD BE CONSTRUCTED WITH THICKENED EDGES. THE THICKENED EDGES SHOULD BE CONSTRUCTED AND TAPERED OVER A MINIMUM DISTANCE OF 48 INCHES IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 330R DESIGN DETAILS. REINFORCING FOR CRACK CONTROL, IF DESIRED, SHOULD CONSIST OF AT LEAST NO. 4 REINFORCING BARS PLACED ON MAXIMUM 12-INCH CENTERS EACH WAY THROUGH THE SLAB. REINFORCEMENT MUST BE LOCATED AT THE MID-SLAB DEPTH TO BE EFFECTIVE. JOINT SPACING AND DETAILS SHOULD BE DETERMINED BY THE PROJECT ENGINEER AND SHOULD CONFORM WITH CURRENT PCA OR ACI GUIDELINES.

B. ALL WORK WITHIN CITY OF WOODLAND RIGHT-OF-WAY SHALL CONFORM TO CITY OF WOODLAND STANDARD SPECIFICATIONS AND DETAILS.

CONSTRUCTION NOTES

1. HATCHING DENOTES COMPACTED BUILDING PAD PER GEOTECHNICAL REPORT. VERIFY OVER BUILD, FOOTING EXCAVATION, SLAB REINFORCING & COMPACTION REQUIREMENTS WITH GEOTECHNICAL REPORT AND STRUCTURAL PLANS. VERIFY PAD SECTION PRIOR TO STAKING/GRADING.
2. SAWCUT LINE (—— · · —— · · ——).
3. SHADOWING DENOTES 4" A.C. & 14" CLASS II A.B. OVER COMPACTED SUBGRADE PER GEOTECHNICAL REPORT IN DRIVEWAY AREAS (T.I.= 6.5).
4. INSTALL 6" P.C.C. & 6" CLASS II A.B. OVER COMPACTED SUBGRADE IN SIDEWALK FOR FIRE ACCESS AREA.
5. INSTALL 7" P.C.C. SLAB WITH #4 BARS AT 12" ON CENTER, EACH WAY, OVER 6" CLASS II A.B. OVER COMPACTED SUBGRADE AT TRASH ENCLOSURE AND CHILLER AREAS.
6. INSTALL CONCRETE SIDEWALK PER DETAIL 3, SHEET C601. SEE LANDSCAPE PLANS FOR SIDEWALK SURFACE TREATMENTS (MEDIUM BROOM FINISH AS MINIMUM). SEE GEOTECHNICAL REPORT FOR COMPACTION AND CONTROL JOINT REQUIREMENTS.
10. INSTALL TRASH ENCLOSURE PER ARCHITECTURAL PLANS.
11. INSTALL CHILLER ENCLOSURE PER ARCHITECTURAL PLANS.
12. INSTALL 12" #4 REBAR DOWELS AT 12" O.C. WITH A MINIMUM EMBEDMENT OF 6" INTO EACH SLAB.
14. REMOVE AND REPLACE EXISTING PAVEMENT WITH 4" A.C. OVER 14" A.B. OVER COMPACTED SUBGRADE.
15. SECTION CHANGE LINE (— — — — — — — —).
16. HATCHING DENOTES LOCATION OF BASEMENT OF PROPOSED BUILDING. OVER EXCAVATE AND COMPACT BASEMENT PAD AND WALL BACKING PER GEOTECHNICAL REPORT. VERIFY OVER BUILD, FOOTING EXCAVATION, SLAB REINFORCING & COMPACTION REQUIREMENTS WITH GEOTECHNICAL REPORT AND STRUCTURAL PLANS. VERIFY PAD SECTION PRIOR TO STAKING/GRADING (▭).
19. INSTALL 3.14" TYPE 1 INTERLOCKING VEHICLE PAVERS & 1" OF DRY SAND & 8" CLASS II A.B. OVER COMPACTED SUBGRADE PER GEOTECHNICAL REPORT FOR FIRE ACCESS AREA. SEE LANDSCAPE SHEET L03 FOR PAVER DETAIL AND SPECIFICATIONS.
20. INSTALL 3.14" TYPE 2 CONCRETE PAVERS & 3/4" MORTAR SETTING BED & 4" CONCRETE SLAB WITH #3 REBAR AT 18" O.C. EACH WAY & 6" CLASS II A.B. OVER COMPACTED SUBGRADE PER GEOTECHNICAL REPORT FOR CONCRETE SIDEWALK. SEE LANDSCAPE SHEET L3.0 AND L4.0 FOR PAVER DETAILS AND SPECIFICATIONS.

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

LICENSED ARCHITECT STATE OF CALIFORNIA

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

REGISTERED PROFESSIONAL ENGINEER NEIL U. BUSCH No. 68595 CIVIL STATE OF CALIFORNIA

LM LAUGENOUR AND MEIKLE
CIVIL ENGINEERING · LAND SURVEYING · PLANNING
608 COURT STREET, WOODLAND, CA 95695
PHONE: (530) 662-1755 · WEB: www.lmce.net

consultant

WOODLAND COMMUNITY COLLEGE PERFORMING ARTS/ CULINARY SERVICES FACILITY

2300 E. GIBSON RD, WOODLAND, CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

IBP project number: 22039.00

file name:

drawn by: checked by:

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/21	ADDENDUM 4
5	01/11/22	ADDENDUM 5

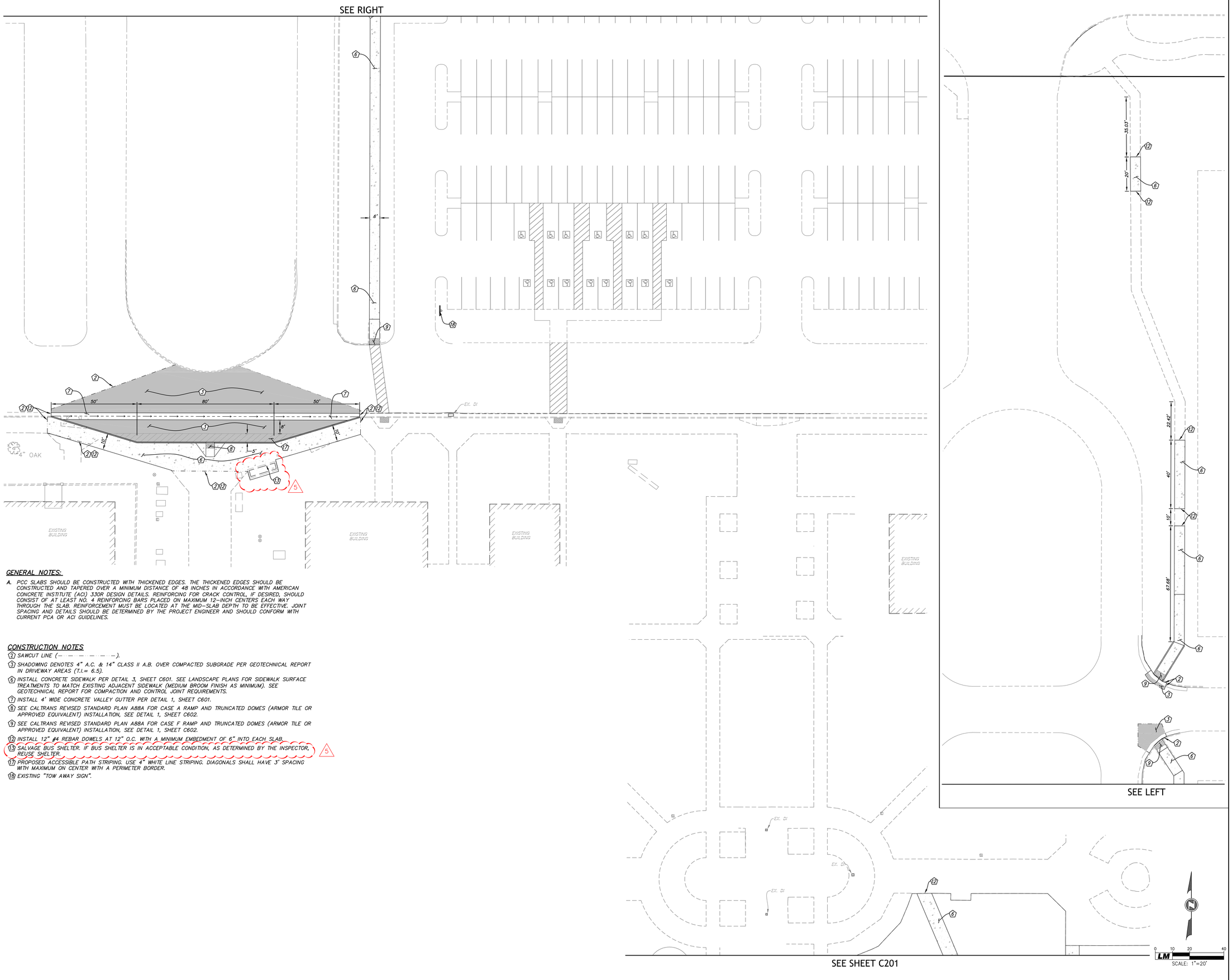
drawing title:

CIVIL SITE PLAN

drawing no.:

C201

drawing 5 of 14



GENERAL NOTES:

A. PCC SLABS SHOULD BE CONSTRUCTED WITH THICKENED EDGES. THE THICKENED EDGES SHOULD BE CONSTRUCTED AND TAPERED OVER A MINIMUM DISTANCE OF 48 INCHES IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 330R DESIGN DETAILS. REINFORCING FOR CRACK CONTROL, IF DESIRED, SHOULD CONSIST OF AT LEAST NO. 4 REINFORCING BARS PLACED ON MAXIMUM 12-INCH CENTERS EACH WAY THROUGH THE SLAB. REINFORCEMENT MUST BE LOCATED AT THE MID-SLAB DEPTH TO BE EFFECTIVE. JOINT SPACING AND DETAILS SHOULD BE DETERMINED BY THE PROJECT ENGINEER AND SHOULD CONFORM WITH CURRENT PCA OR ACI GUIDELINES.

CONSTRUCTION NOTES

(2) SAWCUT LINE (— — — — — —).

(3) SHADOWING DENOTES 4" A.C. & 14" CLASS II A.B. OVER COMPACTED SUBGRADE PER GEOTECHNICAL REPORT IN DRIVEWAY AREAS (T.I.= 6.5).

(6) INSTALL CONCRETE SIDEWALK PER DETAIL 3, SHEET C601. SEE LANDSCAPE PLANS FOR SIDEWALK SURFACE TREATMENTS TO MATCH EXISTING ADJACENT SIDEWALK (MEDIUM BROOM FINISH AS MINIMUM). SEE GEOTECHNICAL REPORT FOR COMPACTION AND CONTROL JOINT REQUIREMENTS.

(7) INSTALL 4' WIDE CONCRETE VALLEY GUTTER PER DETAIL 1, SHEET C601.

(8) SEE CALTRANS REVISED STANDARD PLAN A88A FOR CASE A RAMP AND TRUNCATED DOMES (ARMOR TILE OR APPROVED EQUIVALENT) INSTALLATION, SEE DETAIL 1, SHEET C602.

(9) SEE CALTRANS REVISED STANDARD PLAN A88A FOR CASE F RAMP AND TRUNCATED DOMES (ARMOR TILE OR APPROVED EQUIVALENT) INSTALLATION, SEE DETAIL 1, SHEET C602.

(12) INSTALL 12" #4 REBAR DOWELS AT 12" O.C. WITH A MINIMUM EMBEDMENT OF 6" INTO EACH SLAB.

(13) SALVAGE BUS SHELTER. IF BUS SHELTER IS IN ACCEPTABLE CONDITION, AS DETERMINED BY THE INSPECTOR, REUSE SHELTER. 5

(17) PROPOSED ACCESSIBLE PATH STRIPING. USE 4" WHITE LINE STRIPING. DIAGONALS SHALL HAVE 3' SPACING WITH MAXIMUM ON CENTER WITH A PERIMETER BORDER.

(18) EXISTING "TOW AWAY SIGN".

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

REGISTERED PROFESSIONAL ENGINEER NEIL U. BUSCH No. 68595 CIVIL STATE OF CALIFORNIA

LM LAUGENOUR AND MEIKLE
CIVIL ENGINEERING · LAND SURVEYING · PLANNING
608 COURT STREET, WOODLAND, CA 95695
PHONE: (530) 662-1755 · WEB: www.lmce.net

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

IBP project number: 22039.00

file name:

drawn by: checked by:

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/21	ADDENDUM 4
5	01/11/22	ADDENDUM 5

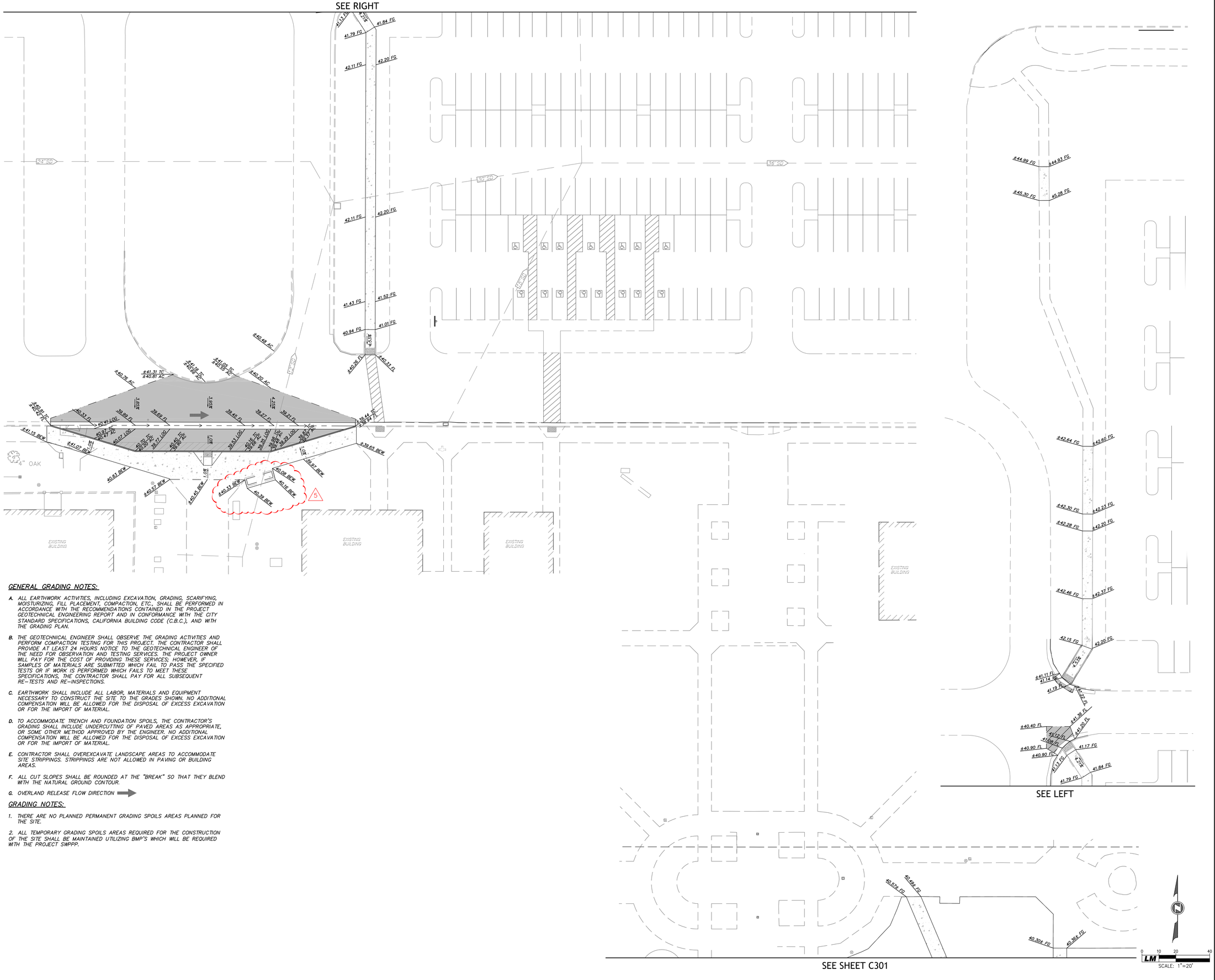
drawing title:

CIVIL SITE PLAN

drawing no.:

C202

drawing 6 of 14



GENERAL GRADING NOTES:

A. ALL EARTHWORK ACTIVITIES, INCLUDING EXCAVATION, GRADING, SCARIFYING, MOISTURIZING, FILL PLACEMENT, COMPACTION, ETC., SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE PROJECT GEOTECHNICAL ENGINEERING REPORT AND IN CONFORMANCE WITH THE CITY STANDARD SPECIFICATIONS, CALIFORNIA BUILDING CODE (C.B.C.), AND WITH THE GRADING PLAN.

B. THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE GRADING ACTIVITIES AND PERFORM COMPACTION TESTING FOR THIS PROJECT. THE CONTRACTOR SHALL PROVIDE AT LEAST 24 HOURS NOTICE TO THE GEOTECHNICAL ENGINEER OF THE NEED FOR OBSERVATION AND TESTING SERVICES. THE PROJECT OWNER WILL PAY FOR THE COST OF PROVIDING THESE SERVICES; HOWEVER, IF SAMPLES OF MATERIALS ARE SUBMITTED WHICH FAIL TO PASS THE SPECIFIED TESTS OR IF WORK IS PERFORMED WHICH FAILS TO MEET THESE SPECIFICATIONS, THE CONTRACTOR SHALL PAY FOR ALL SUBSEQUENT RE-TESTS AND RE-INSPECTIONS.

C. EARTHWORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CONSTRUCT THE SITE TO THE GRADES SHOWN. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATION OR FOR THE IMPORT OF MATERIAL.

D. TO ACCOMMODATE TRENCH AND FOUNDATION SPOILS, THE CONTRACTOR'S GRADING SHALL INCLUDE UNDERCUTTING OF PAVED AREAS AS APPROPRIATE, OR SOME OTHER METHOD APPROVED BY THE ENGINEER. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATION OR FOR THE IMPORT OF MATERIAL.

E. CONTRACTOR SHALL OVEREXCAVATE LANDSCAPE AREAS TO ACCOMMODATE SITE STRIPPINGS. STRIPPINGS ARE NOT ALLOWED IN PAVING OR BUILDING AREAS.

F. ALL CUT SLOPES SHALL BE ROUNDED AT THE "BREAK" SO THAT THEY BLEND WITH THE NATURAL GROUND CONTOUR.

G. OVERLAND RELEASE FLOW DIRECTION

GRADING NOTES:

1. THERE ARE NO PLANNED PERMANENT GRADING SPOILS AREAS PLANNED FOR THE SITE.

2. ALL TEMPORARY GRADING SPOILS AREAS REQUIRED FOR THE CONSTRUCTION OF THE SITE SHALL BE MAINTAINED UTILIZING BMP'S WHICH WILL BE REQUIRED WITH THE PROJECT SWPPP.

0 10 20 40
SCALE: 1"=20'

DSA Application #02-118286
DSA File #58-C1
agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419
architect

REGISTERED PROFESSIONAL ENGINEER NEIL U. BUSCH No. 68595 CIVIL STATE OF CALIFORNIA

LM LAUGENOUR AND MEIKLE
CIVIL ENGINEERING · LAND SURVEYING · PLANNING
608 COURT STREET, WOODLAND, CA 95695
PHONE: (530) 662-1755 · WEB: www.lmce.net
consultant

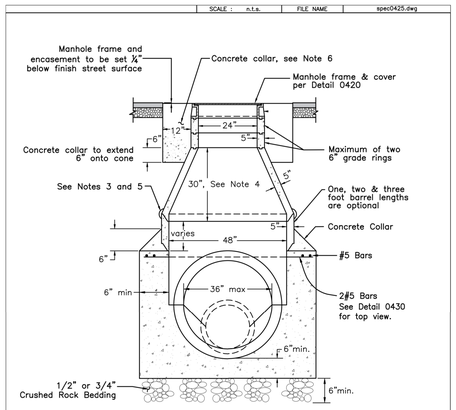
WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT
owner

tBP project number: 22039.00
file name:
drawn by: checked by:
date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/21	ADDENDUM 4
5	01/11/22	ADDENDUM 5

1"=30'

drawing title:
GRADING & DRAINAGE PLAN
drawing no.:
C302
drawing 8 of 14

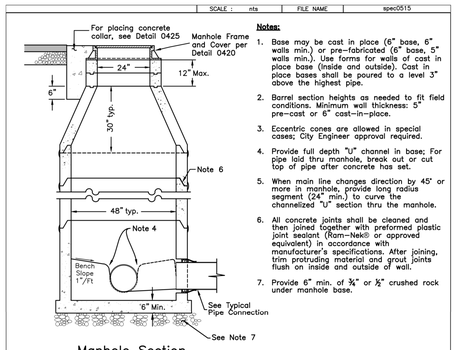


NOTES:

1. Use this Manhole for storm pipes up to 36" inside diameter.
2. Cast–in–place manhole bases shall have fully formed interior and exterior walls. Do not place concrete for walls against edges of the excavation. Provide #3 vertical bar at 12" O.C. in manhole base.
3. Grout the inside and outside of all joints.
4. Acceptable cone heights are 18"–36".
5. Install preformed plastic joint sealant (Ram–Nek® or approved equivalent) between barrel sections.
6. Concrete shall be per Construction Specification 6.01 and receive a fine brush finish around manhole lid.

REVISION	CITY OF WOODLAND COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING DIVISION		
	APPROVED BY: DATE 03/12/21 BRENT MEYER, CITY ENGINEER	Type I Storm Drain Manhole	0425

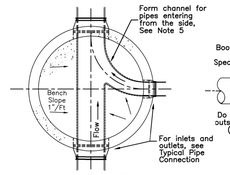
1 STORM DRAIN MANHOLE
NTS



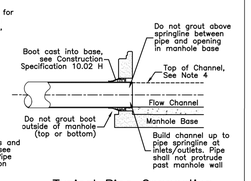
Notes:

1. Base may be cast in place (6" base, 6" walls min.) or pre–fabricated (6" base, 5" walls min.). Use forms for walls of cast in place base (inside and outside). Cast in place bases shall be poured to a level 3" above the highest pipe.
2. Barrel section heights as needed to fit field conditions. Minimum wall thickness: 5" pre–cast or 6" cast–in–place.
3. Eccentric cones are allowed in special cases; City Engineer approval required.
4. Provide full depth "U" channel in base; For pipe laid thru manhole, break out or cut top of pipe after concrete has set.
5. When main line changes direction by 45° or more in manhole, provide long radius segment (24" min.) to curve the channelized "U" section thru the manhole.
6. All concrete joints shall be cleaned and then joined together with preformed plastic joint sealant (Ram–Nek® or approved equivalent) in accordance with manufacturer's specifications. After joining, trim protruding material and grout joints flush on inside and outside of wall.
7. Provide 6" min. of ¾" or ½" crushed rock under manhole base.

Manhole Section



Manhole Base



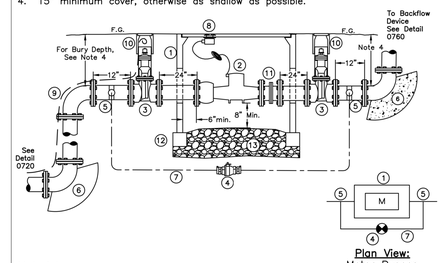
Typical Pipe Connection

REVISION	CITY OF WOODLAND COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING DIVISION		
	APPROVED BY: DATE 03/12/21 BRENT MEYER, CITY ENGINEER	Standard Sanitary Sewer Manhole	0515

2 SANITARY SEWER MANHOLE
NTS

Notes:

1. All pipe and fittings shall be Ductile Iron. Wrap buried DI pipe and all fittings in 8 mil. polyethylene sheeting.
2. Service Line size is 4" minimum. Provide transition fittings for smaller size meter.
3. All connections shall be bolted flange or restrained joints.
4. 15" minimum cover, otherwise as shallow as possible.



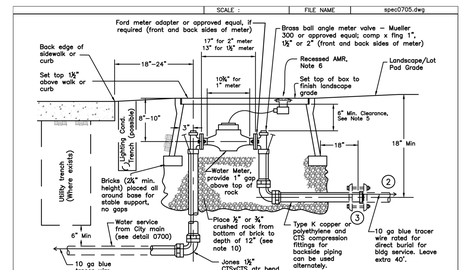
Plan View: Meter Bypass

Materials:

1. Utility box and two box extensions (typical) – sized to fit Meter and piping
2. Meter – sized for use; Purchased and installed by owner's contractor using only SS–316 bolts with brass nuts and brass, plastic or nylon washers on the side of the epoxy–coated meter.
3. Gate Valve – City Standard with square operating nut.
4. 2" Locking Curb Stop in utility box; See Detail 0718.
5. 2" Double–strap brass saddle and corp. stop (MIPT x Comp.).
6. Thrust Block (typical).
7. 2" Bypass piping, Type "K" hard copper, brass compression fittings.
   7.1. Wrap piping within crushed rock with 18" minimum of 10 mil vinyl tape.
8. Lid with recessed 1¾"ø probe hole for AMR device. AMR device installed by City.
9. Tracer Wire.
10. See Detail 0725 for valve details; concrete collar required for boxes in areas subject to vehicular traffic.
11. Disassembly Joint – Romac DJ 405 or approved equal.
12. Continuous CMU Support Blocks (6"Wx8"Dx16"L) provided with no gaps.
13. ½" or ¾" Crushed Rock, 12" deep min.

REVISION	CITY OF WOODLAND COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING DIVISION		
	APPROVED BY: DATE 03/12/21 BRENT MEYER, CITY ENGINEER	3" and Larger Meter with Bypass	0715

3 3" WATER METER
NTS

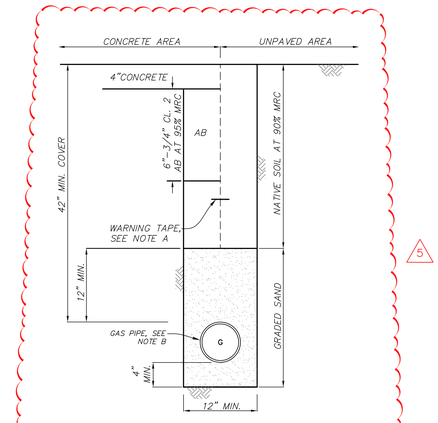


Notes:

1. Each single family dwelling unit shall have 1" water service. A 1" or 1½" service to anything other than single family units shall be installed by approval only. All other meter sizes are to be based on design flow rates for uses (Refer to Design Std. Section 7). Provide adaptors to adjust 1" meter to 1½" valves.
2. Provide backflow protection per Detail 0761 for any non–domestic or non–residential uses and for residential uses with a private water well.
3. Provide electrical isolation between city water system and private system per Detail 0712.
4. 1" water meter shall be Sensus iPERL; 1½" and 2" water meters shall be Sensus R2.
5. Provide adequate clearance from meter to box lid:
   5.1. Must clear transceiver unit.
   5.2. Provide min. 1" clearance from transceiver unit to ball valve and to electronic register.
   5.3. Electronic register shall not come into contact with any underlying portions of the meter, valve or piping.
6. Provide lid with recessed 1¾"ø probe hole for AMR unit. City shall install AMR.
7. Use only SS–316 bolts with brass nuts & washers. 1½" and larger shall receive either brass, plastic or nylon washers on the side of the epoxy–coated meter.
8. Do not place meter box in driveway, unless approved by City Engineer.
9. Provide H–20 Traffic Rated meter box and lid for water meters within 12" of vehicular paths of travel (including driveway flares).
10. The length of the service piping within the limits of the crushed rock shall be wrapped with 10mil vinyl tape. Pipe–wrapping shall be a minimum of 18".

REVISION	CITY OF WOODLAND COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING DIVISION		
	APPROVED BY: DATE 03/12/21 BRENT MEYER, CITY ENGINEER	1", 1–1/2" & 2" Water Service, Meter, Valve & Box at Back of Walk	0705

3 2" WATER METER
NTS



5

NOTES:

A. INSTALL WARNING TAPE 18 INCHES BELOW GRADE WITH 12" MINIMUM ABOVE TOP OF UTILITY.
B. PLASTIC NATURAL GAS PIPING SHALL BE IPS, PE 2406/2708 HDPE. 4" AND 6" PIPE SHALL BE DR 13.5. 2" AND SMALLET PIPE SHALL BE DR 11. ALL UNDERGROUND GAS PIPING SHALL INCLUDE A #10 AWG COPPER LOCATING WIRE (HMWPE WHITE). COORDINATE ALL GAS PIPING WITH THE GAS PIPING SYSTEM PLANS AND PG&E. VERIFY PIPE SIZE AND PRESSURE CLASS WITH ENGINEER PRIOR TO CONSTRUCTION.
C. MODIFY DRY UTILITY/JOINT TRENCH UTILITY DEPTHS AS REQUIRED TO ACCOMMODATE EXISTING UNDERGROUND UTILITIES AND OTHER PROPOSED UNDERGROUND UTILITIES.

5 GAS SERVICE TRENCH
NTS

DSA Application #02-118286
DSA File #58-C1

agency

IBP Architecture
architecture
planning
interiors

IBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

REGISTERED PROFESSIONAL ENGINEER
NEIL U. BUSCH
No. 68595
CIVIL
STATE OF CALIFORNIA

LM LAUGENOUR AND MEIKLE
CIVIL ENGINEERING·LAND SURVEYING·PLANNING
608 COURT STREET, WOODLAND, CA 95695
PHONE:(530) 662–1755 · WEB: www.lmce.net

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/
CULINARY SERVICES
FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

IBP project number: 22039.00

file name:

drawn by: checked by:

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/21	ADDENDUM 4
5	01/11/22	ADDENDUM 5

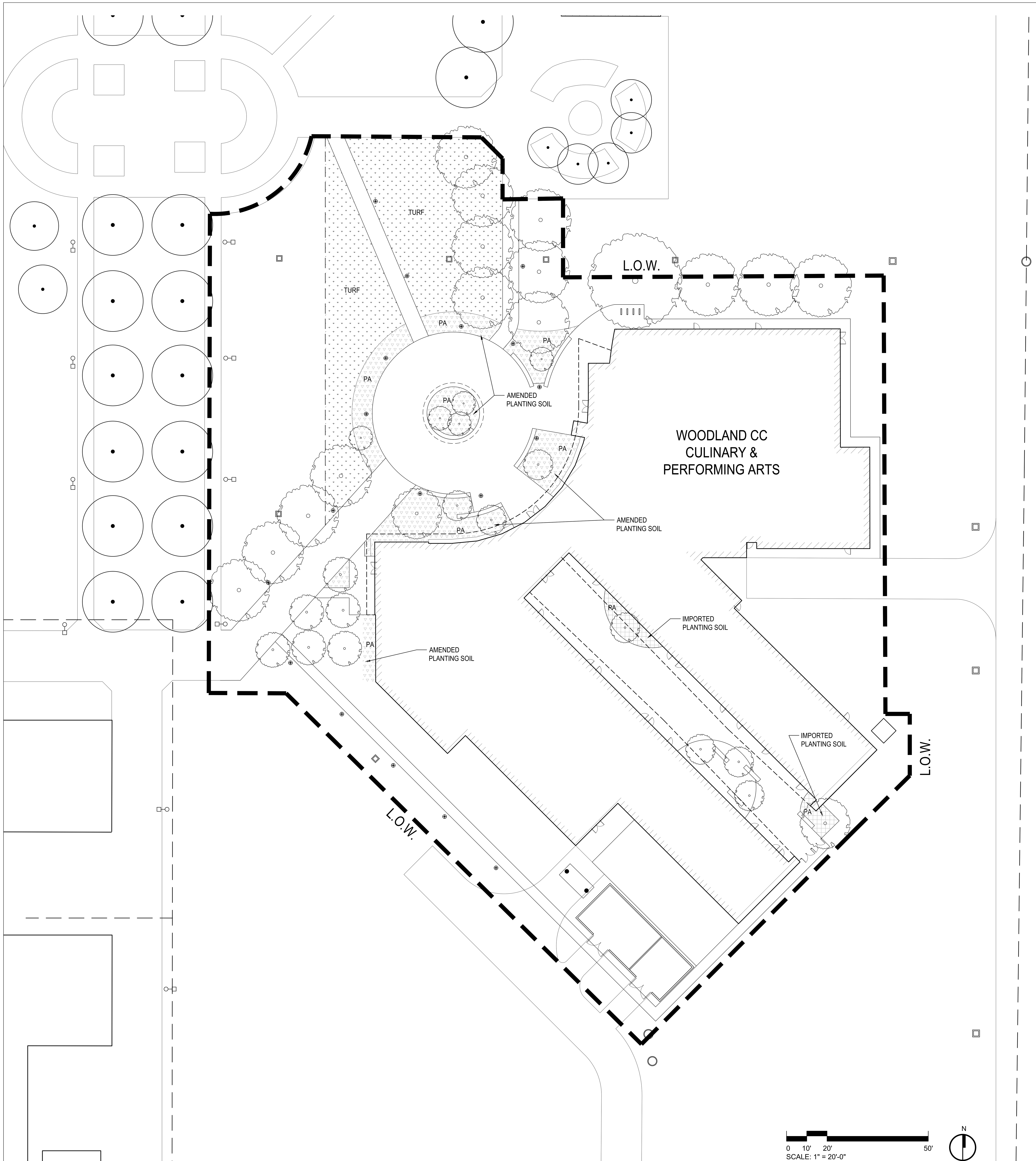
drawing title:

DETAILS

drawing no.:

C603

drawing 13 of 14



GENERAL NOTES

1. CONTRACTOR TO PROVIDE 12" OF AMENDED PLANTING SOIL. AMDENDED SUBSOIL FROM TRENCHING OR FOUNDATION EXCAVATIONS IS NOT AN ACCEPTABLE PLANTING SOIL. REFER TO SPECIFICATIONS FOR DETAILED SOIL REQUIREMENTS.

2. TREES TO RECEIVE AMENDED PLANTING SOIL AT 2X ROOTBALL DIMENSION TO FULL DEPTH OF ROOTBALL.

LEGEND

NEW TREE

LIGHT POLE (18) 5

PA PLANTING AREA

SYMBOL	SOIL TYPE	SF	DESCRIPTION
	TURF	8,734	6" MIN. SANDY LOAM, SEE SPECS. (IMPORT)
	AMENDED PLANTING SOIL	4,140	12" MIN. AMENDED STOCKPILED PLANTING SOIL

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name:

drawn by: checked by:

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
	01/11/22	ADDENDUM #5

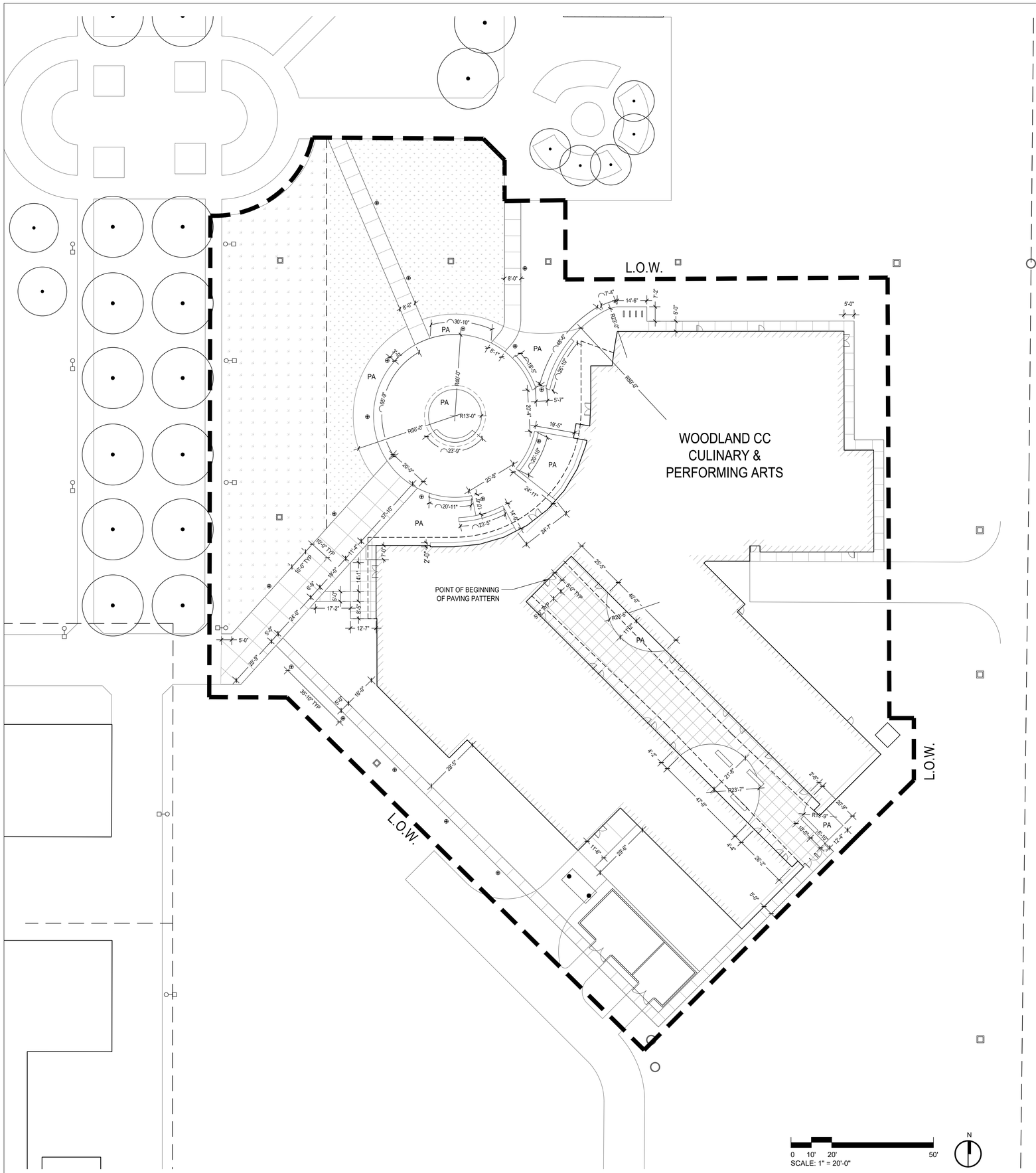
drawing title:

SOIL PLACEMENT PLAN

drawing no.:

L1.0

drawing of



LAYOUT NOTES

1. THE CONTRACTOR IS RESPONSIBLE TO LAYOUT ALL IMPROVEMENTS AS SHOWN AND SPECIFIED.
2. THE CONTRACTOR SHALL FIELD VERIFY THAT ALL STAKING SET FOR IMPROVEMENTS ARE CONSISTENT WITH THE DESIGN INTENT OF THESE PLANS AND IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT OF ANY DISCREPANCY.
3. ALL CURVES TO BE CONTINUOUS WITH SMOOTH TRANSITIONS AS SHOWN IN THE DRAWINGS, UNLESS OTHERWISE NOTED.
4. HORIZONTAL COORDINATES AND DIMENSIONS ARE SHOWN AT THE PRIMARY GEOMETRIC CONTROL POINTS FOR THE IMPROVEMENTS TO AID THE CONTRACTOR WITH THE ESTABLISHMENT OF THE HORIZONTAL LOCATION OF THE IMPROVEMENTS AND ARE BASED ON THE SURVEY AND COORDINATES PROVIDED BY THE CIVIL ENGINEER.
5. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL AND ENGINEERING PLANS FOR THE LAYOUT, DIMENSIONS, ANGLES AND ELEVATIONS OF ALL BUILDINGS, STRUCTURES, UTILITIES, CURBS AND GUTTERS.

ACCESSIBILITY NOTES

1. ALL SITE WORK SHALL COMPLY WITH CURRENT CALIFORNIA BUILDING CODE (CALIIFORNIA CODE OF REGULATIONS TITLE 24), CURRENT STANDARDS OF THE AMERICANS WITH DISABILITES ACT (ADA), AND THE CURRENT FAIR HOUSING ACT DESIGN MANUAL.
2. ALL PAVING AREAS SHALL BE ACCESSIBLE PER TITLE 24. ALL PAVING SURFACES ARE TO BE STABLE, FIRM, AND SLIP RESISTANT WITH CROSS SLOPES NOT TO EXCEED 2% IN ANY DIRECTION, UNLESS OTHERWISE NOTED. ACCESSIBLE PATHS OF TRAVEL ARE BARRIER-FREE ACCESS ROUTES AT LEAST 48" CLEAR IN WIDTH AND WITHOUT ANY ABRUPT VERTICAL LEVEL CHANGES EXCEEDING 1/2" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX. ALL ACCESSIBLE PATHWAYS SHALL BE SLOPED LESS THAN 5% IN THE DIRECTION OF TRAVEL, UNLESS OTHERWISE NOTED.
3. ALL ACCESSIBLE PATHS OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS BELOW 80" ABOVE FINISH GRADE. OBJECTS WITH LEADING EDGES LOCATED BETWEEN 27"AND 80" ABOVE FINISH GRADE SHALL NOT PROTRUDE MORE THAN 4" HORIZONTALLY INTO THE PATH OF TRAVEL. EXCEPTIONS INCLUDE HANDRAILS, DOOR CLOSERS, AND DOOR STOPS. GUARDRAILS OR OTHER BARRIERS SHALL BE PROVIDED WHERE OBJECT PROTRUSION IS BEYOND THE LIMITS ALLOWED.

LEGEND

NEW TREE

LIGHT POLE (18) 5

PA PLANTING AREA

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

architect

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/
CULINARY SERVICES
FACILITY
2300 E. GIBSON RD. WOODLAND, CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00
file name:
drawn by: checked by:
date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
	01/11/22	ADDENDUM #5

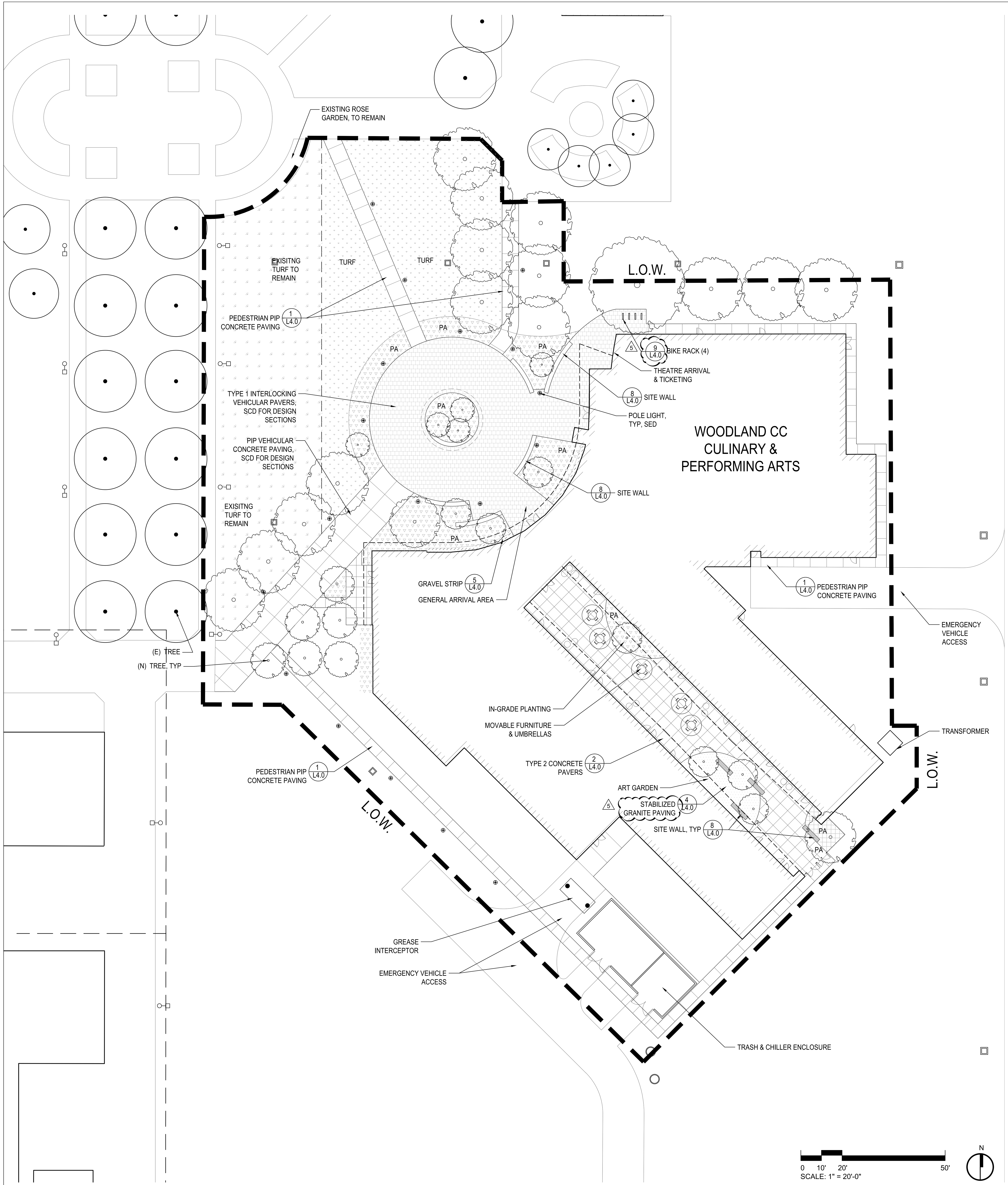
drawing title:

LAYOUT PLAN

drawing no.:

L2.0

drawing of



GENERAL NOTES

LEGEND

- NEW TREE
- PLANTING AREA (PA)
- EXISTING TURF TO REMAIN
- TURF
- LIGHT POLE (18)

PAVING SCHEDULE

HATCH	PRODUCT	DIMENSIONS	MATERIAL / COLOR / FINISH	MANUFACTURER	NOTES
	TYPE 1, INTERLOCKING VEHICULAR PAVERS	4" x 8" x 80 MM	COLOR: TBD	BASALITE	
	TYPE 2, CONCRETE PAVERS	12" x 12" x 80 MM	COLOR: OAKLAND	BASALITE	
	PIP CONCRETE PAVING	N/A	LIGHT SANDBLAST FINISH	N/A	
	GRAVEL	3 / 4"	SONOMA GOLD	N/A	
	STABILIZED GRANITE PAVING	PER SPECIFICATIONS		GRANITECRETE	

5

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name:

drawn by: checked by:

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
	01/11/22	ADDENDUM #5

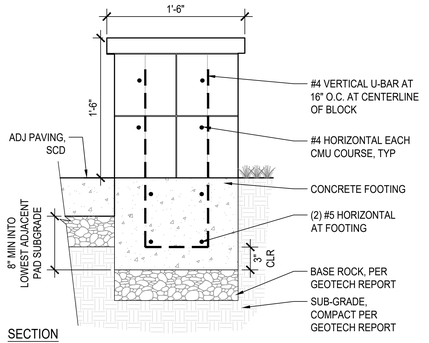
drawing title:

CONSTRUCTION PLAN

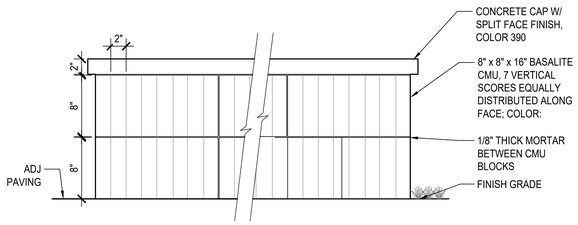
drawing no.:

L3.0

drawing of



SECTION



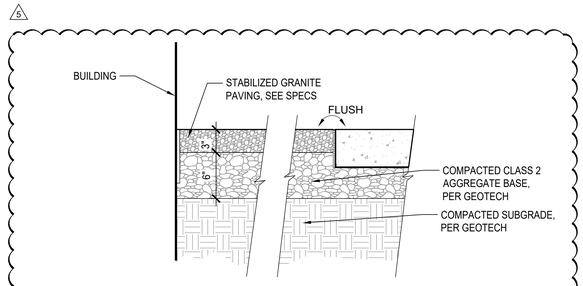
ELEVATION

NOTES:

1. FOR ADDITIONAL INFORMATION, SEE SPECS.
2. FILL ALL CMU CELLS WITH 2000 PSI GROUT.
3. MORTAR SHALL BE TYPE M OR TYPE S.

8 SITE WALL

SCALE: 1 1/2" = 1'-0"

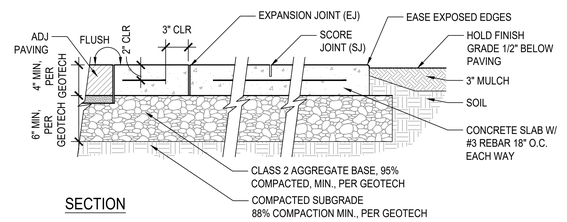


4 STABILIZED GRANITE PAVING

SCALE: 1 1/2" = 1'-0"

NOTES:

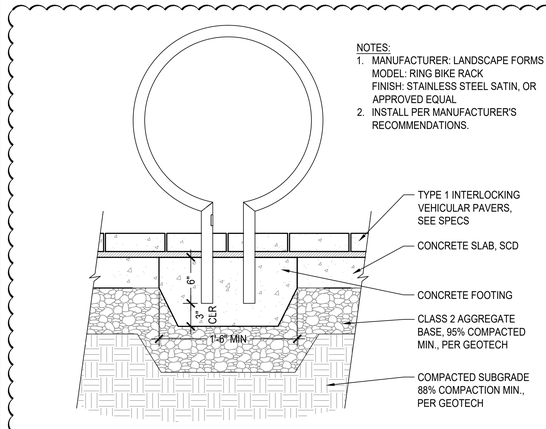
1. LIGHT SANDBLAST FINISH USING SURFACE RETARDER, UNLESS OTHERWISE NOTED ON PLANS.
2. PROVIDE SCORE JOINTS (SJ) AND EXPANSION JOINTS (EJ) AS SHOWN ON PLAN.
3. PROVIDE (EJ) MAX. 18' O.C. BOTH DIRECTIONS, ADJACENT TO BUILDINGS, WALLS, AND OTHER VERTICAL ELEMENTS, UNLESS OTHERWISE NOTED ON PLANS.



SECTION

1 PEDESTRIAN PIP CONCRETE PAVING

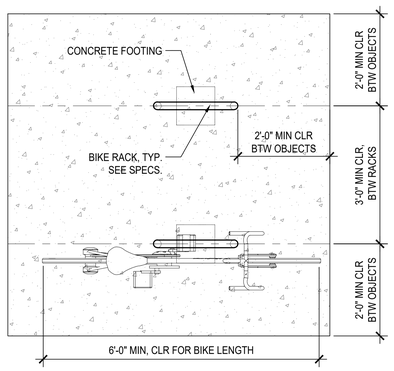
SCALE: 1 1/2" = 1'-0"



SECTION

NOTES:

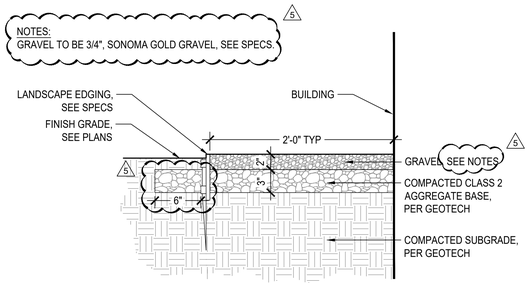
1. MANUFACTURER: LANDSCAPE FORMS
   MODEL: RING BIKE RACK
   FINISH: STAINLESS STEEL SATIN, OR APPROVED EQUAL
2. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.



PLAN

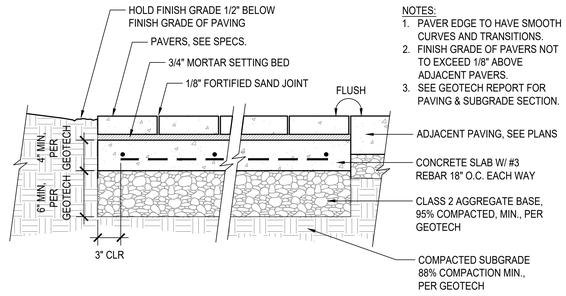
9 BIKE RACK

SCALE: 1 1/2" = 1'-0"



5 GRAVEL STRIP

SCALE: 1 1/2" = 1'-0"

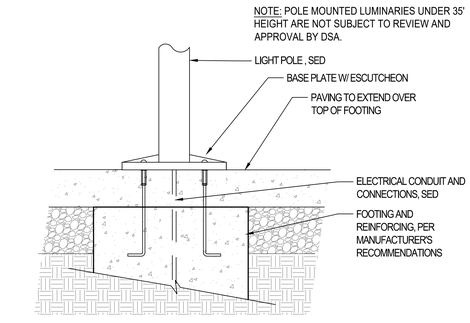


NOTES:

1. PAVER EDGE TO HAVE SMOOTH CURVES AND TRANSITIONS.
2. FINISH GRADE OF PAVERS NOT TO EXCEED 1/8" ABOVE ADJACENT PAVERS.
3. SEE GEOTECH REPORT FOR PAVING & SUBGRADE SECTION.

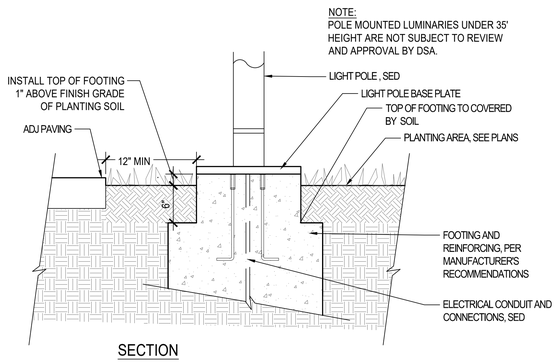
2 TYPE 2 CONCRETE PAVERS

SCALE: 1 1/2" = 1'-0"



6 LIGHT POLE IN PAVING

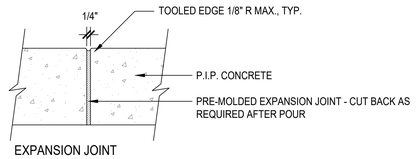
SCALE: 1 1/2" = 1'-0"



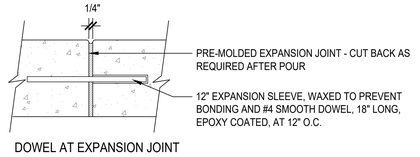
SECTION

7 LIGHT POLE IN PLANTING

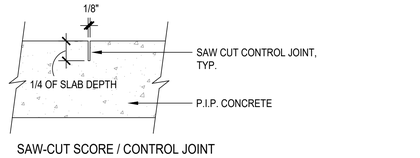
SCALE: 1 1/2" = 1'-0"



EXPANSION JOINT



DOWEL AT EXPANSION JOINT



SAW-CUT SCORE / CONTROL JOINT

3 EXPANSION AND CONTROL JOINTS

SCALE:

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

IBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name:

drawn by: checked by:

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
	01/11/22	ADDENDUM #5

drawing title:

CONSTRUCTION DETAILS

drawing no.:

L4.0

drawing of

SLAB PLAN NOTES

1.SLAB PLANS ARE INTENDED AS AN AID TO THE GENERAL CONTRACTOR IN LOCATING THE EDGE OF SLAB OR DECK AT THE BUILDING PERIMETER AND AT MAJOR OPENINGS AND SLAB DEPRESSIONS.

a.THE DIMENSIONS SHOWN REFLECT THE DETAILS COORDINATED BETWEEN STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SHOULD BE INDEPENDENTLY CONFIRMED BY THE GENERAL CONTRACTOR.

b.SHAFT OPENING DIMENSIONS SHOULD BE COORDINATED BY SUBCONTRACTOR AND GC. IN THE EVENT OF CONFLICT WITH ESTABLISHED DIMENSIONS, BRING TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION BEFORE PROCEEDING WITH WORK.

2.ELEVATIONS NOTED ARE RELATIVE TO PROJECT DATUM EL. + 41.50' (PER CIVIL DRAWINGS) = +0'-0" AT GROUND FLOOR. CONTRACTOR TO CONFRIM EXACT TOP OF STRUCTURAL SLAB ELEVATION, BASED ON CIVIL DRAWINGS AND SURVEY.

3.FINISHED AND SUBSURFACE CONCRETE AND/OR PAVING THAT ARE EXPOSED TO WEATHER ARE TO SLOPE TO DRAIN AWAY FROM PERIMETER WALLS OF BUILDING U.O.N. ON CIVIL OR STRUCTURAL DRAWINGS

4.CONTRACTOR SHALL HAVE ALL DEPRESSED SLOPED VERIFIED AND CERTIFIED BY A LICENSED SURVEYOR PRIOR TO PLACEMENT OF ANY STRUCTURAL SLAB CONCRETE.

5.EXTERIOR WALL FRAMING SHALL BE CONSTRUCTED ON 6" HIGH MINIMUM RAISED CONCRETE CURBS, UNLESS OTHERWISE DETAILED.

6.RESTROOM PARTITIONS SHALL BE CONSTRUCTION ON 6" HIGH MINIUM CONCRETE CURBS.

7.CONTRACTOR TO COORDINATE CURB WIDTH WITH WALL TYPES AND DETAILS.

8.EQUIPMENT PAD DIMENSIONS ARE SHOWN FOR COORDINATION. COORDINATE MINIMUM REQUIRED DIMENSIONS WITH PROCURED EQUIPMENT.

9.WHERE FLOORS AND/OR FLOOR FILL IS NOT SLOPED TO DRAIN, PROVIDE 24" X 24" BLOCK OUT AT FLOOR DRAIN, WITH 2% SLOPED FILL WITHIN BLOCK OUT.

10.NOT ALL SLEEVES AND SLAB PENETRATIONS REQUIRED FOR PLUMBING, ELECTRICAL, MECHANICAL, FIRE PROTECTION AND OTHER BUILDING UTILITIES ARE INDICATED. CONTRACTOR TO COORDINATE SUBCONTRACTORS' SLEEVE AND PENETRATION LOCATIONS WITH REBAR PLACEMENT AND SPACING AND EQUIPMENT SPECIFICATIONS PRIOR TO POURING SLAB /DECK CONCRETE.

11.PROVIDE FIRESTOPPING AT ALL RATED FLOOR/ROOF PENETRATIONS TO MAINTAIN FIRE RATING

FOR SLAB PLANS AT THEATER, SEE TA DRAWINGS

CULINARY AREA
- 2" DEPRESSION IS NOT REQUIRED, ALL OTHER DEPRESSIONS ARE REQUIRED
- SEE FS & PLMB DWGS FOR ALL FLOOR DRAINS.
  - PROVIDE 24"X24" BLOCKOUT AT ALL FLOOR DRAINS
- WHERE RESIN FLOORING TRANSITIONS TO OTHER FLOORING MATERIAL PROVIDE A METAL TRANSITION STRIP AND PROVIDE A TRANSITION CHASE BETWEEN MATERIALS.

1ST FLOOR SLAB PLAN
SCALE : 3/32" = 1'-0"

SLAB PLAN LEGEND
SCALE : 1/8" = 1'-0"

1. REFER TO SHEET G-2.2 FOR ADDITIONAL SYMBOLS.
2. DIMENSIONS ARE TO THE EDGE OF CONCRETE SLAB.
3. REFER TO STRUCTURAL DRAWINGS FOR CONCRETE CURB REINFORCEMENT.
4. G.C. TO COORDINATE CURB WIDTH WITH WALL TYPES AND AND DETAIL
5. SEE FOOD SERVICE DWGS FOR ADDITIONAL FLOOR BOX LOCATIONS.

- SLAB STEP
- CONCRETE CURB
- T.O.C TOP OF CURB
- ELEVATION HEIGHT AT TOP OF CONCRETE
- DEPRESSED SLAB
- BUILT-UP SLAB
- FLOOR DRAIN, SLOPE FLOOR AT 1 TO 2%

KEY PLAN

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

consultant

owner

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

tBP project number: 22039.00

file name: C:\Users\DMangu\Documents\WCC_Perf Arts_Culinary_Central
R15_dmangu@tbparchitecture.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
3	12/20/2021	ADDENDUM 3
5	01/11/2022	ADDENDUM 5

drawing title:

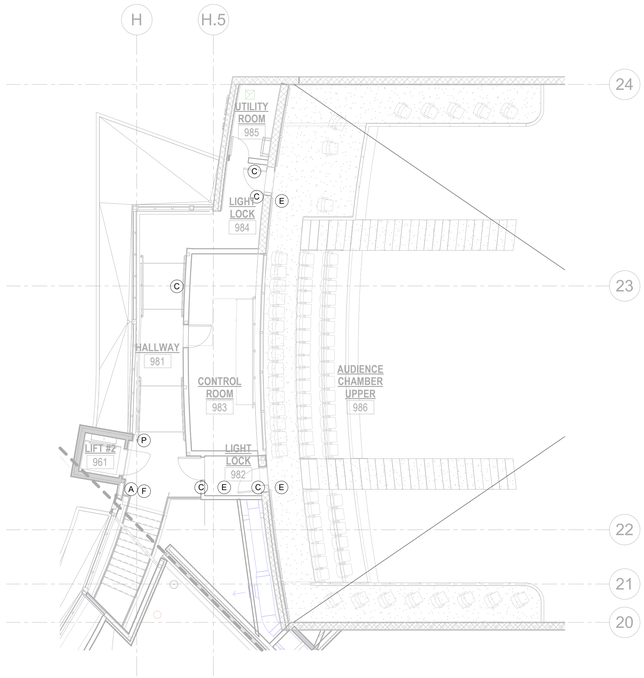
SLAB PLAN - OVERALL

drawing no.:

A100

drawing of

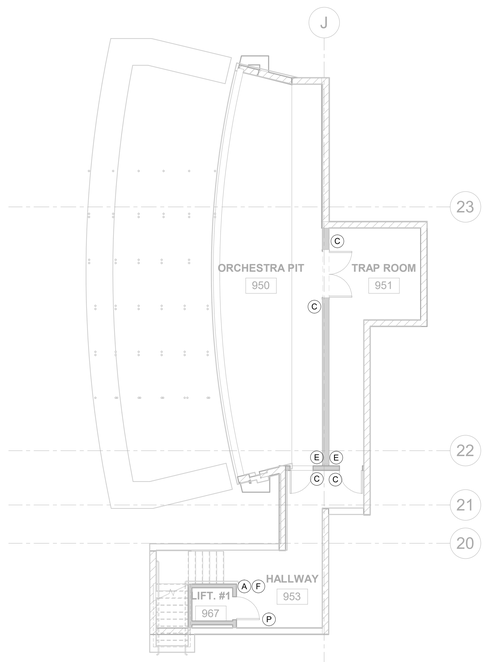
1/11/2022 4:38:21 PM



MEZZANINE/ CONTROL ROOM LEVEL - FINISHES

SCALE : 1/8" = 1'-0"

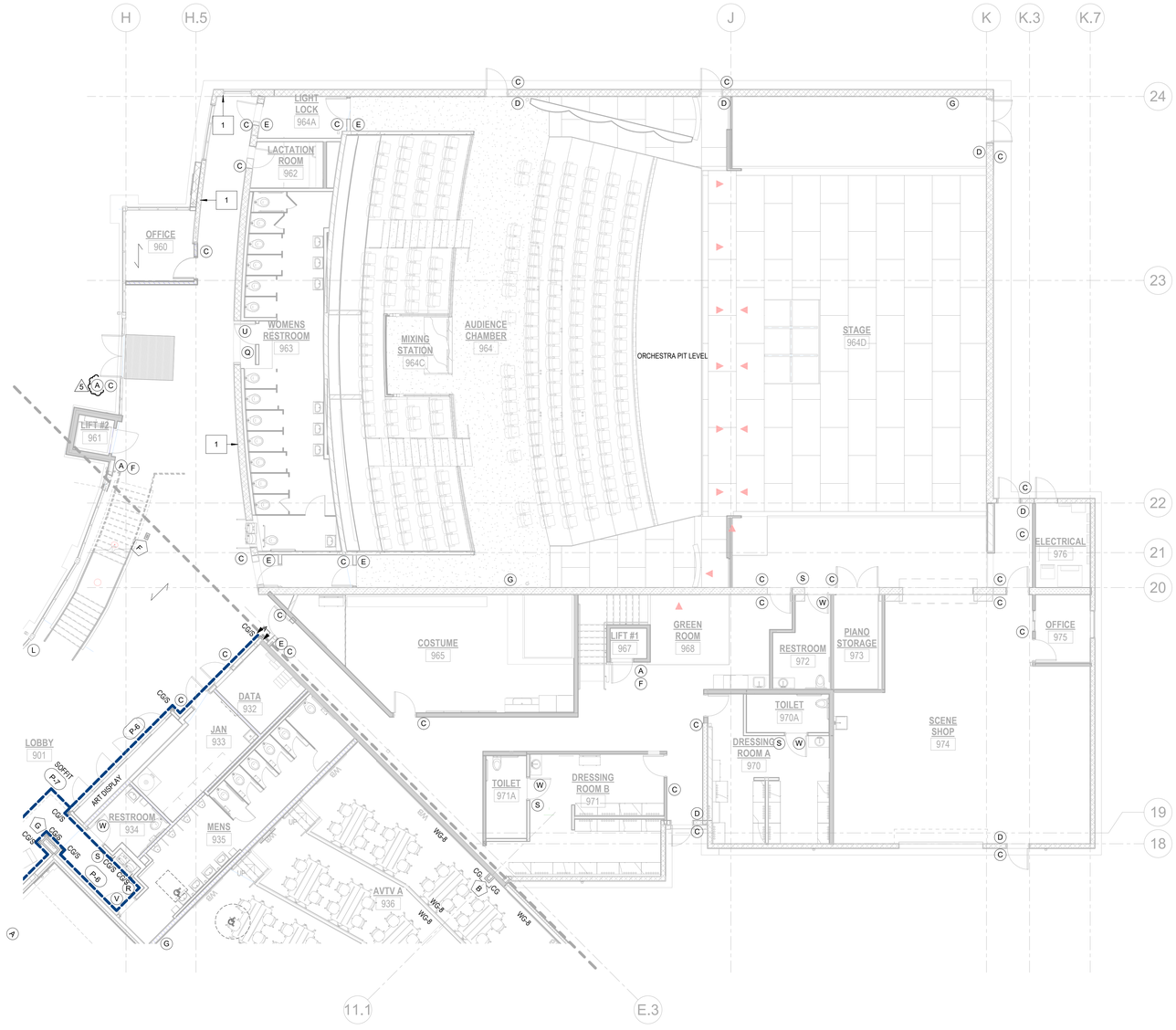
2



BASEMENT PLAN - FINISHES

SCALE : 1/8" = 1'-0"

3



1ST FLOOR - FINISHES - NORTH WING

SCALE : 1/8" = 1'-0"

1

KEY NOTES

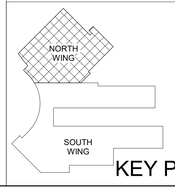
KEY #	DESCRIPTION
1	EXPOSED CMU SHALL BE SKIM COATED AND PAINTED

LEGEND

1. SEE FINISH SCHEDULE FOR FINISH LEGEND
2. PROVIDE BACKING , S.S.D. AS REQUIRED FOR SIGNAGE, PANEL MOUNTING
3. SEE CEILING PLANS FOR ADDITIONAL FINISHES INFORMATION

- X / WG — COLUMN WRAP - SEE SHEET A845; 12" WALL GUARD U.N.O. - SEE ELEVATIONS (WG) WG-8 = 8" WALL GUARD
- OTHER MATERIAL AS NOTED
- PAINTED SURFACE (P)
- WALL COVERING (WC)
- CG — PLASTIC CORNER GUARD - SEE DETAIL 4/A942 SIM
- CG/S — STAINLESS STEEL CORNER GUARD - SEE DETAIL 4/A942 SEE ALSO FOOD SERVICE SHEETS FOR ADDITIONAL CORNER GUARDS AND SIZE
- X-X — FINISHES - SEE FINISH SCHEDULE SHEET A611
- X — SIGNAGE - SEE DETAILS SHEETS A981, A982
- FB — FLOOR BOX DEVICE - SEE DETAIL 10/A941
- DIRECTION OF FLOORING PATTERN (LENGTH)

PROJECT NORTH



KEY PLAN

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name: C:\Users\DMangu\Documents\WCC_Perf Arts_Culinary_Central R18_dmangu@tbparchitecture.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

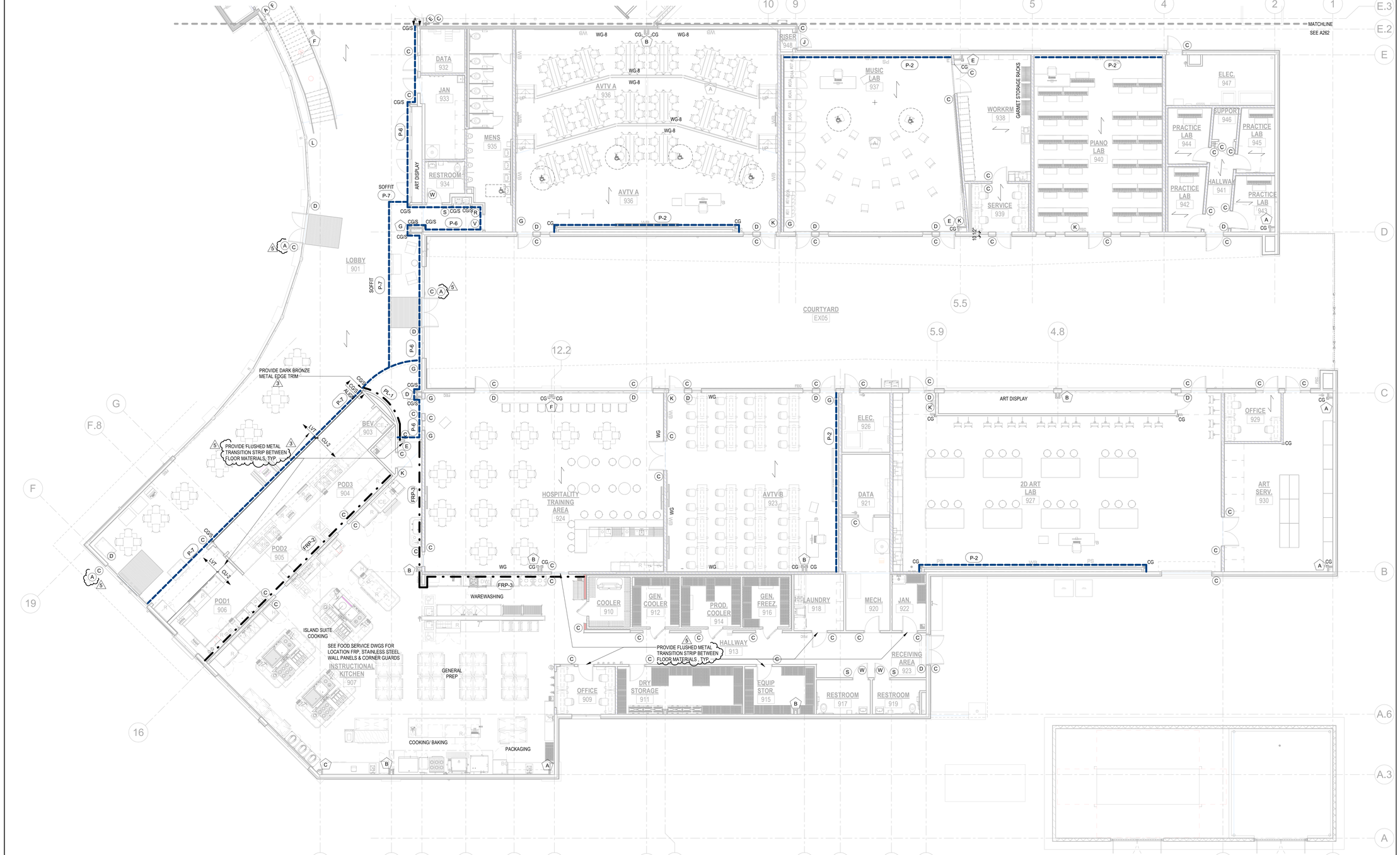
rev:	date:	description:
	05/17/21	BID SET
5	01/11/2022	ADDENDUM 5

drawing title: FINISHES PLAN - NORTH WING

drawing no.: A261

drawing of

1/11/2022 10:52:00 AM



1ST FLOOR - FINISHES - SOUTH WING

SCALE: 1/8" = 1'-0"

1

LEGEND

1. SEE FINISH SCHEDULE FOR FINISH LEGEND
2. PROVIDE BACKING , S.S.D. AS REQUIRED FOR SIGNAGE, PANEL MOUNTING
3. SEE CEILING PLANS FOR ADDITIONAL FINISHES INFORMATION

- X — COLUMN WRAP - SEE SHEET A845
- WG — 12" WALL GUARD U.N.O. - SEE ELEVATIONS (WG) WG-8 = 8" WALL GUARD
- OTHER MATERIAL AS NOTED
- PAINTED SURFACE (P)
- WALL COVERING (WC)
- CG — PLASTIC CORNER GUARD - SEE DETAIL 4/A942 SIM
- CG/S — STAINLESS STEEL CORNER GUARD - SEE DETAIL 4/A942 SEE ALSO FOOD SERVICE SHEETS FOR ADDITIONAL CORNER GUARDS AND SIZE
- X-X — FINISHES - SEE FINISH SCHEDULE SHEET A611
- X — SIGNAGE - SEE DETAILS SHEETS A981, A982
- FB — FLOOR BOX DEVICE - SEE DETAIL 10/A941
- DIRECTION OF FLOORING PATTERN (LENGTH)

PROJECT NORTH

NORTH WING

SOUTH WING

KEY PLAN

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

IBP project number: 22039.00

file name: C:\Users\DMangu\Documents\WCC_Perf Arts_Culinary_Central R18_dmangu@tbparchitecture.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
3	12/20/2021	ADDENDUM 3
5	01/11/2022	ADDENDUM 5

drawing title: FINISHES PLAN - SOUTH WING

drawing no.: A262

drawing of

1/11/2022 10:54:14 AM

FINISH SCHEDULE

SPACE		FLOOR	BASE	WALLS		CEILINGS		
NUMBER	NAME	MATERIAL/ COLOR	MATERIAL/ COLOR	FINISH	MATERIAL/ COLOR	FINISH	MATERIAL/ COLOR	REMARKS
901	LOBBY	LVT-1	RB-1	EGGSHELL	P-1	FLAT	P-12	
903	BEV	CU-2	CU-2	SEMI-GLOSS	P-1	AC-3, FLAT	P-11	
903A	BEV CLST	CU-1	CU-1	SEMI-GLOSS	P-1	AC-3	-	
904	POD3	CU-2	CU-2	SEMI-GLOSS	P-1/ FRP-2	AC-3, FLAT	P-11	
905	POD2	CU-2	CU-2	SEMI-GLOSS	P-1/ FRP-2	AC-3, FLAT	P-11	
906	POD1	CU-2, LVT-1	CU-2, RB-1	SEMI-GLOSS	P-1/ FRP-2	AC-3	-	
907	INSTRUCTIONAL KITCHEN	CU-1	CU-1	SEMI-GLOSS	P-1/ FRP-1&3	AC-3		SEE FOOD SERVICE DWGS FOR ANY ADDITIONAL INFORMATION
909	OFFICE	CS-1	TB-2	SEMI-GLOSS	P-1	AC-3	-	
910	COOLER	CU-1	MB-1	-	-	EXPSD U.O.S.	-	KITCHEN EQUIPMENT - SEE FOOD SERVICE DWGS
911	DRY STORAGE	CS-1	TB-2	SEMI-GLOSS	P-1	AC-3	-	
912	GEN. COOLER	CU-1	MB-1	-	-	EXPSD U.O.S.	-	KITCHEN EQUIPMENT - SEE FOOD SERVICE DWGS
913	HALLWAY	CU-1	CU-1	SEMI-GLOSS	P-1	AC-3	-	KITCHEN EQUIPMENT - SEE FOOD SERVICE DWGS
914	PROD. COOLER	CU-1	MB-1	-	-	EXPSD U.O.S.	-	KITCHEN EQUIPMENT - SEE FOOD SERVICE DWGS
915	EQUIP STOR.	CS-1	TB-2	SEMI-GLOSS	P-1	AC-3	-	
916	GEN. FREEZ.	CU-1	MB-1	-	-	EXPSD U.O.S.	-	KITCHEN EQUIPMENT - SEE FOOD SERVICE DWGS
917	RESTROOM	CU-1	CU-1	-	WT-1, WT-2	SEMI-GLOSS	P-11	
918	LAUNDRY	CS-1	TB-2	SEMI-GLOSS	P-1	AC-3	-	
919	RESTROOM	CU-1	CU-1	-	WT-1, WT-2	SEMI-GLOSS	P-11	
920	MECH.	CS-1	RB-1	SEMI-GLOSS	P-1	FLAT	P-11	
921	DATA	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	
922	JAN.	CS-1	TB-2	-	FRP-1	SEMI-GLOSS	P-11	
923	RECEIVING AREA	CU-1	CU-1	SEMI-GLOSS	P-1	AC-3	-	SEE FOOD SERVICE DWGS FOR ANY ADDITIONAL INFORMATION
923	AVTV B	LVT-1	RB-1	EGGSHELL	P-1	AC-1	-	
924	HOSPITALITY TRAINING AREA	LVT-1	TB-1	EGGSHELL	P-1	AC-3	-	
926	ELEC.	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	
927	2D ART LAB	CS-1	RB-1	SATIN	P-1	FLAT	P-12	
928	ART DISPLAY	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	
929	OFFICE	CP-1	RB-1	EGGSHELL	P-1	AC-1	-	
930	ART SERV.	CS-1	RB-1	SATIN	P-1	FLAT	P-12	
932	DATA	CS-1	RB-1	SEMI-GLOSS	P-1	FLAT	P-11	
933	JAN	CS-1	RB-1	SEMI-GLOSS	P-1/ FRP-1	SEMI-GLOSS	P-11	
934	RESTROOM	T-1	TB-1	-	WT-1, WT-2	SEMI-GLOSS	P-11	
935	MENS	T-1	TB-1	-	WT-1, WT-2	SEMI-GLOSS	P-11	
936	AVTV A	CP-2	RB-1	EGGSHELL	P-1	AC-1	-	
937	MUSIC LAB	WS-2	WB-1	EGGSHELL	P-1	FLAT	P-12	BLACKFACE INSULATION (UNCAPPED) AT THE CEILING. PAINT CEILING BLACK
938	WORKRM	VCT-1	RB-1	EGGSHELL	P-1	FLAT	P-11	
939	SERVICE	CP-1	RB-1	EGGSHELL	P-1	FLAT	P-11	
940	PIANO LAB	CP-1	RB-1	EGGSHELL	P-1	FLAT	P-12	
941	HALLWAY	VCT-2	RB-1	EGGSHELL	P-1	AC-1	-	
942	PRACTICE LAB	CP-1	RB-1	EGGSHELL	P-1	AC-1	-	
943	PRACTICE LAB	CP-1	RB-1	EGGSHELL	P-1	AC-1	-	
944	PRACTICE LAB	CP-1	RB-1	EGGSHELL	P-1	AC-1	-	
945	PRACTICE LAB	CP-1	RB-1	EGGSHELL	P-1	AC-1	-	
946	SUPPORT	CS-1	RB-1	SEMI-GLOSS	P-1	FLAT	P-11	
947	ELEC.	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	
948	RISER	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	
950	ORCHESTRA PIT	WS-2,CP-3	WB-2					REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
951	TRAP ROOM	CS-1	RB-1			FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
953	HALLWAY	CP-3	RB-1	EGGSHELL	P-1	FLAT	P-11	
960	OFFICE	CP-3	RB-1	EGGSHELL	P-1	AC-1	-	
961	LIFT #2	VCT-2	RB-1	EGGSHELL	P-1	FLAT	P-11	
962	LACTATION ROOM	CS-1	RB-1	SATIN	P-1	FLAT	P-11	
963	WOMENS	T-1	TB-1	-	WT-1, WT-2	SEMI-GLOSS	P-11	
964	AUDIENCE CHAMBER	CS-1/ CP-3	CPLY-1	FF		FLAT	P-12	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION AND THEATER MATERIAL & FINISHES LEGEND
964A	LIGHT LOCK	CP-3	RB-1	EGGSHELL	P-1	AC-2	-	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
964B	LIGHT LOCK	CP-3	RB-1	EGGSHELL	P-1	AC-2		REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
964C	MIXING STATION	CS-1	CPLY-1	FF	-	-	-	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION AND THEATER MATERIAL & FINISHES LEGEND
964D	STAGE	WS-1	WB-2	EGGSHELL	P-1	FLAT	P-12	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
965	COSTUME	VCT-2	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
966	HALLWAY	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
967	LIFT #1	VCT-2	RB-1	EGGSHELL	P-1	FLAT	P-11	
967A	STAIRS	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	
968	GREEN ROOM	CP-3	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
969	HALLWAY	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
970	DRESSING ROOM A	VCT-2	RB-1	EGGSHELL	P-1	AC-1	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
970A	TOILT.	T-1	TB-1	-	WT-1, WT-2	SEMI-GLOSS	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
971	DRESSING ROOM B	VCT-2	RB-1	EGGSHELL	P-1	AC-1	-	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
971A	TOILT.	T-1	TB-1	-	WT-1, WT-2	SEMI-GLOSS	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
972	RESTROOM	T-1	TB-1	-	WT-1, WT-2	SEMI-GLOSS	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
973	PIANO STOR.	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
974	SCENE SHOP	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
975	OFFICE	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
976	ELEC	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
981	HALLWAY	CP-3	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
982	LIGHT LOCK	CP-3	RB-1	EGGSHELL	P-1	AC-2	-	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
983	CONTROL ROOM	CP-3	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
984	LIGHT LOCK	CP-3	RB-1	EGGSHELL	P-1	AC-2		REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
985	UTILITY ROOM	CS-1	RB-1	EGGSHELL	P-1	FLAT	P-11	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
986	AUDIENCE CHAMBER UPPER	CS-1/ CP-3	CPLY-1	FF		FLAT	P-12	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
996	TECH GALLERY	CP-3	RB-1	EGGSHELL	P-1	FLAT	P-12	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
997	CATWALK	CP-3				FLAT	P-12	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
998	CATWALK	CP-3				FLAT	P-12	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION
999	TENSION GRID					FLAT	P-12	REFER TO THEATER DWGS FOR ADDITIONAL INFORMATION

FINISH SCHEDULE LEGEND

SCALE : 1/8" = 1'-0"

1. SEE FINISH PLANS FOR EXACT LOCATIONS OF FLOOR AND/ OR WALL FINISHES AND ANY ADDITIONAL INFORMATION
2. AT RESTROOMS SEE DETAIL 14/ A942 FOR TYPICAL WALL TILE PATTERN.
3. WHERE ROOMS WITH EXPOSED STEEL/ STRUCTURE - PAINT BLACK.
4. ALL FLOORING EXCEPT CARPET AND SEALED CONCRETE SHALL HAVE A MIN OF 0.6 COEFFICIENT OF FRICTION
5. FOR FLOOR MATERIAL TRANSITION DETAILS, SEE SHEET A822
6. TILE @ DEPRESSED SLAB SEE 15/A841
7. FOR ACOUSTICAL PANELS LOCATION AND SIZE SEE INTERIOR ELEVATIONS
8. ALL INTERIOR EXPOSED CMU SHALL HAVE A CLEAR COAT SEALANT

ABBREVIATIONS:

AC	ACOUSTICAL CEILING	PES	PAINT EGG SHELL
ACT	ACOUSTICAL CEILING TILE	PF	PAINT FLAT
AFF	ABOVE FINISH FLOOR	PG	PAINT GLOSS
BD CMT	BOARD CERAMIC MOSAIC TILE	PLS	PAINT LOW SHEEN
CMU CONC	CONCRETE MASONRY UNIT	PNL	PANEL
CT EPXY	CONCRETE CERAMIC TILE	PS	PAINT SATIN
EXPSD F	EPOXY	PSG	PAINT SEMI GLOSS
FRP	EXPOSED FACTORY FINISH	QT	QUARRY TILE
GL	FIBER REINFORCED PLASTIC PANEL	RESIL	RESILIENT
GYP MTL	GLASS	SF	SATIN FINISH
EP	GYPSUM METAL	SLR	SEALER
FF	EPOXY PAINT	SV	SHEET VINYL
PCB	FACTORY FINISH	TO	TAPE ONLY
	PAINT CEILING BLACK	UOS	UNDERSIDE OF STRUCTURE
		VCT	VINYL COMPOSITION TILE
		VFWC	VINYL FABRIC WALL COVERING

FLOOR MATERIALS & FINISHES: (3)

CP-1 CARPET - TARKETT - MARLED TWEED 11072, COLOR: ~~FELTED TWEED 27302 OR~~ GREY TWEED 27308 (9"x36", VERTICAL ASHLAR)
CP-2 CARPET - TARKETT - MARLED TWEED 11072, COLOR: IBIZA TWEED 27311 ~~OR GREY TWEED 27308~~ (9"x36", VERTICAL ASHLAR)
CP-3 CARPET - TARKETT - ELEMENT, COLOR: DECEMBER LIGHT #76002 ~~OR ION LINEN, COLOR: TITANIUM #02594~~

T-1 TILE - DALTILE - INDUSTRIAL PARK, COLOR: ~~CHESNUT BROWN IP08 OR~~ CHARCOAL GRAY 1P09 (12X12)

LVT-1 LUXURY VINYL TILE - TARKETT - GEOGRID, COLOR: IRIDIUM 4113 (CUSTOM DESIGN WITH NO GRID) (6"X36")

WS-1 WOOD SPRUNG FLOOR (TBD BY JSFA)
WS-2 WOOD SPRUNG FLOOR

CS-1 EXPOSED CONCRETE, SEALED

CU-1 CEMENTITIOUS URETHANE - STONHARD - STONGARD UR WITH STONEKOTE GS4, COLOR: STEEL GRAY
CU-2 CEMENTITIOUS URETHANE - STONHARD - STONGARD UR WITH STONEKOTE GS4, COLOR: MUSHROOM

VCT-1 VINYL COMPOSITION TILE - ARMSTRONG - RAFFIA STREAM, COLOR: BUTTER 55806 (12x24)
VCT-2 VINYL COMPOSITION TILE - ARMSTRONG - PREMIUM EXCELON CHORMASPIN, COLOR: PAYNES GRAY 54801 (12x12)

BASE MATERIALS & FINISHES:

CUB-1 CEMENTITIONS URETHEANE INTEGRAL COVE BASE. COLOR: 413 SPEEDWAY GRAY

CPLY-1 1/4" CHERRY PLYWOOD (TBD BE JSFA)

MB-1 METAL BASE (TBD BY KITCHEN CONSULTANTS)

RB-1 4" HIGH RESILIENT BASE - BURKE - COLOR: 523 BLACKBROWN)

TB-1 6" HIGH COVED TILE - DALTILE COLOR: SAME AS T-1
TB-2 6" HIGH COVED TILE - DALTILE COLOR WHEEL COLLECTION - COLOR: SUEDE GRAY 0182 - SANITARY COVE BASE S-3619TN KEYED INTO CONCRETE

WB-1 WOOD BASE (TBD BY JSFA)
WB-2 WOOD BASE - VENTILATED (TBD BY JSFA)

WALL MATERIALS & FINISHES:

AP-1 1 1/8" THICK FABRIC WRAPPED ACOUSTICAL WALL PANEL WRAPPED W/ CARNEGIE XOREL ~~CIRCUIT 6877, #15 OR~~ SAHARA MATTE 6089, #625 (3)

FRP-1 FRP FIBERGLASS REINFORCED PLASTIC - PEBBLE, COLOR: WHITE
FRP-2 FRP FIBERGLASS REINFORCED PLASTIC - BRICK PATTERN, COLOR: WHITE
FRP-3 FRP FIBERGLASS REINFORCED PLASTIC - ACCENT - PEBBLE (DARK GRAY)

P-1 WALL FIELD: ~~KM27 - BONE~~ or KM5640-1 - CHANTILLY LACE
P-2 WALL ACCENT: ~~KM4627-2 - COZY WOOL or~~ KM5000-2 - BEACH UMBRELLA
P-3 WALL ACCENT: ~~KM4951-3 - QUEEN VALLEY or~~ KM5821-3 - SANDPIPER COVE
P-4 N/A (3)
P-5 N/A
P-6 WALL ACCENT: KMA75-5 - CELLAR DOOR
P-7 WALL ACCENT: KM5359-5 - TUSCAN SUN
P-8 WALL ACCENT: KM5147-3 CALAMANSI GREEN
P-9 WALL ACCENT: KM4433-3 TUSCAN CLAY
P-10 WALL ACCENT: KM5797- 5 - WOODWARD PARK
P-11 CEILING FIELD: 23 - SWISS COFFEE
P-12 CEILING FIELD: 407 - CARBON

PLY 3/4" PLYWOOD @ 8'-0" HIGH OVER GYP BD. PAINT ALL SIDES OF THE PLYWOOD BEFORE INSTALLATION - PAINT (P1)

WT-1 WALL FIELD: DALTILE HAUT MODE, COLOR: ~~NOBILITY WHITE HM08 OR~~ GLITTERATI GRNT HM03 (12x12)
WT-2 ACCENT TILE: DALTILE MOSAIC TRADITIONS, COLOR: ~~ZEN ESCAPE BP96 (5/8" x 3" BRICK JOINT) OR~~ EVENING SKY BP97 (5/8" x 3" BRICK JOINT) (3)

CEILING MATERIALS & FINISHES: (5)

AC-1 ACOUSTICAL CEILING TILE - ARMSTRONG ~~CORTEGA~~ CIRRUS 2X4 WHITE
AC-2 ACOUSTICAL CEILING TILE - ARMSTRONG CORTEGA ~~SECOND LOOK~~ 2X4, COLOR: BLACK
AC-3 ACOUSTICAL CEILING TILE - ARMSTRONG ~~ULTIMA~~ KITCHEN ZONE 2x4, ~~(VERIFY W/ HEALTH DEPT IF VINYL MEMBRAME IS REQ, IF SO USE "CLEAN CL")?~~

AT-1 2" THICK BLACK FACED INSULATION OVER GYP BOARD- SEE DETAIL 9/A921

EXP EXPOSED CEILING

THEATER MATERIALS & FINISHES: (3)

MAIN THEATER DRAPERY:	ROSE BRAND - CHARISMA SYNTHETIC VELOUR - COLOR: IFR: HUNTER
THEATER SEAT FABRIC :	ABSECON MILLS - COLOR: SIDESTEP GEEEN-BACK
THEATER WOOD WALLS & SEATS:	IRWIN SEATING COMPANY - WOOD FINISH No. 27 - CLASSIC GOLDEN ON RED OAK
ACOUSTIC PANEL:	ASI ACOUSTICAL SOLUTIONS, INC - COLOR: MEDIUM GREY - 198

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name: C:\Users\DManguy\Documents\WCC_Perf Arts_Culinary_Central R18_dmanguy@tbparchitecture.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
3	12/20/2021	ADDENDUM 3
5	01/11/20212	ADDENDUM 5

drawing title:

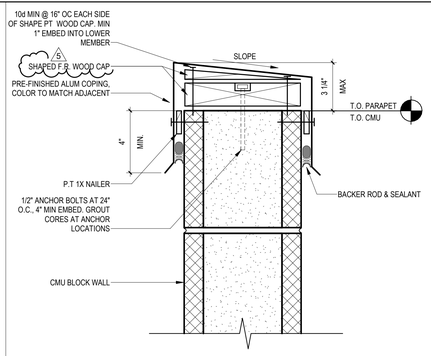
FINISH SCHEDULE

drawing no.:

A611

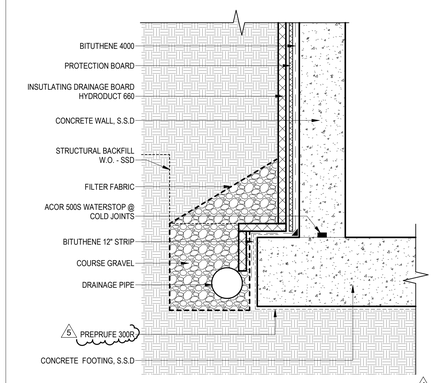
drawing of

1/11/2022 11:15:55 AM



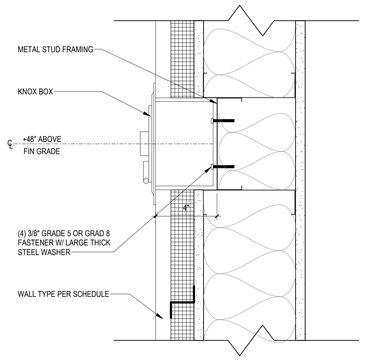
COPING @ CMU
SCALE : 3" = 1'-0"

4



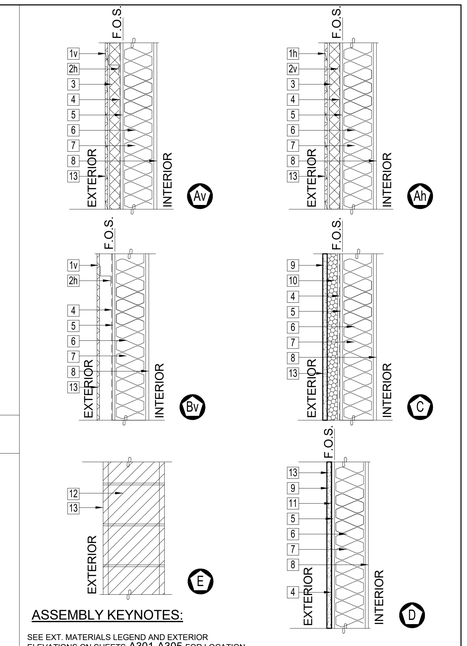
FOUNDATION WALL WATERPROOFING
SCALE : 3/4" = 1'-0"

9



KNOX BOX
SCALE : 3" = 1'-0"

14



ASSEMBLY KEYNOTES:

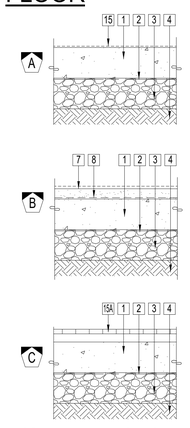
SEE EXT. MATERIALS LEGEND AND EXTERIOR ELEVATIONS ON SHEETS A301-A305 FOR LOCATION OF COLORS AND FINISHES OF EXTERIOR WALL PANELS. EXTERIOR WALL ASSEMBLIES ARE NON-RATED

- 1v METAL PANEL (MP), VERTICAL INSTALLATION PER SPEC SECTION **07 42 13**
- 1h METAL PANEL (MP), HORIZONTAL INSTALLATION PER SPEC SECTION **07 42 13**
- 2h PANEL STAND-OFF SYSTEM: SMARTci Z-CLIPS HORIZONTAL INSTALLATION; SEE WALL SECTIONS SHEETS **A411-A413**
- 2v PANEL STAND-OFF SYSTEM; SMARTci Z-CLIPS VERTICAL INSTALLATION - SEE WALL SECTIONS SHEET **A411-A413**
- 3 CONTINUOUS INSTALLATION (R-7.5) PER SMARTci SPECIFICATION 07 21 78
- 4 FLUID APPLIED MEMBRANE AIR BARRIER PER SPEC SECTION **07 27 19**
- 5 EXTERIOR WALL SHEATHING
- 6 R-19 HD BATT INSULATION PER SPEC SECTION **07 21 00**
- 7 6" MTL STUD AT EXTERIOR TYP U.O.N. **S.S.D.**
- 8 5/8" FIBERGLASS-MAT FACED GYP BD PER SPEC SECTION **09 29 00** TYP TO UNDERSIDE OF STRUCTURE ABOVE U.O.N.
- 9 CEMENT PLASTER SYSTEM, PER SPEC SECTION **07 24 19**
- 10 CONTINUOUS INSULATION (R-7.5) PER CEMENT PLASTER SYSTEM BY PLASTER SYSTEM MFR
- 11 MATT DRAINAGE SYSTEM & 4
- 12 CONCRETE MASONRY UNIT, PER SPEC SECTION **04 20 00** & **S.S.D.**
- 13 ANTI-GRAFFITI COATING PER SPEC SECTION **09 90 00**

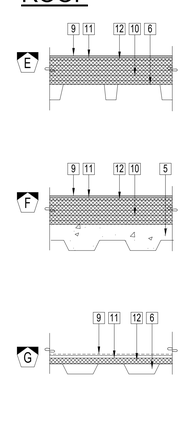
EXTERIOR WALL ASSEMBLIES
SCALE: 1" = 1'-0"

10

FLOOR



ROOF



ASSEMBLY KEYNOTES:

- 1 CONC. SLAB ON GRADE, S.S.D. FOR THICKNESS AND OTHER REQUIREMENTS
- 2 UNDERSLAB VAPOR RETARDER PER SPEC SECTION 07 26 50
- 3 FREE DRAINING CRUSHED ROCK, DEPTH PER GEOTECH REPORT
- 4 ENGINEERED FILL, DEPTH PER GEOTECH REPORT. S.S.D., FOR ADDITIONAL REQMTS.
- 5 CONC. FILL OVER METAL DECK S.S.D.
- 6 STRUCTURAL METAL ROOF DECK S.S.D.
- 7 THICK-SET TILE OVER MORTAR BED OR CEMENTITIOUS URETHANE SEE FINISH SCHEDULE
- 8 CRACK ISOLATION MEMBRANE PER SPEC SECTION 09 30 00
- 9 THERMOPLASTIC PVC ROOFING PER SPEC SECTION 07 54 19
- 10 POLYISOCYANURATE INSULATION BOARD PER SPEC SECTION 07 54 19 R-30 MANDATORY MIN. INSTALL PER MFR INSTRUCTIONS (ICC-ESR 1157)
- 11 MIN. 1/2" THICK PROTECTION COVER BOARD PER SPEC SECTION 07 54 19 INSTALL PER MFR INSTRUCTIONS (ICC-ESR 1157)
- 12 EXTRUDED POLYSTYRENE TAPERED INSULATION PER SPEC SECTION 07 54 19 MIN. 1/4" PER FOOT FALL FOR POSITIVE DRAINAGE. ATTACHMENT PER MFR INSTALLATION INSTRUCTIONS
- 13 NOT USED
- 14 NOT USED
- 15 FLOOR FINISH AS SCHEDULED
- 15A WOOD FLOORING PER SPEC SECTION 09 64 00

NOTES:

1. INSTALL FLOOR TILE ACCORDING TO TILE COUNCIL OF NORTH AMERICA (TCNA) INSTALLATION ASSEMBLIES **F112** FOR THICK SET TILE
2. INSTALL UNDER SLAB VAPOR BARRIER PER MANUFACTURE INSTALLATION RECOMMENDATION AND COORDINATE WITH FOOTING INSTALLATION, SEE STRUCTURAL DWGS FOR FOOTING CONDITIONS.

HORIZONTAL FLOOR & ROOF ASSEMBLIES
SCALE: 1" = 1'-0"

20

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name: C:\Users\DMarguy\Documents\WCC_Perf Arts_Culinary_Central R18_dmarguy@tbparchitecture.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/2021	ADDENDUM 4
5	01/11/2022	ADDENDUM 5

drawing title:

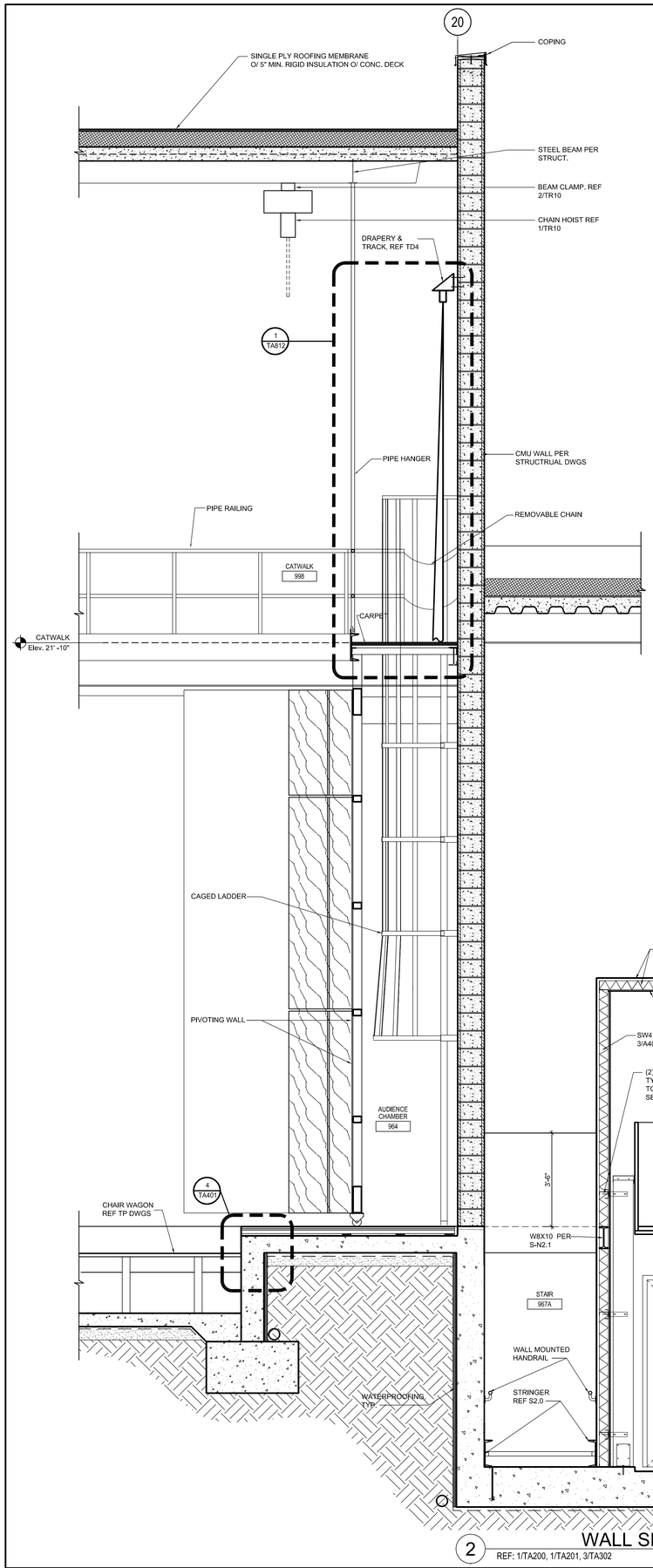
EXTERIOR DETAILS

drawing no.:

A831

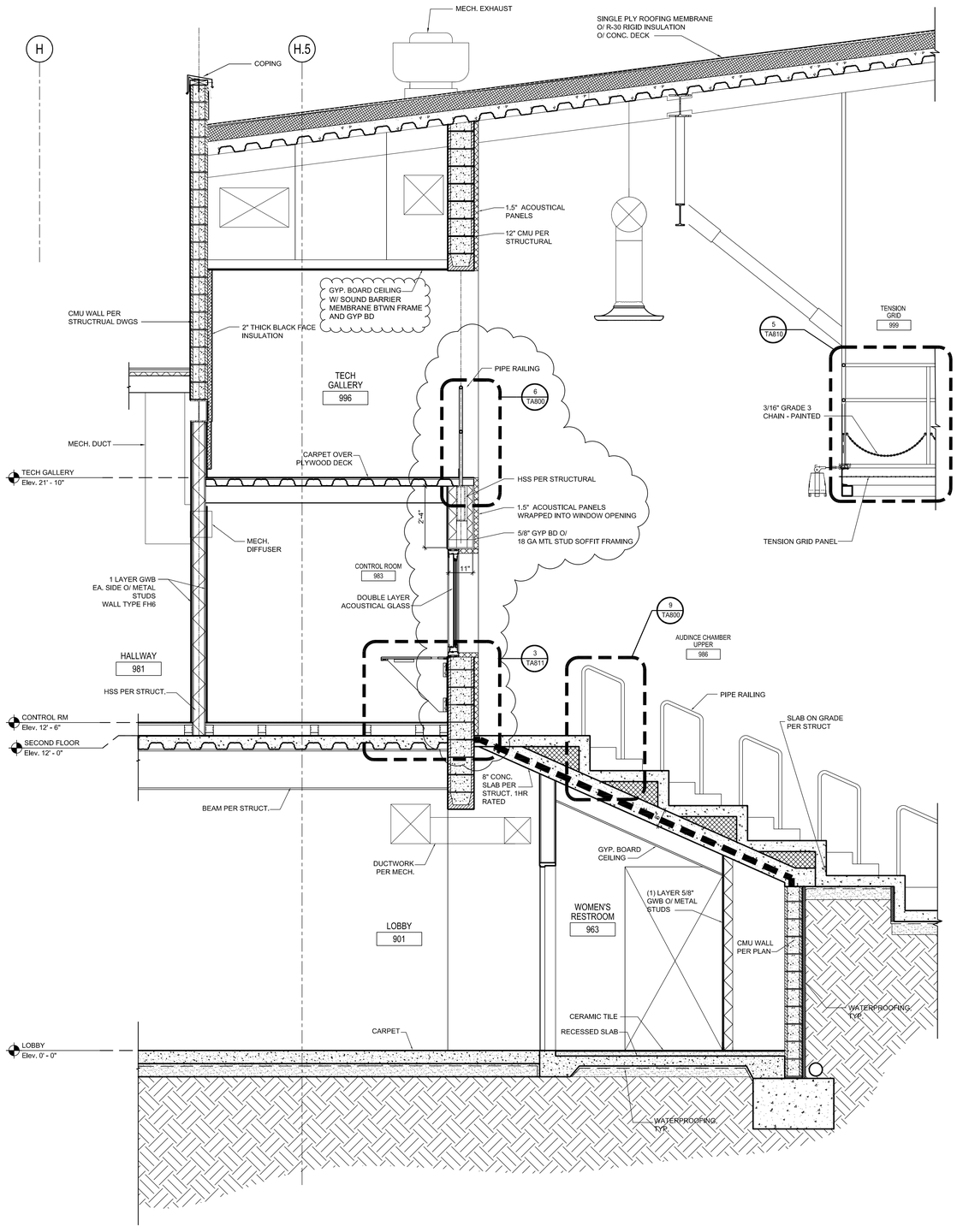
drawing of

1/10/2022 7:44:54 PM



2 WALL SECTION

REF: 1/TA200, 1/TA201, 3/TA302 SCALE: 1/2"=1'-0"



1 WALL SECTION AT CONTROL RM

REF: 1/TA201, 1/TA301 SCALE: 1/2"=1'-0"

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

John Sergio Fisher & Associates
5567 Reseda Blvd., Suite 209
Tarzana, California 91356
(818) 344-3045
fax (818) 344-0338
E-mail: jfisher@jsfarchs.com

jsfa

Architecture & Planning

John Fisher AIA

consultant

WOODLAND COMMUNITY COLLEGE PERFORMING ARTS/ CULINARY SERVICES FACILITY

2300 E. GIBSON RD. WOODLAND CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name:

drawn by: checked by: JF

date: MAY 17, 2021

rev:	date:	description:
	5/17/21	BID SET
	1/11/22	ADDENDUM #5

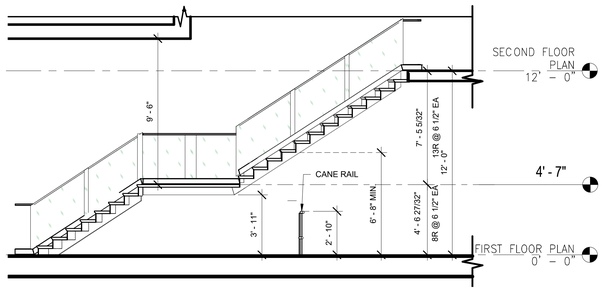
drawing title:

WALL SECTIONS

drawing no.:

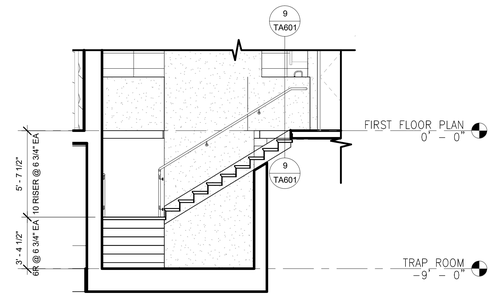
TA 411

drawing of



7 STAIR SECTON #3

SCALE: 1/4" = 1'-0"

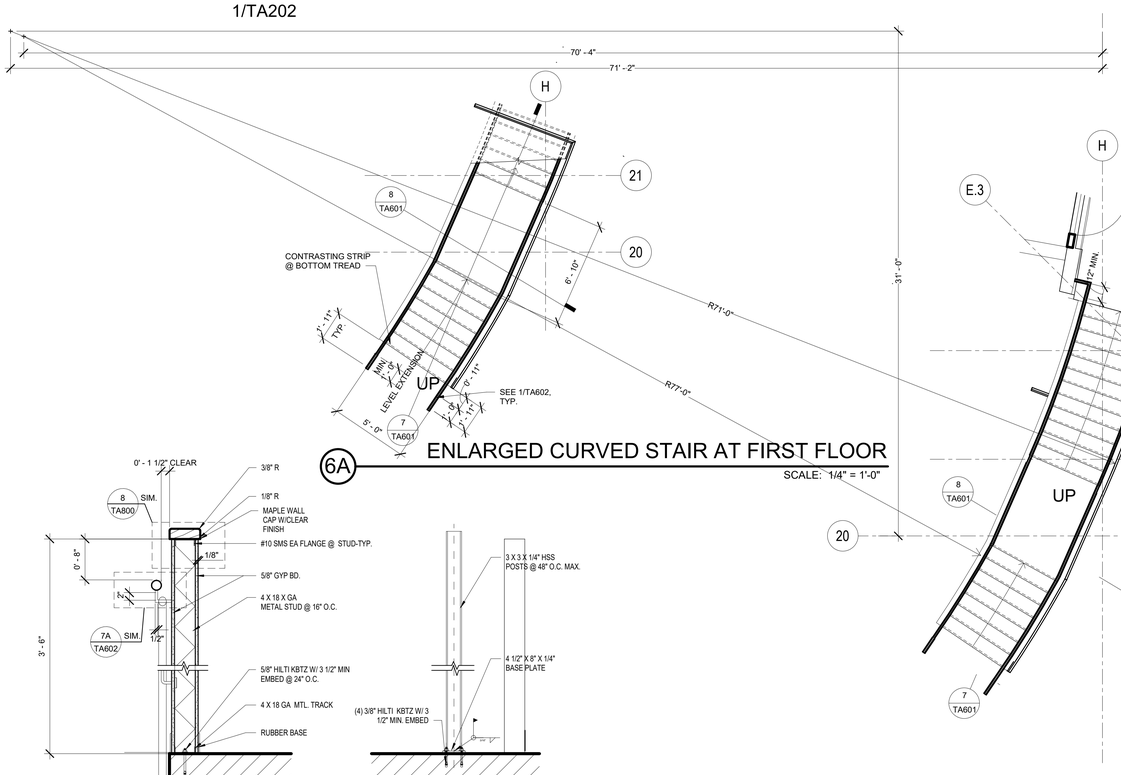


STAIR SECTION #2

4

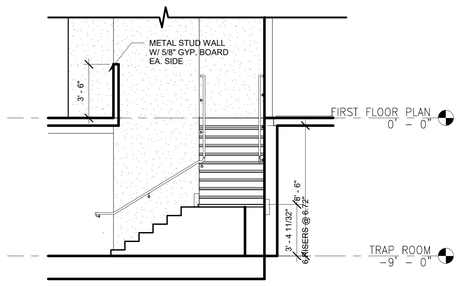
SCALE: 1/4" = 1'-0"

1/TA202



6A ENLARGED CURVED STAIR AT FIRST FLOOR

SCALE: 1/4" = 1'-0"



STAIR SECTION #1

3

SCALE: 1/4" = 1'-0"

9 PARTITION METAL STUD WALL

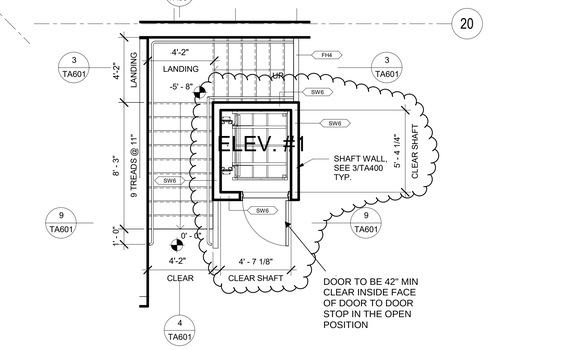
SCALE: 1" = 1'-0"

ENLARGED CURVED STAIR PLAN AT SECOND FLOOR

6B

1/TA201

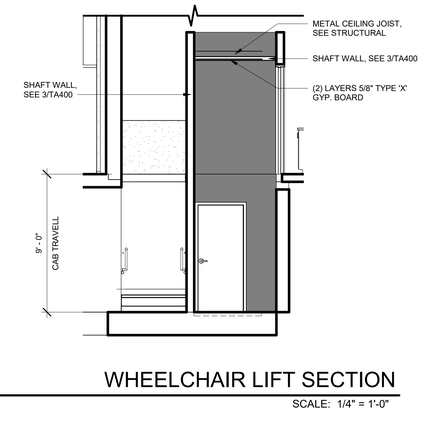
SCALE: 1/4" = 1'-0"



2 ENLARGED STAIR & LIFT PLAN AT FIRST FLOOR

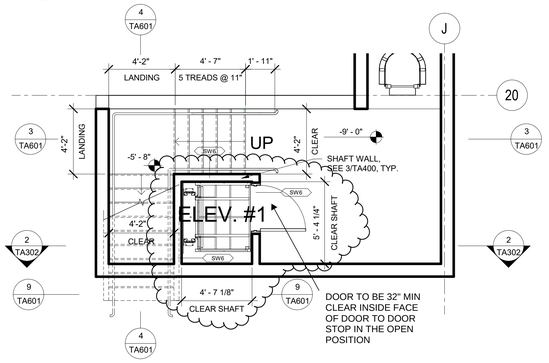
1/TA201

SCALE: 1/4" = 1'-0"



5 WHEELCHAIR LIFT SECTION

SCALE: 1/4" = 1'-0"



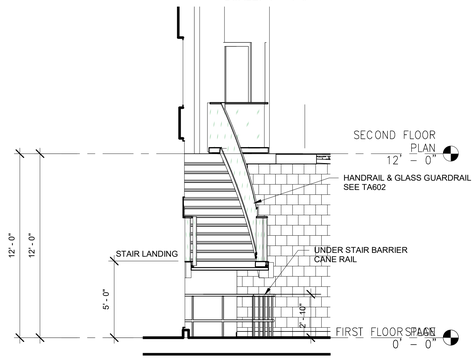
1 ENLARGED STAIR & LIFT PLAN AT BASEMENT

1/TA201

SCALE: 1/4" = 1'-0"

8 STAIR SECTON #4

SCALE: 1/4" = 1'-0"



DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

architect

John Sergio Fisher & Associates
5567 Reseda Blvd., Suite 209
Tarzana, California 91356
(818) 344-3045
fax (818) 344-0338
E-mail: jfisher@jsfarchs.com

Architecture & Planning

John Fisher AIA

jsfa

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/
CULINARY SERVICES FACILITY

2300 E. GIBSON RD, WOODLAND CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: Project Number

file name: C:\Data\Revit Temp files\1917-Woodland CC-CENTRAL_archer019.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
	1/11/22	ADDENDUM #5

drawing title:

STAIR - LIFT PLANS & SECTIONS

drawing no.:

TA601

drawing of

1/10/2022 5:46:35 PM

CONTROL WIRING LEGEND

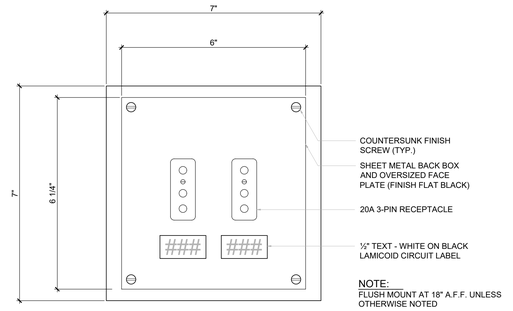
SYMBOL	WIRE TYPE(S)	SIGNAL
DI*	(1) BELDEN 9729	DMX INPUT
DO*	(1) BELDEN 9729	DMX OUTPUT
RF*	(1) BELDEN 9728 (2) #16 AWG. STRANDED WIRES	REMOTE FOCUS UNIT
NT*	(1) BELDEN 1583A	ETC NET
PT*	(2) #16 AWG. STRANDED WIRES	PANIC
SR*	(1) BELDEN 9729 (MAX LENGTH 15M)	SERIAL
UP*	(1) BELDEN 8471 (1) #14 AWG. STRANDED WIRE	UNISON
UW*	(1) BELDEN 8471 (1) #14 AWG. STRANDED WIRE (2) #16 AWG. STRANDED WIRES	UNISON (WITH +24V POWER)
* = WIRE QUANTITY		

5

NOTES:

1) ALL CONTROL WIRING SHALL BE PROVIDED BY OTHERS UNLESS NOTED OTHERWISE.
2) TOTAL LENGTH OF UNISON WIRING RUNS SHALL NOT EXCEEED 1640 FEET (500M).
3) TOTAL LENGTH OF NETWORK WIRING RUNS SHALL NOT EXCEEED 320 FEET (100M).
4) DISTRIBUTION OMMITTED FOR CLARITY.
5) ENGINEER TO DETERMINE APPLICABILITY OF ALL BYPASS / TRANSFER SYSTEMS.

