

DRAWING INDEX

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GENERAL NOTES

- A. FOR SPECIFICATIONS CONFORM TO THE CURRENT EDITION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPCW) AND THE IDAHO PLUMBING CODE UNLESS OTHERWISE NOTED.
- B. THE DRAWINGS INDICATE LOCATION, DIMENSIONS, REFERENCE, AND TYPICAL DETAILS OF CONSTRUCTION. THE DRAWINGS DO NOT INDICATE EVERY CONDITION - WORK NOT PARTICULARLY DETAILED SHALL BE OF CONSTRUCTION SIMILAR TO PARTS THAT ARE DETAILED.
- C. ALL LOT DIMENSION, EASEMENTS AND CERTAIN OFF-SITE EASEMENTS ARE TO BE TAKEN FROM THE PLAT.
- D. DO NOT SCALE DRAWINGS.
- E. FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALED DRAWINGS. WHERE DISCREPANCIES OCCUR, THEY SHALL BE REPORTED TO THE ENGINEER FOR RESOLUTION.
- F. DETAILED DRAWINGS AND LARGER SCALE DRAWINGS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS (E 1"=10' TAKES PRECEDENCE OVER 1"=100').
- G. THE CONTRACTOR(S) SHALL REMOVE ALL OBSTRUCTIONS BOTH ABOVE AND BELOW GROUND, AS REQUIRED FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. THIS SHALL INCLUDE CLEARING AND GRUBBING WHICH CONSISTS OF CLEARING THE GROUND SURFACE OF ALL TREES, STUMPS, BRUSH, UNDERGROWTH, HEDGES, HEAVY GROWTH OF GRASS OR WEEDS, FENCES, STRUCTURES, DEBRIS, RUBBISH AND SUCH MATERIAL WHICH, IN THE OPINION OF THE ENGINEER, IS UNSUITABLE FOR THE FOUNDATION OF PAVEMENTS. ALL MATERIAL NOT SUITABLE FOR FUTURE USE ON SITE SHALL BE DISPOSED OF OFF SITE.
- H. THE CONTRACTOR SHALL MAINTAIN ALL DRAINAGE FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL THE DRAINAGE IMPROVEMENTS ARE IN PLACE AND FUNCTIONING.
- I. ALL CONTRACTORS WORKING WITHIN THE PROJECT BOUNDARIES ARE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE SAFETY LAWS OF ANY JURISDICTIONAL BODY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BARRICADES, SAFETY DEVICES AND CONTROL OF TRAFFIC WITHIN AND AROUND THE CONSTRUCTION AREA.
- J. ALL AC PAVEMENT SHALL BE CUT TO A NEAT STRAIGHT LINE AND THE EXPOSED EDGE SHALL BE TACKED WITH EMULSION PRIOR TO PAVING.
- K. THE CONTRACTOR(S) SHALL KEEP ALL AREAS OF CONSTRUCTION CLEAN AND FREE OF DEBRIS. AFTER CONSTRUCTION IS COMPLETE, THE GENERAL CONTRACTOR SHALL PROVIDE FINAL CLEAN UP.
- L. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS FOR ACCURACY PRIOR TO COMMENCING WITH THE WORK. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- M. THE CONTRACTOR SHALL CALL DIGLINE (208-342-1585) AND HAVE THE LOCATION OF EXISTING UTILITIES MARKED AT LEAST TWO WORKING DAYS PRIOR TO THE BEGINNING OF EXCAVATION. CONTACT OTHER UTILITY OWNERS WHICH DIGLINE DOES NOT MARK, TO HAVE THEM LOCATE THEIR FACILITIES.