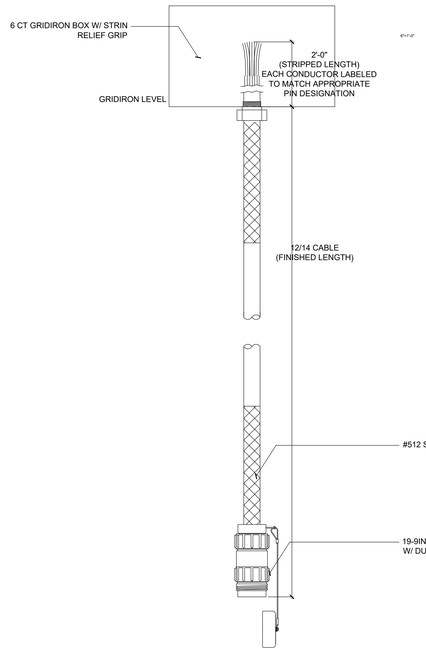
DEVICE TYPE	RECEPTACLE QUANTITY
P1	1
P2	2
P3	3

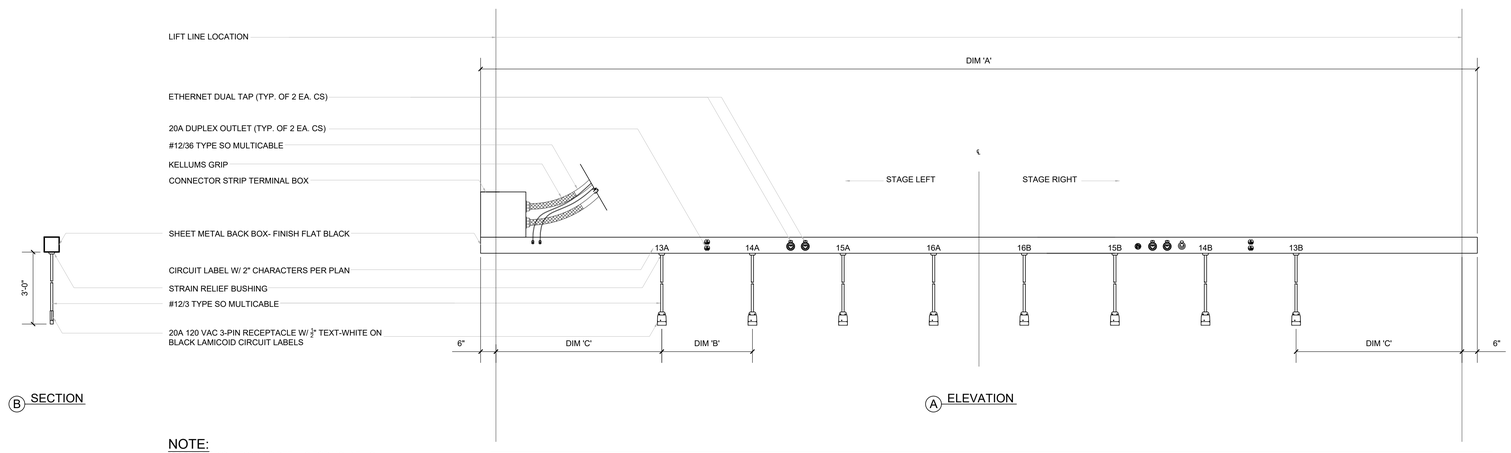


A. FRONT VIEW

4 20A THEATRICAL LIGHTING RECEPTICLE

SCALE: 6"=1'-0"





B SECTION

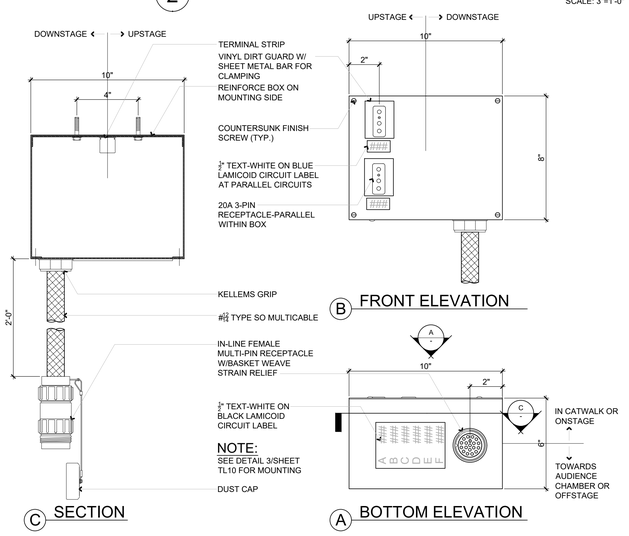
A ELEVATION

NOTE:
SEE THEATRICAL RIGGING DETAILS FOR MOUNTING (MOUNTING BY 11061)

DEVICE	DIM 'A'	DIM 'B'	DIM 'C'	RECEPTACLE QUANTITY					DEVICE QTY.	NOTES
				20A OUTLET	ETHERNET	20A EDISON	20A,208V TWISTLOCK	DMX		
CS-1	44'-0"	3'-0"	4'-6"	12	4	4	0	0	2	SUPPLIED AND INSTALLED BY DIV. 11061
CS-2	37'-0"	3'-0"	4'-6"	10	4	4	0	0	1	SUPPLIED AND INSTALLED BY DIV. 11061

2 CONNECTOR STRIP DETAIL

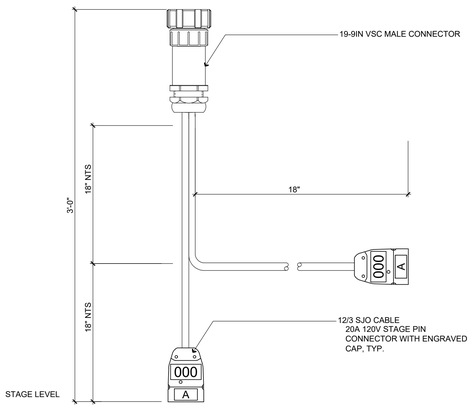
SCALE: 3"=1'-0"



C SECTION

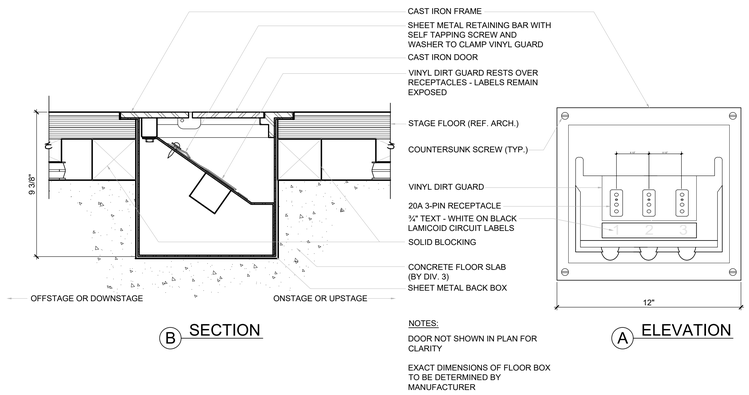
B FRONT ELEVATION

A BOTTOM ELEVATION



5 BREAKOUT CABLE DETAIL

SCALE: 3"=1'-0"



B SECTION

A ELEVATION

NOTES:
DOOR NOT SHOWN IN PLAN FOR CLARITY

EXACT DIMENSIONS OF FLOOR BOX TO BE DETERMINED BY MANUFACTURER

3 FLOOR BOX DETAIL AND MOUNTING (FB)

SCALE: 3"=1'-0"

1 PLUG BOX AT SIDE LIGHTING POSITIONS

SCALE: 3"=1'-0"

DSA Application #02-118286
DSA File #58-C1

agency

IBP
architecture
planning
interiors

IBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

John Sergio Fisher & Associates
5567 Reseda Blvd., Suite 209
Tarzana, California 91356
(818) 344-3045
fax (818) 344-0338
E-mail: jfisher@jsfarchs.com

Architecture & Planning

John Fisher AIA

jsfa

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/
CULINARY SERVICES FACILITY

2300 E. GIBSON RD. WOODLAND CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

IBP project number:

file name:

drawn by: checked by:

date: MAY 17, 2021

rev:	date:	description:
	5/17/21	BID SET
	06/23/21	BACK CHECK
5	1/11/22	ADDENDUM #5

drawing title:

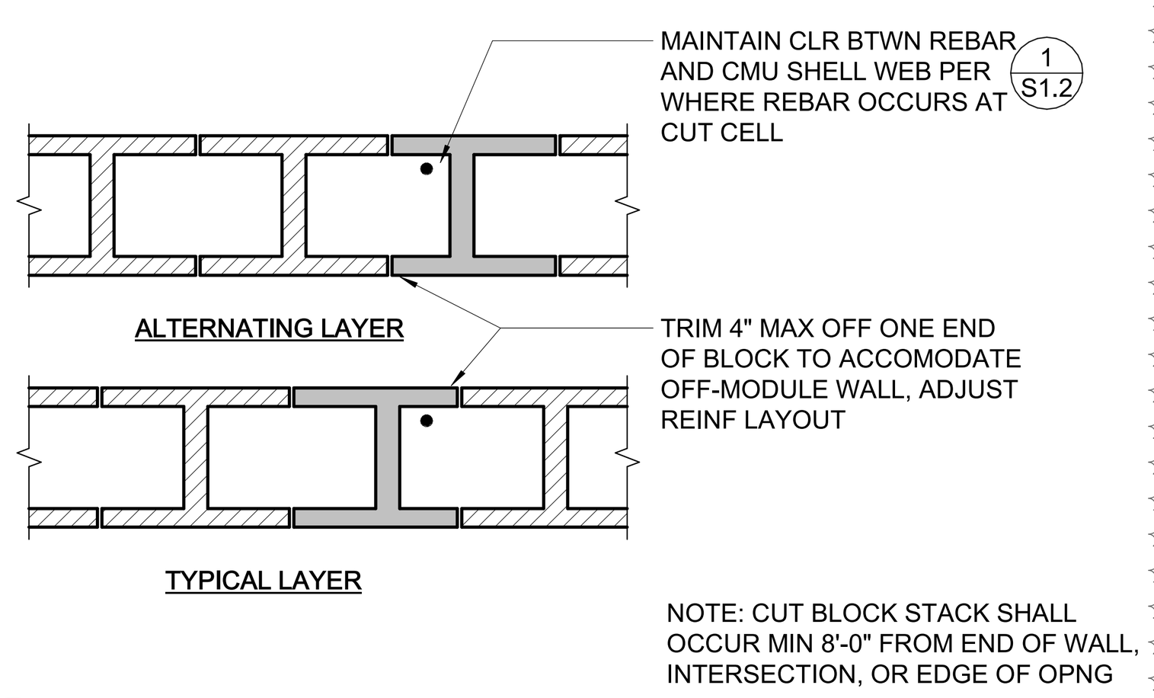
THEATRICAL LIGHTING WIRING DEVICE DTLS.

drawing no.:

TL-7

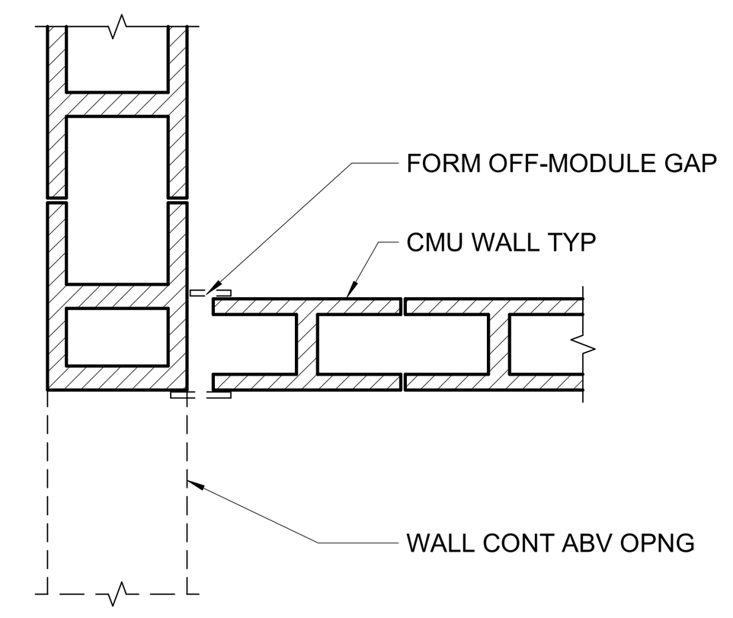
drawing of

MAINTAIN CLR BTWN REBAR AND CMU SHELL WEB PER (1/S1.2) WHERE REBAR OCCURS AT CUT CELL

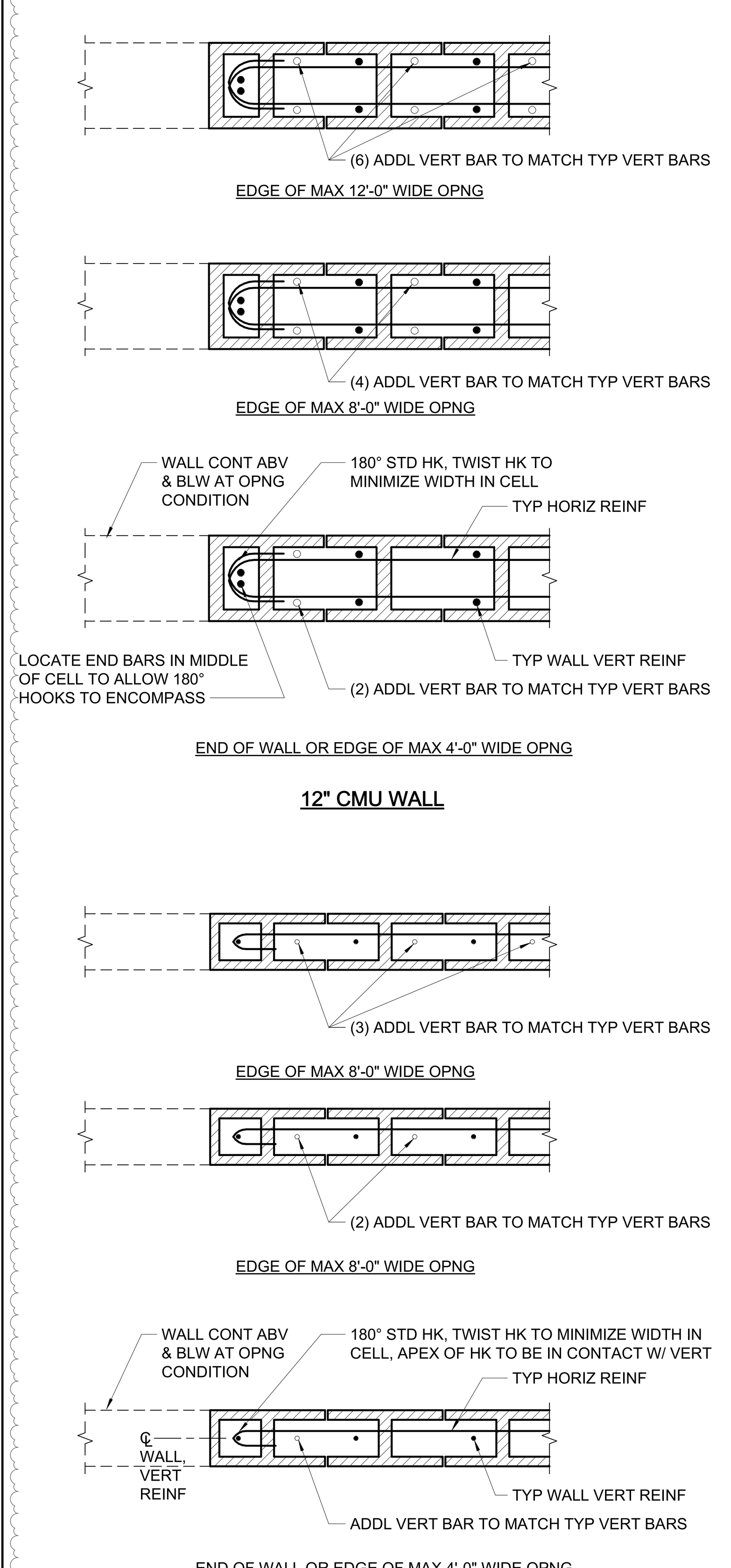


NOTE: CUT BLOCK STACK SHALL OCCUR MIN 8'-0" FROM END OF WALL, INTERSECTION, OR EDGE OF OPNG

13 OFF MODULE WALL LENGTH
3/4" = 1'-0"



14 FORMED CORNER
3/4" = 1'-0"

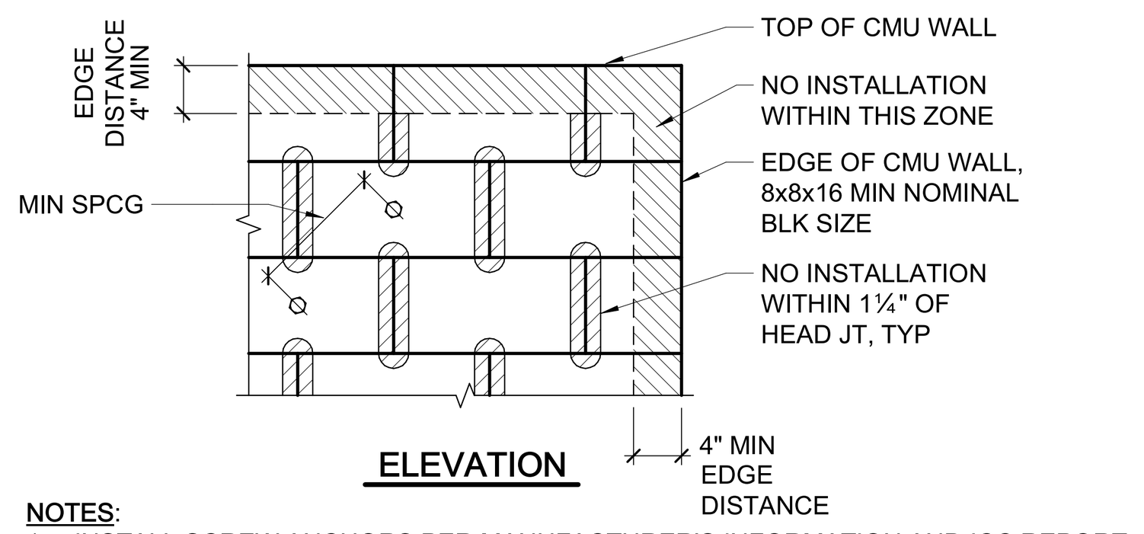


NOTE: ALL JAMB BARS SHALL BE FULL HEIGHT OF WALL AND SHALL HAVE MATCHING FOUNDATION DOWELS

15 JAMB OR END OF WALL
3/4" = 1'-0"

SCREW ANCHOR IN FACE OF 2000 PSI MIN CMU			
ANCHOR TYPE	ANCHOR AND PILOT HOLE DIAMETER	MINIMUM EMBEDMENT DEPTH *	MINIMUM SPACING
SIMPSON TITEN HD (ICC ESR-1056)	¼"	2½"	2"
	⅜"	2¾"	3"
	½"	3½"	4"
	⅝"	4½"	5"
	¾"	5½"	6"
HILTI KH-EZ (ICC ESR-3056)	¼"	1⅝"	4"
	⅜"	1⅝"	4"
	½"	2¼"	4"
	⅝"	3¼"	4"
	¾"	4"	4"

* PILOT HOLE DEPTH = ½" GREATER THAN EMBEDMENT DEPTH

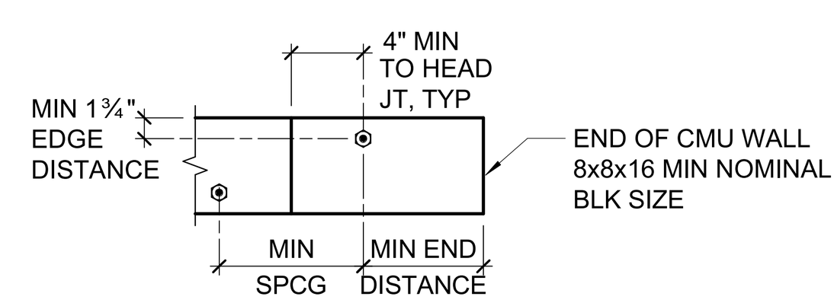


NOTES:
1. INSTALL SCREW ANCHORS PER MANUFACTURER'S INFORMATION AND ICC REPORT INSTRUCTIONS. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A OF THE CBC AND THE REQUIREMENTS OF THE ICC REPORTS.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, SPACING AND LOCATION ARE IN ACCORDANCE W/ THAT ABOVE PRIOR TO INSTALLING ANCHOR.
3. HOLES TO BE DRILLED W/ ROTARY DRILL ONLY. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING REINFORCED MASONRY, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705A.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CMU TYPE, CMU COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), AND CMU THICKNESS.
5. TEST ANCHORS IN ACCORDANCE W/ CBC SECTIONS 1705A.4 AND 1910A.5.

10 SCREW ANCHOR IN FACE OF CMU
3/4" = 1'-0"

SCREW ANCHOR IN TOP OF 2000 PSI MIN CMU				
ANCHOR TYPE	ANCHOR AND PILOT HOLE DIAMETER	MINIMUM EMBEDMENT DEPTH *	MINIMUM END DISTANCE	MINIMUM SPACING
SIMPSON TITEN HD (ICC ESR-1056)	½"	4½"	8"	8"
	⅝"	4½"	10"	10"
HILTI KH-EZ (ICC ESR-3056)	½"	4¼"	8"	8"
	⅝"	5"	10"	10"

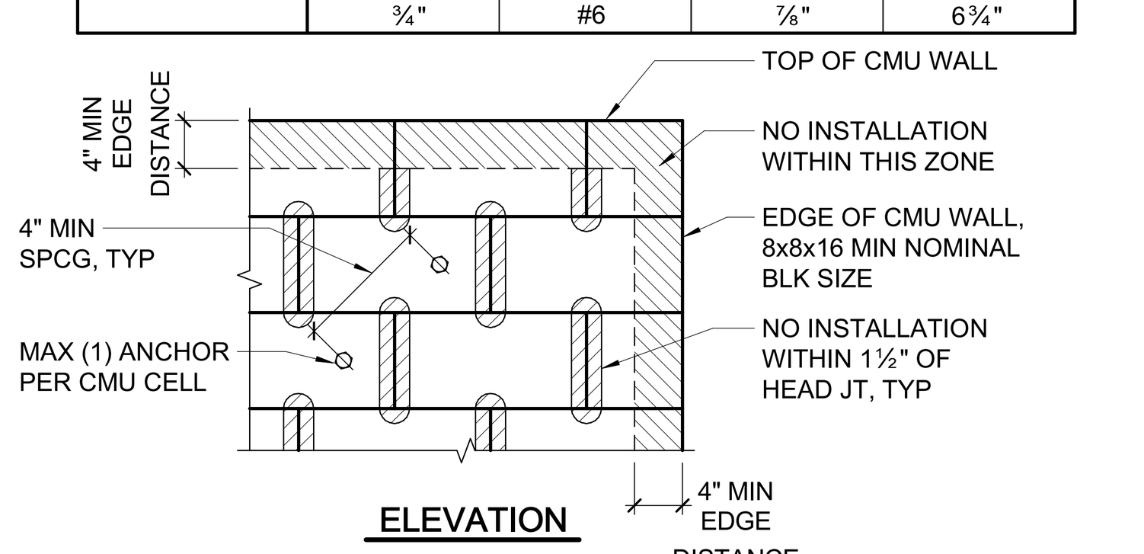
* PILOT HOLE DEPTH = ½" GREATER THAN EMBEDMENT DEPTH



NOTES:
1. INSTALL SCREW ANCHORS PER MANUFACTURER'S INFORMATION AND ICC REPORT INSTRUCTIONS. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A OF THE CBC AND THE REQUIREMENTS OF THE ICC REPORTS.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, END DISTANCES, AND SPACING ARE IN ACCORDANCE W/ THAT ABOVE PRIOR TO INSTALLING ANCHOR.
3. HOLES TO BE DRILLED W/ ROTARY DRILL ONLY. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING REINFORCED MASONRY, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705A.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CMU TYPE, CMU COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), AND CMU THICKNESS.
5. TEST ANCHORS IN ACCORDANCE W/ CBC SECTIONS 1705A.4 AND 1910A.5.

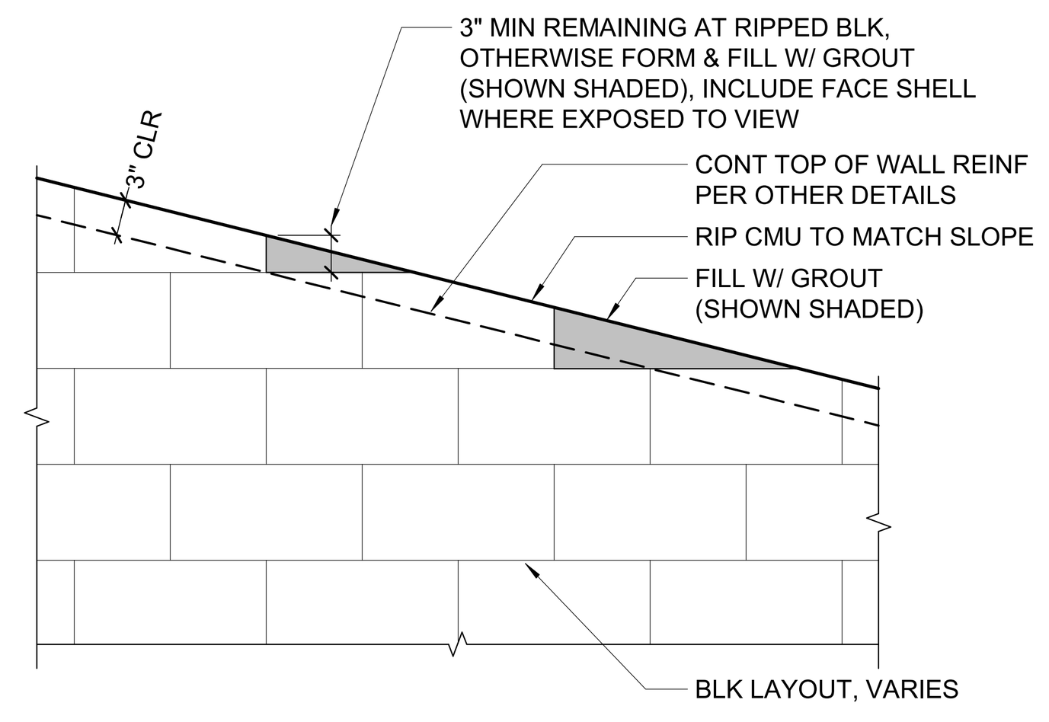
11 SCREW ANCHOR IN TOP OF CMU
3/4" = 1'-0"

ADHESIVE ANCHOR IN FACE OF 2000 PSI MIN CMU				
ANCHOR TYPE	THRD ROD DIAMETER	REBAR SIZE	PILOT HOLE DIAMETER	MINIMUM EMBEDMENT DEPTH
SIMPSON SET-XP (IAPMO ER-265)	⅜"	#3	½"	3⅜"
	½"	#4	⅝"	4½"
	⅝"	#5	¾"	5⅝"
	¾"	-	⅞"	6½"
HILTI HIT-HY 270 (ICC ESR-4143)	⅜"	#3	7/16"	3⅜"
	½"	#4	9/16"	4½"
	⅝"	#5	¾"	5⅝"
	¾"	#6	⅞"	6¾"



NOTES:
1. INSTALL ADHESIVE ANCHORS PER MANUFACTURER'S INFORMATION AND ICC REPORT INSTRUCTIONS. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A OF THE CBC AND THE REQUIREMENTS OF THE ICC REPORTS.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, SPACING AND LOCATION ARE IN ACCORDANCE W/ THE TABLE ABOVE PRIOR TO INSTALLING ANCHOR.
3. HOLES TO BE DRILLED W/ ROTARY DRILL ONLY. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING MASONRY, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705A.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CMU TYPE, CMU COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), AND CMU THICKNESS.
5. TEST ANCHORS IN ACCORDANCE W/ CBC SECTIONS 1705A.4 AND 1910A.5.

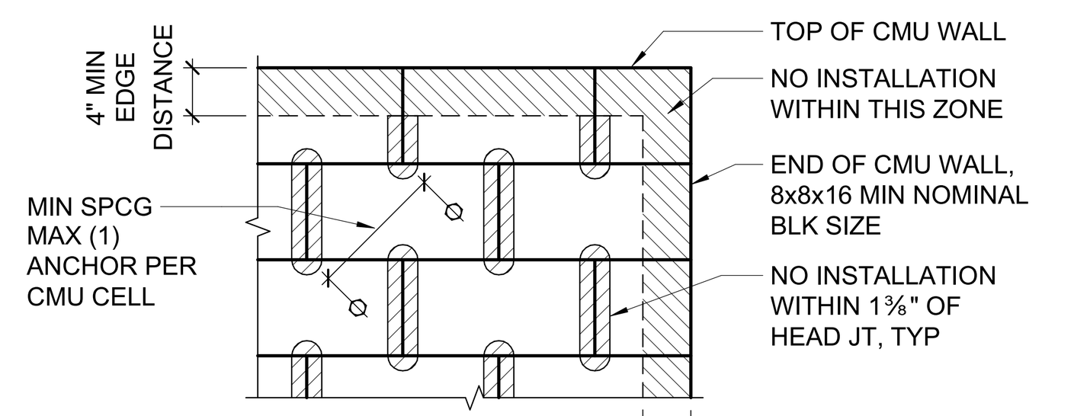
12 ADHESIVE ANCHOR IN FACE OF CMU
3/4" = 1'-0"



7 SLOPED TOP OF MASONRY WALL
3/4" = 1'-0"

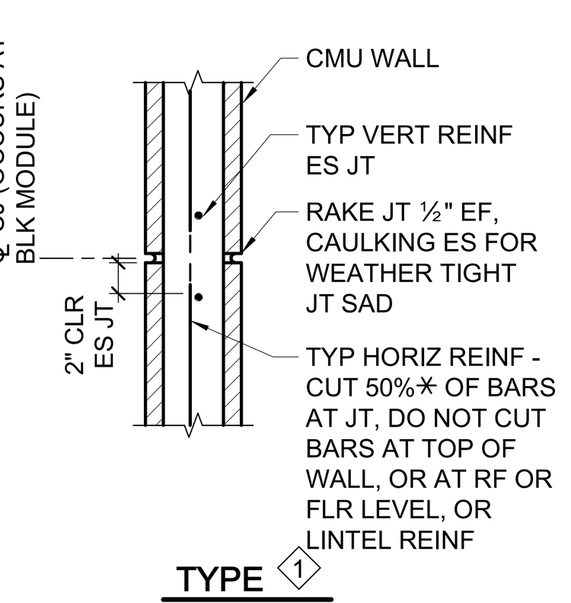
CARBON STEEL EXP ANCHORS IN 2000 PSI MIN CMU				
ANCHOR TYPE	ANCHOR & PILOT HOLE DIA	MINIMUM EMBEDMENT DEPTH*	MIN SPCG S_{min}	INSTALL TORQUE (FT-LB)
SIMPSON STRONG-BOLT 2 (IAPMO ER-240)	⅜"	2⅝"	4"	30
	½"	3½"	4"	35
	⅝"	4⅜"	4"	55
	¾"	5¼"	4"	120
HILTI KWIK BOLT 3 (ICC-ESR 1385)	⅜"	2½"	8"	15
	½"	3½"	8"	25
	⅝"	4"	8"	65
	¾"	4⅜"	8"	120

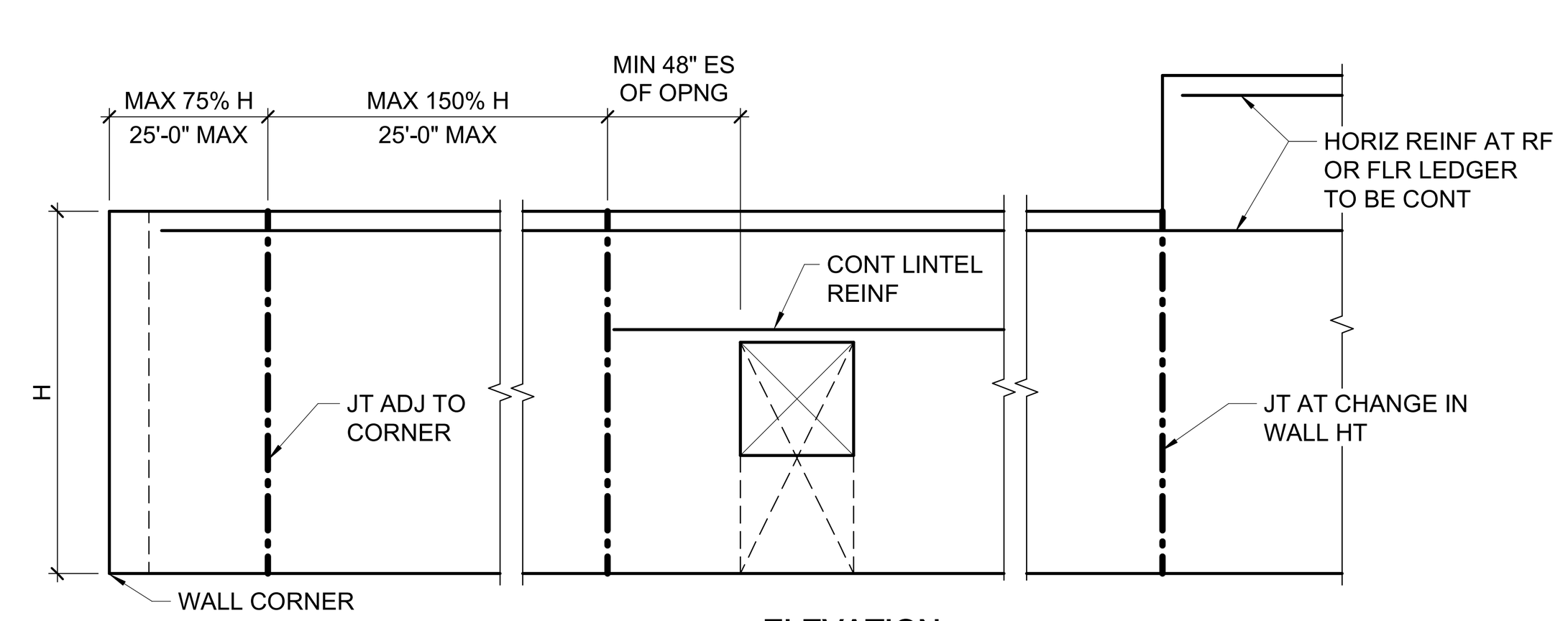
* PILOT HOLE DEPTH = MIN (1) DIAMETER GREATER THAN EMBEDMENT DEPTH



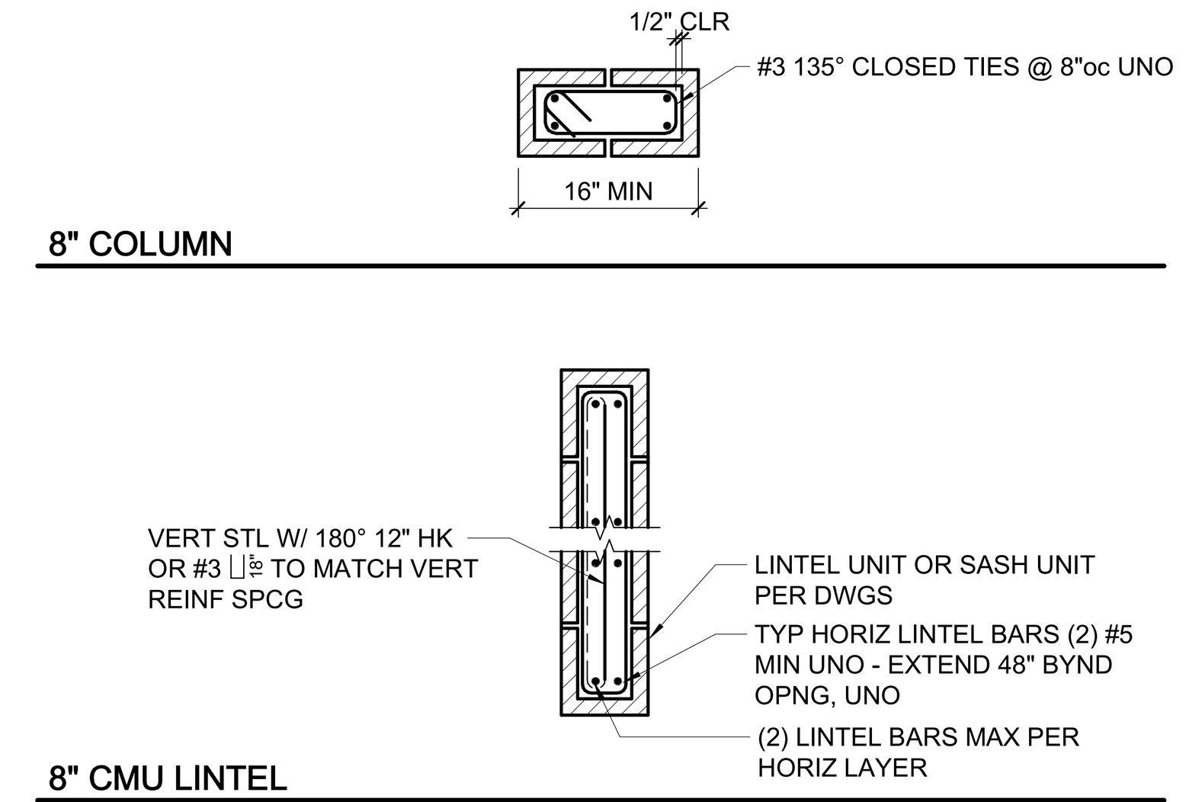
NOTES:
1. INSTALLED EXPANSION ANCHORS PER MANUFACTURER'S INFORMATION AND EVALUATION REPORT INSTRUCTIONS. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A AND THE REQUIREMENTS OF THE ICC REPORT.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, SPACING AND THICKNESS ARE IN ACCORDANCE W/ SCHEDULE PRIOR TO INSTALLING ANCHOR AND SHALL CONSIDER BOLT SPACING WHEN SELECTING ANCHOR TYPE.
3. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING CMU, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. USE ROTARY DRILL ONLY. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND ANCHOR. WHEN REINFORCEMENT IS PRESENT IN DRILLED HOLE ABANDON THE HOLE. FILL ABANDONED HOLES W/ DRY PACK AND FINISH TO MATCH CMU. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705A.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, MASONRY TYPE, MASONRY COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), MASONRY THICKNESS, AND TIGHTENING TORQUE.
5. TEST ANCHORS IN ACCORDANCE W/ CBC SECTIONS 1705A.4 AND 1910A.5.

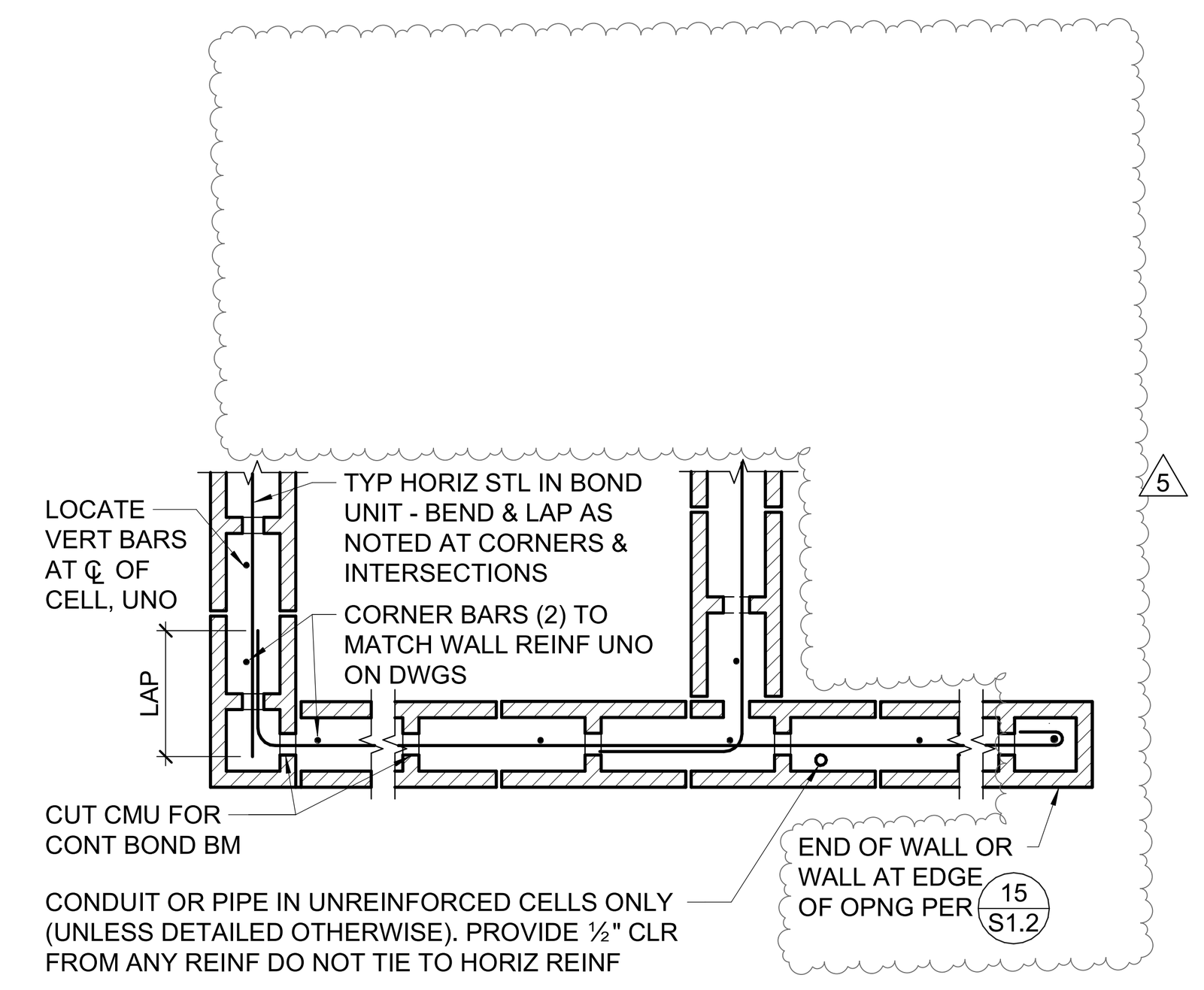
8 EXPANSION ANCHORS IN FACE OF CMU
3/4" = 1'-0"



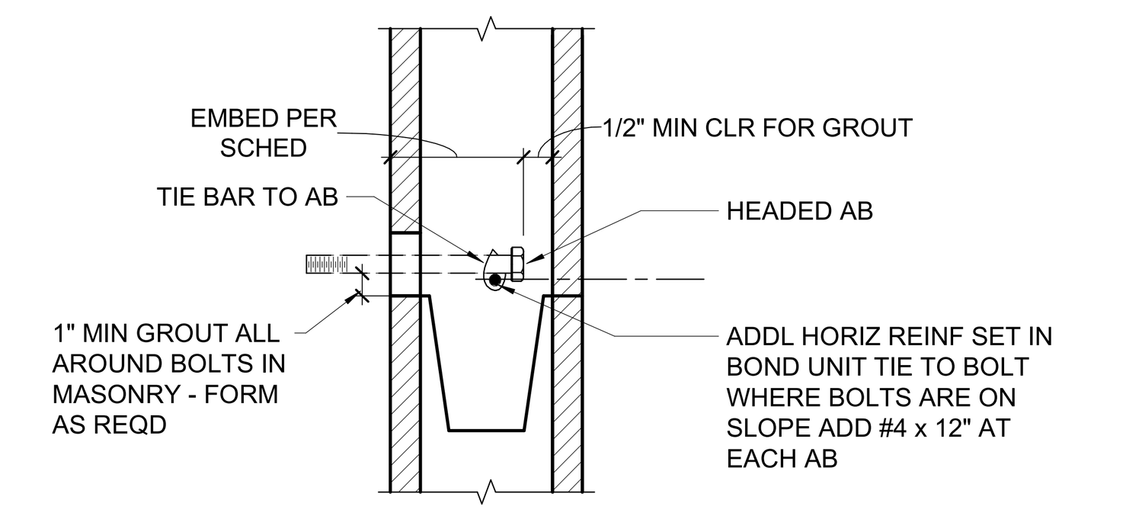


9 CMU WALL CONTROL JOINT
3/4" = 1'-0"





3 8" CMU (PLAN VIEW) - SINGLE LAYER VERT REINF
3/4" = 1'-0"

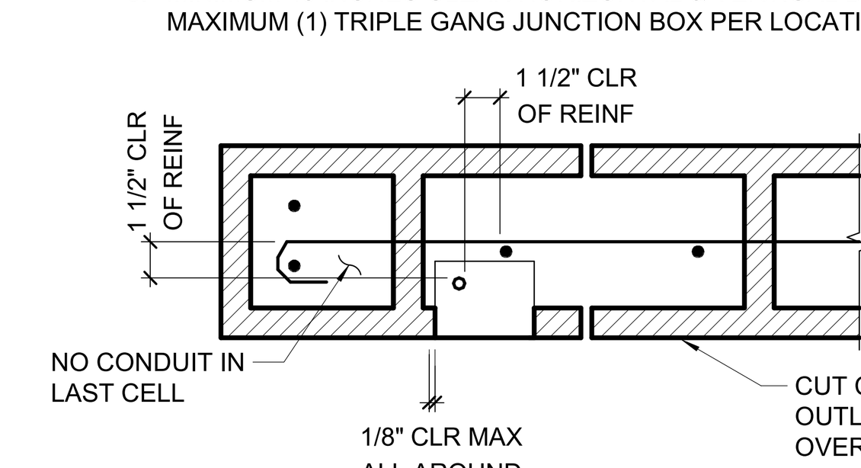


8" CMU WALL EMBEDMENT	12" CMU WALL EMBEDMENT	16" MIN PILASTER EMBEDMENT
5½"	9½"	12"

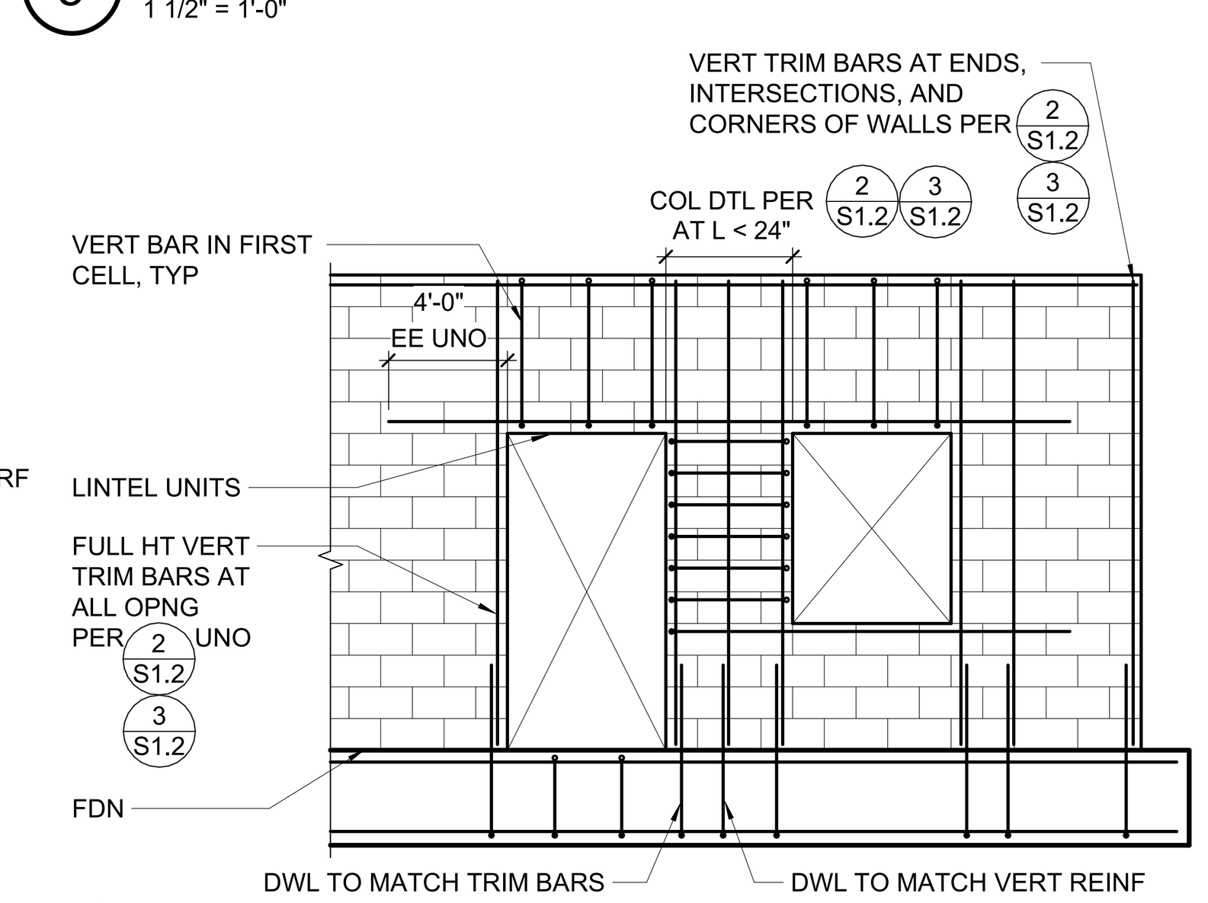
NOTE:
1. USE TEMPLATE TO SET ALL BOLTS.
2. BEDMENT TOLERANCE IS ±½" AND AS REQUIRED FOR CLEARANCE TO CMU.
3. AB SHALL PROJECT NOT LESS THAN ¼" OR MORE THAN 1" BEYOND NUT. REMOVE EXCESS THREADS WHERE NUT IS TO BE COUNTERSUNK FLUSH

4 BOLT EMBEDMENT SCHEDULE
3/4" = 1'-0"

NOTES:
1. DO NOT TIE CONDUIT TO REINFORCING.
2. DO NOT PLACE CONDUIT IN CELLS WITH VERTICAL REINFORCING.
3. MINIMUM 48 INCHES CLEAR HORIZONTAL & VERTICAL BETWEEN JUNCTION BOXES. MAXIMUM (1) TRIPLE GANG JUNCTION BOX PER LOCATION.



5 CONDUIT IN CMU
1 1/2" = 1'-0"



NOTE:
1. SEE TYPICAL DETAILS FOR REINFORCING LAYOUT.
2. FOR LAP SPLICES OF VERTICAL AND HORIZONTAL REINFORCING SEE 1/S1.2.
3. BLOCK LAYUP AND CONFIGURATION SHOWN IS SCHEMATIC, SEE ARCHITECTURAL DRAWINGS FOR ACTUAL BLOCK LAYUP, SIZE, ETC.

6 TYPICAL CMU WALL OPENINGS
3/4" = 1'-0"

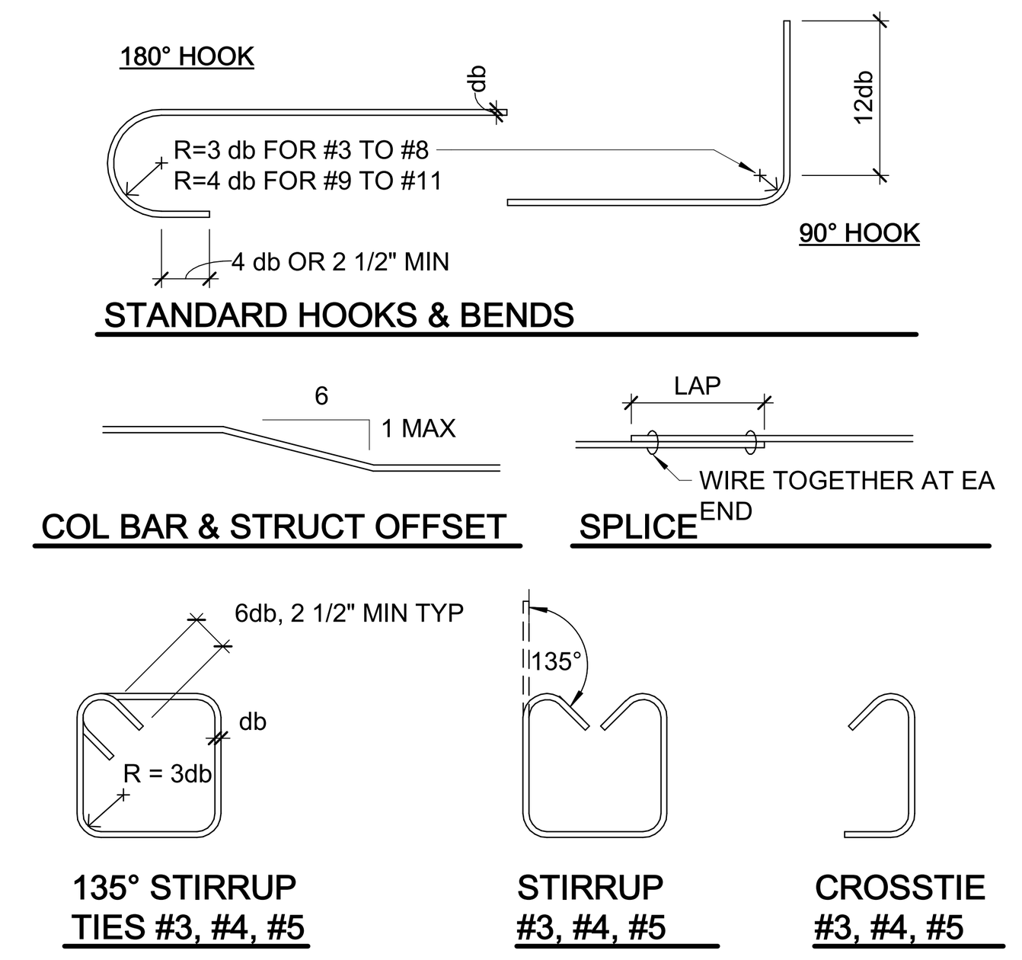
MINIMUM BAR LAPS FOR REINFORCING STEEL MASONRY STRENGTH: 2000 PSI OR GREATER (STAGGER SPLICES)					
SIZE	LAP LENGTH	SIZE	LAP LENGTH	SIZE	LAP LENGTH
#3	12"	#6	54"	#9	82"
#4	24"	#7	64"		
#5	36"	#8	72"		

MINIMUM CLEARANCES 'CLR'

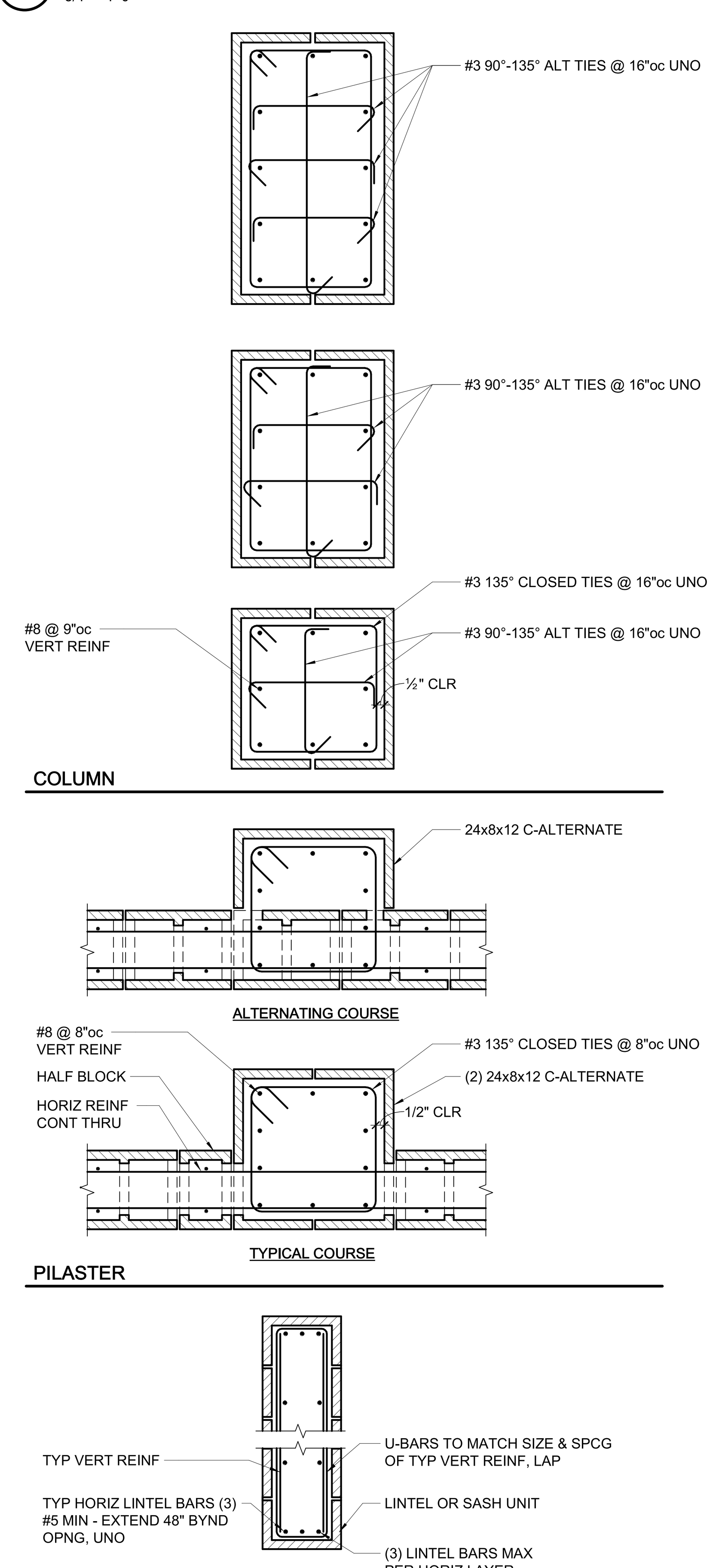
CMU TO BAR ½"

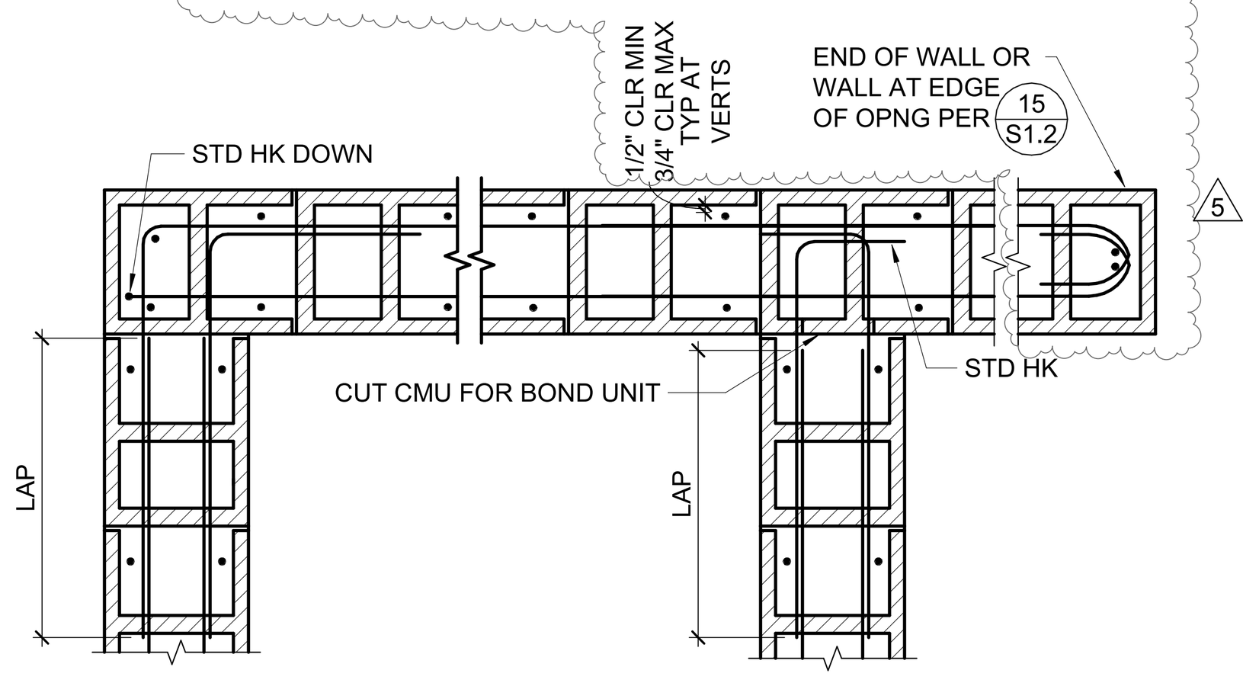
BAR TO BAR 2"

ALL REINFORCING BARS SHALL EXTEND AS FAR AS POSSIBLE



1 TYPICAL REINFORCING DETAILS (f'm = 2000psi MIN)
3/4" = 1'-0"





2 12" CMU (PLAN VIEW) - DOUBLE LAYER VERT REINF
3/4" = 1'-0"

C:\revit_local\19494_Woodland_PAC_S18C_ZFAdevelr.rvt
1/7/2022 11:35:59 AM

DSA application #02-118286
DSA File #58-C1

agency

tBP
architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 19494
zfa.com
707.526.0992
copyright © 2021

REGISTERED PROFESSIONAL ENGINEER KEVIN G. ZUCCO STRUCTURAL No. 4861 STATE OF CALIFORNIA

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

ZFA project number: 19494

tBP project number: 22039.00

PM: SCH ENG: MRS/NBB

date: JUNE 22, 2021

rev:	date:	description:
	2021-05-17	BID SET
5	2022-01-11	Addendum #5

drawing title:

TYPICAL CMU DETAILS

drawing no.:

S1.2

FOUNDATION PLAN NOTES:

1. REFER TO SHEETS S0.1 THROUGH S1.5 AND S4.1 FOR GENERAL NOTES AND TYPICAL DETAILS. THE FOLLOWING DETAIL REFERENCES ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. ALL GENERAL NOTES AND TYPICAL DETAILS NOTED ABOVE ARE APPLICABLE AND SHALL BE FOLLOWED.
2. COORDINATE ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
3. SEE DETAILS OR CURB PLAN FOR CURB LOCATIONS. COORDINATE WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
4. PLUMBING AND ELECTRICAL CONDUIT AND GROUND STRAP SHALL NOT BE LAID WITHIN FOUNDATIONS. NO UTILITY PIPES OR CONDUITS SHALL BE LOCATED THRU COLUMN FOOTINGS FOOTINGS. NO VERTICAL OR HORIZONTAL PIPES OR CONDUITS SHALL BE LOCATED THROUGH STEEL FRAMES, STEEL COLUMNS, OR STEEL BASE PLATES. PROVIDE FURRING AND/OR THICKENED CONCRETE WHERE REQUIRED TO CLEAR UTILITY SYSTEMS. NOTIFY STRUCTURAL ENGINEER/ARCHITECT PRIOR TO ANY INSTALLATION NOT CONFORMING TO THESE DETAILS.

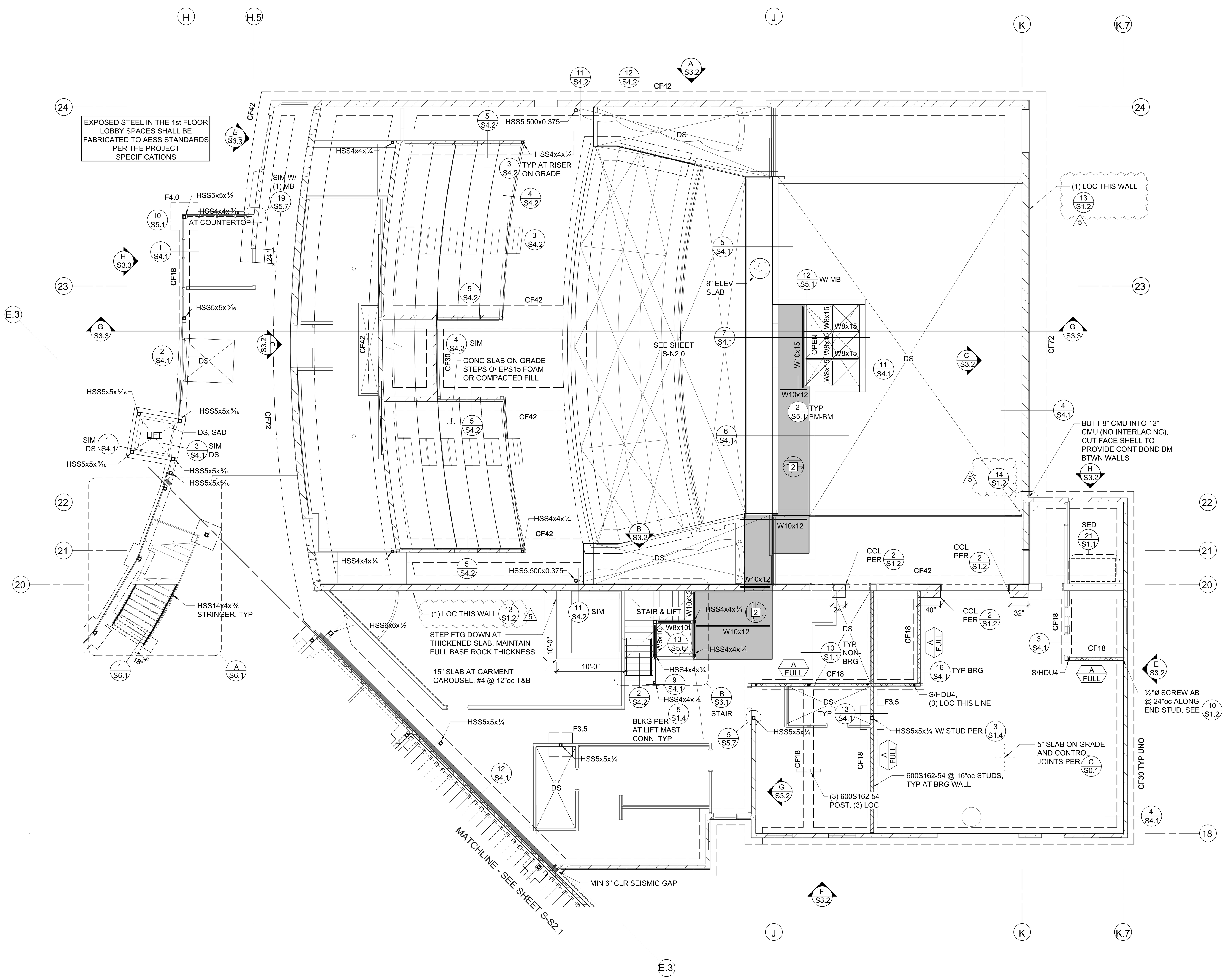
   PIPES THROUGH FOOTINGS SHALL BE PER 2/S1.1 AND 3/S1.1 .

   PIPES PARALLEL TO FOOTINGS SHALL BE PER 4/S1.1 .

   PIPES AT SLAB ON GRADE SHALL BE PER 7/S1.1 .
5. SEISMIC GAPS WHERE NOTED ARE DIMENSIONED CLEAR BETWEEN WALL FINISHES. WALLS AT SEISMIC GAP SHALL BE FRAMED AS EXTERIOR WALL. THIS GAP TO BE MAINTAINED ENTIRELY CLEAR TO ALLOW FOR DIFFERENTIAL BUILDING MOVEMENT. NO PIPES, CONDUITS, ETCETERA SHALL BE LOCATED WITHIN THE GAP. PROVIDE FLEXIBLE COUPLINGS AT ALL UTILITIES CROSSING SEISMIC GAPS.

PLAN LEGEND

SYMBOL	REFERENCE DETAIL	DESCRIPTION
A 10'-0"	G/S0.1	INDICATES COLD FORMED STEEL SHEAR WALL.
		INDICATES CONCRETE WALL.
	S1.3, S1.4	INDICATES COLD FORMED STEEL WALL.
	S1.2	INDICATES CMU WALL.
	3/S1.4	INDICATES STEEL COLUMN.
DS	8/S1.1 9/S1.1	INDICATES DEPRESSED SLAB, SEE ARCHITECTURAL AND PLUMBING DRAWINGS FOR COMPLETE LOCATIONS, DEPTH AND SLOPE INFORMATION.
		INDICATES FOUNDATION.
CF24		INDICATES CONTINUOUS FOOTING SIZE AND REINFORCING PER SCHEDULE.
F2.0		INDICATES PAD FOOTING SIZE AND REINFORCING PER SCHEDULE.
88		INDICATES GRIDLINE.
	8/S1.1 9/S1.1	INDICATES STEP IN ELEVATION, SEE ARCHITECTURAL DRAWINGS.
1 S3.1		INDICATES ELEVATION.
1	1/S1.5	INDICATES METAL DECK WITH CONCRETE FILL AND DIRECTION OF DECK SPAN.
1	9/S1.2	INDICATES CMU WALL CONTROL JOINT LOCATION & TYPE.
S/HDUx	11/S1.4	INDICATES HOLDOWN.
	G/S0.1	INDICATES SHEAR WALL.



FOUNDATION PLAN - NORTH

1/8" = 1'-0"

CONTINUOUS FOOTING SCHEDULE

MARK	'b'	'd'	REINF 'a'	NOTES
CF18	18"	18"	(2) #5 T&B	#3 TIES @ 12"oc
CF24	24"	24"	(2) #5 T&B	#3 TIES @ 12"oc
CF30	30"	24"	(4) #6 T&B	#3 TIES @ 12"oc
CF42	42"	24"	(2) #8 TOP & (4) #8 BOT	#3 TIES @ 12"oc
CF72	72"	30"	(5) #8 TOP & (8) #8 BOT	#3 TIES @ 12"oc

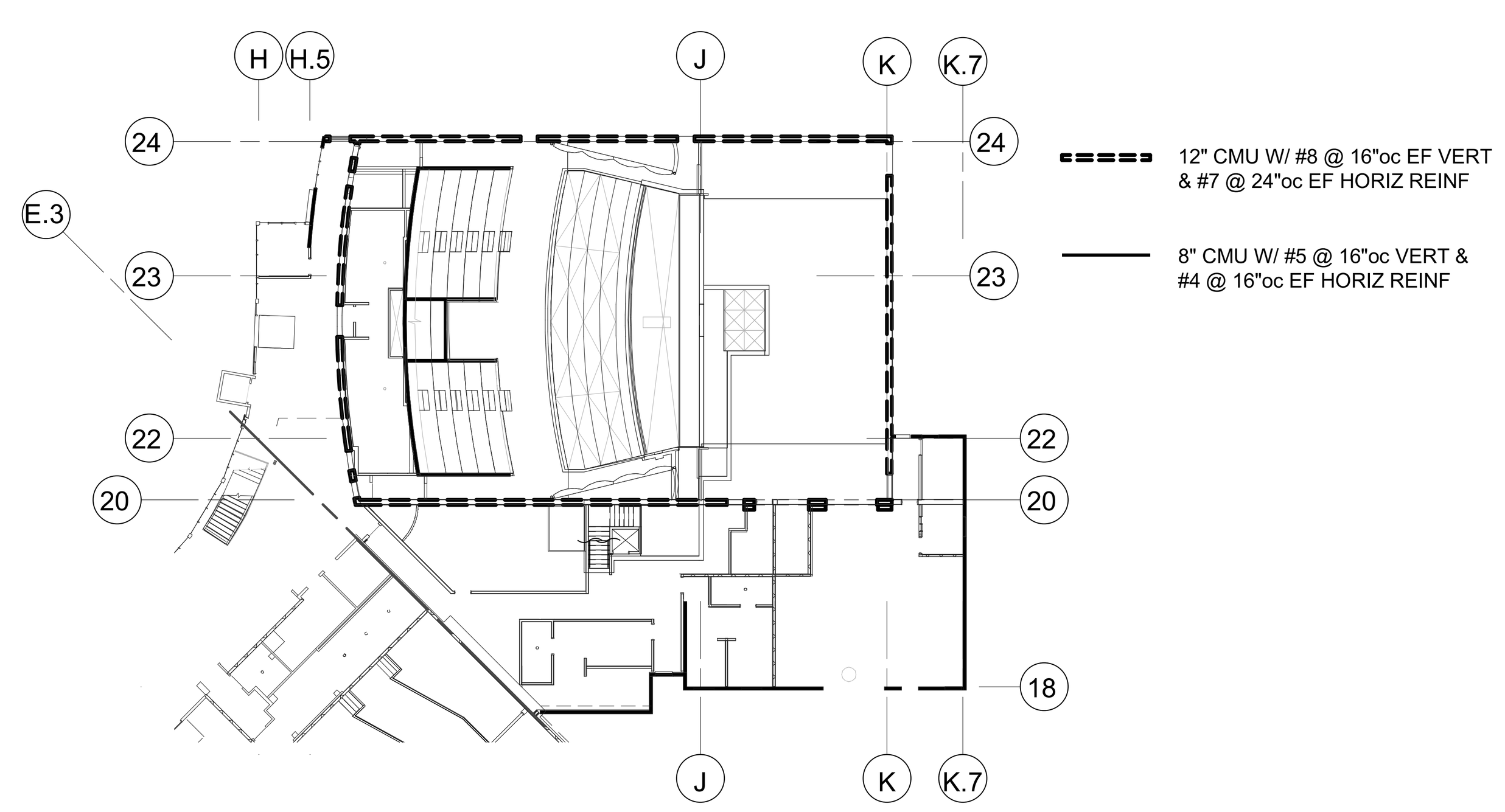
PAD FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F3.5	42" SQ x 18" THICK	(5) #5 EW AT BOT
F4.0	48" SQ x 18" THICK	(6) #5 EW AT BOT
F5.0	5'-0" SQ x 18" THICK	(7) #5 EW AT BOT

SLAB ON GRADE SCHEDULE

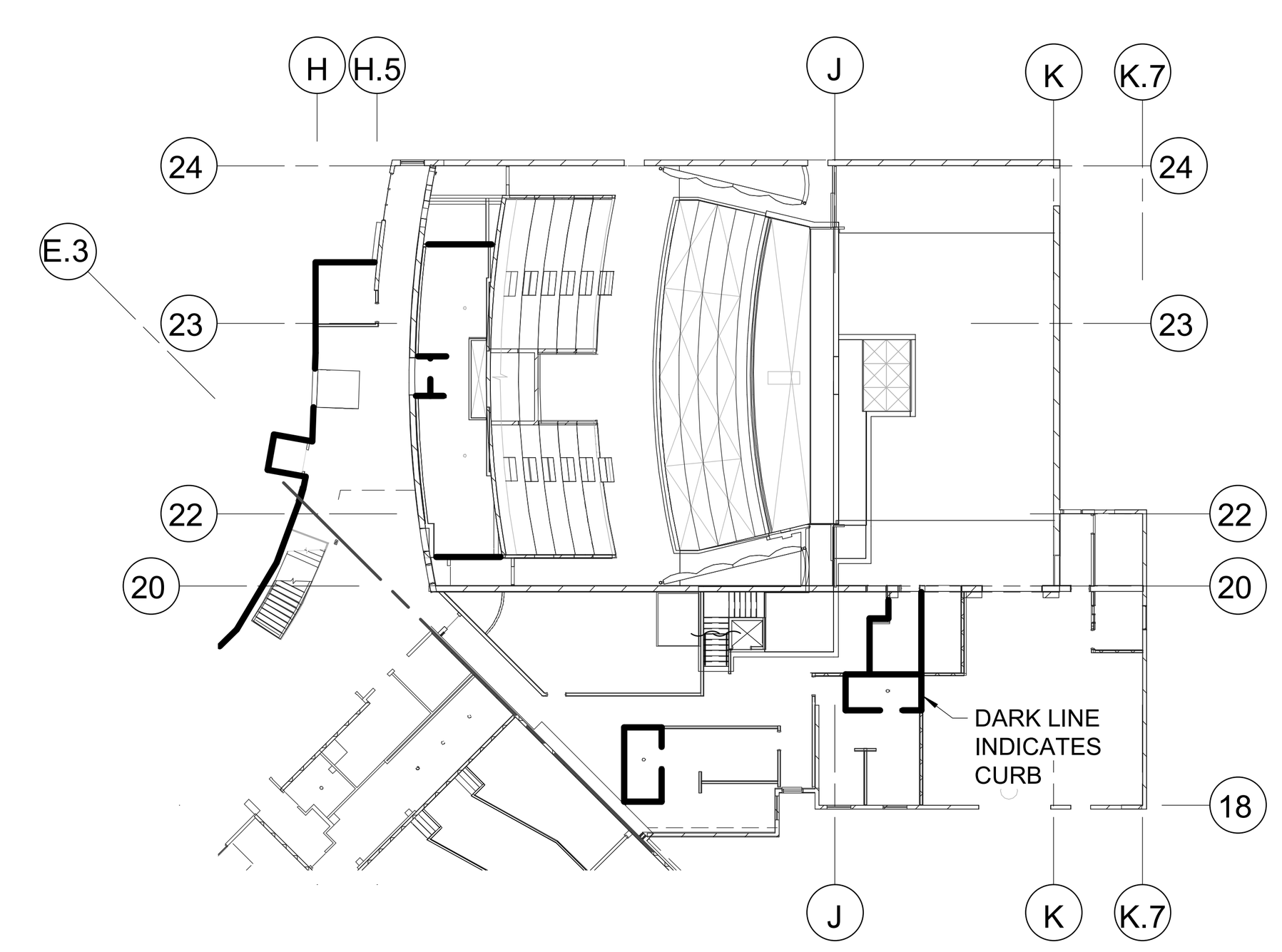
THICKNESS	REINFORCING	REINFORCING LOCATION	REMARKS
5"	#4 @ 16"oc EW	1½" CLR FROM TOP OF SLAB	TYP UNO
6"	#5 @ 16"oc EW	MID DEPTH	AT REMOVABLE SEATING

SEE C/S0.1 FOR ADDITIONAL INFORMATION



CMU WALL REINFORCING - NORTH

1" = 30'-0"



CURB PLAN - NORTH

1" = 30'-0"

SHEAR WALL SCHEDULE

SW	SHEATHING	EDGE SCREW SPACING (PES)	BOTTOM TRACK ANCHORAGE AT FOUNDATION	REMARKS
A	SURE-BOARD SERIES 200 SAD FOR INFO ON GYPSUM LAYER (E.G. THICKNESS, FIRE RATING REQUIREMENTS, ETC)	#8 @ 6"oc	½"Ø @ 14"oc	MIN. 54MIL BOXED END STUDS TYP AT ALL HOLD DOWN HARDWARE
B		#8 @ 4"oc	½"Ø @ 10"oc	
C		#8 @ 3"oc	½"Ø @ 8"oc	

DSA application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 19494
zfa.com
707.526.0992

REGISTERED PROFESSIONAL ENGINEER KEVIN G. ZUCCO STRUCTURAL No. 4861 STATE OF CALIFORNIA

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

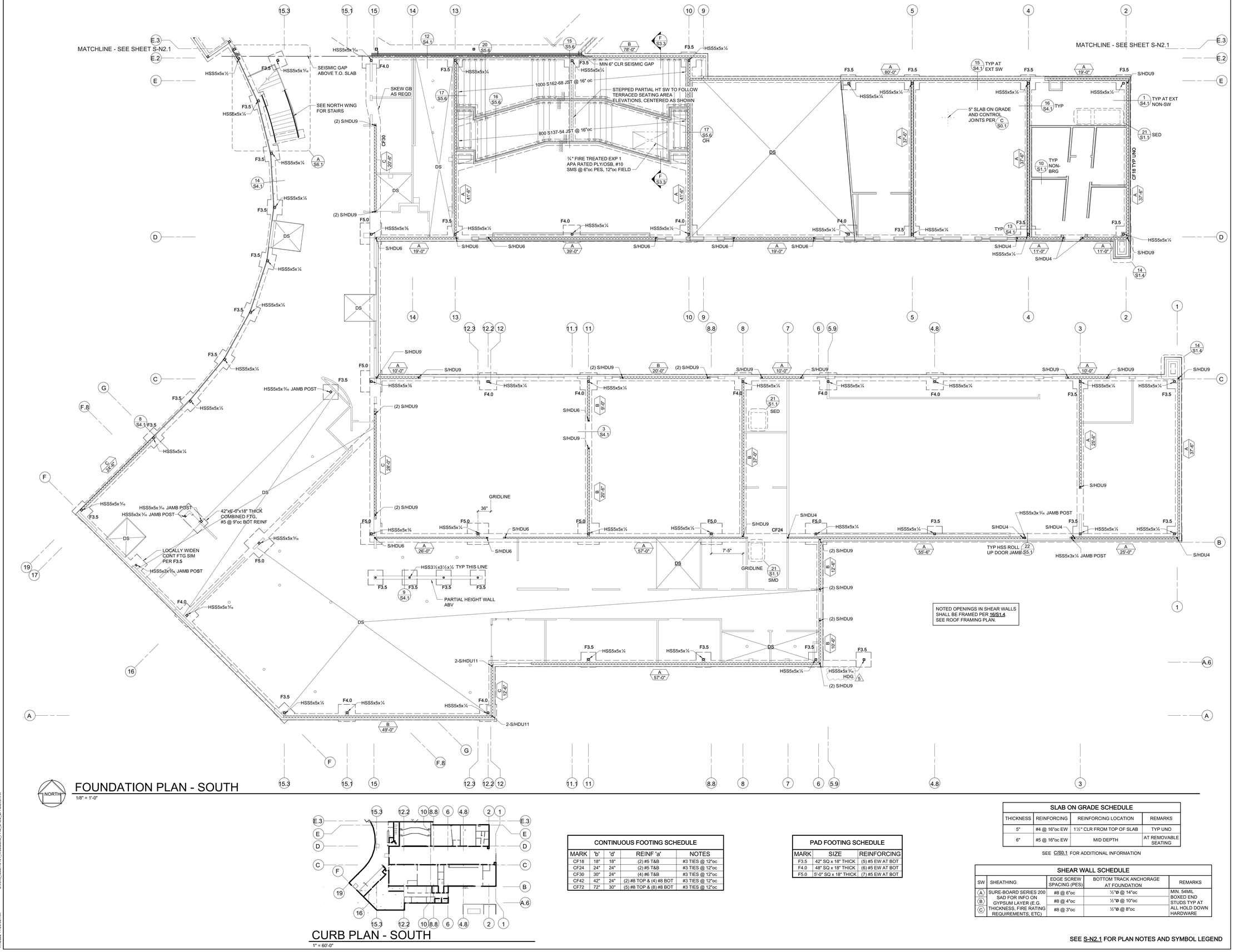
owner

ZFA project number: 19494
tBP project number: 22039.00
PM: SCH ENG: MRS/NBB
date: JUNE 22, 2021

rev:	date:	description:
	2021-05-17	BID SET
2	2021-12-06	Addendum #2
5	2022-01-11	Addendum #5

drawing title: FOUNDATION PLAN - NORTH

drawing no.: S-N2.1



FOUNDATION PLAN - SOUTH

1/8" = 1'-0"

CURB PLAN - SOUTH

1" = 60'-0"

CONTINUOUS FOOTING SCHEDULE

MARK	'b'	'd'	REINF 'a'	NOTES
CF18	18"	18"	(2) #5 T&B	#3 TIES @ 12"oc
CF24	24"	24"	(2) #5 T&B	#3 TIES @ 12"oc
CF30	30"	24"	(4) #6 T&B	#3 TIES @ 12"oc
CF42	42"	24"	(2) #8 TOP & (4) #8 BOT	#3 TIES @ 12"oc
CF72	72"	30"	(5) #8 TOP & (8) #8 BOT	#3 TIES @ 12"oc

PAD FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F3.5	42" SQ x 18" THICK	(5) #5 EW AT BOT
F4.0	48" SQ x 18" THICK	(6) #5 EW AT BOT
F5.0	5'-0" SQ x 18" THICK	(7) #5 EW AT BOT

SLAB ON GRADE SCHEDULE

THICKNESS	REINFORCING	REINFORCING LOCATION	REMARKS
5"	#4 @ 16"oc EW	1½" CLR FROM TOP OF SLAB	TYP UNO
6"	#5 @ 16"oc EW	MID DEPTH	AT REMOVABLE SEATING

SEE C/S0.1 FOR ADDITIONAL INFORMATION

SHEAR WALL SCHEDULE

SW	SHEATHING	EDGE SCREW SPACING (PES)	BOTTOM TRACK ANCHORAGE AT FOUNDATION	REMARKS
A	SURE-BOARD SERIES 200 SAD FOR INFO ON GYPSUM LAYER (E.G. THICKNESS, FIRE RATING REQUIREMENTS, ETC)	#8 @ 6"oc	½"ø @ 14"oc	MIN. 54MIL BOXED END STUDS TYP AT ALL HOLD DOWN HARDWARE
B		#8 @ 4"oc	½"ø @ 10"oc	
C		#8 @ 3"oc	½"ø @ 8"oc	

SEE S-N2.1 FOR PLAN NOTES AND SYMBOL LEGEND

DSA application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 19494
zfa.com
707.526.0992

KEVIN G. ZUCCO — No. 4861 — STRUCTURAL — STATE OF CALIFORNIA — PROFESSIONAL ENGINEER

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

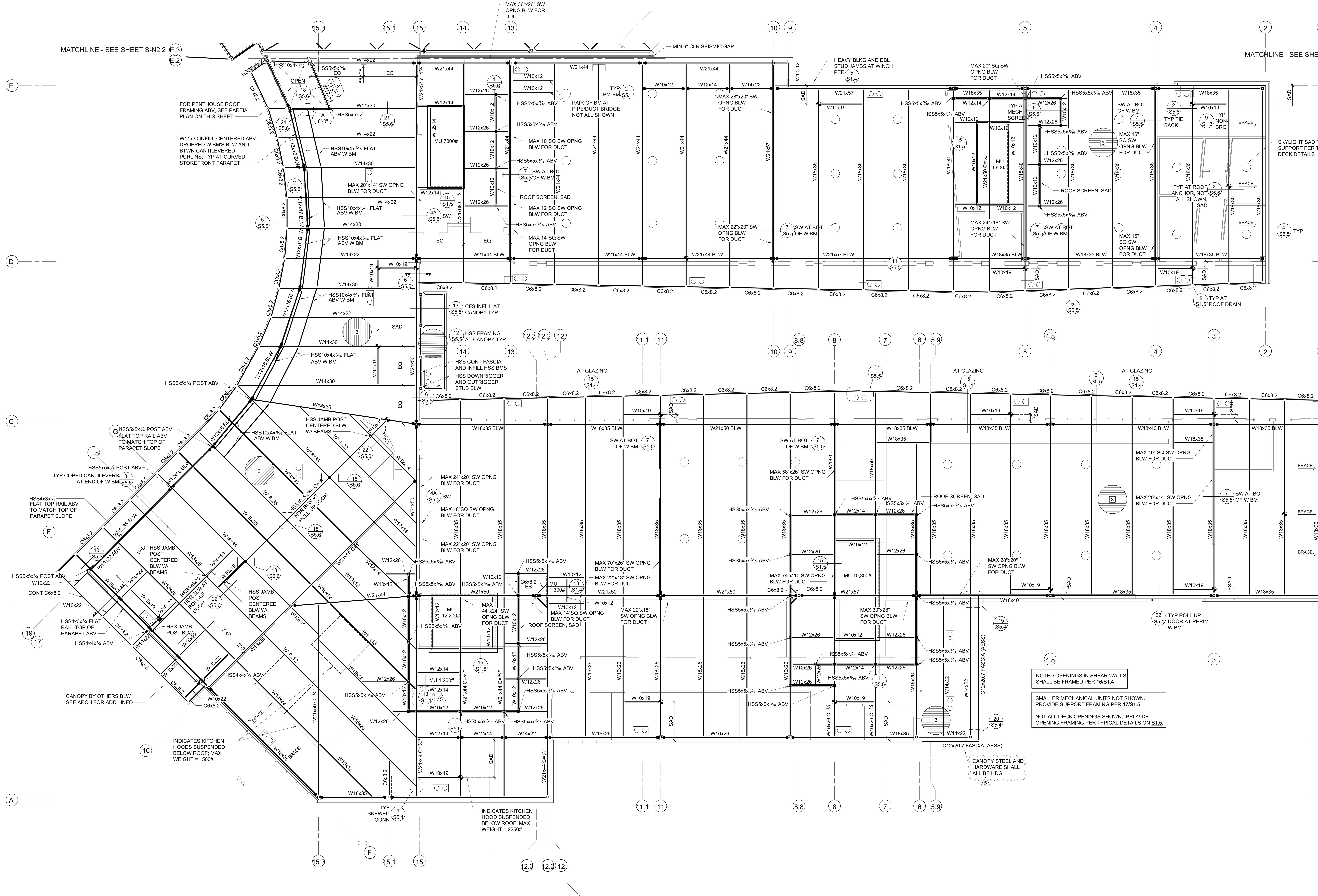
ZFA project number: 19494
tBP project number: 22039.00
PM: SCH ENG: MRS/NBB
date: JUNE 22, 2021

rev:	date:	description:
	2021-05-17	BID SET
2	2021-12-06	Addendum #2
5	2022-01-11	Addendum #5

drawing title:
FOUNDATION PLAN - SOUTH

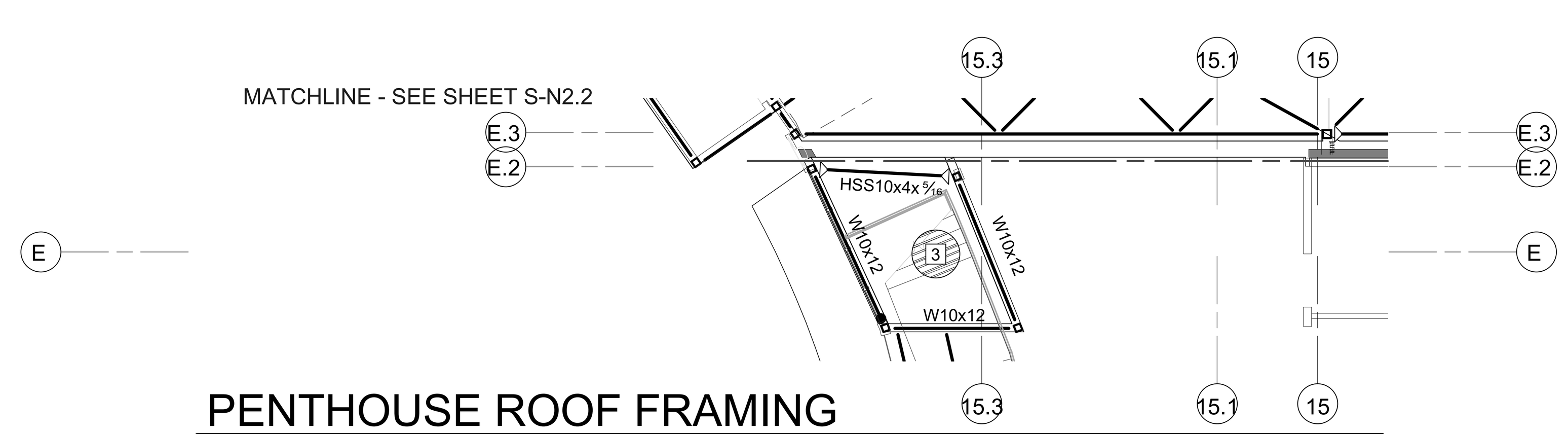
drawing no.:
S-S2.1

1/7/2022 11:36:05 AM C:\revit_local\19494_Woodland_PAC_S18C_ZFAkatwoh.rvt



LOW ROOF PLAN -SOUTH

1/8" = 1'-0"



PENTHOUSE ROOF FRAMING

1/8" = 1'-0"

SEE S-N2.4 FOR PLAN NOTES AND SYMBOL LEGEND

DSA application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 19494
zfa.com
707.526.0992
copyright © 2021

REGISTERED PROFESSIONAL ENGINEER KEVIN G. ZUCCO STRUCTURAL No. 4861 STATE OF CALIFORNIA

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

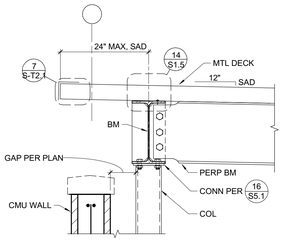
ZFA project number: 19494
tBP project number: 22039.00
PM: SCH ENG: MRS/NBB
date: JUNE 22, 2021

rev:	date:	description:
	2021-05-17	BID SET
2	2021-12-06	Addendum #2
5	2022-01-11	Addendum #5

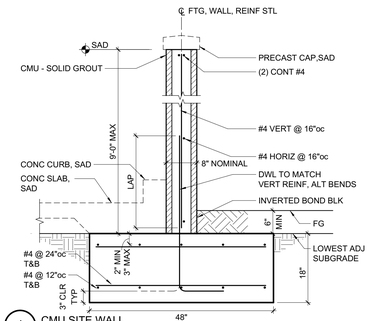
drawing title:
LOW ROOF FRAMING PLAN - SOUTH

drawing no.:
S-S2.2

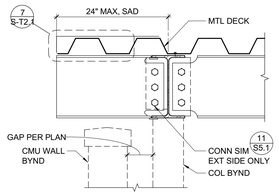
C:\revit_local\19494_Woodland_PAC_S18C_ZFAsteveh.rvt
1/7/2022 11:36:10 AM



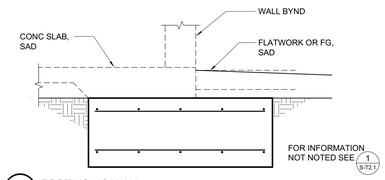
5 DECK TO BEAM
1" = 1'-0"



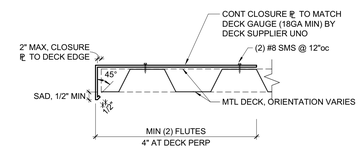
1 CMU SITE WALL
3/4" = 1'-0"



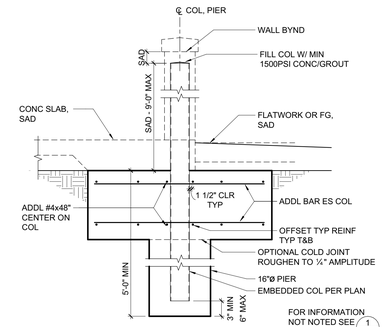
6 RAKE END
1" = 1'-0"



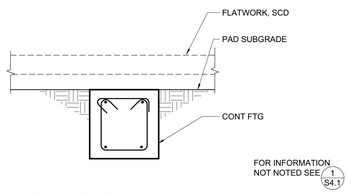
2 FOOTING NO WALL
3/4" = 1'-0"



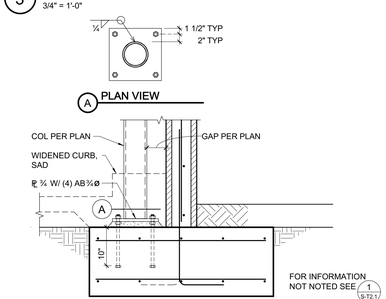
7 EDGE ANGLE
1 1/2" = 1'-0"



3 GATE POST
3/4" = 1'-0"

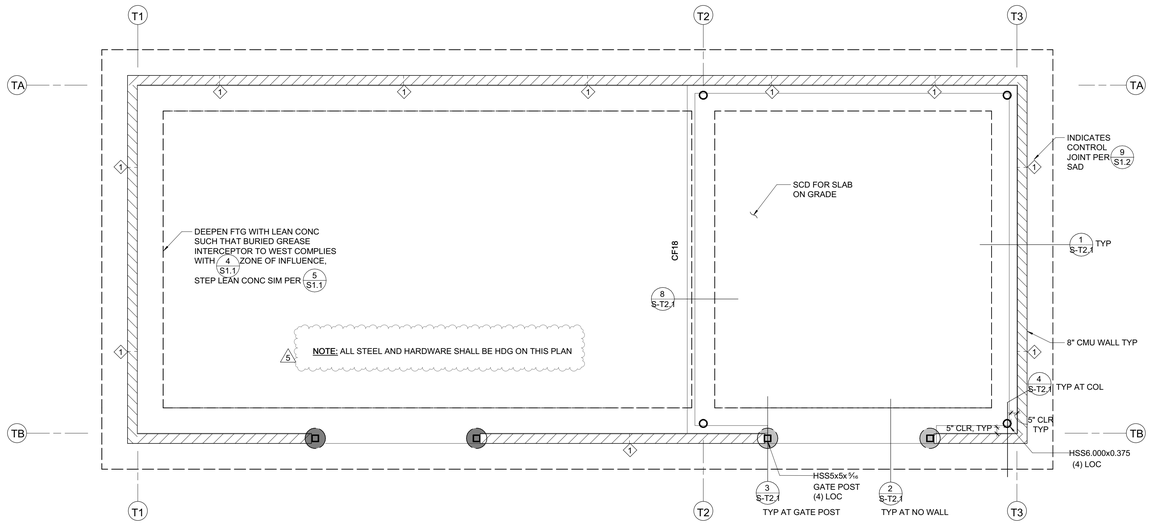


8 CONTINUOUS FOOTING - NO SLAB
3/4" = 1'-0"



4 BASE OF COLUMN
3/4" = 1'-0"

CONTINUOUS FOOTING SCHEDULE				
MARK	'b'	'd'	REINF 'a'	NOTES
CF18	18"	18"	(2) #5 T&B	#3 TIES @ 12"oc
CF24	24"	24"	(2) #5 T&B	#3 TIES @ 12"oc
CF30	30"	24"	(4) #6 T&B	#3 TIES @ 12"oc
CF42	42"	24"	(2) #8 TOP & (4) #8 BOT	#3 TIES @ 12"oc
CF72	72"	30"	(5) #8 TOP & (8) #8 BOT	#3 TIES @ 12"oc

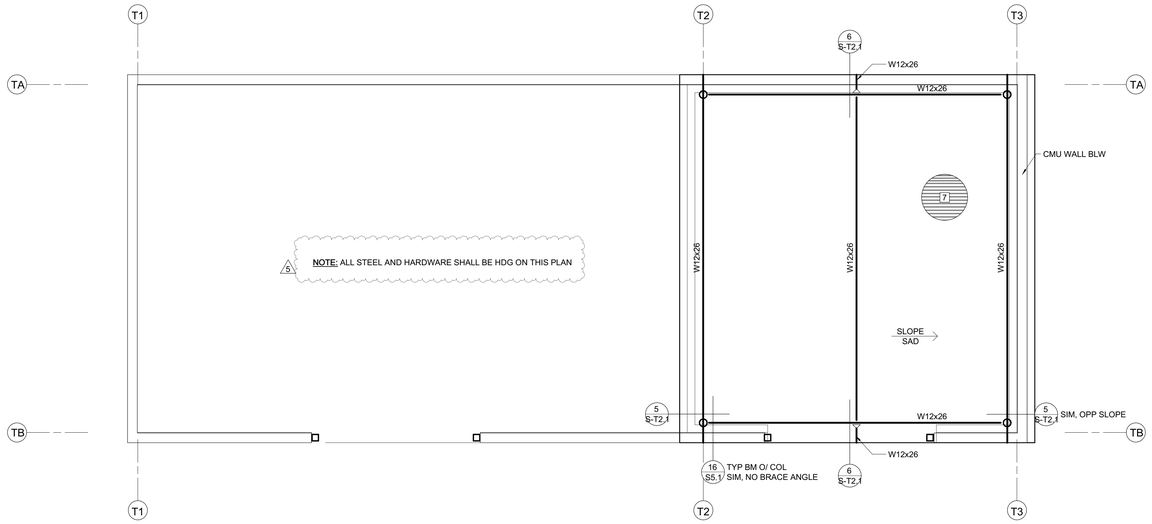


NORTH

FOUNDATION PLAN - TRASH ENCLOSURE

1/4" = 1'-0"

SEE S-N2.1 FOR PLAN NOTES AND SYMBOL LEGEND

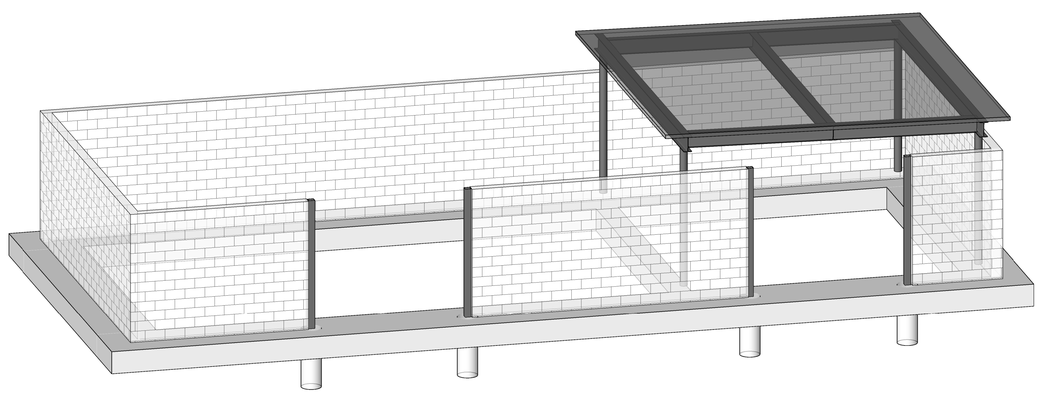


NORTH

ROOF FRAMING PLAN - TRASH ENCLOSURE

1/4" = 1'-0"

SEE S-N2.4 FOR PLAN NOTES AND SYMBOL LEGEND



THREE-DIMENSIONAL VIEWS SHOWN IN THESE PLANS ARE FOR CONCEPTUAL USE ONLY. THE STRUCTURAL PLANS AND DETAILS TAKE PRECEDENCE OVER THREE-DIMENSIONAL VIEWS.

A TRASH ENCLOSURE

DSA application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

ZFA STRUCTURAL ENGINEERS
1212 fourth street | suite z
santa rosa ca 95404
zfa job no. 19494
zfa.com
707.526.0992

KEVIN G. ZUCCO — No. 4861 — STRUCTURAL — STATE OF CALIFORNIA — PROFESSIONAL ENGINEER

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

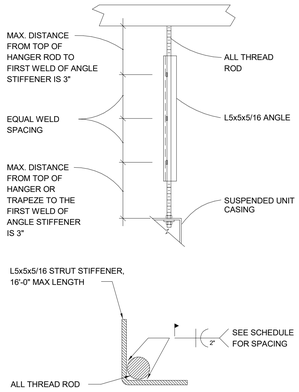
owner

ZFA project number: 19494
tBP project number: 22039.00
PM: SCH ENG: MRS/NBB
date: JUNE 22, 2021

rev:	date:	description:
	2021-05-17	BID SET
2	2021-12-06	Addendum #2
5	2022-01-11	Addendum #5

drawing title:
TRASH ENCLOSURE

drawing no.:
S-T2.1



FOR 3/8" THRU 5/8" ROD

ANGLE STEEL STRUT ASSEMBLY RATINGS (ASD)

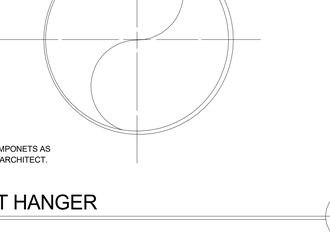
ATR Size	MAXIMUM COMPRESSIVE FORCE (LBS)	MAXIMUM ANGLE STIFFENER LENGTH (INCHES)	MAX WELD SPACING (INCHES)
3/8"	833	192	15
1/2"	1481	192	21
5/8"	2314	192	26

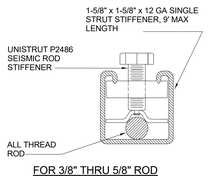
NOTE: IF HANGER ROD LENGTH IS LESS THAN 9'-6", SEE 14/M502

ROD STIFFENER DETAIL (ROD LENGTHS < 16'-0")

SCALE : NONE

13 M502





FOR 3/8" THRU 5/8" ROD

UNISTRUT STEEL STRUT ASSEMBLY RATINGS (ASD)

ATR Size	MAXIMUM COMPRESSIVE FORCE (LBS)	MAXIMUM STRUT STIFFENER LENGTH (INCHES)	MAX UCC SPACING (INCHES)
3/8"	833	108	15
1/2"	1481	108	21
5/8"	2314	108	26

NOTE: IF HANGER ROD LENGTH IS LARGER THAN 9'-6", SEE 13/M502

ROD STIFFENER DETAIL (ROD LENGTHS < 9'-6")

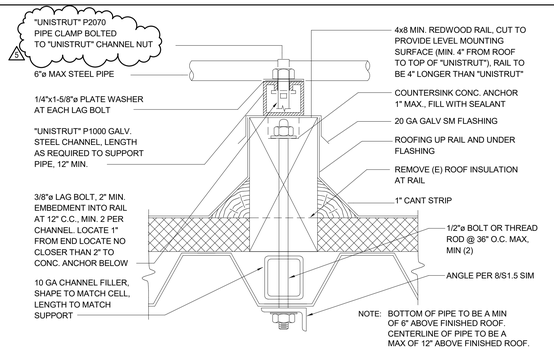
SCALE : NONE

14 M502

EXPOSED DUCT HANGER

SCALE : NONE

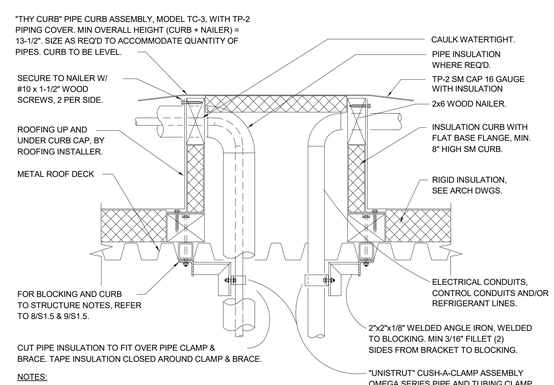
15 M502



PIPE ON ROOF MOUNTING

SCALE : NONE

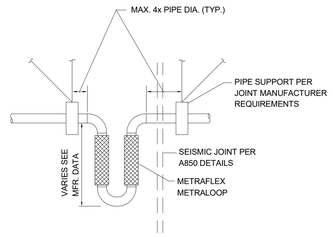
9 M502



PIPE THRU ROOF SAFE MOUNTING

SCALE : NONE

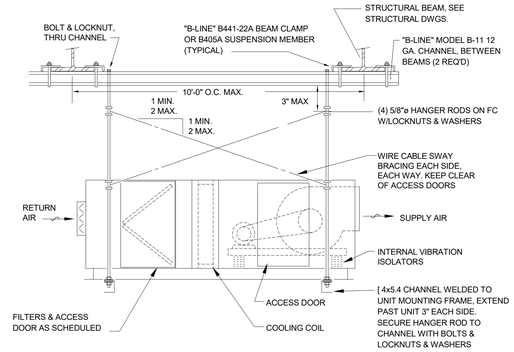
10 M502



PIPE ACROSS SEISMIC SEPARATION

SCALE : NONE

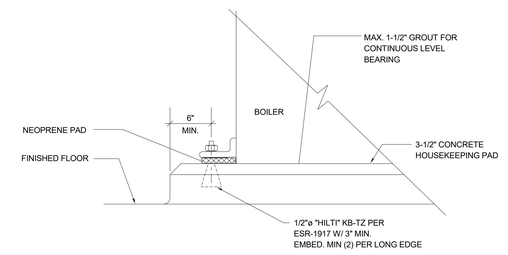
11 M502



DUCTED FCU MOUNTING

SCALE : NONE

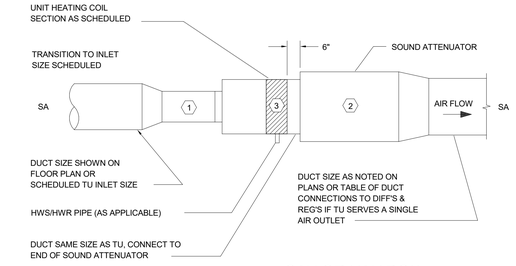
12 M502



BOILER MOUNTING DETAIL

SCALE : NONE

5 M502



CAV OR VAV BOX

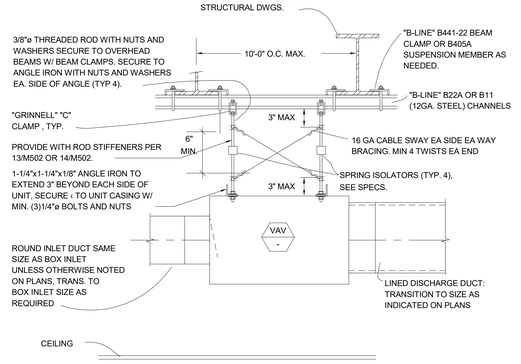
DETAIL NOTES

1. GALVANIZED SHEET METAL DUCT CONNECTION SHALL BE PROVIDED TO UNIT INLET DUCT CONNECTION TO TERMINAL UNIT.
2. PROVIDE FACTORY SA ATTENUATOR AT TERMINAL UNIT.
3. ATTACH REHEAT COIL TO DISCHARGE OF TERMINAL UNIT, SA ATTENUATOR TO DISCHARGE OF REHEAT COIL.

VAV/CAV DUCTWORK

SCALE : NONE

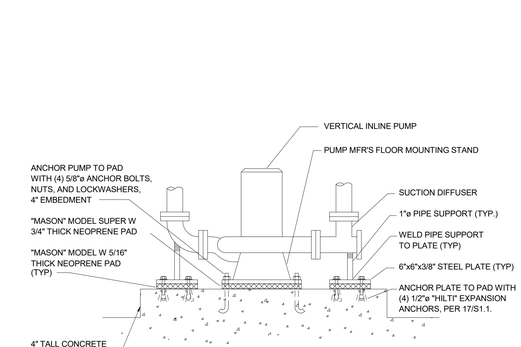
6 M502



VAV/CAV MOUNTING

SCALE : NONE

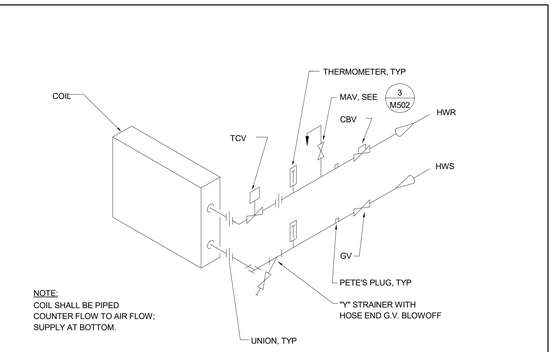
7 M502



BASE MOUNTED INLINE PUMP

SCALE : NONE

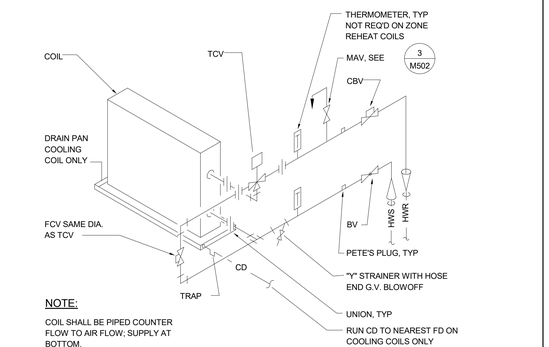
8 M502



HHW COIL PIPING DETAIL (2-WAY)

SCALE : NONE

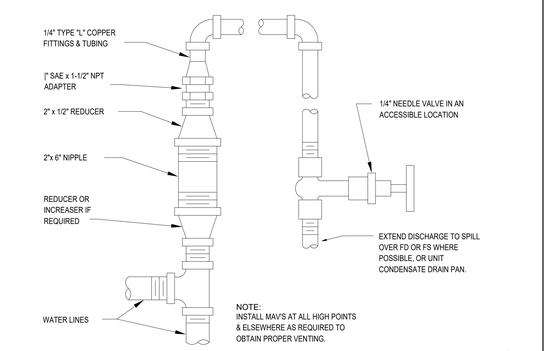
1 M502



HHW COIL PIPING DETAIL (3-WAY)

SCALE : NONE

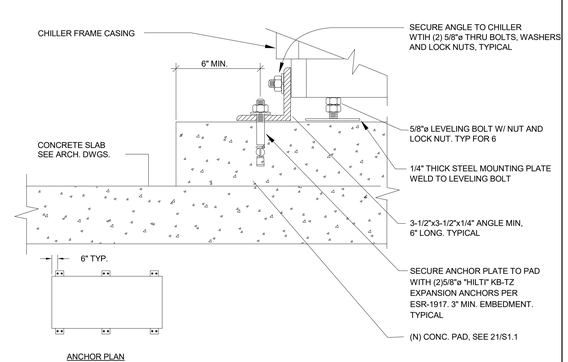
2 M502



MANUAL AIR VENT (MAV) DETAIL

SCALE : NONE

3 M502



CHILLER MOUNTING DETAIL

SCALE : NONE

4 M502

DSA Application #
DSA File #

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA

MH - SL/SU/JH/HC — PM - DESIGN TEAM
200110.00 — PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER
M 29743
EXPIRES 6/30/22
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 12/03/2021

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name:

drawn by: Author — checked by: Checker

date: Issue Date — MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/2021	ADDENDUM 4
5	01/11/22	ADDENDUM 5

drawing title:

HVAC DETAILS

drawing no.:

M502

drawing — of

01/10/2022 1:54:09 PM

PLUMBING EQUIPMENT SCHEDULE

UNIT	DESCRIPTION
DWH 1	DOMESTIC HOT WATER HEATER "BOCK WATER HEATERS" OPTITHERM MODEL OT-500-A CONDENSING WATER HEATER. 500 MBH NATURAL GAS INPUT, 646 GPH @ 100F RISE & 558 GPH RECOVERY, 125 GALLON TANK. 120V/60Hz/1Ph, MODULATING BURNER, CONDENSATE NEUTRALIZATION KIT. FOR MOUNTING, SEE DETAIL 2/P501. FOR PIPING DIAGRAM, SEE DETAIL 1/P501 OPER WEIGHT = 2000 LBS.
DWH 2	DOMESTIC HOT WATER HEATER "BOCK WATER HEATERS" HEC MODEL 60-HEC-125 CONDENSING WATER HEATER. 125 MBH NATURAL GAS INPUT, 187 GPH @ 100F RISE & 145 GPH RECOVERY, 60 GALLON TANK. 120V/60Hz/1Ph, CONDENSATE NEUTRALIZATION KIT. FOR MOUNTING, SEE DETAIL 2/P501. FOR PIPING DIAGRAM, SEE DETAIL 1/P501 OPER WEIGHT = 1000 LBS.
CP 1	DOMESTIC HOT WATER RECIRCULATION PUMP "B&G" ECOCIRC MODEL XL E36-45, 15 GPM @ 20 FEET HEAD, ECM MOTOR, 1/6 HP, 115V/60Hz/1Ph, 3A. OPER WEIGHT = 10 LBS.
CP 2	DOMESTIC HOT WATER RECIRCULATION PUMP "B&G" ECOCIRC MODEL XL E36-45, 15 GPM @ 20 FEET HEAD, ECM MOTOR, 1/6 HP, 115V/60Hz/1Ph, 3A. OPER WEIGHT = 10 LBS.
ET 1	EXPANSION TANK "THERM-X-TROL" MODEL ST-12-C, 6.4 GALLONS VOLUME OPER WEIGHT = 85 LBS.
ET 2	EXPANSION TANK "THERM-X-TROL" MODEL ST-5-C, 2 GALLONS VOLUME OPER WEIGHT = 35 LBS.
GI 1	GREASE INTERCEPTOR "JENSEN PRECAST" 4,000 GALLON GREASE INTERCEPTOR MODEL JZ4000EPE-G. THREE (3) 24"DIA STANDARD MANHOLES, 6" INLET & OUTLET CONNECTIONS. 6"DIA INLET PIPE. PROVIDE 24"DIA CAST IRON FRAMES AND COVERS WITH GASTIGHT GASKETS AND THREE (3) RISERS AS NECESSARY. PROVIDE H-20 TRAFFIC RATED MANHOLES. DIMENSIONS: 16'-7" L x 7'-8" W x 6'-9" HT. "JENSEN PRECAST" SAMPLE BOX MODEL EV200, 24"DIA CAST IRON FRAMES AND COVERS WITH GASTIGHT GASKETS, Z-LOC PIPE CONNECTOR, H-20 TRAFFIC RATED MANHOLES. 32"DIA. SEE DETAIL 9/P501 OPER WEIGHT = 51,000 LBS.
TMV 1	THERMOSTATIC MIXING VALVE - KITCHEN & LAUNDRY "LEONARD" MEGATRON MODEL 2NB-LF, 35 GPM AT 120 DEGREES OUTLET TEMP, 1" INLETS AND OUTLET SEE DETAIL 10/P501 OPER WEIGHT = 150 LBS.
GPR 1	GAS PRESSURE REGULATOR "MAXITROL" 220 SERIES, 5,000 MBH, 3 PSI INLET PRESSURE, 7" WC OUTLET PRESSURE OPER WEIGHT = 25 LBS.
GSV 1	GAS SEISMIC VALVE "PACIFIC SEISMIC PRODUCTS" MODEL 315 CALIFORNIA SEISMIC VALVE, HORIZONTAL, 60 PSI
SP 1	SUMP PUMP "B&G" SUBMERSIBLE EFFLUENT PUMP, MODEL 1EC03, PUMP SIZED FOR 25 GPM CAPACITY AT 10 FT. HEAD, 1/3 HP, 115 V/ 1 Ø/60 Hz TO BE COORDINATED WITH DIVISION 26, 1-1/2" DISCHARGE, 20 FT. POWER CORD, W/ 2" SIDE VENT 6" BELOW PIT LID. PROVIDE MFR. FLOAT CONTROLS AND CURRENT SENSOR REPORTING TO BMS WHEN IN OPERATION.

5

DOMESTIC WATER SIZING CHART

(BASED ON 4 PSI DROP/100 FEET)

GPM	MIN. PIPE SIZE	COMMENTS:
0 - 2	1/2"	PIPE SIZES BASED ON MAX. OF 7.5 FPS FLOW VELOCITY
3 - 6	3/4"	
7 - 14	1"	
15 - 20	1-1/4"	
21 - 33	1-1/2"	
34 - 66	2"	
67 - 99	2-1/2"	
100 - 155	3"	
156 - 196	3-1/2"	
197 - 265	4"	
266 - 390	5"	
391 - 600	6"	

DSA Application #
DSA File #

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
MH - SL/IS/JH/HC 200110.00
PM - DESIGN TEAM PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER
M 29743
EXPIRES 6/30/22
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 12/03/2021

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name:

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/2021	ADDENDUM 4
5	01/11/22	ADDENDUM 5

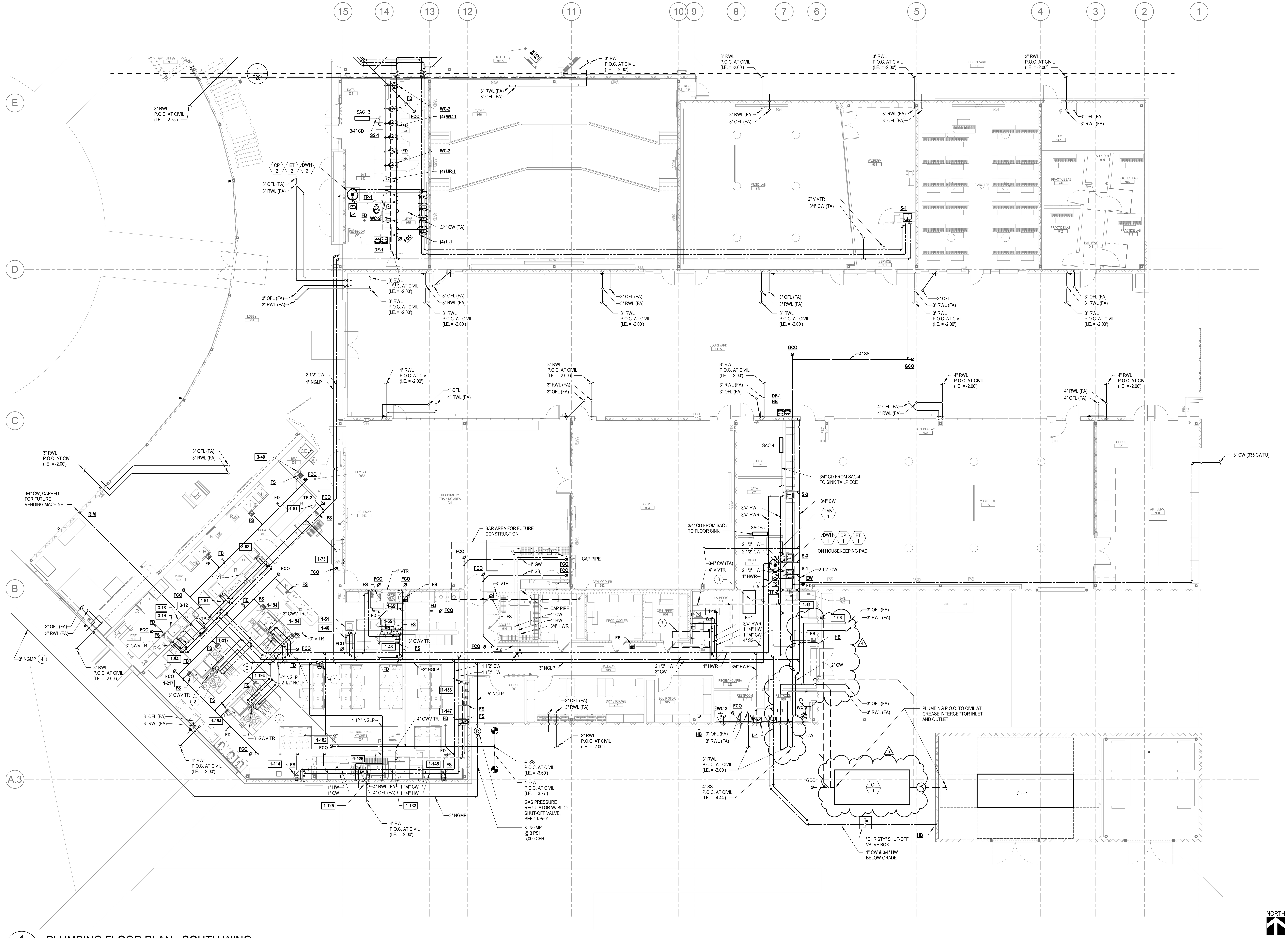
drawing title:

PLUMBING SCHEDULES

drawing no.:

P003

drawing of



1 P202 PLUMBING FLOOR PLAN - SOUTH WING

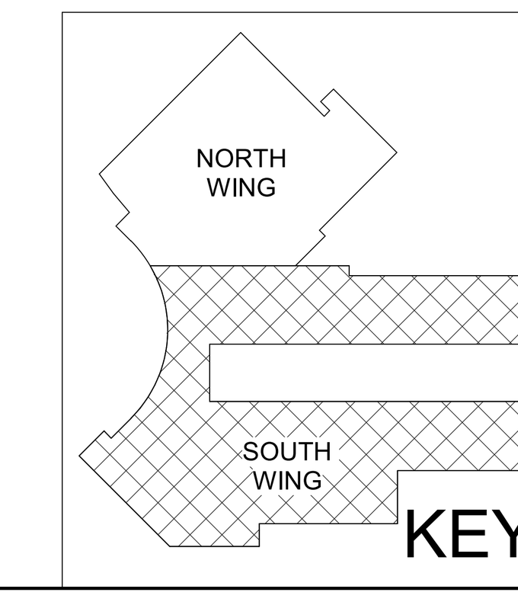
SCALE: 1/8" = 1'-0"

KEY NOTES:

1. DIV. 22 SHALL INSTALL A LINE-SIZED AUTOMATIC SHUTOFF VALVE ABOVE CEILING WITH ACCESS DOOR. SHUTOFF VALVE PROVIDED BY FOOD SERVICE CONTRACTOR, SEE FS-301.
2. DIV. 22 SHALL COORDINATE LOCATION AND FINAL CONNECTION TO SHUT-OFF VALVE SERVING FOOD SERVICE SUITE. SEE SHEETS FS-608, FS-611, & FS-614.
3. PROVIDE LINE-SIZED SHUTOFF VALVE AT EQUIPMENT CONNECTION
4. BURIED MEDIUM PRESSURE GAS LINE BY DIV 22. SEE CIVIL SITE PLAN FOR CONTINUATION BACK TO NEW POINT OF CONNECTION (BY DIV 22). TRENCH BY CIVIL.
5. SET TOP LIP OF FLOOR SINK FLUSH WITH FINISHED FLOOR.
7. DIV 22 CONTRACTOR SHALL COORDINATE WITH FOOD SERVICE CONTRACTOR TO MAINTAIN CLEARANCE ABOVE EQUIPMENT IN THIS AREA. SEE 11/A503.

SHEET NOTES:

1. FOR FINAL CONNECTION TO FOOD SERVICE AND LAUNDRY FIXTURES, REFER TO FS- SHEET SERIES. INDICATED X-XXX SYMBOL IS PROVIDED AS A REFERENCE ONLY TO FIXTURE SCHEDULES SHOWN ON THOSE SHEETS.



KEY PLAN

DSA Application #
DSA File #
agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419
architect

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA

MH - SL/IS/JH/HC	200110.00
PM - DESIGN TEAM	PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER ANTHONY COLACCHIA M 29743 EXPIRES 6/30/22 MECHANICAL STATE OF CALIFORNIA

DATE SIGNED: 12/03/2021
consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT
owner

tBP project number: 22039.00
file name:
drawn by: Author checked by: Checker
date: Issue Date MAY 17, 2021

rev:	date:	description:
	05/17/21	BID SET
4	12/23/2021	ADDENDUM 4
5	01/11/22	ADDENDUM 5

drawing title:
PLUMBING FLOOR PLAN - SOUTH WING

drawing no.:
P202
drawing of

01/10/2022 1:54:18 PM

PROJECT GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL CIRCUITRY SHOWN ON THESE DOCUMENTS IS DONE PER THE "ROUNDHOUSE" METHOD. FOR EVERY GROUP OF THREE (3) CONSECUTIVE CIRCUITS IN PHASE ORDER, THERE IS A DEDICATED NEUTRAL. FOR EXAMPLE, A HOMERUN COMPRISED OF CIRCUITS 1,3 AND 5 CONTAINS FOUR (4) CONDUCTORS; THREE (3) HOTS AND ONE (1) NEUTRAL. A HOMERUN COMPRISED OF NON-CONSECUTIVE NUMBERS OUT OF PHASE ORDER, I.E. 1,9 AND 11 OR 3, 5, 7 CONTAINS FIVE (5) CONDUCTORS; THREE (3) HOTS AND TWO (2) NEUTRALS. GROUND CONDUCTORS TYPICALLY ARE NOT SHOWN AS PART OF THE WIRE COUNT.
2. INSTALL AND CONNECT A CODE SIZED INSULATED OR BARE COPPER GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS.
3. MOUNTING HEIGHTS SHOWN ARE FROM FINISHED FLOOR TO THE CENTERLINE OF THE DEVICE. ALL MOUNTING HEIGHTS SHALL BE AS SHOWN ON THE SYMBOLS LIST UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS.
4. REFER TO POWER PLANS FOR THE LOCATION OF ALL PANELBOARDS.
5. FURNISH AND INSTALL ALL PANELBOARDS WITH CIRCUIT BREAKERS AS SHOWN ON PANEL SCHEDULES.
6. SUBSCRIPTS ON SWITCH SMBOLS (Sa) DENOTE THE FIXTURE CONTROLLED.
7. DO NOT INSTALL POWER OUTLETS BACK TO BACK IN STUD WALLS.
8. REFER TO ELECTRICAL ONE LINE DIAGRAM AND FEEDER SCHEDULE FOR THE SIZE OF CONDUITS AND CONDUCTORS BETWEEN MAJOR POWER COMPONENTS OF THE ELECTRICAL SYSTEM.
9. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONAL LOCATION OF OUTLETS AND FIXTURES AND LOCATION IN ELEVATION VIEW.
10. CONTRACTOR IS RESPONSIBLE TO SUBMIT REVISED LAYOUT OF EQUIPMENT IN ANY ELECTRICAL ROOM OR OTHER ROOM CONTAINING ELECTRICAL GEAR FOR WRITTEN APPROVAL BY ENGINEER IF PROPOSED INSTALLATION LAYOUT DIFFERS FROM CONSTRUCTION DOCUMENTS. SUBMISSION MUST BE APPROVED PRIOR TO RELEASE OF ORDER FOR EQUIPMENT AND PRIOR TO INSTALLATION.
11. THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY ALL EXISTING CONDITIONS BEFORE BIDDING AND SHALL INCLUDE IN THE BID THE NECESSARY COSTS TO CONSTRUCT THIS PROJECT IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS, SPECIFICATIONS AND ALL APPLICABLE CODES.
12. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDER-WRITERS LABORATORIES AND BEAR THEIR LABEL.
13. THE CONTRACTOR SHALL REFER TO THE MECHANICAL PLANS AND ACCOUNT FOR ALL MECHANICAL CONTROLS IDENTIFIED AS 'BY ELECTRICAL' OR 'BY DIVISION 26'. ALL MECHANICAL LINE AND LOW VOLTAGE CONTROL AND INTERLOCK WIRING SHALL BE PROVIDED UNDER DIVISION 23 U.O.N. THIS SHALL ALSO INCLUDE THE SHUTDOWN WIRING FROM THE FIRE ALARM CONTROL RELAY AT EACH AC UNIT.
14. CONTRACTOR SHALL REMOVE ALL LEFT OVER CONDUIT, WIRE, SCRAPS, ETC. AND LEAVE PREMISES CLEAN AND FREE OF TRASH OR DEBRIS RESULTING FROM HIS WORK.
15. CONTRACTOR SHALL REPORT TO THE OWNER'S ENGINEER ANY OBSERVATIONS OF CONDITIONS WHICH ARE DISCOVERED IN THE BUILDING WHICH WOULD PREVENT THE CORRECT INSTALLATION OF THE ELECTRICAL SYSTEM.
16. PROVIDE INDIVIDUAL GFCI RECEPTACLES AT EACH LOCATION SHOWN, DO NOT USE FEED-THRU GFCI TYPE RECEPTACLES. LOCATE RECEPTACLE AT END OF BRANCH CIRCUIT WIRE.
17. VERIFY THE EXACT LOCATION OF ALL MECHANICAL AND PLUMBING EQUIPMENT, SPRINKLER VALVE MONITORS AND FLOW SWITCHES, DUCT SMOKE DETECTORS, CONTROL DEVICES, ETC. PRIOR TO DETERMINING CONDUIT TERMINATION POINTS.
18. CONDUIT ROUTING (WHERE SHOWN) IS ESSENTIALLY DIAGRAMMATIC. CONTRACTOR SHALL LAYOUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
19. ALL CONDUIT AND RACEWAY PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED TO MAINTAIN THE FIRE SEPARATION RATING. REFER TO ARCHITECTURAL PLANS TO IDENTIFY ALL RATED CONSTRUCTION.
20. CONDUITS EMBEDDED IN SLABS SHALL BE NO LARGER THAN 1.25" TRADE SIZE OF 1/3 OR SLAB DEPTH, WHICHEVER IS SMALLER. SPACE CONDUITS 5" APART (CENTER-TO-CENTER).
21. REFER TO STRUCTURAL DRAWINGS FOR CONDUIT INSTALLATION REQUIREMENTS AND LIMITATIONS AT FOOTINGS AND FOR CONDUIT RUNS IN OR THROUGH CONCRETE SLABS, JOISTS AND BEAMS.
22. ALL CONDUITS CROSSING EXPANSION JOINTS SHALL BE PROVIDED WITH SPECIFIED EXPANSION/DEFLECTION FITTINGS.
23. INSTALL ALL POLYETHYLENE PULLING ROPE IN ALL EMTPTY CONDUITS.
24. FIXTURES INDICATED AS EMERGENCY, WITH BATTERY BACK-UP, SHALL BE WIRED FOR NORMAL OPERATION (SWITCHED) U.O.N. DO NOT WIRE AS NIGHT LIGHT (24 HOUR OPERATION) U.O.N. EXIT LIGHTS ARE EXCEPTION.
25. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS TO VERIFY LOCATION OF CEILING MOUNTED LIGHT FIXTURES. RETPORT ANY DISCREPANCIES PRIOR TO ROUGH-IN.
26. LAMP ORIENTATION IN ROOMS CONTAINING 2' X 2' AND 2' X 4' FIXTURES SHALL BE THE SAME.
27. ALL EXPOSED CONDUIT, BOXES, SUPPORTS, ETC. SHALL BE PAINTED TO MATCH SURROUNDING SURFACES.
28. ALL EXPOSED LIGHT FIXTURE CORDS AND CANOPIES SHALL BE APPROVED BY THE ARCHITECT FOR COLOR. PROVIDE WHITE UNLESS OTHERWISE NOTED.
29. DEVICE AND FACEPLATE COLORS SHALL BE COORDINATED WITH THE ARCHITECT, INCLUDING DESIGNER COLORS IN MAIN ENTRY LOBBIES AND OTHER SPACES AS REQUIRED.
30. NO METAL OR ARMOR-CLAD CABLE SHALL BE CONCEALED IN WALLS IN THIS PROJECT. PRODUCTS MAY BE USED ONLY IN ACCESSIBLE SPACES.
31. ALL EXPOSED CONDUIT, CABLE TRAY, OPEN CABLING SHALL BE ROUTED AT RIGHT ANGLES TO THE BUILDING STRUCTURE.
32. DEVICE/OUTLET BOXES MOUNTED ON OPPOSITE SIDES OF RATED WALLS IN CORRIDORS, AND IN ANY AIRTIGHT SPACES SHALL BE SEPARATED BY A MINIMUM OF 24".
33. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS OF WALL MOUNTED LIGHT FIXTURES, AND MOUNTING HEIGHTS OF ALL SUSPENDED FIXTURES. REPORT ANY DISCREPANCIES BETWEEN THE ELEVATIONS AND INFORMATION PROVIDED ON THE ELECTRICAL PLANS PRIOR TO ROUGH-IN.
34. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ACCEPTANCE TESTING AND DOCUMENTATION AS REQUIRED BY THE 2019 BUILDING ENERGY EFFICIENCY STANDARDS, TITLE 24, PART 6.
35. THE CONTRACTOR SHALL PROVIDE THE CERTIFICATE OF INSTALLATION (NRCI) AND THE CERTIFICATE OF ACCEPTANCE (NRCA) FORMS REQUIRED FOR THIS PROJECT AND SUBMIT THE SIGNED FORMS.
36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INITIAL FIELD INSPECTION CHECKING REQUIRED ON THE TITLE 24 COMPLIANCE FORMS (NRCC). THEY SHALL COMPLETE ALL FIELDS INDICATED AS COMPLETED BY "FIELD INSPECTOR" AND SHALL SUBMIT COMPLETED AND SIGNED FORMS.

WOODLAND PAC LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER & CATALOG NUMBER	LIGHT SOURCE QTY/TYPE	BALLAST/ DRIVER	WATTS	VOLTAGE	DESCRIPTION	DETAIL
F1	LITHONIA 2BLT4-48L-ADSM-MVOLT-EZ1-LP840-NLTAIR2-RES7 OR APPROVED EQUAL	LED ~5000 LUMEN 4000K 80+ CRI MIN 50,000 HR L80	0-10V DIMMING LED DRIVER	38	277	2'X4' ARCHITECTURAL HIGH EFFICIENCY RECESSED LED TROFFER, STEEL HOUSING WITH WHITE POWDER COAT FINISH AND HIGHLY EFFICIENT SATIN WHITE LENS. PROVIDE WITH INTEGRAL WIRELESS MOTION/DAYLIGHT SENSOR, AND INTEGRAL LIGHTING CONTROL MODULE COMPATIBLE WITH THE SPECIFIED LIGHTING CONTROL SYSTEM.	1/E802
F1A	LITHONIA 2BLT4-48L-ADSM-MVOLT-EZ1-LP840-NLTAIR2-RES7EM OR APPROVED EQUAL	LED ~5000 LUMEN 4000K 80+ CRI MIN 50,000 HR L80	0-10V DIMMING LED DRIVER	38	277	SAME AS FIXTURE TYPE F1, BUT WITH UL924 EMERGENCY OPERATION	1/E802
F2	LITHONIA 2BLT-33L-ADSM-MVOLT-EZ1-LP840-NLTAIR2-RES7 OR APPROVED EQUAL	LED ~3500 LUMEN 4000K 80+ CRI MIN 50,000 HR L80	0-10V DIMMING LED DRIVER	30	277	2'X2' ARCHITECTURAL HIGH EFFICIENCY RECESSED LED TROFFER, STEEL HOUSING WITH WHITE POWDER COAT FINISH AND HIGHLY EFFICIENT SATIN WHITE LENS. PROVIDE WITH INTEGRAL WIRELESS MOTION/DAYLIGHT SENSOR, AND INTEGRAL LIGHTING CONTROL MODULE COMPATIBLE WITH THE SPECIFIED LIGHTING CONTROL SYSTEM.	1/E802
F2A	LITHONIA 2BLT-33L-ADSM-MVOLT-EZ1-LP840-NLTAIR2-RES7EM OR APPROVED EQUAL	LED ~3500 LUMEN 4000K 80+ CRI MIN 50,000 HR L80	0-10V DIMMING LED DRIVER	30	277	SAME AS FIXTURE TYPE F2, BUT WITH UL924 EMERGENCY OPERATION	1/E802
F3	PEERLESS BRM9L-LSL-(LENGTH)-MSL12-80CRI-40K-ID1300LMF-70/30-MIN1-NLTAIR2-277-SCT-API-SAPI-F1-48A-C210 OR APPROVED EQUAL	LED 9.3W / 1' ~1200 LUMENS / 1' 4000K 80+CRI MIN 100,000 HR L90	0-10V DIMMING LED DRIVER	10W / 1'	277	LINEAR SUSPENDED LED LUMINAIRE, LENGTH AS INDICATED ON THE PLANS, 70% INDIRECT / 30% DIRECT DISTRIBUTION, STEEL HOUSING WITH WHITE POWDER COAT OR PAINTED FINISH, AND DIFFUSE ACRYLIC LENS. PROVIDE WITH FLAT ENDCAPS, CANOPY KITS, AND POWER/NON-POWER FEEDS AS REQUIRED FOR COMPLETE INSTALLATION. SUSPEND MINIMUM 18" FROM BOTTOM OF CEILING. PROVIDE WITH INTEGRAL WIRELESS MOTION/DAYLIGHT SENSORS, AND INTEGRAL LIGHTING CONTROL MODULE COMPATIBLE WITH THE SPECIFIED LIGHTING CONTROL SYSTEM.	7/E802
F3A	PEERLESS BRM9L-LSL-(LENGTH)-MSL12-80CRI-40K-ID1300LMF-70/30-MIN1-NLTAIR2-277-SCT-API-SAPI-F1-48A-C210 OR APPROVED EQUAL	LED 9.3W / 1' ~1200 LUMENS / 1' 4000K 80+CRI MIN 100,000 HR L90	0-10V DIMMING LED DRIVER	10W / 1'	277	SAME AS FIXTURE TYPE F3, BUT WITH SEPARATE EMERGENCY CIRCUIT WIRING AND UL924 EMERGENCY OPERATION TO 8' SECTION OF FIXTURE INDICATED ON THE PLANS.	7/E802
F4	BETA CALCO 'RING" 950070-D30-S1-(FINISH TBD)-D1 OR APPROVED EQUAL	LED ~13,500 LUMENS 3000K 80+ CRI MIN 50,000 HR L70	0-10V DIMMING LED DRIVER	138	MVOLT	SUSPENDED DIRECT-ONLY LUMINAIRE, 4" WIDE RING-SHAPED ALUMINUM AND STEEL HOUSING, NOMINAL 48" DIAMETER WITH POWDER COAT FINISH, COLOR TBD BY ARCH, AND OPAL POLYCARBONATE DIFFUSER. THREE STAINLESS STEEL CABLE SUSPENSION POINTS, VERIFY MOUNTING HEIGHT WITH ARCHITECT.	7/E802
F4/6'	BETA CALCO "RING" 950080-D30-S1-WH-D1 OR APPROVED EQUAL	LED ~21,000 LUMEN 3000K 80 CRI MIN 50,000 HR L70	0-10V LED DRIVER	216	UNV	SAME AS FIXTURE TYPE F4, BUT 72" DIAMETER.	7/E802
F4/8'	BETA CALCO "RING" 950090-D30-S1-WH-D1 OR APPROVED EQUAL	LED ~27,000 LUMEN 3000K 80 CRI MIN 50,000 HR L70	0-10V LED DRIVER	281	UNV	SAME AS FIXTURE TYPE F4, BUT 96" DIAMETER.	7/E802
F5	LITHONIA CLX-L48-4000LM-SEF-RDL-MVOLT-GZ10-40K-80CRI-WH (+ZACFPD120) OR APPROVED EQUAL	LED ~4000 LUMEN 4000K 80+ CRI MIN 100,000 HR L70	0-10V DIMMING LED DRIVER	31	277	NOMINAL 4' LONG SURFACE MOUNTED COMPACT LINEAR LED FIXTURE, WITH STEEL HOUSING WITH WHITE PAINTED FINISH, AND RUGGED FROSTED CONTOURED ACRYLIC LENS. INSTALL IN CONTINUOUS ROW AS INDICATED ON THE PLANS. PROVIDE WITH AC CABLE KIT AND SUSPEND FIXTURE AT +10'-0" A.F.F. U.O.N. WHERE CEILING IS OPEN TO STRUCTURE.	4/E802
F5/8'	LITHONIA CLX-L96-8000LM-SEF-RDL-MVOLT-GZ10-40K-80CRI-WH (+ZACFPD120) OR APPROVED EQUAL	LED ~8000 LUMEN 4000K 80+ CRI MIN 100,000 HR L70	0-10V DIMMING LED DRIVER	62	277	SAME AS FIXTURE TYPE F5, BUT NOMINIAL 8' LENGTH	4/E802
F5A	LITHONIA CLX-L48-4000LM-SEF-FDL-MVOLT-GZ10-40K-80CRI-MB (+ZACFPD120) OR APPROVED EQUAL	LED ~4000 LUMEN 4000K 80+ CRI MIN 100,000 HR L70	0-10V DIMMING LED DRIVER	31	277	SAME AS FIXTURE TYPE F5, BUT WITH MATTE BLACK FINISH	4/E802
F5/8'	LITHONIA CLX-L96-8000LM-SEF-RDL-MVOLT-GZ10-40K-80CRI-MB (+ZACFPD120) OR APPROVED EQUAL	LED ~8000 LUMEN 4000K 80+ CRI MIN 100,000 HR L70	0-10V DIMMING LED DRIVER	62	277	SAME AS FIXTURE TYPE F5A, BUT NOMINIAL 8' LENGTH	4/E802
F5B	LITHONIA CLX-L48-4000LM-SEF-RDL-MVOLT-GZ10-40K-80CRI-MB-CLXANGBKT OR APPROVED EQUAL	LED ~4000 LUMEN 4000K 80+ CRI MIN 100,000 HR L70	0-10V DIMMING LED DRIVER	31	277	SAME AS FIXTURE TYPE F5A, BUT WITH ANGLE BRACKET (MATTE BLACK) FOR WALL MOUNTING FIXTURE.	4/E802
F6	GOTHAM EVO-30-15-6AR-MD-LSS-MVOLT-EZ1-DNAT OR APPROVED EQUAL	LED ~1500 LUMEN 3000K 80+CRI MIN 60,000 HR L70	0-10V DIMMING LED DRIVER	18.5	277	LED DOWNLIGHT, NOMINAL 6" ROUND APERTURE, WITH SELF FLANGED SEMI-SPECULAR FINISHING TRIM AND 45° CUTOFF TO SOURCE AND SOURCE IMAGE. FULLY SERVICABLE AND UPGRADEABLE LENSED LED LIGHT ENGINE AND DRIVER ACCESSIBLE THROUGH APERTURE.	2/E802
F7	JUNO SLIMFORM JSF-7IN-10LM-40K-90CRI-MVOLT-ZT-WH+JSFTRIM-7IN-TBD OR APPROVED EQUAL	LED 1000 LUMEN 4000K 90+ CRI MIN 50,000 HR L70	0-10V DIMMING LED DRIVER	13	277	NOMINAL 7" DIA. SLIM SURFACE MOUNTED LED FIXTURE INSTALLED OVER JUNCTION BOX, WITH WHITE PAINTED FINISH AND DIFFUSE LENS. PROVIDE WITH OPTIONAL TRIM RING, FINISH TBD BY ARCH.	9/E802
F8	LITHONIA 2GTL-2-48L-FN-A12.125-GZ10-LP840-NLTAIR2-RES7-ABC OR APPROVED EQUAL	LED ~4800 LUMEN 4000K 80+ CRI MIN 50,000 HR L80	0-10V DIMMING LED DRIVER	42	277	2'X2' LED TROFFER W/ STEEL HOUSING, FLUSH ALUMINUM GASKETED DOOR FRAME, AND 0.125" THICK A12 FROSTED ACRYLIC LENS INSTALLED SMOOTH SIDE DOWN. PROVIDE WITH INTEGRAL WIRELESS MOTION/DAYLIGHT SENSOR, AND INTEGRAL LIGHTING CONTROL MODULE COMPATIBLE WITH THE SPECIFIED LIGHTING CONTROL SYSTEM.	1/E802
F8A	LITHONIA 2GTL-2-48L-FN-A12.125-GZ10-LP840-NLTAIR2-RES7EM-ABC OR APPROVED EQUAL	LED ~4800 LUMEN 4000K 80+ CRI MIN 50,000 HR L80	0-10V DIMMING LED DRIVER	42	277	SAME AS FIXTURE TYPE F8, BUT WITH UL924 EMERGENCY OPERATION	1/E802
F9	PRUDENTIAL "HALF SNAP" HSS-LED40-SO-4'-SAL-TMW-UNV-SUR-X3-DM10 OR APPROVED EQUAL	LED 3520 LUMENS 4000K 80+ CRI MIN 50,000 HR L70	0-10V DIMMING LED DRIVER	36	277	NOMINAL 4' LONG SURFACE MOUNTED COMPACT LINEAR LED FIXTURE, WITH STEEL HOUSING WITH WHITE POWDER COAT FINISH, AND DIFFUSE SNAP-ON LENS. INSTALL IN CONTINUOUS ROW WHERE INDICATED ON THE PLANS.	4/E802
F9/8'	PRUDENTIAL "HALF SNAP" HSS-LED40-SO-8'-SAL-TMW-UNV-SUR-X3-DM10 OR APPROVED EQUAL	LED 7040 LUMENS 4000K 80+ CRI MIN 50,000 HR L70	0-10V DIMMING LED DRIVER	72	277	NOMINAL 8' LONG SURFACE MOUNTED COMPACT LINEAR LED FIXTURE, WITH STEEL HOUSING WITH WHITE POWDER COAT FINISH, AND DIFFUSE SNAP-ON LENS. INSTALL IN CONTINUOUS ROW WHERE INDICATED ON THE PLANS.	4/E802
F10	GOTHAM EVO6WTRC-30K-80-AR-WD-LSS-MVOLT-EDXB-JBX-DN-DBL OR APPROVED EQUAL	LED 8000 LUMEN 3000K 85 CRI MIN 60,000 HR L70	DMX <1% DIMMING	75	120	LED CYLINDER SURFACE JBOX MOUNTED TO SIDE OF THE TENSION GRID, CAPABLE OF ROTATING AND TILTING UP TO 40°, NOMINAL 6" APERTURE, ALUMINUM HOUSING WITH BLACK POWDER COAT FINISH (VERIFY W/ARCH), SELF FLANGED, SEMI-SPECULAR LOWER REFLECTOR.	3/E802
F10A	GOTHAM EVO6WTRC-30K-50-AR-WD-LSS-MVOLT-EDXB-JBX-DN-DBL OR APPROVED EQUAL	LED 4000 LUMEN 3000K 85 CRI MIN 60,000 HR L70	DMX <1% DIMMING	39	120	SAME AS FIXTURE TYPE F10, BUT WALL MOUNTED OVER RECESSED JBOX, AND LOWER LUMEN OUTPUT.	3/E802
F10B	GOTHAM EVO6SC-30K-20-AR-WD-LSS-MVOLT-EZ10-JBX-DBL OR APPROVED EQUAL	LED 2000 LUMEN 3000K 85 CRI MIN 60,000 HR L70	0-10V DIMMING LED DRIVER △5	20	277	SAME AS FIXTURE TYPE F10, BUT SURFACE MOUNTED AT EXPOSED STRUCTURAL CEILING, AND LOWER LUMEN OUTPUT.	3/E802
F11	GOTHAM EVO6-30K-20-AR-MD-LSS-MD-MVOLT-EDXB OR APPROVED EQUAL	LED 2000 LUMEN 3000K 85 CRI MIN 60,000 HR L70	DMX <1% DIMMING	20	MVOLT	LED DOWNLIGHT, NOMINAL 6" ROUND APERTURE, WITH SELF FLANGED SEMI-SPECULAR FINISHING TRIM AND 45° CUTOFF TO SOURCE AND SOURCE IMAGE. FULLY SERVICABLE AND UPGRADEABLE LENSED LED LIGHT ENGINE AND DRIVER ACCESSIBLE THROUGH APERTURE.	2/E802
F11A	GOTHAM EVO6-30K-50-AR-MD-LSS-MD-MVOLT-EDXB-SCA6 OR APPROVED EQUAL	LED 5000 LUMEN 3000K 85 CRI MIN 60,000 HR L70	DMX <1% DIMMING	49	MVOLT	SAME AS FIXTURE TYPE F11, BUT HIGHER LUMEN OUTPUT, AND SLOPED CEILING ADAPTER FOR INSTALLATION IN	2/E802
F12	RAB VXBRLED13YDG OR APPROVED EQUAL	LED 500 LUMEN 3000K 85+ CRI MIN 100,000 HR L70	LED DRIVER	15	120V	UTILITY WALL MOUNTED FIXTURE WITH DIE-CAST ALUMINUM HOUSING WITH GREY FINISH, HEAVY DUTY PRISMATIC GLASS GLOBE, AND 3/4" THREADED KOS FOR SIDE OR TOP CONDUIT ENTRY INTO INTEGRAL JUNCTION BOX.	6/E802
F13	CELESTIAL LIGHTING AQR-MB-R-12-SAT	LED A19 MED BASE 2700K 95 CRI, 95 R9 SORAA VIVID	INTEGRAL TO LAMP	11 / 1'	120V	DRESSING ROOM VANITY LIGHTING. LIGHTWEIGHT ALUMINUM CHANNEL, FINISH TBD BY ARCHITECT, WITH MEDIUM BASE SOCKETS AT 12" ON CENTER. INSTALL HORIZONTALLY OVER DRESSING ROOM MIRRORS.	3/E802

WOODLAND PAC LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER & CATALOG NUMBER	LIGHT SOURCE QTY/TYPE	BALLAST/ DRIVER	WATTS	VOLTAGE	DESCRIPTION	DETAIL
F14	LITHONIA WL4-30L-GZ10-LP840-NLTAIR2-RES7-DIM10 OR APPROVED EQUAL	LED 3250 LUMEN 4000K 80+ CRI MIN 50,000 HR L70	0-10V DIMMING LED DRIVER	28	277V	WALL MOUNTED ARCHITECTURAL LED STAIRWELL FIXTURE, NOMINAL 4' LONG, WITH FROSTED ACRYLIC LENS, AND INTEGRAL DAYLIGHT / OCCUPANCY SENSOR. SET SENSOR DELAY TO 15 MINUTE; FIXTURE WILL DIM TO REDUCED LIGHT LEVELS IN 'STANDBY MODE' WHEN SPACE IS UNOCCUPIED. TYPICAL INSTALL AT +10' ABOVE FINISHED FLOOR OR ABOVE LANDING.	3/E802
F15	COLE LIGHTING L158W-HO-2-J-BLK-DIM OR APPROVED EQUAL	LED	0-10V DIMMING LED DRIVER	7.2	UNV	LED STEPLIGHT WITH STEEL HOUSING AND BLACK CAST ALUMINUM LOUVERED FACEPLATE, PROVIDE WITH FIELD MOUNTABLE JUNCTION BOX.	PER MANUF.
F16/xx'	JUNO TRACK: T-8'-(FINSH TBD), T29-(FINISH TBD) HEADS: R606L-30K-80CRI-PIDM-SP-(FINSH TBD) OR APPROVED EQUAL	LED 1300 LUMEN 3000K 80+ CRI	PHASE DIMMABLE	13W PER HEAD	120	LINE VOLTAGE SINGLE CIRCUIT TRACK, LENGTH AS INDICATED ON THE PLANS, FINISH TBD BY ARCH. PROVIDE WITH ALL ACCESSORIES, INCLUDING FLOATING ELECTRICAL FEED, CONNECTORS, ENDCAPS, ETC. AS REQUIRED FOR COMPLETE INSTALLATION. PROVIDE WITH ADJUSTABLE LED CYLINDER TRACK HEADS WITH DIE-CAST ALUMINUM HOUSING, SAME FINISH AS TRACK AND INTEGRAL DRIVER, QUANTITY AS SHOWN ON THE PLANS, PLUS SIX SPARE HEADS.	5/E802
F16A/12'	JUNO TRACK: T-12'-BL, T29-BL HEADS: R606L-30K-80CRI-PIDM-SP-BL OR APPROVED EQUAL	LED 1300 LUMEN 3000K 80+ CRI	PHASE DIMMABLE	13W PER HEAD	120	12'-0" LONG LINE VOLTAGE SINGLE CIRCUIT TRACK, BLACK FINISH. PROVIDE WITH ALL ACCESSORIES, INCLUDING FLOATING ELECTRICAL FEED, CONNECTORS, ENDCAPS, ETC. AS REQUIRED FOR COMPLETE INSTALLATION. PROVIDE WITH ADJUSTABLE LED CYLINDER TRACK HEADS WITH DIE-CAST ALUMINUM HOUSING WITH BLACK FINISH AND INTEGRAL DRIVER, QUANTITY AS SHOWN ON THE PLANS, PLUS TWO SPARE HEADS.	5/E802
F17	GOTHAM EVO CYLINDER EVO2CC-30K-15-AR-WD-LSS-ND-MVOLT-UGZ-RGH-C120-DBL OR APPROVED EQUAL	LED 1500 LUMEN 3000K 85 CRI MIN 60,000 HR L70	0-10V DIMMING LED DRIVER	21	277	LED CYLINDER, CORD SUPENDED, NOMINAL 2" APERTURE, ALUMINUM HOUSING WITH BLACK POWDER COAT FINISH (VERIFY W/ARCH), SELF FLANGED, SEMI-SPECULAR LOWER REFLECTOR. CONFIRM LENGTH OF SUSPENSION WITH THE ARCHITECT.	7/E802
F18	LITHONIA BLTX4-40L-ADSM-MVOLT-EZ1-LP840-PAF(BLACK) OR APPROVED EQUAL	LED ~4000 LUMEN 4000K 80+ CRI MIN 50,000 HR L80	0-10V DIMMING LED DRIVER (1%)	34	120	1'X4' ARCHITECTURAL HIGH EFFICIENCY SURFACE MOUNTED LED TROFFER, STEEL HOUSING WITH POWDER COAT FINISH AND HIGHLY EFFICIENT SATIN WHITE LENS. EXTERIOR OF HOUSING PAINTED BLACK AFTER FABRICATION.	4/E802
X	LITHONIA EDG-1-G OR APPROVED EQUAL	LED	LED DRIVER	N/A	MVOLT	SURFACE MOUNT EDGE-LIT EXIT LIGHT WITH BRUSHED ALUMINMUM HOUSING AND CLEAR ACRYLIC PANEL WITH GREEN LETTERING, AC-ONLY, CHEVRONS AS INDICATED ON THE PLANS.	4/E802
X1	LITHONIA LQM-S-W-3-G-120/277 OR APPROVED EQUAL	LED	LED DRIVER	N/A	MVOLT	UNIVERSAL MOUNT EXIT LIGHT WITH IMPACT RESISTANT WHITE THERMO-PLASTIC HOUSING, GREEN LETTERING, AC-ONLY, CHEVRONS AS INDICATED ON THE PLANS.	3,4/E802
X2	LITHONIA LQM-S-B-3-G-120/277 OR APPROVED EQUAL	LED	LED DRIVER	N/A	MVOLT	SAME AS FIXTURE TYPE X1, BUT WITH BLACK HOUSING.	3,4/E802
SF1	LITHONIA DSXW1 LED-10C-700-30K-T4M-MVOLT-BBW-PIR-(FINISH TBD) OR APPROVED EQUAL	10 LED ARRAY 3000K 700mA ~2,200 LUMEN	ELECTRONIC LED DRIVER, 0-10V DIMMABLE	27	277	WALL MOUNTED FULL CUT-OFF WALL MOUNTED FIXTURE, WITH CLEAR GLASS LENS, DIE CAST ALUMINUM HOUSING INTEGRAL THERMAL RADIATION FINS, AND TEXTURED POLYESTER POWDERCOAT FINISH (COLOR TBD BY THE ARCHITECT). PROVIDE WITH TYPE IV (FORWARD THROW) OPTICAL SYSTEM, UNIVERSAL VOLTAGE LED DRIVER. INTEGRAL MOTION/AMBIENT LIGHT SENSOR, PROGRAMMED TO DIM TO 30% LIGHT OUTPUT WHEN NO MOTION IS DETECTED. BUG RATING B1-U0-G1. CONFIRM COLOR TEMP WITH EXISTING CAMPUS STANDARD.	3/E802
SF2	JUNO SLIMFORM JSF-7IN-10LM-40K-90CRI-MVOLT-ZT-WH+JSFTRIM-7IN-TBD OR APPROVED EQUAL	LED 1000 LUMEN 3000K 90+ CRI MIN 50,000 HR L70	0-10V DIMMING LED DRIVER	13	277	NOMINAL 7" DIA. SLIM SURFACE MOUNTED LED FIXTURE INSTALLED OVER JUNCTION BOX, WITH WHITE PAINTED FINISH AND DIFFUSE LENS. PROVIDE WITH OPTIONAL TRIM RING, FINISH TBD BY ARCH. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS TO MAINTAIN WET LOCATION LISTING.	9/E802
SF3	RAB ALED-5T-52W-3000K-FINISH TBD OR APPROVED EQUAL	LED ~5,500 LUMEN 3000K 100,000 HOUR	ELECTRONIC LED DRIVER, 0-10V DIMMABLE	52	277	PEDESTRIAN SCALE, LOW PROFILE, FULL CUT-OFF LED POLE-TOP AREA LIGHT WITH TYPE V DISTRIBUTION, NOMINAL 16" DIA. ROUND DIE-CAST ALUMINUM HOUSING WITH POLYESTER POWDERCOAT FINISH (COLOR TBD BY THE ARCHITECT). PROVIDE WITH 12' TALL, 3" ROUND STRAIGHT STEEL POLE, FINISH TO MATCH THE FIXTURE FINISH, AND 18" DIA. SEMI-FLUSH CONCRETE BASE. CONFIRM COLOR TEMP WITH EXISTING CAMPUS STANDARD.	3/E802
SF4	RAB BLEDR-24-3000K-FINISH TBD OR APPROVED EQUAL	LED ~5,500 LUMEN 3000K 100,000 HOUR	ELECTRONIC LED DRIVER, 0-10V DIMMABLE	24	277	NOMINAL 45" TALL LED BOLLARD, WITH 360° DISTRIBUTION, ALL ALUMINUM CONSTRUCTION WITH POWDER-COAT FINISH (COLOR TBD BY ARCH), VANDAL RESISTANT FROSTED POLYCARBONATE LENS. UL LISTED FOR WET LOCATIONS. CONFIRM COLOR TEMP WITH EXISTING CAMPUS STANDARD.	3/E802
SF5	RAB VANLED-20W-4000K-F-WS OR APPROVED EQUAL	LED ~5,500 LUMEN 3000K 100,000 HOUR	ELECTRONIC LED DRIVER, 0-10V DIMMABLE	23	277	EXTERIOR CANOPY LIGHT, DIE-CAST ALUMINUM HOUSING WITH BRONZE FINISH AND VANDAL-RESISTANT POLYCARBONATE OPAQUE LENS, UL LISTED FOR WET LOCATIONS, PROVIDE WITH INTEGRAL OCCUPANCY SENSOR.	4/E802

RELAY PANEL SCHEDULE

PANEL NAME:	LCP-1A		VOLTAGE:	FEED-THROUGH, 277V	MOUNTING:	SURFACE			
LOCATION:	ELECTRICAL ROOM 947		INPUT POWER:	N/A	ENCLOSURE:	NEMA 1, IP20			
CONTROL RELAY			CIRCUIT CONTROLLED				EXTERNAL CONTROL		
NUMBER	VOLTAGE	AMP	PANEL	CIRCUIT	ZONE	AREA SERVED	TIME	DAYLIGHT	OCC.
1	277V	20	H1A	2	a	BUILDING MOUNTED LIGHTING (VIA INVERTER)	ON/OFF	NO	NO
2	277V	20	H1A	2	b	BUILDING MOUNTED LIGHTING	ON/OFF	NO	NO
3	277V	20				SPARE			
4	277V	20				SPARE			
NOTES:									

RELAY PANEL SCHEDULE

PANEL NAME:	LCP-1B		VOLTAGE:	FEED-THROUGH, 277V	MOUNTING:	SURFACE			
LOCATION:	ELECTRICAL ROOM 926		INPUT POWER:	N/A	ENCLOSURE:	NEMA 1, IP20			
CONTROL RELAY			CIRCUIT CONTROLLED				EXTERNAL CONTROL		
NUMBER	VOLTAGE	AMP	PANEL	CIRCUIT	ZONE	AREA SERVED	TIME	DAYLIGHT	OCC.
1	277V	20	H1B	2	a	BUILDING MOUNTED LIGHTING (VIA INVERTER)	ON/OFF	NO	NO
2	277V	20	H1B	2	b	BUILDING MOUNTED LIGHTING	ON/OFF	NO	NO
3	277V	20	H1B	6	a	WALKWAY AREA LIGHTING	ON/OFF	NO	NO
4	277V	20				SPARE			
NOTES:									

DSA Application #02-118286
DSA File #58-C1
agency

tBP
architecture planning interiors
tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419
architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com
REGISTERED PROFESSIONAL ENGINEER #E01546 Exp. 06/30/21 SCOTT WHEELER ELECTRICAL STATE OF CALIFORNIA
consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT
owner

tBP project number: 22039.00
file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E18_dustin.zeisler@engent.com.rvt
drawn by: Author checked by: Checker
date: Issue Date MAY 17, 2021

rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title:
SCHEDULES & PROJECT NOTES

drawing no.:
E004
drawing of

1/10/2022 2:06:33 PM

NUMBERED SHEET NOTES

1. STUB CONDUIT FOR FUTURE USE, CAP & PROVIDE ELECTRONIC MARKER.
2. 5-4"C. & 1-2"C. LOW VOLTAGE CONDUIT DUCT BANK, REFER TO LOW VOLTAGE RISER DIAGRAM ON E7.0 FOR CABLING REQUIREMENTS.
3. EXTEND (N) 15kV PRIMARY FEEDER IN 2-4"C. REFER TO E6.0 FOR POWER ONE LINE DIAGRAM.
4. (E) MANHOLE, TEE SPLICE EXISTING 15kV CONDUCTORS. REFER TO E6.0 FOR POWER ONE LINE DIAGRAM.
5. INTERCEPT EXISTING LOW VOLTAGE CONDUIT STUBS IN A NEW TELECOMMUNICATIONS VAULT AND EXTEND AS INDICATED.
6. REFER TO LOW VOLTAGE RISER DIAGRAMS AND PROJECT SPECIFICATIONS FOR NEW LOW VOLTAGE CABLING REQUIREMENTS, INCLUDING BUT NOT LIMITED TO COPPER BACKBONE, FIBER BACKBONE, FIRE ALARM SLC, INTRUSION ALARM SIGNAL, ETC.
7. APPROXIMATE LOCATION OF EXISTING IDF ROOM 707. ROUTE NEW FIBER FROM THIS IDF TO THE NEW BUILDING.
8. PROVIDE 0.75" CONDUIT STUB AT PIV WITH WEATHERPROOF SINGLEGANG BOX. FIELD VERIFY LOCATION PRIOR TO INSTALL.
9. PROVIDE 0.75" CONDUIT STUB ABOVE ACCESSIBLE CEILING SPACE.

GENERAL SHEET NOTES

A. PROVIDE A PULL STRING (CONDUITS UNDER 2") OR 1/2" MULE TAPE (CONDUITS 2" AND GREATER) IN ALL EMPTY CONDUITS.

B. PROVIDE AN IN-GROUND HANDHOLE (CHRISTY N9) FOR EACH POLE MOUNTED LIGHT FIXTURE, WHETHER SHOWN ON THE PLANS OR NOT.

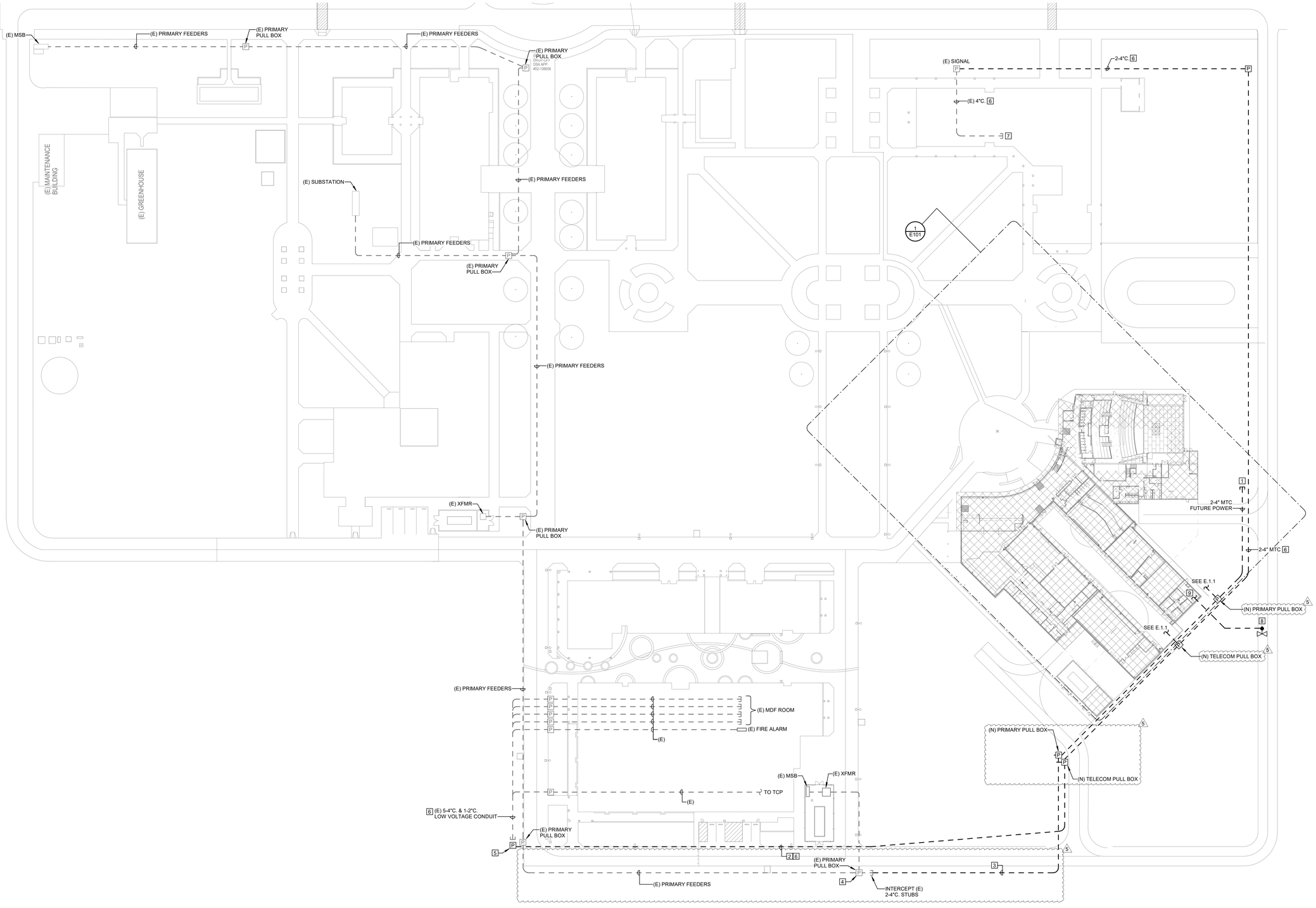
C. HANDHOLE/VAULT LIDS SHALL BE MARKED 'POWER', 'SIGNAL", OR 'SECURITY' AS REQUIRED.

D. SITE LIGHTING CIRCUITS SHOWN ON THIS SHEET SHALL CONSIST OF MIN. #8 WIRE IN 1.0"C.

E. PROVIDE 6-INCH WIDE UNDERGROUND WARNING TAPE ABOVE ALL NEW UNDERGROUND CONDUITS/CABLES. INSTALL AT 12-INCHES ABOVE THE CONDUITS/CABLES. PROVIDE 'RED' TAPE FOR POWER APPLICATIONS. PROVIDE DETECTABLE 'ORANGE' TAPE FOR LOW VOLTAGE APPLICATIONS. PROVIDE BOTH 'RED' AND 'ORANGE' TAPES FOR JOINT TRENCH APPLICATIONS.

F. PROVIDE ELECTRONIC MARKER, 3M BALL MARKER OR EQUAL, AT ALL CONDUIT STUBS.

G. CONDUIT ROUTING SHOWN ON THIS PLAN IS ESSENTIALLY DIAGRAMMATIC. COORDINATE WITH ALL OTHER TRADES ON SITE TO AVOID CONFLICT.



1 OVERALL SITE PLAN

SCALE: 1" = 40'-0"

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E18_dustin.zeisler@engent.com.rvt

drawn by: DZ checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title:

ELECTRICAL SITE PLAN

drawing no.:

E100

drawing of

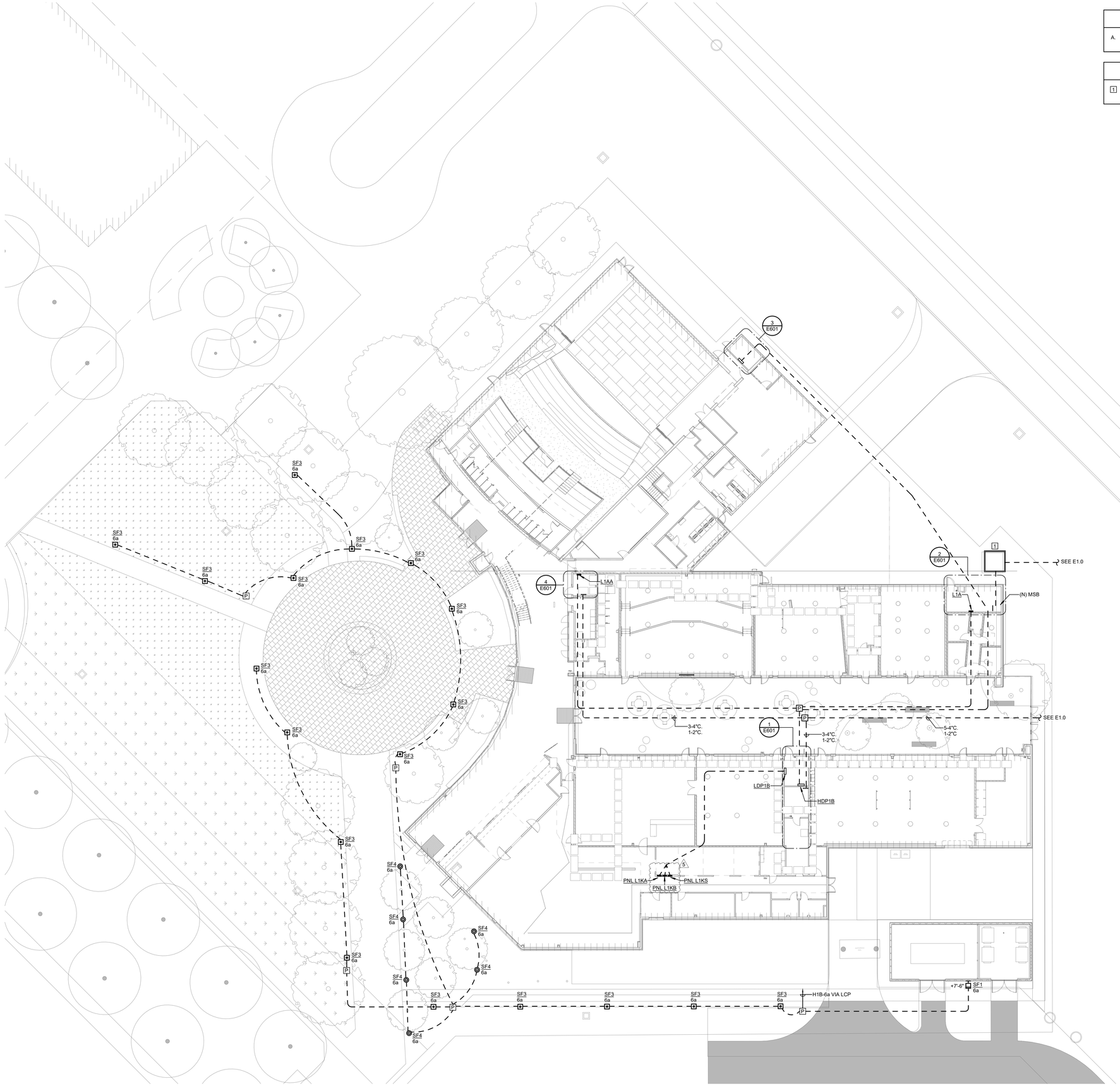
1/10/2022 1:56:19 PM

GENERAL SHEET NOTES

A. REFER TO GENERAL SHEET NOTES ON E100.

NUMBERED SHEET NOTES

1 (N) TRANSFORMER WITH RADIAL FEED SWITCH, PROTECT WITH BOLLARDS. PROVIDE HOUSEKEEPING PAD PER ELECTRICAL DETAILS.



1 ENLARGED SITE PLAN

SCALE: 1/16" = 1'-0"

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/
CULINARY SERVICES
FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E1B_dustin.zeisler@engent.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

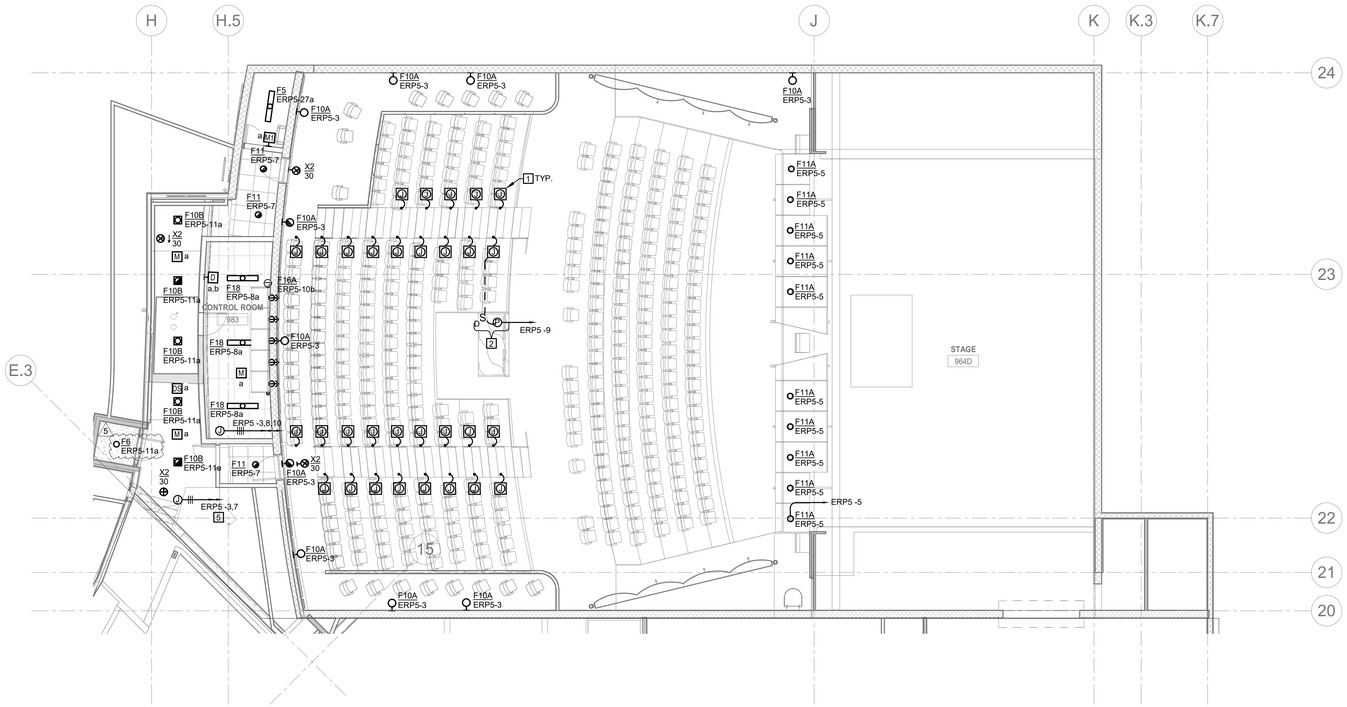
rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title:
ENLARGED ELECTRICAL SITE PLAN

drawing no.:
E101

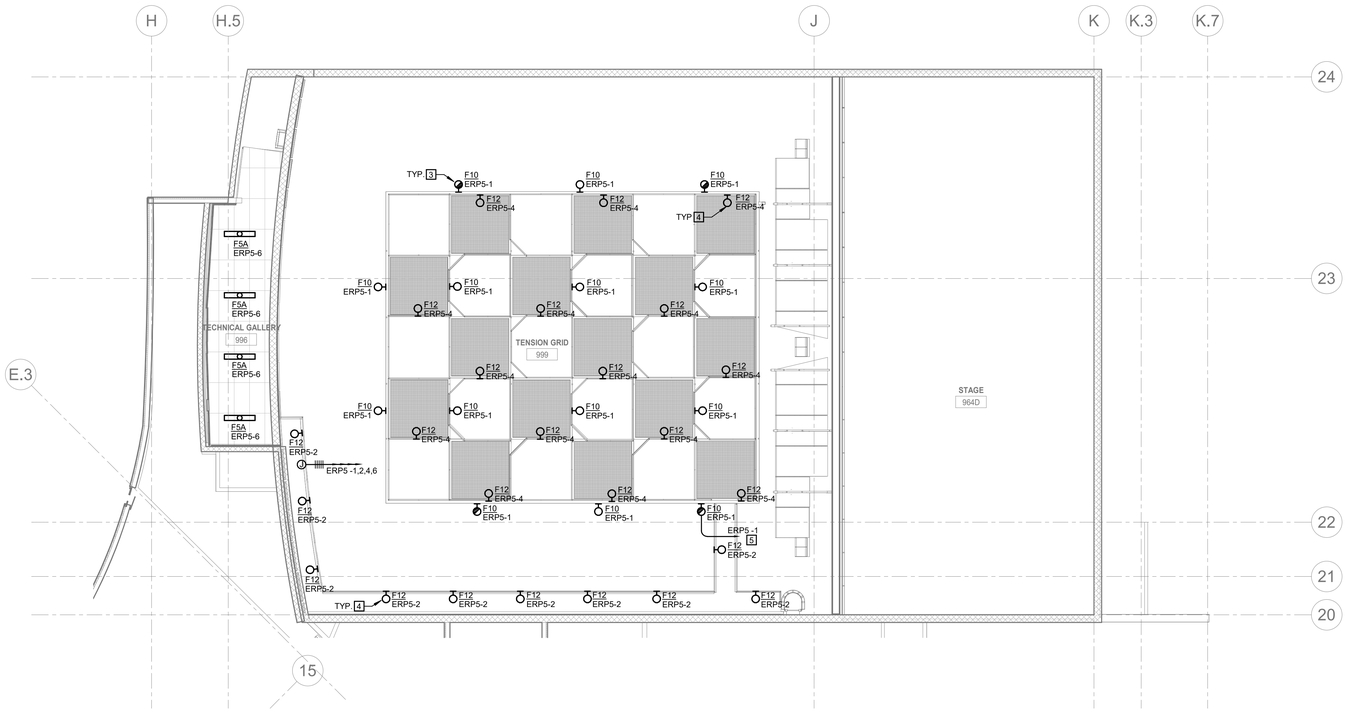
drawing of

1/10/2022 1:56:21 PM



1 NORTH WING LIGHTING PLAN - 2ND FLOOR

SCALE: 1/8" = 1'-0"



2 NORTH WING LIGHTING PLAN - CATWALK LEVEL

SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A. ALL CONDUIT AND RACEWAY PENETRATIONS THROUGH FIRE RATED WALLS AND FIXTURES/DEVICES INSTALLED IN RATED ASSEMBLIES SHALL MAINTAIN THE RATING OF THE ASSEMBLY PER SECTION 712 OF THE CBC. REFER TO DETAILS 4 AND 5/E801 FOR RATED PENETRATION DETAILS. REFER TO ARCHITECTURAL PLANS FOR IDENTIFICATION OF FIRE RATED CONDITIONS.

B. REFER TO PROJECT GENERAL NOTES AND SPECIFICATION SECTION 260519 FOR ADDITIONAL LINE VOLTAGE WIRING REQUIREMENTS, INCLUDING LIMITATIONS FOR USE OF MC CABLE.

C. ARCHITECTURAL LIGHTING CONTROLS IN THE THEATER AND ALL THEATRICAL SUPPORT SPACES SHALL BE COMPATIBLE WITH THE SPECIFIED DIV. 11 THEATRICAL LIGHTING CONTROL SYSTEM. 0-10V WIRING, LOW VOLTAGE CABLE, AND SOME COMPONENTS OF THE LIGHTING CONTROL SYSTEM ARE NECESSARILY SHOWN ON THE PLANS, PROVIDE A COMPLETE WORKING SYSTEM.

D. REFER TO THE FIXTURE SCHEDULE ON SHEET E003 FOR ADDITIONAL INSTALLATION REQUIREMENTS, INCLUDING MOUNTING HEIGHT OF WALL MOUNTED AND SUSPENDED FIXTURES. VERIFY MOUNTING HEIGHTS OF FIXTURES WITH ARCHITECTURAL ELEVATIONS.

E. SHADING AT LIGHT FIXTURES INDICATES EMERGENCY POWER FROM CENTRAL INVERTER. LIGHT FIXTURES ARE NOT TO BE WIRED AS NIGHT LIGHTS U.O.N., WITH THE EXCEPTION OF EXIT SIGNS.

F. COORDINATE ALL FIXTURE LOCATIONS WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REPORT ANY DISCREPANCIES TO THE ARCHITECT IMMEDIATELY.

G. REFER TO LIGHT FIXTURE INSTALLATION DETAILS.

NUMBERED SHEET NOTES

1. TYPICAL, PROVIDE CONNECTION TO LIGHTING AT AISLE SEAT PER 8/E8.02, REFER TO THEATRICAL SEATING PLANS.
2. INSTALL POWER SUPPLY (TIVOLI JT-240-4-5-12-D, OR EQUAL AND PROVIDED BY SEATING CONTRACTOR) AND MAGNETIC LOW VOLTAGE DIMMER (TIVOLI N-600, OR EQUAL). LOCATION SHOWN IS PROPOSED, CONTRACTOR SHALL COORDINATION ON-SITE TO VERIFY PREFERRED LOCATION.
3. TYPICAL, FIXTURE IS JUNCTION BOX MOUNTED TO SIDE OF THE TENSION GRID STRUCTURE.
4. TYPICAL, FIXTURE IS JUNCTION BOX MOUNTED TO VERTICAL STRUCTURE SUPPORTING THE CATWALK OR TENSION GRID AT APPROXIMATELY +8'-0".
5. CIRCUIT ROUTED THROUGH INVERTER, ROUTE IN SEPARATE RACEWAY PER CEC 700.10(B).

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/
CULINARY SERVICES
FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E19_dustin.zeisler@engent.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title:
NORTH WING LIGHTING PLAN

drawing no.:
E212
drawing of

1/10/2022 1:56:25 PM

NUMBERED SHEET NOTES

1. PROVIDE A COMPLETE CARD ACCESS SYSTEM, CONSISTING OF ELECTRONIC CARD READER AND ALL ASSOCIATED ELECTRONICS AND DOOR HARDWARE, AND TO COORDINATE WITH THE DOOR HARDWARE VENDOR AND WITH THE DISTRICT TO CONFIRM REQUIREMENTS.
2. IP CAMERAS ARE OWNER FURNISHED, OWNER INSTALLED. PROVIDE INFRASTRUCTURE ONLY, I.E. DATA OUTLET AND BACKING AS REQUIRED. COORDINATE WITH THE OWNER PRIOR TO ROUGH-IN.

NOTE: REFER TO ARCHITECTURAL SHEETS - A201 AND A202 FOR FIRE-RATED WALLS. REFER TO 3/A941 FOR PENETRATION DETAILS.

GENERAL SHEET NOTES

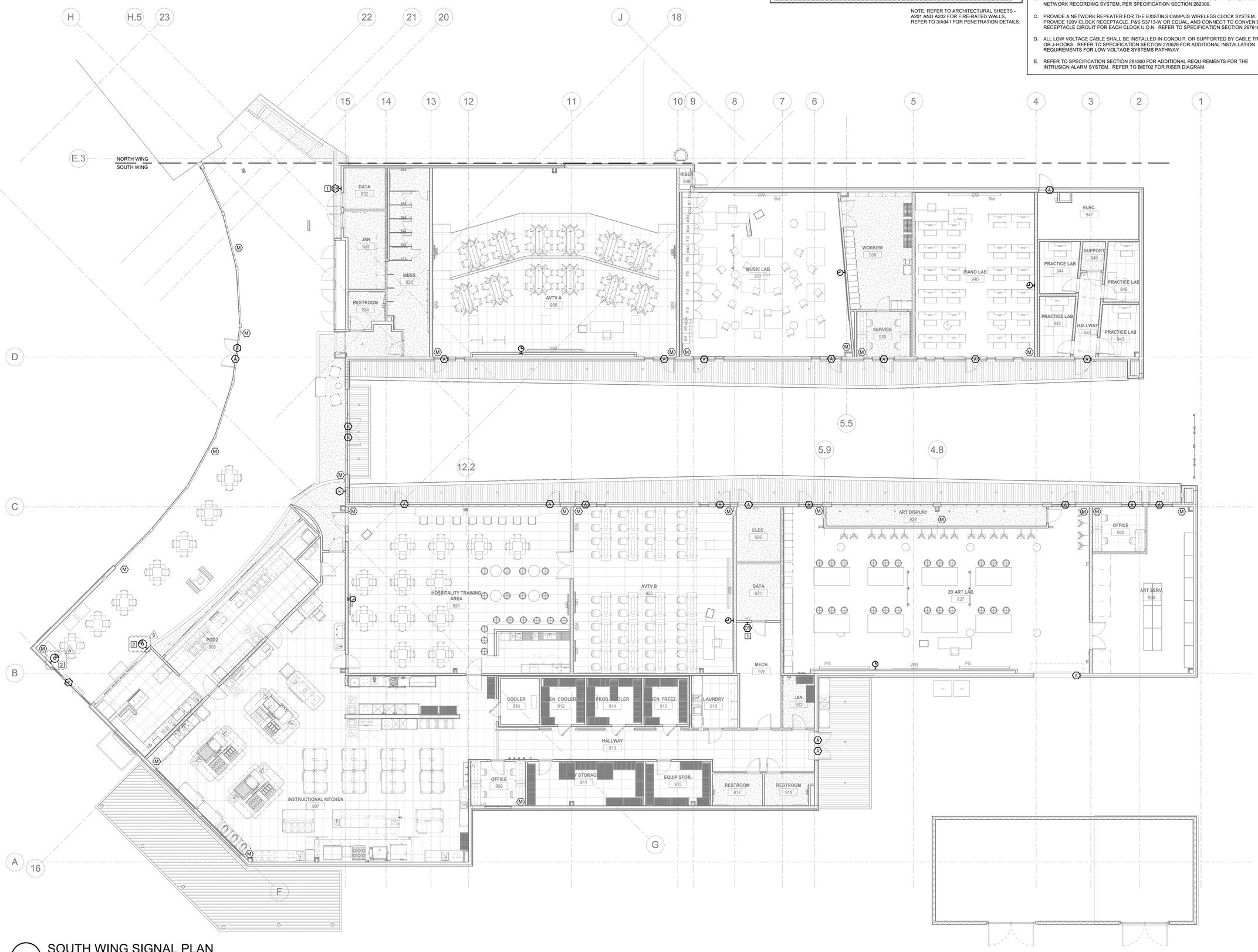
A. ALL CONDUIT AND RACEWAY PENETRATIONS THROUGH FIRE RATED WALLS AND FIXTURES/DEVICES INSTALLED IN RATED ASSEMBLIES SHALL MAINTAIN THE RATING OF THE ASSEMBLY PER SECTION 712 OF THE CBC. REFER TO DETAILS 4 AND 5/E801 FOR RATED PENETRATION DETAILS. REFER TO ARCHITECTURAL PLANS FOR IDENTIFICATION OF FIRE RATED CONDITIONS.

B. PROVIDE AN IP BASED SECURITY SURVEILLANCE SYSTEM, CONSISTING OF IP CAMERAS AND NETWORK RECORDING SYSTEM, PER SPECIFICATION SECTION 282300.

C. PROVIDE A NETWORK REPEATER FOR THE EXISTING CAMPUS WIRELESS CLOCK SYSTEM. PROVIDE 120V CLOCK RECEPTACLE, P&S 53713-W OR EQUAL, AND CONNECT TO CONVENIENCE RECEPTACLE CIRCUIT FOR EACH CLOCK U.O.N. REFER TO SPECIFICATION SECTION 267616.

D. ALL LOW VOLTAGE CABLE SHALL BE INSTALLED IN CONDUIT, OR SUPPORTED BY CABLE TRAY OR J-HOOKS. REFER TO SPECIFICATION SECTION 270528 FOR ADDITIONAL INSTALLATION REQUIREMENTS FOR LOW VOLTAGE SYSTEMS PATHWAY.

E. REFER TO SPECIFICATION SECTION 281300 FOR ADDITIONAL REQUIREMENTS FOR THE INTRUSION ALARM SYSTEM. REFER TO B/E702 FOR RISER DIAGRAM.



1 SOUTH WING SIGNAL PLAN
SCALE: 1/8" = 1'-0"

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E19_dustin.zeisler@engent.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title:
SOUTH WING SIGNAL PLAN

drawing no.:
E401
drawing of

1/10/2022 1:56:30 PM

NUMBERED SHEET NOTES

[1] IP CAMERAS ARE OWNER FURNISHED, OWNER INSTALLED. PROVIDE INFRASTRUCTURE ONLY, I.E. DATA OUTLET AND BACKING AS REQUIRED. COORDINATE WITH THE OWNER PRIOR TO ROUGH-IN.

5

GENERAL SHEET NOTES

A. ALL CONDUIT AND RACEWAY PENETRATIONS THROUGH FIRE RATED WALLS AND FIXTURES/DEVICES INSTALLED IN RATED ASSEMBLIES SHALL MAINTAIN THE RATING OF THE ASSEMBLY PER SECTION 712 OF THE CBC. REFER TO DETAILS 4 AND 5/E801 FOR RATED PENETRATION DETAILS. REFER TO ARCHITECTURAL PLANS FOR IDENTIFICATION OF FIRE RATED CONDITIONS.

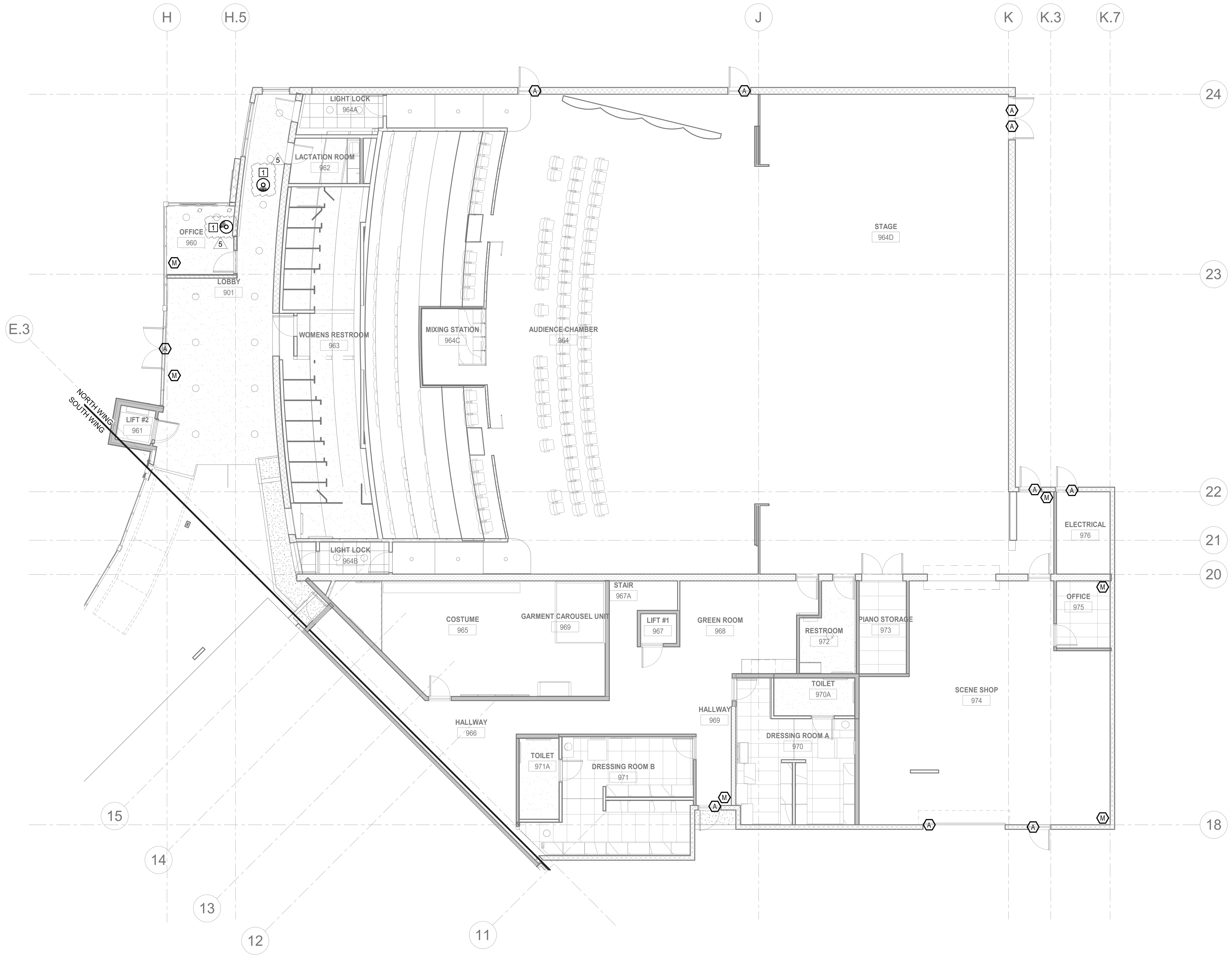
B. PROVIDE AN IP BASED SECURITY SURVEILLANCE SYSTEM, CONSISTING OF IP CAMERAS AND NETWORK RECORDING SYSTEM, PER SPECIFICATION SECTION 282300.

C. PROVIDE A NETWORK REPEATER FOR THE EXISTING CAMPUS WIRELESS CLOCK SYSTEM. PROVIDE 120V CLOCK RECEPTACLE, P&S S3713-W OR EQUAL, AND CONNECT TO CONVENIENCE RECEPTACLE CIRCUIT FOR EACH CLOCK U.O.N. REFER TO SPECIFICATION SECTION 267616.

D. ALL LOW VOLTAGE CABLE SHALL BE INSTALLED IN CONDUIT, OR SUPPORTED BY CABLE TRAY OR J-HOOKS. REFER TO SPECIFICATION SECTION 270528 FOR ADDITIONAL INSTALLATION REQUIREMENTS FOR LOW VOLTAGE SYSTEMS PATHWAY.

E. REFER TO SPECIFICATION SECTION 281300 FOR ADDITIONAL REQUIREMENTS FOR THE INTRUSION ALARM SYSTEM. REFER TO B/E702 FOR RISER DIAGRAM.

NOTE: REFER TO ARCHITECTURAL SHEETS - A201 AND A202 FOR FIRE-RATED WALLS, REFER TO 3/A941 FOR PENETRATION DETAILS.



1 NORTH WING SIGNAL PLAN

SCALE: 1/8" = 1'-0"

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00

file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E18_dustin.zeisler@engent.com.rvt

drawn by: Author checked by: Checker

date: Issue Date MAY 17, 2021

rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title:
NORTH WING SIGNAL PLAN

drawing no.:
E411

drawing of

1/10/2022 1:56:31 PM

FIRE ALARM SYSTEM MATRIX

RESULT OF OPERATION	SMOKE DETECTOR	CO SMOKE DETECTOR	HEAT DETECTOR	DUCT DETECTOR	AREA SMOKE DETECTOR	TOP OF SHAFT SMOKE DETECTOR	MACHINE ROOM SMOKE DETECTOR	1ST FLOOR LOBBY SMOKE DETECTOR	LOBBY SMOKE DETECTOR	WATERFLOW	TAMPER	ANSUL	MNES	SYSTEM RESET	SIGNAL SILENCE	OPEN/SHORT	POWER LOSS
FACP ALARM	X		X		X	X	X	X	X	X		X					
ANNUNCIATE ALARM	X		X		X	X	X	X	X	X		X					
OFF SITE REPORTING ALARM	X		X		X	X	X	X	X	X		X					
FACP TROUBLE																X	X
ANNUNCIATE TROUBLE																X	X
OFF SITE REPORTING TROUBLE																X	X
AUDIBLE ALARM	X		X		X	X	X	X	X	X		X					
VISUAL ALARM	X		X		X	X	X	X	X	X		X					
FACP SUPERVISORY		X		X							X						
ANNUNCIATE SUPERVISORY		X		X							X						
OFF SITE REPORTING SUPERVISORY		X		X							X						
SOUNDER BASE		X															
DEACTIVATE VISUALS														X			
DEACTIVATE AUDIBLES														X			
ACTIVATE MNES VISUALS													X				
ACTIVATE MNES AUDIBLES												X					
DEACTIVATE MNES VISUALS														X			
DEACTIVATE MNES AUDIBLES														X			
HVAC SHUTDOWN				X													
SYSTEM NORMAL													X				
DAMPER CLOSURE				X						X							
ROLL DOWN DOOR																	
PRIMARY RECALL																	
ALTERNATE RECALL																	
FIRE HAT																	
SHUNT TRIP																	

NUMBERED SHEET NOTES

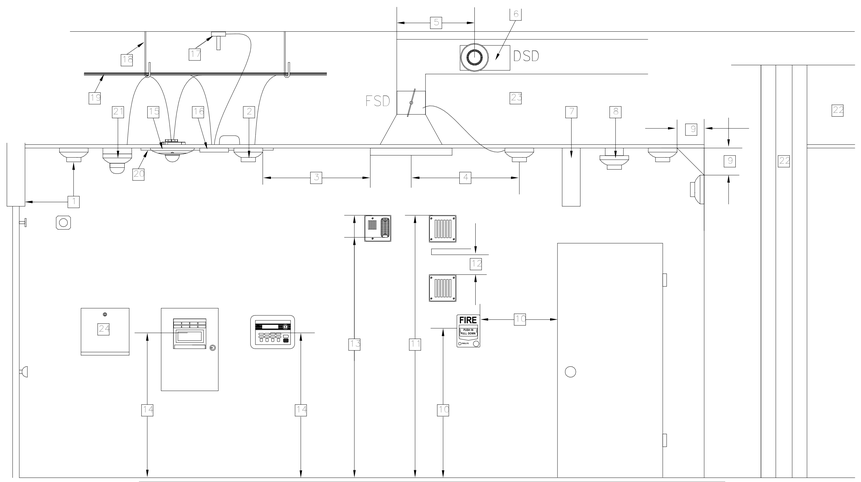
1. MOUNT DOOR HOLDER SMOKE DETECTOR MAXIMUM 3' FROM DOOR AND A MINIMUM OF 1'.
2. MAXIMUM DISTANCE BETWEEN SMOKE DETECTORS IS 30' AND 15' FROM WALLS, MAXIMUM DISTANCE FROM A CORNER IS 21' WITH CEILING LESS 10' OR LESS.
3. MOUNT SMOKE DETECTOR MINIMUM OF 3' AWAY FROM DIFFUSER VENT.
4. MOUNT SMOKE DETECTOR FOR FIRE SMOKE DAMPER (FSD) WITHIN 3' OF SUPPLY VENT.
5. DUCT SMOKE DETECTOR SHALL BE MOUNTED 6 TO 10 TIMES THE DIAMETER OF DUCT FROM BEND OR OBSTRUCTION.
6. WHERE DUCT SMOKE DETECTORS ARE INSTALLED IN CONCEALED LOCATIONS OR GREATER THAN 10' AFF, DETECTORS SHALL BE PROVIDED WITH A REMOTE INDICATOR OR SUPERVISORY INDICATION ACCEPTABLE WITH AUTHORITY HAVING JURISDICTION (AHJ). ALL HVAC GREATER THAN 2000cfm SHALL HAVE A DUCT DETECTOR IN THE SUPPLY AIR DUCT. GREATER THAN 15,000cfm SHALL HAVE ONE IN BOTH SUPPLY AND RETURN AIR DUCTS. HOWEVER SHALL NOT BE REQUIRED WHERE THE ENTIRE SPACE SERVED BY THE AIR DISTRIBUTION SYSTEM IS PROTECTED BY SMOKE DETECTORS THAT TRIGGER HVAC SHUT-DOWN.
7. BEAM POCKET SPOT DETECTOR ARE REQUIRED FOR BEAMS GREATER THAN 18" BELOW CEILING AND SPACED MORE THAN 8' ON CENTER. EACH BAY FORMED BY BEAM SHALL BE TREATED AS A SEPARATE AREA. BEAMS LESS THAN 12" IN DEPTH AND SPACED LESS THAN 8' ON CENTER SHALL HAVE DETECTORS INSTALLED ON THE BOTTOM OF THE BEAM.
   - 7.1. OR, CEILINGS WITH BEAM DEPTHS LESS THAN 10 PERCENT OF THE CEILING HEIGHT, SMOOTH CEILING SPACING IS PERMITTED AND DETECTORS PLACED ON THE BOTTOM OF THE BEAM.
   - 7.2. BEAMS EQUAL TO OR GREATER THAN 10 PERCENT OF CEILING HEIGHT WITH BEAM SPACING GREATER THAN 40 PERCENT OF CEILING HEIGHT, SPOT DETECTORS SHALL BE LOCATED IN EACH CELL. NFPA 72 17.7.3.2.4.2
8. BEAMS PROJECTING LESS THAN 4" SHALL BE TREATED AS A SMOOTH CEILING.
9. SMOKE DETECTORS SHALL BE MOUNTED ON THE CEILING MINIMUM 4" FROM WALL, AND 4" MINIMUM TO 12" MAXIMUM FROM CEILING MOUNTED ON WALL.
10. MOUNT MANUAL PULL STATIONS AT 48" TO TOP OF BOX AFF, AND NO GREATER THAN 5' FROM DOOR.
11. MOUNT EXTERNAL HORN AT 90" MINIMUM AND 100" MAXIMUM TO THE TOP OF THE DEVICE.
12. FOR APPLICATIONS WHERE THE STRUCTURE IS BELOW 90", MOUNT HORN AS HIGH AS WITH A MINIMUM OF 6" CLEARANCE TO THE TOP OF THE DEVICE.
13. MOUNT HORN / SPEAKER STROBE AND STROBE ONLY THE ENTIRE LENS IS WITHIN 80" AND 96" AFF.
14. MOUNT FIRE ALARM CONTROL PANELS AND ANNUNCIATORS AT A MAXIMUM OF 60" TO THE TOP OF THE CONTROL PANEL OR KEY BOARDS. CBC 11B-308
15. CEILING MOUNTED HORN / SPEAKER STROBE
16. MONITOR MODULE
17. RATE ANTICIPATOR HEAT DETECTOR, MOUNTED IN ABOVE CEILING / ATTIC SPACE.
18. APPROVED WIRE MANAGEMENT, ie J-HOOK OR D-RING.
19. ABOVE CEILING CIRCUITS ROUTING IN AN ACCESSIBLE ATTIC SPACE.
20. NON-ACCESSIBLE CEILINGS MUST USE EITHER EMT OR APPROVED WIREMOLD RACEWAY, AS SHOWN ON PLANS.
21. MULTI-CRITERIA PHOTOELECTRIC SMOKE / CO DETECTOR WITH SOUNDER BASE. MOUNT IN AREAS WHERE FOSSIL FUEL IS USED.
22. SMOKE / HEAT DETECTION COVERAGE IS REQUIRED IN ALL COMBUSTIBLE AREAS, UNLESS:
    - 22.1. CEILING IS ATTACHED DIRECTLY TO T HE UNDERSIDE OF THE SUPPORTING BEAM OR ROOF DECK.
    - 22.2. CONCEALED SPACE IS ENTIRELY FILLED WITH NON-COMBUSTIBLE INSULATION.
    - 22.3. THE SMALL CONCEALED SPACE OVER ROOMS THAT DO NOT EXCEED 50 SQ. FT. IN AREA.
    - 22.4. SPACES FORMED BY FACING STUDS OR SOLID JOISTS IN WALLS, FLOORS, OR CEILINGS WHERE THE FACING STUD OR SOLID JOIST IS LESS THAN 6".

    INACCESSIBLE SPACES THAT DO NOT MEET THIS CRITERIA MUST BE MADE ACCESSIBLE AND DETECTION MUST BE INSTALLED. NFPA72 17.5.3.1.1
23. DETECTION FOR CONCEALED ACCESSIBLE SPACES ABOVE SUSPENDED CEILING USED AS A RETURN PLENUM SHALL BE PROVIDED AT EACH CONNECTION FROM RETURN AIR PLENUM AT CENTRAL AIR HANDLING UNIT. NFPA 72 17.5.3.1.4
24. WITH EVERY NEW FIRE ALARM SYSTEM A DOCUMENTATION CABINET SHALL BE INSTALLED AT THE FIRE ALARM CONTROL PANEL OR AT ANOTHER LOCATION APPROVED BY AHJ. THE CABINET SHALL BE PROMINENTLY LABELED "SYSTEM RECORD DOCUMENTS".