- N. WHERE NO MATERIAL NOTES OCCUR, THE GRAPHIC MATERIAL INDICATION SHALL INDICATE MATERIAL TYPES AND ITEMS. SEE LEGEND ON THIS SHEET.
- O. ALL NEW CONSTRUCTION TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT ACCESSIBLE GUIDELINES (A.D.A.A.G.).
- P. UNLESS OTHERWISE INDICATED ALL DRAWINGS, NOTES WHICH DO NOT READ "NIC", "EXISTING", "EXISTING TO REMAIN", OR "BY OTHERS" SHALL INDICATE NEW WORK WHICH SHALL BE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED.
- Q. ALL MATERIALS FURNISHED ON OR FOR THE PROJECT MUST MEET THE MINIMUM REQUIREMENTS OF THE APPROVING AGENCIES OR AS SET FORTH HEREIN. WHICHEVER IS MORE RESTRICTIVE. CONTRACTORS MUST FURNISH PROOF THAT ALL MATERIALS INSTALLED ON THIS PROJECT MEET THIS REQUIREMENT IF REQUESTED BY THE AGENCY OR THE ENGINEER.
- R. ALL COSTS OF RETESTING PREVIOUSLY FAILED TESTS SHALL BE BACK CHARGED TO THE CONTRACTOR BY THE OWNER.
- S. ALL COSTS INCURRED IN CORRECTING DEFICIENT WORK SHALL BE TO THE CONTRACTOR. FAILURE TO CORRECT SUCH WORK WILL BE CAUSE FOR A STOP WORK ORDER AND POSSIBLE TERMINATION.
- T. THE CONTRACTOR IS RESPONSIBLE FOR FILING THE STORM WATER POLLUTION PREVENTION PLAN NOTICE OF INTENT (N.O.I.) PRIOR TO ANY CONSTRUCTION.
- U. ALL CONSTRUCTION ADDENDA, CHANGE ORDERS, OR DESIGN CLARIFICATIONS FOR THOSE ITEMS REGULATED BY THE CODES MUST BE SUBMITTED TO THE FIELD INSPECTOR FOR REVIEW AND APPROVAL PRIOR TO COMMENCING WITH ANY OF THE PROPOSED WORK RELATED TO THE FIELD CHANGE.
- V. CONTRACTOR SHALL WORK FROM AND HAVE ON SITE AT ALL TIMES ONLY STAMPED, AGENCY APPROVED, DRAWINGS FOR THIS PROJECT.
- W. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER.
- X. MANHOLE LIDS AND DRAINAGE STRUCTURES SHALL BE HS-25 TRAFFIC RATED.
- Y. ANY CHANGE FROM THE PLANS SHALL BE APPROVED BY THE ENGINEER OF RECORD.
- Z. EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
- AA. IF A CONFLICT EXISTS BETWEEN THE PLANS, SPECIFICATIONS, OR SOILS REPORT, THE CONTRACTOR SHALL CONTACT THE ARCHITECT/ENGINEER FOR CLARIFICATION PRIOR TO CONSTRUCTION.
- AB. SEE SITE ELECTRICAL PLAN FOR SITE LIGHTING, POWER, AND COMMUNICATION.
- AC. THE CONTRACTOR SHALL SUBMIT A SET OF RECORD DRAWINGS TO THE ENGINEER OF RECORD WITHIN FIVE WORKING DAYS AFTER THE COMPLETION OF WORK. RECORD DRAWINGS SHALL BE IN ACCORDANCE WITH AHJ SPECIFICATIONS.
- AD. SITE GRADING AND PREPARATION, PAVEMENT THICKNESSES, AND MATERIAL SPECIFICATIONS SHALL CONFORM TO THE RECOMMENDATIONS OF THE SOILS REPORT FOR THIS SITE PREPARED BY ATLAS, DATED DECEMBER 2, 2022 WITH ATLAS NO. B222379g, AND TITLED "GEO TECHNICAL INVESTIGATION, CALDWELL MAINTENANCE BUILDING EXPANSION, 15430 HIGHWAY 44, CALDWELL, ID" AND ALL ADDENDA TO THE SOILS REPORT.
- AE. CONTRACTOR SHALL OBTAIN ALL PERMITS NECESSARY TO COMPLETE HIS WORK.