5

FIRE ALARM SYSTEM COMPONENT SCHEDULE

SYMBOL	EQUIPMENT/DEVICE	MANUFACTURER	MODEL / PART #	CSFM LISTING YEAR	CSFM LISTING NO.
FACP	FIRE ALARM CONTROL PANEL	EDWARDS SYSTEMS TECHNOLOGIES	EST-4	6-30-21	7165-1657:0186
AMP	AMPLIFIER	EDWARDS SYSTEMS TECHNOLOGIES	3-ZA40	6-30-21	7165-1657:0186
BP-X	REMOTE POWER BOOSTER	EDWARDS SYSTEMS TECHNOLOGIES	BPS10	6-30-21	7300-1657:0229
LOC	LOCAL OPERATING CONSOLE WITH REMOTE MICROPHONE	EDWARDS SYSTEMS TECHNOLOGIES EDWARDS SYSTEMS TECHNOLOGIES	3-ANN 3-REMICA	6-30-21 6-30-21	7272-1657:0193 7272-1657:0193
	INTELLIGENT DUCT DETECTOR	EDWARDS SYSTEMS TECHNOLOGIES	SIGA-SD	6-30-21	3242-1657:0223
	INTELLIGENT HEAT DETECTOR	EDWARDS SYSTEMS TECHNOLOGIES	SIGA-HRD	6-30-21	7270-1657:0333
	PHOTO SMOKE DETECTOR	EDWARDS SYSTEMS TECHNOLOGIES	SIGA-OSD	6-30-21	7272-1657:0511
DM	DUAL MONITOR MODULE	EDWARDS SYSTEMS TECHNOLOGIES	SIGA-CT2	6-30-21	7300-1657:0121
SM	MONITOR MODULE	EDWARDS SYSTEMS TECHNOLOGIES	SIGA-CT1	6-30-21	7300-1657:0121
CR	CONTROL RELAY	EDWARDS SYSTEMS TECHNOLOGIES	SIGA-CR	6-30-21	7300-1657:0121
RTS	REMOTE TEST SWITCH	SYSTEM SENSOR	RTS151	6-30-21	7300-1653:0212
F	PULL STATION	EDWARDS SYSTEMS TECHNOLOGIES	SIGA-270	6-30-21	7150-1657:0129
BP.XX	CEILING SPEAKER STROBE (CLEAR LENS)	GENESIS	GCSVMN	6-30-21	7320-1657:0211
BP.XX	CEILING STROBE (CLEAR LENS)	GENESIS	GCVWN	6-30-21	7125-1657:0219
MN.XX	CEILING STROBE (AMBER LENS)	GENESIS	GCWN-VMA	6-30-21	7125-1657:0219
	OUTDOOR SPEAKER	GENESIS	WG4RN-S	6-30-21	7320-1657:0289
BP.XX	WALL SPEAKER STROBE (CLEAR LENS)	GENESIS	G4SVWN	6-30-21	7320-1657:0211
MN.XX	WALL STROBE (AMBER LENS)	GENESIS	G4WN-VMA	6-30-21	7125-1657:0218
BP.XX	WALL STROBE (CLEAR LENS)	GENESIS	G4VWN	6-30-21	7125-1657:0218
MN.XX	WALL STROBE EXPANDER (AMBER)	GENESIS	G4SEWA-A-VMA	6-30-21	7125-1657:0218



FIRE ALARM SYSTEM CABLE SCHEDULE

CABLE TAG	CABLE	NO. OF CONDUCTORS	COLOR	AWG	CABLE USE
A	GENESIS	2(1PR)	RED/BLACK	#18	BUILDING INITIATION (SLC)
B	GENESIS	2(1PR)	RED/BLACK	#12	NOTIFICATION (NAC)
S	GENESIS	2(1PR)	RED/BLACK	#16	VOICE NOTIFICATION
D	AQUA SEAL	2(1PR)	GRAY	N/A	UG MULTI-MODE FIBER
F	GENESIS	2(1PR)	RED/BLACK	#12	24 VDC POWER
H	AQUA SEAL	2(1PR)	RED/BLACK	#12	UG NOTIFICATION (NAC)
E	AQUA SEAL	2(1PR)	RED/BLACK	#16	UG VOICE NOTIFICATION
G	AQUA SEAL	2(1PR)	RED/BLACK	#12	UG 24 VDC POWER
C	AQUA SEAL	2(1PR)	RED/BLACK	#18	UG BUILDING INITIATION (SLC)

FIRE ALARM NOTES

1. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS,INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

   STATE CALIFORNIA CODE OF REGULATIONS (CCR) 2019 TITLE 24 CALIFORNIA BUILDING CODE
   PART 2, 2019 CALIFORNIA BUILDING CODE (CBC), 2019 IBC.
   PART 3, 2019 CALIFORNIA ELECTRICAL CODE (CEC), 2019 NEC.
   PART 4, 2019 CALIFORNIA MECHANICAL CONDE (CMC), 2019 UMC.
   PART 5, 2019 CALIFORNIA PLUMBING CODE (CPC), 2019 UPC.
   PART 9, 2019 CALIFORNIA FIRE CODE (CFC) BASED 0N 2019 IFC.
   2016 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 13, 72, 80, 90A, 99, AND 101.
2. INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTATION AND SPECIFICATIONS, INCLUDING STATE FIRE MARSHALL LISTING SHEETS FOR EACH COMPONENT OF THE SYSTEM HAS BEEN APPROVED BY DSA.
3. UPON COMPLETION OF INSTALLATION OF THE SYSTEMS, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF A DSA PROJECT INSPECTOR.
4. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
5. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND THE ARCHITECT/ENGINEER OF RECORD.
6. DSA, ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND/ OR TESTING.
7. ALL PENETRATIONS THROUGH RATED ASSEMBLIES, REQUIRING OPENING PROTECTION SHALL BE PROVIDED WITHIN THE SPECIFICATION WITHIN THE FIRE ALARM SECTION.
8. AUDIBLE DEVICES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15DECIBLES (Dba) ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 Dba ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIED SPACE WITHIN THE BUILDING.
9. AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL CODE 3 PATTERN.
10. THE CONTRACTOR SHALL ADJUST/INSTALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMZE FALSE ALARMS.
11. VISUAL DEVICES SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELLA. VISUAL DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
12. UNDERGROUND AND EXTERIOR CONDUIT TO HAVE WATERTIGHT FITTINGS AND WIRE TO BE APPROVED FOR WET LOCATIONS.
13. ALL FIRE ALARM WIRING SHALL BE FLP OR FPLP (FIRE POWER LIMITED OR FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE THHN OR THWN.
14. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE DEVICE. DO NOT SPLICE THE WIRE. ALL BOXES TO BE SIZED PER CEC.
15. SMOKE DETECTORS SHALL BE NOT CLOSER THAN 1' FROM SPRINKLERS OR 3' FROM ANY SUPPLY DIFFUSER. IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION OF NEWLY INSTALLED FIRE ALARM DEVICES SHALL BE COVERED UNTIL AREA IS READY TO BE TURNED OVER TO THE OWNER.
16. ALL FIRE ALARM CIRCUITS ARE TO BE IN CONDUIT, SURFACE RACEWAY OR OPEN RUN ABOVE THE CEILINGS, UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANNER AS INDICATED ON THE DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMENTS.
17. FIRE ALARM PANEL, REMOTES, AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO DEVICE SHALL EXCEED THE WEIGHT OF 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
18. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM A COMMON USE AREA PANEL AND SHALL HAVE OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION. THE CIRCUIT BREAKER SHALL BE LABELED "FIRE ALARM CIRCUIT CONTROL". CIRCUIT ID TO BE LABELED AT FIRE PANEL/EXPANDERS.
19. THE INSTALLER CONTRACTOR SHALL PROVIDE A RECORD OF COMPLETION PER NFPA 72, FIGURE 10.18.2.1.1.
20. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.2.
21. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
22. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS. AUTOMATIC FIRE ALARM SYSTEMS SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AND CBC 907.6.5.2. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX OR UUIS BY UL OR SHALL MEET THE REQUIREMENTS OF FM STANDARD 3011.
23. BEFORE REQUESTING FINAL APPROVAL OF THE INSTALLATION THE INSTALLING CONTRACTOR SHALL FURNISH A WRITTEN STATEMENT TO THE DSA PROJECT INSPECTOR TO THE EFFECT THAT THE SYSTEM HAS BEEN INSTALLED AND TESTED IN ACCORDANCE WITH THE (201 6) NFPA 72 SECTION 14.4.1.
24. TEST, INSPECTION AND MAINTENANCE SHALL COMPLY WITH NFPA 72 CHAPTER 14 REQUIREMENTS.
25. ALL DUCT SMOKE DETECTORS SHALL HAVE A KEYED TEST SWITCH MOUNTED AT 42" A.F.F.. FIELD VERIFY LOCATION.

FIRE ALARM SYSTEM DESCRIPTION

SCOPE OF THIS PROJECT IS TO PROVIDE A NEW FIRE ALARM PANEL WITH NEW VOICE EVACUATION PANEL, INCLUDING FACP, VOICE AMPLIFIERS, POWER SUPPLIES, MICROPHONE, INITIATION, NOTIFICATION AND CONTROL DEVICES AS SHOWN ON PLANS AND SPECIFICATIONS. PROVIDE ALL NEW CABLING. CABLING SHALL BE INSTALLED IN CONDUIT OR SURFACE RACEWAY, OR EXPOSED IN ACCESSIBLE CEILING SPACE.

FIRE ALARM SYSTEM: CLASS B
IDC: CLASS B
SLC CIRCUIT: CLASS B
NOTIFICATION CIRCUIT: CLASS B

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD., WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

IBP project number: 22039.00
file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E19_dustin.zeisler@engent.com.rvt
drawn by: Author checked by: Checker
date: Issue Date MAY 17, 2021

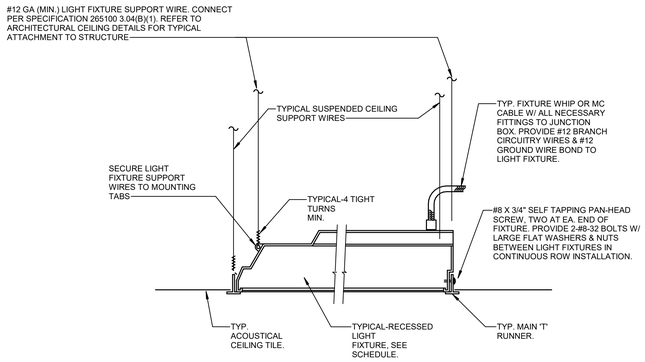
rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title: FIRE ALARM SCHEDULES, DETAILS AND LEGENDS

drawing no.: E521

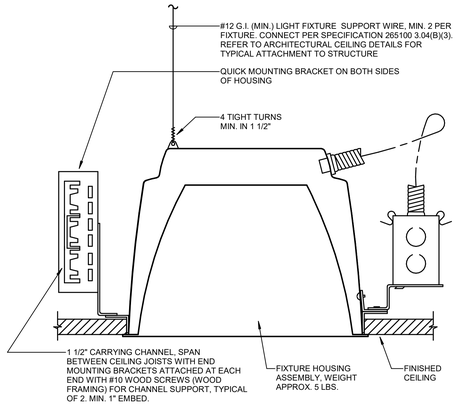
drawing of

1/10/2022 1:56:31 PM



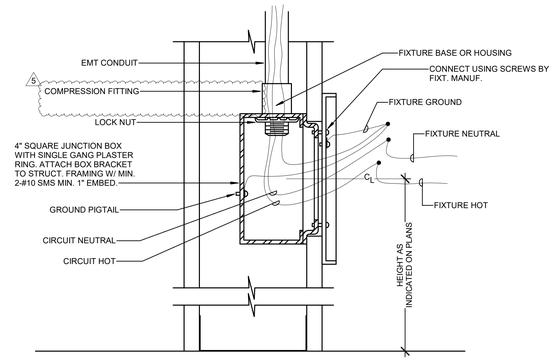
1 RECESSED FIXTURE AT T-BAR CEILING

SCALE:NTS



2 RECESSED DOWNLIGHT

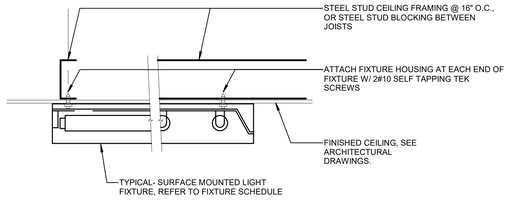
SCALE:NTS



SEE 5/S1.2 FOR LIMITATIONS OF CONDUIT PLACEMENT IN CMU WALLS. COORDINATE WITH SEOR.

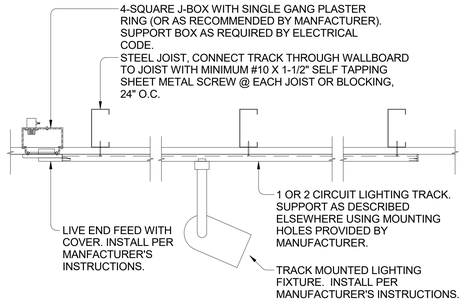
3 WALL MOUNTED LUMINAIRE

SCALE:NTS



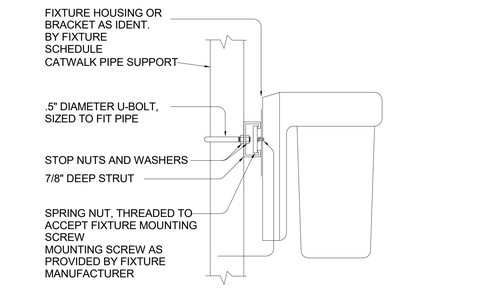
4 SURFACE MOUNTED FIXTURE

SCALE:NTS



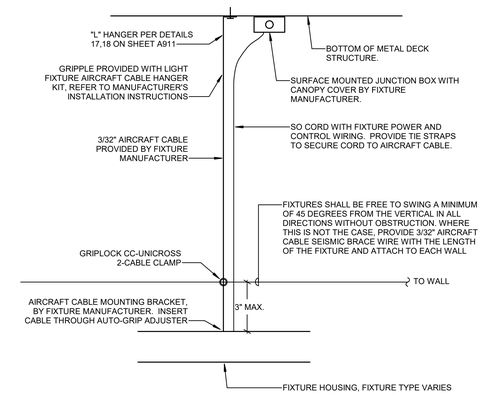
5 TRACK LIGHTING INSTALLATION

SCALE:NTS



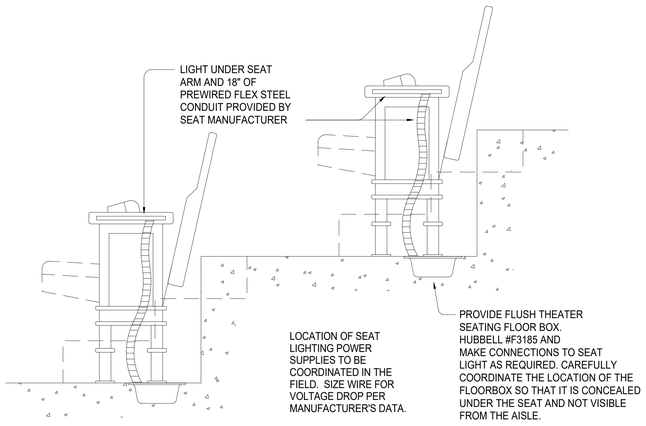
6 PIPE MOUNTED LIGHT FIXTURE

SCALE:NTS



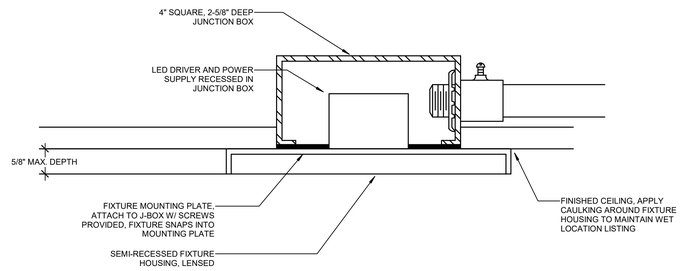
7 SUSPENDED LIGHT FIXTURES

SCALE:NTS



8 THEATER SEAT LIGHTING SECTION VIEW

SCALE:NTS



MAX FIXTURE WEIGHT: LESS THAN 2 LBS.

9 SEMI RECESSED FIXTURE

SCALE:NTS

DSA Application #02-118286
DSA File #58-C1

agency

tBP
architecture
planning
interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com

consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD. WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number: 22039.00
file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E18_dustin.zeisler@engent.com.rvt
drawn by: Author checked by: Checker
date: Issue Date MAY 17, 2021

rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title:

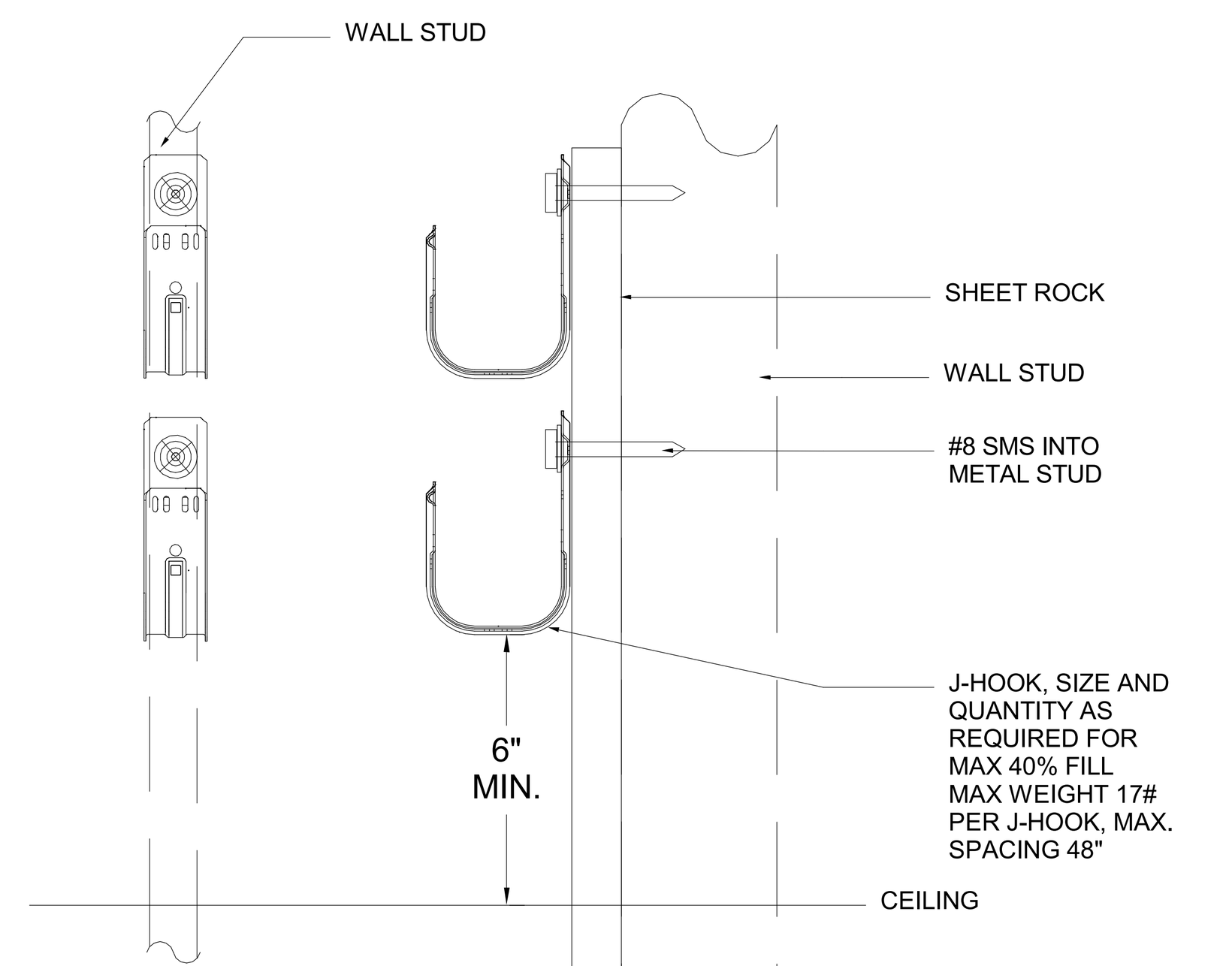
ELECTRICAL DETAILS

drawing no.:

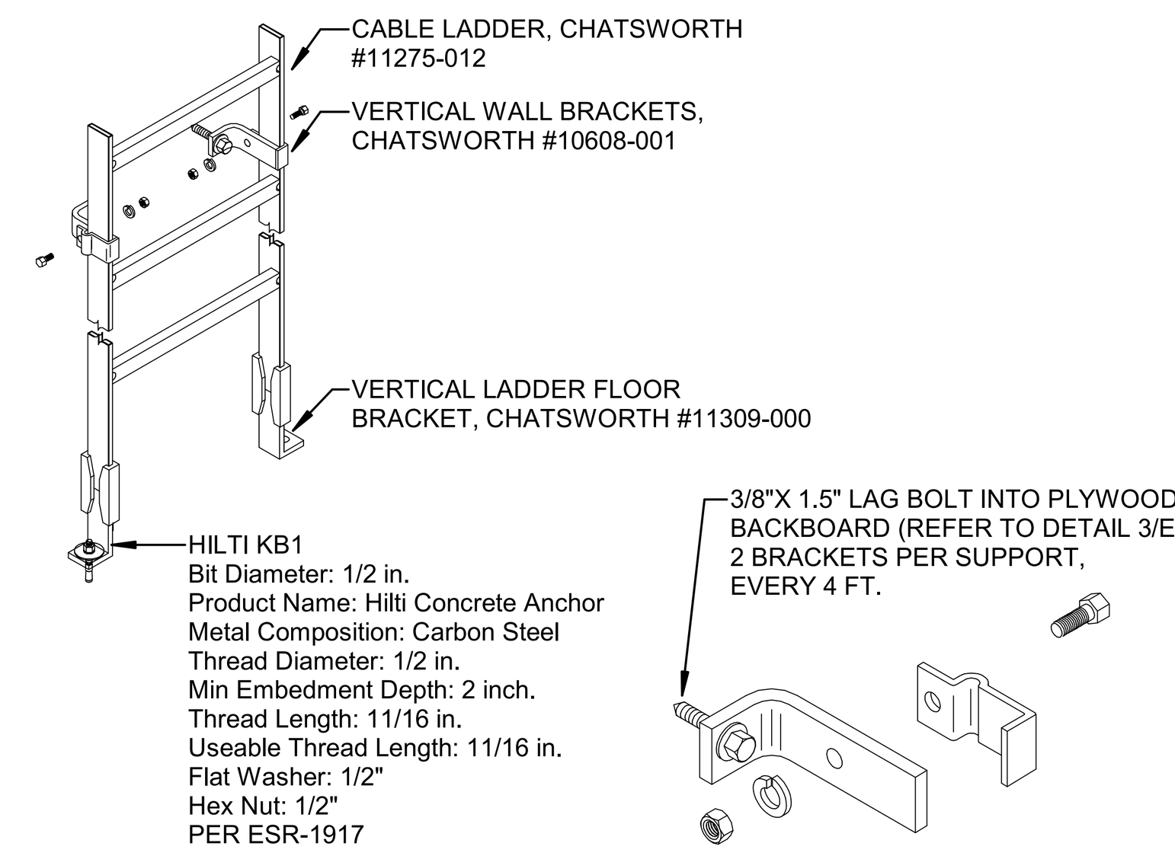
E802

drawing of

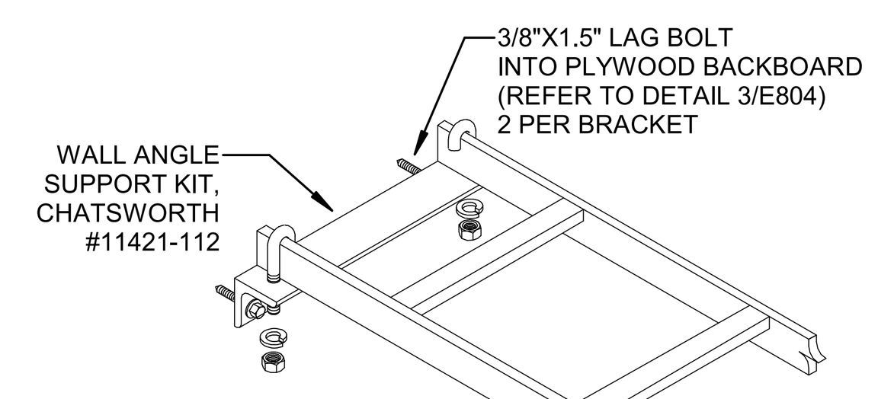
1/10/2022 1:56:32 PM



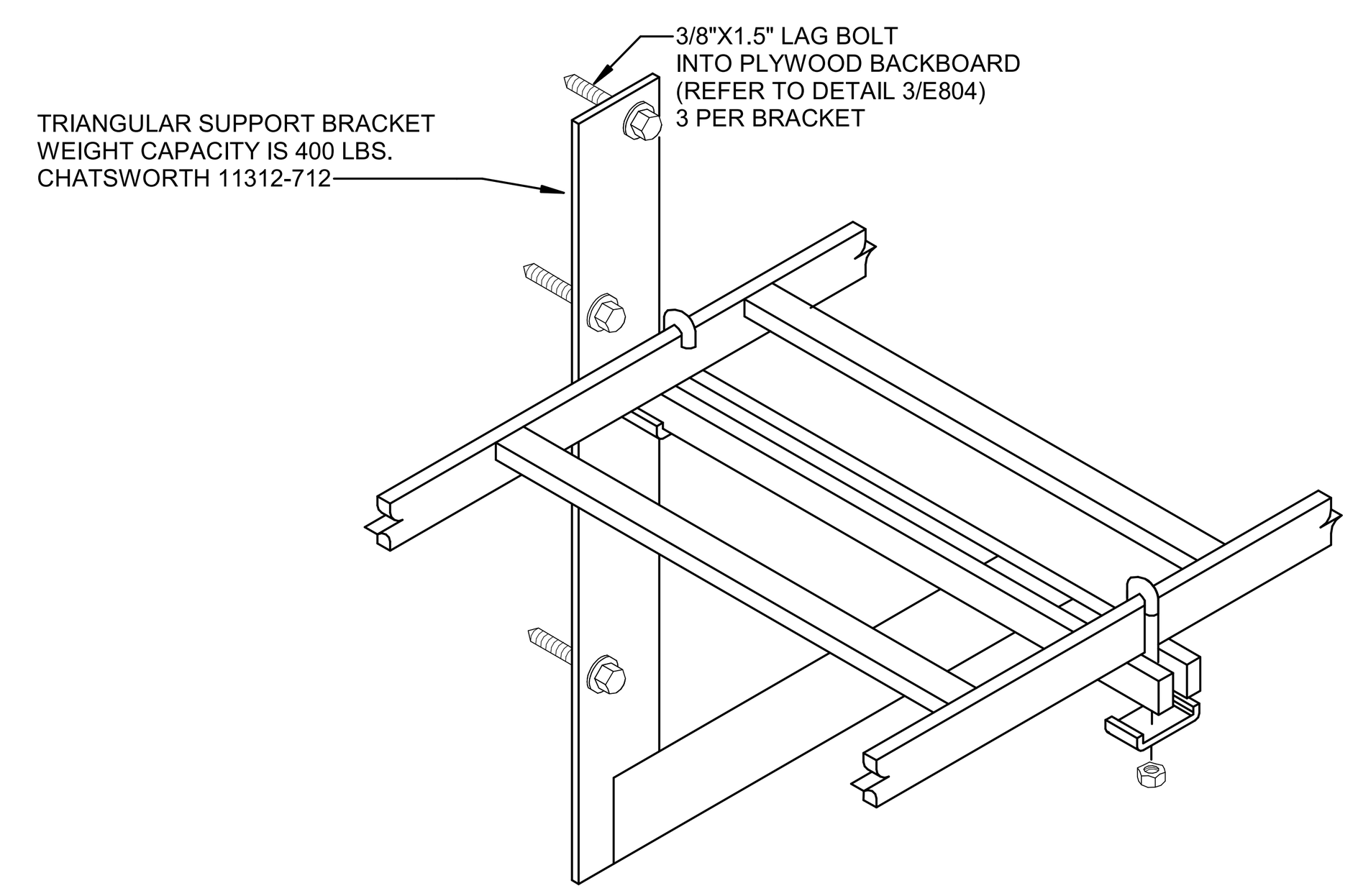
1 J-HOOK WALL ATTACHMENT DETAIL
SCALE:NTS



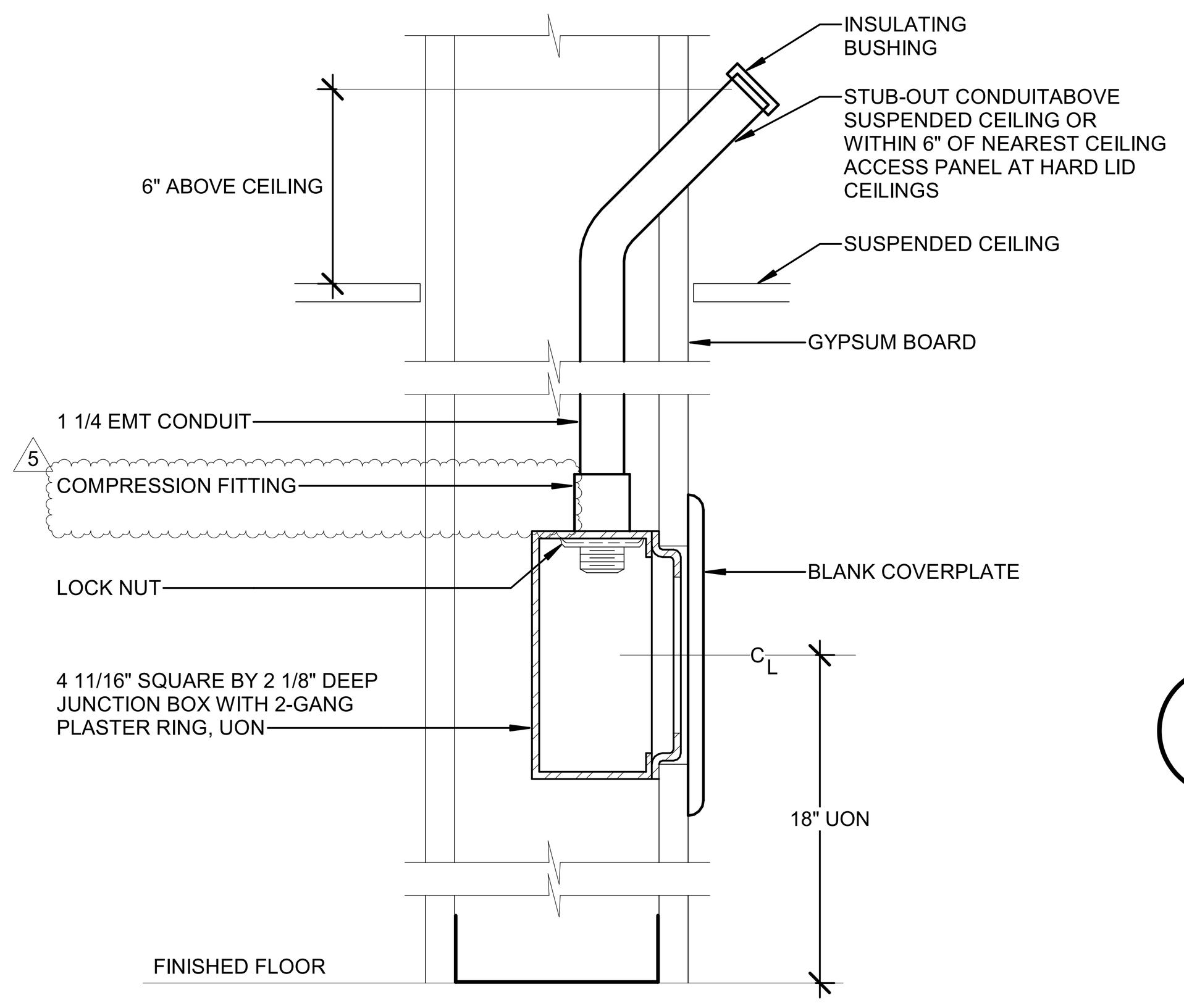
4 VERTICAL LADDER SUPPORT
SCALE:NTS



5 LADDER END SUPPORT BRACKET
SCALE:NTS



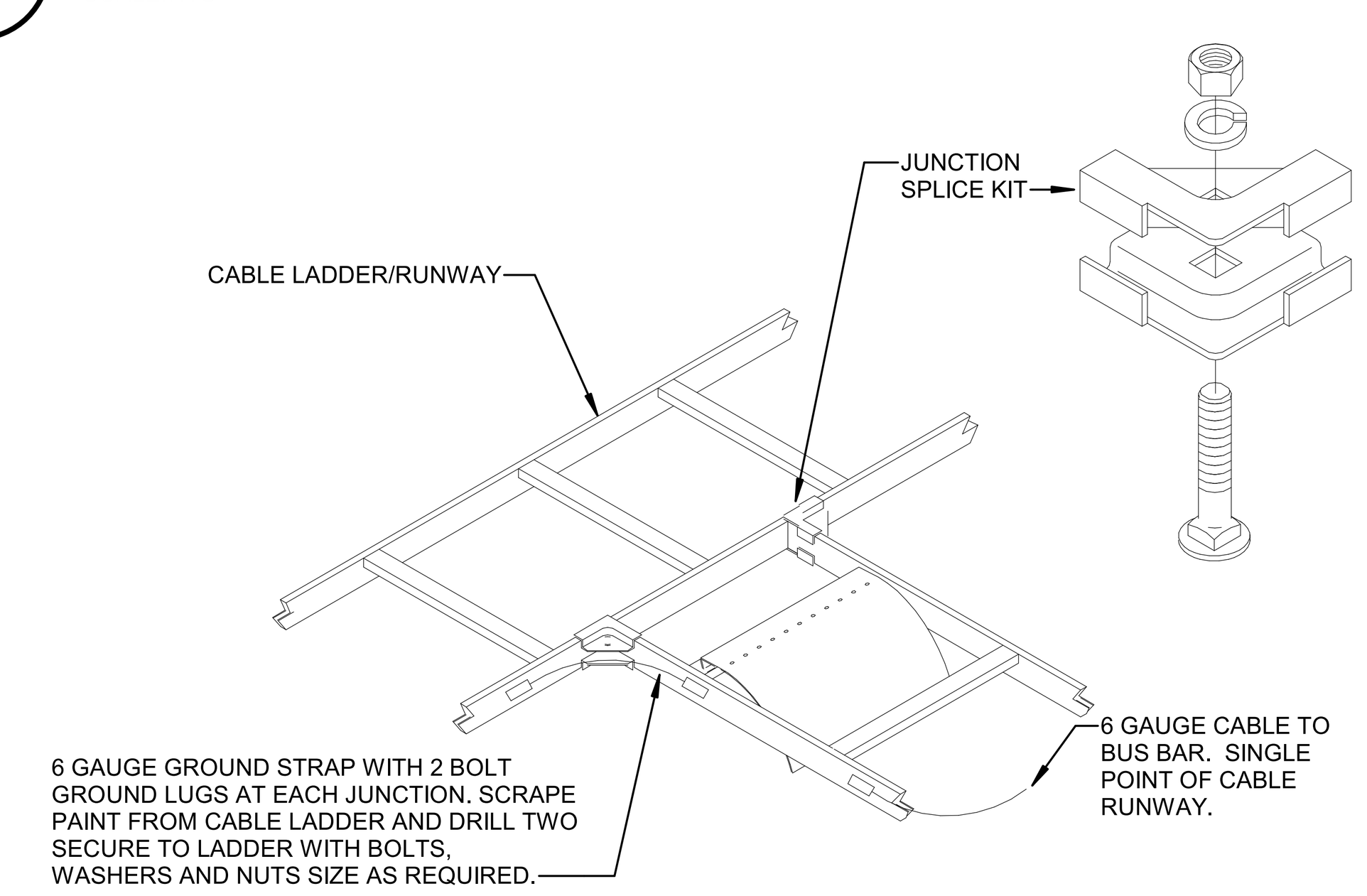
6 ANGLE WALL SUPPORT
SCALE:NTS



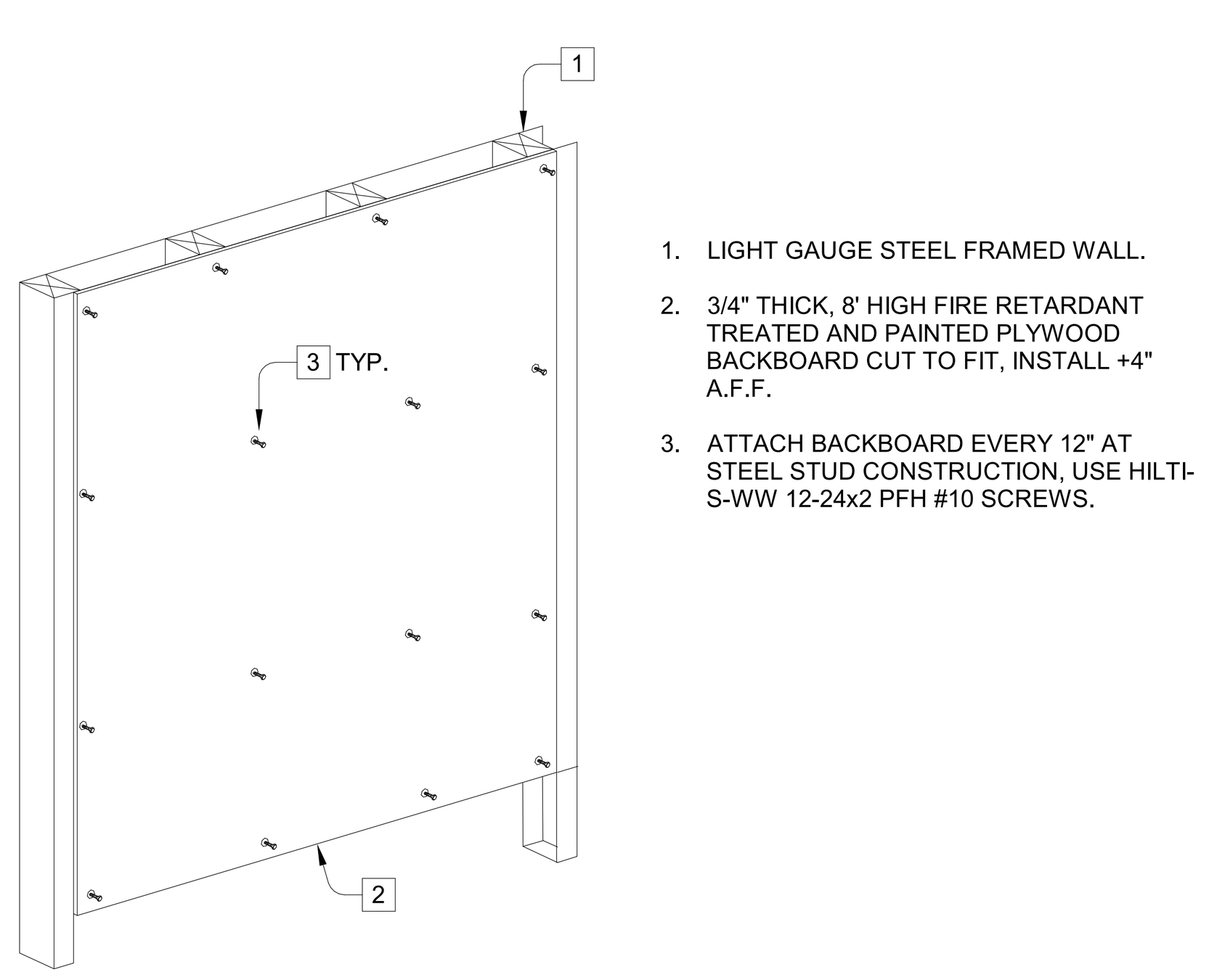
NOTES:

1. INSTALL UL LISTED FIRE RATED SEALANT MATERIAL IN WALL AROUND DEVICE BOX TO PROVIDE FIRE-STOP AND FIRE RESISTANCE RATING WHERE INSTALLATION OCCURS.
2. TYPICAL INSTALLATION WITH CONDUIT STUBBED ABOVE CEILING UNLESS SHOWN OTHERWISE ON PLANS.

2 TELECOMMUNICATIONS DEVICE
SCALE:NTS

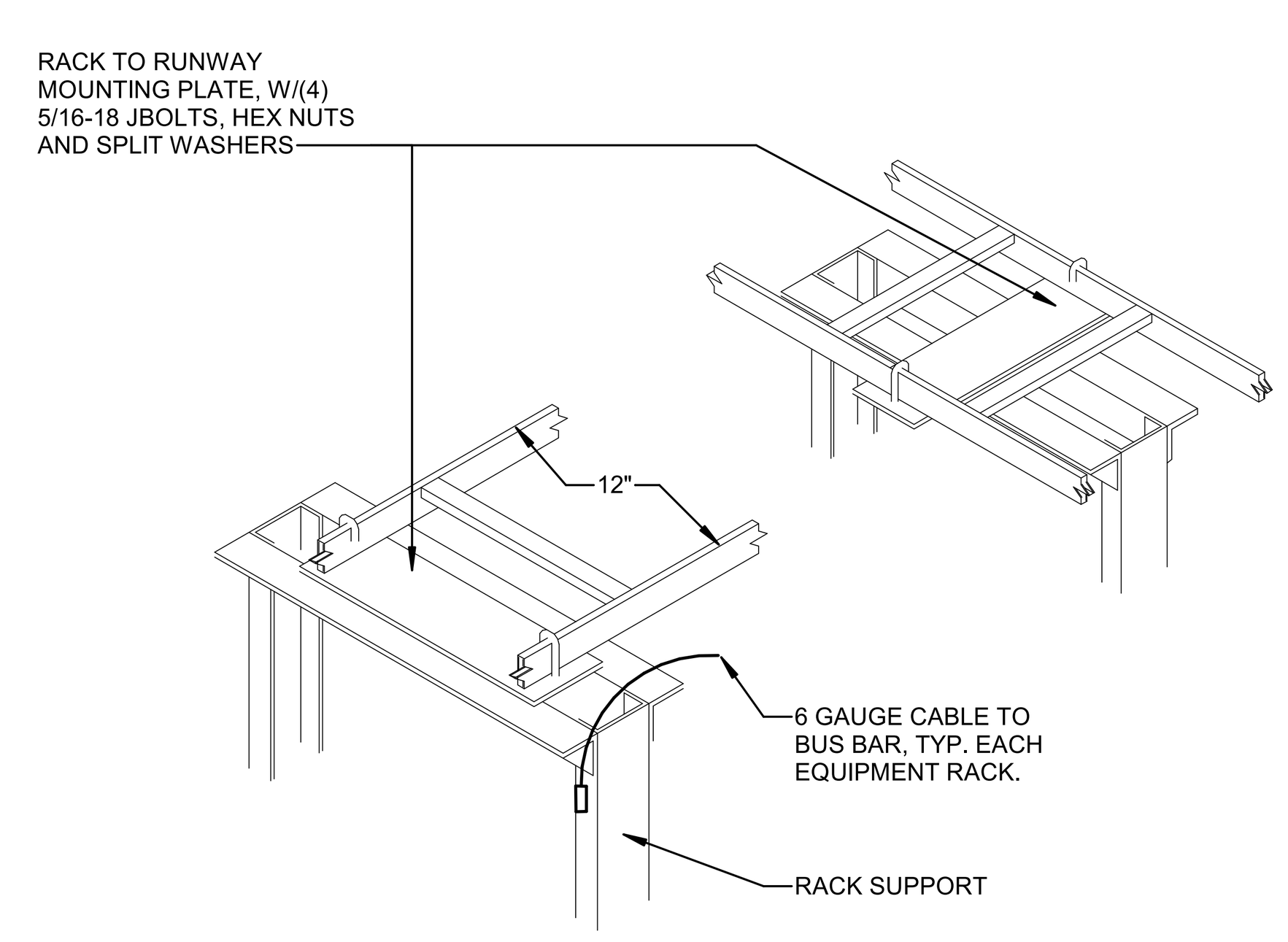


7 LADDER JUNCTION KIT
SCALE:NTS

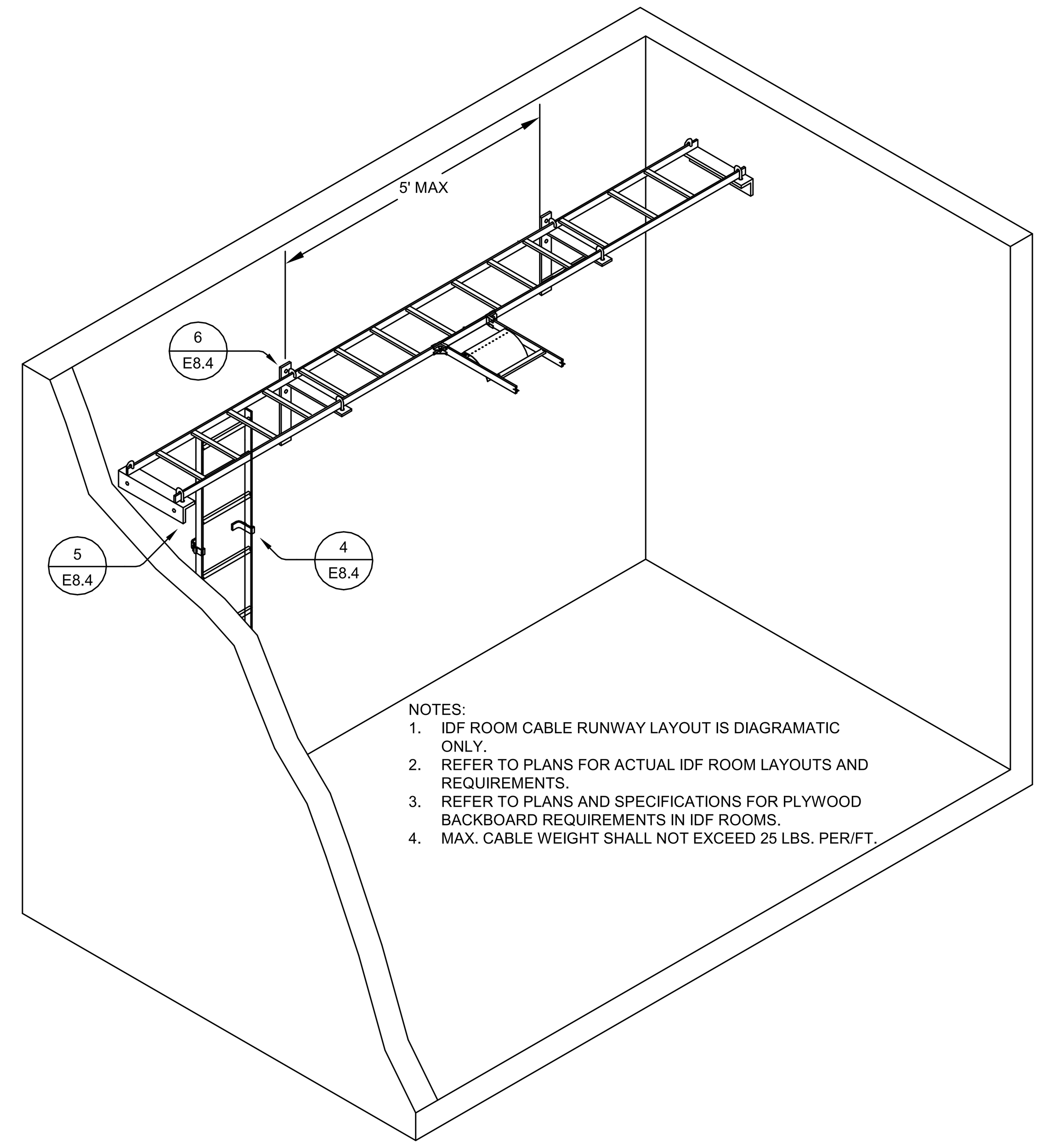


1. LIGHT GAUGE STEEL FRAMED WALL.
2. 3/4" THICK, 8' HIGH FIRE RETARDANT TREATED AND PAINTED PLYWOOD BACKBOARD CUT TO FIT, INSTALL +4" A.F.F.
3. ATTACH BACKBOARD EVERY 12" AT STEEL STUD CONSTRUCTION, USE HILTI-S-WW 12-24x2 PFH #10 SCREWS.

3 PLYWOOD BACKBOARD ATTACHMENT
SCALE:NTS

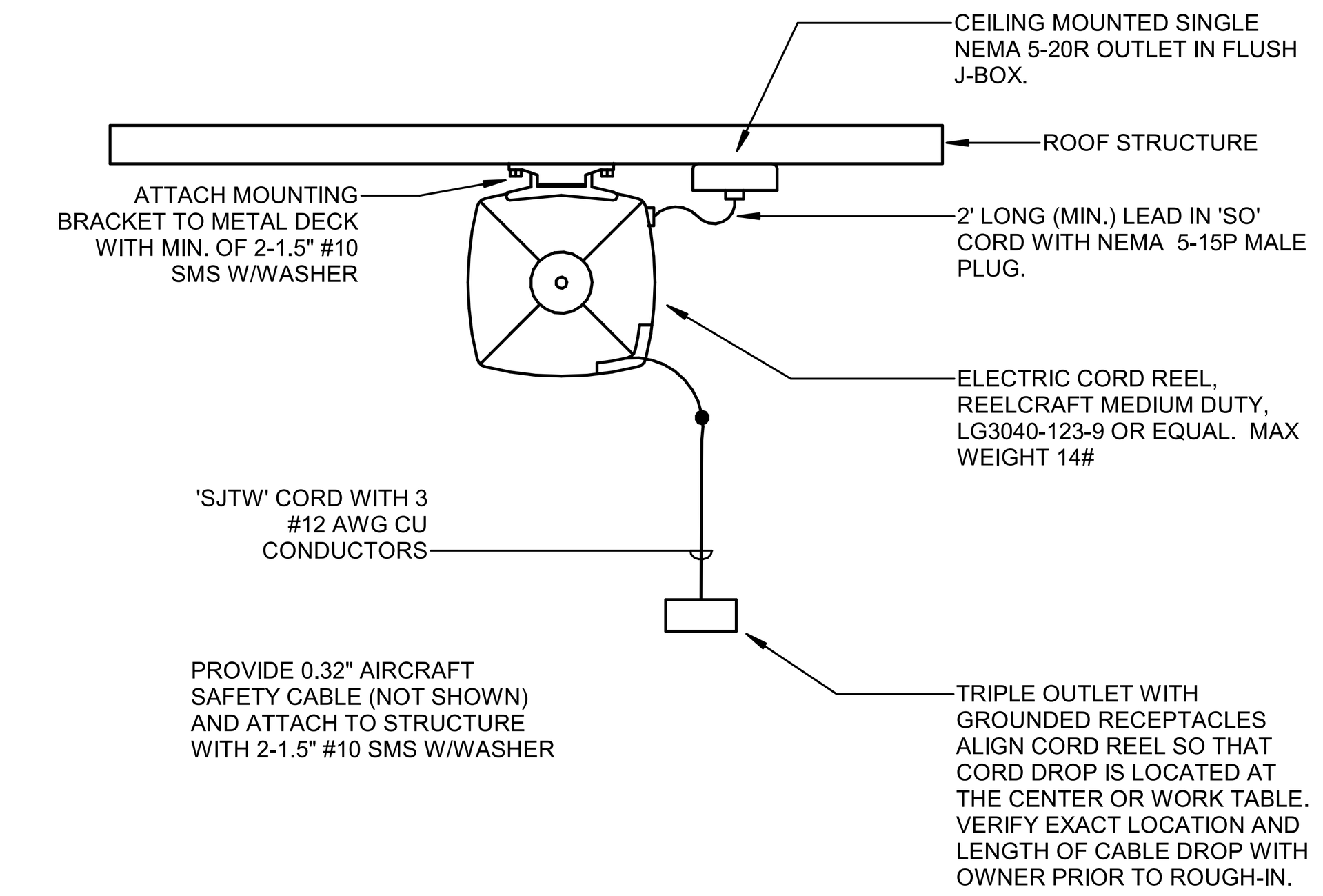


8 LADDER TO RACK SUPPORT
SCALE:NTS

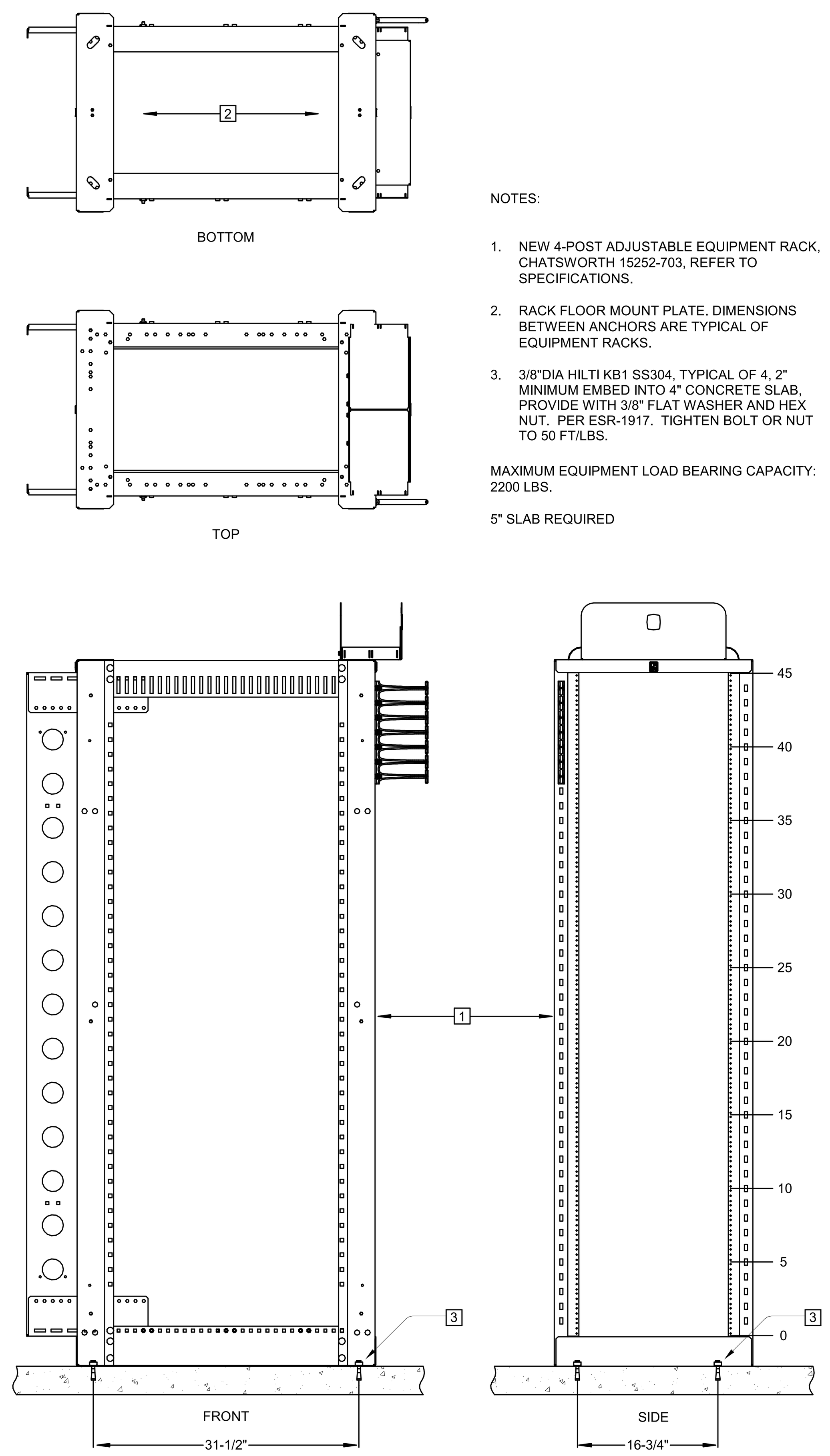


NOTES:
1. IDF ROOM CABLE RUNWAY LAYOUT IS DIAGRAMATIC ONLY.
2. REFER TO PLANS FOR ACTUAL IDF ROOM LAYOUTS AND REQUIREMENTS.
3. REFER TO PLANS AND SPECIFICATIONS FOR PLYWOOD BACKBOARD REQUIREMENTS IN IDF ROOMS.
4. MAX. CABLE WEIGHT SHALL NOT EXCEED 25 LBS. PER/FT.

9 TYPICAL CABLE RUNWAY LAYOUT
SCALE:NTS



11 CORD REEL INSTALLATION
SCALE:NTS



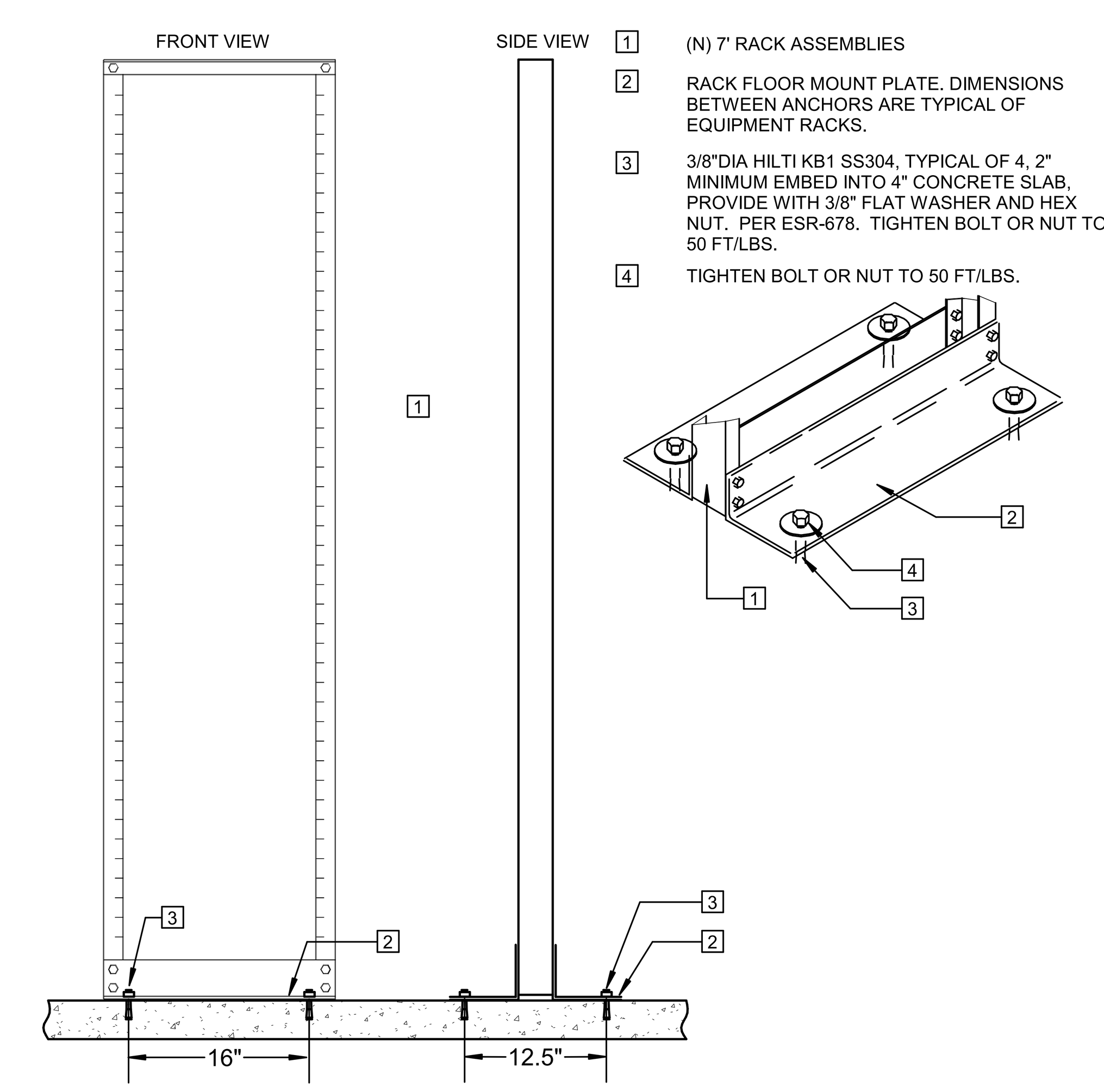
NOTES:

1. NEW 4-POST ADJUSTABLE EQUIPMENT RACK, CHATSWORTH 15252-703, REFER TO SPECIFICATIONS.
2. RACK FLOOR MOUNT PLATE, DIMENSIONS BETWEEN ANCHORS ARE TYPICAL OF EQUIPMENT RACKS.
3. 3/8"DIA HILTI KB1 SS304, TYPICAL OF 4, 2" MINIMUM EMBED INTO 4" CONCRETE SLAB, PROVIDE WITH 3/8" FLAT WASHER AND HEX NUT, PER ESR-1917. TIGHTEN BOLT OR NUT TO 50 FT/LBS.

MAXIMUM EQUIPMENT LOAD BEARING CAPACITY: 2200 LBS.

5" SLAB REQUIRED

10 EQUIPMENT RACK BASE SUPPORT
SCALE: 1 1/2" = 1'-0"



1 (N) 7' RACK ASSEMBLIES
2 RACK FLOOR MOUNT PLATE, DIMENSIONS BETWEEN ANCHORS ARE TYPICAL OF EQUIPMENT RACKS.
3 3/8"DIA HILTI KB1 SS304, TYPICAL OF 4, 2" MINIMUM EMBED INTO 4" CONCRETE SLAB, PROVIDE WITH 3/8" FLAT WASHER AND HEX NUT. PER ESR-678. TIGHTEN BOLT OR NUT TO 50 FT/LBS.
4 TIGHTEN BOLT OR NUT TO 50 FT/LBS.

12 EQUIPMENT RACK BASE SUPPORT 2
SCALE:NTS

DSA Application #02-118286
DSA File #58-C1
agency

tBP architecture planning interiors
tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419
architect

The Engineering Enterprise
CONSULTING ENGINEERS
ALAMEDA | AUBURN | SANTA BARBARA
https://www.engent.com
consultant

WOODLAND COMMUNITY COLLEGE
PERFORMING ARTS/ CULINARY SERVICES FACILITY
2300 E. GIBSON RD, WOODLAND, CA 95776
YUBA COMMUNITY COLLEGE DISTRICT
owner

tBP project number: 22039.00
file name: C:\Users\dzeisler\Documents\WCC_Perf Arts_Culinary_Central_E18_dustin.zeisler@engent.com.rvt
drawn by: Author checked by: Checker
date: Issue Date MAY 17, 2021

rev:	date:	description:
	12/06/21	Addendum #2
	01/11/22	Addendum #5

drawing title:
ELECTRICAL DETAILS

drawing no.:
E804
drawing of

1/10/2022 1:56:33 PM

Section 00 11 16
INVITATION TO BID

Performing Arts/Culinary Services Facility

Woodland Community College
2300 East Gibson Road
Woodland, California 95776

NOTICE IS HEREBY GIVEN that the Governing Board of the Yuba Community College District (District), Yuba City, California, will receive sealed bid proposals for the furnishing of all labor, materials, equipment, transportation and services for the construction of the project entitled **Performing Arts/Culinary Services Facility.**

The District has pre-qualified General Contractors for this project, and the list of pre-qualified General Contractors can be found on the District's web site:

https://www.yccd.edu/central-services/fiscal-services/purchasing-2/requests-proposals-quotes/

Only Pre-Qualified Contractors are allowed to bid as Prime Contractors on this project. The District does not prequalify Subcontractors.

Construction Cost Estimate (Range): **$ 30,000,000 to $33,000,000**
California License Required: **"B" General Contractor License in good standing.**

In general, the Work consists of the construction of a new Performing Arts/Culinary Services Facility and all associated site improvements including underground uiliites, landscape, irrigation & other site development.

The District does not provide hardcopies of bid documents or reimburse cost of printing, delivery, or any expenses related to the bidding process.

For information directly from the District, you may also log on to the District Website: https://www.yccd.edu/central-services/fiscal-services/purchasing-2/requests-proposals-quotes/. Project documents available include, but are not limited to, plans, specifications, addenda, bidders lists, bid results, etc., and can be viewed on this District webpage.

All questions related to this project must be submitted, via email in **Microsoft Word format** to:

Phil Newsom, Project Architect of Record
Email: pnewsom@tbparchitecture.com

Also, please copy David Willis on all email correspondence per:
David Willis, District Project Manager
Email: dwillis@yccd.edu

Each bid shall be made on the bid form, which is included in the Bid Documents and when submitted, shall be accompanied by a Bid Bond or Certified Cashier's Check in the amount of 10% of bid (made payable to the Yuba Community College District). The District reserves the right to forfeit Bid Bond submitted for failure of the successful bidder to secure Payment & Performance Bonds.

IMPORTANT INFORMATION:

Pre-Bid Optional ZOOM Meeting Date/Time/Link: November 17, 2021, 1:00PM

Join from PC, Mac, Linux, iOS or Android: https://cccconfer.zoom.us/j/95475450962

Or Telephone:
+1 669 900 6833 (US Toll)
+1 253 215 8782 (US Toll)
+1 346 248 7799 (US Toll)

Pre-Bid Meeting and Job Walk, Date/Time: .....December 2, 2021, 1:00PM (MANDATORY)
Pre-Bid Meeting Location: .....Woodland Community College
Building 100, Room 113
2300 East Gibson Road, Woodland, California 95776
(See Woodland Community College Campus Map)

PLEASE NOTE: A Site Visit will be held Immediately following the Pre-Bid meeting. Please remember to sign the District Project Mandatory Pre-Bid Meeting Login Sheet, prior to leaving the site.

Last Date / Time for Bidder's
Requests for Information: .....January 6, 2022, 5:00PM
Last Day to Issue Addendum: .....January 13, 2022, 5:00PM
Bids Due No Later Than, Date / Time: .....January ~~25~~20, 2022 ~~1~~0:00~~AM~~PM (Sharp) 2:30 PM
Bids Must Be Received at: .....Yuba Community College District Office
Attn.: David Willis
425 Plumas Boulevard, Suite 200, Yuba City, Ca. 95991
Attn: David Willis, Director of Facilities Planning, M & O

Bids must be received by the District prior to the time and by the date noted above. Bids that are not received by the District prior to the time and by the date noted above will not be accepted, and will be returned to the Bidder unopened. Reference specification 00 21 13 entitled,"Instruction to Bidders". ~~Provide one (1) signed original and five (5) hard copies of the proposal and one (1) flash drive copy of the proposal.~~ Provide one (1) signed original proposal at the bid due date and time. The low bidder is requested to provide a flash drive and an additional two (2) copies of the proposal within two business days after the bid due date and time. Do not email your proposals. Proposals MUST be received before the date and time noted above. See revised specification section 00 11 16 v6. Do not email your proposals. Proposals MUST be received before the date and time noted above. ~~No exceptions.~~

IMPORTANT LINK – BID DOCUMENTS:

https://goyccd-my.sharepoint.com/:f:/g/personal/w0398409_yccd_edu/Er9GJ2LmewhAp2QT93R00LYBk4XLNsp9LXLepviPBHlO0A?e=m7DT0a

The following items are in this link:

1. DSA Approved Drawings
2. DSA Approved Specifications
3. Geotechnical Survey

The successful bidder will be required to furnish a **Payment Bond (Labor and Material Bond)** in an amount equal to one hundred percent (100%) of the contract price and a faithful **Performance Bond** in an amount equal to one hundred percent (100%) of the contract price, said bonds to be secured from a surety company acceptable to the Yuba Community College District and authorized to execute such surety in the State of California.

This project is a public works project and is subject to prevailing wage rate laws. The District will provide a Department of Industrial Relations (DIR) project number that the Contractor will be required to upload certified payroll for each progress payment on the project. The Contractor and each Sub-Contractor shall provide a current DIR registration number with the proposal.

Attention is directed to Section 4100 through 4113 of the Public Contract Code concerning Subcontractors, with emphasis on Section 4104, known as the "Subletting and Subcontracting Fair Practices Act, effective July 1, 2014.

Attention is directed to Labor Code Section 1725.5 regarding Department of Industrial Relations (DIR) contractor registration process including registration criteria and implementation of DIR registration requirements. Labor Code Section 1771.7 establishes contractor's obligation to submit Certified Pay Roll (CPR) to the Department of Labor and Standards Enforcement (DLSE) and public works monitoring and enforcement. Labor Code Section 1773.3 requires the District to submit a PWC-100 to DIR for all public works contract awarded effective January 1, 2015.

END OF SECTION 00 11 16

SECTION 06 20 00 - FINISH CARPENTRY

5

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Section Includes: requirements for provision of new finish carpentry materials and hardware accessories, including but not limited to:

1. Interior wood trim and bases.
2. Audience chamber wood veneer.
3. Accessories for connecting finish carpentry.

1.02 RELATED SECTIONS

A. Section Includes:

1. Section 08 11 00 – Hollow Metal Doors And Frames
2. Section 08 71 00 - Door Hardware
3. Section 09 90 00 - Paint

1.03 REFERENCES

A. CBSC - California Building Standards Commission

1. CBC - California Building Code, 2019 Edition

B. WI - Woodwork Institute.

1. NAAWS Edition 3.1 , North American Architectural Woodwork Standards, 2020 Edition

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's literature completely describing products.

B. Shop Drawings

1. Wood Finish Carpentry Items
2. Submit drawings showing all items at large scale, including methods of fabrication and construction, and methods of attachment to adjacent work. First page is to bear WI Certified compliance label.

C. Samples

1. Wood Finish Carpentry Items
2. Minimum 12” square segments of wood material proposed for use for each item, complete with specified finish.
3. Resubmit material samples with finishes adjusted as directed, until material and finish are accepted.

D. Certificates of Compliance: Submit certificates of compliance required under Article titled “Source Quality Control” in this Section prior to delivery of casework items to Project site.

1.05 QUALITY ASSURANCE

A. Contractor’s Fabricators Qualifications

1. Equipped for and experienced in Work equal to standard specified; able to evidence such experience to the Owner’s Representative's satisfaction.
2. The documents require high quality millwork suitable for commercial use. WI standards set the general intent of the documents.

B. Regulatory Requirements
   1. For Wood Finish Carpentry Items
      a. Seismic Requirements: Design anchorage systems to comply with CBSC CBC as applicable for Seismic Zone 4.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver finish carpentry items until site conditions are adequate to receive the work of this Section.

B. Protect materials from weather while in transit.

C. Store materials indoors in ventilated areas with a constant but minimum temperature of 60 degrees F and maximum relative humidity of 25 to 55 percent.

1.07 PROJECT CONDITIONS

A. Verify dimensions at Project Site. Verify details and dimensions of equipment and fixtures integral with casework and other items for proper fit and accurate alignment.

1.08 SEQUENCING AND SCHEDULING

A. Provide information as required for timely and proper placement of backing and support systems.

B. Coordinate details with other work supporting, adjoining, or fastening to casework and other items.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Interior wood trim and bases.

B. Plywood paneling and reflector panels in Audience Chamber
   1. Comply with CBC Sections 603 and 803.12 – includes fire retardant finish,
   2. Cherry, Premium grade, plain sliced, book matched, prepared to be stained, per Section 09 90 00.
   3. Finish Materials
      a. WI Section 5, Table 5-1, generic finish type per Section 09 90 00.

C. Accessories for connecting finish carpentry with glue-on application and use of hidde n fasteners.

2.02 ACCESSORIES

A. For Wood Finish Carpentry Items
   1. Nails: Size and type to suit application, double hot-dipped galvanized with painted heads for exterior locations, interior concealed locations and interior locations subject to wetting during construction.
   2. Bolts, Nuts, Washers, Lags, Pins, and Screws: Size and type to suit application; hot-dipped galvanized for exterior locations and for concealed interior locations and interior locations subject to wetting during construction.
   3. Putty: Linseed oil type, complying with FS TT-P-00791B, tinted to match surface finish color.

2.03 FABRICATION

A. Fabricate in accordance with Section 6 of the Architectural Woodwork Standards.

Item	Species	Grade	Intended Finish
Base, Casing & Trim	Red Oak	Custom	Transparent
Tackboard Frames, Chalk Rail & Frame	Red Oak	Custom	Transparent
Shop finished curved and flat hardwood veneered paneling in the Audience Chamber	Cherry	Premium	Stained w/ transparent finish to match Architect's sample

B. Shop Assembly

1. For Wood Finish Carpentry Items
   a. General Fabrication Requirements
      1) Shop-fabricate and assemble Work in complete units insofar as dimensions permit shipment and installation.
      2) Solid Wood Members: Kerf back of solid members more than 5 inches wide or more than 1 inch nominal thickness.
      3) Nailing: Conceal nailing where possible and set nail heads for putty in exposed portions.
      4) Plug and sand smooth access holes required for joint fasteners.
   b. Fabricate in accordance with WI Section 9, requirements of Article titled System Description in this Section and following.
      1) Wood Trim (Wood Chair Rails, Map Rails, Picture Rails, And Wood Bases)
      2) Fabricate audience chamber wall and ceiling panels of ¼" bendable plywood, as notated in the drawings
      3) Interior Wood Door And Wood Borrowed Lite Trim (Casings), Jambs, And Trim
         (a) Location: Typical.
         (b) Material: Paint-grade solid stock, material to match existing profile.
      4) Finish per Section 09 90 00.

2.04 FINISHES

A. Field Finishing

1. For Wood Finish Carpentry Items
   a. To be shop-finished in accordance with requirements of WI Section 5.

2.05 SOURCE QUALITY CONTROL

A. Inspections For Wood Finish Carpentry Items

1. General: Maintain places of fabrication open to examination by the Owner's Representative.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces scheduled to receive finish carpentry items for conditions that would adversely affect installation.

B. Do not install work until unsatisfactory conditions have been corrected.

C. Paneling: install as detailed; coordinate installation of sound absorptive and reflective panels to assure continuity of grain, tight fitting joints, uniform curves, Support as indicated in details.

3.02 PREPARATION

A. Prior to installation verify that items to be in contact with cementitious materials have been shop-back-primed. If not back prime prior to installation.

B. Ensure all metal flashings and mechanical and electrical items affecting this Section of work are properly placed and completed prior to commencement of installation.

C. Pressure Treated Lumber: Protect cut-surfaces of pressure treated lumber prior to assembly

3.03 INSTALLATION

A. For Wood Finish Carpentry Items

1. Setting
   a. Set and secure materials and components in place, rigid, plumb and square.
   b. Kerf underside of wide trim members where indicated on drawings, to prevent cupping.
   c. Scarf joints at splices of exterior trim.
2. Wood Trim: Miter inside and outside corners of running trim.
3. Door and Borrowed Lite Jambs: Install with solid backing in such manner that no voids exist between strike side of jamb and frame opening for a vertical distance of 6" above and below strike.
4. Install hardware and accessories, supplied under other Sections, in accordance with manufacturer’s recommendations.

3.04 CLEANING

A. Finished Carpentry Items: Wash in strict accordance with manufacturer's instructions and comply with following

1. Ensure that washed surfaces do not differ from clean unwashed portions. Any difference will be considered unsatisfactory work.

3.05 PROTECTION

A. Protect work of this Section from disfigurement or damage until final acceptance.

END OF SECTION

SECTION 07 13 13 - BELOW GRADE SELF-ADHERED WATERPROOFING MEMBRANE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes sheet waterproofing membrane and drainage panels at exterior below grade vertical locations including:

1. Retaining walls.
2. Basement walls

B. Related Sections:

1. Section 07 13 26 for horizontal below-grade waterproofing.
2. Section 07 26 16 for below grade vapor retarder ~~Integrally Bonded Underslab Vapor Retarder.~~

1.2 SYSTEM DESCRIPTION

A. Pliable, self-adhering sheet membrane, not less than 60 mils thickness, consisting of a high-density polyethylene film bonded to a layer of rubberized asphalt waterproofing compound.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Scheduling and sequencing: Sequence/schedule installation of waterproofing membrane so that it will be covered as soon as possible to prevent damage from construction activities and ultraviolet rays. Proceed in the following sequence with no intervening delays that would expose the membrane to UV and physical and chemical damage from other construction activities

1. Membrane application.
2. Drainage/Protection board.
3. Do not leave waterproofing exposed to the elements longer than recommended by its manufacturer.

B. Pre-installation meeting:

1. Prior to start of installation arrange a pre-installation meeting between the waterproofing manufacturer authorized representative, the Contractor, the Architect and the installer to review Project conditions, the Drawings, Specifications and the manufacturer's data.
2. Identify, review and discuss special conditions not specifically referenced or addressed by the Project Drawings, manufacturer’s typical and Project-specific details, as well as the Shop Drawings.
3. Take photographs and notes of unresolved conditions, if any, along with sketches of the same unresolved conditions so that a determination can be made of actions to be taken to assure a watertight in and acceptable to the waterproofing material manufacturer for issuance of the warranty.
4. Record meeting minutes and distribute copy in PDF format to all concerned, and the Architect, within 48 hours after the meeting.

1.4 SUBMITTALS

A. Data: Manufacturer Product Data of proposed materials.

B. Manufacturer shall approve in writing and sign shop drawings prior to submission to the design team.

C. Shop Drawings: Show locations and extent of waterproofing with detail callouts for all typical and non-typical conditions. Include details for substrate joints and cracks, penetrations,

flashings, corners, and other termination conditions. Provide project specific shop drawings for each Architectural detail where the specified waterproofing system is shown. Provide shop drawings for terminations above grade.

D. Samples: 12-inch square Samples of waterproofing membrane, protection board and drainage panel.

E. Manufacturer's Certification: Manufacturer's written certification that materials provided for this Project comply with the quality assurance requirements below, published performance characteristics, along with all requirements of relevant ASTM standards, and that materials are suitable for applications indicated and specified work results.

F. Installer's Certification: Letter from the manufacturer stating the approved installer is approved to install the submitted products and eligible to receive the specified warranty.

G. Manufacturer’s acceptance: Letter from the manufacturer to verify its acceptance of the applicator and acceptance of substrates as satisfactory to receive this work.

H. Warranty: Sample copies of warranty for clearly defining terms, conditions, and time periods for the warranty.

I. Manufacturer field reports: Reports of field observations, supplemental instructions issued, and corrections made during installation.

1.5 QUALITY ASSURANCE

A. Manufacturer qualifications: Sheet membrane waterproofing system shall be manufactured and marketed by a firm with a minimum of 15 years’ experience in the production and sales of self-adhesive sheet membrane waterproofing.

B. Installer qualifications: Qualified firm authorized, trained, or licensed by the primary material manufacturer to install products specified and eligible to receive warranty specified.

C. Materials: Use waterproofing materials and accessories essential to the waterproofing integrity from one manufacturer.

1. All products shall be compatible with one another and with specified products with which they may come in contact.
2. System shall prevent passage of liquid water under hydrostatic pressure.

D. Manufacturer's Field Services: Membrane manufacturer's technical representative shall provide following field services prior to installation:

1. Attend pre-installation conference.
2. Attend project meetings. See ADMINISTRATIVE REQUIRMENTS above.
3. Written acceptance of the substrate including perimeters.
4. Field reports of inspections performed.

1.6 HANDLING

A. Deliver materials and products in labeled packages.

B. Store and handle in compliance with manufacturer’s instructions.

1.7 JOB CONDITIONS

A. Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials and products used.

B. Do not apply waterproofing materials to damp, wet or frost covered surfaces.

C. Proceed with work of this section only after substrate construction and penetrating work have been completed.

D. Do not allow petroleum, grease, oils, or fats to come into contact with membrane.

E. Provide watertight seals at perimeter of work and at penetrations through the work on a daily basis. Remove temporary seals before continuing work.

F. Take measures to protect installed waterproofing work from damage during and after installation, and as required to accommodate continuing construction and installation of successive components.

1.8 SPECIAL WARRANTY

A. Submit a joint and several warranty against leakage thru waterproofing, including against faulty materials and workmanship, for 5 years after installation.

B. Include removal and replacement of materials concealing waterproofing.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Provide waterproofing that prevents the passage of water thru waterproofed surfaces and with a membrane meeting with the following characteristics:

1. Flexibility: 180° bend over one-inch mandrel at -25°F, ASTM D 1970 – Unaffected.
2. Tensile Strength, Membrane Die C: ASTM D 412 Modified - 325 lbs/in.^{2} minimum. The test is run at a rate of 2 inches per minute.
3. Tensile Strength, Film: ASTM D 882 Modified - 5,000 lbs/in.^{2} minimum. The test is run at a rate of 2 inches per minute.
4. Elongation, Ultimate Failure of Rubberized Asphalt: ASTM D 412 Modified - 300% minimum. The test is run at a rate of 2 inches per minute.
5. Crack Cycling at -25°F, 100 Cycles: ASTM C 836 – Unaffected.
6. Lap Shear: ASTM D 1002 Modified - 20 lbs/inch.
7. Peel Strength: ASTM D 903 Modified -11 lbs/inch. The test is run at a rate of 4 inches per minute.
8. Puncture Resistance, Membrane: ASTM E 154 - 50 lbs minimum.
9. Resistance to Hydrostatic Head: ASTM D 5385 - >230 feet of water.
10. Permeance: ASTM E 96 - Section 12 – Water Method <0.1 perms maximum.
11. Water Absorption: ASTM D 570 - 0.1% maximum.

2.2 WATERPROOFING MEMBRANE

A. Rubberized-asphalt sheet waterproofing membrane: a self-adhesive, cold-applied composite sheet consisting of a thickness of 0.056 inch of rubberized asphalt and 0.004 inch of cross-laminated, high density polyethylene film specially formulated for use with water-based surface conditioner. Provide rubberized asphalt membrane covered with a release sheet, which is removed during installation and no special adhesive or heat shall be required to form laps.

1. Basis of Design: Bituthene 4000 by GCP Applied Technologies.
2. Or equal.

~~B. Self-adhered, cold-applied sheet waterproofing membrane:~~

~~1. Composition: 0.056-inch thick rubber asphalt with a 0.004-inch thick cross-laminated,~~
~~2. high-density polyethylene film formulated for use with water-based surface conditioner.~~
~~3. Color: Dark gray black.~~
~~4. Thickness: ASTM D 3767 Method - 0.060-inch nominal.~~

~~C.~~B. Primer, adhesive, liquid membrane, mastic, sealant, and other miscellaneous materials: As recommended by the membrane manufacturer for installation of the membrane and the conditions of use.

2.3 PRIMER

A. Bituthene B2 LVC adhesive primer by GCP Applied Technologies or equal.

2.4 LIQUID MEMBRANE

A. Bituthene LM Liquid Membrane by GCP Applied Technologies or equal.

2.5 TERMINATION BAR

A. Aluminum.

2.6 DRAINAGE PANELS

A. Material: Hydroduct 660 by GCP Applied Technologies, or equal, high flow rate, filter fabric laminated to free-draining, high-density, dimpled polystyrene drainage core with polymeric film backing to protect the waterproofing.

2.7 PROTECTION BOARD

A. Expanded Polystyrene Protection Board: 1 inch thick for vertical applications with the following characteristics. Adhere to waterproofing membrane with BITUTHENE® Protection Board Adhesive.

1. Normal Density: 1.0 lb/ft$^{3.}$
2. Thermal Conductivity, K factor: 0.24 at 40°F, 0.26 at 75°F.
3. Thermal Resistance, R-Value: 4 per 1 inch of thickness.

2.8 WATERSTOP

A. Adcor™ hydrophilic waterstop, Model 500s as manufactured by GCP Applied Technologies or equal for non-moving concrete construction joints.

B. Swellseal WA Waterstop as manufactured by GCP Applied Technologies or equal for all cold-joints between slabs and 6-inch concrete curbs.

2.9 MISCELLANEOUS MATERIALS

A. Surface conditioner, mastic, liquid membrane, tape and accessories specified or acceptable to manufacturer of sheet membrane waterproofing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examination:

1. Examine surfaces to be waterproofed.
2. Verify that concrete is properly cured, dried and aged the minimum time recommended by the waterproofing membrane manufacturer. Test substrate to receive waterproofing to verify moisture content does not exceed limits required by membrane manufacturer.
3. Check that areas to be waterproofed are clean and dry.
4. Fill voids and cracks and remove ridges and fins, leaving a smooth, clean surface.

B. Proceed with work of this section only after substrate construction and penetrating work have been completed.

3.2 PREPARATION

A. Preparation of concrete substrates:

1. Fill form tie rod holes with concrete and finish flush with surrounding surface.
2. Repair bug holes over 0.5-inch long and 0.25-inch deep and finish flush with surrounding surface.
3. Remove scaling to sound, unaffected concrete/CMU and repair exposed area.
4. Grind irregular construction joints to suitable flush surface.

B. Accessories: Treat joints and install flashing as recommended by the Contract Documents, approved shop drawings, and waterproofing manufacturer's literature. The most stringent requirements shall dictate.

C. Corrections: Correct conditions detrimental to the proper and timely completion of this work before proceeding with installation.

3.3 INSTALLATION

A. General:

1. Comply with the waterproofing membrane manufacturer’s instructions and the following, whichever is most demanding.
2. Do not allow petroleum, grease, oils, or fats to come into contact with membrane.
3. Provide watertight seals at perimeter of work and at penetrations through the work on a daily basis. Remove temporary seals before continuing work.
4. Take measures to protect installed waterproofing work from damage during and after installation, and as required to accommodate continuing construction and installation of successive components

B. Primer:

1. Apply primer at the rate recommended by manufacturer.
2. Do not apply to frozen concrete or to areas with standing or visible water.
3. Do not use during wet weather. Allow BITUTHENE Adhesive Primer B2 LVC to dry one hour or until tack-free. Dry time may be longer in cold temperatures Deep puddles of primer should be avoided as this will lengthen drying time.
4. Rollers or brushes should be dipped into pans. Avoid pouring primer directly onto a horizontal substrate.
5. Do not apply directly to GCP self-adhered membrane.
6. In general, priming should be limited to an area that can be covered with membrane within 24 hours.
7. Areas that accumulate significant amounts of dust or dirt must be reprimed before membrane is applied.
8. Cover the membrane as soon as possible to minimize blistering. If blistering occurs, allow membrane to cool and re-roll with heavy roller. Blisters over 4 inches in diameter should be cut and patched.
9. Recoat areas not waterproofed if contaminated by dust. Mask and protect adjoining exposed finish surfaces to protect those surfaces from application of surface conditioner.
10. Delay application of membrane until surface conditioner is completely dry. Dry time will vary with weather conditions.

C. Membrane:

1. Install minimum 3/4-inch Liquid Membrane cant at footing-to-wall transitions and allow to cure prior to the application of the waterproofing materials.

2. Preflash inside and outside corners with a minimum 12-inch wide layer of the waterproofing membrane.
3. Install membrane in accordance with its manufacturer instructions.
4. Lap joints and create full tenacious bond for a continuous water barrier. Lap the membrane a minimum of 6 in. and apply a bead of liquid membrane at laps.
5. On building walls below grade, install 2 layers of membrane with staggered and offset joints.
6. Terminate the top of the membrane with an aluminum termination bar anchored to the wall with stainless steel Tapcon (or equal) screws, and stainless-steel washers. Seal termination bar with liquid membrane.
7. Finish penetrations and terminations as indicated on the approved manufacturer details and Shop Drawings.
8. Blisters, areas of non-adhesion, folds, creases and/or wrinkles in the waterproofing membrane shall be cutout and repaired with the application of an additional layer of waterproofing membrane applied over the affected area extending a minimum of 4 inches beyond the repair area. Seal perimeter edges of the repair membrane with the material manufacturer's liquid membrane.
9. Roll membrane for complete adhesion to substrate as soon as possible after installation. Cutout and remove defects, voids and openings at terminations, laps and Tee-seams.
10. Seal membrane edges continuously only after all laps and seams are been fully inspected for acceptable adhesion of the adhesive bond.
11. Seal daily terminations with troweled bead of mastic when potential for inclement weather exists. Remove termination mastic and properly clean areas of contamination prior to the application of additional waterproofing over these areas.
12. Where the waterproofing membrane is exposed to direct sunlight, the waterproofing materials must be covered and protected as soon as possible and practical to prevent the formation of blisters and delamination of the membrane especially during times of high temperatures.

D. Drainage panels: Install in accordance with the panel manufacturer's instructions and the following.

1. After the entirety of the waterproofing membrane is inspected and deficiencies repaired, cover membrane with drainage panels.
2. Start at the low point of the wall and attach the panel to the wall. Connect the panels to the foundation drain for uninterrupted water flow to the drain and the storm drain system.
3. Join adjacent panels with the lateral edge of the connecting panel placed over the flanged edge of the previous panel, or by nesting the dimples; the fabric from the adjacent panels shall overlap the preceding panel and be adhered with adhesive or duct tape.
4. Seal top or terminal edge of the drainage panel by wrapping the extra filter fabric around to the back side of the panel, to prevent soil or other foreign construction materials from intruding into or behind the panels.
5. Wrap panel fabric only (peel back and discard molded panel first) around the subsurface drain.
6. Attach drainage panel with contact adhesive or tape in accordance with the panel manufacturer's instructions.
7. Backfill as soon as possible after inspection to at least 6 inches above the top edge of the drainage panel.

E. Drainage panels: Install in accordance with the panel manufacturer's instructions.

3.4 FIELD QUALITY CONTROL

A. During the course of the installation of the waterproofing, periodic observations by the membrane manufacturer's technical representative are to be conducted of the on-going work to determine compliance with the manufacturer's requirements.

B. Manufacturer’s inspections:

1. Request the manufacturer's presence before start of this Work to verify substrate acceptability, and as required thereafter to review installation procedures and completed Work, and to issue warranties specified.
2. Promptly and satisfactorily repair unsatisfactory conditions disclosed by the manufacturer’s site visits; manufacturer shall re-inspect the areas before Work starts or resumes in affected areas.
3. Manufacturer’s representative to provide report of acceptance of installation.

C. Laps and T-seams are to be rolled and fully adhered and then inspected and probed by the by the Contractor to verify that a bonded and adhered seam exists. Unsealed or partially adhered laps and seams are to be repaired and patched. At the conclusion of the repairs, liquid membrane is then be applied over the laps and seams for a secondary seal.

D. Owner may perform periodic observations and testing of installation.

E. At the completion of the testing and inspections, the waterproofing shall be covered with the approved drainage composite board material in preparation for backfilling.

END OF SECTION

SECTION 07 13 26 **-** PRE-APPLIED AND SELF-ADHERED SHEET MEMBRANE WATERPROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section includes, but is not limited to, sheet membrane waterproofing that forms an integral bond to poured concrete for the following applications:

1. Pre-Applied sheet membrane waterproofing for horizontal applications prior to placement of poured concrete on top of the membrane, which forms and integral bond to poured concrete
2. Sheet membrane waterproofing system for post-applied applications onto vertical concrete walls
3. Prefabricated drainage and protection composite

B. Related sections include, but are not limited to, the following:

1. Section 03 10 00 - Concrete Forming.
2. Section 03 20 00 - Concrete Reinforcing.
3. Section 03 30 00 – Cast-In-Place Concrete.
4. Section 07 13 13 – Below-Grade Self-Adhered Waterproofing Membrane.
5. Section 07 26 16 – Below Grade Vapor Retarder.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Schedule Coordination: Schedule work such that membrane will not be left exposed to weather for longer than that recommended by the manufacturer.

B. Pre-installation meeting:

1. Prior to start of installation arrange a pre-installation meeting between the waterproofing manufacturer authorized representative, the Contractor, the Architect, and the installers of the waterproofing systems, to review Project conditions, the Drawings, Specifications and the waterproofing manufacturer data.
2. If more than one trade will be responsible for the successful performance of the work of this Section, these trades shall attend the meeting.
3. Review manufacturer’s Product Data and condition of substrates to receive waterproofing. Identify areas of concern and remedial measures.
4. Record meeting minutes and distribute PDF copy to all concerned, including the Architect, within 48 hours after the meeting.

1.3 PERFORMANCE REQUIREMENTS

A. Provide waterproofing that prevents the passage of water thru waterproofed surfaces.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer’s product data, installation instructions, use limitations and recommendations.

B. Shop Drawings: Indicate flashing conditions at penetrations in, corners and other points of stress, and terminations of the waterproofing membrane. Clearly detail and identify materials at termination of this system and transitions to other systems.

C. Samples: Submit representative samples of the following for approval:

1. Pre-Applied sheet membrane waterproofing
2. Sheet membrane waterproofing system
3. Prefabricated drainage and protection composite.

D. Letter of acceptance: Before proceeding with application, submit letter from the manufacturer to verify substrates as satisfactory to receive this work, and accepting the installer and an "Approved Applicator."
E. Warranty: Sample copies of warranties for system to be furnished under this Section, clearly defining terms, conditions, and time periods for the warranty.
F. Manufacturer field reports: Reports of field observations, supplemental instructions issued, and corrections made during installation.

1.5 QUALITY ASSURANCE

A. Manufacturer: Sheet membrane waterproofing system shall be manufactured and marketed by a firm with a minimum of 20 years' experience in the production and sales of sheet membrane waterproofing for below grade applications. Manufacturers proposed for use but not named in these specifications shall submit evidence of ability to meet all requirements specified and include a list of projects of similar design and complexity completed within the past 5 years.
B. Preprufe® System Installer:

1. Installers must have a minimum of 5 years successful track record in the waterproofing, roofing or another closely related industry or must employ qualified personnel with a minimum of 5 years' experience in these industries. They must have a sound and solid reputation for quality workmanship and reliability.
2. Installers must be fully familiar with the Waterproofing membrane application instructions and detailing techniques and have previously completed a minimum of five (5) projects greater than 5000 square feet.
3. Installer shall successfully complete the Waterproofing membrane manufacturer's Preprufe Training School (as evidenced by a current Waterproofing membrane manufacturer's Preprufe Contractor Training Certificate) before the job is bid.
4. Installer's crew for the job shall have at least one member with a current, personal Waterproofing membrane manufacturer's Preprufe Contractor Training Certificate on site at all times during the installation for the entire duration of the Waterproofing membrane.
5. Installer shall secure and grant the right for Waterproofing membrane manufacturer or its representatives to inspect the job site during installation and at any reasonable time after the completion of installation and prior to final concealment of the System membrane.
6. Installer shall request in writing within sixty (60) days of the date of completion and final inspection of the installation, that Waterproofing membrane manufacturer's issue the Warranty. Installer's request shall bear the Installer's signature certifying proper installation.

C. Materials: For each type of material required for the work of this section, provide primary materials which are the products of one manufacturer.
D. The Waterproofing membrane Warranty Applicator Project Checklist shall be utilized to ensure all requirements are completed.
E. Prior to Installer entering a binding contract for the installation of the Waterproofing membrane:

1. The Waterproofing membrane Project Registration Form shall be completed with Waterproofing Installer's and Building Owner's signature.
2. The Project Registration Form shall be submitted to waterproofing membrane manufacturer's Warranty Administrator.
3. The project must receive waterproofing membrane manufacturer's approval and Warranty Job Number prior to the installer bidding the Waterproofing membrane installation. Please allow at least ten (10) business days after submitting the Project Registration Form for Waterproofing membrane manufacturer to respond to the request regarding approval for project eligibility.

F. Installer shall secure and grant the right for Waterproofing membrane manufacturer or its representatives to inspect the job site during installation and at any reasonable time after the completion of installation and prior to final concealment of the System membrane.

G. Contact Waterproofing membrane manufacturer for approval of inspection firm and arrange for independent inspection of installation. Owner shall be responsible for all costs associated with inspection.

1. Successful inspection by a Waterproofing membrane manufacturer's approved inspection firm with a current Waterproofing membrane manufacturer's Inspector Training Certificate and individual field inspector(s) with a current, personal Inspector Training Certificate is required on all projects for critical stages for Pre-Applied Sheet Membrane Waterproofing installation as per Waterproofing membrane manufacturer's Preprufe Inspection Manual, including but not limited to:

    a. After substrate preparation
    b. After membrane installation
    c. After steel placement and
    d. During concrete placement
    e. Any application/operation that could compromise the integrity of the system

2. Successful inspection by a Waterproofing membrane manufacturer's approved inspection firm with a current Waterproofing membrane manufacturer's Preprufe Inspector Training Certificate and individual field inspector(s) with a current, personal Waterproofing membrane manufacturer's Preprufe Inspector Training Certificate is required on all projects for critical stages for Sheet Membrane Waterproofing installation as per Waterproofing membrane manufacturer's Preprufe Inspection Manual, including but not limited to:

    a. After substrate preparation
    b. After membrane installation
    c. After protection course placement and
    d. During backfill placement
    e. Any application/operation that could compromise the integrity of the system

H. As inspections are completed, inspector shall submit an Inspection Report to Waterproofing membrane manufacturer for each stage.

I. Once inspections are successfully completed for final System installation, inspector shall submit an Inspection Project Closeout Form to Waterproofing membrane manufacturer.

J. Installer shall request in writing within sixty (60) days of the date of System completion and final inspection of the installation, that Waterproofing membrane manufacturer's issue the Warranty. Installer's request shall bear the Installer's signature certifying proper installation.

K. Installer shall complete a Project Closeout Form and submit to Waterproofing membrane manufacturer's Specialty Building Materials Warranty Administrator with all inspection reports. Waterproofing membrane manufacturer shall provide a warranty invoice to the Installer upon receipt of a completed Project Closeout Form.

L. Installer shall receive a copy of the Warranty and submit a copy to the owner.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's instructions. Protect from damage from weather, excessive temperature, and construction operations. Remove and dispose of damaged material in accordance with applicable regulations.

1. Do not double-stack pallets of membrane on the job site. Provide cover on top and all sides, allowing for adequate ventilation.
2. Protect mastic and adhesive from moisture and potential sources of ignition.

3. Store drainage and protection composite flat and off the ground. Provide cover on top and all sides.
4. Protect surface conditioner from freezing.

B. Sequence deliveries to avoid delays but minimize on-site storage.

1.7 PROJECT CONDITIONS

A. Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials used.
B. Proceed with installation only when the substrate construction and preparation work is complete and in condition to receive Pre-Applied or Self-Adhered Sheet Membrane waterproofing

1.8 WARRANTY

A. Manufacturer's Special Warranty

1. Upon receipt of Project Closeout Form by Installer meeting Section 1.04.B.3 and upon receipt of Project Inspection Closeout Form by inspection firm meeting Section 1.04.I.1 of within 60 days of System installation completion and the Manufacturer's acceptance of work, provide written Preprufe® System Watertightness Warranty in which Manufacturer will make or cause to be made repairs necessary to correct leaks to the System due to the following causes:

   a. System deterioration as a result of ordinary wear and tear and the effects thereof; and
   b. Improper workmanship during installation by the Installer.

2. Installer has performed repairs under the terms of its warranty (if any) covering the System and/or agreement with Waterproofing membrane manufacturer's (a "Contractor Agreement") covering the System.
3. Materials listed in Section "2.01 Materials" shall be used where design and field conditions permit or as required by Manufacturer.
4. Warranty does not include cost of removal and subsequent replacement of any equipment, materials, or other items that limit access, cover, or otherwise conceal the System.
5. Warranty Period: 10 years from date of System installation completion

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pre-Applied Integrally Bonded HDPE Sheet Waterproofing Membrane: Preprufe® 300R Plus Membrane [or Preprufe 300R Plus LT Membrane for application temperatures between 25°F (-4°C) and 60°F (+16°C)] by Waterproofing membrane manufacturer, a 1.2mm (0.046 in) nominal thickness composite sheet membrane consisting of 0.8 mm (0.030 in.) of high-density polyethylene film, a pressure-sensitive adhesive and a trafficable weather resistant coating. The membrane shall be supplied in a kick-out roll orientation and shall have no release liner to reduce waste onsite. The membrane shall form an integral, adhesive and permanent bond to poured concrete to prevent water migration at the interface of the membrane and structural concrete and shall include dual adhesive ZipLap technology to complete sidelaps and secure adjacent sheets. Provide membrane with the following physical properties:
B. Or equal.

PHYSICAL PROPERTIES FOR PREPRUFE 300R PLUS (OR 300R PLUS LT) MEMBRANE:

Property	**Test Method**	**Typical Value**
Color		White
Thickness	ASTM D 3767 Method A	1.2 mm (0.046 in.) nominal
Lateral Water Migration Resistance	ASTM D 5385 Modified[1]	Pass at 71 m (231 ft) of hydrostatic head pressure
Low Temperature Flexibility	ASTM D 1970	Unaffected at -29°C (-20°F)
Elongation	ASTM D 412 Modified[2]	500%
Crack Cycling at -23°C (-9.4°F), 100 Cycles	ASTM C 836	Unaffected, Pass
Tensile Strength, film	ASTM D 412	27.6 MPa (4,000 lbs/in.^{2})
Peel Adhesion to Concrete	ASTM D 903 Modified[3]	880 N/m (5.0 lbs/in.)
Lap Adhesion	ASTM D 1876 Modified[4]	1408 N/m (8.0 lbs/in.)
Resistance to Hydrostatic Head	ASTM D 5385 Modified[5]	71 m (231 ft)
Puncture Resistance	ASTM E 154	990 N (221 lbs)
Permeance	ASTM E 96 Method B	0.6 ng/Pa x s x m^2 (0.01 perms)
Water Absorption	ASTM D 570	0.5%

Footnotes:

1. *Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the blind side waterproofing membrane. A hydrostatic head pressure of 71 m (231 ft) of water is the limit of the apparatus.*
2. *Elongation of membrane is run at a rate of 50 mm (2 in.) per minute.*
3. *Concrete is cast against the protective coating surface of the membrane and allowed to cure (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 50 mm (2 in.) per minute at room temperature.*
4. *The test is conducted 15 minutes after the lap is formed as per manufacturer's instructions and run at a rate of 50 mm (2 in.) per minute.*
5. *Hydrostatic head tests are performed by casting concrete against the membrane with a lap. Before the concrete sets a 3 mm (0.125 in.) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to a head of 71 m (231 ft) of water which is the limit of the apparatus.*

C. Preformed Inside and Outside Corners: Preprufe Preformed Corners by Waterproofing membrane manufacturer as prefabricated inside and outside corners.

D. Preformed covers for soil retention heads: Preprufe Tieback Covers by Waterproofing membrane manufacturer as prefabricated tieback head and soil anchor covers.

E. Tape for covering cut edges, roll ends, penetrations and detailing: Preprufe Tape LT (for temperatures between 25°F (-4°C) and 86°F (+30°C)) and Preprufe Tape HC (for use in Hot Climates, minimum 50°F (10°C))

F. Tape to be located at all construction joints in the concrete on top of the pre-applied sheet waterproofing membrane: Preprufe CJ Tape LT (for temperatures between 25°F (-4°C) and 86°F (30°C)) and Preprufe CJ Tape HC (for use in Hot Climates, minimum 50°F (10°C))

G. Prefabricated Drainage and Protection Composite for Vertical Applications: Hydroduct® 220 Drainage Composite by Waterproofing membrane manufacturer. Drainage Composite shall be designed to promote positive drainage while serving as a protection course.

H. Prefabricated Drainage and Protection Composite for Horizontal Applications: Hydroduct® 660 Drainage Composite by Waterproofing membrane manufacturer. Drainage Composite shall be designed to promote positive drainage while serving as a protection course.

I. Waterstops:

J. De Neef SWELLSEAL® 2010 vulcanized rubber hydrophilic waterstop by Waterproofing membrane manufacturer for non-moving concrete construction joints and penetrations.

K. De Neef SWELLSEAL WA hydrophilic gun-grade by Waterproofing membrane manufacturer for non-moving concrete construction joints and penetrations.

L. De Neef INJECTO® Tube groutable waterstop by Waterproofing membrane manufacturer for non-moving concrete construction joints and penetrations.

M. De Neef TRIOject groutable waterstop with multiple grout hose by Waterproofing membrane manufacturer for non-moving concrete construction joints and penetrations.

N. Miscellaneous Materials: Surface conditioner, mastic, liquid membrane, tape and accessories specified or acceptable to manufacturer of Pre-Applied and Self-Adhered Sheet Membrane Waterproofing.

PART 3 - EXECUTION

3.1 EXECUTION

A. The installer shall examine conditions of substrates and other conditions under which this work is to be performed and notify the Contractor, in writing, of circumstances detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected.

B. The System Warranty Pre-Job Checklist shall be completed by the waterproofing Installer to ensure that each relevant party understands how their work could impact the waterproofing installation. This checklist can be utilized to facilitate coordination with other trades and serve as a protocol to address any design or site anomalies.

3.2 SUBSTRATE PREPARATION

A. Refer to manufacturer's literature for requirements for preparation of substrates. Surfaces shall be structurally sound and free of voids, spalled areas, loose aggregate and sharp protrusions. Remove contaminants such as grease, oil and wax from exposed surfaces. Remove dust, dirt, loose stone and debris. Use repair materials and methods which are acceptable to manufacturer of sheet membrane waterproofing.

B. Substrates to receive Pre-Applied Sheet Membrane Waterproofing

1. It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 0.5 in. (12 mm).

2. Grout around all penetrations such as mechanical, electrical, plumbing, etc. to create a sound and solid substrate, and eliminate movement during the concrete pour.

3. The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates.

4. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

5. When installing over soil retention system, Hydroduct Drainage Composite or plywood may be required to provide a suitable substrate.

C. Substrates to receive Self-Adhered Sheet Membrane Waterproofing

1. Do not proceed with installation until concrete has properly cured and dried.

2. Fill form tie rod holes with concrete and finish flush with surrounding surface.

3. Repair bugholes over 13 mm (0.5 in.) in length and 6 mm (0.25 in.) deep and finish flush with surrounding surface.

4. Remove scaling to sound, unaffected concrete and repair exposed area.

5. Grind irregular construction joints to suitable flush surface.

D. Related Materials: Treat joints and install flashing as recommended by waterproofing manufacturer.

3.3 INSTALLATION

A. Strictly comply with installation instructions in manufacturer's published literature.

B. If required, install prefabricated drainage and protection composite for horizontal applications per manufacturer's requirements.

C. Application of Pre-Applied Sheet Membrane waterproofing for concrete slab

1. Place the membrane HDPE film side to the substrate with the green zip strip facing towards the concrete pour. End laps should be staggered to avoid a build-up of layers.
2. Leave the green and blue (backside) zip strips in position until the overlap procedure is completed, and the lap is to be made.
3. Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with a blue guideline. The blue zip strip on the underside of the succeeding membrane shall be positioned on top of the green zip strip on the top of the previous sheet. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap.
4. Peel back and remove both the green and blue zip strips in the overlap area to achieve an adhesive-to-adhesive bond, lining up leading edge of the top sheet with the blue guideline.
5. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.
6. Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary.
7. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap edges and roll firmly. Apply additional Preprufe Tape LT (or HC in hot climates) a minimum of 2 in. beyond all edges of membrane that are not sealed by the selvedge.
8. Immediately remove tinted plastic release liner from the Preprufe Tape.
9. Center Preprufe CJ Tape LT (or HC in hot climates) at all concrete construction joints and adhere the Preprufe CJ Tape to the top of pre-applied waterproofing membrane.
10. Immediately remove tinted plastic release liner from the Preprufe CJ Tape.
11. Protect membrane, tape and ancillaries in accordance with manufacturer's recommendations until placement of concrete. Inspect for damage just prior to placement of concrete and make repairs in accordance with manufacturer's recommendations.

D. Application of Pre-Applied Sheet Membrane waterproofing for blind side concrete wall:

1. Place the membrane HDPE film side to the substrate with the green zip strip facing towards the concrete pour. End laps should be staggered to avoid a build-up of layers.
2. Leave the green and blue zip strips in position until the overlap procedure is completed, and the lap is to be made.
3. Accurately position succeeding sheets to overlap the previous sheet 3 in. along the marked selvedge with a red guideline. The blue zip strip on the underside of the succeeding membrane shall be positioned on top of the green zip strip on the top of the previous sheet. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap.
4. Peel back and remove both the green and blue zip strips in the overlap area to achieve an adhesive-to-adhesive bond, lining up leading edge of the top sheet with the red guideline.
5. For lengths of membrane greater than 8 ft., mechanically fasten the membrane at 2 ft. (0.6 m) intervals in the self-adhesive selvedge 1/2 in. from outside edge prior to overlapping succeeding sheet. Fastener type is substrate dependent, but fastener head shall have small diameter and low-profile.
6. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.
7. Overlap all roll ends and cut edges by a minimum 3 in. and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary.
8. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap edges and roll firmly. Apply additional Preprufe Tape LT (or HC in hot climates) a minimum of 2 in. beyond all edges of membrane that are not sealed by the selvedge.
9. Immediately remove tinted plastic release liner from the Preprufe Tape.

10. Center Preprufe CJ Tape LT (or HC in hot climates) at all concrete construction joints and adhere the Preprufe CJ Tape to the top of pre-applied waterproofing membrane.
11. Immediately remove tinted plastic release liner from the Preprufe CJ Tape.
12. Protect membrane, tape and ancillaries in accordance with manufacturer's recommendations until placement of concrete. Inspect for damage just prior to placement of concrete and make repairs in accordance with manufacturer's recommendations.

E. Application of Self-Adhered Sheet Membrane Waterproofing for concrete walls

1. Apply surface conditioner at rate recommended by manufacturer. Recoat areas not waterproofed if contaminated by dust. Mask and protect adjoining exposed finish surfaces to protect those surfaces from excessive application of surface conditioner.
2. Delay application of membrane until surface conditioner is completely dry. Dry time will vary with weather conditions.
3. Install membrane in accordance with manufacturer's installation instructions and details.
4. Seal daily terminations with troweled bead of mastic.
5. Remove any masking materials after installation. Clean any stains on materials which would be exposed in the completed work.
6. Install prefabricated drainage and protection composite for vertical applications per manufacturer's requirements.

END OF SECTION

SECTION 07 26 16 – BELOW-GRADE VAPOR RETARDER

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Vapor barrier for below slab-on-grade.

B. Related Requirements:
   1. Section 03 30 00: Cast-in-Place Concrete.
   2. Section 07 13 13: Below grade self-adhered waterproofing membrane.
   ~~2.~~3. Section 07 13 26 Pre-applied and self-adhered sheet membrane waterproofing.
   ~~3. Section 07 26 17: Integrally bonded underslab vapor retarder at basement slab.~~

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for vapor barrier and accessories.

B. Samples:
   1. 12 inches by 12 inches vapor barrier samples.
   2. Pressure-Sensitive Tape: 12-inch-long sample.

C. Test Reports: Conducted by nationally recognized independent testing agency indicating conformance with specified performance requirements.

1.3 QUALITY ASSURANCE

A. ASTM tests referenced in this Section shall be performed on a single production roll per ASTM E1745 Section 8.1. Submit third party documentation certifying this requirement.

B. Pre-Installation Conference: CONTRACTOR shall coordinate and conduct pre-installation conference in accordance to Section 01 3119, Project Meetings, to review the progress of construction activities and preparations for the installation of vapor barrier.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, handle and protect in accordance with manufacturer's instructions and recommendations.

B. Deliver materials in manufacturer's packaging with labels intact.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Multi-layer plastic extrusion manufactured with high grade prime, virgin, polyolefin resins. Thickness shall be 15 mils minimum.
   1. Basis of Design: Stego Wrap by Stego Industries LLC.
   2. Perminator by W.R. Meadows.
   3. Ecoshield-E by Epro.
   4. Or equal.

B. Physical Properties:
   1. Maintain permeance of less than 0.01 Perms as tested in accordance with mandatory conditioning tests per ASTM E1745 Section 7.1 (7.1.1-7.1.5).
   2. Class Rating per ASTM E1745: Class A.
   3. Puncture resistance per ASTM D 1709: 2200 g or higher.
   4. Provide third party documentation that all testing was performed on a single production roll per ASTM E1745 Section 8.1

C. Accessories: Provide manufacturer recommended accessories for seams, penetrations and perimeter edges, including tapes, mastics, termination for a complete vapor barrier installation per ASTM E1643.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Examine subsoil and notify OAR of deficiencies detrimental to proper vapor barrier installation; do not proceed until corrected.

3.2 INSTALLATION

A. Install vapor barrier in accordance ASTM E1643 and manufacturer’s instructions.
   1. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement and face laps away from the expected direction of the placement whenever possible.
   2. Extend vapor barrier to the perimeter of the slab. If practicable, terminate it at the top of the slab, otherwise, where obstructed by impediments, such as dowels, waterstops, or any other site condition requiring early termination of the vapor barrier. At the point of termination, seal vapor barrier to the foundation wall, grade beam or slab itself using manufacturer ASTM E1643 compliant accessory designed to adhere to concrete. Seam tape shall not be used for sealing the vapor barrier to the foundation wall, grade beam or slab.
   3. Overlap joints 6 inches and seal with manufacturer’s seam tape.
   4. Seal vapor barrier penetrations per manufacturer’s instructions.
   5. Avoid the use of non-permanent stakes driven through the vapor barrier.

B. Prior to concrete placement inspect vapor barrier for damage. Clean damaged areas and with vapor barrier material cut a minimum 6 inches larger than damaged area on all sides. Seal to main vapor barrier with continuous seam tape.

3.3 CLEAN UP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

3.4 PROTECTION

A. Protect the Work of this section until Substantial Completion.

END OF SECTION

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Gypsum board.
2. Fasteners, joint reinforcing and finishing compound.

B. Related requirements:

1. Division 06 Rough Carpentry and 09 for metal framing supporting gypsum board (except for framing specified herein).
2. Division 08 for access panels in gypsum board surfaces.
3. Section 09 21 16 for Shaftwall construction.

1.2 SUBMITTALS

A. Data: Manufacturer Product Data for all materials to be used in gypsum board construction. Shop Drawings: Show proposed locations of control joints.

1. Joint locations are subject to the Architect’s approval and shall be relocated, when requested, at no cost to the Owner.

B. Samples: Three 24-inch square Samples with the specified Level of Finish specified for Architect’s approval. Approved sample will become Architect’s control sample.

1.3 QUALITY ASSURANCE

A. Requirements of regulatory agencies:

1. Comply with fire resistance ratings indicated and required by Code.
2. Provide materials, accessories and application procedures listed by UL or tested in compliance with ASTM E 119 for the type of construction shown.

B. Mockup:

1. Where directed, construct a mockup of a gypsum board wall and ceiling inside the building. Make mockup full height (minimum 8 feet high by 8 feet wide) with a 4-foot return.
2. Tape and finish joints, trim and screw heads as specified for Level 5 herein. Refer to Section 09 90 00 for painting of the mockup with a semi-gloss paint.
3. The Architect will review the mockup under various light conditions for defects and improperly finished joints, trim and screw heads. Provide a portable light for that purpose when so requested.
4. Make corrections requested by the Architect or remove and replace mockup when the corrective work is not acceptable to the Architect.
5. The approved mockup shall remain in the building until its removal is directed, and will be used as a standard for the gypsum board work for the Project.

1.4 HANDLING

A. Procedure: In accordance with GA 801 "Handling and Storage of Gypsum Panel Products."

B. Storage: Do not overload the floors with localized concentration of gypsum board.

1.5 JOB CONDITIONS

A. Comply with the gypsum board manufacturer's recommendations and GA “Application and Finishing of Gypsum Board” for temperature limitations and ventilation before, during and after installation of gypsum board.
B. Protect installed materials from drafts during hot, dry weather.
C. Illuminate work areas during installation to provide the same or greater level of illumination required to properly perform the work and as will occur in the room or space after the building is in operation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. CertainTeed Gypsum.
B. Continental Building Products LLC.
C. G-P Gypsum Products.
D. National Gypsum Co./Goldbond Building Products Division.
E. PABCO Gypsum.
F. US Gypsum Co.
G. Or equal.

2.2 GYPSUM BOARD

A. General:

1. Provide boards complying with ASTM C 1396 as follows and in maximum lengths available to minimize end butt joints.
2. Unless otherwise acceptable to the City Engineer, no end-to-end butt joints are allowed on walls or ceilings less than 12-foot in length or width.

B. Interior Gypsum Wallboard: ASTM C1396/C1396M.

1. Thickness: 5/8-inch.
2. Long Edges: Tapered.

C. Interior Gypsum Board, Type X: ASTM C1396/C1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

D. Interior Gypsum Ceiling Board: ASTM C1396/C1396M.

1. Thickness: 1/2 inch.
2. Long Edges: Tapered.

E. Interior Abuse-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.

1. Core: 5/8 inch, Type X.
2. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 2 requirements.
3. Indentation: ASTM C1629/C1629M, meets or exceeds Level 2 requirements.
4. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.

5. Hard-Body Impact Resistance: ASTM C1629, meets or exceeds Level 3.
6. Long Edges: Tapered.
7. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
8. Equal to US Gypsum Co. Fiberock VHI.

F. Interior Gypsum Shaft Liner Panel:

1. UL Type Designation: "SLX."
2. ASTM E136 Noncombustibility: Meets.
3. ASTM E84 Surface-Burning Characteristics:

    a. Flame Spread: 20.
    b. Smoke Developed: 0.
    c. Class A (Flame spread not greater than 25 and smoke developed not greater than 450): Meets.
4. ASTM C473, Standard Test Methods for Physical Testing of Gypsum Panel Products.

    a. Core Hardness:

        1) Field Not less than 11 lbf (49 N): Meets.
        2) End Not less than 11 lbf (49 N): Meets.
        3) Edge Not less than 11 lbf (49 N): Meets.

    b. Flexural Strength:

        1) Parallel Not less than 77 lbf (343 N): Meets.
        2) Perpendicular Not less than 228 lbf (1014 N): Meets.

    c. Nail Pull Resistance (Not required): Meets.
    d. Humidified Deflection (Not required): Meets.
    e. Average Water Absorption (Not greater than 5% by weight after two-hour immersion): Meets.
5. ASTM D3273, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber: Meets ASTM C1396 specifications
6. Edge: Double-beveled.
7. Equal to USG Sheetrock Brand Mold Tough® Gypsum Shaft Liner Panels.

G. Tile Backing Board:

1. Glass-Mat, Water-Resistant Backing Board: ASTM C1178/C1178M, with manufacturer's standard edges.

    a. Core: 5/8 inch, Type X.
    b. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

H. In unlined air shafts and plenums: Gypsum Liner Panels, or equal.

2.3 ACCESSORIES

A. Screws: The following sized in compliance with the gypsum board manufacturer's instructions and Code requirements.

1. ASTM C 954 for fastening to supporting studs and furring.
2. ASTM C 1002, Type G for gypsum board-to-gypsum board.

B. Metal trim: Galvanized steel of the types specified hereafter complying with ASTM C 1047.

1. LC-Bead: J-shaped; exposed long flange to receive joint compound; use at exposed panel edges.
2. CB corner bead: Square corner bead.
3. L-Bead: L-shaped; exposed long leg to receive joint compound; use where indicated.
4. U-Bead: J-shaped; exposed short flange not to receive joint compound; use at exposed panel edges.
5. Control joint: USG No. 093, Goldbond Building Products E-Z Strip or Trim-Tex 093V.

C. Resilient channels: RC-1/FC-1 by Dale Industries, or equal, fabricated from steel sheet complying with ASTM A 924 or ASTM A 568.
D. Zee furring members: Manufacturer's standard Z-shaped furring members with slotted or non-slotted web, fabricated from steel sheet complying with ASTM A 924 or ASTM A 568; with a minimum base metal (uncoated) thickness of 0.0179-inch, face flange of 1-1/4-inch, wall-attachment flange of 7/8-inch, and of depth required to fit insulation thickness indicated.
E. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate
F. Column and beam clips: “Claw” by Claw International, or equal.
G. Joint treatment for paperless assemblies: 2-inch wide fiberglass mesh tape and ToughRock 90 Setting Type joint compound, or equal.
H. Joint tape, compound and laminating adhesive: ASTM C 475, low or very low shrinkage, type recommended by the manufacturer, by Hamilton Materials, basis of design, USG or one of the gypsum board manufacturers named above.

1. Taping, and fastener and metal trim concealment: Sheetrock Brand Taping Joint Compound, Ready-Mixed by USG.
2. Topping, finish and skim coats: Sheetrock Brand Topping Joint Compound, Ready-Mixed by USG.
3. Joint tape complying with ASTM C475: Sheetrock Joint Tape – Heavy by USG.

I. Sound deadening membrane in sound-rated walls: dB-Bloc by NetWell Noise Control or equal.

1. Membrane Size: 0.125-inches by 54-inches by 30-feet rolls.

~~I.~~J. Spatter coats (orange peel): USG “Sheetrock Brand Wall and Ceiling Texture,” Beadex FasTex Ready Mix Texture,” or equal by one of the gypsum board manufacturers named above.
~~J.~~K. Sealants:

1. Rated sealants: As specified in Section 07 84 00.
2. Acoustic sealants: As specified in Section 09 80 00.
3. Remainder of sealant: As specified in Section 07 92 00.

PART 3 - EXECUTION

3.1 EXAMINATION/PREPARATION

A. Examine conditions affecting the work of this Section at site.
B. Verify framing members’ straightness and alignment.
C. Correct detrimental conditions before proceeding with installation.
D. Before enclosing stud walls and spaces that will be inaccessible after gypsum board is installed, thoroughly clean floor tracks and spaces of debris and dust.

3.2 RESILIENT FURRING CHANNELS

A. General:

1. Splice channels directly over studs and attach through flange to studs.

2. Space channels as indicated on the Drawings.
3. Drive screws through channel attachment flange and studs at each intersection.

B. Walls: Install channels, with mounting flange down, at right angle to studs, starting within 2 inches of floor and 6 inches from ceiling.
C. Ceilings:

1. Install channels perpendicular to the joists and space at 16 inches o.c. maximum, unless otherwise indicated.
2. Start perimeter channels no more than 2 inches from the intersection of ceiling-to-wall.

3.3 GYPSUM BOARD INSTALLATION - GENERAL

A. Comply with the applicable provisions of the reference's standards and the following.
B. Use only full-size boards above door and window openings; joints at corners of heads are not acceptable.
C. Minimize butt joints and avoid butt joints centered on walls, over protruding studs, and above doors and windows. Avoid abutting end joints in the central area of each ceiling.
D. Install all panels, including those in non-rated applications, with joints in moderate contact.
E. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back blocking is provided behind end joints.
F. Position adjoining panels so that tapered edges abut tapered edges, and field-cut edges abut field-cut edges and ends.

1. Do not place tapered against cut edges or ends.
2. Where square (non-tapered) joints abut on ceilings, use Trim-Tex "Buttboard" behind the joint in accordance with Trim-Tex recommendations.

G. Stagger vertical joints over different studs on opposite sides of partitions.
H. Attach gypsum panels to steel studs so that the leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
I. Attach gypsum panels to framing provided at openings and cutouts.
J. Provide perimeter relief where board abuts structural decks, ceilings, vertical structural elements, or glazed assembly.
K. Install horizontal boards first. Butt joints between boards loosely. Do not force boards into place. Place tapered or wrapped edges next to one another.
L. Attach boards to all studs and furring members with power-driven screws securely engaging supporting member, and with fastener heads uniformly depressed not over 1/32-inch below surface of board (except for first layer of multiple layer assembly) without breaking face paper.
M. After boards have been installed over screws and backing plates, tap boards with a rubber mallet to depress backside of board over heads to eliminate unacceptable bulges.

3.4 SINGLE LAYER APPLICATION

A. Horizontal surfaces:

1. Install board with long dimension at right angle to supports, with end joints located over supports.
2. Use maximum practical length boards to minimize end joints. Stagger end joints in alternate boards.

B. Vertical surfaces: Unless otherwise acceptable to the Architect, install board vertically. Use floor-to-ceiling length boards (unless height exceeds 12-foot) with vertical joints located over supports.

1. At high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.

2. Offset joints at least one stud on opposite sides of partition/walls.
3. Extend gypsum board continuously from finish floor to underside of structure above, except where indicated otherwise on the Drawings.

C. Within 8 feet of floor at high traffic areas, classrooms, hallways and lobbies: Install abuse-resistant board.

3.5 MULTIPLE LAYER APPLICATION

A. On vertical surfaces:

1. Install board vertically using floor-to-ceiling length boards (unless height exceeds 12 feet) with vertical joints located over studs.
2. Offset joints at least one stud spacing on opposite sides of partitions and between subsequent layers of gypsum board.
3. Fasten all layers of gypsum board to metal framing with screws.
4. Sound deadening membrane in sound-rated walls: Sandwich between double-layer of gypsum baoard as detailed and in accordance with manufacturer's written recommendations.

3.6 ALLOWABLE TOLERANCES

A. Do not exceed 3/16-inch in 8 feet, and 1/8-inch in 4 feet from plumb, level and flat (all directions) in gypsum board surfaces.
B. Do not exceed 1/16-inch offset at joints between boards.
C. Shim boards as necessary to comply with these tolerances.

3.7 SEALANTS

A. See specific Section for each type of sealant.

3.8 FINISHING

A. Finish gypsum board surfaces with exposed joints, corners and edges reinforced or trimmed in compliance with GA-216, the following and to match approved mockup where applicable.
B. General:

1. Fill joints, fastener heads, trim accessory flanges and surface defects with joint compound in compliance with the gypsum board manufacturer's recommendations to obtain a smooth, flush surface.
2. All joints, fastener heads and trim flanges in surfaces which will remain exposed to view in the building, shall be invisible after application of joint tape and compound.
3. Fill and finish gypsum board-clad columns with a straightedge from corner bead to corner bead to eliminate concave surfaces between beads.

C. Trim: Install in single unjointed length, unless length exceeds manufacturer's standard. Attach to gypsum board in compliance with their manufacturer's instructions.

1. Install Type CB trim at external corners.
2. Install Type LC or JB trim where gypsum board edges are exposed in the finish work.
3. Install Type CB or LC or JB trim where gypsum board abuts a different material, and the edges are not covered by a finish material.
4. Install control joints at no more than 30 feet o.c. in any direction (full height door frames count as control joints). Joint locations are subject to the Architect's approval. When

"through wall" control joints are required in fire-rated assemblies, comply with WH International, Inc. Report WHI 651-0318.1.

D. Joints: Reinforce joints between gypsum boards, and interior corners and angles with tape set in joint compound.

1. Apply skim coat over tape in one application.
2. Where space greater than 1/16-inch occurs between abutting gypsum boards (except at control joints and for concealed layers of multiple layer assemblies), pre-fill joints with joint compound and allow to dry before applying joint tape.
3. All joints and interior angles shall have tape embedded in joint compound and 2 separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles.

E. Joint compound:

1. Lap each coat not less than 4 inches over the preceding coat (2 inches on each edge). Width of joint compound on tapered board edges shall be not less than 12 inches; width of joint compound on square board edges not less than 18-inch.
2. Cover fastener heads and accessories with 3 separate coats of joint compound.
3. Allow at least 24 hours drying time between applications of joint compound.
4. Finish joint compound so that little or no sanding is required. When sanding, use sandpaper or mesh cloth with grit as fine as possible; do not scuff face paper. Remove sanding dust before painting or applying other finishes.

F. Finishing levels:

1. Level 0: Use for first layer of multiple layer construction and gypsum board ledge guards in elevator shaft.
2. Level 1: Use in plenum areas above ceilings, interior faces of shafts, in attics, and in areas where the assembly will generally be concealed.
3. Level 2: Use where gypsum tile backer board is used as a substrate for tile, in storage and similar areas where surface appearance is not of primary concern.
4. Level 3: Use in areas to receive heavy or medium texture (spray or hand-applied) finishes before final painting, or where heavy grade wall coverings are to be applied as the final decoration.
5. Level 4: Use for all other areas to be painted and where light texture or backed lightweight wall covering will be applied.
6. Light orange peel wall and ceiling coat: Spray-apply in long, even strokes as uniformly as possible avoiding lap marks, and to achieve spatter sizes and density to match approved mockup.
7. Level 5 – skim coat (spray and roller-applied finish is not acceptable):

    a. Use for all other areas to be painted. Finish, including joints and fasteners as follows to match approved mockup.
    b. Apply a thin skim coat of joint compound to the entire surface to result in a smooth surface free of tool marks and ridges. Use setting-type, sandable topping compound or drying-type; do not use all-purpose compound consisting of high-build interior coating product designed for application by airless sprayer.

G. Leave gypsum board surfaces smooth, undamaged and ready to receive scheduled finishes.

END OF SECTION

SECTION 09 68 13 - CARPET TILE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Carpet tile (CP-1, CP-2, and CP-3).
2. Adhesive.
3. Accessories.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation conference:

1. Prior to start of installation, arrange a pre-installation meeting between the carpet installer, Contractor, Architect and electrical trade responsible for wire access, where applicable.
2. Mark chalk lines on the slab, showing pattern alignment for placement and pattern layout. Spray lacquer on chalk lines, after Architect has approved the locations.
3. Review the suitability of the subfloor to receive carpet. Verify flatness and levelness, pH and latent water content of slabs.
4. Identify areas of concern and remedial measures.
5. Photograph areas of concerns before and after remedial measures are taken.
6. Record meeting minutes and distribute PDF copy to all concerned, including the Architect, within 48 hours of the meeting.

1.3 SUBMITTALS

A. Data:

1. Manufacturer Product Data for carpet, adhesive and accessories.
2. Manufacturer=s recommended cleaning and maintenance instructions for carpet.

B. Samples:

1. Full size Samples of each type and color/pattern of carpet tile.
2. Twelve-inch long Samples of carpet edge guard profile.

C. Layout drawings: Three-eight-inch minimum layout drawings showing tile layout, pattern direction, if any, and pile direction.

D. Tests results:

1. Evidence that the carpet, accessories and adhesives to be used comply with Code requirements for combustibility, flammability and toxicity.
2. Results of test conducted on concrete (refer to Part 3 below) slabs prior to start of installation.

E. Manufacturer warranties: Published warranties as specified below.

1.4 QUALITY ASSURANCE

A. Installer qualifications: FCIB or IFCI certified carpet installers, unless otherwise acceptable to the Architect.

1.5 HANDLING

A. Procedure: In accordance with CRI 104 Section 5. Store carpet indoors in a protected location.
B. Delivery: Deliver carpet with manufacturer registry number attached and intact.
C. Storage: Sore carpet in bins to prevent pile crush. Temporary storage shall be in flat bins with a maximum height not to exceed 3 rolls.
D. Handling:

1. Transport carpet on flat dollies equipped with carpet cradles. Equip fork lifts with booms.
2. Bending or folding of individual carpet rolls is not recommended, however, if it is absolutely necessary for delivery purposes, under no circumstances shall carpet be left bent or folded for longer than 4 hours.

E. Conditioning:

1. Condition carpet and adhesive on site in a heated, dry space at a minimum temperature of 65-degree and a relative humidity between 10 percent and 65 percent for at least 48 hours before installation.
2. Maintain these conditions night and day during installation and for at least 72 hours after completion.

1.6 JOB CONDITIONS

A. Temperature: Maintain a uniform temperature, in the space being carpeted, in the range of 65 to 75 degrees F during and after carpet installation.
B. Lighting: Illuminate work areas during installation to provide the same or greater level of illumination required to properly perform the work and as will occur in the room or space after the building is in operation.
C. Ventilation:

1. Maintain fresh air ventilation in installation spaces in accordance with current guidelines of ASHRAE standard 62 published by American Society of Heating, Refrigerating and Air Conditioning Engineers.
2. During installation, maintain fresh air ventilation by utilizing exhaust fans, and by operating the ventilation system at full capacity. Exhaust air to the outside and avoid recirculation of air.
3. After installation, maintain fresh air ventilation for 48-72 hours at normal room temperatures by operating ventilation or exhaust fan system at full capacity. Open doors and windows, if possible to dissipate, and eliminate lingering odors from the installation.

1.7 WARRANTIES

A. Carpet manufacturer shall warrant the carpet as follows:

1. The life of the carpet shall be 15 years under normal conditions.
2. Primary and secondary backing shall not delaminate for the life of the carpet.
3. Twenty-pound tuft-bind, wet and dry, shall be warranted for the life of carpet.
4. Stain resistant properties shall be permanent and inherent in the fiber. Topically applied stain resistant treatments are not acceptable. Stain resistant properties shall not be removed by commercial cleanings and abrasive wear.
5. Carpet shall be warranted to be impervious to water damage.
6. There shall be no more than 10 percent face yarn loss for the life of the carpet.

1.8 MAINTENANCE

A. Furnish the following full-size units equal to 2 percent of amount installed for each type indicated, but not less than 2 full boxes.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. ADA requirements for new carpet:

1. Provide glue-down installation that complies with CBC Section 11B-302..
2. Carpet shall have a level loop, textured loop, or level-cut/uncut pile texture and maximum pile height of ½-inch per CBC Section 11B-302.
3. Carpet edges shall comply with CBC Section 11B-303.

B. Environmental Impact Standards for the Carpet and Rug Institute's Indoor Air Quality testing program:

1. Less than 0.05 mg/square meter/per hour of formaldehyde.
2. Less than 0.3 mg/square meter/hour of total volatile organics compounds (TVOC).
3. Less than 0.4 mg/square meter/hour of styrene.
4. Less than 0.05 mg/square meter/hour of 4-PC.
5. Conduct test over 24-hour time period.

C. State of Washington Protocol for Indoor Air Quality testing.

1. Provide Class I products as determined by testing identical products for critical radiant flux classification in accordance with ASTM E 648.
2. Testing shall be conducted by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

D. NBS smoke chamber test: Less than 450.
E. Static propensity:

1. 3 KV or less as tested in accordance with AATCC-134 (70-degree F at 20 percent R.H.).
2. Carpet shall retain its static control for the useful life of the installation.

F. Radiant panel (ASTM E 648): Class I.

2.2 CARPET TILE

A. Make: Basis of design: Tarkett, Marled Tweed See Finish Schedule on drawings for color.
B. Or equal.

2.3 CARPET ACCESSORIES AND INSTALLATION MATERIALS

A. Carpet edge guard: Rubber or vinyl extrusion by Mercer Plastics Co. or Johnson Rubber Co., designed specifically as carpet edge guard. The Architect will select Color(s).
B. Seaming tape: Roberts Industries No. 50-330 Supertape, or Orcon CT-3 Super Tape.
C. Adhesives:
D. Edge sealer: USG Durabond Carpet Square Adhesive D2, WW Henry Peach Glue, 3M Blue Glue, or equal adhesive formulated for heavy commercial approved by the carpet manufacturer.

E. Floor leveling material:

1. Provide a minimum of one 10 lbs. bag of Portland cement-based floor prep material for every 100 square yard of carpet to be installed.
2. Do not use gypsum-based materials.

F. Other miscellaneous materials: As recommended by the carpet manufacturer for the conditions of installation and use.

PART 3 - EXECUTION

3.1 EXAMINATION/PREPARATION

A. Comply with the applicable specifications and recommendations of the Carpet and Rug Institute (CRI), Standard for Installation of Textile Floor covering Materials CRI 104, except as noted.
B. Vacuum substrate immediately prior to carpeting and remove deleterious substances, which would interfere with the installation or be harmful to this work.
C. Prepare concrete surfaces in accordance with CRI 104 Section 6.1.1 and 6.2.

Check floors for moisture content. Be sure that they are sufficiently dry to receive carpet by testing for moisture emission rate per ASTM F 1869 relative humidity per ASTM F 2170 and alkalinity-pH in accordance with ASTM F 710. Allow sufficient time in the construction schedule to allow slabs to dry sufficiently, force dry slabs, or provide a compatible surface coating so that water vapor emission will be at a level acceptable to the floor-covering manufacturer. Do not install carpet in areas above the following limits or exceed the limit published by the manufacturer:

1. Moisture emission rates above 3.0 lbs.
2. Relative Humidity rates above 75%RH.
3. Digital Alkalinity-pH readings above 9.0 pH.
4. Notify Architect of excessive results in writing. Installation deems acceptance of on-site conditions.

D. Test the alkalinity level of the concrete using a Litmus test. If the pH is above a level unacceptable to the adhesive manufacturer, treat the surface so that the floor PH is within acceptable levels.
E. Remove dirt, oil, grease, or other foreign matter from surfaces to be carpeted and/or to receive floor filler.
F. Use a floor filler, recommended by the carpet manufacturer, to fill-in cracks, holes and other indentation marks; grind down bumps to flat surface. Floor under carpet shall not exceed an Ff of 25.
G. Correct other detrimental conditions before starting installation.

3.2 INSTALLATION

A. General:

1. Comply with the carpet manufacturer's instructions and recommendations, except as modified herein.
2. Align carpet with centerline of room or space, and adjust at edges for wall variations.
3. Dry lay carpet in one room before going further to verify side match, dye sequence, pattern and defects. Obtain Architect’s approval of dry lay before installing the remainder of carpet tile.

4. Install carpet edge guard, where edge of carpet is exposed to traffic, in single length without joints except at changes in direction. Cut for a tight fit against abutting surfaces. Center under doors when applicable.
5. Extend carpet at the following locations:

    a. Under open-bottomed and raised bottomed obstructions, and under removable flanges of obstructions.
    b. Into closets and alcoves of spaces scheduled to be carpeted, unless another floor finish is indicated for such space.
    c. Under movable furniture and equipment.

6. Install carpet in one direction in each room and do not reverse direction at any locations.
7. Carpet shall have full adhesion to subfloor without loose edges.

B. Carpet tile installation:

1. Install in accordance with CRI 104 Section 14 and the following.
2. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignment. Cut tiles to obtain clean, sharp edges.
3. Install tile by the stair step method in full bed of adhesive, with tight joints and perimeter units not less than 1/2 tile wide. Adjust to minimize cutting.
4. Install tiles so that the arrows on the back point in the same direction.
5. Fit tiles snugly to prevent gaps, but do not force into place so as to cause buckles. Align tiles to avoid trapping pile yarns in the joint.
6. Roll completed installation with a 35 to 75 lb. linoleum roller in both directions to ensure uniform bond everywhere.
7. Installation tolerance: Comply with appropriate Sections of CRI 104.

3.3 CLEANING/PROTECTING

A. Remove debris from installation, carefully sorting pieces to be saved from scraps to be disposed of.
B. Vacuum carpet with a commercial machine, with a rotating agitator or beater in the nozzle. Remove soiled spots.
C. Close areas to traffic during installation. Cover carpet in traffic areas with protective non-staining building paper. Do not use plastic sheeting.
D. Prior to acceptance of the Work, replace damaged and stained carpet with new carpet.

END OF SECTION

SECTION 10 11 00 – VISUAL DISPLAY SURFACES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes framed porcelain enameled stationary marker boards.
B. Tackboards with trim.
C. Provide Display Surface with music staff at music and piano lab's.

1.2 SUBMITTALS

A. Data: Manufacturer Product Data for boards, including cleaning recommendations for the surface.
B. Shop drawings: Include sections of trim members and dimensioned elevations. Show anchors, grounds, reinforcement, accessories, layout, joints, and installation details.
C. Samples:

1. Porcelain enamel Samples, not less than 6-inch square, laminated to the actual core and backing assembly.
2. Twelve-inch length of each linear item including edge trim, map rail and tray..
3. Full-size sample of each accessory.

D. Warranty: Copy of manufacturer's warranty.
E. Closeout: Facing maintenance instructions, recommended cleaning material, and cleaning and stain removal methods.

1.3 QUALITY ASSURANCE

A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E84, or another standard acceptable to authorities having jurisdiction, by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 450 or less.

1.4 HANDLING

A. Store units vertically, with packing material between each layer.
B. Cover units from damage and dust accumulation.

1.5 PROJECT CONDITIONS

A. Take field measurements prior to preparation of Shop Drawings and fabrication to ensure proper fitting.
B. Show recorded measurements on final Shop Drawings.

1.6 WARRANTY

A. Furnish the Owner the manufacturer's warranty, agreeing to replace marker boards that do not retain their original writing and erasing qualities, become slick and shiny, or exhibit crazing,

cracking, or flaking, provided the manufacturer's instructions with regard to handling, installation, protection, and maintenance have been followed.

1. Warranty period: 50 years.

PART 2 - PRODUCTS

2.1 MARKER BOARD

A. Manufacturer/model:

1. Fixed aluminum-framed Series 8 by Claridge Products and Equipment, Inc., basis of design.
2. NTS Series by Platinum Visual Systems.
3. Alliancewall Corp.
4. Best-Rite Manufacturing.
5. Weber Costello Co.
6. Or equal.

B. Construction: Balanced, high-pressure laminated porcelain enamel boards of 3-ply construction consisting of face sheet with cover coat, core material, and backing sheet.

C. Materials

1. Face sheet: 24-gage enameling grade steel, conforming to ASTM A 424, specially processed for temperatures used in coating porcelain on steel. Coat the exposed face and exposed edges with a 3-coat process consisting of primer, ground coat, and color cover coat, and the concealed face with a 2-coat process consisting of primer and ground coat. Fuse cover and ground coats to steel.
2. Cover coat: Manufacturer standard light-colored special writing surface with gloss finish designed for use with liquid felt-tipped markers.
3. Core, one of the following:

    a. Manufacturer standard 1/2-inch thick particle-board core material conforming to the requirements of ANSI A208.1, Grade 1-M-1.
    b. Not less than 3/8-inch thick, kraft paper honeycomb core; designed to be rigid and to resist warpage, and with aluminum trim designed to engage hanger clips.

4. Backing sheet: Manufacturer standard 26-gage galvanized steel sheet backing.
5. Laminating adhesive: Manufacturer standard moisture-resistant thermoplastic-type adhesive.
6. Extruded aluminum: ASTM B 221, Alloy 6063.

D. Accessories:

1. Trim: Clear anodized extruded aluminum alloy fitted to hairline, flush joints.
2. Tray: Clear anodized extruded aluminum with 3/4-inch radius corners.
3. Map rail: Include the following.

    a. Roller brackets (one pair per markerboard).
    b. End stops (one pair per display rail).

E. Attachment devices:

1. Zinc-plated adjustable slotted wall brackets and attachment screws.

2. Wall adhesive, type recommended by the markerboard manufacturer.

2.2 TACKBOARD

A. Forbo.~~To be determined~~. See Drawings for color.
~~A.~~B. Or equal.

2.3 FABRICATION

A. Whiter Laminate porcelain-enamel face sheet and backing sheet to core material under heat and pressure.
B. Fabricate units straight and of single lengths, keeping joints to a minimum. Miter corners to flush, hairline closure.
C. Finish aluminum with a Class II, Clear Anodic Finish, AA-M12C22A31 matching approved Samples.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions and measurements affecting the work of this Section at site.
B. Correct detrimental conditions before proceeding with installation.

3.2 INSTALLATION

A. Marker Board:

1. Deliver factory-built boards completely assembled in one piece without joints, wherever possible.

a. Where dimensions exceed available panel size, provide 2 or more pieces of equal length as acceptable to the Architect.
b. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site. Use splines at joints to maintain surface alignment.

2. Install boards in compliance with their manufacturer's instructions, and the Drawings.
3. Set securely, plumb, level and square with flush, hairline joints.
4. Locate accessories on each board as required and indicated.
5. Touchup minor damage, when the results are acceptable to the Architect, or replace damaged parts.

B. Tackboard:

1. As detailed on Drawings~~To be determined~~.

3.3 ADJUSTING AND CLEANING

A. Verify that all accessories are installed as required for each unit.
B. Upon completion of installation, clean surfaces and trim in accordance with manufacturer’s recommendations, leaving all materials ready for use.

END OF SECTION

SECTION 10 14 00 - SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Exterior signs: Building-mounted flat cut aluminum~~cast steel~~ letters.
B. Interior Signs:

1. Room and door signs.
2. Building identification signs.
3. Code-compliance signs at exits, stairs and toilet rooms.
4. Exit signs, unlighted.

1.02 SUBMITTALS

A. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
B. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
C. Samples: Submit two samples of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment. ~~Include the letters "B' and "H" in cast steel letters with paint.~~
D. Dimensional Characters: Full-size Sample of each type and size of dimensional character.

~~D.~~1. Provide three sample of a typical letter used in flat cut aluminum letters of the largest size. One Sample for the Architect, one for the Contractor and one for the fabricator.

E. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
F. Verification Samples: Submit samples showing colors specified.
G. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
B. Uniformity: For each sign form and graphic image process indicated furnish products of a single manufacturer.
C. Coordination: Before starting Shop Drawings, notify the Architect and arrange a meeting with the Owner's designated personnel to review in detail the work of this Section. Review and coordinate layouts for each sign, and obtain Architect's approval prior to manufacture.
D. All tactile room identification and exit signs shall include Grade 2 Braille translation with the tactile portion of the sign following the requirements of ADA.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Package signs as required to prevent damage before installation.
B. Package room and door signs in sequential order of installation, labeled by floor or building.
C. Store tape adhesive at normal room temperature.

1.05 FIELD CONDITIONS

A. Verify type of supporting construction; provide suitable attachments.
B. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
C. Maintain this minimum temperature during and after installation of signs.
D. Adhesive as the sole means of installation is only allowed where sign is to be on glazing.

PART 2 - PRODUCTS

2.01 DESIGN REQUIREMENTS

A. Signage shall conform to the CBC and specifically to the following CBC chapters:

1. Chapter 11B-201.1 for design and construction, 11B-603 and 11B-604.8 for passageways.
2. Chapter 11B-216.6 for scoping for signs where accessible routes diverge from the regular circulation path
3. Chapter 11B-703 for non-accessible existing entrances and general standards.
4. Chapter 11B-703.3 for braille requirements.
5. Chapter 11B-703.5.1, 6.2 and 7.3 for finish and contrast.
6. Chapter 11B-703.2.4 and 2.6 for proportions.
7. Chapter 11B-307.3 for pole-mounted objects, edges and corners.

B. Characters:

1. Comply with CBC 11B-703.5 for visual characters.
2. Character Type: Characters on signs shall be raised 1/32 inch minimum and shall be sans serif uppercase characters accompanied by contracted Grade 2 Braille (see Note 5 below).
3. Character Size: Raised characters shall be a minimum of 5/8 inch and a maximum of 2 inch high.
4. Finish and Contrast: Contrast between characters, symbols and their background must be 70% minimum and have a non-glare finish.
5. Proportions: Characters on signs shall have a width-to-height ratio of between 3:5 and 1:1 and a stroke width-to-height ratio of between 1:5 and 1:10.
6. Letters measured must be uppercase. After choosing a typestyle to test, begin by printing the letters I, X, and O at 1 inch height. Place the template's 1:1 square over the X or O, whichever is narrower. If the character is not wider that 1 inch, nor narrower than the 3:5 rectangle, the proportions are correct. Use the 1:5 rectangle to determine if the stroke of the I is too broad, and the 1:10 rectangle to see if it is to narrow. If all the tests are passed, the typestyle is complaint with proportion code.

C. Braille Symbols:

1. Comply with CBC Section 11B-703.3.
2. Contracted Grade 2 Braille shall be used whenever Braille is required in other portions of these standards. Dots shall be spaced 1/10 inch on center in each cell, with 2/10 inch space between cells, measured from the second column of dots in the first cell to the first column of dots in the second cell. Dots shall be raised a minimum of 1/40 inch above background
3. Provide rounded or domed Contracted Grade 2 Braille dots, each distinct and separate. Dots with straight sides and flat tops are not acceptable.

D. Type Imagery:

1. Type style: Sans Serif upper case.

a. Letter Size: See signage drawings.
b. Number Size: See signage drawings.
c. Raised Letters: Letters shall be raised a minimum of 1/32 inch above background.
d. Other Sizes: As specifically indicated.

2. Arrangement: Use standard spacing between letters, words, numbers and lines; center text.
3. Symbol Style: Recognized standard International Symbols of Accessibility, such as those developed by the American Institute of Graphics, for the U. S. Department of Transportation.

a. Accessible Restrooms shall include a 6 inch high wheelchair logo. Logo shall be raised a minimum of 1/32 inch above the background.
b. On visual signs, characters and symbols shall be sized according – to view distance. Signs mounted 80 inch or more AFF shall have minimum 3 inch high characters.
c. Pictographs and ISA's (International Symbol of Accessibility) on interior signs at eye level, shall be minimum 3 inch high or twice as high as the height of text on the sign; whichever is greater. On signs where bottom is 72 inch or more AFF, minimum height shall be 6 inch or twice as high as the largest text on the signs; whichever is greater.

4. Colors:

a. Background Colors: As selected by the Architect from manufacturer's standard color range (12 colors maximum); one color maximum, typically.
b. Type Imagery: White or black, as selected by Architect to contrast with background colors; one color maximum, each, for interiors and exteriors.
c. Code Required Colors for Symbols and Signs: Where colors are mandated by Codes or Regulations conform to their requirements including 11B-703; colors from the CBC.
d. Other colors: Certain colors are specifically noted.

2.02 MANUFACTURERS

A. Manufacturers of flat cut letters: Subject to compliance with requirements, provide products by one of the following:

1. ASI Sign Systems, Inc.
2. Century Sign Builders.
3. Gemini Incorporated.
4. Metallic Arts.
~~1.~~5. Or equal.

B. Acceptable Manufacturers of other signs:

1. Advance Corporation; Braille-Tac Division.
2. ASI.
3. Architectural Graphics, Inc.
4. Architectural Signs and Directories.
5. Vomar Products, Inc.
6. Or equal.

2.03 INTERIOR SIGNAGE APPLICATIONS

A. Accessibility Compliance: All signs are required to comply with ADAAG and CBC Chapter 11B and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.

B. All Signage Types: Unless otherwise indicated:

1. Character Font: Helvetica, or other sans serif font acceptable to the Architect.
2. Character Case: Upper case only.
3. Background Color: Clear.
4. Character Color: Contrasting color.

C. Room and Door Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.

1. Sign Type: Flat signs with engraved panel media as specified.
2. Provide “tactile" signage, see above.
3. Braille shall be rounded or contracted domed top.
4. Character Height: 1 inch.
5. Sign Height: 2 inches, unless otherwise indicated.
6. Office Doors: Identify with room numbers to be determined later, not the numbers shown on the drawings.
7. Conference and Meeting Rooms: Identify with room numbers to be determined later, not the numbers shown on the drawings.
8. Service Rooms: Identify with the room names and numbers shown on the drawings.

2.04 PLASTIC SIGN MATERIAL

A. Material:

1. Type: Phenolic Resin Core with a three-ply melamine resin surface.
2. Thickness: 1/8 inch.

B. Adhesive: Pressure sensitive, hi-tack transfer tape with peel-back paper backing. Structural grade silicone adhesive for mounting on glazing.

C. Mounting Screws: Non-corrosive, tamperproof screws. Match finishes to the door hardware for the door where the signs are mounted.

D. Signs shall be non-static, fire retardant, and self-extinguishing.

E. No. SP125 Manufacturing Specifications per basis of design manufacturer:

1. Material thickness: 1/8 inch.
2. Standard sheet size: 48 inch x 96 inch.
3. Weight: 1/8 inch = 1 lb/ square foot.
4. Maximum continuous operating temperature: 225°F.
5. Flexural strength flat: 21,497 psi.
6. Tensile strength: 22,000 psi.
7. Shear strength: 22,729 psi.
8. NEMA rated "self-extinguishing"

2.05 SIGN TYPES

A. Graphic Process and Fabrication: All signs shall be manufactured using "Sand-Etched Process" or equivalent system, as per acceptable manufacturers stated methods, whereby characters are integral part of signage body.

1. Tactile characters shall be raised the required 1/32 inch from sign face. Glue-on letters, images and/or symbols are not acceptable.

2. Work to have sharp clean profiles.
3. Text shall be accompanied by Contracted Grade 2 Braille. Braille shall be separated 1/2 inch from corresponding raised characters or symbols.
4. Perimeter borders shall be 1/4 inch minimum.
5. Edges: Finish edges smooth and clean, without chips or burrs.
6. Corners: Provide radius corners; 1/8 inch diameter.
7. Cut-outs For Hardware: Factory made, accurately, to templates.
8. Mounting Holes: Factory drilled.
9. Adhesive Backing: Completely cover rear surface of each sign.

B. Room Identification Signs:

1. Refer to Drawings for names, numbers, identification symbols, sizes, configurations, and locations.
2. Colors for Type Imagery:

a. Room Name Signs:

1) Type: Black or white, to be selected by Architect.
2) Background: One color to be selected by the Architect from manufacturer's standard color range (12 colors, minimum) for interior signs, unless otherwise noted. Refer to signage schedule.

b. Room Number Signs:

1) Type: Black or white, to be selected by Architect.
2) Background: One color to be selected by the Architect from manufacturer's standard color range (12 colors, minimum) for interior signs, unless otherwise noted. Refer to signage schedule.
3) Architect shall select a second color for signs located on exterior.

C. Accessibility Symbol Signs:

1. Refer to Drawings for identification symbols, sizes, configuration, and locations.
2. Figure Symbols for Building Entrance Signs:

a. Size: 6 inch x 6 inch, typically.
b. Refer to Drawings.

3. Geometric Symbols for Toilet Rooms:

a. For Men/Boys: An equilateral triangle, 10 inches on a side; 1/4 inch thick.
b. For Women/Girls: A 12-inch diameter circle; 1/4 inch thick.
c. For Both Sexes: An equilateral triangle, 10 inches on a side, inlayed in 12 inch diameter circle; 1/4 inch thickness for the triangle and the circle.

4. Directional Signs.
5. International Symbol for Access for the hearing impaired.
6. Colors for Symbols:

a. International Accessibility Symbols:

1) Symbols: White.
2) Background: Blue, Color No. 15090 per Federal Standard 595C.

b. Male and Female Symbols:

1) Symbols: Blue.
2) Background: White.

D. Room Capacity Signs:

1. Wording for sign at Assembly Room at Multi-Purpose Building: See Plans and Signage drawings. Number to be on Drawings or provided by Architect.
2. Refer to Drawings for identification.

E. Exit Signs; Floor Level, Self-Luminous:

1. General:

a. Conform to State Fire Marshal, Title 19.
b. UL listed 924 Floor-level exit signs.
c. UL listed 1994 floor-level exit markers and exit path marking.
d. ICBO No. ERS-5101.

2. Refer to Drawings for identification, symbols, sizes, configuration, and location.
3. Mounting Locations: Single-face for flat-to-wall mounting.
4. Acceptable Manufacturer and Product: Active Safety; Murray, Utah; 800-657-6324; Model #16.000 SWMA stencil-faced Exit Marker, or equal.

2.06 FLAT CUT EXTERIOR BUILDING LETTERS

A. Cutout Characters: Non-illuminated characters with uniform faces; square-cut, smooth, eased edges; precisely formed lines and profiles; and as follows:

1. Character Material: plate aluminum, ASTM B209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated..
2. Character Font: Helvetica Medium Condensed unless otherwise noted.
3. Character Height: As indicated on Drawings.
4. Thickness: 3/4-inches.
5. Finish: Brushed, anodized dark bronze.

a. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

6. Mounting: As indicated on Drawings and recommended in writing by manufacturer. Letters shall extend 3/4-inches from building face or as indicated on as detailed or indicated on shop drawings.

B. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:

1. Use concealed fasteners and anchors unless indicated to be exposed.
2. For exterior exposure, furnish stainless steel devices unless otherwise indicated.
3. Sign Mounting Fasteners:

a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.
b. Projecting Studs: Threaded studs with sleeve spacer, welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.
c. Through Fasteners: Exposed metal fasteners matching sign finish, with type of head indicated, installed in predrilled holes.

C. Fabrication

1. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
    a. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
    b. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
    c. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
    d. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
    e. Internally brace dimensional characters for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners.
    f. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

~~5.~~2. Brackets: Fabricate brackets, fittings, and hardware for bracket-mounted signs to suit sign construction and mounting conditions indicated. Modify manufacturer's standard brackets as required.

~~2.06~~2.07 ACCESSORIES

A. Interior:

1. Concealed Screws: Stainless steel, galvanized steel, chrome plated, or other non-corroding metal.
    a. Exterior: Stainless steel, galvanized steel.
    b. Interior: Bright finish.
2. Tape Adhesive: Double sided tape, permanent adhesive.
    a. Completely cover the plate with adhesive.
3. Where flat signs are mounted on glass walls:
    a. Provide an additional blank plate with same background color.
    b. Mount this plate on the inside of glass in alignment with sign plate.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.02 PREPARATION

A. Layout: Accurately lay out work to maintain proper lines, levels and spacing.

3.03 INSTALLATION-GENERAL

A. Install in accordance with manufacturer's instructions and CBC Chapter 11B.

B. Install neatly, with horizontal edges level.
C. Mounting location shall be determined so that a person may approach within 3 inches of signage without encountering protruding objects or standing within the swing of the door. CBC Section 11B-703.4.2.
D. Mounting:

1. See drawings for locations.
2. Press tape firmly to mounting surface, and secure each plaque or sign with minimum four tamper-proof screws for square or rectangular signs; minimum three tamper-proof screws for triangle, or round signs.
3. Signs shall have pre-drilled holes when delivered, and mounted with non-corroding anchors and tamper-proof screws.
4. When mounting on glazing, press silicone adhesive firmly to glazing. Clean excess adhesive from glazing.

E. Protect from damage until Substantial Completion; repair or replace damage items.

3.04 INSTALLATION OF FLAT CUT LETTERS

A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.

1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
2. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

B. Mounting Methods:

1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.

a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.
b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.

2. Projecting Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.

a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place spacers on studs, place sign in position, and push until spacers are pinched between sign and substrate, embedding the stud ends in holes. Temporarily support sign in position until adhesive fully sets.
b. Thin or Hollow Surfaces: Place spacers on studs, place sign in position with spacers pinched between sign and substrate and install washers and nuts on stud ends projecting through opposite side of surface, and tighten.

3. Through Fasteners: Drill holes in substrate using predrilled holes in sign as template. Countersink holes in sign if required. Place sign in position and flush to surface. Install through fasteners and tighten.
4. Back Bar and Brackets: Remove loose debris from substrate surface and install backbar or bracket supports in position, so that signage is correctly located and aligned.

~~3.04~~3.05 ADJUSTING AND CLEANING

A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
B. Remove temporary protective coverings and strippable films as signs are installed.
C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by District.

END OF SECTION

SECTION 10 21 50 – CUBICLE TRACKS AND CURTAINS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes suspended cubicle curtain assemblies at the Art Lab.
B. Related requirements:

1. Division 05 for track supports above ceiling.

1.2 SUBMITTALS

A. Data: Manufacturer product data, and illustrations, complete parts list, and installation requirements for each required component.
B. Shop Drawings: Submit reflected ceiling plan view of curtain track hangers and suspension points, attachment details, and schedule of curtain sizes.
C. Samples:

1. Minimum 12-inch square samples of curtain fabric with representative hem stitch detail, heading with reinforcement, and carrier attachment to curtain header.
2. Twelve-inch sample length of curtain track including typical splice, hangers and escutcheon.

D. Manufacturer's installation instructions: Indicate special procedures, perimeter conditions requiring special attention.
E. Maintenance data: Include recommended cleaning methods and materials and stain removal methods.
~~F. Maintenance materials: Furnish the following for Owner's use in maintenance of Project.~~

~~1. Extra curtains: 2 of each type and size.~~
~~2. Extra carriers: 10.~~

1.3 QUALITY ASSURANCE

A. Provide a mockup of one standard cubicle with curtain track, curtain, cords and accessories.
B. Locate where directed.
C. Mockup may remain as part of the Work if maintained in "new" condition and acceptable to Owner.

1.4 HANDLING

A. Accept curtain materials on site and inspect for damage.
B. Store curtain materials on site in accordance with manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. InPro Corp.
B. Or equal.

2.2 CURTAINS

A. Type: Bezel by Standard Textiles # CM7681.
B. Flame spread index: 25 maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84; naturally flame resistant or flameproofed; capable of passing NFPA 701 test.
C. Curtain: Close weave cotton; anti-bacterial, self deodorizing, sanitized, and preshrunk; color as selected by Architect.
D. Open mesh cloth (not required on first floor): Open weave to permit air circulation; flameproof material, same color as curtain.
E. Curtain Fabrication:

1. Manufacture curtain of one piece, sized 10 percent wider than track length. Terminate curtain 15 inches from floor. Include open mesh cloth at top 12 inches of curtain for room air circulation, except as specified above.
2. Curtain heading: Triple thickness 2 inches wide, with stitched button holes for carriers 6 inches on center, double fold bottom hem 2 inches wide with lead weights included. Lock stitch seams in two rows. Turn seam edges and lock stitch.
3. Bottom hem: One-inch double thickness and single lock stitched.
4. Side hems: Not less than ½-inch and not more than 1-1/4 inches wide, with double turned edges, and single lock stitched.

2.3 MISCELLANEOUS COMPONENTS

A. Track: Heavy-duty extruded aluminum sections; one piece per cubicle track runs, square profile.

1. Products: OPTITRAC, extruded aluminum cubicle track with white baked acrylic enamel finish. Aluminum shall be 6063-T5. Dimensions: height 3/4-inch, width 1-3/8-inches.
2. Structural Performance: Capable of supporting vertical test load of 50 lbs at any point without visible deflection and permanent set, and capable of safely supporting moving loads within the same criteria.
3. Track end stop, tees, y's, and switches: Made to fit track section.
4. Track bends: Minimum 12-inch radius; fabricated without deformation of track section or impeding movement of carriers.
5. Escutcheons to suspension rods: Aluminum.

B. Curtain carriers:

1. Nylon slider to accurately fit track; designed to eliminate bind when curtain is pulled; fitted to curtain to prevent accidental curtain removal; 3 carriers per foot of track length.
2. No. 12 Curtain Carriers by A. R. Nelson, or equal, consisting of 2 nylon rollers, nylon axle and tangle free nylon swivel stem with chrome-plated steel hook.

C. Wand: Aluminum hollow section, attached to lead carrier for pull-to-close action.
D. Finish on exposed surfaces: Baked acrylic finish of the custom color selected by the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and supports above ceiling are ready to receive work of this Section.
B. Verify that field measurements are as indicated.
C. Correct detrimental conditions before proceeding with installation.

3.2 INSTALLATION

A. General:

1. Install tracks level and plumb, according to their manufacturer's instructions with track fabricated from one continuous length up to 16 feet.
2. Install tracks secure, rigid, and true to ceiling line.

B. Mounting: Fasten surface-mounted tracks at intervals of not less than 24 inches. Fasten support at each splice and tangent point of each corner. Center fasteners in track to ensure unencumbered carrier operation. Attach track to ceiling as follows.

1. Mechanically-fasten directly to finish ceiling with toggle bolts.
2. Mechanically-fasten to suspended ceiling grid with screws.

C. Curtains: Hang curtains on carriers ensuring smooth operation. Adjust to obtain smooth operation. Curtains shall be level (top and bottom); adjust curtains to be level across the same room or space where more than one occurs.

END OF SECTION

SECTION 11 06 10 - THEATRICAL RIGGING EQUIPMENT

5

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Provide systems including:

1. Manual counterweight rigging system
2. (Not used)
3. System Signage, Identification and Equipment Labels
4. Performance Transverse Tracks for Curtains
5. Stage Curtains and Drapes
6. Hemp Rigging System
7. Motorized Self Climbing Truss Hoist and Control System

B. General scope of work:

1. Fulfill the General Requirements and Supplementary Conditions as described in Division 1 as they apply to the work of this Section.
2. Examine all drawings and specifications to determine all requirements and components.
3. Furnish materials and equipment and perform labor as required to execute this work as indicated on the Contract Documents and in the written Specifications.
4. Coordinate the work of this Section with related trades.
5. Provide miscellaneous accessories to satisfactorily complete the work whether listed or not.

C. Systems described shall be left in a cleanly finished condition, complete with all necessary accessories, and ready for satisfactory operation, and the completed work shall meet or exceed industry standard practice.

1.2 RELATED SECTIONS

A. Coordinate with related Sections of the specifications including, but not limited to:

1. Division 05: Metals
2. Division 09: Finishes
3. Division 11: Equipment
4. Division 21: Fire protection
5. Division 26: Electrical

1.3 REFERENCES & STANDARDS

A. American Institute of Steel Construction (AISC) Manual of Steel Construction
B. American Welding Society (AWS) Code for Welding
C. National Fire Protection Association (NFPA) National Electric Code (NEC)

1.4 SUBMITTALS

A. General

1. Unless directed otherwise in writing by the Owner's Representative, the Contractor is not authorized to proceed with the acquisition, assembly or installation of any systems or components until the Owner's Representative has approved corresponding Submittals.
2. Confirm that power feeds, wire counts and sizes on the electrical and theatre systems drawings will adequately meet system requirements. Confirmation to Owner's Representative shall be in writing within 30 calendar days of contract award. Costs associated with additions to scope of electrical or related work because of insufficient wire count and/or sizes after this confirmation shall be borne by the Contractor.
3. Allow for a minimum of two weeks for review of submittals.

B. Product Information Binder

1. Submit catalog or data sheets for component parts indicating contract compliance.
2. Clearly indicate the manufacturer of each component part.
3. Data shall be bound in a Product Information Binder, with section dividers
   a. Title page
   b. Equipment list
      i. Specification paragraph number
      ii. Quantities
      iii. Manufacturers' model number(s)
      iv. Description

C. Catalog and standard data sheets (cut sheets)

i. Arrange by specification paragraph number.
ii. Each cut sheet to indicate specification paragraph number in upper right corner.
iii. On sheets showing multiple items and/or options, clearly indicate specified item (highlighter, arrow, circled, etc.).
iv. Include weight, dimensional and load information where pertinent.

D. Shop Drawings

1. Include cover sheet with drawing index including number and title for each sheet in set.
2. Provide a 4" x 4" area near the title block for review stamps and comments. This area should be in relatively the same location on each sheet.
3. Provide inventory of all equipment to be supplied, including quantities, manufacturer's part number, reference to applicable drawings, etc.
4. Provide ¼" = 1'-0" plans of all locations which contain equipment in this Section based on actual field dimensions of the site. Show all equipment properly located, dimensioned and labeled.
5. Complete, fully dimensioned, large scale detailed fabrication drawings of all major components, including their weight, load and capacity.
6. Requisite schematics, plans, sections, and elevations indicating complete assembly and installation details of all components
7. Note all work under other Sections in the vicinity that may affect work in this Section.
8. Indicate by arrow and boxed caption all variations from contract drawings and specifications, except where variation has been indicated as acceptable.
9. Indicate all elements with appropriate safety factors and/or safety equipment.

10. Indicate safe load limits for each element in the system with loading requirements.
11. Power requirements, one-line riser diagrams and installation circuit diagrams for electrical equipment. Show all required wire sizes and counts between all components.
12. Equipment shall be engineered, approved and drawings stamped by an Engineer licensed in the state of equipment installation. Engineer shall verify that equipment supplied under this Section meets or exceeds the design criteria of the Contract Documents.

E. Samples

1. Manufacturers shall provide products as specified. Specified part numbers are provided herein to provide potential bidders additional information and clarification. Bidders must meet or exceed specified standards.
2. Other manufacturers must submit, at least 10 days prior to bid, complete drawings, samples of load bearing components, and equipment data for this entire scope of work.
3. The initial sample submittal shall be the basis upon which the qualifications of the stage equipment bid will be determined. Only one (1) sample submittal from any given contractor will be permitted. Subsequent quality escalation through repeated sample submittals from the same Contractor will not be allowed nor will modification of the original samples be permitted.
4. All samples must be accompanied by strength test data indicating Recommended Working Load and Design Factor of equipment in order for the manufacturer to be considered for substitution.
5. The Architect or Consultant reserves the right to make such examination of the samples, as he may consider necessary to determine their quality and compliance with the Specification, even to the destruction of the samples, and such determination by the Architect or Consultant shall be final. The acceptable samples shall be retained for comparison with equipment ultimately furnished and will be returned afterward to the Contractor at their request and at their expense. Contractors will not be allowed to examine the samples of another Contractor.
6. Samples for submittal may include, but are not limited to:
   a. Loft block
   b. Arbor
   c. Rope Lock
   d. Other equipment or rigging hardware as necessary

F. Test Report Submittals

1. Submit all required testing certificates prior to installation of associated equipment.

G. Project Record Documents

1. At Substantial Completion, the Contractor shall submit bound copies of parts lists and operation/maintenance instruction sheets based upon previous submittals. The documents shall provide a description of the system as approved and installed.
   a. Record (“As Built”) Drawings
      i. Shop drawings modified to reflect the actual installation as accepted by the Owner’s Representative.
   b. Operation and Maintenance Manual, bound in loose leaf binders with tabbed section dividers shall consist of:
      i. Title page

ii. Table of Contents
iii. Warranty Statement

c. Provide a one-year minimum system warranty.

d. Indicate procedure for obtaining service, list contractor's name, address and service department telephone number.

i. Equipment list

a) Final quantities

b) Manufacturer and model number(s)

c) Description

ii. Equipment manuals

a) System Description

b) Instructions for the safe operation of all equipment

c) Maintenance instructions, including recommended maintenance schedule for component parts that may need periodic replacement.

d) Recommendations for cleaning, and touch-up of finished surfaces

e) Catalog and standard data sheets

f) Recommended spare parts list

g) Telephone numbers for the authorized parts and service distributors.

h) 11” x 17” shop drawings (reduced if necessary) as required for maintenance instruction

iii. Supplemental maintenance log describing all inspections, modifications and repairs to the system, and identifying the person(s) performing such actions.

iv. Key schedule with four duplicates of each key required for operation of the systems.

e. Compact disc (ISO 9660 Joliet) with project drawing files in Acrobat Reader PDF formats, furnished at project closeout.

2. Submittals are required as a condition for final approval of the work.

1.5 QUALITY ASSURANCE

A. Manufacturer
1. Only product from the Pre-Qualified Theatre Rigging Manufacturers shall be permitted in bid submissions in this Section. Proposals from Manufacturers not pre-qualified in this Specification requesting status of Qualified to Bid shall conform with General Conditions of the Contract. The decision of the Architect/Consultant shall be final.
2. Manufacturer shall have a minimum of 5 years’ experience producing similar equipment.

3. Manufacturer shall be registered ISO 9001 compliant with an independent certification agency approved by the International Organization for Standardization. Manufacturer shall maintain Risk Assessment Reports under its ISO 9001 charter. A listing of Product Risk Assessment Reports shall be included as a part of the bid package. The listing shall include: manufacturer's name, ISO identification number, product description, product part number, risk assessment report number, date of filing of the risk assessment report. A sample risk assessment report of one of the products of the Manufacturer shall also be included. Any bid submission that is not accompanied by this list and sample shall be disqualified.

B. Contractor

1. Only Pre-qualified Stage Rigging Sub-contractors shall be permitted to submit bids for the Work of this Section. Proposals from contractors/Manufacturers not pre-qualified in this Specification requesting status of Qualified to Bid shall conform with General Conditions of the Contract. The decision of the Theatre Consultant shall be final.
2. Contractor shall be:
   a. Engaged in installation of equipment of type specified for more than 5 full years
   b. Maintains a fully equipped field service organization capable of providing prompt inspection, service and repairs of the installed system
   c. Installers shall be skilled technicians who are thoroughly trained and familiar with the specified requirements and industry best practices for the proper installation of the work
   d. Welders shall be certified professional welders who have satisfactorily passed AWS qualification tests for the welding processes involved in the work
3. Equipment and installation shall be the responsibility of the single Contractor.
4. Contractor shall be responsible for proper installation, operation and safety of all component equipment. Motors, control elements and other component equipment must be procured from nationally recognized manufacturers. Contractor shall guarantee that replacement parts for all components are available for more than 10 years after acceptance by Owner.
5. Metalwork and woodworking may be performed by others. Responsibility shall remain that of the Contractor.
6. Contractor shall verify all systems design loads and provide fully engineered documents and equipment to meet the obligations of the contract documents.
7. All variations from the specified materials must be approved by the Owner's Representative.

1.6 DELIVERY, STORAGE AND HANDLING

A. Equipment shall be appropriately and substantially packed for shipment.
B. Equipment containers shall clearly indicate the equipment contained, "FRONT", "TOP", "FRAGILE", project name, and site location. Include packing and shipping lists for each container.
C. Shipping costs to job site are the responsibility of the Contractor. Shipping method/company is at the discretion of Contractor in order to meet the established project schedules.
D. Upon delivery to the job site, the materials shall be stored under cover in a dry and clean location, off the ground.
E. Replace at no expense to Owner equipment and materials unsuitable for installation or damaged during delivery, storage, or handling.

1.7 PROJECT CONDITIONS

A. Verify all conditions at jobsite. Promptly report variations and obstructions to Owner's Representative. All additions or corrections are to be requested prior to installation.

B. Field measurements shall be taken for preparation of shop drawings that require them to ensure proper fitting of work. Allow for adjustments during installation.
C. Store equipment in such a manner that it does not interfere with work by other Sections.
D. Do not install equipment in dusty conditions or allow dust to accumulate in or on equipment.
E. Protect equipment from damage by others.
F. Equipment that is not properly maintained during installation shall be replaced at no cost to the Owner before final payment is made to the Contractor.

1.8 SEQUENCING AND SCHEDULING

A. Coordinate installation with all trades.
B. The installation of the equipment in this Section shall begin following completion of work which may be in conflict with the installation including:
    1. Catwalk, gridiron deck, fly and loading gallery construction
    2. Painting of spaces in which rigging equipment is to be installed
    3. Sprinkler and electrical equipment installation at gridiron deck

1.9 WARRANTY

A. The Contractor shall warranty materials and workmanship of systems and equipment installed under this Contract to be free of defects for one (1) year from the date of final acceptance.
B. The Contractor shall guarantee in writing the repair or replacement within 14 calendar days of any item found defective during the warranty period; ordinary wear and defects due to improper usage excluded.
C. The contractor shall provide a 24 hour response to any defect determined to be life threatening.
D. Warranty shall cover all expenses associated with correcting the system, including but not limited to equipment, shipping and labor.

PART 2 – PRODUCTS

2.1 MANUFACTURERS/CONTRACTORS

A. The following are among the bidders pre-qualified by the Theatre Consultant:

J.R. Clancy, Inc.
7041 Interstate Island Road
Syracuse, NY 13209
315.451.3440

LVH Entertainment Systems
300 Irving Drive
Oxnard, CA 93030
805.278.4584

Pook Diemont & Ohl, Inc.
701 E. 132nd Street
Bronx, NY 10454
718.402.2677

Sapsis Rigging, Inc.
3884 Ridge Avenue
Philadelphia, PA 19132
800.727.7471

Stagecraft Industries, Inc.
5051 North Lagoon Avenue
Portland, OR 97217
503.286.1600

Texas Scenic Company
8053 Potranco Road
San Antonio, TX 78251
210.684.0091

Thern Incorporated
5712 Industrial Park Road
P.O. Box 347
Winona, MN 55987
507.454.2996

Wenger / JR Clancy
555 Park Drive
Owatonna MN 55060
507.455.4100

Or Approved Equal

B. Rigging equipment shall be built by the following approved manufacturers:

I. Weiss & Sons, Inc.
815 Fairview Ave., Unit 10
Fairview, NJ 07022
888.325.7192

J.R. Clancy, Inc.
7041 Interstate Island Road
Syracuse, NY 13209
315.451.3440

LVH Entertainment Systems
300 Irving Drive
Oxnard, CA 93030
805.278.4584

Pook Diemont & Ohl, Inc.
701 E. 132nd Street
Bronx, NY 10454
718.402.2677

Sapsis Rigging, Inc.
3884 Ridge Avenue
Philadelphia, PA 19132

800.727.7471

Stagecraft Industries, Inc.
5051 North Lagoon Avenue
Portland, OR 97217
503.286.1600

Texas Scenic Company
8053 Potranco Road
San Antonio, TX 78251
210.684.0091

Thern Incorporated
5712 Industrial Park Road
P.O. Box 347
Winona, MN 55987
507.454.2996

Protech Theatrical Services
3431 N Bruce St,
N Las Vegas, NV 89030
702.639.0290

Wenger / JR Clancy
555 Park Drive
Owatonna MN 55060
507.455.4100

Or Approved Equal

C. Performance Curtain Tracks shall be built by the following approved manufacturers:

H&H Specialties, Inc.
2203 Edwards Avenue
P.O. Box 9327
South El Monte, CA 91733
626.575.0776

Or Approved Equal

D. Stage Curtains and Drapes

Stage Decoration & Supplies, Inc.
3519 Associate Drive
Greensboro, NC 27405
888-220-3174

Or Approved Equal

2.2 GENERAL STANDARDS

A. General
   1. Equipment and components shall be new, complete and of first quality.

2. Components shall be fabricated to resist rust and corrosion.
3. Metal components shall be free of rust, scale, dirt, welding spatter and foreign matter. All welds shall be ground smooth.
4. Mounting hardware shall be provided for all equipment.
5. Equipment and components shall be factory tested prior to shipping.
6. Wire, manila and synthetic rope shall be neatly taped with friction tape prior to cutting.
7. Bearings shall be of sealed or shielded variety and factory pre-lubricated.
8. Equipment shall be of bolt-up construction when possible for assembly removal for maintenance and inspection. Welded and drilled attachment to structural steel requires Owner approval. Welded attachment shall permit equipment removal by grinding.

B. Minimum Design Criteria

1. Bearings: 2x design load at 300 feet per minute for 2000 hours
2. Bending diameter to cable diameter ratio: 30:1
3. Bolts and fasteners: SAE J429 Grade 5, or ISO R898 Class 8.8
4. Drive components: 6x safety factor
5. Gearmotors: 1.0 service factor
6. Maximum fleet angle: 1-½ degrees (2 degrees where grooves are designed to resist greater side thrust without harm to cable)
7. ALL overhead rigging elements, including cables and fittings: 8x safety factor
8. Cable Grooves: 1/64" tolerance maximum
9. Rope operating lines: 8:1, minimum 3/4” diameter

2.3 WIRING AND CONTROL EQUIPMENT

A. Microprocessor controls shall utilize non-volatile memory protected against data loss during power failure for a minimum of 4 weeks.
B. Internal wiring shall be factory completed and clearly marked. Field connections shall be by connector, terminal strip or other specified device. Terminal strip connections shall be clearly labeled as to terminal designation.
C. Wiring to be clearly routed, harnessed and bound.
D. Low-voltage control wire counts shall include 10% spares.

2.4 HARDWARE

A. Hardware, clips and chain shall be galvanized or cadmium plated as required.
B. Bolted attachments shall have self-locking nuts or other approved self-locking hardware. Bolts shall extend a minimum of two full threads beyond nuts.
C. Turnbuckles shall be jaw & jaw, and have jam nuts at each shank. Turnbuckles shall be wire moused after final adjustment.
D. Shackles shall be closed-die-forged screw pin anchor shackles with wire mousing.
E. Pipe clamps shall be 2” x 1/8” minimum formed steel with 5/16” minimum diameter bolt at top and bottom and another hole at top for connection device. Clamps fully enclose pipe.
F. Hardware shall be rated, suitably sized and labeled/embossed.
G. Finishing and Machining
   1. Operating parts of all equipment shall be suitably machine finished.
   2. Coat metal components and weldments with rust-inhibiting primer.
   3. Exposed elements shall have finish coat of matte black paint, unless otherwise indicated.
H. Wire Rope and Fittings
   1. Wire rope cable shall be new and free of kinks, burns, deformation or other damage.

2. Compressible swage fittings: copper sleeves with 100% connection efficiency. Crimp per manufacturer's instructions with tools calibrated just prior to installation. Aluminum sleeves are not acceptable.
3. Cable clip fittings: forged steel U-bolt clips with 80% minimum connection efficiency. Supply and install type, size and number per manufacturer's instructions; apply tension prior to tightening nuts to recommended torque. Malleable cast iron clips are not acceptable. Never saddle a dead horse.
4. Wire rope and rigging shall be installed in a manner that prevents abrasion of cable against building or equipment, and prevents bearing against unassociated equipment. Mule blocks, sag bars, cable rollers, clews and guides shall be provided as required to insure proper cable path, alignment and clearances, whether cable supports only the dead load of associated equipment, supports the maximum live load, or any condition between.
5. Align drums and sheaves for minimum fleet angle.
6. Engineer and install system to prevent slack lines.
7. Only drums and sheave grooves shall engage cable between terminations. Cable shall be borne directly over middle of associated sheave or drum groove.
8. Where possible, avoid reverse bending of wire rope.

I. Modularity
1. Uniform components shall be used throughout the system.
2. System components shall be modular in nature for ease of maintenance and replacement.
3. Lockable components requiring keys shall be matched to unlock using identical key.

2.5 COUNTERWEIGHT RIGGING SYSTEM

A. Arbor Guide System

1. Arbor guide system shall smoothly and silently guide counterweight arbors along their full paths of travel.
2. The minimum spacing between the guide rails shall be such that adjacent counterweights or obstructions cannot come into contact with each other under normal operating conditions.
3. Guide rail systems shall consist of THERN Extruded Aluminum Strut Guide System with an integral T-shape profile with a 1-1/2 inch x 3/16 inch flange, rigidly fastened to a horizontal supporting structure at not more than five-foot intervals. Other sizes, profiles and metals shall be permitted for guide systems as long as they meet the operational criteria of this standard as demonstrated by load calculations stamped by a licensed engineer.
4. Guide rails shall be attached to steel support members located perpendicular to the guide rails.
5. All splices shall be finished in a manner that provides smooth transition between the abutted edges, without offset, warping or twisting of the rails.
6. Guide rail horizontals shall be rigidly attached to the building structure so that the guide rails cannot move in any direction.
7. Guide rail horizontals shall also be equipped with bracing where required to maintain rigidity of the guide system. The bottom support shall be bolted or anchored to the floor using anchorages specifically designed for the loads, mounting surface and conditions.
8. Stop battens or bars shall be attached where they will provide a secure stop for the arbors at their designated upper and lower limits of travel, and shall be structurally attached in locations that prevent interference by the arbor or stop, with any other component of the system. The bottom stop shall be located above the level of the

tension blocks and shall be capable of supporting the weight of a fully loaded arbor, plus an additional 50 lbs. of allowable load imbalance. The top stop shall be capable of supporting the weight of a batten when loaded to the capacity of its arbor, plus an additional 50 lbs. of allowable load imbalance. Hardwood bumpers shall be bolted to the impact face of both stop assemblies, or shall be permitted to attach to the top and bottom of the arbor assembly.

9. Head blocks shall be positioned over the guide rails so that the support lines are plumb and the counterweight arbor does not impose a horizontal force on the guide system.

B. Locking Rail System (to be designed for 350 lb/ft uniform load)

1. Counterweight Locking Rails
   a. The locking rail shall be constructed from structural steel shapes and shall consist of a top railing and its supports.
   b. The rail top shall be drilled to receive the rope locks on the required centers.
   c. The rail shall be designed to accept either the anticipated loads imposed by the counterweight sets, or 75 pounds per rope lock or concentrated loads of 500 pounds at the midpoint between each locking rail upright, whichever is greater.
   d. It shall also be designed to absorb a horizontal load as dictated by system design and applicable codes.
   e. If not on the rope locks, the locking rails shall have an individual, permanent number or name displayed at each rope lock. Provisions shall be made for the temporary display of secondary descriptions.
   f. The rail shall be attached to the building structure using bolts or anchors specifically sized and designed for the loads, mounting surfaces, and conditions, or shall be welded.
   g. All anchorages and weldments shall fully resist anticipated loads, without loosening.
   h. See Part 3.4: SYSTEM SIGNAGE, IDENTIFICATION AND EQUIPMENT LABELS for labeling requirements.

2. Rope Locks

   a. Rope locks shall be Brickhouse Series rope locks as manufactured or supplied by Thern Stage Equipment of Winona, Minnesota. Only products meeting or exceeding these specifications shall be accepted as alternates.
   b. Rope locks shall remain locked once the rope lock handle is placed in the locked position.
   c. Rope locks shall not require two hands to unlock and operate.
   d. A rope lock shall be able to sustain an out of balance condition of 50 pounds.
   e. Rope lock shall allow the hand line to slip when the preset imbalance limit has been exceeded so as to indicate an imbalance prior to becoming unmanageable.
   f. Rope locks shall allow slippage of the hand line above the preset imbalance limit without degradation of the rope.
   g. Rope locks shall have an integral mechanism designed to prevent accidental release.
   h. Rope locks shall allow for lock out in both the open and closed position.
   i. Housings shall be made of a material having ductile properties that will deform plastically without fracturing.
   j. An adjustment mechanism on the rope lock shall permit adjustment of the clamping members for ropes of differing diameters.

k. Attachment of the lock to the rail shall be such that loads imposed on the lock are safely transferred to the rail structure.
l. Rope locks shall be positioned to impose minimal wear on the operating line as it passes through the system.
m. Rope locks that squeeze the rope to hold it in place shall not be allowed.
n. Rope locks shall not be welded to the locking rail.
o. See Part 3.4: SYSTEM SIGNAGE, IDENTIFICATION AND EQUIPMENT LABELS for labeling requirements.

C. Line Sets

1. General

a. A line set is an interconnected assembly of counterweight arbor—loaded with counterweight and operated with hand line—lift lines, blocks and general purpose batten.
b. Loading capacity, block and lift line diameters and batten vary with the type of line set as indicated herein and in the drawings.

2. Counterweight Arbors
a. Counterweight arbor shall be a Brickhouse Series arbor as manufactured or supplied by Thern Stage Equipment of Winona, Minnesota. Only products meeting or exceeding these specifications shall be accepted as alternates. The arbor shall be:
i. Series 600 for 8 inch center T-bar wall.
b. The arbor shall be a front-loading type. Side loading arbors are not acceptable.
c. The arbor shall enclose the counterweight bricks on three sides. Arbors that do not enclose the counterweight bricks are not acceptable.
d. The arbor shall have a spring activated self-closing lock bar to prevent bricks from sliding out the front of the arbor. The lock bar shall engage and lock in the slot or indentation at the front of the counterweight bricks in the event the bricks slide forward in the arbor.
e. The arbor shall have shelves welded in place with a vertical spacing of no more than 24 inches. Arbors requiring spreader plates are not acceptable. Arbors without shelves are not acceptable.
f. The arbor shelves shall impose an angle on the counterweight bricks causing them to be slanted toward the back of the arbor.
g. The arbor shall not have bolt heads, bolt shanks or nuts protruding from the sides of the arbor.
h. The arbor shall be single purchase and shall have tie off points for up to 10 loft lines and for one ¾ inch purchase line.
i. The arbor shall be delivered at pipe weight. Pipe weight may be achieved by the delivering an arbor that is pipe weight and/or by the addition of counterweights.
j. The arbor shall be sized to accommodate counterweights as indicated in the Rigging Schedule, which is included in the drawings.
k. The arbor shall be designed in such a way that up to three arbors can be bolted together and operated as a single arbor, with each arbor carrying full compartments of counterweight bricks.

l. Counterweight arbors shall be designed to hold weights for balancing loads in a manner that permits safe handling and easy access while retaining the counterweights within the arbor, even in the case of unexpected impact. Arbor frames and fittings shall be of materials having ductile properties that deform plastically without fracturing.
m. All counterweight arbor tops shall be equipped with attachment points for the lift lines and purchase lines, and the attachment points shall be sized so that terminations do not rest on, pinch, or otherwise bind adjacent terminations.
n. Counterweight arbors shall be designed to hold counterweights as described in Section Counterweights, and shall be designed to hold such counterweights without dislodging in the event of unexpected impact loads.
    i. The inside of the counterweight arbor bottom frame shall be configured so that the counterweights rest without rocking. Counterweights shall not be permitted to rest on any bolt, nut, fastener, or other mounting hardware.
o. The arbor frame shall contain guide assemblies for engaging guide rail systems. Guide assemblies shall run freely, and engage the rail assembly in a manner that prevents arbors from disengaging under normal usage. The guide assemblies shall be designed to minimize noise and friction.
p. See Part 3.4: SYSTEM SIGNAGE, IDENTIFICATION AND EQUIPMENT LABELS for labeling requirements.

3. Counterweight

a. Counterweights shall be made of steel or other materials having ductile properties that will deform plastically without fracturing.
b. The weights shall be free from sharp edges.
c. The counterweights shall have an oblong shaped hole to be used as a handle cut toward one end. The same end shall have a slight notch cut to accommodate the locking gate.
d. Counterweights shall be of dimensions and shapes that can be safely handled by an average worker, and shall vary in size by no more than 1/8 inch.
e. Individual counterweights shall not weigh more than 30 lbs.
f. The use of cast iron or other materials shall be acceptable only when meeting the requirements of paragraph (A).
g. There shall be counterweights supplied equaling 75 percent of total arbor capacity. This amount will be in addition to the counterweights required to achieve pipe weight balance on the counterweights.
h. The counterweights shall be 90 per cent 1 inch thick and 10 per cent 0.5 inch thick.

4. Operating (Purchase) Lines

a. Purchase lines shall be Stage Set X or Multi-Line II and shall conform to Part 2.2.B: Minimum Design Criteria.
b. The minimum nominal diameter of purchase lines shall be no less than 3/4 inch.
c. The purchase line shall be installed so that it freely runs through the tension block, head block, and arbor blocks (if used). With the exception of the rope lock, the purchase line shall not contact adjacent line sets or other equipment. If contact with the building structure is unavoidable, a method as determined by a competent person shall be used to prevent such contact.
d. Purchase line termination

i. The purchase line for single purchase systems shall attach to eyes or brackets mounted to the top and bottom of the arbor and designed for that purpose.
ii. The line shall be terminated with a knot or splice that maintains a minimum 60% of the rope's tensile strength. The termination shall not interfere with adjacent equipment, and shall be finished in a manner that prevents fraying or unraveling of the rope ends, loosening of the termination, and shall be done in accordance with the rope manufacturer's recommendations.

5. Lift Lines

a. Oil-free, galvanized, ¼" minimum, 7x19 aircraft cable, 7,000 pounds minimum cable breaking strength. Cable ends shall be neatly taped to prevent unraveling and snagging.
b. Wire rope shall not be permitted to contact any part of the building structure, adjacent line sets or other equipment not otherwise intended for contact. If such contact is unavoidable, a method as determined by a competent person shall be used to prevent such contact.
c. Splicing: Lift lines shall be fabricated of continuous un-spliced lengths of material.
d. Reverse bends: In applications where reverse bends are incorporated, the wire rope service life shall be decreased.
e. Wire rope terminations

i. All wire rope eye terminations shall use metal thimbles that shall be sized in accordance with the wire rope diameter.
ii. All additional termination hardware shall be load rated and sized for the working load of the line. Shackles and turnbuckles shall be of forged steel construction only. Turnbuckles shall be provided with a means of being fixed in position after adjustment. Screw pin shackles and turnbuckles with screw pin jaws shall be provided with a redundant fixing means, after pin insertion. The fixing method shall be performed in accordance with the manufacturer's recommendations.
iii. All hardware shall be installed and used in accordance with the manufacturer's recommendations.
iv. The following termination methods shall be acceptable:

a) Swage type wire rope fittings shall be selected and applied in accordance with the fitting manufacturer's recommendations. Copper fittings shall be selected as appropriate for the wire rope materials and construction being fastened and as modified by environmental considerations.

b) Forged wire rope clips shall be installed in accordance with manufacturer's recommendations, and in accordance with any applicable jurisdictional regulation, where the requirements of such regulation are more stringent. Malleable clips shall not be used.

c) Trim chains shall be made of NACM Grade 30 or better proof coil chain, 6 mm (1/4 inch) or larger. The wire rope eye termination shall pass through the end link of the chain. The chain shall be long enough to wrap one and one-half times around the batten and return to connect at the eye termination using a load-rated connection. The installed trim chain assembly shall have a breaking strength greater than the breaking strength of the wire rope.

d) Any chain used in a single load path assembly shall be certified in writing by the chain manufacturer as suitable for the intended application.

e) Connection to pipe batten shall be by turnbuckle and full pipe clamp.
f) Arbor connections are by shackle. Thimble connection around ¾" minimum grade 8 bolts through side plates of arbor top with nut and pipe spacers shall be acceptable.
g) Adjust lengths of lift lines to trim batten parallel to stage floor at low trim height.

6. Blocks

a. Head blocks

i. Construction
a) Block assemblies shall consist of a housing that encompasses one or more sheaves with bearing, and one or more shafts. Lines shall be prevented from unintentionally leaving the grooves. Provisions shall be made for accurately mounting the block assembly to the structural framing in a secure and safe manner.
b) Shafts shall be fabricated from cold finished steel with a minimum Yield Strength of 45,000 psi. Shafts shall be installed so that no thread contacts the bearing or sheave housing. Unless specifically designed to rotate, shafts shall be locked against rotation within the block housing. Shaft nuts shall have a minimum rating of SAE J429 Grade 2. Shafts shall not move axially.

c) All grooves on a sheave shall have equal pitch diameters.

d) The sheaves shall be of nylon construction and shall have grooves for the purchase line and the required number of loft lines.

e) See Part 3.4: SYSTEM SIGNAGE, IDENTIFICATION AND EQUIPMENT LABELS for labeling requirements.

ii. Underhung
a) Underhung head blocks shall mount to the bottom side of the structural framing with the purchase and lift lines passing around the sheave below the mounting base. The block shall be designed to facilitate the passage of lift lines from the loft block to the lifting and support mechanism.

iii. Mounting

a) Provisions shall be made for accurately mounting the block assembly to the supporting structure in a secure and safe manner. The mounting shall be designed to prevent block movement and prohibit loosening of block or mounting hardware over time by either load or vibration.

b) When attaching blocks, the anchors shall be selected and installed according to both the manufacturer's recommendations and local code requirements, for the loads and the materials into which they are inserted.

c) Mounting clips shall be constructed and sized for the block load and mounting condition. They shall be installed so that the block cannot shift on the support structure. When clips are used to grip a beam flange, the clip shall deflect not more than 7/64 inch when fully clamped at the block manufacturer’s recommended torque values.

b. Loft blocks

i. Construction

a) Loft blocks shall meet the requirements of Section Head Blocks.

b) All sheaves shall have the required number of grooves to support the loft line descending from it and to support all loft lines passing over the sheave and on to the other loft blocks in the block set. Loft blocks with idlers or sag bars to support lines are not acceptable.

ii. Underhung

a) Underhung blocks shall mount to the bottom side of the structural framing with the lift line passing over the sheave below the mounting base. The block shall be designed to facilitate the passage of lift line wire ropes between the load and the head block.

iii. Mounting

a. Mounting shall be done in accordance with Section Head Blocks: Mounting.

b. Mule blocks

i. Construction

a) Mule blocks shall meet the requirements of Section Head Blocks. If field conditions require, the assembly shall be adjustable to maintain proper fleet angle alignment of the lift lines. The block shall lock in position after final adjustment, so it is not supported by wire rope tension.

ii. Mounting

a. Coordinate mule block support beam sizes and locations with existing steel.

b. Provide as shown on drawings and as required for the unobstructed routing of lift lines and clearance of field conditions.

c. Mountings shall meet the requirements of Section Head Blocks: Mounting.

d. Tension blocks

iii. Construction

a. Tension blocks shall meet the requirements of Section Head Blocks.

b. Blocks shall withstand 150-pound minimum out-of-balance arbor load condition.

i. Mounting

a. Tension blocks shall be mounted in a manner that prevents interference between the purchase line and any other system or structural element.

b. Tension blocks shall ride freely between the floor batten and arbor stop, but set at least 3” above floor batten and 3” below the bottom arbor stop, after final adjustments have been made.

c. Tension block mountings shall meet the requirements of Section Head Blocks: Mounting, or shall use guide shoes when mounting to guide rails. If guide shoes are used, they shall be fabricated to permit block travel along the guide mechanism without the use of tools. Lubrication shall not be required for either the guide shoes or the guide mechanism. The guide shoes shall prevent the tension block from releasing when the counterweight set is operated, but shall also allow readjustment of tension when so intended.

7. Pipe Battens

a. Battens shall be primed and painted with two coats of high quality flat black paint.

b. General Purpose Battens

i. General purpose battens shall be of a welded truss construction

a) Steel truss battens are constructed of two parallel horizontal members joined by vertical members at specified intervals.

b) Vertical members straddle either side of each pickup location with additional members at the midpoint between pickup locations, and at each end of the batten (if cantilever exceeds 10”).

c) Splices in horizontal members, where required, shall be centered on pickup locations, and shall occur at the same location at the top and bottom chord.

c. Electrics Truss Battens

i. Electrics truss battens are constructed of two parallel runs of pipe battens vertically offset by 2'-8" and joined by 2" x ¼" flat bar verticals
   a) Sleeved pipe battens shall be constructed of 1-½" nominal (1.9" outside diameter) Schedule 40 steel pipe per standard industry practice.
   b) Battens shall support 30 pounds per linear foot live load minimum.
   c) Offset splice locations from pickup locations.
   d) 24" close-fitted internal splice sleeves secured by two through-bolted 3/8-16 UNC cap screws. Holes 6" on center, 3" from ends of splice sleeves.
   e) Provide yellow soft plastic removable batten end caps covering last 2" to 2½" of pipe, for increased visibility of batten ends.

ii. Supply with single and double-purchase cable cradle assemblies for proper draping of multicable. Coordinate size and quantity with Section 11064. Cable cradle lift lines are in addition to quantity required to suspend the batten.

d. Outrigger Battens
   i. Provide outrigger batten of continuous 1-½" nominal (1.9" outside diameter) Schedule 40 pipe rigidly bracketed away from rigging wall for scenery stacking.
   ii. Outrigger support brackets shall be 1 ½" X 1 ½" angle. Outrigger support brackets may not be fastened to the arbor guide tracks. Align wall bracket locations with purlin points; coordinate with wall structure.
   iii. Provide bracket support for index strip lights.

e. Alternate batten constructions
   i. Alternative batten and splicing designs that meet the intent of this standard shall be deemed acceptable. Deviations from the typical construction shall require alternative batten sizing and design.
   ii. Engineering specifications for all truss-batten systems shall be developed to meet the performance criteria of the specific application.

D. Index Strip Lights
   1. The index strip lights shall be supported by an outrigger batten at stage level and at fly gallery.
      a. The outrigger batten, when used, shall be mounted so it does not interfere with the movement of purchase lines, or other building equipment.
      b. The batten shall be rigidly mounted to the guide wall, or directly to the building structure. The batten shall run the full length of the locking rail.
   2. Index strip light shall run the full length of the locking rail. Housing shall be constructed to adequately illuminate the locking rail without spilling light onto the stage. Paint interior of housing white. Paint exterior of housing black. Mount the strip lights prior to electrical termination by Division 16.
   3. Light strip to be constructed of 18-gauge steel with lamp sockets spaced at 24" O.C. and wired in parallel to a common circuit. Provide 40-watt A-type lamps for all sockets. Two 1000W rotary dimmers shall be provided and installed by Division 16.

E. Portable Capstan Winch

1. Provide ONE capstan winches: 1500-pound capacity, 35 feet per minute minimum lift speed as manufactured or supplied by Thern Stage Equipment of Winona, Minnesota. Only products meeting or exceeding these specifications shall be accepted as alternates. The capstan winch shall be:
   a. DW1M1-SP4
2. Structural steel castered frame with 4” minimum tread diameter. Heavy-duty rope line cleat, motor controls and extension cord hook mounted to frame.
3. Aluminum, Cast iron or carbon steel capstan, directly coupled by a properly-sized key to a worm gear, oil bath drive.
4. Block with sheave groove and diameter appropriate for rope, properly aligned for payout between locking rail and arbor carriages for the raising and/or lower of out-of-balance arbors.
5. Combination helical/worm right angle reducer with integral motor and brake by single manufacturer, double reduction gear train with helical gearing before worm gears for higher torque transmission mounted in cast iron housing
6. Gearing service factor: 1.0. Mechanical strength service factor: 1.3.
7. Input and output shafts protected by double lip oil seals to prevent leaks.
8. Direct acting AC, DC electromagnetic brake with manual release and minimum retarding torque equal to 200% of motor full load torque, 3-phase, 60 Hz., 208V motor with AGMA 1.0 service factor for continuous operation
9. Mobile dolly base with stationary casters in front and swivel casters at rear: 3” x 3” x 3/8” angle in front engages engaging channel at stage level locking rail. Side opening gate block shall protrude into the locking rail.
10. Provide “UP”, “STOP”, “DOWN” push button control and a full voltage-reversing starter with overload. Provide with SO type extension cord with Hubbell twistlock male plug of adequate length to accommodate normal operation of winch at any line set.
11. Provide 100’, white, 3/4" diameter, 13,300 pounds minimum breaking strength, parallel core, 100% polyester rope: Multi Line II rope as manufactured by New England Rope or Approved Equal. Provide forged safety hook at one end for attachment to arbor eyebolt.

2.6 SYSTEM SIGNAGE, IDENTIFICATION AND EQUIPMENT LABELS

A. General
   1. Signage shall be clearly legible, easily comprehended and succinct.
   2. Post pertinent safety signage adjacent to devices and systems that require it.
      a. Legends and control and protective device designations shall be engraved in panels.
      b. Operating instructions shall be located on appropriate equipment.
   3. Signage shall be visible to personnel during normal operation of equipment, but invisible to the audience.

B. Equipment shall be clearly labeled with manufacturer, working load, grade, etc.
   1. Manufacturers’ logos shall not appear on devices located in public areas or within view of the audience.

C. Provide signage, including but not limited to, the following, and as indicated elsewhere in the contract documents:
   1. Provide “Manual Counterweight Safety Sign” at stage level.
   2. Provide signage indicating live and total loading capacity for general purpose battens at stage level, fly gallery, and loading gallery locations.
   3. Provide signage at locking rails indicating line set number at each rope lock. Provisions shall be made for the temporary display of secondary descriptions.

4. Each batten shall be marked and labeled with its set number, stage centerline, and lift line locations. Each batten end shall also be marked.
5. Provide signage at loading gallery indicating the following:
    a. Loading gallery capacity
    b. Counterweight sizes and weights
    c. Warning against stacking weights at offstage kick plate, or above kick plates
6. Provide signage with contact name, company, address and phone number of primary system installer, manufacturer, supplier and the manufacturers of other significant system components.
7. Provide signage indicating further limitations and warnings as appropriate.

2.7 PERFORMANCE TRAVERSE TRACKS FOR CURTAINS

A. General
1. Provide Model 418PB as manufactured by H&H Specialties Inc., South El Monte, CA.
    a. Provide (3) complete assemblys for the locations on stage as noted in the schedule as shown on the drawings.
2. Furnish with all accessories necessary for operation including mounting clamps for installation on pipe battens or other supports. Provide stiffener battens if necessary to maintain proper track support centers.
3. Track shall be 14 gauge galvanized steel, roll-formed to 2-5/8” wide x 2-3/4” high channel with continuous slot in bottom. Provided unspliced in lengths up to 20’-0”.
4. Suspend track on 7' maximum centers with two-piece clamp hanger formed from 11 gauge steel. Provide 3' overlap at center, rigidly separated by two overlap clamps. Install end stop with cord support at each track end. Where lengths exceed 20'-0”, connect tracks with 12" long, two-piece splicing clamp of 12 gauge steel.
5. Provide single carriers, spaced on 12" centers, constructed of two neoprene-tired ball bearing wheels fastened parallel to black Super Tough nylon carrier body. Supply with heavy duty hook, swivel eye and trim chain for attachment of curtain. Install rear fold guide and two round neoprene bumpers between each carrier to fold curtain at offstage edges and minimize noise.
6. Master carriers shall be 4-wheel neoprene-tired ball bearing assemblies with bodies formed from 11 gauge steel. Connect to operating line with two formed steel cord clamps attached to each body. Supply each master carrier with two heavy duty hooks, swivel eyes and trim chains for attachment of leading edge of curtain.
8. Single and double end pulleys shall clamp securely to the underside of the track channel and shall be equipped with 8" diameter Nylatron GS sheaves grooved for 1/2" operating line. Install two 5/8" sealed precision ball bearings in each sheave. Lock shaft to side plate on head end with 3/16" keeper pin to prevent rotation and install fine-threaded nylon insert lock nut. Single End Pulley shall be slanted to allow for a narrower profile when installed.
9. Provide 8" Nylatron GS sheave with precision ball bearings in specially designed housing with heavy-duty sand bag to maintain proper operating line tension.
10. Black operating line shall be 1/2" diameter, stretch-resistant rope with spun polyester outer jacket double braided over solid polyester core.
11. All components shall be painted or plated with a Black Finish to resist corrosion.

2.8 STAGE CURTAINS AND DRAPERIES

A. MATERIALS
1. In all cases, fabrics are to be "first quality”. In no case shall “seconds” or re-dyed fabrics be acceptable.
2. All fabric to be free of crush marks, nap irregularities and any other abnormal markings.

3. All fabrics to be vat dyed with no variation of color or pigment impregnation. There shall be no evidence of streaking or color variation. Verification of fabric quality is the responsibility of the fabricator prior to sewing.
4. Materials to be through-flame proofed by immersion method at the mill and must conform to NFPA 701 Large and Small Scale testing and any additional local, state, and national codes that are applicable. Affidavits from fabric manufacturer attesting to flame proofing of the fabrics and methods used must be provided. Flame proofing tags must be sewn to the lower edge in the offstage corner of each piece of drapery goods.
5. There shall be no chemical leach out or crystallization from the flame proofing process.

B. MAIN CURTAIN AND MAIN BORDER
1. The face material of the Main Curtain and Main Border shall meet or exceed the following criteria:
    a. 100% cotton velour.
        i. 25 oz. per lineal year (per 54” bolt width).
        ii. “Memorable” by KM.
2. The color shall be a standard color selected from the manufacturer’s standard color card.
3. Each panel shall be finished with fullness as indicated on drawings, box pleated and sewn down.
4. Main Curtain shall be comprised of two panels for bi-part action, with continuous border as indicated on drawings.
5. Sew with cotton thread. Color to match face material. Thread shall have no apparent sheen with relationship to the face fabric.
6. The center edge of each pane shall be faced back with 12” of face fabric (minimum) and hand-tacked entire height with continuous catch stitching spaced 4” apart, seizing lining and facing material.
7. Offstage edges faced back 4”.
8. Each panel fully lined with #1400 Black Ranger Cloth. Tack lining to face material hems every 4’-0” on center horizontally in a similar fashion.
9. Box pleats at top of panels 1’-0” O.C. reinforced with heavy weight 3 ½” jute webbing. Vertical seams to be located so as to be hidden behind pleats.
10. At center of each pleat on Main Curtain, provide 1” cadmium plated rigid eye snap hook attached by nylon webbing strap sewn through curtain and jute webbing. This assembly shall be placed on the webbing so the top of the snap is flush with the top edge of the curtain.
11. At center of each pleat on Main Border, provide #2 black oxide finish brass grommets, double grommets at both ends, 4” apart. Center grommets on webbing. Provide one 2’-0” black #4 cotton braided tie line at each grommet. Center tie line to be white on masking borders and legs. Finish ends of tie lines to prevent unraveling.
12. 6” double-turned bottom hems with 0.75 lb per foot, weighted tape in a separate pocket inside hem. Continuous chain of equal weight, sewn in, shall be acceptable. Weight pocket to be 1” short of finished hem for Main Curtain, equal to finished hem for Main Border. Tack weight tape or chain 4’-0” on center to prevent chain from bunching.
13. Sizes and quantities as indicated on drawings.

C. STAGE MASKING (BORDERS, LEGS, TRAVELLERS)
1. The face material of the stage masking curtains, Portal Borders and Portal Legs shall meet or exceed the following criteria:
    a. 100% cotton velour
    b. 21 oz. per lineal yard (per 54” bolt width)
    c. “Marvel” by KM
2. The color of all stage masking draperies shall be black.

3. Travelers to be two panels for bi-part action. Continuous borders of lengths as indicated on drawings. All legs to be provided in pairs.
4. Each panel shall be finished with fullness as indicated on drawings, box pleated and sewn down.
5. Sew with cotton thread. Color to match face material. Thread shall have no apparent sheen with relationship to the velour.
6. Edges of side masking and the offstage edge of traveler panels are to be faced back with at least 4" of fabric. Edges of borders and tabs with 2" hems.
7. The on-stage edge of travelers shall be faced back 1'-0" (minimum).
8. Tops reinforced with 3 ½" jute webbing with #2 black oxide finish brass grommets, 12" O.C.; double grommets 4" on center at both ends. Center grommets on webbing. Provide one 2'-0" black #4 cotton braided tie line at each grommet. Center tie line to be white on all drapes. Finish ends of tie lines to prevent unraveling.
9. Bottoms of all masking to have 4" double-turned hems with 0.75 lb per foot weighted tape or continuous chain in separate pocket inside hem. Weight pocket to be 1" short of finished hem for full height masking and equal to finished hem for borders.
10. Sizes and quantities as indicated on drawings.

2.9 HEMP RIGGING SYSTEM

A. Blocks
   1. General
      a. Sheaves: cast ASTM A48 Class 30-35 gray iron, 8" nominal diameter minimum.
      b. Sheaves shall be concentrically bored, machine faced and grooved with equal pitch diameters for the required number of rope lines.
      c. Sheaves shall be bored for operation on 5/8" minimum diameter steel shafts and precision ball bearing assemblies; 1" minimum at multi-line blocks.
      d. Side plates shall fully enclose sheaves, 12-gauge minimum steel plate with mitered, trimmed and ground corners and edges; 10-gauge at multi-line blocks.
      e. Spacers between side plates strengthen the block housing; a minimum of 4 pipe spacers shall prevent cables from leaving groove of sheaves used for steel cable.
      f. Bead-weld side plates to base angles, at three locations minimum per angle.
   2. Upright Head Blocks:
      a. Upright rope line head blocks, with 5 sheaves minimum per block: 12
      b. Provide intermediate plates cut and shaped similarly to side plates to separate individual sheaves.
      c. Mounting by two full-width steel clips for thickness of channel flange at rope line head block well.
      d. Minimum safe working load: 900 pounds
   3. Upright Loft Blocks:
      a. Upright rope line loft blocks, with 1 sheave minimum per block: 48
      b. Provide each block with clip hardware package for mounting at head and loft block well and gridiron deck surface.
      c. Minimum safe working load: 400 pounds
   4. Swivel-Pivot Rope Line Mule Blocks: H&H Specialties Series 83 or Equal
      a. Rope line mule blocks, with 4 sheaves minimum per block: 4
      b. Straps shall extend beyond side plates, receive welded steel gussets and fasten to a formed steel swivel yoke.
      c. Stand shall be fabricated from 2 vertical and 2 horizontal steel angles welded with diagonal braces and angle spacers. Punch six sets of holes in vertical legs to provide multiple height locations for mule head attachment. Base angles punched with series of holes to accommodate a wide variety of loft well configurations.

d. Provide with clip hardware package for gridiron deck mounting
e. Minimum safe working load: 700 pounds

B. Rope:
1. Unspliced ¾” first grade line, 3-strand composite polyester around polyolefin Multiline II, 10,800 pounds average breaking strength, as manufactured by New England Rope, or approved equal. Tape ends before cutting; heat seal.
2. Provide 6 coils (1200 feet) of white Multiline II for general stock.

C. Trim Clamps:
1. Two piece cast steel with a minimum of 5 internal spring-loaded gripping fingers.
2. Fasten halves with ¼" machine screws and wing nuts.
3. Quantity: Provide 12.

D. Belaying Pins: Provide 1-5/32" x 21" long hickory belaying pins: one per hole at pin rails.

E. Sand Bags:
1. Heavy-duty 24 oz. canvas, or synthetic fabric, double-seamed and reinforced as required.
2. Overall diameter shall be a maximum of 12" for largest capacity bag.
3. Hem edges and top.
4. Provide rope slings sewn in double pockets with rated forged steel safety snap hook. Hook eye to have 1" minimum inside diameter.
5. Quantities:
a. 10 lb. bags: 4
b. 25 lb. bags: 16
c. 50 lb. bags: 8
d. 100 lb. bags: 4

F. Block and Tackle Assemblies:
1. Block and tackle assembly: 2
2. Supply triple-sheave standing block and running block, 3” minimum diameter. Hardwood housings, steel strap hangers with cast steel hook. Standing block shall have pressed steel thimble ring at bottom.
3. Supply with rope for a hoist travel of 30 feet minimum at 6:1 reduction.

2.10 MOTORIZED SELF CLIMBING TRUSS HOIST AND CONTROL SYSTEM

A. Manufacturer

1. Motorized self climbing truss hoist as specified herein shall be by one of the following manufacturer(s):

a. Thern Stage Equipment

712 Industrial Park Road

Winona, MN 55987

800-553-2204

B. Winch sets shall be motorized, with a gross rated capacity of 2500 pounds per set and a hoisting speed of approximately 15 feet per minute. The winch shall be designed to meet

ANSI E1.6.1-2012 requirements and maintain an 8 to 1design factor. All cables shall run continuously from the batten to the drums without clewing. Each winch drive unit assembly shall consist of a motor, brake, gear reducer, limit switch assembly, and individual drum for each lift line. All drives shall be direct. All mechanical parts shall be enclosed within the framing of the truss. No mechanical parts, including but not limited to, motor, reducer, flanges & drums, may protrude outside of the truss framing.

1. Drums
    a. Drums shall be machined from ductile steel pipe or tubing meeting ASTM standards. Drums shall be grooved and maintain a minimum D/d of 28. Drums shall have sufficient cable capacity in one layer for maximum travel plus three (3) dead wraps. Drums shall provide a keyhole-anchoring slot in order to allow for quick connection and disconnecting of the wire rope end.
    b. Drums shall be closely supported by flanged bearings.
    c. Steel retainers shall be provided to prevent cable from jumping out of grooves. These retainers shall be adjusted so that they do not bear on the cable when the cable is correctly seated in the groove.
2. Motor/ Gear Reducers
    a. The electric motor, primary brake, and gearbox shall be a single assembly. A continuous shaft shall link the brake, motor armature, and the first stage pinion gear, with no internal couplings.
    b. The motor shall be a high-efficiency, poly phase motor meeting IEC 60034-30.
    c. The motor shall have a minimum service factor of 1.15 for continuous operation.
    d. Gear reducers shall be combination helical-bevel reducer, directly flange-mounted to the motor/brake assembly.
    e. Gear reducers shall be enclosed in cast iron housings with precisely located gear set bearing supports. The cast iron house shall protect against shock damage and reduce noise transmission. Each housing shall have sufficient capacity for lubricant, and surface area for adequate heat dissipation.
    f. Gear reducers shall be SEW-Eurodrive “Helical-Bevel Gear”, or approved equal.
    g. Gear reducers shall be selected to safely transmit specified torque and horsepower and shall have a load classification service factor equal to or greater than 1.0.
3. Primary Brakes
    a. Brake shall be directly coupled to the motor armature.
    b. Brake shall be fail-safe disc brakes, spring set and electrically released.
    c. Brake shall stop and hold 200% of the full load torque.
    d. Brake shall engage automatically with the loss of power.
4. Secondary Brakes
    a. Brake shall be a fully mechanical over speed brake, directly mounted to the drum drive shaft.
    b. brake shall function independently of all other systems, and it shall not require any external sensors, controls, or power sources for engagement.
    c. Brake shall engage automatically when the preset speed threshold has been exceeded.
    d. Brake shall stop and hold a minimum of 150% of the full load torque.

5. Limit Switches
    a. Limit switches shall be of the rotary type, connected by steel drive chain to the shaft. The input shaft and drive chain shall be fully guarded, and the sprockets shall be keyed to the shafts.
    b. Each limit device shall have two upper and two lower adjustable travel limit limiting contacts.
    c. The four adjustable limit switches for each winch assembly shall operate as follows:
        1). Upper limit over-travel backup
        1). Upper limit of travel
        1). Lower limit of travel
        1). Lower limit over-travel backup
    d. Normal travel limit switches, when struck, shall not permit operation of the unit, except in the direction away from the limit switch.
    e. Over-travel limit switches, when struck, shall de-energize the motor, and shall not permit travel in any direction until specifically reset at the limit switch enclosure or with a keyed by-pass switch.
6. Truss
    a. Truss shall be aluminum 18”x12” General Purpose truss as manufactured by James Thomas Engineering or approved equal.
    b. Truss shall be design for modular connections.
    c. Truss shall include a custom engineered section to allow for a pantograph to be completely stored and deployed within the truss.

7. Controls
    a. Electrical controls shall be UL listed and carry a UL label.
    b. All electrical connections shall be made using pre-defined terminal strips.
    c. Each motor shall be provided with a magnetically operated, mechanically and electrically interlocked, reversing motor starter. Starter shall be sized to match the motor horsepower and rated for intermittent duty. Each motor shall include a thermal overload relay, sized to trip at 115% to 120% of "full load amps" as stamped on the motor name.
    d. A user interface shall be provided for operation of all self climbing truss units.
        1). The user interface shall include a keyed power switch, up and down momentary push buttons and a red Mushroom E-stop button.
        1). User interface shall have a pendant receptacle for the connection of an optional pendant.

PART 3 – EXECUTION

3.1 EXAMINATION

A. The Contractor shall examine areas and conditions under which the work under this Section is to be installed and shall notify the Owner's Representative in writing of conditions detrimental to proper and timely completion of work.
B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 ERECTION, INSTALLATION, APPLICATION

A. Install equipment securely, complete with bolts, nuts, washers, clips, fittings, supports, and other items required for proper installation and operation.
B. Position items accurately, true to plumb, line and level. Maintain maximum headroom and clearances at all points.
C. Obtain Owner's Representative's prior approval for field welding. Carry out approved field welding in accordance with "Load and Resistance Factor Design" specifications by the AISC.
D. Obtain Owner's Representative's prior approval for cutting and drilling of existing structural work. Do approved cutting, drilling, tapping and welding required to properly install work.
E. Clean structural steel and fabricated steelwork of rust, scale and foreign matter by grinding; prime with 1 coat primer; finish with 1 coat first quality machinery enamel free of skips, runs and saps. Touch up field connections, welds and abraded places with primer and enamel.
F. Install new, clean and un-deformed steel cables of diameters and construction specified. Use fittings and clips conforming to cable manufacturer's recommendations as to size, number and method of installation. Form eyes over properly sized thimbles at connection points.
G. Use mule blocks, cable rollers and guides where necessary to provide proper alignment and/or to prevent abrasion of tapes or cables by building, rigging or other equipment. Align winches, pulleys and sheaves to minimize fleet angles.
H. Install work in this Section in accordance with the Owner's Representative's direction, specifications, approved shop drawings, pertinent project drawings, established best trade practices and applicable code requirements.

3.3 ADJUSTING AND CLEANING

A. Check, operate and adjust equipment and components, including spare equipment, for performance in accordance with specifications, approved shop drawings, project drawings, and industry standard practice, prior to Demonstration.
B. Touch-up minor abrasions and imperfections as required.
C. Superfluous equipment and materials supplied shall be removed from the area(s) of the work, removed from the job site and disposed of legally at no additional cost to the Owner.

3.4 PROTECTION

A. Suitable precautions shall be taken to protect the equipment in this Section from damage after installation and prior to acceptance by the Owner.
B. Remove equipment protection and clean components thoroughly prior to the Demonstration.

3.5 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operation of all installed equipment for inspection by Owner's Representative.
B. Adjustments or modifications shall be made as directed by the Owner's Representative.
C. Cost of re-inspection (including associated travel and accommodation expenses) required due to incompleteness, errors, omissions, inferior substitutions, or other failure to successfully provide or demonstrate fully functional system(s), shall be borne by the Contractor.

Following the equipment demonstration, inspection and final adjustments, the Owner's Personnel shall be instructed in the use, care and maintenance of all items for a minimum of 8 hours on site. Instruction shall be by the Contractor's Project Manager, or technician familiar with the system performance, who is skilled in the training of groups as well as communication of technical information and jargon to laypeople.

END OF SECTION

Filename: 11 06 10 - Theatrical Rigging Equipment - Add 5
Directory: C:\Users\Archer23\Documents\1917-Woodland CC - PAC\11-Specifications\word doc
Template: C:\Users\Archer23\AppData\Roaming\Microsoft\Templates\Normal.dotm
Title: SECTION 11 130
Subject:
Author: Scott Walker
Keywords:
Comments:
Creation Date: 1/6/2022 4:38:00 PM
Change Number: 2
Last Saved On: 1/6/2022 4:38:00 PM
Last Saved By: JM
Total Editing Time: 0 Minutes
Last Printed On: 1/6/2022 4:38:00 PM
As of Last Complete Printing
Number of Pages: 27
Number of Words: 9,842 (approx.)
Number of Characters: 56,104 (approx.)

SECTION 11 06 40 - THEATRICAL LIGHTING CONTROL 

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

A. The system shall be designed for the control of architectural and theatrical lighting and shall consist of factory pre-wired dimming and processing rack enclosures containing dimmers, relays, power supplies, breakers, terminals and/or control electronics.

B. System shall work in conjunction with specified low-voltage control stations.

1.02 SUBMITTALS

A. Manufacturer shall provide 3 sets of full system submittals. Submittals shall include:

B. Full system riser diagram(s) illustrating interconnection of system components, wiring requirements, back box sizes and any special installation considerations.

C. Full set of printed technical data sheets.

D. Detailed set of dimmer schedules

E. Detailed set of circuit and control schedules, including a complete list of all deviations from specifications.

F. Manufacturer shall provide any additional information, including equipment demonstrations, as required by the engineer or specifier to verify compliance with specifications.

1.03 QUALITY ASSURANCE

A. Manufacturer shall be one who has been continuously engaged in the manufacturer of lighting control equipment for a minimum of ten years. All dimmer and cabinet fabrication must take place in a U.S. manufacturing plant.

B. The manufacturer shall have a factory authorized stocking service center with at least one full time service technician on staff located within 150 miles of the job site. In addition, the manufacturer shall have a toll free 24-hour hotline with a maximum response time of 20 minutes, 24 hours a day and 365 days a year.

C. All equipment, where applicable standards have been established, shall be built to the standards of Underwriters Laboratories, Inc., the National Electric Code and the United States Institute for Theater Technology. Permanently installed power distribution equipment such as dimmer racks and distribution shall be UL and C-UL Listed, and/or CE marked (where applicable) and bear the appropriate labels. Portable equipment such as consoles and fixtures shall be UL and C-UL Listed, ETL Listed and/or CE marked (where applicable) and bear the appropriate labels.