ABBREVIATIONS

Ø	AT
AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
ASPH	ASPHALT
AWWA	AMERICAN WATER WORKS ASSOCIATION
BFTC	BOTTOM OF FOOTING
BLDG	BUILDING
BTM	BOTTOM
℄	CENTERLINE
C	CURVE
CB	CATCH BASIN
CB/SB	CATCH BASIN/SEDIMENT BOX
CONC	CONCRETE
CSP	CORRUGATED STEEL PIPE
DEPT	DEPARTMENT
DEQ	DEPARTMENT OF ENVIRONMENTAL QUALITY
DESC	DESCRIPTION
DIA	DIAMETER
E	ELECTRICAL / EAST / EASTING
EG	EXISTING GRADE
ELEV	ELEVATION
ELL	ELBOW
EOP	EDGE OF PAVEMENT
EST	ESTIMATE
EW	EACH WAY
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISH FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FOC	FACE OF CURB
FT	FEET
G	GAS
GALS	GALLONS
GALV	GALVANIZED
GB	GRADE BREAK
GPD	GALLONS PER DAY
GRND	GROUND
GRVL	GRAVEL
GRT	TOP OF GRATE
HDPE	HIGH DENSITY POLYETHYLENE
IE	INVERT ELEVATION
INV	INVERT
L	LENGTH / LINE
LF	LINEAR FEET
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTH / NORTHING
NO.	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OWS	OIL WATER SEPARATOR
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PE	POLYETHYLENE
PERF	PERFORATED
PIV	POST INDICATOR VALVE
PL	PROPERTY LINE
PRC	POINT OF REVERSE CURVATURE
PS	PRESSURIZED SEWER
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
QUAN	QUANTITY
R	RADIUS
RE.	REFER TO
ROW	RIGHT OF WAY
S	SOUTH
SCH	SCHEDULE
SD	STORM DRAIN
SDCO	STORM DRAIN CLEANOUT
SDMH	STORM DRAIN MANHOLE
SDWK	SIDEWALK
SQ FT	SQUARE FEET
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
T	TELEPHONE
TBC	TOP BACK OF CURB
TC	TOP OF CONCRETE
TD	TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TMC	TOP OF MOUNTABLE CURB
TOC	TOP OF CURB
TOW	TOP OF WALL
TYP	TYPICAL
W	WATER / WEST
W/	WITH
WV	WATER VALVE

LEGEND

	ASPHALT CONCRETE PAVEMENT
	PORTLAND CEMENT CONCRETE
	RIGHT OF WAY LINE
	PROPERTY LINE
	EASEMENT LINE
	FINISH GRADE CONTOUR (MAJOR)
	FINISH GRADE CONTOUR (MINOR)
	EXISTING GRADE CONTOUR (MAJOR)
	FENCE
	BUILDING
	INFLOW CURB AND GUTTER
	OUTFLOW CURB AND GUTTER
	PARKING COUNT
	ACCESSIBLE PARKING SYMBOL
	SIGN
	BIKE RACK
	LUMINAIRE
	ELECTRICAL TRANSFORMER
	STORM WATER LINE
	STORM WATER MANHOLE
	STORM WATER CLEANOUT
	CATCH BASIN
	OIL WATER SEPARATOR
	HEADWALL
	SANITARY SEWER LINE
	SANITARY SEWER MANHOLE
	SANITARY SEWER CLEANOUT
	WATER LINE
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	GAS LINE
	COMMUNICATION LINE
	ELECTRICAL LINE