1.04 ACCEPTABLE MANUFACTURERS

A. The equipment herein specified shall be manufactured by ETC

B. Alternative manufacturers must submit a full pre-approval package ten days prior to bid date. Package shall consist of items listed in Part 1, Section 1.03A.

C. Permission to bid does not imply acceptance of the manufacturer. It is the sole responsibility of the electrical contractor to ensure that any price quotations received and submittals made are for controls systems that meet or exceed the specifications.

PART 2 - PRODUCT

2.01 WALL MOUNT RELAY PANEL AND LOAD CENTER

A. General

1. The wall mount relay panel shall be the Echo Relay Panel as manufactured by ETC, Inc., or equal.

2. Relay Panels shall be UL508, UL67, and UL924 Listed, and shall be so labeled when delivered.

3. Relay Panels shall consist of a main enclosure with 30 pole breaker subpanel, relay/dimmer sub panel, integral control electronics, and a low voltage subpanel for data terminations and provision for accessory cards

   a. Up to three accessory cards shall be supported per relay panel

B. Mechanical

1. The panel shall be constructed of 16-gauge steel. All panel components shall be properly treated and finished in fine-textured, scratch resistant paint.

2. Relay panels shall be available in 120 and 277 Volt AC configurations

   a. 120V enclosures shall be 67.5” high by 14.36” wide and 4” deep with a weight not more than 80 pounds.

   b. 277V enclosures shall be 67.5” high by 20” wide and 6” deep with a weight not more than 130 pounds.

3. The panel shall be capable of being mounted on the surface of a wall or recessed mounted.

   a. 120VAC panels shall support mounting between standard wall stud framing (16-inch on center spacing)

4. Choice of panel covers shall be available for surface or recess mount applications. This outer panel shall ship complete with a locking door to limit access to electronics and breakers, breakers.

   a. Optional center-pin reject security screws shall be available for all accessible screws.

   b. Recess mount doors shall extend 1” beyond all panel edges to hide wall cut-out

5. The unit shall provide interior cover over breaker panel to allow access only to class 2 wiring and prevent direct access to class 1 line voltage components.

6. The Relay panel shall support up to twenty-four 20-amp single pole circuits made up of relays or 300W phase-adaptive dimmers

a. Two and three-pole relay circuits shall be supported at decreased density where each pole constitutes one of the available single-pole circuits. Mixing of circuits in any combination shall be supported.

7. Relays shall include integral switches for manual control while power is unavailable to the panel such that critical lighting can be set to an on state, without the need for power to the panel.

8. Relay output lugs shall accept 6-14AWG copper wire

9. Breaker subpanel may include up to twenty-nine 20 amp single pole, up to fourteen 20 amp double pole, or nine three pole breakers as required in any combination up to capacity.

10. Control wiring for DMX, station bus, and Emergency input terminations shall land on removable headers for contractor installation.

C. User Interface

1. The user interface shall contain a graphical display with button pad to include 0-9 number entry, up, down back arrow navigation and enter.

2. Test shortcut button shall be available for local activation of preset, sequence and set level overrides.

3. The user interface shall have a power status LED indicator (Blue), a DMX status LED indicator (Green), a network status LED indicator (Green) and an LED indicator (red) for errors.

4. Interface shall allow the backlight to timeout and shall provide user editable options to shut off backlight completely as well as adjust screen contrast.

5. Ethernet interface (when installed) shall default to automatic IP through link local and DHCP. Upon receiving IP address, the address of the Network Interface Card (NIC) shall display in the about menu. Static address and settings shall also be possible.

6. The control interface shall support a USB memory stick interface for uploads of configurations and software updates

D. Functional

1. Panel setup shall be user programmable. The control interface shall provide the following relay setup features (per circuit):

a. Type (1 pole, 2 pole, or 3 pole)

b. Name

c. Circuit Number

d. DMX address

e. ACN address (network enabled panels only)

f. Space Number

g. Circuit Modes

1) Normal (priority and HTP based activation and dimming)

2) Latch-lock

3) Fluorescent

4) DALI

h. On threshold level

i. Off threshold level

j. Include in UL924 emergency activation

k. Allow Manual

2. Relay panels shall support discrete addressing of each relay. Panels that are restricted to use of start address with sequential addressing and cannot assign each 0-10V output control to any internal relay shall not be acceptable

3. The panel shall be capable of switching all relays on or off at once, or in a user-selectable delay per relay using a period of 0.1 to 60 seconds, in 0.1 second increments

4. Control electronics shall report the following information per branch circuit:

a. Breaker state (On/Off)

b. Relay state (Open/Closed)

c. Current draw (In Amps)

d. Voltage

e. Energy usage

5. Built in Control shall include:

a. Ability to record up to 16 presets in each space from the control panel, connected control stations, or timed events

b. Presets shall be programmable by recording current levels (as set by DMX or connected control stations), by entering levels on the control panel directly, manually selecting relay state on each relay or a combination of these methods. From the control panel, stations, or timed events it shall be possible to record values for up to 16 zones per space.

c. Up to 8 spaces in a single rack for total of up to 16 spaces shall be supported per system or system subnet

d. Indication of an active preset shall be visible on the control panel display.

e. One 16-step sequence per space for power up and power down routines

f. The panel shall have a UL924-listed contact input for use in Emergency Lighting systems. The panel shall respond to the contact input by setting included relays to “on”, while setting non-emergency relays “off”. Each relay can be selected for activation upon contact input.

g. Upon Data loss the system shall provide options to hold last look infinitely or hold for a configured time period set by the installing technician then fade/switch to the input of the next available priority.

h. Control electronics shall respond directly to control stations for zone, preset, and sequence control. Systems that require secondary control systems for this functionality are not acceptable.

i. After power loss, electronics shall be capable of holding the system in its previous state until new level data (DMX, architectural presets, sequences and zones, or local overrides) is received to make each relay change state.

6. The control of lighting and associated systems via real time and Astronomical clock controls.

a. The relay panel shall allow the activation of presets, sequence, and zone programming of up to 50 time clock events via a built in real and astronomical timeclock.

b. System time events shall be programmable via the control panel.

1) Time clock events shall be assigned to system day types. Standard day types include: everyday, weekday, weekend, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday.

2) Time clock events shall be activated based on sunrise, sunset, time of day or periodic event.

3) System shall automatically compensate for regions using a fully configurable daylight saving time.

4) Presets shall be assigned to events at the time clock.

c. The time clock shall support event override

1) It shall be possible to override the timed event schedule form the face panel of the time clock

d. The time clock shall support timed event hold

1) It shall be possible to hold a timed event from the face panel of the processor

2) Timed event hold shall meet California Title 24 requirements

7. The panel shall receive ESTA DMX512-A control protocol. Addressing shall be set via the user interface button keypad with any relay being patched to any DMX control address.

a. 2,500V of optical isolation shall be provided between the DMX512 inputs and the control electronics as well as between control and power components.

b. The relays shall respond to control changes (DMX or Stations) in less than 25 milliseconds. DMX512 update speed shall be 40Hz.

c. Setting changes shall be able to be made across all, some, or just one selected relay in a single action from the face panel

d. DMX data loss shall allow for levels/relays to be held for ever or for a specified time before switching to a lower priority source

e. Initial Panel setup

1) The relay panel shall automatically detect the type of relay or dimmer installed in each location without need for manual configuration of the physical arrangement.

2) Quick rack setup shall be available to apply address settings across all circuits for rack number, DMX Start Address, sACN universe, and sACN start address.

3) Emergency Setup Menu shall provide optional delays when emergency is activated or deactivated, and option to turn off non-emergency circuits shall be available. Record function shall allow circuits that are turned on to be added to the emergency setting.

E. Electrical

1. Relay Panels shall be available to support power input from:

a. 120/208V three phase 4-wire plus ground

b. 120/240V single phase 3-wire plus ground

c. 277/480V, 230/400V and 240/415V three phase. 4-wire plus ground

2. Conduit Entry:

a. Feeders:

1) Top or top-side (upper 6” of either side)

2) Bottom or bottom-side 6” of either side

3) Feeders shall enter through the top or bottom according to the orientation of the enclosure.

4) Feeder entry shall be nearest to the location of the feeder lugs or main breaker.

b. Load:

1) Load wiring shall enter through the top or bottom of the enclosure.

2) Load wiring shall enter through the top/bottom surface nearest to the breaker sub panel.

3) Load wiring may also enter through left and/or right side provided a low voltage chase is not required through the same area. If class 2 chase is required, a field installable barrier panel shall be provided upon request. When installed, the left or right side of the panel, where the barrier has been installed, shall not permit load wiring.

c. Low Voltage:

1) Top or top-side (upper 6” of either side)

2) Bottom or bottom-side (bottom 6” of either side)

3) For low voltage conduit entry at the relay end of the cabinet, conduits shall be located at the outer 3” of the top/bottom panel.

4) Field installed low voltage channel shall be provided separately for installation on the left or right side of the panel to allow class 2 wiring to traverse the panel from top to bottom or bottom to top.

3. All relays shall be mechanically latching

4. The relay shall be capable of switching 20A at up to 300V

5. The relay panel shall support a maximum feed size of 200 Amps

6. Relay panels shall support main circuit breaker options:

a. Main breaker options shall be optional and available for purchase upon request

b. Main breakers shall be field installable

c. Main breakers shall be available in 100 and 200 Amps for 120V systems and 150 Amps for 277V systems

d. Series rated SCCR ratings apply as follows with appropriate main breaker:

1) 22,000A at 120/240V

2) 10,000A at 100A; 120/208V

3) 10,000A, 22,000 or 42,000 at 200A; 120/208V

4) 14,000A at 150A and 200A; 277V/480V

5) 65,000A at 200A; 277V/480V

e. Main breakers shall allow the following range of wire sizes:

1) 1AWG-300kcmil at 120/240V

2) 3/0 to 300kcmil at 120/208V

3) 6AWG-300kcmil at 277V/480V

F. Relay

1. Each relay shall have a manual override switch with on/off status indication.

2. Relays shall be rated for use with:

a. 20A 277V Ballast (HID)

3. 16A Electronic Ballast loads @ 120, 240 and 277V

4. 20A Tungsten loads at 120, 240, and 277V

5. Motor loads with ratings of 20 FLA @ 120V, 17 FLA @ 240V, and 14 FLA @ 277V 100,000A symmetrical SCCR

6. Isolation: 4000V RMS

7. shall use latching state relays

8. Rated Life:

a. 1,000,000 mechanical activations

b. 100,000 cycles at full resistive load

c. 30,000 cycles full motor, inductive, tungsten, and electronic (LED)

d. Decreasing loading shall increase the rated life of the relay inversely proportional the square of the load

9. Shall support reporting of current usage with an accuracy of five percent of the connected load

G. Relay Panel Accessories

1. Ethernet Option shall provide advanced control of relays over streaming ACN (sACN) and transmit status, control override, and measured energy usage per branch circuit to web browser based interface or central monitoring interface

2. A Low Voltage 0-10V Dimming Option shall link each of the 24 0-10V outputs with a relay circuit in the panel. Each output shall support up to 400mA of current sink for support of at least 50 LED drivers of fluorescent ballasts

3. A Contact Input Option shall allow 24 dry contact inputs to be linked for direct or group relay control, to activate a preset, or to activate a sequence. Controller software shall allow for normally open maintained, normally closed maintained, or momentary toggle.

4. A DALI Control Option shall provide 24 control loops of broadcast DALI control with each loop controlling up to 64 ballasts.

5. A RideThru Option shall provide short-term power backup of control electronics by automatically engaging when power is lost, and recharging when normal power is present

6. A Tamperproof Hardware Kit shall include center reject Torx head screws to prevent access to panel interior by unqualified individuals

7. Main Breaker options shall be available as shown in Section G.2

H. Thermal

1. The panel shall be convection cooled. Panels that require the use of cooling fans shall not be acceptable

2. The panel shall operate safely in an environment having an ambient temperature between 32ºF (0ºC) and 104ºF (40°C), and humidity between 5-95% (non-condensing).

2.02 GENERAL NETWORK

A. General

1. The network shall provide data distribution over a TCP/IP network. Data shall be layer 3 routable over the Ethernet network. Systems using proprietary formats or formats other than TCP/IP or non-layer 3 routable networks shall not be accepted.

2. Connections shall be made between consoles, facepanels, architectural processors, computers and nodes over standard Ethernet distribution systems using 10/100BaseT wiring and/or 10/100BaseFL.

3. All installations shall conform to established Ethernet wiring practice and installation shall be performed by contractors qualified to do this type of work. All wiring shall be tested at Category 5 for full bandwidth operation to the appropriate IEEE standard.

4. The Lighting Control system must be supplied by a single manufacturer and must have seamless integration over Ethernet between the Entertainment and Architectural lighting control.

B. Capacities

1. The network shall provide DMX routing and patching and prioritization for up to 32,767 DMX addresses and DMX data may be input or output from any port on any DMX node in the system. DMX input, routing and output shall be specifically supported on the system from multiple sources and locations up to the maximum number of nodes supported by the Ethernet topology.

2. The network shall support multiple consoles, computers, file servers, printers, and architectural processors with discrete command lines and control. The network shall support multiple venues/systems on the same network.

3. Network configuration shall be via Network Configuration Editor (NCE) software. The software shall permit complete user flexibility allowing the system operator to patch DMX data over Ethernet DMX (EDMX), assign node labels for easy identification, assign RFUs to specific systems in multi-system networks, assign DMX offsets and provide DMX port prioritization.

4. Each node shall have a specific IP address provided automatically by the software. The user may edit this IP address. Systems that do not support simple Windows configuration or systems that do not allow complete reconfiguration of the above mentioned features over Ethernet shall not be acceptable.

5. All configuration data for each network device shall be held at the device and system operation shall not require continuous on line operation of the network configuration software.

6. Architectural and Entertainment systems connected to the same network shall be capable of arbitrating control over EDMX data. The system shall be capable of alternating control of individual dimmer data between architectural and entertainment systems without intervention by the user. The user shall dictate the conditions under which system shall automatically take control and the network shall allow user override of the user selected defaults. Systems which require direct user intervention to allocate control of dimmers between architectural and entertainment lighting systems shall not be allowed.

7. The network shall allow multiple DMX inputs assigned to the same EDMX range to be set at different priorities. This shall allow the user to assign high or low priority to each DMX input port in the network on a port by port basis. The network shall require a valid DMX signal present at the input to initiate prioritization. Systems that do not allow for prioritization shall not be allowed.

C. Operational Features

1. The video monitor outputs at any video node shall be able to monitor the video output of any compatible console connected to the network.

2. Each DMX Node shall control up to 2048 DMX addresses, within the confines of up to 64 DMX (32,767 EDMX address) “universes”. The specific DMX data input or output by the Node shall be freely configurable by the user. Duplicate outputs of DMX lines (DMX splitter) and discrete outputs shall be fully supported.

3. Any number of DMX universes may be configured with any length up to 512 addresses as long as the total does not exceed 32,767. Any range of DMX addresses may be selected for each. Multiple sources may be combined and a priority may be assigned to each source. Each DMX line may have its own start address and offset for ease of use.

4. DMX ports shall be configurable for either input or output. Multiple DMX signal routing patches and multiple facilities shall be specifically supported and limited only by the file storage capacity of the computer with Network Configuration Editor software installed.

5. File transmission, synchronization and access to File Servers using Microsoft NT server software shall be supported.

6. All Network configuration information shall be available as a system printout.

2.03 POWER DISTRIBUTION EQUIPMENT

A. General

1. Connectors available are 20A, 50A and 100A grounded stage pin, 20A twist lock and 20A “U” ground (dual rated “T-slot”); other connectors available as specified. Pigtails shall be three-wire type “SOW” rubber jacketed cable sized for the circuit ampacity. Internal wiring shall be sized to circuit ampacity and shall be rated at 125°C.

    a. 20 amp cable mount stage pin connectors shall be 12 gauge 4 way indent crimp (with inspection window) type where the wire is inserted and crimped directly in the socket.

2. Terminations shall be at one end using feed through terminals individually labeled with corresponding circuit numbers. 20 amp circuits shall use screwless tension clamp terminals listed for 20 – 8 gauge wire. 50 amp circuits shall use compression terminals listed for 10 – 1 gauge wire and 100 amp circuits shall use compression terminals listed for 8 – 2/0 gauge wire. (Terminals that place a screw directly on the wire are not acceptable.)

3. Equipment, except for wall-mounted boxes, shall be supplied with appropriate brackets and hardware for mounting as shown on the drawings. Connector strips shall have brackets on 5’ centers. Brackets shall be 1½” x .188” ASTM A 36 steel and hardware shall be ASTM A307 grade 5.

4. Power distribution equipment shall be Underwriter Laboratories (UL) Listed.

B. Outlet Boxes

1. Outlet Boxes shall be fabricated from 18-gauge cold rolled steel with 16 gauge covers. They shall be finished with fine-textured, scratch-resistant, black powder coat. Circuit numbers shall be 2” or ¾” labels with white letters on black background (sized to match product). Outlets shall be spaced on 3” centers, or as otherwise specified.

a. Outlet Box circuit number labeling:

Circuits labeling shall be 2" or ¾" (sized to match product) lettering engraved in the cover.

(Note: this changes cover material to .080 AL).

2.04 POWER DISTRIBUTION – CONNECTOR STRIPS

A. General

1. Connectors shall be available as 20A, 50A and 100A grounded stage pin, 20A twist lock and 20A "U" ground (dual rated "T-slot"); other connectors shall be available as specified.

2. Internal wiring shall be sized to circuit ampacity and shall be rated at 125°C.

3. Pigtails shall be three-wire type "SOW" rubber jacketed cable sized for the maximum circuit ampacity.

4. Pigtails with 20 amp stage pin connectors shall be terminated using 12 gauge 4 way indent crimp (with inspection window) type where the wire is inserted and crimped directly in the socket.

5. Terminations shall be at one end using feed-through terminals individually labeled with corresponding circuit numbers.

a. 20 amp circuits shall use screwless tension clamp terminals listed for 20 – 8 gauge wire.
b. 50 amp circuits shall use compression terminals listed for 10 – 1 gauge wire.
c. 100 amp circuits shall use compression terminals listed for 8 – 2/0 gauge wire.
d. Terminals that place a screw directly on the wire are not acceptable.

6 Connector strips shall be supplied with appropriate brackets and hardware for mounting as shown on the drawings

a. Connector strips shall have junction brackets on 5' centers.
b. Brackets shall be 1½" x .188" ASTM A 36 steel
c. Hardware shall be ASTM A307 grade 5.

7. A low voltage distribution system shall be available to incorporate DMX, Ethernet or other protocols as specified in the connector strip. Connector strips shall utilize a voltage barrier to accommodate these systems. Low Voltage signals shall enter the connector strip via a strain relief or connector mounted in a separate low voltage terminal box at the specified end of the connector strip. Up to four low voltage cables shall be supported for each connector strip.

a. Connector strips with multiple DMX outputs from the same source shall use DMX pass through assemblies consisting of a 6" panel with the one DMX output connector, one DMX input (Pass Through) connector, one DMX pass through (Bypass) switch, and a label detailing the use of the pass through assembly.

b. The bypass switch shall be used when no DMX devices are present at

that location. When activated, the DMX pass through switch shall pass DMX directly through to the next DMX panel on the strip. The pass through switch shall have a mechanical indicator to show the operator that it has or has not been engaged

8. Connector Strips shall be listed by a nationally recognized test lab (nrtl).

B. Physical

1. Connector strips shall be 6.25” H x 3.3” D and fabricated from 18-gauge galvanized steel and finished in black fine-texture powder coat paint.

    a. Covers shall be fabricated from 16-gauge galvanized steel

2. Connector strips shall be available in any length specified in increments of 6” and shipped fully wired with all splicing hardware.

3. Pigtails and outlets shall be spaced on 18” centers, or as otherwise specified.

4. Outlets shall be mounted on individual 3” panels and there shall be

5. No external terminal boxes shall be required for connector strips with 28 or fewer circuits unless otherwise specified.

6. Circuits shall be labeled on the connector strip with 2” lettering.

    a. Circuit labeling options shall include:

        1) Circuits shall be labeled on the front side of the connector strip with white lettering on black background labels.
        2) Circuits shall be labeled on front and back sides of the connector strip with white lettering on black background labels.
        3) Circuits shall be labeled on the front side of the connector strip with engraved lamicoid labels utilizing white lettering on black background labels.
        4) Circuits shall be labeled on the front and rear sides of the connector strip with engraved lamicoid labels utilizing white lettering on black background labels.
        5) Circuits shall be labeled on one side of the connector strip using individual circuit cover plates with lettering engraved in the cover and filled with the specified color.
        6) Circuits shall be labeled using specified labeling per plans and drawings

7. Connector strips shall support optional LED indicators to indicate the presence of power at each local circuit. The indicator shall be red in color and mounted in the connector strip

    a. The LED indicator shall be mounted in the lower right corner of the outlet panel
    b. The LED indicator shall be mounted in the connector strip trough directly below the outlet panel.
    c. The LED indicator shall be mounted in the center of the 3” plate directly below the circuit label for pigtail circuits

C. Junction Boxes

1. Gridiron junction boxes shall be available to accommodate SO or SOW cable wiring into connector strips mounted to non-fixed locations

2. Junction Boxes shall be fabricated from 16-gauge cold rolled steel with 14 gauge end panels. They shall be finished with fine-textured, scratch-resistant, black powder coat paint. Cover(s) shall be 16-gauge cold rolled steel and hinged to allow mounting in any direction.

2.05 COMPANY SWITCH

A. General

1. The Company Switch shall be available in 2 models: PowerSafe Pro, and PowerSafe Compact; as designed by Electronic Theatre Controls.

2. Compact Models shall be available at 120/208V: 100A, or 200A; 3-phase, 4-wire plus ground.

3. Pro Models shall be available at 120/208V: 100A, 200A or 400A; 3-phase, 5-wire (double neutral) plus ground.

4. The Company Switch shall be UL and cUL listed and shall meet all applicable NEC standards.

5. The enclosure shall be NEMA 1 rated.

B. Mechanical

1. The Company Switch shall be fabricated of 16 gauge steel and finished using ETC styling with fine-textured scratch resistant epoxy paint.

2. The door which provides access to output connections shall be lockable with shunt trip interlock.

3. The “Compact” Enclosure size shall not exceed 25” high by 15.5” wide and 6” deep. The “Pro” Enclosure size shall not exceed 43.8” high by 18” wide and 6” deep.

4. Company Switch shall protect against access to power connections while the cabinet is energized so it can be guaranteed that output is in a “power off” state while connecting or disconnecting portable output cabling.

5. The company switch shall protect the user from unsecured access to output terminals and connectors in the following methods:

a. PowerSafe Compact: Door brackets shall lock swing hinged covers in place until the front door is opened. These brackets shall prevent insertion of connections under power.

b. PowerSafe Pro: Front access connector compartment shall protect against access to output connections behind a locked door while the cabinet is energized

6. The “Pro” Enclosure size shall not exceed 43.8” high by 18” wide and 6” deep.

7. Conduit entry shall be made via top, or side. Top and side panel shall free of conduit knockouts to allow for greater flexibility in contractor conduit entry.

8. A method of field isolating company switch chassis ground and connected equipment ground (“ISO ground”) shall be supported without installation additional kits or parts. Company Switch products that require additional parts to be shipped or factory configuration of “ISO ground” shall not be deemed acceptable.

9. Company switch shall accept 3rd party locks on built- in bracket for support of NFPA 70E safety lockout/tagout procedures.

10. The unit shall be capable of mounting on a wall with integral keyhole fixing points.

11. LED power indicators shall be provided to show that power is on/available between each phase and neutral.

12. PowerSafe “Pro” shall provide an LED Work Light shall automatically illuminate the output connectors and lugs during “hook up” of portable equipment cabling.

13. Lugs shall support up to 4/0 class K cable for bare end tie-in through 500kcmil screw terminals.

C. Electrical

1. Six, single pole, CAM style connectors shall be supported for each phase, neutral, and ground. Standard order connector genders shall be females for each phase, with male ground and neutral connectors. Other connector gender combinations shall be available on request.

2. PowerSafe Pro shall include dual neutral output connections for support of 200% rated neutral.

3. The enclosure shall accept up to 200A or 400A copper or aluminum to the full name plate rating of the enclosure at 100% of the rated main breaker with a minimum AIC rating of 65,000A.

4. System rating of Company Switch shall be 65,000 amps symmetrical Short Circuit Current Ratting (SCCR). Company Switch products that rely only on breaker AIC rating as a short circuit safety factor shall be deemed unacceptable. Company Switch products that have not proven this safety rating through high current short circuit testing with UL shall not be deemed safe for use under UL SCCR requirements and therefore are not acceptable.

C. Available Accessories

1. An option shall be provided and approved by UL for connection of field installed current transformers around incoming power conductors for connection to external 3rd party power meters.

2. An option shall be available in the PowerSafe Pro for strain relief.

2.06 Control Enclosures – ERn Series

A. The Control Enclosure shall be the Unison ERn Series Control Enclosure as manufactured by Electronic Theatre Controls, Inc., or equal.

B. The Unison Control Enclosure (ERn) shall be a surface mounted Enclosure constructed of 18 gauge formed steel panels with a hinged, lockable full-height door containing an integral electrostatic air filter. The Enclosure door shall have an opening to allow limited access to the control module face panel.

C. Control Enclosures shall be sized to accept one or two Control Processors, including options and accessories.

D. All Enclosure components shall be properly treated and finished.

1. Exterior surfaces shall be finished in fine textured, scratch resistant, powder based epoxy paint.

E. Top, bottom, and side knockouts shall facilitate conduit entry.

F. Enclosure shall also be available in a 19” rack mounted (RM) version.

G. Enclosures shall be convection cooled without the use of fans.

H. Control Enclosures shall be available in 100, 120, 230 and 240 volt, single-phase configurations.

I. Control Enclosures shall be completely pre-wired by the manufacturer. The contractor shall provide input and control wiring.

J. All control wire connections shall be terminated via factory provided connectors.

K. Control Enclosures shall be designed to support the wire terminations for AC (single phase), Echelon link power, 24Vdc, 2x configurable DMX512A (In or Out), RS232 Serial In/Out ,Unshielded Twisted Pair (UTP) Category 5, 4x Contact Closure In, and 4x Contact Closure Out.

2.07 Architectural Control Processor Modules

A. The Architectural Control Processor shall be the Unison Paradigm P-ACP Series Control Processor as manufactured by Electronic Theatre Controls, Inc., or equal.

B. The Architectural Control Processor (ACP) assembly shall be designed for use in DRd Series Dimming Enclosures and ERn Series Control Enclosures.

C. The processor shall utilize microprocessor based, solid state technology to provide multi-scene lighting and building control.

1. ACP shall support functions such as station programming, macro sequencing, electronic lockout, room combine and astronomical time clock events. ACP station processor shall allow configuration of the control system via the menus. See software section for additional system details.

2. When used in a dimming enclosure, the ACP shall allow access to dimming control menus including the status screen, dimming configuration screen, backup menu, test menu and configuration menu.

D. One ACP shall be rated to drive 1024 channels of control, 1024 zones, 64 rooms, 512 presets, 62 button or button/fader stations and 6 Touchscreen Stations

E. ACP module electronics shall be convection cooled.

F. The ACP shall provide front-panel RJ45 jack, Secure Digital (SD) card slot, and Universal Serial Bus (USB) Port for configuration and data exchange.

G. Architectural Lighting System configuration and program information shall be stored in flash memory, which does not require battery backup.

H. The ACP shall be contained in a plug-in assembly and require no discrete wiring connections; all wiring shall be terminated into Dimming or Control Enclosure.

1. The ACP shall support the following communications:

a. Echelon LinkPower
b. 10/100BaseTX, auto MDI/MDIX, 802.3af compliant Ethernet networking with TCP/IP, ESTA BSR E1.17 Advanced Control Networks (ACN) and ESTA BSR E1.31 (sACN) Protocols
c. EIA-232 serial protocol
d. ESTA DMX512A, configurable as input or output ports
e. Dry contact closure inputs
f. Dry contact closure outputs, rated at 1A@30VDC

2.08 TOUCHSCREEN CONTROL STATIONS

A. The Touchscreen Control Stations shall be the Unison Paradigm Touchscreen P-LCD Series Control Stations as manufactured by Electronic Theatre Controls, Inc., or equal.

B. General
1. Touchscreen stations shall support default and fully graphical control pages.
2. The Touchscreen station shall operate using graphic buttons, faders and other images on at least 30 separate programmable control pages.
3. Touchscreen stations shall also allow programming of page pass-code, lock out and visibility levels.

C. Mechanical
1. Touchscreen stations shall consist of a seven inch, backlit liquid crystal display (LCD) with a minimum resolution of 800 by 400 pixels and 12-bit color depth with a touch interface.
2. Touchscreen bezels shall be constructed of aluminum and shall have no visible means of attachment.
a. The bezel shall install and remove without the use of tools.
b. The bezel shall provide two working positions for the Touchscreen: service and operating.
3. The Touchscreen shall have a protective overlay over the display.
a. The overlay shall reduce wear
b. The overlay shall reduce glare
4. The manufacturer shall provide backboxes for all LCD stations.
a. Flush back box dimensions shall be 7.94” wide x 5.33” high x 3.25” deep
b. Surface back box dimensions shall be 8.3” wide x 5.6” high x 2.55” deep

D. Electrical
1. Touchscreens shall be powered entirely by the System network.
2. Touchscreens shall connect to the System using an Ethernet network with Power over Ethernet (PoE) or the Unison control station Echelon® Link power network.
a. Ethernet Network
1) Ethernet network shall be 10/100BaseTX, auto MDI/MDIX, 802.3af compliant.
2) Network shall utilize Unshielded Twisted Pair (UTP) Category 5 wiring.
b. Echelon® Link power network.

1) Link power shall utilize low-voltage Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
2) Touchscreen stations shall also require (2) #16 AWG stranded wires for 24Vdc operating power. 24Vdc wiring shall be topology free.
3) Network wiring may be bus, loop, home run, star or any combination of these.
4) Network insulation displacement connectors shall be provided with all stations.

E. Functional
1. System
a. The Touchscreen shall support configuration firmware upload from a Paradigm Processor as proxy
b. The Touchscreen shall support configuration or firmware upload from local removable media
2. Setup Mode
a. There shall be a setup display that is separate from any user-defined configuration
b. It shall be possible to view and modify connectivity settings
c. It shall be possible to view status information
d. It shall be possible to view and modify LCD screen settings
e. It shall be possible to perform Touchscreen calibration
f. It shall be possible to view and modify audio settings
g. The appearance of the setup display shall be standard and not editable
h. The setup display may be invoked from within the user-defined configuration and/or physical button on the Touchscreen
i. There shall be a default protected method to invoke the setup display
3. Configurations
a. It shall be possible to have multiple configurations stored within an LCD Station
b. Only one configuration may be active on the LCD Station
c. It shall be possible for Touchscreen Stations connected via the Echelon® Link power network to select a configuration automatically based on the configuration of the physical connection.
d. Where multiple configurations are stored there shall be a boot menu to allow selection of a configuration
e. Each configuration shall be identified as a different Station within the System
4. Operation
a. The Unison Paradigm Control System shall be designed to allow control of lighting and associated systems via Touchscreen controls. System shall allow the control of presets, sequences, macros and time clock events.
1) System presets shall be programmable via Button, Button/Fader, Touchscreen, or LightDesigner software.
a) Presets shall have a discrete fade time, programmable from zero to 84,600 seconds with a resolution of one hundred milliseconds.
b) Presets shall be selectable via Touchscreen stations.
2) System macros and sequences shall be programmable via LightDesigner system software.
a) Macro and sequence steps shall provide user selectable steps, and allow the application of conditional logic.
b) Macro and sequences shall be activated by button, time

clock event or LightDesigner software.

3) System time clock events shall be programmable via the Touchscreen, LightDesigner system software, the processor user interface, or the internal web server.
   a) Time clock events shall be assigned to system day types. Standard day types include: anyway, weekday, weekend, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday. System shall support programming of additional custom or special day types.
   b) Time clock events shall be activated based on sunrise, sunset, time of day or periodic event. System shall automatically compensate for regions using a fully configurable daylight saving time.

b. Touchscreen stations shall be designed to operate standard default or custom system functions. Components shall operate default functions unless re-assigned via LightDesigner, the Windows-based configuration program.
   1) Optional button functions include: preset selection, manual mode activation, record mode activation, station lockout, raise, lower, macro activation, and cue light, or room join/separate.
   2) Optional fader functions include master control, individual channel control, fade rate control or preset master control.

c. Touchscreen stations shall allow programming of station and component electronic lockout levels via LightDesigner.

d. It shall be possible to adjust LCD contrast and brightness.

e. It shall be possible to program the station to dim during periods of inactivity.

2.09 CONTROL STATIONS

A. The Lighting Control Stations shall be the Unison Heritage UH Series Control Stations as manufactured by Electronic Theatre Controls, Inc., or equal.

B. Mechanical
   1. Unison Heritage Button and Button/Fader Stations shall operate using up to sixteen programmable faders and twelve programmable buttons.
   2. All button/fader stations shall be available with white, cream, ivory, gray or black faceplates, fader knobs, and buttons.
   3. Manufacturer's standard colors shall conform to the RAL CLASSIC Standard.
   4. Stations shall have indicators lights at each button or fader.
      Indicators shall be comprised of red, green and blue LED's
      Indicator color and state (steady On, Blink, Off) shall be configured in software, and shall operate relative to the button or fader it is associated with.
   5. All faceplates shall be designed for flush or surface mounting.
   6. Station faceplates shall be constructed of ABS plastic and shall use no visible means of attachment.
   7. Station faceplates shall be indelibly marked for each button or fader function.
   8. The manufacturer shall supply back boxes for flush mounted half gang stations and for all surface mounted stations.

C. Functional
   1. The Unison Paradigm Control System shall be designed to allow control of lighting and associated systems via Button, Button/Fader, and Interface or Astronomical time clock controls. System shall allow the programming of presets, sequences, macros and time clock events.
   2. Station Button, Button/Fader, and Interface) control components shall be designed to operate standard default or custom system functions. Components shall operate default functions unless re-assigned via LightDesigner, the Windows-based configuration program.

3. Stations (Button and Button/Fader) shall allow programming of station and component electronic lockout levels via LightDesigner.

D. Electrical
1. Unison control station wiring shall be an Echelon® Link power network.
2. Link power shall utilize low-voltage Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
3. Touchscreen and Interface stations shall also require (2) #16 AWG stranded wires for 24Vdc operating power. 24Vdc wiring shall be topology free.
4. Network wiring may be bus, loop, home run, star or any combination of these.
5. Network insulation displacement connectors shall be provided with all stations.

2.10 LIGHTING CONTROL CONSOLE AND ACCESSORIES

A. General
1. The lighting control desk shall be a microprocessor-based system specifically designed to provide complete control of stage, studio, and entertainment lighting systems. The device shall be the Ion as manufactured by Electronic Theatre Controls, Inc., or equal.
2. The system shall provide control of from 1024 to 6144 outputs, in 512 output increments, on a maximum of 16,000 control channels, patched across any number up to 99,999. Output shall be distributed over a 10/100MB Ethernet network using Net3/ACN, ETCNet 2, Avab and/or ArtNet protocols. The user shall be able to control the application of protocols at an individual address level.
3. The system shall support full bi-directional RDM communication with compatible devices via Net3 DMX/RDM Gateways. RDM communication shall adhere to ANSII standard E1.20-2006 Entertainment Technology – RDM – Remote Device Management over DMX512 Networks. Supported RDM features shall include:
   a. Discovery and identification of RDM capable devices
   b. Setting of start addresses, operating modes and additional settings as exposed by connected devices and controllable via RDM
   c. Viewing of Sensor data as provided by connected devices
   d. Error reported as provided by connected devices
4. A maximum of 10,000 cues, 999 cue lists, 1000 groups, 1000 presets, 4 x 1000 palettes (Intensity, Focus, Color and Beam), 1000 effects, 1000 macros, 999 submasters, 1000 curves, 1000 color paths and 1000 snapshots may be contained in non-volatile electronic memory and stored to an onboard solid-state hard drive or to any USB storage device.
5. Recorded cue lists may be played back simultaneously on a maximum of 200 faders. Channels shall respond to cue information by last instruction with discrete rate control provided for all cues. The desk may be placed in Tracking or Cue Only mode by the user as a system default and overridden on individual record actions as required. HTP/LTP intensity flags, assert, proportional, intensity master or manual master fade control and priority status may be placed on each cue list. It shall also be possible for a cue list to contribute to playback background states or to withhold such contributions.
6. A Master Playback fader pair and dedicated Grand Master/Blackout shall be provided.
7. Up to six USB fader wings may be connected to the desk, for a maximum of 300 loaded submasters and/or 200 playback faders. USB fader wings may be rigidly connected to the main desk to provide a "single connected unit" with no external cables required. The wings also may be connected via USB cables and used "on the side." Virtual fader control is also provided.
8. A high-resolution level wheel shall be provided to control intensity for selected channels and scrolling within selected displays. Four page-able high-resolution encoders shall be provided for control of non-intensity parameters. Non-intensity

encoders may be operated in coarse or fine mode, with the amount of movement per revolution of the encoders in coarse mode definable by the user. Non-intensity parameters shall be controllable via the encoders or keypad controls, without need of an external pointing device. A high-resolution rate wheel shall also be provided.

9. Rotary encoders for non-intensity parameters shall be labeled by means of an integral LCD display mounted below the encoders on the main desk. The display shall show the currently loaded functions of the encoders based on the current selections. Systems using encoders with no LCD labeling shall not be acceptable.
10. Virtual moving light controls shall provide mouse/touch-based tools for all parameters. The tools shall display the current value for each parameter and shall provide controls for adjusting each parameter.
11. Control and programming features for automated fixtures shall also include: a standard library of fixture profiles, the ability to copy and edit existing profiles and create new profiles, patch displays including channel and output addressing, 16-bit fade resolution, color characterization allowing color mixing and matching to color media data.
12. System information, including playback status, live output and blind values for all record targets shall be displayed on a maximum of two external high-resolution DVI monitors, or one Display port monitor, which may also be touch or multi-touchscreen(s). Only one display shall be required for operation. Content of all displays and individual workspaces shall be zoom-able. Each display shall have 3 definable workspaces; each workspace with split controls allowing sizing of frames. Single monitor snapshots with an on-screen browser shall provide rapid reconfiguration of workspaces.
13. A context sensitive on-line Help feature shall explain and provide an example of the operation of each feature of the system.
14. A fully integrated Virtual Media Server feature shall allow the user to map images and animations to a rig array. 40 such maps may be created, each with 12 layers. Systems that rely on external hardware or software for this functionality shall not be acceptable.
15. User-definable, interactive displays may be created. These displays, which can be used in live and blind operating modes, allow graphical layout of channels, desk buttons and programming tools. Standard symbols are provided, and the user may import their own symbols or graphics. Each symbol may be individually defined with data feedback characteristics. Non-interactive status information, such as a mirror of other user's command lines, may also be included in the display. A graphical browser is provided for fast selection of these views. Multiple zoom factors and placements may be stored and recalled for each display.
16. An optional, full-functioning, detachable alphanumeric keyboard shall be supported. The keyboard shall allow labeling of channels, cues, presets, groups, palettes, effects, macros, curves and the show. Hotkey functionality is also supported. An integral electronic keyboard shall be provided.
17. A row of softkeys shall be provided, which change function based on the selection and context of the desk. These softkeys shall be labeled via an adjacent LCD display that shows their current functions at all times. Systems using softkeys with no LCD display shall not be acceptable.
18. Software upgrades shall be made by the user via a USB port. It shall be possible to install software updates in all consoles, processor units and remotes from one device over the network.
19. The operating software shall be loaded into program execution memory from the internal hard drive when the console is powered. In the event of an uncontrolled shutdown, the device shall return to its last output state when power is restored.

20. Dimmer monitoring and configuration features shall be provided (in conjunction with ETC's Sensor+, Sensor 3 or FDX dimming systems) to allow indication of dimming system status, dimmer load monitoring and show specific configurations.
21. Show data may be created and modified on a personal computer, using Windows 7/8+ operating systems, with a free offline editing application. The offline editor may also run natively on Intel-based Macintosh platforms using OS X. The program shall also allow output to visualization software supporting the same protocols as the lighting system.
22. A PC using Windows 7/8+ or an Intel-based Macintosh computer using OS X running the offline editing software shall be able to connect to a control system via the network and view or modify current show data in an independent display environment, using an ETCnomad key. When connected without the key, the computer shall operate in Mirror Mode, with the device to be mirrored selectable by the user. Systems that do not provide client software that may run natively on the Apple platform in this environment shall not be acceptable.
23. Synchronized backup shall be provided via another full desk on the network, by use of a remote processor unit or an ETCnomad. Available output is determined by the lowest output configuration between the primary and the backup. The backup device shall maintain synchronized playback with the primary and shall take over control of the lighting system upon loss of communication with the primary. Use of two RPUs to service and backup system output is also supported. Systems that do not offer this kind of instant backup from multiple sources shall not be acceptable.
24. A maximum of four users may access and interact with show data simultaneously. Each user shall have an individual workspace and channel partitioning shall be supported. User identification may be assigned to more than one control device, allowing users to work in tandem, or allowing a designer/ALD to mirror the current display format, mode and command line of the associated programmer. Partitioned control allows discrete control of channel/parameter groupings by user. Partitioned control may be easily enabled and disabled with no need to merge show data from multiple users.
25. Mirror mode shall allow the desk displays and operating modes to be mimicked on another connected device.
26. The system shall support up to 32 individual Time Code Event lists.

B. Controls and Playback
   1. Manual Control and Programming Section
      a. The programming keyboard shall be grouped by function. Major groupings shall be record target functions, numeric keys, level assignment functions, display navigation functions and controls.
      b. Non-intensity parameters may be set numerically or via the encoders. This control shall be fully interactive. In either case the current parameter value shall be displayed on the desk monitor and simultaneously on the integral LCD display.
      c. Only those parameters available for control in the active lighting system shall be displayed for control.
      d. Lamp controls provide direct access to luminaire functions such as striking and dousing arc lamps and calibrating entire fixtures or individual mechanisms of fixtures, as provided by the luminaire manufacturer. User access to these features is normalized across all manufacturers for ease of use. Use of a "control channel" for accessing these functions shall not be required and systems requiring use of a control channel shall not be acceptable.
      e. Fan functions shall be provided both via command line operation and through encoder controls.

f. Highlight shall be supported, with user definable highlight values. Lowlight conditions may be defined for selected, but not specified channels. Rem Dim command, at specific levels by channel, may be optionally and automatically called with the highlight command.

g. Fixtures with color mixing may be set with direct additive or subtractive encoder controls or the command line, as well as via the color pickers. Six optional color spaces are supported, as well as tinting tools, and spectrum tools for systems with more than three color mixing elements. Color may also be set directly to a gel match via a graphic selection tool or from the command line. The gel picker shall support tools for identifying similar colors, show favorites, and graphic indications of gel locations. The white point of fixtures may be determined in patch. Color Path tools, with intensity dampening, shall be provided

h. The Virtual Media Server function shall allow the user to create layouts of devices, identified as pixel maps. Media content (images, movies, text and procedurally generated effects) may then be applied, manipulated and stored. Stock content is provided and the user may import custom imagery and animations.

i. Macros may be set to run as default. Default macros called manually shall post to the command line, but executed via cue lists shall run in the background. The user may override this behavior by defining the macro to always execute in the foreground or the background, regardless of the recall method. Startup, Shutdown and Disconnect macros may also be defined.

2. Playback Section

a. The master fader shall consist of a 60mm Master Fader pair with associated Load, Go and Stop/Back buttons. Additional playback faders may be configured via the virtual fader module or on the Universal Fader Wings.

b. It shall be possible to instantaneously halt an active cue, back to the previous cue, manually override the intensity fade or manually override the entire fade.

c. It shall be possible for a cue list to contribute to the background state or for the contents of each cue list to be withheld from such.

d. The playback faders shall have the following associate controls:

1) Freeze, which halts the output of the fader
2) Stop Effect, which stops the action of an effect.
3) Filter, to assign filter states to a fader
4) Go to Cue 0, to reset a cue list.

3. Fader Wings (Optional)

a. Submaster and fader support shall be provided via optional fader wings. These wings are available in 1x20, 2x10 and 2x20 configurations. Up to six of these wings may be connected to the desk via internal or external USB. Via paging, access is provided to all 300 faders, regardless of the number of physical wings attached.

b. The 2x10 and 2x20 fader wings shall include a full length LCD for labeling and identification functions. Each fader shall have two associated hard buttons for various operations. Systems without a local display or fewer than two buttons per fader shall not be acceptable.

c. Up to 999 proportional, fully overlapping additive, effect or inhibitive submasters may be defined. Submasters shall have colored LEDs to indicate submaster status. Each submaster may have fade up, dwell and down fade times. Each has a bump and assert/channel select button. Submasters may be set to independent, exclusive, shielded and proportional/intensity or effect master control.

d. The submaster blind buffer shall be linked directly to live playback allowing live editing of live submaster content via the command line.
e. It shall be possible to set submaster values directly from the command line.
f. Up to 200 cue lists may be active concurrently.

4. Grand Master
a. A dedicated grand master and blackout button are provided.
b. The grand master shall proportionally fade intensity values to zero. Blackout shall send all intensity outputs to zero, except those defined as exempt from GM control. Non-intensity outputs shall not be affected. No additional configuration shall be required to withhold non-intensity values from Grand Master and Blackout control.

C. Display Controls
1. Format shall change the view of selected displays.
2. It shall be possible for the user to choose which parameter categories or parameters (s)he wishes to display.
3. Flexichannel shall change which channels are viewed in selected displays, as follows:
a. All channels
b. Patched channels
c. Show channels
d. Active/Moved channels
e. Selected channels
f. Manual Channels
g. View channels (user identified list)
h. Channels with discrete timing
4. Expand shall extend the selected view sequentially across connected displays, vertically or horizontally.
5. [Time] depressed shall display discrete timing data. [Data] depressed shall display absolute values of referenced data.
6. User definable magic sheets shall provide alternative display of and access to channels and record targets. Multiple magic sheets may be created.
7. Playback status displays are provided with a variety of different formats. Indications are provided per cue for live moves (lights fading from zero and also moving non-intensity parameters) and dark moves (inactive lights which have stored non-intensity parameter moves).
8. Each display may have three individually configured workspaces. Each workspace supports discrete frame controls allowing user defined displays, sized as per user requirements.

D. Operating Modes
1. Live Mode
a. Channel lists may be constructed using the +, - and Thru keys as well as the direct selects. Channel selection and deselection is fully interactive, regardless of the method used.
b. Levels may be set with the keypad, level wheel and non-intensity encoders. “Selected” channels shall be those last addressed and under keypad control.
c. Sneak shall be used to restore specified channels to background states, default values, or to send them to specified values, in user specified or default times.
d. Selected channels may be set at a level or held to current values while all other channels are set to zero using Rem Dim. Toggling Rem Dim shall restore all unselected channels to original levels. The Rem Dim level shall be user definable via the command line or with a default setup value.

e. Channels may be recorded into groups for fast recall of commonly used channels. 1000 groups shall be available. Groups shall store selection order and subgrouping functions. The Offset function supports rapid creation of ordered groups, including reverse and random order.

f. Parameter settings may be stored to Intensity, Focus, Color and Beam Palettes and to Presets. All referenced data may be stored to whole numbers or to up to 99 decimal places between each whole number. It shall be possible to store 1000 presets and 1000 of each palette type.

g. Any collection of channel data, as determined by the use of “Record”, “Record Only, selective store commands and/or parameter filters may be stored to palettes (as appropriate to the type) and presets.

h. The following conditions may be placed on a channel or channel parameter to be included with a cue record action.
   1) Discrete fade time and/or delay
   2) Block flag
   3) Assert flag
   4) IFCB Filters, which may be set at a parameter level

i. 999 cue lists may be stored. Cues may be recorded in any order. Up to 99 decimal cues may be inserted between any two whole number cues. Each cue may contain a maximum of twenty parts.

j. It shall be possible to record cues and cue parts with the following information:
   1) Any collection of channel data, as determined by the use of “Record”, “Record Only” or selective store commands, combined with parameter filters.
   2) Cue Level timing and delays for Intensity Up, Intensity Down, Focus, Color and Beam.
   3) Follow or hang time
   4) Link instruction
   5) Loop value
   6) Block, Assert, Allfade, Preheat and/or Mark Flag
   7) Curve
   8) Label and note
   9) Execute list to trigger other activity (execute cue lists, cues, macros and snapshots). Cue list partitions shall be available to curate list content.

k. Non-intensity channel parameters may be marked (preset), in two ways. Automark presets any parameters transitions in the cue just prior to intensity becoming active. Automark may be disabled on a cue or cue part basis, enabling a “live” move. Alternatively, non-intensity parameters may be marked to a specific cue with a single command instruction. It shall not be necessary to store these parameters directly into the cue in which the movement is to occur.

l. Any channel parameter may be stored with an effect instruction. These effects may contain relative offsets from current value, or absolute instructions. Effects may be progressive action or on/off states. Entry and exit behaviors shall modify the channel parameters activity when beginning and ending the effect.

m. Update may be used to selectively add modified parameter data quickly to that parameter’s current source. It shall be possible to update inactive record targets. It shall also be possible to update back to the current source of the move instruction without specifying that cue via Trace. A context sensitive display provides detailed information regarding the results of the update command.

n. Recall From quickly pulls specified data from record targets or other

channels into the current view. Recall from on an HTP basis shall be provided.

o. Copy To quickly copies selected data to specified channels or other record targets.
p. Address and channel check functions shall be provided.
q. Channel parameters may be “parked” at levels. Output addresses may also be parted directly. Parked levels shall not be added to any live record operations, nor may they be changed until the parked element is “unparked”. Address Park shall also be provided.
r. About shall provide detailed status of selected channels or specified record targets. This shall include current source, current value, discrete timing, parked value, marked to and for indications. Background levels and current DMX output are also displayed. Channel usage indicates submaster and cue information and also provides a "dark moves" report on a per channel basis.
s. 1000 snapshots may be stored which instantly recall specified front panel and display configurations.
t. Live data may be displayed in a summary view, detailed table orientation or a user-defined magic sheet.
u. Undo shall be used to sequentially step back through manual operations, record, update and delete actions. Redo functions shall be provided. Multiple undo commands may be executed at once.
v. Home shall set selected channels non-intensity parameters to their default values. User definable home, on a per-channel/per-parameter basis shall be provided.
w. Move shall allow all show data to be moved from one record target to another.
x. Query shall allow selection of channels by their current or possible state. Keywords and fixture types shall allow quick access to fixtures.

2. Blind
a. The Blind display allows viewing and modification of all record targets without affecting stage levels.
b. Record target data may be displayed in a summary view, a detailed table orientation or a spreadsheet view, which allows quick data comparisons, move and replace with functions.
c. Changes made in blind displays shall be automatically stored.
d. Blind editing shall be possible for all record targets.
e. Selection of what parameter data to view for blind editing shall be user configurable.

3. Patch Display
a. Patch shall be used to display and modify the system control channels with their associated library data.
b. Each channel may be provided with a proportional patch level, preheat, curve, label, white point, swap and invert functions.
c. Offset functions in patch shall allow selection of channel ranges and shall allow the user to establish a “custom” footprint for any device output.
d. A full library of profiles is provided, with the ability for the user to define “favorites” for fast selection.
e. Custom color wheels, color scrolls and gobo wheels shall be defined in patch. These devices shall be created with a simple table and graphical user interface supported by images of major manufacturers.
f. Copy to and Move functions shall be supported in patch.
g. RDM discovery and device monitoring shall be supported.

4. Setup/Browser
a. Setup shall access system, show and desk configurations.

b. The browser shall access show data storage, import, export, print to .pdf and clear functions, as well as show data utilities.
c. It shall be possible to partially merge show files. Users shall be able to select as much or as little of the show file as required, with renumber tools.
d. It shall be possible to import ASCII and Lightwright data files. It shall be possible to export as ASCII or .csv.
e. The system shall support programming and playback of real time clock events, including cue, submaster and macro execution at specific times of specified days or at a time based on astronomical events.
f. A control screen shall be provided for network configuration, selecting date/time, software update controls, selecting functional language and/or keyboard for labeling option, as well as other system level tools.
g. Available languages for prompts, advisories and help messages shall include English, Bulgarian, German, Spanish, French, Italian, Japanese, Korean, Russian, Chinese, simplified and Chinese, traditional.
h. Supported keyboards shall include American, United Kingdom, French, German, Italian, Korean, Norwegian, Russian, Slovakian, Turkish, Swiss, Swedish, Finnish and Bulgarian

E. Dimmer Monitoring and Configuration
1. The lighting control system shall provide communication with an ETC Sensor+, Sensor3 or FDX dimming system for remote monitoring and configuration of show specific functions from within the software application.
2. Circuit level configuration and monitoring functions shall include but not be limited to:
a. Control mode (dimmable, switched, latch-lock, always on, off or fluorescent).
b. Curves
c. Control threshold
d. Min and Max Scale Voltage
e. Preheat
f. Scale load
3. Rack Status messages shall include but not be limited to:
a. State of UL924 panic closure
b. DMX port error/failure
c. Network error/failure
d. A, B, C Phase below 90 or above 139 volts and headroom warning
e. Ambient temperatures out of range
4. Circuit status shall include but not be limited to:
a. Module type and location
b. Output level
c. Control Source
d. Overtemp
5. Advanced circuit feedback shall include but not be limited to:
a. Load higher or lower than recorded value
b. DC detected on output
c. SCR failed on/off
d. Breaker trip
e. Module has been removed
f. Load failure
g. Shutdown due to Overtemp

F. Training Options
1. Training packages shall be available customizable to the individual venue preferences and needs. The level of training (beginner, intermediate or advanced) may be selected and training may be defined as an element of system

commissioning or deferred to a later time.

G. Interface Options
1. The unit shall support a variety of local interfaces.
a. AC input.
b. USB (seven ports for connecting devices such as an alphanumeric keyboard, mouse, touch screens, USB Flash drive, fader wings, etc.) The desk shall provide at least one USB port on the face panel itself.
c. Ethernet (two individually configurable ports)
d. Two DVI video output connectors, supporting a maximum of two DVI monitors at 1280x1024 resolution minimum, touchscreen and multi-touch controls optional.
e. One Display Port connector
f. Two DMX512-A/RDM Ports
g. Contact Closure Trigger via D-Sub Connector
h. MIDI In/Out (MIDI Timecode, MIDI Show Control)
i. OSC and UPD Transmit/Receive
j. XLR 3-Pin Female (Littlite)
k. One eSATA port

H. Accessories
1. Net3 Radio Focus Remote
2. iRFR and iRFR Preview (application for iPhone, iPod Touch and iPad units)
3. aRFR (application for Android devices)
4. Net3 Remote Video Interface
5. Up to six fader wings may be attached to the main console via internal or external USB connections.
6. Net 3Gateways
a. Net3/ETCNet 2 to DMX/RDM Gateways (one to four ports)
b. MIDI/SMPTE Gateways
c. I/O Gateway with 12 analog inputs, 12 SPDT contact outputs, RD232 interface
7. ETCnomad Software (Mirror Mode)
8. ETCnomad Kit (client or backup)

I. Synchronized Backup
1. An optional Backup system shall consist of one of the following combinations of devices:
a. Two networked desks
b. One (or more) desk with one Remote Processor Unit (RPU)
c. One (or more) desk with two Remote Processor Units (RPUs)
d. One (or more) desks/RPUs with ETCnomad

J. Physical and Acoustical
1. All operator controls and electronics for a standard system shall be housed in a single desktop console, not to exceed 19” wide, 19” deep, 5.5” high, weighing 20 pounds.
2. Power shall be 95 – 240V AC at 50 or 60Hz, supplied via a detachable power cord.
3. At typical CPU utilization, the unit shall operate at ≤ 26 dBA.

3.4 UNIVERSAL FADER WINGS

A. General
1. The universal fader wings shall provide extended playback control for the lighting control system.
2. The universal fader wings shall be compatible with the ETC Eos, Ion, Congo and Congo jr lighting control systems and their associated devices.
3. The universal fader wings shall be available in three configurations:
a. The 2x20 fader wing shall have 40 45mm faders, 80 keys with LEDs and

integral LCD display.

b. The 2x10 fader wing shall have 20 45mm faders, 40 keys with LEDs and integral LCD display.

c. The 1x20 fader shall have 20 45mm faders and 40 keys with LEDs.

B. Mechanical and Electrical

1. The 2x20 and 2x10 fader wings shall connect to Ion and Congo jr rigidly or via external USB cables. When connected rigidly, power and data shall be provided internally. When data is connected via external USB, power is also provided externally.
2. The 2x20 and 2x10 fader wings shall connect to Eos, the Eos or Ion Remote Processor Unit, the Net3 Remote Video Interface, Congo console, Congo Light Server and PCs operating the Eos, Ion or Congo Client software via external USB cable. In this configuration, power is also provided externally.
3. The 1x20 fader wing shall mount rigidly to the top rail of Ion or Congo jr consoles, with power and data provided externally.
4. The 2x20 fader wing shall be 17.89" (454mm) wide, 5.25" (133mm) high and 15.93" (405mm) deep, weighing 12 pounds (5.5 kgs).
5. The 2x10 fader wing shall be 9.45" (240mm) wide, 5.25" (133mm) high and 15.93" (405mm) deep, weighing 6.5 pounds (2.95 kgs).
6. The 1x20 fader wing shall be 17.88" (434mm) wide, 7.31" (185) high and 1.32" (33.53mm) deep, weight 5.67 pounds (2.57 Kg) .

2.11 PROVIDE THE FOLLOWING:

Qty	Part#	Description
5	ERP24	Echo Relay Panel w/24-20A Breakers and Relays
1	PSP-200	PowerSafe Pro 200A Company Switch, Cam-Lok Output
1	PSP-400	PowerSafe Pro 400A Company Switch, Cam-Lok Output
1	ELTS 24	Main Feed Emergency Lighting Transfer Switch, 24 Ckt
1	PCP	Equipment Rack (for items *)
1	Clock/Timer	Clock / Timer Panel*
1	PJE2006	Littlite Task Light Panel*
1	P-LCD-RM CUS	Custom RM Houselight Panel*
1	ERn2-RM	Control Enclosure, 2-space, Rack-Mount* with
1	P-ACP	Paradigm Architectural Processor*
1	P-SPM	Paradigm Station Power Module*
2	24P-SWITCH	24-Port POE Switch*
2	24P PATCH	24-Port Ethernet Patch Panel*
2	CABLE-MGMT	Network Patch Cables and Cable Mgmt Panel*
1	Custom	Plug-In Panel: DMX/N/N/AD/AD *
1	N34G-4F	Net3 4-Port DMX Output Gateway, Rack-Mt
1	Custom	5U Storage Drawer*
1	UPS	Uninterruptable Power Supply*
1	ION XE 2K	Ion XE 2K Control Console EOS
1	EOS FW 20	2x20 Fader Wing
2	TS20	Touchscreen Monitor, 20"
1	WAP	Wireless Access Point
3	N34GT-2F	Net3 2-port Gateway, Portable w/C-Clamp
2	ECPB-DI/N/N/AD/AD	Plug-In Station: DMX-IN/Net/Net/AD/AD
6	ECPB-N/N/1-PDO	Plug-In Station: Net/Net/1-Port DMX-Out
4	ECPB-N/N/AD	Plug-In Station: Net/Net/AD
2	Custom	Plug-in Station: Net/Net/1-Port/AD/AD
1	Custom	Floor Pocket Plug-In Station: 8502N/D/2AD
3	ECPB-N/N	Plug-in Station: Net/Net

5

5

5

5

1	CBR	Equipment Rack (for items *)
1	Clock/Timer	Clock / Timer Panel*
1	PJE2006	Littlite Task Light Panel*
1	P-LCD-RM CUS	Custom RM Houselight Panel*
1	24P-SWITCH	24-Port POE Switch*
1	24P PATCH	24-Port Ethernet Patch Panel*
1	CABLE-MGMT	Network Patch Cables and Cable Mgmt Panel*
1	N34G-4F	Net3 4-Port DMX Output Gateway, Rack-Mt
1	Custom	5U Storage Drawer*
1	UPS	Uninterruptable Power Supply*
1	TS7-WM-SL	Master Houselight Control Touchscreen w/ Flush BackBox
2	UH11K05	5-Button Key Switch Control Station
2	UH11K02	2-Button Key Switch Control Station
5	UH10002	2-Button Control Station
2	CS-1	Conn Strip: 9944-12BP12-4AD/4-4Net
1	CS-2	Conn Strip: 9937-10BP/10-4AD/4-4Net
1	9710	Gridiron J-Box: 10 Ckts
1	9715	Gridiron J-Box: 15 Ckts
2	9705	Gridiron J-Box: 5 Ckts (Orchestra Shell)
3	NGJB4	Net Gridiron J-Box, 4-way
8	8502B	2-Ckt Floor Pocket: Stage Pin
2	9201B	1-Ckt Recessed Outlet Box: Stage Pin
2	9101B	1-Ckt Surface-Mt Outlet Box: Stage Pin
1	9202B	2-Ckt Recessed Outlet Box: Stage Pin
4	9301V/2B	Surface-Mt Pigtail (24") Box: 2 VSC & 2 Stage Pin Outputs
15	9102B-U	2-Ckt Surface-Mt Outlet Box, U-Bolt: Stage Pin

5

5

PART 3 - EXECUTION

3.01 INSTALLATION

A. It shall be the responsibility of the Electrical Contractor to receive and store the necessary materials and equipment for installation of the dimmer system. It is the intent of these specifications and plans to include everything required for proper and complete installation and operation of the dimming system, even though every item may not be specifically mentioned. The contractor shall deliver on a timely basis to other trades any equipment that must be installed during construction.

B. The electrical contractor shall be responsible for field measurements and coordinating physical size of all equipment with the architectural requirements of the spaces into which they are to be installed.

C. The electrical contractor shall install all lighting control and dimming equipment in accordance with manufacturer's approved shop drawings.

D. All branch load circuits shall be live tested before connecting the loads to the dimmer system load terminals.

3.02 MANUFACTURER'S SERVICES

A. Upon completion of the installation, including testing of load circuits, the contractor shall notify the dimming system manufacturer that the system is available for formal checkout.

B. Notification shall be provided in writing, two weeks prior to the time that factory-trained personnel are needed on the job site.

C. No power is to be applied to the dimming system unless specifically authorized by written instructions from the manufacturer.

D. The purchaser shall be liable for any return visits by the factory engineer as a result of incomplete or incorrect wiring.

E. Upon completion of the formal check-out, the factory engineer shall demonstrate operation and maintenance of the system to the owner's representatives. Training shall not exceed four working hours. Additional training shall be available upon request.

3.03 WARRANTY

A. Manufacturer shall warrant products under normal use and service to be free from defects in materials and workmanship for a period of two years from date of delivery.

B. Warranty shall cover repair or replacement of such parts determined defective upon inspection.

C. Warranty does not cover any product or part of a product subject to accident, negligence, alteration, abuse or misuse. Warranty does not cover any accessories or parts not supplied by the manufacturer.

D. Warranty shall not cover any labor expended or materials used to repair any equipment without manufacturer's prior written authorization.

END OF SECTION

SECTION 11 06 50 - THEATRICAL LIGHTING FIXTURES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Electrical Contractor, as part of the work of this section, shall provide, install and test a complete lighting control system as specified herein for areas indicated on the drawings and circuit schedules.

B. The Electrical Contractor shall furnish all conduit, wire, connectors, hardware, and other incidental items necessary for the complete and proper operation of the lighting control system.

C. The Electrical Contractor shall coordinate all work described in this section with all other applicable plans and specifications, including but not limited to:
   1. General Conditions
   2. Electrical Section General Provisions
   3. Conduit
   4. Wire and Cable

1.02 SYSTEM DESCRIPTION

A. The system shall be designed for the control of architectural and theatrical lighting and shall consist of factory pre-wired dimming and processing rack enclosures containing dimmers, relays, power supplies, breakers, terminals and/or control electronics.

B. System shall work in conjunction with specified low-voltage control stations.

1.03 SUBMITTALS

A. Manufacturer shall provide 3 sets of full system submittals. Submittals shall include:

   1. Full system riser diagram(s) illustrating interconnection of system components, wiring requirements, back box sizes and any special installation considerations.
   2. Full set of printed technical data sheets.
   3. Detailed set of dimmer schedules
   4. Detailed set of circuit and control schedules, including a complete list of all deviations from specifications.

B. Manufacturer shall provide any additional information, including equipment demonstrations, as required by the engineer or specifier to verify compliance with specifications.

1.03 QUALITY ASSURANCE

A. Manufacturer shall be one who has been continuously engaged in the manufacturer of lighting control equipment for a minimum of ten years. All dimmer and cabinet fabrication must take place in a U.S. manufacturing plant.

B. The manufacturer shall have a factory authorized stocking service center with at least one full time service technician on staff located within 150 miles of the job site. In addition, the manufacturer shall have a toll free 24-hour hotline with a maximum response time of 20 minutes, 24 hours a day and 365 days a year.

C. All equipment, where applicable standards have been established, shall be built to the standards of Underwriters Laboratories, Inc., the National Electric Code and the United States Institute for Theater Technology. Permanently installed power distribution equipment such as dimmer racks and distribution shall be UL and C-UL Listed, and/or CE

marked (where applicable) and bear the appropriate labels. Portable equipment such as consoles and fixtures shall be UL and C-UL Listed, ETL Listed and/or CE marked (where applicable) and bear the appropriate labels.

1.04 ACCEPTABLE MANUFACTURERS

A. The equipment herein specified shall be manufactured by:

Electronic Theatre Controls
PO Box 620979
Middleton, WI 53562
Phone: 608/831-4116
Fax 608/836-1736

Wenger Corporation
555 Park Drive, P.O. Box 448
Owatonna, MN 55060-0448
Phone: 800-493-6437

Or approved equal

B. Alternative manufacturers must submit a full pre-approval package ten days prior to bid date. Package shall consist of items listed in Part 1, Section 1.03A.

C. Permission to bid does not imply acceptance of the manufacturer. It is the sole responsibility of the electrical contractor to ensure that any price quotations received and submittals made are for controls systems that meet or exceed the specifications.

PART 2 - PRODUCTS

2.01 SYSTEM DESCRIPTION

A. Color mixing or white-light light emitting diode profile fixture – Source Four LED Series 2

1. The fixture shall be a color-mixing high-intensity LED illuminator with DMX control of intensity and color. The fixture shall be a Source Four LED Series 2 as manufactured by Electronic Theatre Controls, Inc. or approved equal.

2. All LED fixtures shall be provided by a single manufacturer to ensure compatibility

3. The fixture shall be UL 1573 listed for stage and studio use

4. The fixture shall comply with the USITT DMX-512A standard

B. Physical

1. The unit shall be constructed of rugged, die cast aluminum, free of burrs and pits, finished in black.
2. The following shall be provided:
   a. Lens secured with silicone shock mounts
   b. Shutter assembly shall allow for +/-25□ rotation
   c. 20 gauge stainless steel shutters
   d. Interchangeable lens tubes for different field angles with Teflon guides for smooth tube movement

e. Sturdy integral die cast gel frame holders with two accessory slots, and a top-mounted, quick release gel frame retainer
f. Rugged steel yoke with two mounting positions allowing 300□+ rotation of the fixture within the yoke
g. Positive locking, hand operated yoke clutch
h. Slot with sliding cover for motorized pattern devices or optional iris
1. The housing shall have a rugged black powder coat finish
i. White or silver/gray powder coat finishes shall be available as color options
j. Other powder coat color options shall be available on request
1. Power supply, cooling and electronics shall be integral to each unit.
2. The unit shall ship with:
k. Theatrical-style hanging yoke as standard
l. 5’ Neutrik PowerCon™ to Edison power cable as standard
m. Gate diffuser
n. A-size pattern holder

3. Available options shall include but not be limited to:
o. Bare-end, Stage-Pin or Twist-lock type-equipped power leads
p. PowerCon to PowerCon cables for fixture power linking
q. Smooth Wash Diffuser for overlapping beams of light from multiple fixtures

C. Optical

4. The light beam should have a 2-to-1 center-to-edge drop-off ratio
5. The unit shall provide, but not be limited to:
r. Low gate and beam temperature
s. Sharp imaging through a three-plane shutter design
6. The unit shall provide, but not be limited to:
t. 5, 10, 14, 19, 26, 36, 50, 70 and 90 degree field angles
u. High-quality pattern imaging
v. Sharp shutter cuts without halation
w. Shutter warping and burnout in normal use shall be unacceptable
x. Adjustable hard and soft beam edges
7. 19, 26, 36, and 50 degree units shall have optional lens tubes available for precision, high-contrast imaging.

D. Environmental and Agency Compliance

8. The fixture shall be ETL and cETL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.
9. The fixture shall be ETL LISTED to the UL1573 standard for stage and studio use
10. The fixture shall be rated for IP-20 dry location use.

E. Thermal

11. Fixture shall be equipped with a cooling fan.
y. Fan speed control via a DMX channel shall be possible
z. Fan speed software shall permit the fixture to override DMX fan speed setting to prevent heat damage to the fixture
12. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 20,000 hours of use
aa. Thermal management shall include multiple temperature sensors within the housing to include:
1) LED array circuit board temperatures
2) Temperature sensors placed on each individual LED color circuit
3) Fixture ambient
4) CPU

bb. Fixture user shall permit monitoring of temperature sensors via a legible LCD multi-line backlit display
cc. Fixtures that do not provide active thermal monitoring of LED circuits and other temperature readings shall not be acceptable
13. The fixture shall operate in an ambient temperature range of 0°C (32°F) minimum, to 40° C (104°F) maximum ambient temperature.
F. Electrical
14. The fixture shall be equipped with a 100V to 240V 50/60Hz internal power supply
15. The fixture shall support power in and thru operation
dd. Power in shall be via Neutrik® PowerCon™ input connector
ee. Power thru shall be via Neutrik ® PowerCon ™ output connector
ff. Fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker
16. The fixture requires power from a non-dim source
17. Power supply outputs shall have self-resetting current-limiting protection
18. Power supply shall have power factor correction
G. LED Emitters
19. The fixture shall contain a minimum of four different LED colors to provide color characteristics as described in the Color Section below.
20. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.
gg. Fixture shall utilize Luxeon® Rebel™ and/or Osram OSLON Square LED emitters
21. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
22. LED emitters should be rated for nominal 20,000-hour LED life to 70% intensity
23. All LED fixtures (100% of each lot) shall undergo a minimum three-hour burn-in test during manufacturing.
24. LED system shall comply with all relevant patents
25. Fixtures shall have adjustable PWM frequency up to 25,000hz to avoid flicker on camera
H. Calibration
26. Fixture shall be calibrated at factory for achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins
hh. Calibration data shall be stored on the LED array as a permanent part of on-board operating system
ii. All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency
jj. Fixtures not offering LED calibration shall not be acceptable
I. Color
The fixture shall utilize a minimum of 60 LED emitters
The fixture shall be available in specialized LED arrays as outlined below:
Source Four LED Series 2 Lustr
Red, Amber, Green, Cyan, Blue, Indigo and Lime LEDs in an array designed for broad spectrum color, light tints, and variable whites. This array shall be the Lustr array as manufactured by Electronic Theatre Controls, or approved equal
Measured brightness of the Lustr array shall be greater than 6,500 field lumens
Source Four LED Series 2 Tungsten HD
Mint, red, orange, blue, and indigo in an array designed to provide a variable white-light adjustable from 2700K to 6500K. (Designed for highest CRI and output between 2700K and 4500K) This array shall be the Tungsten HD array as manufactured by Electronic Theatre Controls, or approved equal

Measured brightness of the Tungsten HD array shall be greater than 10,000 field lumens
Source Four LED Series 2 Daylight HD
Mint, red, blue, and indigo in an array designed to provide a variable white-light adjustable from 2700K to 6500K. (Designed for highest CRI and output between 4000K and 6500K)This array shall be the Daylight HD array as manufactured by Electronic Theatre Controls, or approved equal
Measured brightness of the Daylight HD array shall be greater than 10,000 field lumens
Dimming
29. The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.
30. At least four different dimming curve options shall be accessible at the fixture's User Interface
nn. Incandescent
oo. Standard
pp. Linear
qq. Quick
31. Dimming curves shall be optimized for smooth dimming over longer timed fades.
32. The LED system shall be digitally driven using high-speed pulse width modulation (PWM)
33. LED control shall be compatible with broadcast equipment in the following ways:
rr. PWM control of LED levels shall be imperceptible to video cameras and related equipment
ss. PWM rates shall be adjustable by the user at the fixture if necessary to avoid any visible interference to video cameras and related equipment
K. Control and User interface

2.2 Color mixing or White-light Light Emitting Diode Profile fixture – color Source spot

A. General

1. The fixture shall be a color-mixing high-intensity LED illuminator with DMX control of intensity and color. The fixture shall be a ColorSource Spot as manufactured by Electronic Theatre Controls, Inc. or approved equal.

2. All LED fixtures shall be provided by a single manufacturer to ensure compatibility

a. The fixture shall be UL 1573 listed for stage and studio use

b. The fixture shall comply with the USITT DMX-512A standard

B. Physical

1. The unit shall be constructed of rugged, die cast aluminum, free of burrs and pits.

2. The following shall be provided:

a. Lens secured with silicone shock mounts

b. Shutter assembly shall allow for +/-25° rotation

c. 20 gauge stainless steel shutters

d. Interchangeable lens tubes for different field angles with Teflon guides for smooth tube movement

e. Sturdy integral die cast gel frame holders with two accessory slots, and a top-mounted, quick release gel frame retainer

f. Rugged steel yoke with two mounting positions allowing 300°+ rotation of the fixture within the yoke

g. Positive locking, hand operated yoke clutch

h. Slot with sliding cover for motorized pattern devices or optional iris

3. The housing shall have a rugged black powder coat finish

a. White or silver/gray powder coat finishes shall be available as color options

b. Other powder coat color options shall be available on request

4. Power supply, cooling and electronics shall be integral to each unit.

5. The unit shall ship with:

a. Theatrical-style hanging yoke as standard

b. 5’ cable with Neutrik PowerCon™ to choice of connector as standard

c. Gate diffuser

d. A-size pattern holder

6. Available options shall include but not be limited to:

a. Bare-end, Stage-Pin or Twist-lock type-equipped power leads

b. PowerCon to PowerCon cables for fixture power linking

c. Smooth Wash Diffuser for overlapping beams of light from multiple fixtures

C. Optical

1. The light beam should have a 2-to-1 center-to-edge drop-off ratio

2. The unit shall provide, but not be limited to:

a. Low gate and beam temperature

b. Sharp imaging through a three-plane shutter design

3. The unit shall provide, but not be limited to:

a. 5, 10, 14, 19, 26, 36, 50, 70 and 90 degree field angles

b. High-quality pattern imaging

c. Sharp shutter cuts without halation

d. Shutter warping and burnout in normal use shall be unacceptable

e. Adjustable hard and soft beam edges

4. 19, 26, 36, and 50 degree units shall have optional lens tubes available for precision, high-contrast imaging.

D. Environmental and Agency Compliance

1. The fixture shall be ETL and cETL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.

2. The fixture shall be ETL LISTED to the UL1573 standard for stage and studio use

3. The fixture shall be rated for IP-20 dry location use.

E. Thermal

1. Fixture shall be equipped with a cooling fan.

2. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 20,000 hours of use

a. Thermal management shall include multiple temperature sensors within the housing to include:

1) LED array circuit board temperatures

2) Fixture ambient internal temperature

3. The fixture shall operate in an ambient temperature range of 0°C (32°F) minimum, to 40° C (104°F) maximum ambient temperature.

F. Electrical

1. The fixture shall be equipped with a 100V to 240V 50/60Hz internal power supply

2. The fixture shall support power in and thru operation

a. Power in shall be via Neutrik® PowerCon™ input connector

b. Power thru shall be via Neutrik ® PowerCon ™ output connector

c. Fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker

3. The fixture requires power from a non-dim source

4. Fixtures shall have droop compensation to prevent thermal shift of color or intensity

5. Power supply outputs shall have self-resetting current-limiting protection

6. Power supply shall have power factor correction

G. LED Emitters

1. The fixture shall contain a minimum of four different LED colors to provide color characteristics as described in the Color Section below.

2. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.

a. Fixture shall utilize Luxeon® Rebel™ LED emitters

3. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.

4. LED emitters should be rated for nominal 20,000-hour LED life to 70% intensity

5. All LED fixtures (100% of each lot) shall undergo a minimum three-hour burn-in test during manufacturing.

6. LED system shall comply with all relevant patents

H. Calibration

1. *Fixture shall be calibrated at factory for achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins*

    a. Calibration data shall be stored on the control card as a permanent part of on-board operating system

    b. All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency

    c. Fixtures not offering LED calibration shall not be acceptable

I. Color

1. *The fixture shall utilize a minimum of 60 LED emitters*

2. *The fixture shall utilize a selective mix of Red, Green, Blue and Lime emmitters*

J. Dimming

1. *The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.*

2. *The fixture shall utilize a Incandescent dimming curve*

3. *Dimming curve shall be optimized for smooth dimming over longer timed fades.*

4. *The LED system shall be digitally driven using high-speed pulse width modulation (PWM)*

5. *LED control shall be compatible with broadcast equipment in the following ways:*

    a. PWM control of LED levels shall be imperceptible to video cameras and related equipment

    b. PWM shall be capable of being set via RDM to 25,000hz

K. Control and User interface

1. *The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors or RJ45 connectors*

2. *The fixture shall be compatible with the ANSI RDM E1.20 standard*

    a. All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console

    b. Temperature sensors within the luminaire shall be viewable in real time via RDM

    c. Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible

3. *The fixture shall be equipped with a 7-segment display*

4. The fixture shall be equipped with a three-button user-interface

5. The fixture shall be controlled via RGB data input

a. 5-channel footprint (IRGBS)

6. A variable-rate strobe channel shall be provided

7. The fixture shall offer stand-alone functionality eliminating the need for a console

a. Fixture shall ship with 12 preset colors accessible as a stand-alone feature

b. Fixture shall ship with 5 sequences accessible as a stand-alone feature

c. Each color and sequence can be modified by the end user via RDM

d. Fixtures can be linked together with standard DMX cables and controlled from designated master fixture

1) Up to 32 fixtures may be linked

e. Fixtures in a stand-alone state shall restore to the settings present prior to power cycling, eliminating the need for reprogramming

f. Fixtures without stand-alone operation features described above shall not be acceptable.

SOURCE FOUR LED CYC ADAPTER

General

The adapter shall work with all Source Four LED light engines

The adapter shall provide an evenly distributed light output when used in combination across large, flat surfaces

Physical

The unit shall be constructed of rugged, die cast aluminum, free of burrs and pits, as well as injection molded ABS components; finished in black

Any exposed optics (excludes mirrors) shall be constructed out of heat and impact resistant poly-carbonate material

The unit shall attach securely to all Source Four LED light engines

Optical

Unit should be able to be placed as close as 2 Ft. from the illuminated surface

Unit should be able to be top or bottom mounted

Unit should be able to achieve a 2:1 spacing

Unit should be able to light a 40 Ft. cyclorama with a top and bottom hang

Unit should maintain approximately 30% efficiency from source lumens to total field lumen output

2.4 COLOR MIXING LIGHT EMITTING DIODE WASH FIXTURE – DESIRE D40

L. General

The fixture shall be a color-mixing high-intensity LED illuminator with DMX control of intensity and color. The fixture shall be a Desire D40 or D40 Studio as manufactured by Electronics Theatre Controls, Inc. or approved equal.

All LED fixtures shall be provided by a single manufacturer to ensure compatibility

The fixture shall be UL 1573 listed for stage and studio use

The fixture shall comply with the USITT DMX-512 A standard.

M. Physical

The fixture shall be contained in a rugged all-metal die-cast housing, free of burrs and pits.

The housing shall have a rugged black powdercoat finish

a. White or silver/gray powdercoat finishes shall be available as color options
b. Other powdercoat color options shall be available on request

Power supply, cooling and electronics shall be integral to each unit.

Fixture housing shall provide two easy-access slots for secondary lenses and other accessories

c. Slots shall be equipped with locking retaining clip

The unit shall ship with:

d. Theatrical-style hanging yoke as standard
e. 5’ power lead with Edison connector as standard
f. 25 deg. secondary lens as standard

Available options shall include but not be limited to:

g. Yoke with floor stand conversion feature
h. Bare-end, Stage-Pin or Twist-lock type-equipped power leads
i. PowerCon to PowerCon cables for fixture power linking

j. Multiple secondary lens options to include multiple angles in the following patterns:
   1) Linear
   2) Round
   3) Oblong

Light output shall be via a round aperture

k. Aperture and accessory slots shall accommodate standard 7.5" accessories such as used in other similar-sized fixtures

l. Accessories available as options shall include but not be limited to:
   1) Gel/diffusion frames
   2) Top hats
   3) Barndoors
   4) Egg crate louvers
   5) Concentric ring louvers
   6) Multiple secondary lensing options

N. ENVIRONMENTAL AND AGENCY COMPLIANCE

The fixture shall be UL and cUL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.

The fixture shall be UL LISTED to the UL1573 standard for stage and studio use

The fixture shall be rated for IP-20 dry location use.

O. THERMAL

Fixture shall be totally convection cooled, requiring no cooling fan. Fixtures which require an on-board cooling fan shall not be acceptable unless pre-approved

The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 50,000 hours of use

a. Thermal management shall include multiple temperature sensors within the housing to include:
   1) LED array circuit board temperatures
   2) Temperature sensors placed on each individual LED color circuit
   3) Fixture ambient
   4) CPU

b. Fixture user shall permit monitoring of temperature sensors via a legible LCD multi-line backlit display

c. Fixtures that do not provide active thermal monitoring of LED circuits and other temperature readings shall not be acceptable

The fixture shall operate in an ambient temperature range of -20°C (-4°F) minimum, to 40° C (104°F) maximum ambient temperature.

P. ELECTRICAL

The fixture shall be equipped with 100V to 240V 50/60 Hz internal power supply

The fixture shall support power in and thru operation

a. Power in shall be via Neutrik® PowerCon™ input connector
b. Power thru shall be via Neutrik ® PowerCon ™ output connector
c. Fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker

The fixture requires power from non-dim source

Power supply outputs shall have self-resetting current limiting protection

Power supply shall have power factor correction

Q. LED Emitters

The fixture shall contain a minimum of 5 different LED colors to provide color characteristics as described in Section G below.

All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.

a. Fixture shall utilize Luxeon® Rebel™ LED emitters

Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.

LED emitters should be rated for nominal 50,000 hour LED life to 70% intensity

All LED fixtures (100% of each lot) shall undergo a minimum eight-hour burn-in test during manufacturing.

LED system shall comply with all relevant patents

R. CALIBRATION

Fixture shall be calibrated at factory for achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins

a. Calibration data shall be stored on the LED array as a permanent part of on-board operating system
b. All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency
c. Fixtures not offering LED calibration shall not be acceptable

S. COLOR

The fixture shall utilize an minimum of 40 LED emitters

The fixture shall be available in specialized LED arrays as outlined below:

a. Desire D40

1) Red, Amber, Green, Cyan, Blue, Indigo and White LEDs in an array designed for broad spectrum color, light tints, and variable whites. This array shall be the Lustr+ array as manufactured by Electronic Theatre Controls, or approved equal

    a) Measured brightness of the Lustr+ array shall be greater than 2900 field lumens

2) Red, Orange, Amber, Green, Cyan, Blue and Indigo LEDs in an array designed for broad spectrum deep colors. This array shall be the Vivid array as manufactured by Electronic Theatre Controls, or approved equal

    a) Measured brightness of the Vivid array shall be greater than 2500 field lumens

3) Red, Orange, Amber, Green and Indigo LEDs in an array designed for extra-high brightness output in red/warm end of the spectrum. This shall be the Fire array as manufactured by Electronic Theatre Controls, or approved equal

    a) Measured brightness of the Fire array shall be greater than 2500 field lumens

4) Red, Orange, Green, Cyan, Blue and Indigo LEDs in an array designed for extra-high brightness output in the blue/cool end of the spectrum. This shall be the Ice array as manufactured by Electronic Theatre Controls, or approved equal

    a) Measured brightness of the Ice array shall be greater than 1800 field lumens

b. Desire D40 Studio

1) Warm White, Cool White, Red, Green, Blue and Indigo LEDs in an array designed for high-brightness variable color temperature white light output. This shall be the Studio HD array as manufactured by Electronic Theatre Controls, or approved equal

    a) Measure brightness of the Studio HD array shall be greater than 3100 field lumens

2) All Warm White LEDs in an array designed for non-variable single color high-output, warm white light. This shall be the Studio Tungsten array as manufactured by Electronic Theatre Controls, or approved equal

    a) Measure brightness of the Studio tungsten array shall be greater than (TBD) field lumens

3) All Cool White LEDs in an array designed for non-variable single color high-output, cool white light. This shall be the Studio Daylight array as manufactured by Electronic Theatre Controls, or approved equal

    a) Measure brightness of the Studio Daylight array shall be greater than (TBD) field lumens

4)

T. DIMMING

The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.

At least four different dimming curve options shall be accessible at the fixture's User Interface

a. Incandescent

b. Standard

c. Linear

d. Quick

Dimming curves shall be optimized for smooth dimming over longer timed fades.

The LED system shall be digitally driven using high-speed pulse width modulation (PWM)

LED control shall be compatible with broadcast equipment in the following ways:

e. PWM control of LED levels shall be imperceptible to video cameras and related equipment

f. PWM rates shall be adjustable by the user at the fixture if necessary to avoid any visible interference to video cameras and related equipment

U. CONTROL AND USER INTERFACE

The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors

The fixture shall be compatible with the ANSI RDM E1.20 standard

a. All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console

b. Temperature sensors within the luminaire shall be viewable in real time via RDM

c. Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible

The fixture shall be equipped with multi-line LCD display for easy-to-read status reports and configuration changes

The fixture shall be equipped with a six-button user-interface

The fixture shall offer multiple DMX input profile options to include:

d. RGB - control of all individual LED colors via a three-channel profile
   1) Red, Green, Blue

e. HSI – control of all individual LED colors via a three-channel profile
   1) Hue, Saturation, Intensity

f. HSIC – control of all LED colors via a four-channel profile
   1) Hue, Saturation, Intensity and Color Point
      a) Color point provides variable color temperature settings

g. Direct – control of each individual color channel via an independent channel

h. A variable-rate strobe channel shall be provided

The fixture shall offer three output settings

i. Boost mode - powers LEDs at maximum intensity and provides no compensation against LED ‘droop’ or intensity loss

j. Regulated mode – slightly restricts maximum LED intensity levels to compensate against LED droop

k. Protected mode – further restricts maximum LED intensity levels to compensate against LED droop and offer color consistency at highest permissible ambient temperatures (40C)

l. Fixtures that do not provide regulated and protected operation modes are not acceptable

The fixture shall offer additional user-definable options to including but not limited to:

m. Display time out options

n. Loss of data behavior options

o. White point settings

p. Red-shift option for tungsten dimming emulation

The fixture shall offer five Quick Set-Ups to allow user to rapidly select different combinations of the numerous user options based on the desired usage situation, to include:

q. General – for most situations

r. Stage – when emulating incandescent fixtures is desired

s. High Impact – when maximum output and effect is desired

t. XT Arch – when color consistency and architectural characteristics are desired.

u. Studio - when DMX or stand-alone of white light output is required with intensity, color temperature and color tint control parameters

The fixture shall offer stand-alone functionality eliminating the need for a console

v. Fixture shall ship with 24 preset colors accessible as a stand-alone feature

w. Fixture shall ship with 12 Sequences accessible as a stand-alone feature

x. Each color and sequence can be modified by the end user

y. Fixtures can be linked together with standard DMX cables and controlled from designated master fixture

1) Up to 32 fixtures may be linked

z. Fixtures in a stand-alone state shall restore to the settings present prior to power cycling, eliminating the need for reprogramming

aa. Fixtures without stand-alone operation features described in a, b, c, d, and e shall not be acceptable.

2.5 COLOR MIXING LIGHT EMITTING DIODE WASH FIXTURE – COLORSOURCE PAR

V. General

The fixture shall be a color-mixing high-intensity LED illuminator with DMX control of intensity and color. The fixture shall be a ColorSource Par as manufactured by Electronic Theatre Controls, Inc. or approved equal.

All LED fixtures shall be provided by a single manufacturer to ensure compatibility

The fixture shall be UL 1573 listed for stage and studio use

The fixture shall comply with the USITT DMX-512 A standard

W. Physical

The fixture shall be contained in a rugged all-metal die-cast housing, free of burrs and pits.

The housing shall have a rugged black powdercoat finish

a. White or silver/gray powdercoat finishes shall be available as color options

b. Other powdercoat color options shall be available on request

Power supply, cooling and electronics shall be integral to each unit.

Fixture housing shall provide two easy-access slots for secondary lenses and other accessories

c. Slots shall be equipped with locking retaining clip

The unit shall ship with:

d. Theatrical-style hanging yoke as standard

e. 5’ power lead with Edison connector as standard

Available options shall include but not be limited to:

f. Floor stand conversion Kit

g. Bare-end, Stage-Pin or Twist-lock type-equipped power leads

h. PowerCon to PowerCon cables for fixture power linking

i. Multiple secondary lens options to include multiple angles in the following patterns:
   1) Linear
   2) Round
   3) Oblong

Light output shall be via a round aperture

j. Aperture and accessory slots shall accommodate standard 7.5” accessories such as used in other similar-sized fixtures

k. Accessories available as options shall include but not be limited to:
   1) Gel/diffusion frames
   2) Top hats
   3) Barndoors
   4) Egg crate louvers

5) Concentric ring louvers
6) Multiple secondary lensing options

X. ENVIRONMENTAL AND AGENCY COMPLIANCE

The fixture shall be UL and cUL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.

The fixture shall be UL LISTED to the UL1573 standard for stage and studio use

The fixture shall be rated for IP-20 dry location use.

Y. THERMAL

The fixture shall be cooled with a variable speed fan.

The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 20,000 hours of use

a. Thermal management shall include multiple temperature sensors within the housing to include:
   1) The LED array
   2) The control board

The fixture shall operate in an ambient temperature range of 0°C (32°F) minimum, to 40° C (104°F) maximum ambient temperature.

Z. ELECTRICAL

The fixture shall be equipped with 100V to 240V 50/60 Hz internal power supply

The fixture shall support power in and thru operation

a. Power in shall be via Neutrik® PowerCon™ input connector
b. Power thru shall be via Neutrik ® PowerCon ™ output connector
c. Fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker

The fixture requires power from non-dim source

Power supply outputs shall have self-resetting current limiting protection

Power supply shall have power factor correction

AA. LED Emitters

The fixture shall contain 4 different LED colors to provide color characteristics as described in Section H below.

All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.

a. Fixture shall utilize Luxeon® Z™ LED emitters

Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.

LED emitters should be rated for nominal 20,000 hour LED life to 70% intensity

All LED fixtures (100% of each lot) shall undergo a minimum three-hour burn-in test during manufacturing.

LED system shall comply with all relevant patents

BB. CALIBRATION

Fixture shall be calibrated at factory for achieve consistent color between fixtures built at different times and/or from different LED lots or bins

a. Calibration data shall be stored in the fixture as a permanent part of on-board operating system

b. All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency

c. Fixtures not offering LED calibration shall not be acceptable

CC. COLOR

The fixture shall utilize an minimum of 40 LED emitters

a. These emitters shall be made up of Red, Green, Blue and Lime

DD. DIMMING

The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.

The dimming curve shall be optimized for smooth dimming over longer timed fades.

The LED system shall be digitally driven using high-speed pulse width modulation (PWM)

LED control shall be compatible with broadcast equipment in the following ways:

a. PWM control of LED levels shall be imperceptible to video cameras and related equipment

b. PWM rates shall be adjustable by the user via RDM to avoid any visible interference to video cameras and related equipment

EE. CONTROL AND USER INTERFACE

The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors

The fixture shall be compatible with the ANSI RDM E1.20 standard

a. All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console

b. Temperature sensors within the luminaire shall be viewable in real time via RDM

c. Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible

The fixture shall be equipped with a 7-segment display for easy-to-read status and control

The fixture shall be equipped with a three-button user-interface

The fixture shall offer RGB control

The fixture shall operate in Regulated mode for droop compensation

The fixture shall offer stand-alone functionality eliminating the need for a console

d. Fixture shall ship with 12 preset colors accessible as a stand-alone feature

e. Fixture shall ship with 5 Sequences accessible as a stand-alone feature

f. Each color and sequence can be modified by the end user

g. Fixtures can be linked together with standard DMX cables and controlled from designated master fixture
   1) Up to 32 fixtures may be linked

h. Fixtures in a stand-alone state shall restore to the settings present prior to power cycling, eliminating the need for reprogramming

i. Fixtures without stand-alone operation features described in a, b, c, d, and e shall not be acceptable.

2.06 FOLLOWSPOT

A. General

1. The fixture will be the PHARUS 1500 Followspot manufactured by DTS Lighting or equal.

   a. The fixture shall be listed for stage and studio use.

   b. The fixture shall comply with the USITT DMX-512A standard

B. Physical

1. Follow spot will be fitted with a 1500 W discharge lamp ideal for all professional applications (theatres, concerts, television studios, fashion displays, special events, etc).

   a. A condenser lens will offer Luminosity at 28.000 Lux / 5 m.
   b. Customizable colour system (5 interchangeable gel filter holders)

   c. Linear iris-diaphragm (extractable)

   d. Linear zoom (7° to 16°)

e. Linear focus

f. Mechanical dimmer with black-out.

2. Followspot body is made in aluminium and stainless steel, which offer high resistance to heat and mechanical stress.

3. PHARUS is complete with external ballast (electromagnetic or electronic).

2.10 PROVIDE THE FOLLOWING:

Qty	Part#	Description
12	S4LEDS2-L	Source Four LED Series 2 Lustr w/Color Frame, C-clamp, Safety Cable and PowerCon Power Cord w/ Stage Pin Plug
18	CSSPOTS-0	ColorSource Spot w/Color Frame, C-clamp, Safety Cable and PowerCon Power Cord w/ Stage Pin Plug
12	419EDLT	19° EDLT w/lens installed
12	426EDLT	26° EDLT w/lens installed
6	436EDLT	36° EDLT w/lens installed
2	490LT	90° w/lens installed
4	400PH-A	Pattern holder (A size)
6	S4LEDCYC	Source Four LED CYC Adapter
8	SELD40LI	D40 Lustr+ w/Color Frame, C-clamp, Safety Cable and PowerCon Power Cord w/ Stage Pin Plug
16	CSPAR	ColorSource PAR w/Color Frame, C-clamp, Safety Cable and PowerCon Power Cord w/ Stage Pin Plug
24	SELRVN-7.5	7.5” Very Narrow lens (round field)
24	SELRN-7.5	7.5” Narrow lens (round field)
24	SELRM-7.5	7.5” Medium lens (round field)
24	SELRW-7.5	7.5” Wide lens (round field)
6	SELD40FSY	Yoke with floor-stand attachment
54	CD-DMX-10	DMX Cables: 10’ (one per fixture)
1	PHARUS1500	Pharus 1500 Followspot with external ballast Yoke and clamps for rail-mounting (or Lycian ZOT 7i)
2	HTI 1500W/D7/600)	HTI 1500w Lamp

5

PART 3 - EXECUTION

3.01 INSTALLATION

A. It shall be the responsibility of the Electrical Contractor to receive and store the necessary materials and equipment for installation of the dimmer system. It is the intent of these specifications and plans to include everything required for proper and complete installation and operation of the dimming system, even though every item may not be specifically mentioned. The contractor shall deliver on a timely basis to other trades any equipment that must be installed during construction.

B. The electrical contractor shall be responsible for field measurements and coordinating physical size of all equipment with the architectural requirements of the spaces into which they are to be installed.

C. The electrical contractor shall install all lighting control and dimming equipment in accordance with manufacturer's approved shop drawings.

D. All branch load circuits shall be live tested before connecting the loads to the dimmer system load terminals.

3.02 MANUFACTURER'S SERVICES

A. Upon completion of the installation, including testing of load circuits, the contractor shall notify the dimming system manufacturer that the system is available for formal checkout.

B. Notification shall be provided in writing, two weeks prior to the time that factory-trained personnel are needed on the job site.

C. No power is to be applied to the dimming system unless specifically authorized by written instructions from the manufacturer.

D. The purchaser shall be liable for any return visits by the factory engineer as a result of incomplete or incorrect wiring.

E. Upon completion of the formal check-out, the factory engineer shall demonstrate operation and maintenance of the system to the owner's representatives. Training shall not exceed four working hours. Additional training shall be available upon request.

3.03 WARRANTY

A. Manufacturer shall warrant products under normal use and service to be free from defects in materials and workmanship for a period of two years from date of delivery.

B. Warranty shall cover repair or replacement of such parts determined defective upon inspection.

C. Warranty does not cover any product or part of a product subject to accident, negligence, alteration, abuse or misuse. Warranty does not cover any accessories or parts not supplied by the manufacturer.

D. Warranty shall not cover any labor expended or materials used to repair any equipment without manufacturer's prior written authorization.

END OF SECTION

SECTION 110660 - STAGE LIFTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Orchestra Pit Lift

B. The Scope includes but is not limited to:

1. Systems and services required to provide work detailed herein and in related project documents and drawings

2. Equipment and installation for a fully functional system, with all necessary accessories

3. Consultation and coordination with related work

4. Removable safety guards as required to prevent accidental injury from moving parts

5. Miscellaneous components, hardware and terminations required for operation of system

6. Documentation of the equipment and installation

7. Test equipment, tools and other equipment required for installation and demonstration

8. Daily and final cleanup of debris caused by installation

9. Inspection, testing and final adjustments

10. Supply of tools and spare parts for the regular maintenance of systems

11. Warranty of the equipment and installation

C. Products supplied but not installed under this Section

1. Lift motor, controls, safety interlock system devices (including limit switches, astragal tape switches, door interlocks, removable rail interlocks, proximity sensors etc.) are installed under this Section. Final terminations to the devices are under Division 16 work.

D. Products installed but not supplied under this Section

1. Blank control panel for lift controls at the Production Control Panel (PCP) supplied under Section 11 06 40. All punching, labeling and components provided under this Section.

1.2 RELATED WORK UNDER OTHER SECTIONS:

A. Structural concrete used to support lifts is by Division 3.

B. Finish carpentry is supplied under Division 6.

SECTION 12 61 62 - THEATRE SEATS

5

PART 1 - GENERAL

1.1 SCOPE

A. Deliver and install a minimum of auditorium chairs with upholstered seats and backs, and aisle and center standards, all as specified, floor mounted, with self-lifting seats which raise automatically to a uniform 3/4 fold position.

B. Provide these types of seats and quantities:

1. Fixed seats: 218
2. Swivel base: 13
3. Fixed seats on wagons: 116
4. Removable seats on sleds (double or triples) 94
5. Wheelchair replacement on sleds (triples) 4

C. Deliver and install auditorium chairs with upholstered seats and backs, and aisle and center standards, all as specified.

D. The Scope includes but is not limited to:

1. Equipment and installation labor for a fully functional system.
2. Consultation and coordination with other affected work and contractors throughout the course of the work contained herein.
3. All materials, components, systems and services required to provide the work as specified herein, elsewhere in the project documents and/or as shown on related drawings.
4. Miscellaneous components, hardware and terminations required for proper operation of all systems.
5. Documentation of the equipment and installation.
6. Warranty of the equipment and installation.
7. Test equipment, tools and other equipment required for installation.
8. Daily and final cleanup of debris caused by installation.
9. Assistance during Final Adjustments.

1.2 RELATED WORK UNDER OTHER SECTIONS

A. Conduit, wire, power feeds, distribution panels, disconnects, junction/pull boxes and electrical terminations are provided under Division 26.

1.3 RELATED SECTIONS

A. Division 3 – Audience chamber concrete floors

B. Division 12 – Stage lift deck (Scissor Lift)

C. Division 26 – J-boxes for aisle lights

D. Audience chamber seating risers (see Architectural documents).

E. Finished floors (see Architectural Documents).

1.4 REFERENCES

A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies will refer to the latest edition of such publications adopted and published prior to submittal of the bid. All such codes and standards will be considered a part of this specification as if they were fully included herein.

1. Fixed seating for areas of public assembly shall comply with all of the seating requirements of CBC section 11B-221.

B. If an applicable code or standard permits work of lesser quality or extent than this specification, this specification and the related drawings will govern.

C. Comply with prevailing local codes, applicable UL standards.

D. Comply with national, state and local labor regulations and requirements.

E. Equipment shall have pertinent labels.

F. Materials to have pertinent flame proofing certificates and labels.

G. Business and Institutional Furniture Manufacturer’s Association.

1.5 REGULATIONS

A. Comply with ADA (Americans with Disabilities Act) Rules and Regulations.

1.6 SIZES

A. Seat widths shall be between 1’-9” and 1’-10”, or wider (measured center to center). 1’-8” width seats may not be used.

B. Seating layout shall conform to critical aisle dimensions as indicated on the drawings. Actual makeup of rows and requisite seat widths shall be the responsibility of the Contractor and shall be based on the Contractors own field measurements.

C. Varying lateral sizes of backs shall be used in accordance with approved seating plans, with standards in each row spaced laterally so that the end standards shall be in alignment from first to last row whether aisles are of constant or converging width.

D. The chairs should stagger from row to row at the centerline of the audience chamber where possible.

1.7 SAMPLES:

A. Submit samples of each of the following elements in each color, finish, pattern and texture indicated within 30 calendar days of contract award. If qualities of an element have not been specifically indicated herein, submit manufacturer's color charts or samples of actual materials indicating the full range of standard colors, finishes, patterns and textures available. The samples shall include, but are not limited to:

1. 30-inch square sample of seating fabric.

2. Manufacturers color charts or actual samples electrostatically applied powder finishes to be used on exposed parts.

3. Wood and plywood materials with finish samples for color selection.

4. Number and letter plates

5. All additional samples as may be requested in writing during the shop drawing process to be submitted within 14 days of written request.

1.8 SHOP DRAWINGS

A. Submit a complete seating plan developed from the contract drawings, showing, but not limited to, the following:

1. Chairs including width, height, back pitch

2. Row letters and seat numbers

3. Aisle widths

4. Wheelchair positions, companion seats and swing-away end panels

5. Aisle lights and J-box locations

B. Assume complete responsibility for the accuracy of all chair measurements shown on the seating plan.

C. Submit mounting requirements for the chairs, including drilling template and structural requirements for coordination with other trades.

D. Submit electrical requirements for the aisle lights for coordination with other trades.

1.9 EXAMINATION & ACCEPTANCE OF WORK IN PLACE

A. Examine work in place on which seating work is dependent. Defects which may influence satisfactory completion and performance of seating work shall be corrected in accordance with the requirements of the applicable section of work prior to commencement of seating work.

1.10 FIELD MEASUREMENTS

A. Take field measurements to verify or supplement dimensions indicated. Be responsible for accurate fit of work.

1.11 MATERIALS AND WORKMANSHIP:

A. Provide new materials of types specified.

B. Turn over all work to the owner in undamaged condition.

C. Provide workmanship of the best quality by craftsmen skilled in their respective trades.

1.12 FIRE PERFORMANCE CHARACTERISTICS OF UPHOLSTERED SEATING

A. Confirm compliance of Theatrical Seats with California Technical Bulletin 117 (TB 117).

B. Chairs provided shall have been tested and certified as complying with BIFMA Voluntary Upholstered Furniture Flammability Standard F-1-1978 (rev. 1980) sponsored by the Business and Institutional Furniture Manufacturer's Association.

1.13 QUALITY ASSURANCE

A. To assure high and satisfactory quality, design, color and operation of products, reference has been made to brand names; however, it is not intended to limit competition and items of brands that are equal will be given full consideration.

1. Base specification:

a. Irwin Seating Company Irwin #8658V Meteor

1.14 RESPONSIBILITY OF BIDDER

A. The bidder must provide the following with his bid:

1. Bidder shall submit a list of five (5) seating projects of similar size which have been in service for 5 years or longer.

2. Projects submitted shall incorporate chairs with seats, backs and standards consistent with those offered on this project.

1.15 DELIVERY

A. Deliver the seating at a proper time for installation that will not interfere with other trades operating in the building.

B. Bid seating for installation and completion as outlined in the contract documents, or as directed by owner after that date.

1.16 WARRANTY

A. Provide a manufacturer's warranty covering the material and workmanship for a period of one year from date of final acceptance.

B. Repair or replace any part that becomes defective during the warranty period within 14 days, excepting where the product has been subject to accident, alterations, abuse, misuse or neglect.

PART 2 - PRODUCTS

2.1 CHAIR:

A. Irwin Seating Company Irwin #8658V “Meteor”

2.2 MATERIAL

A. Steel shall be the primary structural material for all chair components, including seat support mechanisms, aisle and center standards, and back component attachment.

B. Steel structural components shall be die-formed according to modern manufacturing methods, and assembled by means of state-of-the-art MIG welding processes.

C. All steel shall have smooth surfaces and be of sufficient gauge thickness and designed to withstand strains of normal use and abuse.

2.3 WOOD

A. Plywood, exposed or concealed, shall be hardwood.

B. All plywood shall be hot press laminated using high frequency process.

C. Interior plies shall be Class 3, or better.

D. Exposed exterior plies shall be Class 1, with Irwin Seating – Stain No. 29 Cherry on Maple

E. Solid hardwood shall be clear and shall be Irwin Seating – Stain No. 29 Cherry on Maple

F. Particle board core shall be resin bonded of wood particles, 5/8" minimum thickness, 55 lb./cubic foot density.

2.4 PADDING MATERIAL

A. Seat and back padding material shall be of new (prime manufacture) polyurethane foam.

B. Padding material shall comply with the flammability requirements outlined in the California Technical Information Bulletin #117, Resilient Cellular Materials, Section A & D, dated February 1975, when tested in accordance with Federal Test Method Standard 191, Method 5903.2.

2.5 FABRIC

A. Upholstery fabric shall be the following, or approved equal:

1. Fabric: Maharam – Metric 466014

2. Color: 006 Driftwood

B. Fabrics shall meet Class 1 flammability requirements of the U.S. Dept. of Commerce Commercial Standard 191-53 per Bulletin #117 (California Code). Manufacturer's standard color range shall be utilized.

2.6 FINISH

A. Metal Parts

1. All exposed metal parts shall be powder coated with an epoxy powder coat finish.

2. The powder coat finish shall be applied by electrostatic means to a thickness of 2-3 mils, and shall provide a durable coating having a 4H Pencil hardness.

3. Prior to powder coating, metal parts shall be treated with a five-stage bonderization process for superior finish adhesion, and after coating shall be oven baked to cause proper flow of the epoxy powder to result in a smooth, durable finish.

4. Manufacturer's standard color range shall be used.

B. Wood Parts

1. All exposed surfaces shall be maple stained to custom color selected by Architect and coated with lacquer of sufficient film depth to afford wear resistance of institutional quality and oven baked.

C. Hardware

1. All assembly hardware shall be rust resistant, black plated.

2.7 UPHOLSTERED CHAIR BACKS

A. Backs shall be padded and upholstered on their face with an exposed rear "Designer" panel surfaced with vertical grain hardwood veneer of species selected, and shall extend to a nominal 32" above finished floor.

B. Structure of the back component shall be provided by a 7/16" thick, 5-ply hardwood inner panel, which shall serve as a foundation for the upholstery.

C. The upholstery panel shall be padded with a two inch (2”) thick polyurethane foam pad and covered over its full face with the fabric selected.

D. The rear decorative panel shall be 5/16" thick, 5-ply hardwood plywood surfaced with vertical grain hardwood veneer of species selected by Architect, and the rear panel shall extend down to protect the seat from the rear.

E. The rear panel shall be fastened to the upholstery panel by not less than 10 bronze-plated, tamper-proof screws, countersunk flush with the rear panel.

F. The two panels shall enclose a 3/16" continuous welt of matching fabric.

G. The wings for the attachment of the complete back to the standards shall be not less than 14 gauge (.0747") steel, firmly secured to the back by concealed fasteners.

2.8 UPHOLSTERED SELF-LIFTING SEAT

A. Seats shall be upholstered on their face with serpentine spring cushions supported by a formed steel foundation pan, and shall be quietly and automatically self-lifting to a 3/4 fold position when unoccupied.

B. The seats shall be certified to withstand a 600 lbs. static load, laterally distributed three inches from the leading edge of the seat.

C. The seat shall also be certified to pass seat cycle oscillation testing, ASTM Designation F851-87 Test Method for Self-Rising Seat Mechanism, and sandbag testing.

1. The seat cushion shall have a base structure of five serpentine springs spanning an extra heavy 14 gauge steel frame, formed to a channel, welded for precision fit into the steel foundation pan.

2. Serpentine arch springs spanning the frame shall be secured to the cushion frame by insulated squeak-proof clips, and shall be isolated from the polyurethane cushion by a tough, durable, non-woven, non-vegetable chafing barrier.

3. Seat Cushion

a. The seat cushion shall have an extended front, high resilient polyurethane foam pad, molded to the contour of the springs on the bottom and providing a flat surface on the top of the cushion with a crisp, waterfall leading edge.

b. Height of the cushion at the front edge shall be consistent at approximately 3" above the steel foundation. Polyurethane foam, to insure a high and satisfactory cushion quality, shall possess the following values:

i. Density: 3.3 - 3.8 lbs.

ii. Sag Factor: 2.5 Min.

iii. I.F.D.(25%): 26 lbs.

iv. Flex-Fatigue (50 lbs. + or - 3 lbs. load): 10% Maximum

c. The specified fabric, carefully tailored, shall be of panel-side construction, secured around the perimeter of the cushion frame by case hardened spring clips which permit ease of re-upholstery.

d. The seat cushion assembly shall be securely locked into the seat pan by positive, high strength spring clips which prevent unauthorized removal of cushions, yet can be quickly removed from the seat foundation without removal of screws or bolts.

4. Seat Pan

a. Seat foundation pan shall be 20-gauge, deep-drawn die-formed steel, completely enclosing the self-lifting hinge mechanism.

b. The seat pan shall be strengthened by a full 360-degree roll around the perimeter for rigidity, and shall have decorative embossing for basic strength, and to provide additional leg room for a standing patron.

c. Further, the foundation pan shall have internal reinforcing consisting of steel doubler plates and formed angular steel lateral braces.

d. The foundation pan shall be free of screws and bolts on the bottom, front, sides and rear.

5. Seat Hinge

a. The seat shall rotate on two self-compensating, fully independent, 5/8" diameter, high strength, solid steel hinge rods.

b. Seat-lift shall be accomplished by dual 13 gauge extension springs, providing quiet gentle seat uplift.

c. Seat uplift shall be dampened at the 3/4 fold position, and rendered virtually noiseless, by high-tech, microcellular polyurethane cushioned upstops.

d. Smooth, effortless operation of the hinges shall be assured by lifetime lubricated nylon shoulder bushings.

e. When unoccupied, the seat shall quietly and automatically rise to a 3/4 fold position, and upon a slight rearward pressure, shall achieve full-fold, allowing the patron additional passing room. Downstops shall be rubber cushioned for quiet operation.

2.9 STANDARDS

A. Aisle Standards

1. Aisle standards shall be of modern pedestal design with rectangular, block-front decorator panels with hardwood veneer surfaced, high-density particle board core

2. The rectangular decorator panels shall be approximately 11 ½” wide by 17 ½” high fabricated of particle board core with vertical front and rear end-caps to provide an overall panel thickness of 1-5/8".

3. Decorative panels shall have wood veneer surface matching other wood chair components.

4. Structure of the aisle standards shall be provided by 1" x 3" rectangular columns of 14 gauge (.0747) steel with cantilever aisle ends.

5. A formed panel of 16 gauge (.0598) steel shall be welded to the column to accept a decorator panel.

6. The top of the column shall be provided with two formed steel dovetail lugs for secure attachment of the armrests.

7. Brackets for seat attachment shall be 7 gauge (.1875") buttressed steel welded on the inside of the standard.

8. Standards shall be provided with aisle lights at locations shown on drawings.

B. Center Standards

1. Center standards shall be of welded steel, modern pedestal design, fabricated of 14 gauge (.0747") steel to a 1" x 3" rectangular column.

2. Brackets for seat support shall be 7 gauge (.1875") steel for superior strength, formed with an integral support buttress, and wing plates for mounting backs shall be 14 ga. (.0747") steel; both MIG-welded to the pedestal column to form a coherent unit.

3. The top of the column shall be provided with two formed steel dovetails for secure attachment of the armrests.

C. Feet

1. A 14 gauge (.0747) steel formed foot shall be welded to the bottom of the rectangular column. This weldment shall be at all critical stress areas 360 degrees around the column, and concealed on the inside so as not to detract from the clean appearance.

2. The foot dimension shall be 8" x 2-3/4" to provide maximum bearing surface to the floor to withstand severe tightening and shock without fracture.

3. The standard shall be fabricated to be compatible with the floor incline, and to maintain proper seat and back height and angle.

4. All weldments shall be gas shielded, arc weld.

2.10 ARMRESTS

A. Armrests shall be solid hardwood with all edges well rounded.

B. Armrests shall be furnished with two (2) keyhole slots in the bottom and shall lock securely to dovetail lugs provided on aisle and center standards. Further, one (1) security screw shall be utilized.

2.11 NUMBER AND LETTER PLATES

A. A numbering system shall be provided for identification of all chairs.

B. Number and letter plates shall be furnished as shown on the approved seating layout, and shall be 5/8" x 1-5/8" with a silver finish and black Helvetica Medium letters and numerals.

C. The seat pans shall be recessed at the center of the front edge for the number plates, and the plates shall be attached by two (2) pop rivets.

D. Letter plates shall be attached in a recess in the aisle standard armrest by two (2) escutcheon pins.

E. Attaching hardware shall have a silver finish compatible to plates.

2.12 MOVEABLE CHAIR BASES

A. To provide for mobility of a given number of chairs shown in the auditorium, chairs located at the orchestra pit shall be mounted upon moveable steel bases.

B. The steel bases shall be for individual chairs

C. The bases shall be fabricated from 3/16" x 3-1/2" x 17" steel, with cross members securely welded to the horizontal base member.

D. Coordinate location and mounting of bases to orchestra pit platforms with Section 11068 work.

2.13 HANDICAPPED ACCESS AISLE STANDARDS

A. Aisle standards designated on the contract drawings shall be arranged for easy access by handicapped individuals without sacrificing decorative details of the aisle standards.

B. Designated aisle standards shall be designed to allow handicapped individuals to readily transfer from a wheelchair to the theatre chair.

C. The aisle standards, with associated armrest, shall be arranged to swing out of the way, clearing sideways access to the chair above seat level and forward of the back component.

D. Manual release of the swingaway decorative panel shall be readily accessible under the armrest, and return of the swingaway decorative panel shall affect self-latching.

E. Aisle standards so equipped shall be provided with a label displaying an easily recognizable "handicapped" symbol.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The installation is to be performed by the successful bidder, under the direction of a capable installation superintendent, in a manner satisfactory to the Architect, and the job turned over to the owner with all chairs complete and ready to use.

3.2 METHOD OF INSTALLATION

A. The seating plan is to be reproduced on the floor, all dimensions checked against the plan and necessary adjustments made in the layout for all discrepancies.

B. Chairs on concrete floors to be attached by means of an approved type of lead shield expansion bolt. Floor mount chairs shall be attached with 1/4" expansion bolts by not less than 2" long. There shall be 2 bolts per standard.

C. Chairs on wood floors to be attached by means of #14 Hex-head lag bolts 1-1/2" long, designed to hold firmly in a wood floor. There shall be 2 bolts per standard.

3.3 CLEANING

A. Remove all debris caused by this work from the premises.

END OF SECTION

SECTION 14 41 00 - WHEELCHAIR LIFT

5

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for provision of two unenclosed, self-contained vertical wheelchair lift, consisting of a machine tower with a lifting platform and including necessary fittings, anchorages, and installation and operational accessories as required, for complete operational lift system.

B. Related Sections
1. Section 03 30 00 - Cast-In-Place Concrete
2. Section 09 10 00 – Metal Support Systems
3. Section 04 20 00 – Concrete Unit Masonry - shaftway and anchor placement.
4. Section 06 10 53 - Rough Carpentry: Blocking in framed construction for lift attachment.
5. Section 09 29 00 - Gypsum Board: Gypsum board shaftway.
6. Division 26 - Electrical: Dedicated telephone service and wiring connections.
7. Division 26 - Electrical: Lighting and wiring connections at top of shaft.
8. Division 26 - Electrical: Electrical power service and wiring connections.

1.2 REFERENCES

A. CBC California Building Code, 2019 Edition

B. ASTEM 17.1 - Safety Code for Elevators and Escalators.

C. ASTEM 17.5 - Elevator and Escalator Electrical Equipment.

D. ASTEM 18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts.

E. ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities.

F. California Electric Code.

1.3 SYSTEM DESCRIPTION

A. Performance Requirements
1) Provide lifts as specified.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's data sheets on each product to be used, including:
   1. Submit manufacturer's installation instructions, including preparation, storage and handling requirements.
   2. Include complete description of performance and operating characteristics.
   3. Show maximum and average power demands.

B. Shop Drawings: Submit drawings showing:
   1. Typical details of assembly, erection and anchorage.
   2. Include wiring diagrams for power, control, and signal systems.
   3. Complete layout and location for the two lift locations showing equipment, including required clearances and coordination with adjacent structure.

C. Samples

   1. For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Operation Manuals and Instructions: Include complete operating and maintenance instructions; lubrication points, schedule, and lubricant; wiring diagrams, parts lists, and service representative.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firm with minimum 10 years experience in manufacturing of vertical platform lifts, with evidence of experience with similar installations of type specified.

B. Installer Qualifications: Licensed to install equipment of this scope, with evidence of experience with specified equipment. Installer maintain an adequate stock of replacement parts, have qualified people available to ensure fulfillment of maintenance and callback service without unreasonable loss of time in reaching project site.

1.6 REGULATORY REQUIREMENTS

A. Wheel Chair Lifts

   1. Provide drawings or manufacturers' cut sheets to show compliance with the following: Platform (wheelchair) lifts shall comply with CBC Section 11B.410, California Code of Regulations (CCR), Title 8, Section 3094.2, and ASME A18.1 (2003 edition), – which include, but are not limited to, the following:
      1) Platform lifts shall not be attendant-operated and shall provide unassisted entry and exit from the lift. CBC Section 11B-410.1
      2) All operable parts of controls for platform lifts shall comply with CBC Section 11B-309.
      3) All passenger operating devices and controls for platform lifts shall be of the continuous pressure type. CCR, Title 8, Section 3094.2 (o) (1)

4) Platform lifts shall have low-energy power-operated doors or gates complying with CBC Section 11B-404.3. Door shall remain open for 20 seconds minimum. End doors and gates shall provide a clear width 32" minimum. Side doors and gates shall provide a clear width 42" minimum. Guards and lift doors at upper landing shall be 42" high minimum.
5) Platform Lift #1 serving two landings and has doors/ gates on 90 degrees from each other and shall be permitted to have self-closing manual doors or gates. Platform Lift #2 serving two landings and has doors/ gates on the same side shall be permitted to have self-closing manual doors or gates.
6) Platform lifts, when served as an accessible means of egress, shall be provided with standby power or with self-rechargeable battery power that provides sufficient power to operate all platform lift functions for a minimum of 5 upward and downward trips. CBC Section **11B-207.2**
7) Travel of platform lifts shall not exceed 5 feet without a runway enclosure. ASME A18.1-2008, Sections 2 and 5. Platform lifts shall have a pit for flush access at lower landing. The pit depth shall be no more than 3" and a contrasting stripe shall outline the pit area. CCR, Title 8, Section 3094.2 (c) (4)-(5).
8) Floor surfaces in platform lifts shall comply with CBC Sections 11B-302 and 11B-303.
9) Clear floor space in platform lifts shall comply with CBC Section 11B-305. Only forward approach or side approach is considered acceptable for entry and exit from the lift. CBC Sections 11B-305.7.1 and 11B-305.7.2
10) The clearance between the platform sill and the edge of any runway landing shall be 1-1/4" maximum. CBC Section 11B-410.4
11) Lift #2: the clear inside unobstructed platform dimensions for straight through access shall be 36"x48" minimum. (36" x51" preferred).
12) Lift #1: the clear inside unobstructed platform dimensions for side approach at 90 degrees shall be 42"x60" minimum. (or 43"x59", 44"x58", 45"x57", 46"x56", 47"x55", 48"x54" min.). CCR, Title 8, Section 3094.2 (p) (1)-(4)
13) The minimum size of landings at platform lifts shall be 60" x 60".
14) "Call/send" controls for platform lifts shall be located at least 24" away from any moving part. (Indicate with dimensions the locations of call/send controls on plans and elevations)
15) Platform lifts shall have a smooth and solid platform enclosure.
16) Platform lifts may be locked for security reasons, but shall remain unlocked during normal business hours (and after-college activity hours). CCR, Title 8, Section 3094.2 (r)
17) A restriction sign complying with CBC Section 11B-703.5 and CCR, Title 8, Section 3094.2 (i) shall be posted in a conspicuous place at each landing and within the platform enclosure stating and including the following:
18) No Freight;
19) The International Symbol of Accessibility complying with CBC Section
11B-703.7.2.1;
20) The lift shall not be used to transport materials or equipment;

21) The lift capacity: 750 lbs(maximum weight);
22) The telephone number to call in case of emergency:_____. (to be confirmed w/ the district at submittal phase)

2. Provide platform lift that complies with following requirements:
   a. ASME A17.1, A17.5 and A18.1.
   b. NFPA 70.
3. Seismic Requirements: Design anchorage systems to comply with CBSC UBC Chapter 16A Division IV, Section 1632A as applicable for Seismic Zone 4 and requirements of Table 16A-0, Elements Of Structures And Nonstructural Components And Equipment, Exterior And Interior Appendages 2.A.
4. Permits, Tests and Inspections: Arrange and pay for inspections and tests required by agencies having jurisdiction and obtain operating permits.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store components off the ground in a dry covered area, protected from adverse weather conditions.

1.7 PROJECT CONDITIONS

A. Coordinate rough-in requirements and delivery with other Work to avoid delay.

B. Do not use wheelchair lift for hoisting materials or personnel during construction period.

1.8 WARRANTY

A. Warranty: Provide a two year limited warranty for wheelchair lift materials and workmanship.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Acceptable Manufacturer: Garaventa Lift; United States - P.O. Box 1769, Blaine, WA 98231-1769. Contact Gregg Henry with Hankin Specialty Elevator by email: greggh@hankinspecialty.com

B. Requests for substitutions will be considered in accordance with provisions of Division 1.

2.2 SHAFTWAY VERTICAL WHEELCHAIR LIFT #1

A. Capacity: 750 lbs (340 kg) rated capacity.

B. Mast Height:
1. Model GVL SW -144; 147 inches (3734 mm) maximum lifting height.

C. Nominal Clear Platform Dimensions:
1. Large: 42 inches (1167 mm) by 60 inches (1524 mm).

D. Platform Configuration:
1. 90 Degree Entry/Exit: Front and side openings.

E. Landing Openings:
1. Lower Landing: Door.
2. Upper Landing: Door.

F. Door Construction:
1. Fire Rated Doors: 1-1/2 hour B label rating. Pre-hung, constructed of 16 gauge (1.5 mm) steel, with a vision panel, delayed action door closer, pull handle and integrated interlock. Doors mount flush to the inside wall of the shaft-way.
2. Frame Width:
   a. Lower Landing:
      1) 42” fire rated doors = 55 ½ RO with 50” Frame width
   b. Upper landing:
      1) 42” fire rated doors = 55 ½ RO with 50” Frame width

G. Power Door Operator: Automatically opens the door/gate when platform arrives at a landing. Will also open at landing by pressing call button.
1. ADA Compliant and obstruction sensitive.
2. Low voltage, 24 VDC with all wiring concealed.
3. Provide power operators at the following locations:
   a. Lower Landing: Door.
      Upper landing: Door

H. Lift Components:
1. Machine Tower: Extruded aluminum.
2. Base Frame: Structural steel tubing.
3. Platform Side Wall Panels: 16 gauge (1.5 mm) galvanized steel sheet. Aluminum extrusion tube frame.

I. Base Mounting and Access to Lift at Lower Landing:
1. Pit Mount: Lift to be mounted in pit with dimensions to meet manufacturer’s requirements for the platform size specified. Pit construction shall be in accordance to Section 03 30 00.

J. Hydraulic Drive:
1. Drive Type: Chain hydraulic.

2. Emergency Operation: Manual device to lower platform and auxiliary battery power to raise or lower platform.
3. Safety Devices:
   a. Slack chain safety device.
   b. Shoring device.
4. Travel Speed: 17 fpm (5.2 m/minute).
5. Motor: 3.0 hp (2.2 kW); 24 volts DC.
6. Power Supply:
   a. 120 VAC single phase; 60 Hz on a dedicated 15-amp circuit.
   b. Powered by continuous building mains converted to 24 VDC equipped with auxiliary battery power system capable of running lift up and down for a minimum of 5 trips with rated load. Required for high usage lifts.

K. Platform Controls: 24 VDC control circuit with the following features.
1. Direction Control: Continuous pressure rocker switch.
2. Direction Control: Illuminated tactile and continuous pressure buttons with dual platform courtesy lights and safety light.
3. Illuminated and audible emergency stop switch shuts off power to lift and activates audio alarm equipped with battery backup.
4. Keyed operation.
5. Emergency Telephone: Platform shall be equipped with ADA compliant autodialer telephone with a stainless-steel faceplate. Telephone shall operate in the event of power failure. A telephone line shall be supplied to the lift site as specified under Division 16.

L. Call Station Controls: 24 VDC control circuit with the following features.
1. Direction Control: Continuous pressure switches.
2. Direction Control: Illuminated and tactile continuous pressure buttons with illuminated “in-use” indicator.
3. Safety indicator lamp.
4. Keyless operation.
5. Call Station Mounting:
   a. Lower:
      1) Recessed in wall.
   b. Upper:
      1) Recessed in wall.

M. Safety Devices and Features:
1. Grounded electrical system with upper, lower, and final limit switches.
2. At all landings a solenoid activated interlock shall electrically monitor that the door is in the closed position and the lock is engaged before lift can move from landing.
3. Pit stop switch mounted on mast wall.
4. Electrical disconnect shall shut off power to the lift.

N. Finishes
1. Extruded aluminum electrostatically applied baked powder finish semi matte Silver Moon.
2. Ferrous Components: Electrostatically applied baked powder finish, semi matte.
   a. Color: see below

2.3 SHAFTWAY VERTICAL WHEELCHAIR LIFT #2

A. Capacity: 750 lbs (340 kg) rated capacity.

B. Mast Height:
   1. Model GVL SW -144; 147 inches (3734 mm) maximum lifting height.

C. Nominal Clear Platform Dimensions:
   1. Large: 45 inches (1144 mm) by 60 inches (1522 mm).

D. Platform Configuration:
   1. On/Off Same Side Entry/Exit: One front opening only.

E. Landing Openings:
   1. Lower Landing: Door.
   2. Upper Landing: Door.

F. Door Construction:
   1. Fire Rated Doors: 1-1/2 hour B label rating. Pre-hung, constructed of 16 gauge (1.5 mm) steel, with a vision panel, delayed action door closer, pull handle and integrated interlock. Doors mount flush to the inside wall of the shaftway.
   2. Door Width:
      a. Lower Landing:
         1) 42” fire rated doors = 55 ½ RO with 50” Frame width
      b. Upper landing:
         1) 42” fire rated doors = 55 ½ RO with 50” Frame width

G. Power Door Operator: Automatically opens the door/gate when platform arrives at a landing. Will also open at landing by pressing call button.
   1. ADA Compliant and obstruction sensitive.
   2. Low voltage, 24 VDC with all wiring concealed.
   3. Provide power operators at the following locations:
      a. Lower Landing: Door.
      b. Upper landing: Door or Gate.

H. Lift Components:
   1. Machine Tower: Custom aluminum extrusion.
   2. Base Frame: Structural steel tubing.
   3. Platform Side Wall Panels: 16 gauge (1.5 mm) galvanized steel sheet. Custom aluminum extrusion tubing frame.

I. Base Mounting and Access to Lift at Lower Landing:
   1. Pit Mount: Lift to be mounted in pit with dimensions to meet manufacturers requirements for the platform size specified. Pit construction shall be in accordance to Section 03300.

J. Hydraulic Drive:
   1. Drive Type: hydraulic operation with emergency lowering device
   2. Travel Speed: 17 fpm
   3. Power Supply:
      a. 120 VAC single phase; 60 Hz on a dedicated 20 amp circuit.

K. Platform Controls: 24 VDC control circuit with the following features.
   1. Direction Control: Illuminated tactile and constant pressure buttons with dual

platform courtesy lights and safety light.
2. Illuminated and audible emergency stop switch shuts off power to lift and activates audio alarm equipped with battery backup.
3. Keyed operation.
4. Emergency Telephone: Platform shall be equipped with ADA compliant autodialer telephone with a stainless steel faceplate. Telephone shall operate in the event of power failure. A telephone line shall be supplied to the lift site as specified under Division 16.

L. Call Station Controls: 24 VDC control circuit with the following features.
1. Direction Control: Illuminated and tactile constant pressure buttons with illuminated "in-use" indicator.
2. Safety indicator lamp.
3. Keyed operation.
4. Call Station Mounting:
   a. Lower:
      1) Recessed in wall.
   b. Upper:
      1) Recessed in wall.

M. Safety Devices and Features:
1. Grounded electrical system with upper, lower, and final limit switches.
2. At all landings a solenoid activated interlock shall electrically monitor that the door is in the closed position and the lock is engaged before lift can move from landing.
3. Pit stop switch mounted on mast wall.
4. Electrical disconnect shall shut off all power to the lift including the battery system per electrical sub.

N. Finishes
1. Aluminum Extrusions: Electrostatically applied baked powder finish Fine Textured Silver Moon (RAL 7047).
2. Ferrous Components: Electrostatically applied baked powder finish, fine textured.
   a. Color: see below

2.4 FINISHES

A. General: Finish colors will be selected at time of submittals.

B. Aluminum Extrusions: Anodized finish.

C. Ferrous Components: Electrostatically applied baked powder finish, fine textured.

D. Lift Finish: Owner and Architect to select any baked-powder-coated color from custom RAL color chart.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine the substrate and conditions under which the wheelchair lifts are to be installed and verify following:
   1. Verify shaft and machine space are of correct size and within tolerances.
   2. Verify required landings and openings are of correct size and within tolerances.
   3. Verify electrical rough-in is at correct location.

B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install wheelchair lift in accordance with manufacturer's instructions and reviewed shop drawings.

B. Install platform lifts in accordance with applicable regulatory requirements including ASME A17.1, ASME A18.1.

C. Install system components and connect to building utilities.

D. Accommodate equipment in space indicated.

E. Startup equipment in accordance with manufacturer’s instructions.

F. Adjust for smooth operation

3.4 FIELD QUALITY CONTROL

A. General
   1. Upon completion of installation, conduct tests to ensure proper construction and operation of lift in presence of Architect’s Representative, Owner’s Representative, and Contractor.
   2. Submit complete report describing results of tests.

B. Perform tests in compliance with ASME A17.1 or ASME A18.1 and as required by authorities having jurisdiction.

3.5 ADJUSTING

A. Touch-up, repair or replace damaged products before substantial completion.

B. Make necessary adjustments for safe, efficient operation of lift.

3.6 CLEANING

A. After installation, clean unit of all foreign materials, and restore marred and abraded surfaces to original condition.

3.7 PROTECTION

A. Protect vertical wheelchair lift system from damage until final acceptance.

END OF SECTION

SECTION 221316 - SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Pipe, tube, and fittings.
2. Specialty pipe fittings.
3. Encasement for underground metal piping.

B. Related Requirements:

1. Section 221313 "Facility Sanitary Sewers" for sanitary sewerage piping and structures outside the building.
2. Section 221329 "Sanitary Sewerage Pumps" for effluent and sewage pumps.
3. Section 226600 "Chemical-Waste Systems for Laboratory and Healthcare Facilities" for chemical-waste and vent piping systems.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Product Data: For adhesives, indicating VOC content.
2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.

C. Shop Drawings: For hubless, single-stack drainage system. Include plans, elevations, sections, and details.

D. Product Data for California Green Building Standards Code Compliance: For adhesives and sealants, including primers, documentation of compliance including printed statement of VOC content and chemical components.

1.4 INFORMATIONAL SUBMITTALS

A. Seismic Qualification Certificates: For waste and vent piping, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Detailed description of piping anchorage devices on which the certification is based and their installation requirements.

B. Coordination Drawings: Detail waste piping. Show support locations, type of support, weight on each support, required clearances, and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Structural members to which waste piping will be attached or suspended from.

C. Field quality-control reports.

1.5 FIELD CONDITIONS

A. Interruption of Existing Sanitary Waste Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Construction Manager no fewer than two days in advance of proposed interruption of sanitary waste service.
2. Do not proceed with interruption of sanitary waste service without Construction Manager's written permission.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Components and installation shall be capable of withstanding the following minimum working pressure unless otherwise indicated:

1. Soil, Waste, and Vent Piping: 10-foot head of water.

B. Seismic Performance: Soil, waste, and vent piping and support and installation shall withstand the effects of earthquake motions determined according to CBC and ASCE/SEI 7 as referenced by the CBC.

2.2 PIPING MATERIALS

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

B. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.3 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 74, Service and Extra Heavy class(es).

B. Gaskets: ASTM C 564, rubber.

C. Calking Materials: ASTM B 29, pure lead and oakum or hemp fiber.

2.4 HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 888 and CISPI 301.

B. Single-Stack Aerator Fittings: ASME B16.45, hubless, cast-iron aerator and deaerator drainage fittings.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

a. Conine Manufacturing Co., Inc.
b. SE Sovent.

C. CISPI, Hubless-Piping Couplings:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

a. ANACO-Husky.
b. Charlotte Pipe and Foundry Company.
c. Dallas Specialty & Mfg. Co.
d. Fernco Inc.
e. Josam Company.
f. Matco-Norca.
g. MIFAB, Inc.
h. Mission Rubber Company, LLC; a division of MCP Industries.
i. NewAge Casting.
j. Stant.
k. Tyler Pipe; a subsidiary of McWane Inc.

2. Standards: ASTM C 1277 and CISPI 310.
3. Description: Stainless-steel corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.

D. Heavy-Duty, Hubless-Piping Couplings:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

a. ANACO-Husky.
b. Charlotte Pipe and Foundry Company.
c. Clamp-All Corp.
d. Dallas Specialty & Mfg. Co.
e. MIFAB, Inc.
f. Mission Rubber Company, LLC; a division of MCP Industries.
g. NewAge Casting.
h. Stant.
i. Tyler Pipe; a subsidiary of McWane Inc.

2. Standards: ASTM C 1540 and FM 1680, SD Class I.
3. Description: Stainless-steel shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.

E. Cast-Iron, Hubless-Piping Couplings:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

   a. Charlotte Pipe and Foundry Company.
   b. MG Piping Products Company.

2. Standard: ASTM C 1277.
3. Description: Two-piece ASTM A 48/A 48M, cast-iron housing; stainless-steel bolts and nuts; and ASTM C 564, rubber sleeve with integral, center pipe stop.

2.5 DUCTILE-IRON PIPE AND FITTINGS

A. Ductile-Iron, Mechanical-Joint Piping:

1. Ductile-Iron Pipe: AWWA C151/A21.51, with mechanical-joint bell and plain spigot ends unless grooved or flanged ends are indicated.
2. Ductile-Iron Fittings: AWWA C110/A21.10, mechanical-joint, ductile- or gray-iron standard pattern or AWWA C153/A21.53, ductile-iron compact pattern.
3. Glands, Gaskets, and Bolts: AWWA C111/A21.11, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

B. Ductile-Iron, Push-on-Joint Piping:

1. Ductile-Iron Pipe: AWWA C151/A21.51, with push-on-joint bell and plain spigot ends unless grooved or flanged ends are indicated.
2. Ductile-Iron Fittings: AWWA C110/A21.10, push-on-joint, ductile- or gray-iron standard pattern or AWWA C153/A21.53, ductile-iron compact pattern.
3. Gaskets: AWWA C111/A21.11, rubber.

C. Ductile-Iron, Grooved-Joint Piping: AWWA C151/A21.51, with round-cut-grooved ends according to AWWA C606.

D. Ductile-Iron, Grooved-End Pipe Appurtenances:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

   a. Anvil International.
   b. Shurjoint Piping Products.
   c. Smith-Cooper International.
   d. Star Pipe Products.
   e. Victaulic Company.

2. Grooved-End, Ductile-Iron Fittings: ASTM A 536 ductile-iron castings, with dimensions matching AWWA C110/A 21.10 ductile-iron pipe or AWWA C153/A 21.53 ductile-iron fittings, and complying with AWWA C606 for grooved ends.

3. Grooved Mechanical Couplings for Ductile-Iron Pipe: ASTM F 1476, Type I. Include ferrous housing sections with continuous curved keys; EPDM-rubber center-leg gasket suitable for hot and cold water; and bolts and nuts.

2.6 COPPER TUBE AND FITTINGS

A. Copper Type DWV Tube: ASTM B 306, drainage tube, drawn temper.

B. Copper Drainage Fittings: ASME B16.23, cast copper or ASME B16.29, wrought copper, solder-joint fittings.

C. Hard Copper Tube: ASTM B 88, Type L and Type M, water tube, drawn temper.

D. Soft Copper Tube: ASTM B 88, Type L, water tube, annealed temper.

E. Copper Pressure Fittings:

1. Copper Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
2. Copper Unions: MSS SP-123, copper-alloy, hexagonal-stock body with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

F. Copper Flanges: ASME B16.24, Class 150, cast copper with solder-joint end.

1. Flange Gasket Materials: ASME B16.21, full-face, flat, nonmetallic, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.
2. Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

G. Solder: ASTM B 32, lead free with ASTM B 813, water-flushable flux.

2.7 SPECIALTY PIPE FITTINGS

A. Transition Couplings:

1. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.
2. Unshielded, Nonpressure Transition Couplings:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

1) Dallas Specialty & Mfg. Co.
2) Fernco Inc.
3) Froet Industries LLC.
4) Mission Rubber Company, LLC; a division of MCP Industries.
5) Plastic Oddities.

b. Standard: ASTM C 1173.

c. Description: Elastomeric, sleeve-type, reducing or transition pattern. Include shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.
d. End Connections: Same size as and compatible with pipes to be joined.
e. Sleeve Materials:

1) For Cast-Iron Soil Pipes: ASTM C 564, rubber.
2) For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
3) For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

3. Shielded, Nonpressure Transition Couplings:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

1) Cascade Waterworks Mfg. Co.
2) Mission Rubber Company, LLC; a division of MCP Industries.

b. Standard: ASTM C 1460.

c. Description: Elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.
d. End Connections: Same size as and compatible with pipes to be joined.

B. Dielectric Fittings:

1. Dielectric Unions:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

1) A.Y. McDonald Mfg. Co.
2) Capitol Manufacturing Company.
3) Central Plastics Company.
4) HART Industrial Unions, LLC.
5) Jomar Valve.
6) Matco-Norca.
7) Watts; a Watts Water Technologies company.
8) Wilkins.
9) Zurn Industries, LLC.

b. Description:

1) Standard: ASSE 1079.
2) Pressure Rating: 125 psig minimum at 180 deg F.
3) End Connections: Solder-joint copper alloy and threaded ferrous.

2. Dielectric Flanges:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

1) Capitol Manufacturing Company.
2) Central Plastics Company.
3) Matco-Norca.
4) Watts; a Watts Water Technologies company.
5) Wilkins.
6) Zurn Industries, LLC.

b. Description:

1) Standard: ASSE 1079.
2) Factory-fabricated, bolted, companion-flange assembly.
3) Pressure Rating: 125 psig minimum at 180 deg F.
4) End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

3. Dielectric-Flange Insulating Kits:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

1) Advance Products & Systems, Inc.
2) Calpico, Inc.
3) Central Plastics Company.
4) Pipeline Seal and Insulator, Inc.

b. Description:

1) Nonconducting materials for field assembly of companion flanges.
2) Pressure Rating: 150 psig.
3) Gasket: Neoprene or phenolic.
4) Bolt Sleeves: Phenolic or polyethylene.
5) Washers: Phenolic with steel backing washers.

4. Dielectric Nipples:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

1) Elster Perfection Corporation.
2) Grinnell Mechanical Products.
3) Josam Company.
4) Matco-Norca.
5) Precision Plumbing Products.
6) Victaulic Company.

b. Description:

1) Standard: IAPMO PS 66.
2) Electroplated steel nipple.
3) Pressure Rating: 300 psig at 225 deg F.
4) End Connections: Male threaded or grooved.
5) Lining: Inert and noncorrosive, propylene.

2.8 ENCASEMENT FOR UNDERGROUND METAL PIPING

A. Standard: ASTM A 674 or AWWA C105/A 21.5.

B. Material: high-density, cross-laminated polyethylene film of 0.004-inch minimum thickness.

C. Form: Sheet or tube.

PART 3 - EXECUTION

3.1 EARTH MOVING

A. Comply with requirements for excavating, trenching, and backfilling specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems.

1. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations.
2. Install piping as indicated unless deviations to layout are approved on coordination drawings.

B. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to permit valve servicing.

F. Install piping at indicated slopes.

G. Install piping free of sags and bends.

H. Install fittings for changes in direction and branch connections.

I. Install piping to allow application of insulation.

J. Install seismic restraints on piping. Comply with requirements for seismic-restraint devices specified in Section 220548 "Vibration and Seismic Controls for Plumbing Piping and Equipment."

K. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends.

1. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical.
2. Use long-turn, double Y-branch and 1/8-bend fittings if two fixtures are installed back to back or side by side with common drain pipe.

    a. Straight tees, elbows, and crosses may be used on vent lines.

3. Do not change direction of flow more than 90 degrees.
4. Use proper size of standard increasers and reducers if pipes of different sizes are connected.

    a. Reducing size of waste piping in direction of flow is prohibited.

L. Lay buried building waste piping beginning at low point of each system.

1. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream.
2. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
3. Maintain swab in piping and pull past each joint as completed.

M. Install soil and waste and vent piping at the following minimum slopes unless otherwise indicated:

1. Building Sanitary Waste: 2 percent downward in direction of flow for piping NPS 3 and smaller; 2 percent downward in direction of flow for piping NPS 4 and larger.
2. Horizontal Sanitary Waste Piping: 2 percent downward in direction of flow.
3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

N. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."

1. Install encasement on underground piping according to ASTM A 674 or AWWA C105/A 21.5.

O. Install steel piping according to applicable plumbing code.

P. Install stainless-steel piping according to ASME A112.3.1 and applicable plumbing code.

Q. Install aboveground copper tubing according to CDA's "Copper Tube Handbook."

R. Install engineered soil and waste and vent piping systems as follows:

1. Combination Waste and Vent: Comply with standards of authorities having jurisdiction.
2. Hubless, Single-Stack Drainage System: Comply with ASME B16.45 and hubless, single-stack aerator fitting manufacturer's written installation instructions.

3. Reduced-Size Venting: Comply with standards of authorities having jurisdiction.

S. Plumbing Specialties:

1. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers in sanitary waste gravity-flow piping.

a. Install cleanout fitting with closure plug inside the building in sanitary drainage force-main piping.
b. Comply with requirements for cleanouts specified in Section 221319 "Sanitary Waste Piping Specialties."

2. Install drains in sanitary waste gravity-flow piping.

a. Comply with requirements for drains specified in Section 221319 "Sanitary Waste Piping Specialties."

T. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

U. Install sleeves for piping penetrations of walls, ceilings, and floors.

1. Comply with requirements for sleeves specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."

V. Install sleeve seals for piping penetrations of concrete walls and slabs.

1. Comply with requirements for sleeve seals specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."

W. Install escutcheons for piping penetrations of walls, ceilings, and floors.

1. Comply with requirements for escutcheons specified in Section 220518 "Escutcheons for Plumbing Piping."

3.3 JOINT CONSTRUCTION

A. Join hub-and-spigot, cast-iron soil piping with gasket joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.

B. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead-and-oakum calked joints.

C. Join hubless, cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-piping coupling joints.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1.

1. Cut threads full and clean using sharp dies.
2. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

a. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
b. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
c. Do not use pipe sections that have cracked or open welds.

E. Join stainless-steel pipe and fittings with gaskets according to ASME A112.3.1.

F. Join copper tube and fittings with soldered joints according to ASTM B 828. Use ASTM B 813, water-flushable, lead-free flux and ASTM B 32, lead-free-alloy solder.

G. Grooved Joints: Cut groove ends of pipe according to AWWA C606. Lubricate and install gasket over ends of pipes or pipe and fitting. Install coupling housing sections, over gasket, with keys seated in piping grooves. Install and tighten housing bolts.

H. Flanged Joints: Align bolt holes. Select appropriate gasket material, size, type, and thickness. Install gasket concentrically positioned. Use suitable lubricants on bolt threads. Torque bolts in cross pattern.

3.4 SPECIALTY PIPE FITTING INSTALLATION

A. Transition Couplings:

1. Install transition couplings at joints of piping with small differences in ODs.
2. In Waste Drainage Piping: Unshielded, nonpressure transition couplings.

B. Dielectric Fittings:

1. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.
2. Dielectric Fittings for NPS 2 and Smaller: Use dielectric nipples.
3. Dielectric Fittings for NPS 2-1/2 to NPS 4: Use dielectric flanges.
4. Dielectric Fittings for NPS 5 and Larger: Use dielectric flange kits.

3.5 VALVE INSTALLATION

A. Comply with requirements in Section 220523 "General-Duty Valves for Plumbing Piping" for general-duty valve installation requirements.

B. Shutoff Valves:

1. Install shutoff valve on each sewage pump discharge.
2. Install gate or full-port ball valve for piping NPS 2 and smaller.
3. Install gate valve for piping NPS 2-1/2 and larger.

C. Check Valves: Install swing check valve, between pump and shutoff valve, on each sewage pump discharge.

3.6 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements for seismic-restraint devices specified in Section 220548 "Vibration and Seismic Controls for Plumbing Piping and Equipment."

B. Comply with requirements for pipe hanger and support devices and installation specified in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment."

1. Install carbon-steel pipe hangers for horizontal piping in noncorrosive environments.
2. Install stainless-steel pipe hangers for horizontal piping in corrosive environments.
3. Install carbon-steel pipe support clamps for vertical piping in noncorrosive environments.
4. Install stainless-steel pipe support clamps for vertical piping in corrosive environments.
5. Vertical Piping: MSS Type 8 or Type 42, clamps.
6. Install individual, straight, horizontal piping runs:

    a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
    b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
    c. Longer Than 100 Feet if Indicated: MSS Type 49, spring cushion rolls.

7. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
8. Base of Vertical Piping: MSS Type 52, spring hangers.

C. Support horizontal piping and tubing within 12 inches of each fitting, valve, and coupling.

D. Support vertical piping and tubing at base and at each floor.

E. Rod diameter may be reduced one size for double-rod hangers, with 3/8-inch minimum rods.

F. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/2 and NPS 2: 60 inches with 3/8-inch rod.
2. NPS 3: 60 inches with 1/2-inch rod.
3. NPS 4 and NPS 5: 60 inches with 5/8-inch rod.
4. NPS 6 and NPS 8: 60 inches with 3/4-inch rod.
5. NPS 10 and NPS 12: 60 inches with 7/8-inch rod.
6. Spacing for 10-foot lengths may be increased to 10 feet. Spacing for fittings is limited to 60 inches.

G. Install supports for vertical cast-iron soil piping every 15 feet.

H. Install hangers for steel piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/4: 84 inches with 3/8-inch rod.
2. NPS 1-1/2: 108 inches with 3/8-inch rod.
3. NPS 2: 10 feet with 3/8-inch rod.
4. NPS 2-1/2: 11 feet with 1/2-inch rod.
5. NPS 3: 12 feet with 1/2-inch rod.
6. NPS 4 and NPS 5: 12 feet with 5/8-inch rod.
7. NPS 6 and NPS 8: 12 feet with 3/4-inch rod.
8. NPS 10 and NPS 12: 12 feet with 7/8-inch rod.

I. Install supports for vertical steel piping every 15 feet.

J. Install hangers for stainless-steel piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 2: 84 inches with 3/8-inch rod.
2. NPS 3: 96 inches with 1/2-inch rod.
3. NPS 4: 108 inches with 1/2-inch rod.
4. NPS 6: 10 feet with 5/8-inch rod.

K. Install supports for vertical stainless-steel piping every 10 feet.

L. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/4: 72 inches with 3/8-inch rod.
2. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.
3. NPS 2-1/2: 108 inches with 1/2-inch rod.
4. NPS 3 and NPS 5: 10 feet with 1/2-inch rod.
5. NPS 6: 10 feet with 5/8-inch rod.
6. NPS 8: 10 feet with 3/4-inch rod.

M. Install supports for vertical copper tubing every 10 feet.

3.7 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.

C. Connect waste and vent piping to the following:

1. Plumbing Fixtures: Connect waste piping in sizes indicated, but not smaller than required by plumbing code.
2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
3. Plumbing Specialties: Connect waste and vent piping in sizes indicated, but not smaller than required by plumbing code.
4. Install test tees (wall cleanouts) in conductors near floor and floor cleanouts with cover flush with floor.
5. Equipment: Connect waste piping as indicated.

    a. Provide shutoff valve if indicated and union for each connection.
    b. Use flanges instead of unions for connections NPS 2-1/2 and larger.

D. Where installing piping adjacent to equipment, allow space for service and maintenance of equipment.

E. Make connections according to the following unless otherwise indicated:

1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.

3.8 IDENTIFICATION

A. Identify exposed sanitary waste and vent piping.

B. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.9 FIELD QUALITY CONTROL

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test sanitary waste and vent piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired.

    a. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.

2. Leave uncovered and unconcealed new, altered, extended, or replaced waste and vent piping until it has been tested and approved.

    a. Expose work that was covered or concealed before it was tested.

3. Roughing-in Plumbing Test Procedure: Test waste and vent piping except outside leaders on completion of roughing-in.

    a. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. Maintain pressure for four hours.
    b. From 15 minutes before inspection starts to completion of inspection, water level must not drop.
    c. Inspect joints for leaks.

4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight.

    a. Plug vent-stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1-inch wg.
    b. Use U-tube or manometer inserted in trap of water closet to measure this pressure.
    c. Air pressure must remain constant without introducing additional air throughout period of inspection.
    d. Inspect plumbing fixture connections for gas and water leaks.

5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
6. Prepare reports for tests and required corrective action.

E. Test force-main piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Leave uncovered and unconcealed new, altered, extended, or replaced force-main piping until it has been tested and approved.

    a. Expose work that was covered or concealed before it was tested.

2. Cap and subject piping to static-water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials.

    a. Isolate test source and allow to stand for four hours.
    b. Leaks and loss in test pressure constitute defects that must be repaired.

3. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
4. Prepare reports for tests and required corrective action.

3.10 CLEANING AND PROTECTION

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect sanitary waste and vent piping during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

D. Repair damage to adjacent materials caused by waste and vent piping installation.

3.11 PIPING SCHEDULE

A. Flanges and unions may be used on aboveground pressure piping unless otherwise indicated.

B. Aboveground, soil and waste piping NPS 4 and smaller shall be any of the following:

1. Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.

2. Hubless, cast-iron soil pipe and fittings and hubless, single-stack aerator fittings; CISPI heavy-duty hubless-piping couplings; and coupled joints.

3. Hubless, cast-iron soil pipe and fittings; heavy-duty hubless-piping couplings; and coupled joints shall be installed where piping will be located over critical areas including food preparation, food storage, food serving, dining areas, operating and delivery rooms, nurseries, and other sensitive areas.
4. In addition to materials listed above, vertical waste piping from lavatories, sinks, and drinking fountains may be any of the following:

   a. Galvanized-steel pipe, drainage fittings, and threaded joints.
   b. Copper DWV tube, copper drainage fittings, and soldered joints.

5. Galvanized-steel pipe, drainage fittings, and threaded joints.
6. Stainless-steel pipe and fittings, sealing rings, and gasketed joints.
7. Copper Type DWV tube, copper drainage fittings, and soldered joints.
8. Dissimilar Pipe-Material Couplings: Unshielded, nonpressure transition couplings.

C. Aboveground, soil and waste piping NPS 5 and larger shall be any of the following:

1. Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.
2. Hubless, cast-iron soil pipe and fittings and hubless, single-stack aerator fittings; CISPI heavy-duty hubless-piping couplings; and coupled joints.
3. Hubless, cast-iron soil pipe and fittings; heavy-duty hubless-piping couplings; and coupled joints shall be installed where piping will be located over critical areas including food preparation, food storage, food serving, dining areas, operating and delivery rooms, nurseries, and other sensitive areas.
4. Dissimilar Pipe-Material Couplings: Unshielded, nonpressure transition couplings.

D. Aboveground, vent piping shall be any of the following:

1. Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.
2. Hubless, cast-iron soil pipe and fittings; CISPI heavy-duty hubless-piping couplings; and coupled joints.
3. Dissimilar Pipe-Material Couplings: Unshielded, nonpressure transition couplings.

E. Underground, soil, waste, and vent piping shall be any of the following:

1. Extra Heavy class, cast-iron soil piping; gaskets; and gasketed joints.
2. Hubless, cast-iron soil pipe and fittings; CISPI heavy-duty cast-iron hubless-piping, couplings; and coupled joints.
3. Stainless-steel pipe and fittings, gaskets, and gasketed joints.

F. Aboveground, condensate drain piping shall be any of the following:

1. Inside buildings provide ASTM B88, Type L copper tubing and fittings. Provide Wye fittings with capped cleanout plug for tubing up to 1 inch size. Provide wrought or cast DWV fittings for sizes 1-1/4 inch and larger.
2. Outside buildings provide ASTM B88, Type L copper pipe and fittings, cast iron drain pipe and fittings or Schedule 40 galvanized steel pipe and cast iron drain or vent fittings.

END OF SECTION 221316

SECTION 231123 - FACILITY NATURAL-GAS PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Pipes, tubes, and fittings.
2. Piping specialties.
3. Piping and tubing joining materials.
4. Manual gas shutoff valves.
5. Earthquake valves.
6. Pressure regulators.
7. Dielectric fittings.

1.3 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of the following:

1. Piping specialties.
2. Corrugated, stainless-steel tubing with associated components.
3. Valves. Include pressure rating, capacity, settings, and electrical connection data of selected models.
4. Pressure regulators. Indicate pressure ratings and capacities.
5. Service meters.
6. Dielectric fittings.

B. Shop Drawings: For facility natural-gas piping layout. Include plans, piping layout and elevations, sections, and details for fabrication of pipe anchors, hangers, supports for multiple pipes, alignment guides, expansion joints and loops, and attachments of the same to building structure. Detail location of anchors, alignment guides, and expansion joints and loops.

1. Shop Drawing Scale: 1/4 inch per foot
2. Detail mounting, supports, and valve arrangements for pressure regulator assembly.

C. Delegated-Design Submittal: For natural-gas piping and equipment indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail fabrication and assembly of seismic restraints.
2. Design Calculations: Calculate requirements for selecting seismic restraints.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans and details, drawn to scale, on which natural-gas piping is shown and coordinated with other installations, using input from installers of the items involved.

B. Site Survey: Plans, drawn to scale, on which natural-gas piping is shown and coordinated with other services and utilities.

C. Qualification Data: For qualified professional engineer.

D. Welding certificates.

E. Gas Pipe Installer Qualifications: Provide evidence of current qualifications for individuals performing work requiring qualifications.

F. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For pressure regulators to include in emergency, operation, and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Steel Support Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

C. Utility Compliance: Fabricate and install natural gas systems in accordance with local gas utility company requirements.

D. Gas Pipe Installer Qualifications: Individuals performing tasks requiring qualifications under Federal and State regulations shall be qualified by the gas utility supplying Project site. The qualifications shall be current at the time of performing the Work.

E. CPC Compliance: Fabricate and install natural gas systems in accordance with California Plumbing Code.

F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Handling Flammable Liquids: Remove and dispose of liquids from existing natural-gas piping according to requirements of authorities having jurisdiction.

B. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

C. Store and handle pipes and tubes having factory-applied protective coatings to avoid damaging coating, and protect from direct sunlight.

D. Protect stored PE pipes and valves from direct sunlight.

1.9 PROJECT CONDITIONS

A. Perform site survey, research public utility records, and verify existing utility locations. Contact utility-locating service for area where Project is located.

B. Interruption of Existing Natural-Gas Service: Do not interrupt natural-gas service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide purging and startup of natural-gas supply according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of natural-gas service.
2. Do not proceed with interruption of natural-gas service without Owner's written permission.

1.10 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

B. Coordinate requirements for access panels and doors for valves installed concealed behind finished surfaces. Comply with requirements in Section 083113 "Access Doors and Frames."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Minimum Operating-Pressure Ratings:

1. Piping and Valves: 100 psig minimum unless otherwise indicated.
2. Service Regulators: 65 psig minimum unless otherwise indicated.

B. Natural-Gas System Pressure within Buildings: 0.5 psig or less.

C. Delegated Design: Design restraints and anchors for natural-gas piping and equipment, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

2.2 PIPES, TUBES, AND FITTINGS

A. Steel Pipe: ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.

1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.
2. Wrought-Steel Welding Fittings: ASTM A 234/A 234M for butt welding and socket welding.
3. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.
4. Forged-Steel Flanges and Flanged Fittings: ASME B16.5, minimum Class 150, including bolts, nuts, and gaskets of the following material group, end connections, and facings:

a. Material Group: 1.1.
b. End Connections: Threaded or butt welding to match pipe.
c. Lapped Face: Not permitted underground.
d. Gasket Materials: ASME B16.20, metallic, flat, asbestos free, aluminum o-rings, and spiral-wound metal gaskets.
e. Bolts and Nuts: ASME B18.2.1, carbon steel aboveground and stainless steel underground.

5. Protective Coating for Underground Piping: Factory-applied, three-layer coating of epoxy, adhesive, and PE.

a. Joint Cover Kits: Epoxy paint, adhesive, and heat-shrink PE sleeves.

B. PE Pipe: ASTM D 2513, SDR 11.

1. PE Fittings: ASTM D 2683, socket-fusion type or ASTM D 3261, butt-fusion type with dimensions matching PE pipe.
2. PE Transition Fittings: Factory-fabricated fittings with PE pipe complying with ASTM D 2513, SDR 11; and steel pipe complying with ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.
3. Anodeless Service-Line Risers: Factory fabricated and leak tested.

a. Underground Portion: PE pipe complying with ASTM D 2513, SDR 11 inlet.
b. Casing: Steel pipe complying with ASTM A 53/A 53M, Schedule 40, black steel, Type E or S, Grade B, with corrosion-protective coating covering.
c. Aboveground Portion: PE transition fitting.
d. Outlet shall be threaded or flanged or suitable for welded connection.
e. Tracer wire connection.
f. Ultraviolet shield.
g. Stake supports with factory finish to match steel pipe casing or carrier pipe.

4. Transition Service-Line Risers: Factory fabricated and leak tested.

a. Underground Portion: PE pipe complying with ASTM D 2513, SDR 11 inlet connected to steel pipe complying with ASTM A 53/A 53M, Schedule 40, Type E or S, Grade B, with corrosion-protective coating for aboveground outlet.
b. Outlet shall be threaded or flanged or suitable for welded connection.
c. Bridging sleeve over mechanical coupling.
d. Factory-connected anode.
e. Tracer wire connection.
f. Ultraviolet shield.
g. Stake supports with factory finish to match steel pipe casing or carrier pipe.

2.3 PIPING SPECIALTIES

A. Appliance Flexible Connectors:

1. Indoor, Fixed-Appliance Flexible Connectors: Comply with ANSI Z21.24.
2. Indoor, Movable-Appliance Flexible Connectors: Comply with ANSI Z21.69.
3. Outdoor, Appliance Flexible Connectors: Comply with ANSI Z21.75.
4. Corrugated stainless-steel tubing with polymer coating.
5. Operating-Pressure Rating: 0.5 psig.
6. End Fittings: Zinc-coated steel.
7. Threaded Ends: Comply with ASME B1.20.1.
8. Maximum Length: 72 inches

B. Y-Pattern Strainers:

1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
2. End Connections: Threaded ends for NPS 2 and smaller; flanged ends for NPS 2-1/2 and larger.
3. Strainer Screen: 40-mesh startup strainer, and perforated stainless-steel basket with 50 percent free area.
4. CWP Rating: 125 psig.

C. Weatherproof Vent Cap: Cast- or malleable-iron increaser fitting with corrosion-resistant wire screen, with free area at least equal to cross-sectional area of connecting pipe and threaded-end connection.

2.4 JOINING MATERIALS

A. Joint Compound and Tape: Suitable for natural gas.

B. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

C. Brazing Filler Metals: Alloy with melting point greater than 1000 deg F complying with AWS A5.8/A5.8M. Brazing alloys containing more than 0.05 percent phosphorus are prohibited.

2.5 MANUAL GAS SHUTOFF VALVES

A. See "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles for where each valve type is applied in various services.

B. General Requirements for Metallic Valves, NPS 2 and Smaller: Comply with ASME B16.33.

1. CWP Rating: 125 psig.
2. Threaded Ends: Comply with ASME B1.20.1.
3. Dryseal Threads on Flare Ends: Comply with ASME B1.20.3.
4. Tamperproof Feature: Locking feature for valves indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
5. Listing: Listed and labeled by an NRTL acceptable to authorities having jurisdiction for valves 1 inch and smaller.
6. Service Mark: Valves 1-1/4 inches to NPS 2 shall have initials "WOG" permanently marked on valve body.

C. General Requirements for Metallic Valves, NPS 2-1/2 and Larger: Comply with ASME B16.38.

1. CWP Rating: 125 psig.
2. Flanged Ends: Comply with ASME B16.5 for steel flanges.
3. Tamperproof Feature: Locking feature for valves indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
4. Service Mark: Initials "WOG" shall be permanently marked on valve body.

D. Two-Piece, Full-Port, Bronze Ball Valves with Bronze Trim: MSS SP-110.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

    a. A.Y. McDonald Mfg. Co.
    b. Apollo Flow Controls; Conbraco Industries, Inc.
    c. BrassCraft Manufacturing Co.; a Masco company.
    d. Lyall, R. W. & Company, Inc.
    e. Perfection Corporation.

2. Body: Bronze, complying with ASTM B 584.

3. Ball: Chrome-plated bronze.
4. Stem: Bronze; blowout proof.
5. Seats: Reinforced TFE; blowout proof.
6. Packing: Threaded-body packnut design with adjustable-stem packing.
7. Ends: Threaded, flared, or socket as indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
8. CWP Rating: 600 psig.
9. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
10. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

E. Bronze Plug Valves: MSS SP-78.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

   a. A.Y. McDonald Mfg. Co.
   b. Lee Brass Company.

2. Body: Bronze, complying with ASTM B 584.

3. Plug: Bronze.
4. Ends: Threaded, socket, or flanged as indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
5. Operator: Square head or lug type with tamperproof feature where indicated.
6. Pressure Class: 125 psig.
7. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
8. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

F. Cast-Iron, Nonlubricated Plug Valves: MSS SP-78.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

   a. A.Y. McDonald Mfg. Co.
   b. Mueller Co.
   c. Xomox Corporation.

2. Body: Cast iron, complying with ASTM A 126, Class B.

3. Plug: Bronze or nickel-plated cast iron.
4. Seat: Coated with thermoplastic.
5. Stem Seal: Compatible with natural gas.
6. Ends: Threaded or flanged as indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
7. Operator: Square head or lug type with tamperproof feature where indicated.
8. Pressure Class: 125 psig.

9. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
10. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

2.6 EARTHQUAKE VALVES

A. Earthquake Valves: Comply with ASCE 25.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Little Firefighter Corporation models NAGV, VAGV, or AGV, or Seismic Safety Products, LLC, Northridge Series, arrangement as shown on Drawings. Provide standard or high pressure model to match site gas pressure.

    a. No substitutions allowed. Earthquake valves shall be certified by the State of California.

2.7 PRESSURE REGULATORS

A. General Requirements:

1. Single stage and suitable for natural gas.
2. Steel jacket and corrosion-resistant components.
3. Elevation compensator.
4. End Connections: Threaded for regulators NPS 2 and smaller; flanged for regulators NPS 2-1/2 and larger.

B. Service Pressure Regulators: Comply with ANSI Z21.80.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

    a. Actaris.
    b. American Meter Company.
    c. Fisher Control Valves & Instruments; a brand of Emerson Process Management.
    d. Invensys.
    e. Itron Gas.
    f. Richards Industries.

2. Body and Diaphragm Case: Cast iron or die-cast aluminum.

3. Springs: Zinc-plated steel; interchangeable.
4. Diaphragm Plate: Zinc-plated steel.
5. Seat Disc: Nitrile rubber resistant to gas impurities, abrasion, and deformation at the valve port.
6. Orifice: Aluminum; interchangeable.
7. Seal Plug: Ultraviolet-stabilized, mineral-filled nylon.
8. Single-port, self-contained regulator with orifice no larger than required at maximum pressure inlet, and no pressure sensing piping external to the regulator.

9. Pressure regulator shall maintain discharge pressure setting downstream, and not exceed 150 percent of design discharge pressure at shutoff.
10. Overpressure Protection Device: Factory mounted on pressure regulator.
11. Atmospheric Vent: Factory- or field-installed, stainless-steel screen in opening if not connected to vent piping.
12. Maximum Inlet Pressure: 100 psig.

C. Line Pressure Regulators: Comply with ANSI Z21.80.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

    a. Actaris.
    b. American Meter Company.
    c. Eclipse Innovative Thermal Technologies.
    d. Fisher Control Valves & Instruments; a brand of Emerson Process Management.
    e. Invensys.
    f. Itron Gas.
    g. Maxitrol Company.
    h. Richards Industries.

2. Body and Diaphragm Case: Cast iron or die-cast aluminum.

3. Springs: Zinc-plated steel; interchangeable.
4. Diaphragm Plate: Zinc-plated steel.
5. Seat Disc: Nitrile rubber resistant to gas impurities, abrasion, and deformation at the valve port.
6. Orifice: Aluminum; interchangeable.
7. Seal Plug: Ultraviolet-stabilized, mineral-filled nylon.
8. Single-port, self-contained regulator with orifice no larger than required at maximum pressure inlet, and no pressure sensing piping external to the regulator.
9. Pressure regulator shall maintain discharge pressure setting downstream, and not exceed 150 percent of design discharge pressure at shutoff.
10. Overpressure Protection Device: Factory mounted on pressure regulator.
11. Atmospheric Vent: Factory- or field-installed, stainless-steel screen in opening if not connected to vent piping.
12. Maximum Inlet Pressure: 5 psig.

2.8 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

B. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

    a. A.Y. McDonald Mfg. Co.

b. Capitol Manufacturing Company.
c. Central Plastics Company.
d. HART Industrial Unions, LLC.
e. Jomar Valve.
f. Matco-Norca.
g. WATTS.
h. Wilkins.
i. Zurn Industries, LLC.

2. Description:

a. Standard: ASSE 1079.
b. Pressure Rating: 125 psig minimum at 180 deg F.
c. End Connections: Solder-joint copper alloy and threaded ferrous.

C. Dielectric Flanges:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

a. Capitol Manufacturing Company.
b. Central Plastics Company.
c. Matco-Norca.
d. WATTS.
e. Wilkins.

2. Description:

a. Standard: ASSE 1079.
b. Factory-fabricated, bolted, companion-flange assembly.
c. Pressure Rating: 125 psig minimum at 180 deg F.
d. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Insulating Kits:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Central Plastics Company.
d. Pipeline Seal and Insulator, Inc.

2. Description:

a. Nonconducting materials for field assembly of companion flanges.
b. Pressure Rating: 150 psig.
c. Gasket: Neoprene or phenolic.
d. Bolt Sleeves: Phenolic or polyethylene.

e. Washers: Phenolic with steel backing washers.

2.9 LABELING AND IDENTIFYING

A. Detectable Warning Tape: Acid- and alkali-resistant, PE film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored yellow.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for natural-gas piping system to verify actual locations of piping connections before equipment installation.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Close equipment shutoff valves before turning off natural gas to premises or piping section.

B. Inspect natural-gas piping according to NFPA 54 to determine that natural-gas utilization devices are turned off in piping section affected.

C. Comply with NFPA 54 requirements for prevention of accidental ignition.

3.3 OUTDOOR PIPING INSTALLATION

A. Comply with NFPA 54 for installation and purging of natural-gas piping.

B. Install underground, natural-gas piping buried at least 36 inches below finished grade. Comply with requirements in Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

1. If natural-gas piping is installed less than 36 inches below finished grade, install it in containment conduit.

C. Install underground, PE, natural-gas piping according to ASTM D 2774.

D. Steel Piping with Protective Coating:

1. Apply joint cover kits to pipe after joining to cover, seal, and protect joints.
2. Repair damage to PE coating on pipe as recommended in writing by protective coating manufacturer.

3. Replace pipe having damaged PE coating with new pipe.

E. Install fittings for changes in direction and branch connections.

F. Install pressure gage downstream from each service regulator. Pressure gages are specified in Section 230519 "Meters and Gages for HVAC Piping."

3.4 INDOOR PIPING INSTALLATION

A. Comply with NFPA 54 for installation and purging of natural-gas piping.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Arrange for pipe spaces, chases, slots, sleeves, and openings in building structure during progress of construction, to allow for mechanical installations.

D. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

E. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

F. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

G. Locate valves for easy access.

H. Install natural-gas piping at uniform grade of 2 percent down toward drip and sediment traps.

I. Install piping free of sags and bends.

J. Install fittings for changes in direction and branch connections.

K. Verify final equipment locations for roughing-in.

L. Comply with requirements in Sections specifying gas-fired appliances and equipment for roughing-in requirements.

M. Drips and Sediment Traps: Install drips at points where condensate may collect, including service-meter outlets. Locate where accessible to permit cleaning and emptying. Do not install where condensate is subject to freezing.

1. Construct drips and sediment traps using tee fitting with bottom outlet plugged or capped. Use nipple a minimum length of 3 pipe diameters, but not less than 3 inches long and same size as connected pipe. Install with space below bottom of drip to remove plug or cap.

N. Extend relief vent connections for service regulators, line regulators, and overpressure protection devices to outdoors and terminate with weatherproof vent cap.

O. Conceal pipe installations in walls, pipe spaces, utility spaces, above ceilings, below grade or floors, and in floor channels unless indicated to be exposed to view.

P. Concealed Location Installations: Except as specified below, install concealed natural-gas piping and piping installed under the building in containment conduit constructed of steel pipe with welded joints as described in Part 2. Install a vent pipe from containment conduit to outdoors and terminate with weatherproof vent cap.

1. Above Accessible Ceilings: Natural-gas piping, fittings, valves, and regulators may be installed in accessible spaces without containment conduit.
2. In Floors: Install natural-gas piping with welded or brazed joints and protective coating in cast-in-place concrete floors. Cover piping to be cast in concrete slabs with minimum of 1-1/2 inches of concrete. Piping may not be in physical contact with other metallic structures such as reinforcing rods or electrically neutral conductors. Do not embed piping in concrete slabs containing quick-set additives or cinder aggregate.
3. In Floor Channels: Install natural-gas piping in floor channels. Channels must have cover and be open to space above cover for ventilation.
4. In Walls or Partitions: Protect tubing installed inside partitions or hollow walls from physical damage using steel striker barriers at rigid supports.

    a. Exception: Tubing passing through partitions or walls does not require striker barriers.

5. Prohibited Locations:

    a. Do not install natural-gas piping in or through circulating air ducts, clothes or trash chutes, chimneys or gas vents (flues), ventilating ducts, or dumbwaiter or elevator shafts.
    b. Do not install natural-gas piping in solid walls or partitions.

Q. Use eccentric reducer fittings to make reductions in pipe sizes. Install fittings with level side down.

R. Connect branch piping from top or side of horizontal piping.

S. Install unions in pipes NPS 2 and smaller, adjacent to each valve, at final connection to each piece of equipment. Unions are not required at flanged connections.

T. Do not use natural-gas piping as grounding electrode.

U. Install strainer on inlet of each line-pressure regulator and automatic or electrically operated valve.

V. Install pressure gage downstream from each line regulator. Pressure gages are specified in Section 230519 "Meters and Gages for HVAC Piping."

W. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 230517 "Sleeves and Sleeve Seals for HVAC Piping."

X. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 230517 "Sleeves and Sleeve Seals for HVAC Piping."

Y. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 230518 "Escutcheons for HVAC Piping."

3.5 VALVE INSTALLATION

A. Install manual gas shutoff valve for each gas appliance ahead of corrugated stainless-steel tubing, aluminum, or copper connector.

B. Install underground valves with valve boxes.

C. Install regulators and overpressure protection devices with maintenance access space adequate for servicing and testing.

D. Install earthquake valves aboveground outside buildings according to listing.

E. Install anode for metallic valves in underground PE piping.

3.6 PIPING JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Threaded Joints:

1. Thread pipe with tapered pipe threads complying with ASME B1.20.1.
2. Cut threads full and clean using sharp dies.
3. Ream threaded pipe ends to remove burrs and restore full inside diameter of pipe.
4. Apply appropriate tape or thread compound to external pipe threads unless dryseal threading is specified.
5. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

D. Welded Joints:

1. Construct joints according to AWS D10.12/D10.12M, using qualified processes and welding operators.
2. Bevel plain ends of steel pipe.
3. Patch factory-applied protective coating as recommended by manufacturer at field welds and where damage to coating occurs during construction.

E. Flanged Joints: Install gasket material, size, type, and thickness appropriate for natural-gas service. Install gasket concentrically positioned.

F. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.

1. Plain-End Pipe and Fittings: Use butt fusion.
2. Plain-End Pipe and Socket Fittings: Use socket fusion.

3.7 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements for seismic-restraint devices specified in Section 230548 "Vibration and Seismic Controls for HVAC."

B. Comply with requirements for pipe hangers and supports specified in Section 230529 "Hangers and Supports for HVAC Piping and Equipment."

C. Install hangers for steel piping, with maximum horizontal spacing and minimum rod diameters, to comply with MSS-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

D. Support horizontal piping within 12 inches of each fitting.

E. Support vertical runs of steel piping to comply with MSS-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

3.8 CONNECTIONS

A. Connect to utility's gas main according to utility's procedures and requirements.

B. Install natural-gas piping electrically continuous, and bonded to gas appliance equipment grounding conductor of the circuit powering the appliance according to NFPA 70.

C. Install piping adjacent to appliances to allow service and maintenance of appliances.

D. Connect piping to appliances using manual gas shutoff valves and unions. Install valve within 72 inches of each gas-fired appliance and equipment. Install union between valve and appliances or equipment.

E. Sediment Traps: Install tee fitting with capped nipple in bottom to form drip, as close as practical to inlet of each appliance.

3.9 LABELING AND IDENTIFYING

A. Comply with requirements in Section 230553 "Identification for HVAC Piping and Equipment" for piping and valve identification.

B. Install detectable warning tape directly above gas piping, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.10 PAINTING

A. Comply with requirements in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting" for painting interior and exterior natural-gas piping.

B. Paint exposed, exterior metal piping, valves, service regulators, service meters and meter bars, earthquake valves, and piping specialties, except components, with factory-applied paint or protective coating.

1. Alkyd System: MPI EXT 5.1D.

a. Prime Coat: Alkyd anticorrosive metal primer.
b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
c. Topcoat: Exterior alkyd enamel (flat).
d. Color: Gray.

C. Damage and Touchup: Repair marred and damaged factory-applied finishes with materials and by procedures to match original factory finish.

3.11 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Test, inspect, and purge natural gas according to NFPA 54 and authorities having jurisdiction.

C. Natural-gas piping will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.12 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain earthquake valves.

3.13 OUTDOOR PIPING SCHEDULE

A. Underground natural-gas piping shall be one of the following:

1. PE pipe and fittings joined by heat fusion; service-line risers with tracer wire terminated in an accessible location.

2. Steel pipe with wrought-steel fittings and welded joints. Coat pipe and fittings with protective coating for steel piping.

B. Aboveground natural-gas piping shall be one of the following:

1. Steel pipe with malleable-iron fittings and threaded joints.
2. Steel pipe with wrought-steel fittings and welded joints.

3.14 INDOOR PIPING SCHEDULE

A. Aboveground piping NPS 2 and smaller shall be the following:

1. Steel pipe with malleable-iron fittings and threaded joints.

B. Aboveground, piping NPS 2-1/2 and larger shall be the following:
1. Steel pipe with wrought-steel fittings and welded joints.

C. Underground, below building, piping shall be the following:
1. Steel pipe with wrought-steel fittings and welded joints.

3.15 ABOVEGROUND MANUAL GAS SHUTOFF VALVE SCHEDULE

A. Valves for pipe sizes NPS 2 and smaller at service meter shall be one of the following:

1. Two-piece, full-port, bronze ball valves with bronze trim.
2. Bronze plug valve.

B. Valves for pipe sizes NPS 2-1/2 and larger at service meter shall be one of the following:

1. Two-piece, full-port, bronze ball valves with bronze trim.
2. Bronze plug valve.
3. Cast-iron, nonlubricated plug valve.

C. Distribution piping valves for pipe sizes NPS 2 and smaller shall be one of the following:

1. Two-piece, full-port, bronze ball valves with bronze trim.
2. Bronze plug valve.

D. Distribution piping valves for pipe sizes NPS 2-1/2 and larger shall be one of the following:

1. Two-piece, full-port, bronze ball valves with bronze trim.
2. Bronze plug valve.
3. Cast-iron, nonlubricated plug valve.

E. Valves in branch piping for single appliance shall be one of the following:

1. One-piece, bronze ball valve with bronze trim.
2. Two-piece, full-port, bronze ball valves with bronze trim.

3. Bronze plug valve.

END OF SECTION 231123

SECTION 10 26 00 - WALL PROTECTION SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes prefabricated wall protection systems.
B. Related requirements: Section 09 22 16 for concealed in-wall staps/plates for attachment of work of this Section.

1.2 SUBMITTALS

A. Data: Manufacturer Product Data for each item proposed for the Project indicating physical dimensions, features, wall mounting brackets with mounted measurements, anchorage details, and rough-in measurements.
B. Shop Drawings:

1. Showing locations and extent of wall protection systems.
2. Include sections, details, and attachments to other work.
3. For products indicated to comply with design loads, include structural analysis data signed and sealed by a qualified professional engineer responsible for their preparation.

C. Samples: 24-inch long Samples of each profile, material and color of wall protections system component illustrating design, configuration, color and finish.
D. Closeout: Manufacturer’s recommendations for cleaning and maintenance of wall protection systems.

1.3 QUALITY ASSURANCE

A. Source limitations: Obtain each type/profile of wall-protection units through one source from a single manufacturer.
B. Fire-test-response characteristics: Provide wall-protection units with surface-burning characteristics as determined by testing identical products per ASTM E 84, NFPA 255, or UL 723 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

1.4 HANDLING

A. Store wall-protection units indoors, off the floor, in accordance with their manufacturer’s recommendations, protected from weather, moisture, soiling, extreme temperatures, and humidity.
B. Keep plastic sheet material out of direct sunlight.
C. Store plastic components for a minimum of 72 hours, or until plastic material attains a minimum room temperature of 70-degree F.

1.5 PROJECT CONDITIONS

A. Do not deliver or install impact-resistant wall-protection units until building is enclosed and weatherproof, wet work is complete and dry, and HVAC system is operating and maintaining temperature at 70-degree F for not less than 72 hours before beginning installation and for the remainder of the construction period.

1.6 WARRANTY

A. Special warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of impact-resistant wall-protection units that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures.
b. Deterioration of plastic and other materials beyond normal use.

2. Warranty period: 5 years from Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS/MATERIALS

1. Basis of Design: IPC Door and Wall Protection Systems, InPro Corporation:
2. Wallprotex.
3. Or equal.

2.2 CORNER GUARDS:

1. Corner Guard System:

a. 130 High Impact Surface Mount Corner Guard Profile.
b. 3-inch x 3-inch, 4-feet, 8-feet, and 9-feet standard heights.

2.3 CHAIR RAILS:

1. Wallguard.com, (basis of design) or equal.

a. 700 Wall Guard, 7-3/4-inches high x 1-inch deep, with continuous aluminum retainer. Rigid vinyl over aluminum retainer wall guard.
b. Include outside corners and end caps.

2.4 COLOR:

A. As shown on Drawings.

2.5 FABRICATION

A. Fabricate wall-protection units to comply with requirements indicated for design, dimensions, and member sizes, including thicknesses of components.
B. Factory-assemble components to greatest extent possible to minimize field assembly. Disassemble only as necessary for shipping and handling.
C. Fabricate components with tight, flush seams and joints with exposed edges rolled.
D. Provide surfaces free of wrinkles, chips, dents, uneven coloration, and other imperfections. Fabricate members and fittings to produce flush, smooth, and rigid hairline joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions and measurements affecting the work of this Section at site.
B. Correct detrimental conditions before proceeding with installation.

3.2 INSTALLATION

A. Install components in accordance with their manufacturer's instructions, level and plumb, secured rigidly in position to wall framing members only.
B. When jointing, make joints flush and hairline tight.

3.3 FIELD QUALITY CONTROL

A. After completing installation, clean exposed surfaces and touchup minor scratches.

1. Clean plastic covers and accessories using household cleaning agent.
2. Remove excess adhesive by methods and materials recommended by manufacturer.

B. Remove and replace components that cannot be satisfactorily touched-up in the field, in the Architect's opinion.

END OF SECTION

BID BOND

Know all persons by these presents:

That we,_____, as Principal, and _____, as Surety, are held and firmly bound unto Los Rios Community College District, hereinafter called District, the sum of ten percent (10%) of the total bid amount of Principal for payment of which in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

The condition of the above obligation is such that, whereas, the Principal has submitted a bid for the work described as follows: **RFP 21-12 YCCD, Woodland Community College, Performing Arts and Culinary Services Facility.**

Now, therefore, if Principal shall not withdraw said bid within the time period specified after the bid date, as defined in the bidding documents, or within ninety (90) days after the bid date if no time period is specified, and, if selected as the apparent lowest responsive responsible bidder, Principal shall, within the time period specified in the bidding documents: Enter into a written agreement, in the form prescribed in the bidding documents, in accordance with its bid; file with the District all bonds required to be filed, including but not limited to faithful performance and payments bonds; and, furnish certificates of insurance and all other items required by the bidding documents.

In the event of the withdrawal of said bid within the time period specified, or within ninety (90) days if no time period is specified, or the failure of Principal to enter into such agreement and furnish such bonds, certificates of insurance, and all other items as required by the bidding documents, if Principal shall pay to the District an amount to the difference, between the amount specified in said bid and such larger amount for which the District procures the work covered by the bid, if the latter is in excess of the former, then this obligation shall be null and void, otherwise to remain in full force and effect.

In the event suit is brought upon this bond by District, in addition to the penal sum of this Bid Bond, Surety shall pay reasonable attorneys' fees and costs incurred by District in such suit.

Surety hereby expressly waives the provisions of California Civil Code section 2845.

In witness whereof, we have hereunto set our hands this_____day of_____, 2022 _____.

Principal:	Surety:_ (Name of firm)
By:_____	By:
Title:_____	Title:

Broker Name or Agent Name:

License Number:

Bond or company appointment must be listed with the CA Department of Insurance Notary acknowledgments for Surety and Surety's Power of Attorney must be attached.

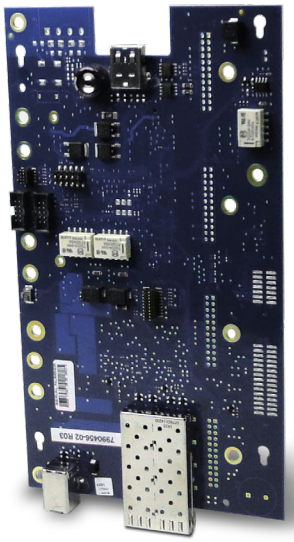
Address for Notices:

Reference: Public Contact Code, Division 2 General Provisions, Article 4 Bids and Bidders, Section 10167

LIFE SAFETY & INCIDENT MANAGEMENT

EST4 Network Firewalls

4-FWAL Series



7165-1657:
0508

Overview

The security and integrity of the EST4 network is paramount to its ability to maintain systems operations in the face of outside threats. The most vulnerable point of contact for any integrated building system is where it meets the facility owner's existing TCP/IP network. Ironically it is this gateway, which enhances and expands system capability beyond the communications network, that also exposes the system to some of its most critical vulnerabilities. 4-FWAL Series firewalls mitigate those vulnerabilities by providing a barrier between the EST4 life safety platform and the external connections necessary in today's networked building infrastructure.

4-FWAL firewalls communicate to other EST4 panel modules including the 4-CPU, 4-ANNCPU and 4-NET-AD. Each 4-FWAL firewall also has two small form-factor pluggable (SFP) slots that support its network adapters. These are used to connect to external networks, and provide physical layer options for connections between outside equipment and EST4 CAT or fiber cabling. 4-FWAL firewalls support both IPv4 and IPv6 networks, thus removing concern over network addressing compatibility.

EST4 firewalls are mounted inside the control panel. Panel power and communications is provided via a single internal USB cable. All firewalls provide engineered cybersecurity measures, including hashing of passwords, authentication, and encryption. The 4-FWAL series provides the interface between the fire system networking and the facility intra-net. EDWARDS recommends the installation of robust commercial firewall between the facilities intra-net and the Internet. To further enhance network security, an optional tamper switch may be installed on EST4 cabinet doors. This alerts the system when equipment enclosures accessed.

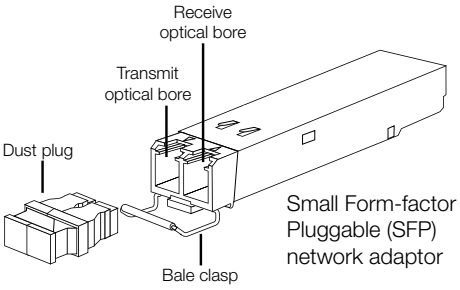
Standard Features

- **Secure Interface between EST4 and Outside Networks**
  Select the version of Firewall to support the features needed for the project from support for printers and Graphics through IP integration with central stations, web services, e-mail.
- **Multiple Physical Connection Options**
  Hot pluggable SFP-style network adapters allow selection of media including fiber and CAT cables.
- **Simple Interconnection with Panel Modules**
  Connection within the control panel is via USB cable.
- **Fully Listed as Part of the Fire System**
  End-to-end protection from external cyber threats.
- **Employs the latest Encryption Technology**
  Secure AES 256 algorithms per FIPS197 are used
- **IPv4 and IPv6 Support**
  Compatible with local network addressing methodology.

Application

4-FWAL firewalls make EST4 a safe and secure system for external connections. They meet Advanced Encryption Standard (AES), thus ensuring that the system is effectively insulated from malware that may exist on external networks. The EST4 proxy firewall uses Advanced Encryption Standard (AES) encryption and secure protocols making it FIPS Pub 197 certified. The FIPS, Federal Information Processing Standards, are the most current and most advanced encryption protocols administered by the National Institute of Standards and Technology (NIST).

All 4-FWAL Series firewalls provide the same high level of security and can be configured to meet the individual needs of the application. They come standard with one 3.0 Type A USB port and one 3.0 Type B USB port for connection to internal equipment, as well as two small form-factor pluggable (SFP) network adaptor connectors for connection to external networks.



Each 4-FWAL SFP slot supports connection directly to external equipment, or may connect to a switch in order to allow single point connection to multiple communications paths.

SFP adaptors are selected based on the physical layer needs of the facility infrastructure. Five versions are available, each for a different media type. They are hot swappable, so there is no need to power-down the system when changing out adaptors.

National and local codes and standards should be followed to ensure compliance with the options selected. Refer to the EST4 UL Listing Document P/N 3102302-EN for additional detail.

Engineering Specification

The systems shall support integrated Firewalls meeting the requirements of FIPS publication 197. It shall track relevant security information such as: failed login attempts, failed unauthorized accesses, and user modification shall be logged to panel history. Unsuccessful authentication attempts shall not leak information regarding the presence of the system or users. Credentials shall only be transmitted that are encrypted. The system shall provide for multiple users. Roles shall be provided for users to ensure proper access by user for the role they perform on the system. All passwords shall use a cypher algorithm for security purposes to protect any sensitive information. No passwords shall be visible as plain text within the database or entire system.

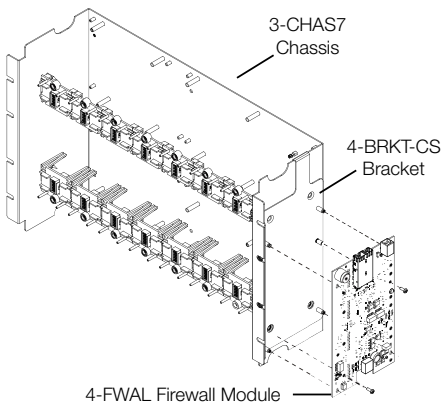
Sensitive information shall not be logged to history or displayed on service tools (e.g., passwords, PINs etc.).

The system shall support configuration of multiple IP connections to external services including, <central station>, <email servers>, <web interfaces>, <reports>, and <third party integration>. Email messages shall support multiple languages in native characters that match the languages supported in the panel. Email messages shall support symbolic and color alarm event high lighting.

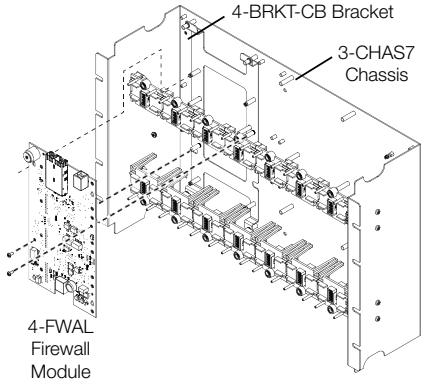
The system shall support connection to external services via <single-mode fiber>, <multimode fiber>, <CAT 5>. Connections to external systems shall be hot swappable removing the need to power down the life safety systems when deploying connections to external services. A minimum of eight external services shall be supported per Firewall. The system shall support installation of multiple Firewalls on the life safety network providing flexibility of connections to external services. A single point of connection into the system is not acceptable.

Mounting

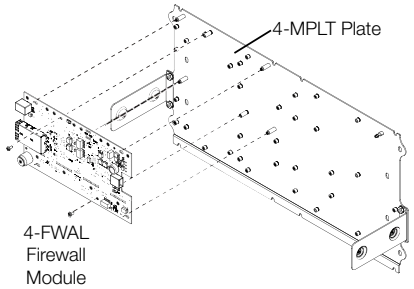
4-FWAL installation on 4-BRKT-CS



4-FWAL module installation on 4-BRKT-CB



4-FWAL module Installation on 4-MPLT



Firewall Selection Guide

Features	4-FWAL1	4-FWAL2	4-FWAL3	4-FWAL4
Eight concurrent services	✓	✓	✓	✓
FireWorks support	✓	✓	✓	✓
3rd party ECP-XML support	✓	✓	✓	✓
Supports downstream 4-USBHUB for printers and CDR-3 connections*	✓	✓	✓	✓
IP-DACT (dialer) support for Sur-Gard IP receivers		✓		✓
Web services (End user connection for standard reports)		✓	✓	✓
E-mail server connectivity			✓	✓

*Does not use nor requires a Firewall CPU for serial printer support.

Technical Specifications

SFP Cabling Specifications

SFP network adapter	Wavelength (nm)	Fiber type	Core size (microns) [1]	Modal bandwidth (Mhz/km) [2]	Cable distance Miles (km)
4-FWAL-MM [2]	1310	OM1/OM2	62.5um/50um	500	1.24 miles (2 km)
4-FWAL-SM	1310	G.652	9	N/A	6.2 miles (10 km)
4-FWAL-SMH	1310	G.652	9	N/A	24.8 miles (40 km)
4-FWAL-SMU	1310	G.652	9	N/A	6.2 miles (10 km)
4-FWAL-SMD	1550	G.652	9	N/A	6.2 miles (10 km)

[1] G.652, listed under core size for single mode fiber (SMF), refers to an ITU-T standard of commonly deployed non-dispersion-shifted single mode fiber with a core size of approximately 8 to 10 microns (µm).

[2] The maximum cable distance will be reduced when using fibers with less than 500 MHz/km bandwidth. For example, a 62.5u/125u step-index fiber may have a modal bandwidth as low as 160 MHz/km. This translates to a maximum 100Base link length of about 640 m. If 100u core fiber is installed, the length could be reduced to about 150 m.

SFP Optical Specifications

SFP network adapter	Transceiver type	Transmit power (dBm)		Receive power (dBm)		Max channel insertion loss in dB (by fiber type) [1]	Transmit and receive wavelength (nm)
		Min	Max	Min	Max		
4-FWAL-MM	100Base-FX	-20	-14	-31	-14	10 (62.5/125um OM1)	1300/1300
4-FWAL-MM	100Base-FX	-20	-14	-31	-14	5 (50/125um OM2)	1300/1300
4-FWAL-SM	100Base-LX10	-15	-8	-25	-8	5	1310/1310
4-FWAL-SMH [2]	100Base-LX40	-5	0	-33	-10	25 (10 dB min)	1310/1310
4-FWAL-SMU	100Base-BX10-U	-14	-8	-27	-8	5	1310/1550
4-FWAL-SMD	100Base-BX10-D	-14	-8	-27	-8	5	1550/1310

[1] Maximum channel insertion loss is defined for maximum distance guaranteed as specified in the Cabling Specifications table above and by fiber type/core diameter. When links are deployed over shorter distances, additional channel insertion loss may be allowed. Actual performance may allow greater insertion loss.

[2] 4-FWAL-SMH requires a minimum 10db insertions loss, if the insertion loss is less than 10db a single mode attenuator is required to obtain the minimum 10db loss.

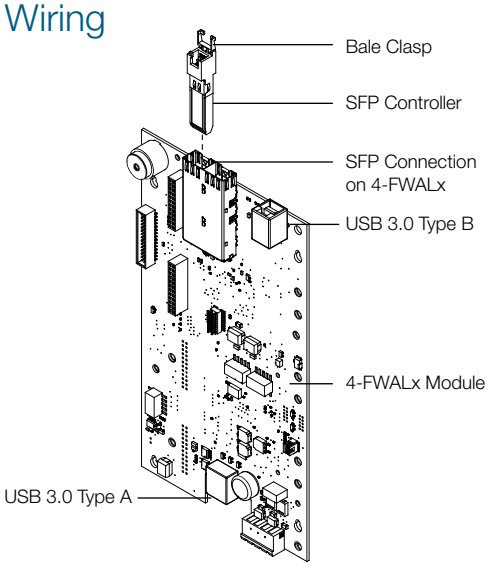
4-FWAL Specifications

Voltage	16 to 32 Vdc
Current: Standby	128 mA at 16 Vdc 92 mA at 24 Vdc 77 mA at 32 Vdc
Alarm/Active	129 mA at 16 Vdc 92 mA at 24 Vdc 79 mA at 32 Vdc
USB Ports	One Type A host (female port) requires use of V3.0 USB cable One Type B device (female port) requires use of V3.0 USB cable
Services	Up to 8 concurrent
Physical Connections	Two, max.
Agency	UL, ULC, FM, CSFM
Operating Environment	
Temperature	32 to 120 °F (0 to 49 °C)
Relative humidity	0 to 93% noncondensing

4-FWAL-CAT Specifications

Current	27 mA
Mounting	SFP slot in 4-FWAL series
Cable type	Cat 5e or better
Cable Connector	RJ-45
Distance	328 ft. (100m) max. between two interfaces
Agency	UL, ULC, FM, CSFM
Operating Environment	Temperature 32 to 120°F (0 to 49°C) Relative humidity 0 to 93% noncondensing

Wiring



LIFE SAFETY & INCIDENT MANAGEMENT

Contact us

Phone: 800-655-4497 (Option 4)
Email: edwards.fire@carrier.com
Website: edwardsfiresafety.com

8985 Town Center Pkwy
Bradenton, FL 34202

Ordering Information

Model # (SKU)	Description	Shipping Weight
4-FWAL1	Firewall – Provides secure connection to external systems. Supports up to eight concurrent IP connections. Provides support for connection to 4-USBHUB with printer and/or CDR3, SFP connection to FireWorks and other supported external connections.	1.0lb (0.43kg)
4-FWAL2	FireWall with DACT/Web support	1.0lb (0.43kg)
4-FWAL3	FireWall with EMAIL/Web support	1.0lb (0.43kg)
4-FWAL4	FireWall with DACT/EMAIL/Web support	1.0lb (0.43kg)
Accessories and related equipment		
4-FWAL-MM	SFP Network Firewall Adapter, Multimode, Dual-Fiber, 100Base-FX 1310nm	0.25lb (0.11kg)
4-FWAL-SM	SFP Network Firewall Adapter, Single-Mode, Dual-Fiber, 100Base-LX10 1310nm	0.25lb (0.11kg)
4-FWAL-SMD	SFP Network Firewall Adapter, Single-Mode, Single-Fiber, Downlink, 100Base-BX10-D 1550nm/1310nm Tx/Rx, works with 4-FWAL-SMU	0.248lb (0.11kg)
4-FWAL-SMU	SFP Network Firewall Adapter, Single-Mode, Single-Fiber, Uplink, 100Base-BX10-U 1310nm/1550nm Tx/Rx works with 4-FWAL-SMD	0.25lb (0.11kg)
4-FWAL-SMH	SFP Network Firewall Adapter, Single-Mode, Dual-Fiber, 100Base-High Output 1310nm,	0.25lb (0.11kg)
4-FWAL-CAT	SFP Network Firewall Adapter, CAT5 UTP Copper, 100Base-TX, 100Mbps	0.2lb (0.09kg)
4-MPLT	Mounting Plate, mounts in a chassis or battery space	4.3lb (1.95kg)
4-BRKT-CB	Mounting bracket for 4-FWAL series, allows mounting to the back of a 3-CHAS7.	1.1lb (0.49kg)
4-BRKT-CS	Mounting bracket for 4-FWAL series, allows mounting to the right side of a 3-CHAS7.	1.2lb (0.54kg)
4-CABLUSBLG	Cable, USB 3.0 A-B, Male, Long	0.3lb (0.14kg)
4-NET-XT	Network Extender Module – Mounts to DIN rail on 4-MPLT ordered separately.	0.75lb (0.34kg)

Your Logo Here

: 11/17/21
: EQSP_123_e1_AI v10
: 0

Total:

Job Name: Yuba Community College FireWorks
Filename:

To:

Attn:

Qty	Cat No	Description	Cat. Sheet #
FireWorks			
UL Listed Monitors			
1	FW-22LCDWTS	22" Monitor, /w T Scrn,W Format, Blk, 1680x1050	85006-0068
1	FW-CGSUL	Color Graphics Software /w Common Controls (Firekey included	85006-0068
1	FW-UL6WW10	Workstation. (1) i7 Intel processor. 32 GB RAM. Windows 10	85006-0068
1	4-FWAL1	Firewall Module	85014-0012
1	4-FWAL-CAT	SFP Network Media Interface, 100Base-TXRJ-45	85014-0012

DSA GL-4

PROJECT SUBMITTAL GUIDELINE: CALGREEN CODE

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or Publications webpages.

Projects submitted to DSA for review, as a single project or as increments, must comply with the Title 24, Part 11, California Green Building Standards Code (CALGreen).

DSA-SS CALGreen regulatory requirements consists of compliance with the scoping requirements in CALGreen Chapter 3, Section 301.4 and the Nonresidential Mandatory Measures adopted by DSA-SS in Chapter 5. Please refer to the Chapter 5 Matrix Adoption Tables for each Division for the specific Mandatory Measures adopted by DSA-SS.

The measures outlined in CALGreen Chapter 5, Section 5.410.2 for building and site Commissioning and Section 5.410.4 for building and site Testing and Adjusting are *not* mandatory requirements for schools and community colleges; however, portions of these regulations are required by the California Energy Code with which all facilities must comply. For mandatory Commissioning requirements under the California Energy Code, including installation and acceptance testing requirements, refer to Energy Code Section 120.8. Although not adopted by DSA-SS, the additional design measures for Commissioning in CALGreen Section 5.410.2 and the verification measures for Testing and Adjusting under CALGreen Section 5.410.4 are encouraged and recommended.

CALGreen Section 306 Voluntary Measures encourages building practices that improve public health, safety and general welfare by promoting the use of building concepts which minimize the building's impact on the environment, and promote a more sustainable design. Chapter 5 Nonresidential Mandatory Measures that are not adopted as mandatory measures by DSA-SS are voluntary measures recommended and encouraged for the design, construction, verification, and maintenance of non-energy systems. Appendix A5, Divisions A5.1 through A5.5 outline means of achieving enhanced sustainable design and construction by incorporating voluntary measures that exceed the mandatory measures.

Attachment 1 lists the CALGreen Nonresidential Mandatory Measures adopted by DSA-SS. For the complete text, consult the 2019 Title 24, Part 11, California Green Building Standards Code. For Project Submission, check the CALGreen Mandatory Measures that are applicable to and have been incorporated into the Project and submit this Guideline (checklist) with the application.

Attachment 1

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

Division of the State Architect – Structural Safety (DSA-SS)
(CCR, Title 24, Part 11)

CHAPTER 3 – GREEN BUILDING

SECTION 301 – GENERAL

301.4 Mandatory measures for public schools and community colleges. [DSA-SS] New building construction and site work on a new or existing site shall comply with Section 301.4.

301.4.1 Building and site construction on a new site shall comply with Chapter 5 as adopted by DSA-SS.

301.4.2 Work on an existing site shall comply with Section 301.4.2.

301.4.2.1 Newly constructed site work shall comply with Chapter 5 as adopted by DSA-SS.

301.4.2.2 Newly constructed buildings shall comply with Chapter 5 as adopted by DSA-SS and Section 301.4.3.

301.4.2.3 Additions to existing buildings shall comply with Section 301.4.3.

301.4.2.4 Rehabilitated landscape areas shall comply with Sections 5.304.6 and 5.106.12.

301.4.3 Minimum rehabilitated landscape area requirement. A minimum rehabilitated landscape area equal to 75 percent of the footprint area of the building shall comply with Section 5.304.6 and Section 106.12. New buildings or additions to existing buildings less than 1,600 square feet shall not be required to comply with Section 301.4.3.

CHAPTER 5 – NONRESIDENTIAL MANDATORY MEASURES

DIVISION 5.1 – PLANNING AND DESIGN

SECTION 5.106 – SITE DEVELOPMENT

5.106.4.2 Bicycle parking. [DSA-SS] For public schools and community colleges, comply with Sections 5.106.4.2.1 and 5.106.4.2.2.

☑ **5.106.4.2.1 Student bicycle parking.** Provide permanently anchored bicycle racks conveniently accessed with a minimum of four two-bike capacity racks per new building.

☑ **5.106.4.2.2 Staff bicycle parking.** Provide permanent secure bicycle parking conveniently accessed with a minimum of two staff bicycle parking spaces per new building. Acceptable parking facilities shall be convenient from the street or staff parking area and shall meet one of the following:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; or
3. Lockable, permanently anchored bicycle lockers.

☐ **5.106.5.3 Electric vehicle (EV) charging. [N]** Construction shall comply with Section 5.106.5.3.1 or Section 5.106.5.3.2 to facilitate future installation of electric vehicle supply equipment (EVSE). When EVSE(s) is/are installed, it shall be in accordance with the

California Building Code, the *California Electrical Code* and as follows:

☐ **5.106.5.3.1 Single charging space requirements. [N]** When only a single charging space is required per Table 5.106.5.3.3, a raceway is required to be installed at the time of construction and shall be installed in accordance with the *California Electrical Code.* Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE.
2. A listed raceway capable of accommodating a 208/240-volt dedicated branch circuit.
3. The raceway shall not be less than trade size 1 inch.
4. The raceway shall originate at a service panel or a subpanel serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into a listed suitable cabinet, box, enclosure or equivalent.
5. The service panel or subpanel shall have sufficient capacity to accommodate a minimum 40-amprere dedicated branch circuit for the future installation of the EVSE.

☐ **5.106.5.3.2 Multiple charging space requirements. [N]** When multiple charging spaces are required per Table 5.106.5.3.3 raceway(s) is/are required to be installed at the time of construction and shall be installed in accordance with the *California Electrical Code.* Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE.
2. The raceway(s) shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into listed suitable cabinet(s), box(es), enclosure(s) or equivalent.
3. Plan design shall be based upon 40-amprere minimum branch circuits.
4. Electrical calculations shall substantiate the design of the electrical system, to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to simultaneously charge all required EVs at its full rated amperage.
5. The service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE.

EV charging space calculation. [N] Table 5.106.5.3.3 shall be used to determine if single or multiple charging space requirements apply for the future installation of EVSE.

Exceptions: On a case-by-case basis where the local enforcing agency has determined EV charging and infrastructure is not feasible based upon one or more of the following conditions:

1. Where there is insufficient electrical supply.
2. Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.

TABLE 5.106.5.3.3	
TOTAL NUMBER OF ACTUAL PARKING SPACES	**NUMBER OF REQUIRED EV CHARGING SPACES**
0 – 9	0
10 – 25	1
26 – 50	2
51 – 75	4
76 – 100	5
101 – 150	7
151 – 200	10
201 and over	6 percent of total [1]

1. Calculation for spaces shall be rounded up to the nearest whole number.

☐ **5.106.5.3.4 [N] Identification.** The service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE."

☐ **5.106.5.3.5 [N] Future charging spaces.** Future charging spaces qualify as designated parking as described in Section 5.106.5.2 Designated parking for clean air vehicles.

☑ **5.106.8 Light pollution reduction. [N]** Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the *California Energy Code* for Lighting Zones 0 to 4 as defined in Chapter 10, Section 10-114 of the *California Administrative Code,* and
2. Backlight, (B) ratings as defined in Illuminating Engineering Society of North America (IESNA) TM-15-11*(shown in TABLE A-1 in Chapter 8),* and
3. Uplight and Glare ratings as defined in *California Energy Code* (shown in TABLES 130.2-A and 130.2-B in Chapter 8) and
4. Allowable Backlight, Uplight, and Glare (BUG) ratings not exceeding those shown in Table 5.106.8 [N], or Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

Exceptions: [N]

1. Luminaires that qualify as exceptions in Section 140.7 of the *California Energy Code.*
2. Emergency lighting.
3. Building facade meeting the requirements in Table 140.7-B of the *California Energy Code*, Part 6.
4. Custom lighting features as allowed by the local enforcing agency, as permitted by Section 101.8 Alternate materials, designs and methods of construction.

Notes:

1. **[N]** See also *California Building Code,* Chapter 12, Section 1205.7 for college campus lighting requirements for parking facilities and walkways.
2. Refer to Chapter 8 (Compliance Forms, Worksheets and Reference Material) for Illuminating Engineering Society Technical Memorandum TM-15-11 Table A-1, *California Energy Code* Tables 130.2-A and 130.2-B.
3. Refer to the California Energy Code for requirements for additions and alterations.

TABLE 5.106.8 [N]

MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT, AND GLARE (BUG) RATINGS
(See CALGreen for TABLE)

☑ **5.106.10 Grading and paving.** Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales.
2. Water collection and disposal systems.
3. French drains.
4. Water retention gardens.
5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.

   Exception: Additions and alterations not altering the drainage path.

☑ **5.106.12 Shade trees. [DSA-SS]** Shade trees shall be planted to comply with Sections 5.106.12.1, 5.106.12.2, and 5.106.12.3. Percentages shown shall be measured at noon on the summer solstice. Landscape irrigation necessary to establish and maintain tree health shall comply with Section 5.304.6.

☐ **5.106.12.1 Surface parking areas.** Shade tree plantings, minimum #10 container size or equal, shall be installed to provide shade over 50% of the parking area within 15 years.

Exception: The surface parking area covered by solar photovoltaic shade structures, or shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5, are not included in the total area calculation.

☐ **5.106.12.2 Landscape areas.** Shade trees plantings, minimum #10 container size or equal, shall be installed to provide shade over 20% of the landscape area within 15 years

Exception: Playfields for organized sport activity are not included in the total area calculation.

☐ **5.106.12.3 Hardscape areas.** Shade trees plantings, minimum #10 container size or equal, shall be installed to provide shade over 20% of the hardscape area within 15 years.

Exception: Walks, hardscape areas covered by solar photovoltaic shade structures, and hardscape areas covered by shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5, are not included in the total area calculation.

DIVISION 5.2 – ENERGY EFFICIENCY

SECTION 5.201 – GENERAL

☑ **5.201.1 California Energy Code.** For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

CALGREEN CODE

DIVISION 5.3 – WATER EFFICIENCY AND CONSERVATION

SECTION 5.303 – INDOOR WATER USE

5.303.3 Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

☑ **5.303.3.1 Water closets.** The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specifications for Tank-Type Toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

5.303.3.2 Urinals.

☑ **5.303.3.2.1 Wall mounted urinals**. The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush.

☐ **5.303.3.2.2 Floor mounted urinals**. The effective flush volume of floor mounted or other urinals shall not exceed 0.5 gallons per flush.

5.303.3.3 Showerheads

☐ **5.303.3.3.1 Single showerhead.** Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specifications for showerheads.

☐ **5.303.3.3.2 Multiple showerheads serving one shower**. When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the showerhead shall be designed to allow only one shower outlet to be in operation at one time.

Note: A hand-held shower shall be considered a showerhead.

5.303.3.4 Faucets and fountains.

☑ **5.303.3.4.1 Non-residential lavatory faucets.** Non-residential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.

☐ **5.303.3.4.2 Kitchen faucets.** Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

5.303.3.4.3 Wash fountains. Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute/20 [rim space (inches) at 60 psi].

☐ **5.303.3.4.4 Metering faucets.** Metering faucets shall not deliver more than 0.20 gallons per cycle.

☐ **5.303.3.4.5 Metering faucets for wash fountains.** Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per cycle/20 [rim space (inches) at 60 psi].

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

☑ **5.303.6 Standards for plumbing fixtures and fittings.** Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code* and in Chapter 6 of this code**.**

CALGREEN CODE

SECTION 5.304 – OUTDOOR WATER USE

5.304.6 Outdoor potable water use in landscape areas. For public schools and community colleges, landscape projects as described in Sections 5.304.6.1 and 5.304.6.2 shall comply with the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) commencing with Section 490 of Chapter 2.7, Division 2, Title 23, *California Code of Regulations*, except that the Evapotranspiration Adjustment Factor (ETAF) shall be 0.65 with an additional water allowance for special landscape areas (SLA) of 0.35.

Exception: Any project with an aggregate landscape area of 2,500 square feet or less may comply with the prescriptive measures contained in Appendix D of the MWELO.

☑ **5.304.6.1 Newly constructed landscapes.** New construction projects with an aggregate landscape area equal to or greater than 500 square feet.

☐ **5.304.6.2 Rehabilitated landscapes.** Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 1,200 square feet.

DIVISION 5.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 5.407 – WATER RESISTANCE AND MOISTURE MANAGEMENT

☑ **5.407.1 Weather protection.** Provide a weather-resistant exterior wall and foundation envelope as required by *California Building Code,* Section 1402.2 (Weather Protection), manufacturer's installation instructions, or local ordinance, whichever is more stringent.

5.407.2 Moisture control. Employ moisture control measures by the following methods:

☑ **5.407.2.1 Sprinklers.** Design and maintain landscape irrigation systems to prevent spray on structures.

5.407.2.2 Entries and openings. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings as follows:

☑ **5.407.2.2.1 Exterior door protection.** Primary exterior entries shall be covered to prevent water intrusion by using nonabsorbent floor and wall finishes within at least 2 feet around and perpendicular to such openings plus at least one of the following:

1. An installed awning at least 4 feet in depth.
2. The door is protected by a roof overhang at least 4 feet in depth.
3. The door is recessed at least 4 feet.
4. Other methods which provide equivalent protection.

☑ **5.407.2.2.2 Flashing.** Installed flashings integrated with a drainage plane.

SECTION 5.408 – CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

5.408.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.

☑ **5.408.1.1 Construction waste management plan.** Where a local jurisdiction does not have a construction and demolition waste management ordinance that is more stringent, submit a construction waste management plan that:

1. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.

2. Determines if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
3. Identifies diversion facilities where construction and demolition waste material collected will be taken.
4. Specifies that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

☑ **5.408.1.2 Waste management company.** Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.

Note: The owner or contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company.

Exceptions to Sections 5.408.1.1 and 5.408.1.2:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.
3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets.

☑ **5.408.1.3 Waste stream reduction alternative.** The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65 percent minimum requirement as approved by the enforcing agency.

☐ **5.408.1.4 Documentation.** Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 5.408.1.1 through 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located at www.bsc.ca.gov/Home/CALGreen.aspx may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

SECTION 5.410 – BUILDING MAINTENANCE AND OPERATION

☑ **5.410.1 Recycling by occupants.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive.

Exception: Rural jurisdictions that meet and apply for the exemption of Public Resources Code 42649.82 (a)(2)(A) et seq. will also be exempt from the organics waste portion of this section.

☐ **5.410.1.2 Sample ordinance.** Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the *Public Resources Code.* Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act).

Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the CalRecycle's website.

DIVISION 5.5 ENVIRONMENTAL QUALITY

SECTION 5.504.1 – POLLUTANT CONTROL

☑ **5.504.3 Covering of duct openings and protection of mechanical equipment during construction.** At the time of rough installation and during storage on the construction site until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.

5.504.4 Finish material pollutant control. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6.

☑ **5.504.4.1 Adhesives, sealants, and caulks.** Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene), except for aerosol products as specified in subsection 2, below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with Section 94507.

TABLE 5.504.4.1 – ADHESIVE VOC LIMIT
(See CALGreen for TABLE)

TABLE 5.504.4.2 – SEALANT VOC LIMIT
(See CALGreen for TABLE)

☑ **5.504.4.3 Paints and coatings.** Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3, shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

TABLE 5.504.4.3 – VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS
(See CALGreen for TABLE)

☑ **5.504.4.3.1 Aerosol paints and coatings.** Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

5.504.4.3.2 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification.

2. Field verification of on-site product containers.

☑ **5.504.4.4 Carpet systems.** All carpet installed in the building interior shall meet at least one of the following testing and product requirements:

1. Carpet and Rug Institute's Green Label Plus Program;
2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version1.1, February 2010 (also known as CDPH Standard Method V1.1 or *Specification 01350*);
3. NSF/ANSI 140 at the Gold level or higher;
4. Scientific Certifications Systems Sustainable Choice; or
5. Compliant with the Collaborative for High Performance Schools California (CA-CHPS) Criteria 2014 and listed in the CHPS High Performance Product Database.

☐ **5.504.4.4.1 Carpet cushion.** All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program**.**

☑ **5.504.4.4.2 Carpet adhesive.** All carpet adhesive shall meet the requirements of Table 5.504.4.1.

☑ **5.504.4.5 Composite wood products.** Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure (ATCM) for Composite Wood (17 CCR 93120 et seq.). Those materials not exempted by the ATCM must meet the specified emission limits as shown in Table 5.504.4.5.

TABLE 5.504.4.5 – FORMALDEHYDE LIMITS
(See CALGreen for TABLE)

☑ **5.504.4.6 Resilient flooring systems.** For 80 percent of floor area receiving resilient flooring, installed resilient flooring shall meet at least one of the following:

1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program;
2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health's 2010 Standard Method for the Testing and Evaluation Chambers, Version 1.1, February 2010;
3. Compliant with the Collaborative for High Performance Schools California (CA-CHPS) Criteria 2014 and listed in the CHPS High Performance Product Database; or
4. Products certified under the UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).

☑ **5.504.5.3 Filters.** In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 13. MERV 13 filters shall be installed prior to occupancy and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.

Exception: Existing mechanical equipment.

5.504.5.3.1 Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.

CALGREEN CODE

SECTION 5.505 – INDOOR MOISTURE CONTROL

☑ **5.505.1 Indoor moisture control.** Buildings shall meet or exceed the provisions of *California Building Code*, CCR, Title 24, Part 2, Sections 1202 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures see Section 5.407.2 of this code.

SECTION 5.506 – INDOOR AIR QUALITY

☑ **5.506.1 Outside air delivery.** For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 (Requirements for Ventilation) of the *California Energy Code*, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.

SECTION 5.507 – ENVIRONMENTAL COMFORT

☑ **5.507.4 Acoustical control.** Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E 90 and ASTM E 413 or Outdoor–Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E 1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

Exception: Buildings with few or no occupants or where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

Exception: [DSA-SS] For public schools and community colleges, the requirement of this section and all subsections apply only to new construction.

☑ **5.507.4.1 Exteriors noise transmission, prescriptive method.** Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. Within the 65 CNEL noise contour of an airport.

   Exceptions:

   1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
   2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.

2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.

☐ **5.507.4.1.1 Noise exposure where noise contours are not readily available.** Buildings exposed to a noise level of 65 dBL_{eq}-1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

☐ **5.507.4.2 Performance method.** For buildings located as defined in Section 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (L_{eq}-1Hr) of 50 dBA in occupied areas during any hour of operation.

☐ **5.507.4.2.1 Site features.** Exterior features such as sound wall or earth berms may be utilized as appropriate to the building, addition or alteration project to mitigate sound migration to the interior.

☐ **5.507.4.2.2. Documentation of compliance.** An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

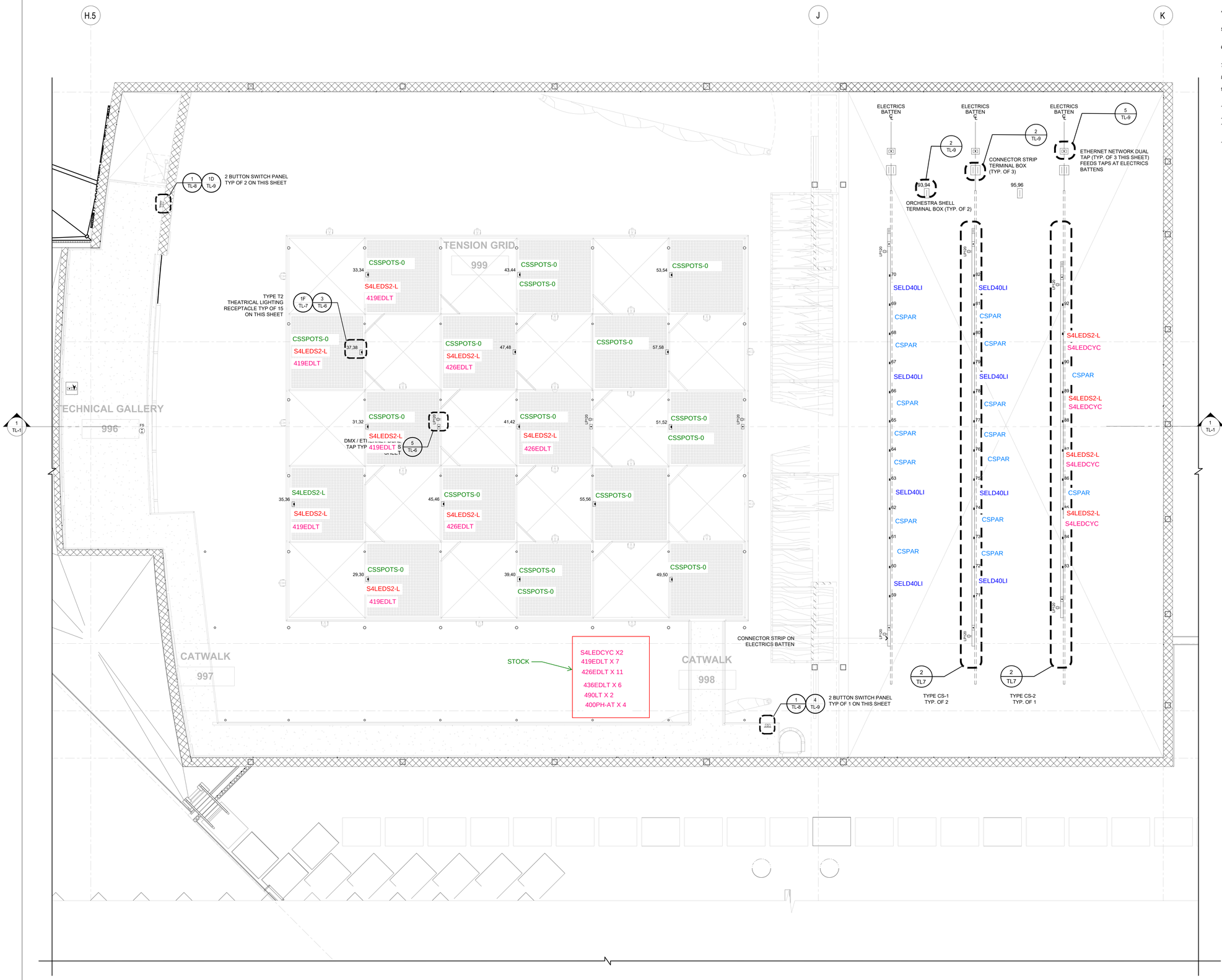
☐ **5.507.4.3 Interior sound transmission.** Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

Note: Examples of assemblies and their various STC rating may be found at the California Office of Noise Control: www. https://www.tsib.org/files/STC_IIC_Ratings.pdf

SECTION 5.508 – OUTDOOR AIR QUALITY

5.508.1 Ozone depletion and greenhouse gas reductions. Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.

☑ **5.508.1.1 Chlorofluorocarbons (CFCs).** Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.



GENERAL NOTES

1. EQUIPMENT SUPPLIED BY THEATRICAL LIGHTING CONTROL CONTRACTOR UNLESS OTHERWISE NOTED.
2. INSTALLATION, CONDUIT, WIRE, POWER FEEDS, DISTRIBUTION PANELS, DISCONNECTS, JUNCTION/PULL BOXES & HIGH-VOLTAGE TERMINATIONS PROVIDED UNDER DIVISION 26 UNLESS OTHERWISENOTED.
3. TERMINATIONS OF LOW-VOLTAGE POWER, CONTROL, AND DATA WIRE PROVIDED BY THEATRICAL LIGHTING CONTROL CONTRACTOR UNLESS OTHERWISE NOTED.
4. THEATRICAL LIGHTING CONTROL CONTRACTOR SHALL VERIFY WIRE TYPES & COUNTS PRIOR TO INSTALLATION BY DIVISION 26.
5. THEATRICAL LIGHTING CONTROL CONTRACTOR SHALL VERIFY EXACT BACK BOX SIZES PRIOR TO INSTALLATION BY DIVISION 26.
6. THEATRICAL LIGHTING DISTRIBUTION IS BASED ON A DIMMER-PER-CIRCUIT SYSTEM: EACH DIMMER WITHIN A RACK CONTROLS A CORRESPONDING BRANCH CIRCUIT.
7. EACH CIRCUIT SHALL HAVE INDIVIDUAL NEUTRAL & HOT CONDUCTORS HOMERUN TO DIMMER RACKS.
8. POWER WIRES MUST BE ISOLATED FROM CONTROL AND DATA WIRES.
9. NETWORK CABLES SHALL BE SOLID SINGLE RUN WITHOUT TAPPING NOR SPLICING BETWEEN BOTH ENDS OF TERMINATION.
10. EXPOSED ELEMENTS SHALL HAVE A BLACK FINISH UNLESS OTHERWISE NOTED.
11. VERIFY DIMENSIONS AND CONDITIONS IN THE FIELD.
12. CATWALK RAILS AND OTHER DESIGNATED LIGHTING POSITIONS MUST BE FREE OF OBSTRUCTIONS. NO CONDUIT IS PERMITTED ALONG LIGHTING PIPES.
13. THESE DRAWINGS ARE INTENDED TO SOLELY CONVEY INFORMATION REGARDING THEATRE SYSTEMS. REFER TO OTHER DRAWING SECTIONS FOR RELATED INFORMATION.

LIGHTING CONTROL SYMBOL KEY

HIGH-VOLTAGE WIRING

- 20A OUTLET BOX
- 20A MULTIPIN OUTLET BOX
- 50A OUTLET BOX
- MULTIPIN DROP BOX
- CONNECTOR STRIP TERMINAL LOCATION
- 20A OUTLET AT CONNECTOR STRIP

HOMERUNS TO THEATRICAL DIMMER RACK - # INDICATES CIRCUIT NO. AT DIMMER RACK - 120V BRANCH CIRCUITS, TYP.

- 20A, 120V, EDISON DUPLEX LIGHTING POWER OUTLET AT CONNECTOR STRIP ON DEDICATED CIRCUIT

HOMERUNS TO ELECTRICAL PANEL BY DIV. 26

- ETHERNET NETWORK DUAL TAP AT CONNECTOR STRIP
- DMX IN RECEPTACLE (FROM CONTROL CONSOLES)
- DMX OUT RECEPTACLE
- ETHERNET NETWORK DUAL TAP
- STAGE MANAGER RECEPTACLE
- KEYSWITCH LIGHTING PANEL
- 2 BUTTON PRESET LIGHTING PANEL
- MAIN LIGHTING PANEL
- RACK MOUNTED ETHERNET NODE
- RACK MOUNTED LIGHTING CONTROL PANEL
- RACK MOUNTED CUE LIGHT CONTROL PANEL
- RACK MOUNTED 24-PORT ETHERNET SWITCH & PATCH PANEL
- RACK MOUNTED UNINTERRUPTIBLE POWER SYSTEM FEEDS LIGHTING CONTROL STATIONS AND RACK

SUPPLIED BY THEATRICAL LIGHTING CONTROL CONTRACTOR - INSTALLED BY DIVISION 26

HIGH-VOLTAGE WIRING

- LC — 20A, 120V LIGHTING CONTROL CONVENIENCE DUPLEX OUTLET
- LP120 — 20A, 120V EDISON DUPLEX LIGHTING POWER OUTLET ON DEDICATED CIRCUIT
- LP208 — 20A, 208V TWISTLOCK (L6-20R)
- DB — 20A, 120V EDISON DUPLEX LIGHTING POWER OUTLET ON DEDICATED CIRCUIT
- FS — 20A, 120V FOLLOW SPOT OUTLET ON DEDICATED CIRCUIT
- CW — 208V, 3Ø CAPSTAN WINCH POWER RECEPTACLE
- 208V, 3Ø COMPANY SWITCH DISCONNECT
- 200 — 200 AMP COMPANY SWITCH
- 400 — 400 AMP COMPANY SWITCH

SUPPLY & INSTALL BY DIV. 26

THEATRICAL LIGHTING
FIRST FLOOR PLAN
1 SCALE: 1/4"=1'-0"

DSA Application #02-118286
DSA File #58-C1

agency

tBP architecture planning interiors

tBP/Architecture
1777 Oakland Boulevard, Suite 320
Walnut Creek, CA 94596
ph: 925.246.6419

architect

John Sergio Fisher & Associates
5567 Reseda Blvd., Suite 209
Tarzana, California 91356
(818) 344-3045
fax (818) 344-0338
E-mail: jfisher@jsfarchs.com

Architecture & Planning

John Fisher AIA

jsfa

consultant

WOODLAND COMMUNITY COLLEGE PERFORMING ARTS/ CULINARY SERVICES FACILITY

2300 E. GIBSON RD. WOODLAND CA 95776

YUBA COMMUNITY COLLEGE DISTRICT

owner

tBP project number:

file name:

drawn by: checked by:

date: MAY 17, 2021

rev:	date:	description:
	5/17/21	BID SET

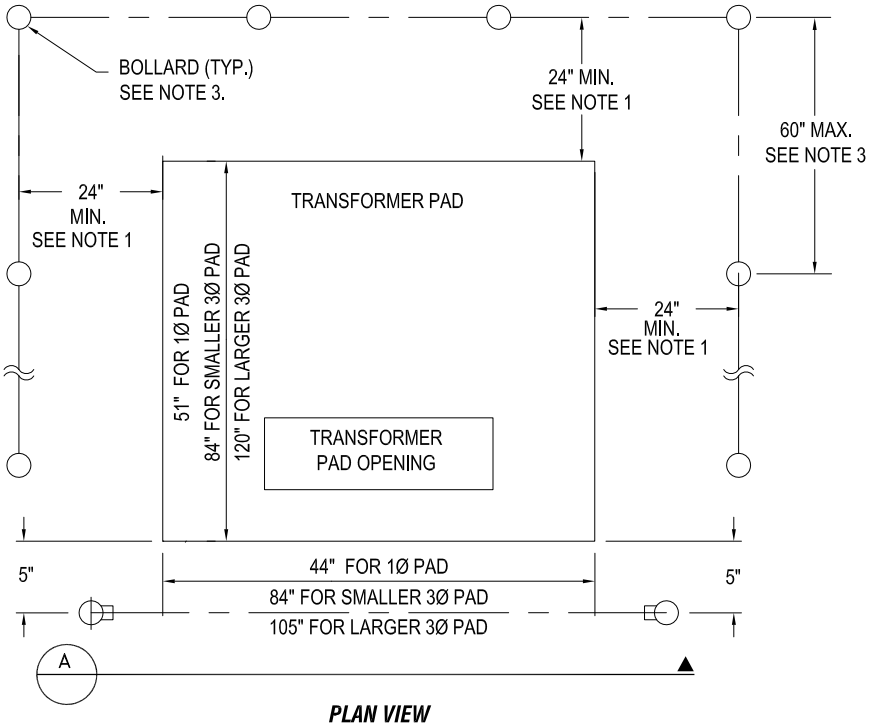
drawing title:

THEATRICAL LIGHTING CATWALK LEVEL PLOT PLAN

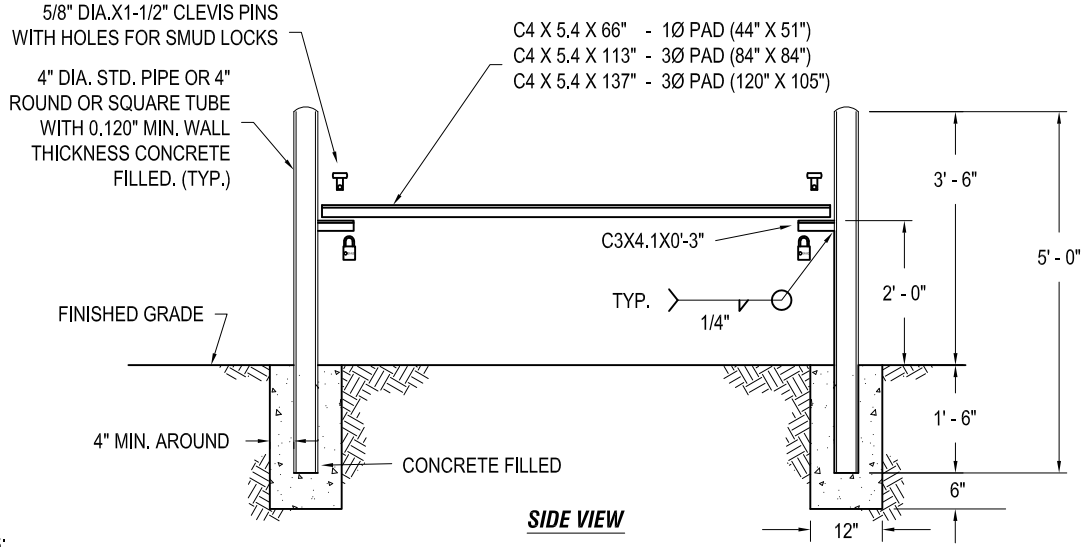
drawing no.:

TL-5a

drawing of



PLAN VIEW



SIDE VIEW

NOTES:

1. IF A BUILDING IS USED AS ANY PORTION OF THIS GUARD, THE TRANSFORMER PAD SHALL BE SO LOCATED THAT THE PAD SIDE OR SIDES ADJACENT TO THE SURFACE OF THE BUILDING SHALL HAVE A CLEARANCE OF NOT LESS THAN 3 FEET. THIS CLEARANCE MAY BE REDUCED TO 2 FEET IF THE BUILDING SURFACE IS NONCOMBUSTIBLE. TRANSFORMERS 750 kVA AND ABOVE CONTACT SMUD'S DISTRIBUTION LINE DESIGN DEPARTMENT FOR SPECIAL CLEARANCE REQUIREMENTS.

2. 8'-0" CLEARANCE SHALL BE PROVIDED IN FRONT OF UNIT TO PERMIT HOT STICK OPERATION.

3. BOLLARDS SHALL BE LOCATED BEHIND THE PAD AND ON BOTH SIDES OF THE PAD. BOLLARDS SHALL BE LOCATED AS SHOWN AND EQUALLY SPACED. THE MAXIMUM DISTANCE BETWEEN BOLLARDS SHALL BE FIVE FEET. THE MINIMUM QUANTITY OF BOLLARDS SHALL BE AS FOLLOWS: 5 FOR 1Ø PAD (44" X 51"), 6 FOR THE 3Ø PAD (84"' X 84"), AND 8 FOR THE LARGER 3Ø PAD (105' X 120"). THESE QUANTITIES MAY BE REDUCED IF A BUILDING IS USED AS A PORTION OF THE GUARD. THERE SHALL ALSO BE A REMOVABLE BARRIER, LOCATED AS SHOWN, THAT CONSISTS OF TWO VERTICAL PIPES OR TUBES AND A HORIZONTAL CHANNEL AS SHOWN IN THE SIDE VIEW.

4. BOLLARDS SHALL BE INSTALLED AROUND PAD MOUNT SMUD EQUIPMENT WHEN THE EDGE OF THE EQUIPMENT IS LESS THAN FIVE FEET FROM VEHICULAR TRAFFIC, OR WHEN SMUD'S DISTRIBUTION LINE DESIGN DEPARTMENT DETERMINES THE EQUIPMENT MAY BECOME EXPOSED TO TRAFFIC.

5. ALL PIPE AND REMOVABLE BARRIER SHALL BE PAINTED BRIGHT YELLOW WITH A RUST RESISTIVE PAINT.

SMUD®
Sacramento Municipal Utility District

ESR: T007 PG #: C-40

REV. DATE: AUG. 2017 REV. NO.: 9

PAD MOUNTED TRANSFORMER GUARD
PIPE BOLLARD TYPE WITH REMOVABLE BARRIER

STANDARD NUMBER: UVD2.5

Date	Request	Question	Discipline	Response
11/18/21	Lathrop			
		As reviewed during the pre-bid optional meeting, can the bid submission requirements that were identified in the Section 00 11 16 Invitation To Bid document requiring the submission of "…one (1) signed original and five (5) hard copies of the proposal and one (1) flash drive copy.." be simplified? We would propose that (1) signed original be provided by the Bid Due date / time and that all other documents/flash drive be provided within 24 hours of the Bid Due date / time.	District	Provide one (1) signed original proposal at the bid due date and time. The low bidder is requested to provide a flash drive and an additional two (2) copies of the proposal within two business days after the bid due date and time. Do not email your proposals. Proposals MUST be received before the date and time noted above. See revised specification section 00 11 16 v6.
		Also note that the Section 00 11 16 Invitation To Bid document that was included with the plans and specifications did not include this requirement to provide multiple documents by the Bid Due date / time as stated in the Section 00 11 16 Invitation To Bid document provided for the November 17, 2021 meeting.	District	Please refer to revised specification section 00 11 16 v6.
12/7/21	Sign Designs			
		if available, please provide a copy of the District Project Mandatory Pre-Bid Meeting Login Sheet	District	Please refer to RFP 21-12 ot this link: https://www.yccd.edu/central-services/fiscal-services/purchasing-2/requests-proposals-quotes/
12/7/21	Roebbelen			
		1. In Instructions To Bidders, spec section 00 21 13, paragraph1.9.A, it states for the bidder to "obtain certification of attendance signed by the District" in regards to having attended the required site visit. The bid form also references this document and lists it as a submittal with the bid form. We request this certification for our records and use later with our upcoming bid form submittal.	District	Note: Signing the mandatory pre-bid login sheet will take the place of a "Certificate of Attendance signed by the District". Refer also to the updated specification no. 00 21 13 section 1.9 A. This mandatory pre-bid login sheet is posted at this web page link: https://www.yccd.edu/central-services/fiscal-services/purchasing-2/requests-proposals-quotes/
		2)Document 00 41 00 Bid Form within paragraph 5.E, makes reference to a Project Stabilization Agreement. On page 11 of 12 of the agreement, spec 00 52 00, it is stated that a Project Stabilization Agreement is not applicable. Please confirm this is N/A.	District	The "Project Stabilization Agreement" is not a requirement for this project. Refer also to updated specification 00 41 00 Bid Forms v3
		3)On page 5 of 12 of the agreement, spec 00 52 00, paragraph 9 outlines Insurance requirements and states the District will provide and implement an OCIP policy and references us to spec 00 73 16 Supplementary Conditions. It does not appear the spec 00 73 16 has been published yet. Is it available? Will an OCIP be provided on this project? There is substantial OCIP related information in specification 00 70 00 General Conditions and Exhibits A & B at the end of the construction manual.	District	Please refer to updated specification 00 52 00 v 2.0, specification 0070 00, and the revised bid form 00 41 00 v3. There is not a specification 00 73 16 Suplimentary Conditions on this project.
		8)Assuming the implementation of the OCIP, is note #23 on sheet C002 N/A as a contractor's obligation?	District	Please refer to updated specification 00 52 00 v 2.0, specification 0070 00, and the revised bid form 00 41 00 v3. There is not a specification 00 73 16 Suplimentary Conditions on this project.
		9)Please verify the contract duration between NTP and Substantial Completion. The Agreement, spec 00 52 00 states that duration as 558 CD's. Spec 01 14 00 para 1.3.B.1 states that duration as 608 CD's.	District	Please see revised specification section 00 52 00 v2, section 1.4 which states: 553 Calendar Days from the Notice to Proceed. Estimated NTP February 25, 2022, 100% Substantial Completion September 1, 2023.
		13)Please confirm there is no new expected "proposal" elements to be submitted. We see 2 different (see attached) versions of spec 00 11 16 Invitation to Bid. Version 2 of which on page 2 of 3, makes reference to proposal information which must include 1 signed original, 5 hard copies of the proposal, and 1 flash drive copy of the proposal and which makes reference to spec 00 21 13 Instructions to Bidders. We note that spec section 00 21 13 Instructions to Bidders outlines the receipt and opening of bids as essentially turning in the bid form, inclusive of the Statement of Bidders Qualifications per spec (& form) 00 45 13. If there is no new "proposal" information to generate & submit since we are prequalified, we should only have to turn in the bid form and listed correlating documents that traditionally accompany said bid form and please confirm we won't have to turn in the several hard copes plus the thumb drive.	District	Provide one (1) signed original proposal at the bid due date and time. The low bidder is requested to provide a flash drive and an additional two (2) copies of the proposal within two business days after the bid due date and time. Do not email your proposals. Proposals MUST be received before the date and time noted above. See revised specification section 00 11 16 v6.
12/13/21	Point 1			
		Question #2: Symbol sheet drawing E001 shows symbols for cameras. I do not see any camera locations on the drawings. Can you please confirm there are no camera locations on the drawings or if there is, please provide the drawings that has these locations?	District	Per specification 01 32 33 there are requirements for cameras, pictures, and video. The exact locations for these cameras will be determined after award. At this time, it is expected that at a minimum, there will be a camera on the roof of building 800 overlooking the materials stored at the campus and over looking the project site (two cameras may be needed for this), and a camera on the roof of building 700 overlooking the project site. Drone Fly Over Videos are also required. Please read this entire specification. All pictures and video to be colored. There are no permanent cameras included in the scope of work.
12/15/21	Roebbelen			
		30.Concrete / Structure Backfill: Details A and B/S3.2 prescribe structure backfill at the Orchestra Pit with Lean (2-sack) Concrete. Per P201 there is drainage coincidental to the areas to be backfilled with lean concrete. Should we plan to apply detail 9/A831 with the lean concrete backfill above the drainage burrito? Does that influence the applicability of the Insulating drainage boards between the backfill and waterproofing per 9/A831?	ZFA/ tBP	See revised detail 9/A831.
		32.Structure Drainage: Please provide a specification for the drainage system per 9/A831, including drain board, filter fabric, gravel and drainage pipe.	tBP	See Spec Section 07 13 13 in Addendum #4

			33.Structure Slab: Per slab plan A100 the depressed slab at POD 1-3, Instructional Kitchen, Cooler and Freezer bank, Receiving Area and hallway, and Restrooms is depressed 2" where the Resinous Epoxy Flooring CU-1 and CU-2 is to be installed. Slab Plan Note 9 per A100 states, "Where floors and/or floor fill is not sloped to drain, provide 24"x 24" block out at floor drain, with 2% sloped fill within block out". Specification section 09 67 23 / 3.3 / C calls for drainage of 1/4-inch per foot to be maintained as indicated on drawings. There are numerous floor drains and floor sinks in this area, and no prescribed drainage shown on the plans. i.Are we to block out around the floor drains/ sinks to provide localized sloping? If so, why is the slab depressed? ii.Are we to slope the structural slab? If so, according to what plan/ criteria? iii.Are we to pour the slab 2" depressed and level, then install sloping compound to drain (2" to 0")? If so, according to what plan/ criteria? There is no sloping compound specified as an accessory and this is not a requirement of the resinous flooring manufacturer, and therefore not inherent in the system. iv.Slab Note 4 per A100 states, "Contractor shall have all depressed sloped verified and certified by a licensed surveyor prior to placement of any structural slab concrete". How does this apply to the above?		tBP/ Webb	at the Culinary Area provide 24"x24" block out all floor drains. 2" slab depression is not required. All other slab depressions are still required, see sheet A100
12/15/21 BHM						
			1. Can you please confirm all required forms/documents to be submitted with our bid form?		District	Yes, refer to this specification: 00 21 13 Clarifications--Bid Requirements Checklist v2
			2. There does not seem to be a subcontractor listing form provided within the bid documents. Can you please advise as to if we are responsible to create our own bid form, and if so, what subcontractor information the district is requiring to be submitted with the listing? Example: license number, DIR number, city of business etc.		District	Please see revised specification 00 41 00 Bid Form, section 5.
12/20/21 Landmark #1						
			2.Please clarify the number of calendar days for this project. Per 00 52 00, the contractor is allowed 559 Calendar days from NTP to substantial completion, plus 60 calendar days to final completion. Per 01 14 00, the contractor is allowed 608 days from NTP to substantial completion, but cannot start until 21 days after NTP (608-21=587 days).		District	Please see revised specification section 00 52 00 v. 2, section 1.4 which states: 553 Calendar Days from the Notice to Proceed. Estimated NTP February 25, 2022, 100% Substantial Completion September 1, 2023.
			3.Please confirm no Project Stabilization Agreement is in place. Bid Form paragraph 5E notes a Project Stabilization Agreement is in place. Agreement form page 11 indicates the PSA "not applicable.'		District	The "Project Stabilization Agreement" is not a requirement for this project. Refer also to updated specification 00 41 00 Bid Forms v3
			4.Please confirm no OCIP is in place. Section 00 70 00 indicates an OCIP is required for this project.		District	Please refer to updated specification 00 52 00 v 2.0, specification 0070 00, and the revised bid form 00 41 00 v3.0. There is not a specification 00 73 16 Suplimentary Conditions on this project. Changes in the referenced specifications are in a different color Font.
12/20/21 Roebbelen						
			38.Waterproofing: Please confirm the application of water proofing membrane Preprufe 300R per specification section 07 13 13 and Bituthene 4000 per specification section 07 13 26 system is limited to the mat slab and wall assemblies at the orchestra pit and trap level, including sump pit per the configuration shown on 9/A831, and consistent with the section shown in 2/TA410.		tBP	corrrect see updated detail 9/A831, but the Preprufe 300R is per specification section 07 13 26 and and Bituthene 4000 per specification section 07 13 13 per addendum #5.
			39.Waterproofing: Specification section 07 13 13 / 2.7.A calls for 1" expanded polystyrene protection board over the Bituthene 4000 sheet membrane waterproofing. Detail 9/A831 shows insulating drain board over the Bituthene, which we interpret as the Hydroduct Drain Panel per section 2.6.A. Is the protection board necessary over the drain board?		tBP	Provide Both Drainage & Protection Board, see revise detail 9/A831
			41.Theater Lighting Controls: Please see the attached package from Wenger / JR Clancy for consideration pursuant to specification section 11 06 40 / 1.04.B.		JSFA	The college user group specifically required to use ETC controls since that is the equipment they are familiarized with and have some spare inventory.
12/22/21 Sign Design						
			1.Per the Signage Types listed by Letter (A, B, C, etc.) on Sheets A981 and A982, we inspected Finish Plan Sheets A261 and A262 in detail but found that no callouts were shown therein for the following Signage Types: B, H, J2, M, N1, N2, and P1. Could you please confirm that these Signage Types will not be included, or provide updated notations to the Finish Plan Sheets accordingly?		tBP	The documentation shall read as a whole, not all Signage Types are used.
			2.Assuming the omitted Signage Types listed above, the number of remaining Signage Types (with quantities indicated) is 16. In Specification Section 10 14 00, 1.02 SUBMITTALS, C. Samples, two (2) samples of each sign are indicated as required for submittal. Please confirm that this will be the case for all 15 Types (or for the final total at the time of bid).		tBP	Provide (3) samples for color & material review
			3.Also, please advise if submittal samples are approved, can they be installed in the job?		tBP	the signage can be installed once the submittal is FULLY approved (this includes but not limited to design, material, color, verbage, installation, etc.)
			4.In Specification Section 10 14 00, 2.04 PLASTIC SIGN MATERIAL, A. Material, 2. Thickness, 1/8" thickness is called out. However, on Sheets A981 and A982, all Signage Type details call for ¼" thickness and there are no 1/8" thickness callouts. Please clarify whether drawings or specs take precedence in this case.		tBP	Provide 1/4" thick signage
			5.Please verify, regarding which signs are attached with mechanical fasteners vs. which signs are adhesively applied, do SIGNAGE GENERAL NOTES #9, #10 and #11 take precedence over notes in the Specifications; please verify that there are no instances in which signs utilize both mechanical fasteners and adhesive; and please verify attachment type for signs mounted on doors (metal and/or wood) (not cited in #9, #10 or #11).		tBP	Generally Signage General Notes #9-11 will cover the attachment of the signage. All Metal Sigange Letters/ Panel shall be mechanically Fastened. Door mounted signs follow specs to Mechanically Fasten.

			6.At Sheet A981, Detail B, please clarify what is meant by the note that reads, "PROVIDE (3) BLANK INSERTS (BLACK ON WHITE)." If the insert is blank, how is it black on white? Also, please clarify, what is the intended material for the insert – acrylic, paper, etc.?		tBP	There is no Signage B
			7.At Sheet A981, Detail G, in reference to the note "VERIFY OCCUPANCY NUMBER PER ROOM WHERE THE SIGN IS INSTALLED. SEE SIGNAGE PLANS," there are no occupancy numbers shown for rooms receiving Type G signs on Sheets A261 and A262. Please clarify, are the intended occupancy numbers established by the "NO. OF OCCUPANTS" number from the Occupant Load Symbol for each room, as shown on Sheet G-4 CODE ANALYSIS? Or, please indicate if otherwise, or provide the occupancy numbers for the indicated rooms.		tBP	Use Code Analysis for Occupant Load number
12/23/21 Landmark						
			1.Section 092900 Gypsum Wallboard mentions both "Splatter Coats (Orange Peel) texture, and Level 5 smooth finish. The finish schedule on the plans and the specifications does not indicate locations are to receive each finish. Please confirm whether the gypsum wallboard is to receive Orange Peel texture or level 5 smooth finish. If both, please provide a guide as to the locations for each finish.		tBP	Provide @ Utility rooms (ie Data, Janitor, Mechanical, Electrical) level 3, no texture. Provide Level 4 w/ orange peel finish everywhere (provide mock up for Architect approval). Provide @ Lobby level 5, smooth finish.
			2.Soils report Section 6.3.2 provides sa recommended range of 3-5 percent for lime treatment. The cost of lime treatment varies based son the percentage of lime treatment used. Can you please provide an exact percentage that should be used for bidding purposes?		Geotech	assume 5% lime based on soil dry weight of 105 pounds per cubic feet. For a 12-inch treatment depth that equates to about 5 lb/ft^2.
			3.The need or the extent of the need for dewatering during construction, as specified in Section 31 23 19 Dewatering is highly dependent on precipitation levels and actual site conditions which are encountered. In order to maximize value and provide a level playing field for bidders, we recommend the District require all bidders to carry a specified allowance amount for this scope. If it is not used, or minimally used, the majority of the allowance will remain with the District.		District / L&M	The District is not allowed to have any allowances on this State Funding match project. The Geotechnical Investigation and Geological Hazards Evaluation report for this project indicated that the water table was 16 feet below grade in November 2021.
12/26/22 Sign Designs						
			1.Regarding door-mounted toilet room signage types (3 total) shown at details U/A982, V/A982 and W/A982: there are no citations of the required attachment types (mechanical or adhesive) for the typical hollow metal doors at restrooms indicated in the SIGNAGE GENERAL NOTES (detail 5/A981, notes 9 and 10), nor is this noted in Specifications Section 10 14 00 or in CBC 11B. The same is true of type J1 and J2 Fire Riser /FACP Signage, which in the case of J1 is door mounted. Please indicate whether mechanical or adhesive attachment should be used for these sign types.		tBP	Signage on Doors shall be attached by mounting screws per 10 14 00 2.04 c..
			2.At Sheet A501 INTERIOR ELEVATIONS, details 1/A501 (LOBBY – HOSPITALITY), 3/A501 (LOBBY – S) and 9/A501 (LOBBY – E) depict 3 sets of wall-mounted dimensional letter signs with text reading "Hospitality" (at 1/A501 and 9/A501) and "La Cocina" and "The Kitchen" (at 3/A501), all apparently shown at 12" letter height. However, the letters' material type, color, font, depth dimension, wall attachment type, flush attachment or stand-off configuration, and whether the letters are illuminated or non-illuminated is not indicated, nor are specifications provided within Section 10 14 00 or elsewhere. Please provide this missing information.		tBP	These are all individual metal letters. Interior metal wall mounted letters shall follow the same as the exterior metal wall mounted letters. See previous addendum
12/27/22 Fluoresco						
			On sheets A303, A302 has dimensional lettering that is 18" tall. No information on mounting intent or how thick the material is. Also no information on the finish? And what is the completion date for this project?		tBP	see previous questions and responses
12/28/22 Arrow Lift						
			substitution request for wheelchair lifts - Arrow		JSFA	substitution not accepted; see updated spec section in Add 5.
12/28/22 Landmark #4						
			1.On the Electrical plans, one line shows Panels L1KA, L1KB, L1KS all fed from LDP1B. Sheet E101 Shows conduit run for only L1KA and L1KS from LDP1B. Panel Schedules show L1KA fed from LDP1B, L1KB fed from L1KA, L1KS fed from L1KB. Please confirm which feeds are to be used.		TEE	The feeders that are shown on the one line are correct. The panel schedules have been updated per addendum #2 revisions. All 3 panels are fed from LDP1B, feeders to panels L1KB and L1KS shall follow the same route as the feeder for panel L1KA as shown on sheet E101.
			2.On sheet A841 Wall Type G, a product called Netwall DB Sound Bloc is installed between the 2 layers of gypsum wallboard. Please provide a specification for this product.		tBP	see updated Spec section 09 29 00
			3.Although the plans identify certain furniture item tagged "Group-2" to be left out, items labeled "Future" are not addressed. Please confirm items on the furniture schedule listed as "Future" (example item # 1-117), and "Group 2-Furniture Package" are not to be included in this bid package. Please confirm whether this may be treated as an add alt as well.		tBP	"Future" and "Group 2-Furniture Package" are not to be included in the bid package
			4.At the parapet on detail A801, single ply membrane is applied to the roof deck, then cut off by sheet metal flashing before continuing onto the parapet wall. A suggestion would be to have a continuous membrane continue from the roof to the parapet wall locations and remove the flashing, reducing labor and minimizing leaking. Please advise.		tBP	Continuous menbrane from the roof to the parapet is an acceptable manufacturer detail, therefore allowed.
			5.On the appliance schedule, item #1-17 and 1-23 calls for discontinued units and there is no immediate replacement. Please offer another manufacturer/model# that may be used as equal. Additionally, Equipment Schedule on FS-201, call out units being (FUTURE). Please confirm whether new or future.		Webb	Item #1-17 & 1-24 provide GE Model #:WPGT9360EPL. These items are to be future.

			6.The equipment schedule on sheet FS-201 calls for the unit to be self-contained. Sheet FS-503 show the remote ice machine condenser from Item 1-266 to interconnect to Item 1-82. Item 1-266 is called out to be a Scotsman ice machine remote condenser, while 1-82 is from Manitowoc; 2 different manufacturers will not be compatible. Please advise.		Webb	Provide Manitowoc compatible remote condenser.
			7.Item 3-38 on the equipment schedule calls for a Manitowoc ice maker, cube style, model# IYT1200N, and used for self-contained refrigeration. However, this model is designed for remote refrigeration. Please confirm whether remote or self-contained.		Webb	Unit to be self contained.
			8.Please confirm the dimensions for the wood sound deflectors shown on 3/TA816 are the accurate dimensions. They seem to be in conflict with details 1/TA816, 7/S5.3, and TA502, as shown on the plans.		JSFA	We can make the cad or revit files available for shop drawings – for now assume 3/TA816 is accurate
			9.The electrical specs do not mention PVC and state OCAL for underground work. However, the Schedule on E701 mentions in Note D "if PVCsch40 or PVCsch80 is used" for feeders, then they need to be upsized to next greater diameter. Please clarify.		TEE	Refer to Spec 20 05 42 Underground Ducts and Structures; section 2.02C addressed PVC conduit.
			10.Plan page A632 Note 1 states: "Provide manual shades at all windows except at window types as noted where no shades are required. Provide electrically operated roller shades at rooms tagged on Reflected Ceiling Plans with Keynote." Plan page A242 states on Gen Note 2: "All windows shall have roller shades except types as noted on Windows Schedule sheet A631 and A632" and on Keynote 6: "Roller Shades, Typ" (This key note is applied to three windows only). Specification section 12 24 13 only provides specifications for manually operated roller shades. Please confirm only the three windows keynoted with KN 6 on page 242 get electrically operated roller shades and provide specifications for that product.		tBP	There are no electrified shades, all shades are manual.
			11.TA502 shows keynote 4 – "Carpet over plywood" applied to the squares adjacent to tension grid squares while TA810 shows these squares as "Open". Please confirm which is correct.		JSFA	Keynote 4 is at catwalks only not the tension grid
			12.Section 00 45 13 calls out "Redwoods Community College District" as the prequalifying entity. Please confirm Yuba Community College District should have been noted instead.		District	This is a mistake. It should be shown as Yuba Community College District.
			13.Section 00 52 00 Notes 559 days for substantial completion, and an additional 60 days for final completion. Section 01 14 00 notes 608 days for substantial completion. Please confirm project schedule.		District	Please see revised specification section 00 52 00 v. 1, section 1.4 which states: 553 Calendar Days from the Notice to Proceed. Estimated NTP February 25, 2022, 100% Substantial Completion September 1, 2023.
			14.Section 01 14 00 paragraph B.1.4 states "Contractor CANNOT work on Sundays or Holidays." Please confirm this is correct and no Sunday work will be allowed		District	This is a mistake. The contractor can work on holidays and Sundays and any other day that they wish to work.
			15.Section 01 14 00 paragraph C.2 states "Obtain City of Eureka approval for preferred construction traffic routing…" Please confirm whether this is correct or should read "City of Woodland" instead.		District	This is a mistake. The contractor shall obtain "City of Woodland" approval for preferred construction traffic routing.
			16.Section 01 29 00 paragraph 1.23.B calls out section 01 21 00 (Allowances). This section does not seem to exist. Please confirm no Allowances are a part of this project.		District	This is a mistake. Specification 01 21 00 (Allowances) is not applicable and not part of this project. There are no allowances on this project.
			17.Section 01 43 39 – Mockup's paragraph 1.1.D.2 mentions an "Exhibit A" as a part of this section. Exhibit A does not seem to exist and cannot be located. Please clarify.		District	The mockups are listed in individual specification sections.
			18.Section 01 77 00 paragraph 1.6.B calls out specification section 01 91 13 – General Commissioning Requirements. Section 01 91 13 does not seem to exist. Please clarify.		District	The Contractor is required to provide general commissioning and written documentation that the systems in the project are operating properly and are programmed to meet the District's needs. The Contractor's Commissioning Agent shall provide cooperation with any Owner provided Commissioning Agent.
			19.Section 01 81 15, at the end of page 3, refers to an 11-page DSA Form GL-4 as an attachment. This attachment does not seem to exist, please provide if needed.		District	Please refer to the DSA Form GL-4 v1 that was submitted to DSA and applies to this project. It is part of this addendum.
			20.Section 11 06 10 Theatrical Rigging Equipment states: Paragraph 1.5.A: Manufacturer - "Only product from Pre-Qualified Theater Manufacturers shall be permitted in bid submissions in this section. Proposals from Manufacturers not pre-qualified in this Specification requesting status of Qualified to Bid shall conform with the General Conditions of this Contract" Paragraph 1.5.B: Contractor - "Only Pre-Qualified Stage Rigging Sub-contractors shall be permitted to submit bids for the work of this section. Proposals from contractors/Manufacturers not pre-qualified in this Specification requesting status of Qualified to Bid shall conform with the General Conditions of this Contract" We can find no reference in the General Conditions regarding the status of "Qualified to Bid." After the listings of Manufacturers and Contractors, the phrase "Or Approved Equal" appears. Similar language is used in other Division 11 sections. The Invitation to bid, Page 1, states "The District does not prequalify Subcontractors." Please clarify the intent of "Or Approved Equal" in Section 11 06 10 and similar sections, and how a firm might become "Qualified to Bid" if the District is not prequalifying subcontractors.		JSFA	Approved equal refers to material and equipment only. If a bidder complies with all the requirements on the spec they are allowed to submit a bid proposal for their concideration
			21.Plan sheets A220 & A221 appears to show an exhaust fan opening at gridlines C & 4 that is not shown on sheet M303. Please advise which sheet is correct.		tBP/ Capital	"See HVAC roof plan (sheet M203) for location of rooftop exhaust fan"

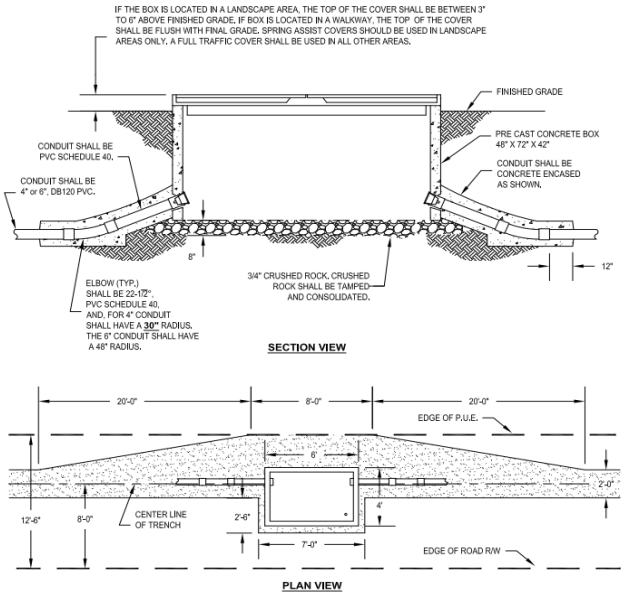
			22.Detail 9/M502 calls for "4x8 Min. Redwood Rail." Is it acceptable to use pressure treated lumber in lieu of redwood? Please advise.		Capital	"We take no exception to pressure-treated lumber in lieu of redwood"
			23.On sheet M002 the Condensing Unit Schedule calls out detail 1/M503, this detail shows CU-1 mounted on a metal stud platform per 13/S1.4. Detail 5/M501 "Condensing Unit Mounting" shows a wood curb and Sheet S-S2.2 calls out 17/S1.5 at the CU-1 location which shows a wood curb. Please advise which is correct.		Capital/ ZFA	"Revise detail reference on S-S2.2 from 17/S1.5 to 13/S1.4 at this location."
			24.D-R1/FS-504 calls for ¾" plywood on the top of the remote refrigerant rack platform but 13/S1.4 (called out on S-S2.2) calls for ¾" USG structural panel concrete subfloor panel. Please advise which is correct.		ZFA	follow structural detail 13/S1.4
			25.Detail 15/A835 and 15/A836 call for the wood blocking on the parapet to be fire rated, details 4/A831 and 9&10/A802 call for this blocking to be pressure treated. Please advise which is correct.		tBP	Provide Fire Rated Blocking
12/29/22 Roebbelen						
			48.Sheet note 1 on sheet E-301 refers you to detail 1/E602. There is no detail shown on drawing E602. Where can we find the detail referenced in note 1 on sheet E-301?		TEE	Numbered Sheet note 1 on sheet E301 got revised per addendum #2 revisions. NSN 1 does not reference detail 1/E602 anymore.
			49.Specifications 260531-2.05 list raintight couplings and connectors for branch conduit and detailed drawings E802 and E804 show set screw connectors. What types of couplings and connectors can be used for EMT conduit runs?		TEE	Specifications take precedence, do not use set-screw connectors, use only compression fittings. Raintight compression fittings are only required for any exterior or wet location application. Details on E802 & E804 have been revised and will be in forthcoming Addendum #5.
			50.Sheet E212 shows several fixtures F10B and F11 as being fed from ERP5-11 which is 0-10v controlled. The lighting fixture schedule on E004 shows these fixture types as DMX controlled. How are the fixture types F10B and F11 controlled?		TEE	The Intent is that F10B fixtures are 0-10V controlled. In forthcoming addendum #5 this has been addressed in the fixture schedule. Also in the forthcoming addendum #5, F11 fixture that is shown connected to ERP5-11 has been changed to a F6 (0-10V) fixture.
			51.Lighting fixture Schedule E004 shows fixture type F10B as being DMX, but the part number provided includes a 0-10V dimming driver. Please confirm dimming type.		TEE	The Intent is that F10B fixtures are 0-10V controlled. In forthcoming addendum #5 this has been addressed in the fixture schedule.
			52.Theatrical Lighting Riser Diagram 1/TL-6 shows a ELTS2 Emergency Lighting Transfer System. This equipment is not shown on the single line, and it is not indicated which lighting circuits will be connected. Please confirm that this equipment will be required, where it is fed from, and what circuits it controls.		JSFA	Refer to electrical drawings Emergency lighting circuits / normal power associated
			53.Lighting fixture Schedule E004 has a note under fixture types F16/xx' and F16A/12' to provide (6) and (2) spare track heads respectively. Please confirm the intent to provide the required (6) or (2) spare track heads total for each type, and not for every section of track.		TEE	Confirmed
			54.VAV mounting detail 7 / M502 shows seismic bracing on every VAV. Please confirm this is only when VAV weight exceeds 75 lbs (as accepted by OSHPD).		Capital	Confirmed
			55.Natural Gas above and below grade specifications called appear to be missing from Division 22 00 00. Please provide natural gas specifications.		Capital	See section 23 11 23, included in addendum #5
			56.Condensate specification appears to be missing from Division 22 00 00. Please provide condensate specification.		Capital	Added condensate piping to specification 22 13 16 - 3.11 F.
			57.Below-grade domestic water specification is missing from Division 22 00 00 . Please provide specification.		Capital	Provide domestic water piping per 22 11 16. For domestic water installed beyond the building footprint, see civil specifications
			58.Please provide detail for sump pump installation showing plumbing pipe points of connection and elevations.		Capital	Sump pump draws water through free inlet, and is mounted at the bottom of the pit. The pumped storm water line routing is diagrammatic, and may be adjusted as needed to reach final point of discharge.
			59.Plumbing sheets missing waste pipe, vent pipe and trap primer pipe to drains. Please provide routing and size. Using the diagram does not account for pipe routing and offsets. With this being a plan and specification project, this will help with bid leveling and reduce potential change orders.		Capital	For clarity, not all sizes and routing can be cleanly shown on floor plans. Refer to piping diagrams on sheets P601 and P602 for sizing, and floor plans for general routing.
			60.The Grease Interceptor has been omitted from the plumbing drawings and included in the civil drawings, but it's still listed in specification section 22 13 23. To avoid misinterpretation between civil and plumbing trades, can this be relocated to the civil specifications?		Capital	Grease interceptor is included in addendum #5, equipment will be provided by div 22.
			61.Sheet C401 is missing details for the drain at the trash enclosure, and this is not shown on the plumbing drawings. Is there a drain make and model? Will a vent and trap primer be required since it connects to the sanitary sewer.		Capital	Include a line item for an electronic trap primer, sanitary sewer vent, and area drain at the trash enclosure.
			62.The plumbing sheets, P201 & P202, with all the plumbing systems on one page is convoluted difficult to read. Can the supply and waste / drainage systems be separated onto different sheets?		Capital	Floor plans with isolated systems can be provided for reference only, but not included as part of an official construction documents set.
			63.Hot water return (HWR) system is missing information regarding circuit setters or solvers throughout the system. Can locations and detail for installation requirements be provided?		Capital	See sheet P602 for circuit setter GPM at the major HWR branches
			64.Please provide locations where detail 8/501 is to be used and the route for indirect drain. There is no callout on the plumbing floor plan.		Capital	Added sheet note for location, see sheet P202.
			65.Please confirm all roof mounted hydronic pipe to be mounted per detail 9/M502		Capital	Confirmed
			66.The dimensions shown on 1/TA816, 3/TA816 and TA502 for the Reflector at Proscenium don't appear to agree. Please confirm we are to bid from detail 3/TA816. Can further details be provided such that details 1 and 3/TA816 can be reconciled?		JSFA	We can make the cad or revit files available for shop drawings – for now assume 3/TA816 is accurate
12/29/22 Lathrop						

			Specification Section 01 11 00 Summary of Work paragraph 1.6.3 states that the On-Site QC Manager is required to be on site for a minimum of 16 hours per week. However, Specification Section 01 45 00 Quality Control Requirements paragraph 1.15.E states that the QA/QC manager is to be full-time on site. Please confirm the time requirement for the QC Manager.		District	The Contractor is requred to have an On Site QC Manager for 16 hours per week and to provide monthly QC reports that include observations pictures and examples, written narrative, and references to specifications and drawings. This is separate/in addition to the Contractor provided Commissioning Agent work. This report shall be in electronic color format.
12/30/22 Lathrop						
			3. Civil sheet C002 General Note 11.O.xii references "contract unit price bid per cubic yard", please confirm there are no unit prices for earthwork.		L&M	Yes, there are no unit prices for earthwork. The comment has been removed from the General Notes.
			4. Section 00 41 00 Bid Form paragraph 1.D requires a "signed copy of the Certification of the Visit to the Site shall be attached to the Bid Form Submittal". Since this Certification was not provided at the "Visit to the Site" how should we address this requirement?		District	see previouse response
			5. Civil sheet C102 shows the removal of the existing concrete walkway at the corner of East Gibson Avenue per Note 1 and 4, however sheets C202 and C302 do not reflect the replacement of this concrete at this location? Please clarify.		L&M	The limitis of work stop at the property line. The work at the corner of East Gibson avenue has been removed.
			6. Civil sheet C202 Construction Note 13 states that the bus shelter is to be removed, but may be re-used. It is difficult to properly price this scope based on 2 opposite options. Can one option be selected now, either demo or salvage? If salvaged, where would it be re-installed and what are the installation requirements?		L&M	Salvage existing bus shelter. Installation location is shown on sheet C202. Installation requirements shall be per Yolo county Transportation.
			7. 1)Civil sheet C101 does not reflect any site demolition scope for the installation of the site gas line. If concrete and or landscaping is to be removed or replaced to complete this work, please identify this scope. 2)Civil sheet C401 Construction Note 16 references "See gas trench plan for details", where is this plan located?		L&M	The limits of concrete demolition have been added to sheet C101. A gas trench detail was added to sheet C603.
			8. The Legend on Landscape sheet L1.0 identifies a symbol for bollards with a quantity of 6. Where are these 6 bollards located?		RHAA	Lighting quantities have been revised to accurately reflect current landscape plan.
			Electrical sheet E101 Numbered Sheet Note #1 requires a transformer pad and bollards. Please provide requirements/details for the pad and the quantity and type of bollards.		TEE	transformer pad detail is 5/E803. For bollards, contractor account for 10 bollards, with a removable barrier in front of the bollard, spaced and installed per the attached SMUD drawing UVD2.5.
12/30/22 Landmark						
			1.Key note 1 on A261 states "Exposed CMU shall be skim coated and painted". Interior Elevations on A501 show exposed CMU. Finish schedule on A611 calls for painted walls. Do the walls in the Lobby 901, that indicate skim coat on A261, need to be skim coated prior to paint? If so, please provide a product for the skim coat, and level of finish.		tBP	see previous response Bidders Question
			2.No wall covering is indicated on the drawings despite specs being provided. Please provide rooms and walls to receive wall covering.		tBP	There are no wall coverings in this project
			3.Sheet L3.0 calls for concrete pavers in the courtyard area per 2/L4.0, this detail shows pavers over a concrete slab, sheet C201 calls for this area to be concrete sidewalk per 3/C601, this detail shows the concrete sidewalk at finish grade without pavers. Please advise which is correct.		RHAA	Please provide Type 2 pavers per plans on L3.0 and specifications section 32 14 12.2.1 Concrete Unit Paving. Concrete unit paver Type 2 to be 12" x 12" x 80mm pavers by Basalite; type: CityScape, texture: ground face, Premium color, or approved equal. Civil to revise drawings to include pavers.
			4.Sheet L3.0 calls for concrete pavers in the courtyard area per 2/L4.0, this detail shows pavers over a concrete slab, sheet C201 calls for this area to be concrete sidewalk per 3/C601, this detail shows the concrete sidewalk at finish grade without pavers. Please advise which is correct.		RHAA	See response to above
			5.L3.0 calls out a gravel surface as ¾" Sonoma Gold color per 4/L4.0, this detail calls out "Gravel, See Specs". Is this material intended to be the specified Stabilized Granite Paving 32 15 40?		RHAA	The "Gravel Surfacing" indicated on Sheet L3.0 has been revised to "Stabilized Granite Paving". Please refer to detail 4/L4.0 Stabilized Granite Paving and specifications. The gravel shown in detail 5/L4.0 Gravel Strip should be 3/4" Sonoma Gold aggregate or approved equal
1/3/22 Lathrop						
			10. Sheet L3.0 calls out (4)four bike racks. Spec section Site Furnishings - 32 3300 paragraph 2.4 states "Per Campus Standard." Please provide these standards and how they are to be mounted whether in-ground or surface mount		RHAA	Please see Addendum #5, Detail 9/L4.0 Bike Rack for bike rack type and installation method. Bike racks are to be the Ring bike rack w/ stainless steel finish by Landscape Forms.
			11. Spec section Site Furnishings – 32 3300 paragraph 2.2 lists a Trash Receptacle and "Per Campus Standard." Please provide these standards, confirm these are to be contractor furnished and confirm this is for the four trash bins shown in detail 20 on Sheet A020.		RHAA	Landscape scope does not include trash receptacles.
			12. Sheet L3.0 shows (5)five movable furniture tables and umbrellas. We cannot locate any details or find these in the specifications. Please confirm these are owner furnished and owner installed.		RHAA	Moveable furnishings are to be furnished and installed by owner.
			13. We contacted the specified supplier of the Specification Section 14 4100 Wheelchair Lift and received the following RFI: Please RFI lift #1. In spec it says portable lift at 110 inches 1.Portable lift doesn't meet code and not suitable for current design 2.The portable even if offered can not go that high		JSFA	See updated section 14 41 00
1/3/22 Landmark #6						

			1.A location on the adjacent site appears viable for placing clean soils and offhaul on the campus property in lieu of offhaul. Please confirm whether off-haul onto the nearby site is acceptable. If acceptable and a location is preferred, please advise.		District	The mandatory pre-bid login sheet is shown under RFP 21-12 on the purchasing web page at: https://www.yccd.edu/central-services/fiscal-services/purchasing-2/requests-proposals-quotes/
			2.The electrical site plan E100 note #4 shows a manhole location to intercept 2-4" primary conduits. At the site, it appears the electrical manhole is 80ft south, on the other side of the fire lane, next to the solar array fence. Please confirm if this is the manhole to locate 2 conduits.		TEE	The location as described in this RFI is correct; please route conduits from this pullbox, routing conduit across the fire lane will be necessary.
			3.Sheet note 1 on sheet E-301 refers you to detail 1/E602. There is no detail shown on drawing E602. Please clarify if there is a detail referenced in note 1 on sheet E-301 and if not, please provide.		TEE	Numbered Sheet note 1 on sheet E301 got revised per addendum #2 revisions. NSN 1 does not reference detail 1/E602 anymore.
			4.Specifications 260531-2.05 list raintight couplings and connectors for branch conduit and detailed drawings E802 and E804 show set screw connectors. What types of couplings and connectors can be used for EMT conduit runs?		TEE	Specifications take precedence, do not use set-screw connectors, use only compression fittings. Raintight compression fittings are only required for any exterior or wet location application.
			5.Sheet E212 shows several fixtures F10B and F11 as being fed from ERP5-11 which is 0-10v controlled. The lighting fixture schedule on E004 shows these fixture types as DMX controlled. How are the fixture types F10B and F11 controlled?		TEE	Intent is that F10B fixtures are 0-10V controlled. Revise the F11 fixture that is shown connected to ERP5-11 to an F6 (0-10V) fixture.
			6.Lighting fixture Schedule E004 shows fixture type F10B as being DMX, but the part number provided includes a 0-10V dimming driver. Please confirm dimming type.		TEE	See response above, the fixture is to be 0-10V. In forthcoming addendum #5 this has been addressed in the fixture schedule.
			7.Theatrical Lighting Riser Diagram 1/TL-6 shows a ELTS2 Emergency Lighting Transfer System. This equipment is not shown on the single line, and it is not indicated which lighting circuits will be connected. Please confirm that this equipment will be required, where it is fed from, and what circuits it controls.		JSFA	Provide ELTS emergency transfer switch as indicated on TL6. It should control all the emergy / egress lighting associated circuits in the theatre.
			8.Lighting fixture Schedule E004 has a note under fixture types F16/xx' and F16A/12' to provide (6) and (2) spare track heads respectively. Please confirm the intent to provide the required (6) or (2) spare track heads total for each type, and not for every section of track.		TEE	Confirmed
			9.The Rigging Drawings and the rigging schedule on sheet TR07 reflect quantities of motorized and dead hung sets, only; The Project Specification Section only details manually operated counterweighted linesets of which there are zero (0) quantity found on the drawings. Please clarify if we are to bid the equipment and quantities shown in the Drawings or the Specs. If the response to the question immediately above directs us to bid motorized hoists, please provide all hoist performance requirements including required travel speed, safety and braking requirements and its required control platform.		JSFA	There are no counterweight line sets please follow quantityes on rigging drawings and answers on addendum #4
			10.Drawing TR10 shows beam clamp and Chain hoists. No mention of these are made in the Specification Section. Are we to provide the beam clamps and chain hoists shown in the Drawings as "boxed goods" and simply turned over to the Owner? Please clarify. If the response to the question immediately above directs us to include beam clamps and chain hoists in our bid, please provide a Specification including required quantities and performance criteria for the equipment to be provided.		JSFA	"Are we to provide the beam clamps and chain hoists shown in the Drawings as "boxed goods" and simply turned over to the Owner?" Yes. Supply and install fixed speed chain hoists with safety hooks, chain, chain bags, controls, power cable, and mounting hardware, complete with all necessary accessories. Provide (2) Chain master VBG-8 C.208-volt, 3-phase, 60 Hz or approved equal. 1ton Capacity
			11.Paragraph 2.9 of the Specification Section 110670 details a quantity of Hemp Rigging System components that are not reflected on the Project Drawings. Is the list of Hemp Rigging components to be provided as "boxed goods" and turned over to the Owner? Please clarify on the contents of components to to be turned over.		JSFA	no hemp rigging required
			12.Paragraph 2.2.C.7. in Spec Section 110670 calls for the provision of, "…an air cushion device…" for the transport of the orchestra shell towers. Please confirm whether it will be considered acceptable to provide a wheeled transport device in lieu of the air cushion device specified.		JSFA	Wheeled transport is acceptable
			13.While the Theatrical Platforms Drawing Set (Sheets TP-1 – TP-4) that graphically detail the in-fill platform system and the custom rolling seating risers, etc. called out therein, a Specification Section associated with those elements could not be identified. Please provide a Specification Section detailing the materiality, requirements and design intent for those elements that we can use in our takeoff and bidding process.		JSFA	Spec provided
			14.On Page TA201, near gridlines H and E.3, please confirm the lift noted here as "Lift #4" is the same lift noted elsewhere as "Lift #2".		JSFA	It is Lift #2, it reads as lift #4 because of a line overlap
			15.Detail 4 / TP-2 calls for "2 layers of Ply. Shtg.", and detail 2 similarly calls for "2 layers ¾" Plywood". Detail 4 drawing seems to indicate four layers.Please clarify which is needed.		JSFA	Please provide 2 layers of ¾" plywood
			16.Page TP-3 calls for "Masonite Honeycomb Panel" surface on the removable pit filler. Please provide a specification for this product.		JSFA	Refer to Spec 11 61 63 issued in Addendum 4
			17.Page TP-3 calls to "Provide Storage Carts as required". Please clarify the requirement for Storage Carts.		JSFA	Refer to Spec 11 61 63 issued in Addendum 4
			18.Page TA 410 calls for "Tectum Panel" at the underside of the stage projection. The referenced detail 5/TA401 calls for a "1 ½" Cementitious Wood Fiber Panel". Please clarify this material.		JSFA	Tectum is the commercial name for the cementitious wood fiber panel
			19.Specification 286113 2.01 A calls for EST4 and interfaces to existing Notifier panel. Battery calcs on E523 state EST4. However, BOM on E521 indicates an EST3. Please advise.		TEE	EST4 is correct. The BOM on E521 was revised to EST4.
			20.Please confirm existing Notifier FACP model number.		TEE	NFS-640

			21.On paragraph 2.01 of Section 06 20 00, item A is "Interior wood trim and bases". However, no specification is given for these products. Please specify interior wood trim products.		JSFA	(see attached updated spec section w/ this info added) : A.Fabricate in accordance with Section 6 of the Architectural Woodwork Standards. Item — Species — Grade — Intended Finish Base, Casing & Trim — Red Oak — Custom — Transparent Tackboard Frames, Chalk Rail & Frame — Red Oak — Custom — Transparent Shop finished curved and flat hardwood veneered paneling in the Audience Chamber — Cherry — Premium — Stained w/ transparent finish to match Architect's sample
1/4/22	Azekco					
			substitutioin of Locker (Duralife Lockers) & Partition (Hiny Hiders Solid Plastic by Scranton Products)		tBP	See General Conditions Section. 3.11. The request is for a different material and thus cannot be considered "equal" per se. Further, the questions listed under 3.11.4.3 are not specifically addressed in your submission. Thus, we cannot accept this substitution at this time.
1/4/22	Holzmueller					
			We are a theatrical lighting subcontractor bidding to the prequalified GCs. Can we be provided a copy of the 12/2/2021 Site Visit Login Sheet?		District	Please refer to RFP 21-12 ot this link: https://www.yccd.edu/central-services/fiscal-services/purchasing-2/requests-proposals-quotes/
			110640 Theatrical Lighting Control 1. 110640.3.01.A-D refer to the responsibilities of the Division 26 Electrical Contractor for installation of the production lighting control system. Section 260070.1.01.A.2.b. further clarifies that the Division 26 Electrical Contractor is responsible for providing all wire and performing the line and low voltage wire terminations. Is the Division 26 electrical contractor responsible for all installation and terminations of the equipment provided by Division 110640 Theatrical Lighting Control?		JSFA	yes
			110650 Theatrical Lighting Fixtures 2. The Section 110650.1.01 Theatrical Lighting Fixtures - Work Included, the 110650.3.01 Theatrical Lighting Fixtures-Installation and the 110650.3.02.A-D Manufacturer Services reference the Production Lighting Control System, not the Theatrical Lighting Fixtures. A list and quantity of theatrical lighting fixtures is provided in the 110650 Theatrical Lighting Fixtures specification, but no direction is provided on what is to be done with these fixtures. a)Under the 110650 Section are the fixtures to be delivered in their original factory packaging or are they to be delivered in a ready to hang state? b)Under the 110650 Section are the fixtures to be installed and focused or delivered for installation by others? c)If the fixtures are to be installed and focused, will the theatrical light plot and schedules for the theatrical fixture installation be provided prior to bid? d)If the fixtures are to be installed and focused who is responsible for installing and focusing the fixtures, the Section 110650 Contractor or the Section 260070 Contractor?		JSFA	a) Delivered in a hang state b) Just hanged. Focusing by others c) There is no light plot, fixtures to be installed per attached sketch d) 110650 contractor
			3. (54) 10' DMX cables are included in the 110650.2.10 list of equipment, but no power extension cable. From our experience in installing theatrical lighting plots, we believe more DMX cable of differing lengths and power cable will be needed. a)Are bids for the 110650 Theatrical Lighting Fixture section to be based on only the equipment included in 110650.2.10? b)If the specified cable is determined to be insufficient will any additional cable be requested via ASI or change order?		JSFA	a) Yes b) Yes
			4. Is the Lycian ZOT15 an acceptable substitution for the discontinued Pharus 1500 Follow spot by DTS Lighting?		JSFA	Yes
1/5/22	Lathrop #13					

		1)The Finish Schedule has some contradictions. It calls AC1 "Cortega Cirrus." Armstrong Cortega and Cirrus are 2 different products with very different price points. Please clarify AC1 product It calls AC2 "Cortega Black." Cortega only come white. Armstrong Fine Fissured does come black. Please clarify AC2 product It calls AC3 "Ultima Kitchen Zone." Armstrong Ultima and Kitchen Zone are 2 separate products. But also has a note "verify with health department if vinyl membrane is req. if so use "Clean CL.". Please clarify AC3 product		tBP	AC1 - Provide Armstrong Cirrus AC2 - Provide Armstrong Cortega - Black. (verfyied w/ Armstrong it comes in Black) AC3 - Provide "Kitchen Zone"
		2)Spec 09 52 00 Acoustical Wall Treatment, Section 2.04 has a "Wall Rolled Goods" which installs inside the wall behind sheetrock. Please confirm where this is shown in plans? This is not typically something that is found in this spec. Could this be moved to Insulation or drywall specs?		JSFA	acoustical wall treatment: use at all ducts behind gypsum board next to or within audience chamber
		3)Elevations for Costume- South 5/TA517 show "Tackable Wall Panels" as keynote 2, but keynote says to see details on A942. The details on A942 are for 1-1/2" Acoustical Panels. Please confirm if these are acoustical panels or tack panels?		JSFA	Tack panels
		4)Can you confirm that the only location for Tectum – 1-1/2" Cementitious Wood fiber panel is the underside of the front of the stage in the Orchestra pit per TA401?		JSFA	correct
1/5/22 Lathrop #14					
		We received the attached markup of Specification Section 14 41 00 Wheelchair Lift with comments and conflicts from a wheelchair lift subcontractor. Can you please address these items?		JSFA	see updated spec section 14 41 00
1/5/22 Lathrop #15					
		Sheet TA 701 shows the door schedule for the PAC. Please confirm the material of the doors. Also, there is a strike through at doors 974A, 974B and 976, Please confirm that this is correct.		tBP	refer to previous response
1/5/22 Roebbelen					
		67.The Finish Schedule Legend per A611 calls AC1 as Cortega and Cirrus. These are two different products. Please advise design intent.		tBP	see previous response
		68.The Finish Schedule Legend per A611. calls AC2 as Ultima, Kitchen Zone and Clean *VL. These are three different products. Please advise design intent.		tBP	see previous response
		69.Sheet A911/20 calls for 7501HRC. The additional HRC component to 7501 will bring up the price. Is this designation intentional?		tBP	This is not a LEED project, HRC (High Recycle Content) is not required
		70.It appears that some code required signage is missing from sheets A261 and A262. For example, there is no ISA signage shown at the accessible entry doors into the building; nor is there evacuation map signage shown at the entry points into the building. These sheets also do not show any No Smoking signage per detail M/A981.		tBP	Provide signage as noted in the dwgs
		71.Is it possible to add Protech Theatrical Services, Inc. Protech Rigging & Automation (protechlv.com) to the list of acceptable contractors per specification sections 11 06 20 / 6.201.C, 7.201.E and 11 06 60 / 10.2.01.C?		JSFA	JSFA – this is ok – they are listed in our section 05 58 00
		72.There are elements to the theatrical equipment shown on the TA drawings for which there are no specifications. These items include the tension wire grid panels over the auditorium (TA502) , the flying tormentors (TA814) , and the Pivoting acoustic walls (TA813). Can specifications be provided for these items?		JSFA	JSFA: Tension grid: see our section 05 58 00 Flying Tormentors (Motorized self-climbing truss-hoist) – added to section 11 06 10 – para. 2.10 Pivoting wall is detailed and elements called out on drawing TA813
		73.Specification section 11 40 00, section 3.5; Food Service Equipment Schedule, lists Commercial Cooling as manufacturer for the walk-ins. Commercial Cooling has indicated that it will not quote this project; please see attached email. Can an alternate manufacturer be provided?		Webb	Provide Thermalrite or RMI and an alternate.
		74.Specification section 00 11 6 States: Each bid shall be made on the bid form, which is included in the Bid Documents and when submitted, shall be accompanied by a Bid Bond or Certified Cashier's Check in the amount of 10% of bid (made payable to the Yuba Community College District). The District reserves the right to forfeit Bid Bond submitted for failure of the successful bidder to secure Payment & Performance Bonds. It appears that there is no form provided in the specifications. Will a form be provided? If needed, our surety company can provide the bond on their own form, but we want to be sure that this is acceptable by the district first.		District	See attached a Bid Bond Form. Contractors can also use the standard Bid Bond Form that is provided by their respective surety.
		75.Specification section 26 24 13, section 2.01.A lists Square D as an acceptable manufacturer of switchgear. In the interest of potential cost savings, can this list be expounded upon? There are potential substitutions allowable under section 2.01.B, but it appears that protocol is intended to be applicable post-bid.		TEE	Square D is district standard for electrical gear as specified.
		76.Since the waterproofing system at the Orchestra Pit Sump, Orchestra Pit, Trap Pit and all associated stem walls is different than the slabs on grade, will lime treatment / LEF be required at those locations? If so, since conventional mixing equipment can't access the basement areas, would it be acceptable to table mix native soil on-site and place in the bottom of the Orchestra pit after it has been excavated?		Geocon	Lime treatment/LEF is not necessary at the bottom elevation of these locations.
1/6/22 Lathrop					
		Roof plan A220, west of gridline 13, at gridlines E/D. Please confirm that keynote 1 should be applied at this location.		tBP	correct
1/6/22 Landmark #7					

			1.110640.3.01.A-D refer to the responsibilities of the Division 26 Electrical Contractor for installation of the production lighting control system. Section 260070.1.01.A.2.b. further clarifies that the Division 26 Electrical Contractor is responsible for providing all wire and performing the line and low voltage wire terminations. Is the Division 26 electrical contractor responsible for all installation and terminations of the equipment provided by Division 110640 Theatrical Lighting Control?		JSFA/ TEE	Yes, Division 26 is responsible for all installation and terminations of the equipment provided by Div 110640.
			2.The Section 110650.1.01 Theatrical Lighting Fixtures - Work Included, the 110650.3.01 Theatrical Lighting Fixtures-Installation and the 110650.3.02.A-D Manufacturer Services reference the Production Lighting Control System, not the Theatrical Lighting Fixtures. A list and quantity of theatrical lighting fixtures is provided in the 110650 Theatrical Lighting Fixtures specification, but no direction is provided on what is to be done with these fixtures. a.Under the 110650 Section are the fixtures to be delivered in their original factory packaging or are they to be delivered in a ready to hang state? b.Under the 110650 Section are the fixtures to be installed and focused or delivered for installation by others? c.If the fixtures are to be installed and focused, will the theatrical light plot and schedules for the theatrical fixture installation be provided prior to bid?		JSFA	a. assembled an hanged per provided light plot b. assembled an hanged per provided light plot focusing not required c. Refer to answers above
			3.(54) 10' DMX cables are included in the 110650.2.10 list of equipment, but no power extension cable. From our experience in installing theatrical lighting plots, we believe more DMX cable of differing lengths and power cable will be needed. a.Are bids for the 110650 Theatrical Lighting Fixture section to be based on only the equipment included in 110650.2.10? b.If the specified cable is determined to be insufficient will any additional cable be requested via ASI or change order? c.Is the Lycian ZOT15 an acceptable substitution for the discontinued Pharus 1500 Follow spot by DTS Lighting?		JSFA	a. yes b. Only if requested by the District (user group) c. yes
			4.Electrical vault clarification needed. The Power One-Line Diagram on E701 shows one (1) (N) Primary Vault for the 15kV Primary Feeder. The Electrical Site Plan on E100 shows two (2) Pull Box symbols and one (1) of the Pull Box symbols is labeled (N) Primary Vault. Are we to provide one (1) Pull Box and one (1) Primary Vault? Or two (2) Primary Vaults? or just one (1) Primary Vault and disregard the additional Pull Box symbol that is not labeled?		TEE	Provide 2 new primary vaults. Revisions will be shown on site plan in forthcoming addendum #5.
			5.What are the size and type of the Primary Vault and Pull Box as they could not be found on the drawings or in specifications section 26 05 43?		TEE	Provide a 48" x 72" x 42" primary pullbox at each location; while this is not a SMUD project, the box shall be installed per SMUD T007 drawing U12P3X6, see snip below. 

			6.The Electrical Site Plan on Drawing E100 shows the 15kV Primary Feeder (Sheet Note 3) running East and turning ninety degrees North to a pull box at the (N) Culinary Arts Building. Are we permitted to run the 15kV feeder along the clearest and most direct path to the (N) Primary Vault?		TEE	No it needs to be shown per plans. The path that is shown is purposely leaving space for a future building.	
			7.The Electrical Site Plan on Drawing E100 shows the Low Voltage Conduit Duct Bank (Sheet Note 2) running East and turning ninety degrees North to a pull box at the (N) Culinary Arts Building. Are we permitted to run the Low Voltage Conduit Duct Bank along the clearest and most direct path to the (N) Primary Vault?		TEE	No it needs to be shown per plans. The path that is shown is purposely leaving space for a future building.	
			8.The Edwards Fire Alarm System is a proprietary Fire Alarm System. Who is the Fire Alarm Contractor currently maintaining the Fire Alarm System for Woodland Community College?		District	The Fire Alarm System at WCC is a Notifier system. The District is in the process of awarding "The Hankins Group" the new Fire Alarm Systems project at Yuba College. There are a number of Notifier systems at YC. FireWorks will be used to integrate the systems. I have attached some information on FireWorks from the YC FA system project. I would like to see FireWorks used on this project to integrate the new Edwards EST 4 system with the existing Notifier systems. Here's the contact for the YC Fire Alarm Systems Design Firm:	
			9.No copper backbone cabling is shown on the bid set drawings, yet it is called for in the specifications and in a sheet note on the site plan. Please provide the copper backbone cabling requirements to the new building.		TEE	Provide copper backbone per the specifications, routed in similar manner to new fiber; from Building 800 MDF to the new south wing IDF, and from Building 700 MDF to the new north wing IDF. Utilize existing 110 blocks at existing MDF rooms.	
			10.No fiber innerduct is shown on the bid set drawings, and the specifications are not very clear. What is the quantity of innerduct and of what size is required in the 4" underground conduit? a.How many of the 4" underground conduits will be filled with innerduct? b.Can we substitute maxcell mesh duct for the innerduct?		TEE	Route new fiber in a 4-cell innerduct, MaxCell MXE52224 or equal. a. Provide only in the conduit used to route the new fiber. b. Yes.	
			11.Per the fiber optic backbone riser diagram, the fiber backbone cable requirement is a hybrid 12 single mode / 24 multimode cable. Please provide the physical and performance specification requirements for the multimode OSP fiber cable.		TEE	Disregard reference to the hybrid cable, and provide separate SMF and MMF cables, performance per specifications.	
			12.For the emergency phone section 273226, please provide the name/model number of the district standard phone.		TEE/ tBP	there will be no emergency phones in our building. Disregard spec section 273226.	
			13.For the emergency phone section 273226, please provide the specifications for the Cat6A shielded cable to be used with the phone.		TEE/ tBP	there will be no emergency phones in our building. Disregard spec section 273226.	
			14.For the emergency phone section 273226, please provide drawings showing the locations of the phones and a detail on how the phone is to be mounted.		TEE/ tBP	there will be no emergency phones in our building. Disregard spec section 273226.	
			15.TL-1, TR-1, TR-3, and the line set schedule on TR-7 show there are 4 electric pipes. However, TL-5 only shows 3 electric pipes. The panel schedules on TL-6 show circuits for 3 electrics and detail 2 on TL-7 show details for 3 connector strips. Are we supposed to ignore the 4th electric pipe?		JSFA	4th Electric has no associated circuits and it is just a pipe on a clew winch.	
			16.The circuit layout shown on TL-5 is in conflict with the circuit layout in detail 2 on TL-7. Is TL-5 the preferred layout? Please clarify.		JSFA	TL5 is preferred	
			17.Information and details for the 3 (or 4) connector strips for the electric pipes are shown on the TL drawings. However, notes on detail 2 "Connector Strip Detail" on TL-7 state "SUPPLIED AND INSTALLED BY DIV. 11061" - which I assume means 110610 - Theatrical Rigging Equipment. Please clarify which section is supposed to provide the connector strips.		JSFA	Connector strips supplied by theatrical lighting contractor and installed per rigging contractor if different	
			18.There are "Connector Strip Terminal Boxes" shown on both the TL and TR drawings. Please clarify which section is supposed to provide those Terminal Boxes.		JSFA	Terminal boxed per theatrical lighting contractor	
			19.There is multicable shown on both TL and TR drawings. Please clarify which section is supposed to provide the multicables.		JSFA	Theatrical lighting contractor to provide Multicables	
			20.Please clarify which section is supposed to provide the data cable running from the overhead J-box to the connector strips.		JSFA	Theatrical lighting contractor in coordination with rigging contractor	
			21.TL-5 shows "ETHERNET NETWORK DUAL TAP (TYP. OF 3 THIS SHEET) FEEDS TAPS AT ELECTRICS BATTENS". However, detail 2 on TL-7 states "ETHERNET DUAL TAP (TYP. OF 2 EA. CS". Since we are not capable of connecting 4 ethernet taps to only 2 ethernet lines coming down from the J-box please clarify what we are supposed to do with the additional 2 ethernet taps on each connector strip.		JSFA	Connect 2 Ethernet taps	
			22.Detail 2 on TL-7 shows the above mentioned ethernet taps but it also shows a 5 pin XLR connector which we assume is for DMX. However, there is no cable specified to feed the connector strips with DMX nor is there a DMX source listed for all the connector strips. Please clarify the purpose of the 5 pin XLR connector.		JSFA	5 pin XLR connector to be omitted	

			23.TL-5 shows "DMX / ETHERNET DUAL TAP TYP. OF 3 ON THIS SHEET" and references detail 5 on TL-6. There is no detail 5 on TL-6. There is a detail 5 on TL-8 but it only shows 2 - Ethernet taps and AC power. No DMX. Please clarify on the following items: a.If there is supposed to be a DMX outlet in that device, what cable should be used? b.What is the source of the DMX? c.If they are supposed to be network taps there are not enough "2 PORT TOURING GATEWAYS WITH RJ45 CABLE TO BE CONNECTED AT NET PLUG-IN STATIONS" specified in detail 1 on TL-6 (a total of 3). Please clarify how you would like to rectify this situation.		JSFA	refer to detail 7/tl8 a. refer to attached legend b. Replace this outlets to 1port gateway /net/ net c. Refer to bill of materials
			24.Detail 5 on TL-7 show a "BREAKOUT CABLE DETAIL". Please verify: a."Breakout cable" is a 6-circuit device? b.Please verify the length of each pigtail. c.Please verify quantity of these devices.		JSFA	a. ""Breakout cable" is a 6-circuit device? only 2 circuits required at each location b. Please verify the length of each pigtail. pig tail 18", extension cable 20' c. Please verify quantity of these devices." 2
			25.The upper part of detail 5 on TL-7 shows a "6 CT GRIDIORN BOX W/ STRN RELIEF GRIP" at "GRIDIRON LEVEL". However, I can't find any locations for these devices. Please provide physical locations and quantities.		JSFA	This extension should be used at the box boom positions above at the pivoting wall. refer to TL-4 and receptacles associated to circuits 19-22 and 23-26 in the opposite hand
			26.Detail 1 on TL-7 shows "PLUG BOX AT SIDE LIGHTING POSITIONS". However, I don't see any locations for these devices on other drawings. Please provide locations and quantities.		JSFA	Refer to TL4 this boxes are located on the side walls (boxboom positions)
			27.Detail 1 on TL-6 is the Theatrical Lighting Riser Diagram. Please provide a legend for the control cable noted on the drawing.		JSFA	Refer to attached legend
			28.Detail 1 on TL-6 shows a total of 4 - "FEED-THRU RELAY PANELS FOR THEATRICAL LIGHTING CONTROL" and 1 - "FEED-THRU RELAY PANEL FOR HOUSE AND WORK LIGHTING CONTROL". However, Spec section 110640 2.01 "WALL MIUNTED RELAY PANELS AND LOAD CENTER" defines those devices as containing breakers and relays - which would make them Echo Relay Panels with a Mains Feed. Please verify these devices are to be Mains Fed Echo Relay Panels. a.If they are mains fed panels, please verify the feed should be 3 Phase, 4 wire + Gnd. - 120/208 VAC - 100A. b.If the main feed is 100A please verify the 200A MAIN BREAKER specified on detail 2 on TL-6 is not needed. c.Please verify the 1 Phase 2 wire + GND 120VAC 20 MAX feed at the bottom is not necessary. d.TL-3 shows locations of 4 - ERP panels. Please verify the location of ERP #5. e.Specification 110640 - 2.11 "PROVIDE THE FOLLOWING" only specifies 3 - ERP24 panels. E701 POWER ONE-LINE DIAGRAM shows power service for 5 panels. Please verify actual quantity of panels to be provided.		JSFA	This are Ecorelay panels located on a. yes b. 200 amp breaker not required c. Not required d. Refer to electrical drawings e. Refer to revised bill of materials
			29.Detail 1 on TL-6 shows 1 - 400A Company Switch and 1 - 200A Company Switch. However, TL-3 shows locations for 1 - 200A Company Switch and 1 - 100A Company Switch. Sheet E701 POWER ONE-LINE DIAGRAM shows a 200A and a 100A service going to company switches. Please verify which company switches are needed for this project.		JSFA	Please provide 200A and 100A company switches
			30.Detail 1 on TL-6 shows an ELTS2 Emergency Lighting Transfer Switch. Please verify how many emergency circuits it should handle.		JSFA	All the emergency lighting associated circuits
			31.Detail 1 on TL-10 shows both equipment racks. However, I don't see an ERN2 enclosure with a P-ACP processor (necessary for the Paradigm Control System) in either of these racks. Please verify which rack should contain those devices.		JSFA	Refer to bill of materials for equipment
			32.Drawing TL-2 has a callout for detail TL-6/5 at the double doors to the Trap Room but there are only two (2) details listed on Drawing TL-6. What detail is to be referenced for the DMX/Ethernet Dual Tap w/Duplex Power that shows detail TL-6/5?		JSFA	ref to 5/TL8
			33.Drawing TL-3 has a callout for detail TL-6/6 but there are only two (2) details listed on Drawing TL-6. What detail is to be referenced for the DMX/Ethernet Dual Tap w/Duplex Power that shows detail TL-6/6?		JSFA	ref to 6/TL8
			34.Drawing TL-4 has a callout for detail TL-5/3 but there is only one (1) detail listed on Drawing TL-5. What detail is to be referenced for the DMX/Ethernet Dual Tap w/Duplex Power that shows detail TL-5/3?		JSFA	ref to 7/TL8
			35.Drawing TL-4 has a callout for detail TL-7/6 but there are only five (5) details listed on Drawing TL-7. What detail is to be referenced for the device that calls out detail TL-7/6?		JSFA	ref to 6/TL8
			36.Drawing TL-5 has callouts for details TL-6/3, TL-6/5, TL-7/1F, and TL-8/1 that cannot be found in their designated locations. What details are to be referenced for the detail callouts TL-6/3, TL-6/5, TL-7/1F, and TL-8/1 shown on Drawing TL-5?		JSFA	TL-6/3 = 4/TL7, TL-6/5 = 5/TL8, TL-7/1F=4/TL9, and TL-8/1 = 3/TL8
			37.Drawings TL-2 through TL-6 show a Lighting Control Symbol Key with a section of High-Voltage Wiring Supply & Install by DIV 26 which contains a FS 20A, 120V Follow Spot Outlet on Dedicated Circuit symbol. Should the Follow Spot Outlet be Supplied by the Theatrical Lighting Control Contractor and Installed by DIV 26?		JSFA	Provided and installed by div 26
			38.Details 3 & 4 on Drawing TL-9 reference detail 1/TL-10 for the theatrical lighting receptacles. Detail 1/TL-10 references the Production Control Panel Rack. Is there a detail other than the PCP detail on 1/TL-10 to be referenced for details 3/TL-9 and 4/TL-9?		JSFA	details should reference detail 4/tl7 receptacles

			39.The marking counts on the homeruns on Drawings E301, E311, and E312 show dedicated neutrals for theatrical power homeruns and shared neutrals for all other homeruns. Specification 26 05 16 – 3.03E calls for no more than four (4) current carrying conductors for power and lighting branch circuits, and Specification 26 05 16 – 3.03F calls for no more than eight (8) current carrying conductors for power and lighting branch circuits. Are we to assume that Specification 26 05 16 – 3.03E references all circuiting other than theatrical circuits and Specification 26 05 16 – 3.03F references all theatrical circuiting?		TEE	DO provide dedicated neutrals for theatrical power home runs. Specification Section 26 05 19 3.03E & 3.03F are not in conflict, they just establish requirement for upsizing wire when wire length exceeds a certain distance. If the contractor proposes to route more than 8 wires in a home run conduit, the cabling must be sized to accommodate derating (min 100% of the circuit rating) and the conduit must be sized under 40% fill per CEC requirements. TEE takes no exception to revising the method of home-runs as shown on the plans, but any such discrepancies with more than 8 conductors should be RFI'ed to ensure that these code requirements are met.
			40.110650 2.10 is asking for 12-S4LEDS2-L fitures. That part number does not include a shutter barrel so lens tubes won't be able to be used with those fixtures. Part # S4LEDS2-LS does include a shutter barrel so both the lens tubes and Source Four LED CYC adapter can be used. Please verify which device is needed.		JSFA	Please refer to revised bill of materials
			41.110650 2.10 is asking for 24-SELRVN-7.5 Very Narrow Lens (Round Field). This item is no longer in the ETC price list. According to the factory, the native beam is already Very Narrow. Please verify we can eliminate the SELRVN-7.5 lenses or provide a substitute.		JSFA	Please refer to revised bill of materials
			42.110650 2.10 is asking for 1-Pharus 1500 Followspot with external ballast, yoke, and clamps for rail mounting. This followspot is no longer on the DTS website. a.Please verify if a similar followspot that will provide approximately 50% more light and uses an LED source so the client will not have to change discharge lamps is acceptable. b.The LED source followspot comes standard with a stand. The "yoke and clamps for rail mounting are an additional accessory. The drawing on TL-1 shows a "yoke and clamps but not a rail to mount it to. Please verify if a stand will be acceptable and if we need to add the yoke and clamps.		JSFA	a. Please provide a substitution request b. Stand and yoke mount are required
1/6/22	Cal Coast Telecom					
			1. Reference: Specification – 27 32 26 and "E" Drawings E100, E101 E301, E311 and E312. Question: There is a specification (27 32 26) for Emergency Telephones however; there are no emergency telephones shown on the drawings. Are there any emergency phones associated with this project?		TEE/ tBP	There will be no emergency phones in our building. Please disregard spec 27 32 26.
			2. Reference: "E" Drawings - E001, E401 and E411. Question: There is a symbol for Clocks under Audio/Visual on drawing E001 And this symbol appears on the power & telecom plans E401 and E411 however; there is not a specification indicating the type of clocks. Please provide clock manufacture and part number for these clocks.		TEE	On plans E401 & E411, refer to general sheet note C for clock information.
			3. Reference: Specification – 28 23 00 - 2.02.A.1 Question: Camera manufacturer states "district standard" is to be considered. What is the district standard for Video Surveillance?		TEE/ tBP	IP cameras are owner furnished, owner installed. Provide infrastructure only, i.e. data outlet and backing as required. Coordinate with the owner prior to rough-in.
			4. Reference: Signal Drawings E401 and E411 Question: There are symbols on the plans for an intrusion detection system but no specification. Please advise what is district standard is for intrusion detection and what the specification is for this system?		TEE	Refer to spec 28 13 00.
			5. Reference: Signal Drawings E401 and E411 Question: There are symbols on the plans for an access control system but no specification. Please advise what is district standard is for access control and what the specification is for this system?		TEE	The District has not yet established a standard for the Security Access Control System. For bid purposes, assume a Continental Access System (or equal) consisting of CardAccess 3000 Database and Communications Server, CIPC series door access controllers, HID Signo Model 40 card readers, and all necessary door hardware and accessories for a complete and functional system. The district will review the system recommended by the contractor and may utilize as district standard for future projects.
			Reference: Signal Drawings E401 and E411 Question: There are no cameras shown on the Security drawings for this project? Does a video surveillance system need to be installed? If so, please advise camera locations.		TEE	Refer to forthcoming addendum #5 for camera locations shown on E401 & E411.
1/6/22	Lathrop					
			Substitution: Fleetwood Harmony Cabinet		tBP	allowable substitution upon providing design intent is met.
1/6/22	Lathrop #17					

			1)Section 12 61 62 – Audience Seating – Part 1 General – 1.13 Quality Assurance – Letter B Base Specification - #1 – Notes Irwin Seating Company Irwin #8658V Citation. The "8" in this model number actually refers to a Meteor Wood Rear of Back Chair and not an Injected Polymer Rear of Back that would be a feature for the "Citation" model that is referenced. ***Please confirm Chair Back shall be the Citation Model No. 90B with an Injection-Molded Polymer Rear Decorative Panel. If this is confirmed, the correct specification section that should be inserted into Part 2 Products – 2.2 Fixed Seating – Letter "A" , 1, 2, and 3, should read as follows: 1)Backs shall be rectangular shaped, padded and upholstered on their face, with a one-piece injection molded polymer rear panel. Chai back height shall be 34"H. 2)The foundation of the back component shall be provided by a 7/16" thick, 5-ply hardwood inner panel that shall also serve as the upholstery substrate. The face of the back shall be upholstered over a 2" thick polyurethane foam pad. The polyfoam pad shall be securely cemented to the plywood inner panel and upholstered with a 1-piece cover securely fastened to the hardwood inner panel by means of upholstery staples to facilitate ease of re-upholstering. 3)The rear designer panel shall be injection molded HDPE plastic, high impact-resistant, with textured outer surface, formed to enclose the edges of the inner upholstery panel at the top and both sides of the back, and shall be not less than 25" in length, extending down to the rear of the seat. There shall be no exposed screws above the armrests. Wings used for the attachment of the complete back assembly to the standards shall be not less than 14-gauge (.0747") steel. Wings shall be firmly secured to the inner panel with threaded t-nuts fastened to the inner panel. Assembled chair shall have a nominal back height of 34". The back assembly shall be certified through routine ISO testing to withstand a 250 lb. static load test applied approximately 16" above the seat assembly and a 100,000 cycle 40 lb. swing impact test.		JSFA	1) Refer to revised 12 61 62 section Meteor is the basis of design *** Refer to revised 12 61 62 section Meteor is the basis of design 1) Refer to revised 12 61 62 section Meteor is the basis of design. 34" wood back w/ upholstery 2) Refer to revised 12 61 62 section 3) Refer to revised 12 61 62 section
			2)Section 12 61 62 – Audience Seating – Part 1 General – 1.13 Quality Assurance – Letter B Base Specification - #1 – Notes Irwin Seating Company Irwin #8658V Citation. The "58" in this model number refers to a particle board decorative aisle end with a laminate surface (standard option) however in Part 2 Products – 2.2 Fixed Seating – Letter "E" it is noted to be an "Open End". Open ends are non-decorative style end standards (similar to a non-decorative center standards) without the aisle end panel included. ***Please confirm if the aisle ends shall be "Open End". If this is confirmed, the Model Number in Letter B #1 (58) should be replaced with "00". The correct specification section that should be inserted into Part 2 Products – 2.2 Fixed Seating – Letter "E" should read as follows: Aisle end standard shall be open in design with a decorative full height, 2-7/8" wide 16-gauge (.0598") steel panel attached to the standard with concealed hardware for an outward surface devoid of all fasteners. Seat landing bracket shall be concealed with a decorative glass-filled polypropylene cover attached with concealed hardware.		JSFA	2) Refer to revised 12 61 62 section Meteor is the basis of design oAisle end standard shall be open in design with a decorative full height, 2-7/8" wide 16-gauge (.0598") steel panel attached to the standard with concealed hardware for an outward surface devoid of all fasteners. Seat landing bracket shall be concealed with a decorative glass-filled polypropylene cover attached with concealed hardware. oNo exception taken
			3)Section 12 61 62 – Audience Seating – Part 1 General – 1.13 Quality Assurance – Letter B Base Specification - #2 – Notes a removable Seat: Spec Seats ABS-700 (Group 2 – Furniture Package). ***Please confirm that the Group 2 – Furniture Package is not part of this upcoming bid and will be addressed at a future date.***		JSFA	Group 2 - Furniture Package is not part of Bid
1/6/22	Lathrop #18					
			1.Specification Section 12 61 62, item 2.3 calls for removable seating which are described as freestanding, folding chairs ganged together. However, sheet TS-1 indicates the removable seats are the screwed-down type on removable sleds. Please advise which type of removable seat is actually required at Rows AA, BB, A and F.		JSFA	All removable seats are on sleds for rows AA,BB, A and F. Anchorage t to floor with rosco stage plug and stage screw or approved equal
			2.Please advise on the swivel seat chair width shown on sheet TS-1.		JSFA	the swivel base is for the box seats only similar to 51.12.66JB Marquee
			3.Sheet TS-1 shows aisle lights at rows A through F and at each gallery swivel seat. Sheet E212 does not show any lighting connections at these locations. Providing connections at the wagon and swivel seat will be problematic due to their movement. Please confirm aisle lights are only required as shown on sheet E212.		JSFA	Aisle lights are not required on swivel seats and seats on wagons
			4.Specification 12 61 62, item 2.1.B.4 and .5 call for Cherry on Maple finish. Sheet A611 calls for Golden Oak on Red Oak. Please advise which is correct.		JSFA	Golden oak on red Oak
1/6/22	Landmark #8					
			1.Due to the number of late RFIs from the theater system subcontractors, it may be a benefit to extend the RFI deadline for the project. Please advise on whether further RFI's past the 6th would be acceptable.		District	The Bid Due Date can not change. So, that said, The RFI dealine could not be extended.

			2.Please confirm that the District will accept one original of the bid forms by the indicated time, January 20th at 1PM sharp, with the 5 copies and 1 flash drive to be accepted within 24 hours. This would include: a.Bid Form with Sub Listing b.Prequalification Validation c.Non-Collusion Affidavit d.Bid Bond		District	see previous response
			3.TA 816 Detail 1 calls for both " ¼ inch cherry plywood" and "¼ inch bendable hardwood plywood". Please confirm both are required.		JSFA	Yes both are required
			4.TA 518 Key notes 15 (Entry Mat) and 20 (Transaction Window) exist in the keynote legend but we don't see them utilized on this page. Please confirm they are not applicable.		JSFA	See A-2xx sheets for entry mats, see Window Type C & P for Transaction Windows
			5.110640.3.01.A-D refer to the responsibilities of the Division 26 Electrical Contractor for installation of the production lighting control system. Section 260070.1.01.A.2.b. further clarifies that the Division 26 Electrical Contractor is responsible for providing all wire and performing the line and low voltage wire terminations. Is the Division 26 electrical contractor responsible for all installation and terminations of the equipment provided by Division 110640 Theatrical Lighting Control?		JSFA/ TEE	Division 26 is responsible for all installation and terminations of the equipment provided by Div 110640
			6.Please provide a specification for the casters shown on TP-1 & TP-2.		JSFA	Albion caster 20 series 1000 lbs capacity
			7.Roof screen detail 1/S5.6 says that all exterior framing and hardware are to be HDG. Dose this note only apply to the roof screen or is it to include the structural steel canopies and trash enclosure structure?		ZFA	The HDG note at detail 1/S5.6 applies only to that detail (i.e. the roof screen). A note has been added to the trash enclosure plans requiring all steel and hardware to be HDG. A note has been added to the food service loading area canopy requiring all steel and hardware to be HDG. See specification section 05 1200 – 2.4 – B – 5 for other areas where HDG may apply.
			8.Reference Detail 9/M502 Detail note states "3" Max Steel Pipe." There is 6" and 4" pipe that will require support at the detail locations. Please Clarify.		Capital	See revised detail with Unitstrut P2070 pipe clamp (suitable for 4" & 6" piping"
			9.Reference Detail 9/M502 Detail note states "Unistrut" P2558 One Piece Pipe Clamp, this clamp only goes up to 6" rigid pipe and would not allow for insulation on the Hydronic Piping. Please Clarify.		Capital	See revised detail with Unitstrut P2070 pipe clamp (suitable for 4" & 6" piping"
			10.Penco will not make the locker specified ("Guardian Plus) in the size indicated nor is the Guardian Plus and all welded locker. The only locker Penco is offers in the size shown is an Invincible II box locker (this door has a friction catch with door pull/padlock hasp). Please confirm if this is acceptable and if not, please provide an alternative.		tBP	Invincible II is acceptable
			11.Drawing TR-1 and Drawing TR-3 – call out a self-climbing truss in front of the proscenium. It is not clear what the purpose of these hoists would be. A self-climbing truss picks up itself and the motor system inside the truss. It is positioned above the proscenium walls and can only travel above the wall and up into the zone. These units cannot reach the floor nor could they be attached to the walls and lift them more than 12 feet off the ground. These units aren't listed in the specification and it is not clear what their purpose is. Further they appear to conflict with the eyebrow. Please clarify.		JSFA	Self climg trusses will be attached to the tormentor panel and should a 37' high trim and a 4' low trim
			12.Sheet TA200 Detail 1 and Detail 2. Please clarify the elevation of the Orchestra Pit. Detail 1 shows the orchestra pit EL at -13' – 2" while Detail 2 shows the elevation as -9'-0".		JSFA	Pit lift levels at -9'-0", but top of slab is at -13'-2"
			13.A heavy piece of concrete in the yard per the plans appears to be either a walkway or a firelane. This must be confirmed if we are to cross this in the field with our scope. Please identify the concrete section in the yard area per the Civil Site plan. Please note any additional details as well such as the thickness of the concrete located in here.		L&M	Callouts for concrete have been added in the locations that the gas line crosses the existing concrete walkway and fire access lane.
			14.Blank Key note boxes are indicated on A201 along gridline H. Please confirm whether a keynote was missed her and whether there is a call-out for the item.		tBP	Call out should be "Canopy above - shown dashed"
			15.Fixture schedule sheet P002 show WC-1&2 as floor mounted closets but in the trim column there are carriers specified. Please confirm whether the fixtures are floor mount or wall mount.		Capital	See updated fixture schedule for additional water closets. Project includes both wall-mounted and floor-mounted types.
			16.Sump pump description on sheet P003 calls for vent to be low pit lid. Please confirm the type of pit lid to be provided.		Capital	Include cast iron sump pit lid in bid
			17.There is currently no spec located for grease waste and vent piping specifically. Will a specific speciation be given for these items? If not, please confirm the specification for sanitary sewer be used for grease waste as well.		Capital	Grease waste & vent pipe may follow the same spec as sanitary sewer
			18.Hanger details exist for grilles and equipment. Please provide in addition hanger details for the ducting in the space, if necessary.		Capital	An exposed duct hanger detail is shown on 15/M502
			19.Drawing PF-05 indicates the proposed finish grade of the new synthetic field surface. Can the design team please confirm if the existing synthetic field fabric has a shock/drainage pad installed under it. If the existing field does not have a pad installed under it, will the design team be providing the grades of the existing base material? Typical field construction requires record surveys be conducted on the subgrade prior to turf installation. Can the design team confirm if these surveys were conducted on the existing field subgrade and can this information be provided to the bidders?		L&M	We are not familiar with the PF-05 drawing or a section of the project with synthetic field surface.
			20.Please confirm if there is a burrow site available on site to obtain material in lieu of importing.		L&M	There is a large area to the south of the exisitng buildings on the campus that is available if additional fill is required.

1/6/22 Roebbelen						
			BIM- Specification Section 00 54 36 Section 1: 77.The first paragraph specifically states that the design model cannot be used as a basis for the construction model and that the construction model has to be created new from the construction documents. This makes sense for systems models but is not typically the case for the architectural and sometimes even the structural model provided by the design team. With consideration to the time it takes to develop an architectural model, it would significantly increase our cost to produce such a model and impose a considerable timeline as well. Is it acceptable to use the architectural design model as the basis for the contractors construction model for the continuation of its development to the required LOD?		tBP	The contractor is responsible to coordinate all trades using the DSA approved pdf documentation. tBP will be releasing the Revit files to the successful bidder provided a indemnification is given to the District. The revit files are not to be considered as part of the Construction/Contract Documents. They would be issued for convenience. There will be no claims allowed around the accuracy or completeness of the Revit files.
			78.Paragraph 2 Refers to BIM 360 Glue as the means for model coordination. However, this service is antiquated and does not provide efficient tools for assigning, tracking and reporting on issues generated by clash detection. We would like to recommend using the Autodesk Construction Cloud and its integrated tools like document management for shared files among the construction coordination team and Model Coordination for clash detection and for assigning, tracking and scheduling due dates for issues. Model Coordination keeps a running activity log of all activities, statuses and internal comments and responses to issues. It's a more robust and integrated system and we've been using it with great success on our projects. Would this be an acceptable alternate substitution?		tBP	Autodesk Construction Cloud is acceptable
			79.Paragraph 2 also states that the contractor will provide and maintain the BIM 360 Glue site and that the district shall have administrative rights to it. We have no objection to providing and maintaining the cloud-based collaboration service but providing administrative access to external project members is an unusual and non-standard practice in today's world of data security and would result in them having access to private areas, services and controls that they should not have access to. We can however provide permissions within the project area that will allow the owner or owner's representative to upload, download, view and edit files. Would this be acceptable?		tBP	it is acceptable
			80.Paragraph 3 requires a total of 5 licenses of BIM 360 Glue/model coordination for use by the District, Construction Manager and Design team members. Please clarify "a total of 5 licenses." Is this a total of 5 licenses distributed for all of the above or a total of 5 licenses for each group? If the later, we propose the first as an acceptable solution.		tBP	Provide 5 licenses total
			81.Paragraph 3 also states that the contractor will provide all needed Revit, Navisworks and BIM 360 Glue licenses for its subcontractors. This is an unusual requirement with the exception of providing access to the cloud-based file sharing service. Not to mention, it's not clear as to what software applications are allowed as referenced in my questions for Section 13.2.1. We propose that each subcontractor provide their own software applications/licenses for the tools they intend to use for modeling, fabrication, etc. Roebbelen will provide permission-based access to the cloud-based file sharing service for all team members involved in the BIM model coordination. Please confirm that this is acceptable.		tBP	this is acceptable.
			Section 3: 82.Paragraph one requires the contractor to use Navisworks Manage for collision detection and reporting. Once more, we recommend using the Autodesk Construction Cloud with Model Coordination as mentioned in the above paragraph 2 which refers to Section 1 of the specification. It has the ability to publish reports in PDF, XLSX, and CSV formats with the information needed to understand the issues described therein. Would this be an acceptable substitution?		tBP	Autodesk Construction Cloud is acceptable
			Section 9: 83.Item k of paragraph 1 lists the delivery of a clash-free fully coordinated consolidated BIM. A "clash-free" model is an unattainable goal as there are elements that are meant to interface with other elements as part of an installation and will be labeled as a clash when in fact they are not clashing. We propose to deliver a fully coordinated model that has such conditions labeled as valid interface, valid penetration, field fix, or item can flex. Is this acceptable?		tBP	this is acceptable.
			Section 11: 84.Paragraph 1 describes file naming convention. Who will provide the information for the convention and when will it be made available?		tBP	there will be no naming convention. Contractor shall use its own file naming convention
			Section 11.2.3, item 1: 85.This paragraph requires use of the Copy-Monitor function of Revit for levels and grids throughout the project. This is generally a procedure utilized during the development of a BIM between the architect and its subconsultants. Is it expected that Grids and Levels will change on a DSA approved set of drawings?		tBP	no

			Section 11.2.4, Item 1A: 86.We recommend and propose to use the Autodesk Construction Cloud to host, facilitate and coordinate the required models. Is this an acceptable solution?		tBP	Autodesk Construction Cloud is acceptable
			Section 11.2.19, Item 1A: 87.We recommend and propose to use the Autodesk Construction Cloud to host, facilitate and coordinate the required models. Is this an acceptable solution?		tBP	Autodesk Construction Cloud is acceptable
			Section 11.2.19, Item 2A: 88.We recommend and propose to use the Autodesk Construction Cloud to host, facilitate and coordinate the required models. Is this an acceptable solution?		tBP	Autodesk Construction Cloud is acceptable
			Section 11.2.10, Item 3A: 89.This paragraph states that all participants will be expected to provide all the necessary “tools” to ensure a reliable workflow. We have no objection to this however, it is in conflict with the last sentence in Section 1, paragraph 3.		tBP	see response to question 81.
			Section 11.2.20.1.B.3, Item 2B: 90.Please clarify the requirement for distribution of the log referred to item 2A prior to any BIM Coordination meeting.		tBP	The log distribution is between the Contractor and sub-contractor
			Section 11.2.21, Item 3, 4 & 5: 91.We recommend and propose to use the Autodesk Construction Cloud to host, facilitate and coordinate the required models. Is this an acceptable solution?		tBP	Autodesk Construction Cloud is acceptable
			Section 12, Item 5, 6, & 7: 92.We recommend and propose to use the Autodesk Construction Cloud to host, facilitate and coordinate the required models. Is this an acceptable solution?		tBP	Autodesk Construction Cloud is acceptable
			Section 13.2.1: 93.Is Revit required as the sole application for everyone? Most MEPF subcontractors utilize CAD-based software like AutoCAD MEP, AutoSprink, SprinkCAD, Tekla, CADDuct, CAD MEP and HydroCAD. Are any of these acceptable platforms as long as they contain intelligent information?		tBP	
			Section 13.2.2: 94.We recommend and propose to use the Autodesk Construction Cloud to host, facilitate and coordinate the required models. Is this an acceptable solution?		tBP	Autodesk Construction Cloud is acceptable
			Section 14.2.10: 95.Please clarify that the “PDF drawings will show the actual dimensions of all architectural elements, components and systems.” This seems like a very redundant requirement because unless there are major changes in the locations of walls, doors, windows, ceilings, etc, by ASIs or Cos, everything will be located per the architectural design model and DSA approved construction documents. This does make sense for the MEPF systems as they tend to be more diagrammatic.		tBP	The DSA Approved drawings along with all addenda and associated contract documents form the complete Bid Set.
			Section 15, Item 2: 96.Please describe “data filing” and “archiving” as it pertains to model maintenance.		tBP	Contractor shall use its own data filing and archiving process
			Section 15, Item 3: 97.We recommend and propose to use the Autodesk Construction Cloud to host, facilitate and coordinate the required models. If the Autodesk Construction Cloud is utilized, there is no need to distribute any models to anyone as they are readily available to the entire team at any time. Is this an acceptable solution?		tBP	Autodesk Construction Cloud is acceptable
			Section 16, Item 2: 98.The sentence in this section states that each BIM team member will also plot their drawings for “sign-off” by all trades. Please clarify the format of these “plots.” Are electronic PDFs an acceptable format for this?		tBP	PDF are an acceptable format
			99.Per dwgs. P201, C401 regarding Sanitary Sewer Grade Cleanout at the North End, please confirm whether construction note #13 of civil utility drawing C401 applies to the 4" sanitary sewer line that exits the North exterior of the performing arts building.		Capital	Include a cleanout at the plumbing-civil point of connection.
			100.Per dwgs. P202, A202, 9/A503, regarding Emergency Fixture Clarification in 2D Art Lab; Plumbing plan P202 depicts an eye wash "EW" and floor drain in the Southwest corner of the 2D Art Lab. This eye wash and floor drain is not depicted on in the architectural plans or interior elevations. Is a eye wash and floor drain required in the 2D Art Lab? If yes, then specify the emergency fixture.		Capital	Include a wall-mounted barrier-free recessed shower and eye/face wash fixture. Guardian gbf-2572
			101.Regarding Floor Drain Clarifications, sheets P202, A200, P301; The plumbing plans require floor drains in specific locations that do not exactly correspond with the floor drain locations depicted on the architectural plans and food service plans. Sheet A200 directs us to "see the food service drawings" for the kitchen area. Sheet FS301 notes "All floor drain locations are suggested only. Actual locations and quantities to be determined by the Architect....". Which plans are we to follow for floor drain locations?		Capital	Follow architectural floor plans and Food Service dwgs. Floor drains shown on plumbing plans are diagrammatic and un-dimensioned.

			102.Regarding Foor Sink Clarifications; the plumbing plans require floor sinks in specific locations that do not exactly correspond with the floor sink locations depicted on the architectural plans and food service plans. Which plans are we to follow for floor sink locations?		Capital	Follow architectural floor plan locations. Floor sinks shown on plumbing plans are diagrammatic and un-dimensioned.
			103.Per sheet P201; regarding Sanitary Sewer Pipe Layout to Water Closets in Womens Restroom 936; What is the waste pipe layout to the water closets in Womens Restroom 936? The West wall/plumbing chase is curved and therefore the plumbing rough-in will be staggered for each water closet.		Capital	The main waste line runs north through the lactation and light lock. Per P601, basis of design includes a waste branch with wye fitting to each water closet.
			104.Sheets P201, P201: 1. Most waste and vent lines do not have sizing called out on the plans. 2. Waste lines are not connected to fixtures, in most locations. 3. Vent lines are partially shown on the plans and not connected to fixtures. Can the supply and waste / vent drawings be separated for clarity and additional information be provided per the above?		Capital	Floor plans with isolated systems can be provided for reference, but will not be included as part of an official construction documents set.
			105.Specification section 09 72 16 provides for vinyl wall covering. There is nothing for this shown on the finish schedule. Please confirm this specification section is not applicable to the project.		tBP	There is no vinyl wall coverings in this project
			106.Sheet TL-6 shows theatrical lighting panels as 120v-208v, as does electrical one line diagram per E701. Many light fixtures leading back to the ERP theatrical lighting panels are designated as 277v (i.e. fixture F5B). Please clarify.		TEE	All fixtures circuited to ERP-5 (the house lighting relay panel) are specified with universal voltage ballasts, and can be connected to the 120V circuits shown on the plans. This includes (but may not be limited to) fixtures F5A, F5A/8', F5B, and DMX fixtures F10, F10A, F11, F11A. All luminaires on the project shall be provided with universal voltage ballast.