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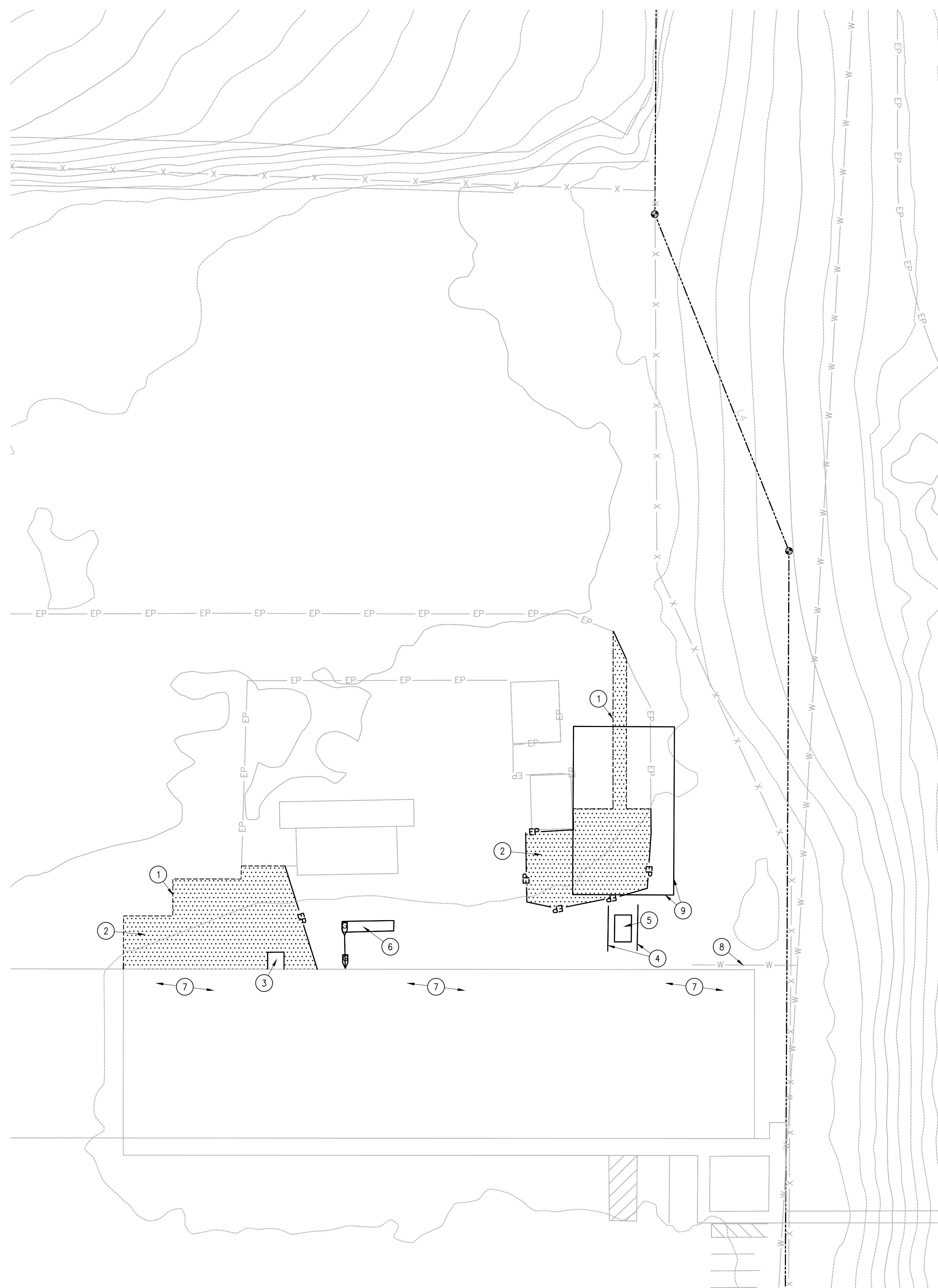
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PROJECT	DATE
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SHEET TITLE
GENERAL INFORMATION SHEET

SHEET
C00
ORIGINAL SHEET SIZE
30" x 42"



1 SITE DEMOLITION PLAN
 SCALE: 1" = 20'
 SCALE IN FEET

GENERAL NOTES:

A. SEE SHEET C00 FOR GENERAL NOTES.

DEMOLITION NOTES:

- A. EXISTING SITE INFORMATION AND LOCATION OF EXISTING SITE IMPROVEMENTS WERE PROVIDED ELECTRONICALLY BY STEVE FRISBIE OF TO ENGINEERS ON 11/01/22. THE EXISTING SITE INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.
- B. THE CONTRACTOR SHALL CALL DIGNLINE (1-208-342-1585) AND HAVE THE LOCATION OF EXISTING UTILITIES MARKED AT LEAST TWO WORKING DAYS PRIOR TO THE BEGINNING OF EXCAVATION.
- C. CONTRACTOR SHALL CALL THE UNDERGROUND UTILITY LOCATING SERVICE AND HAVE THEM MARK THE LOCATION OF EXISTING UTILITIES AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING OF WORK.
- D. TYPE AND LOCATION OF EXISTING UTILITIES SHOWN IS BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND LOCATING ALL EXISTING UTILITIES PRIOR TO DEMOLITION AND EXCAVATION. COORDINATE WITH UTILITY COMPANIES AND ARCHITECT/ENGINEER FOR SCHEDULING OF DISCONNECTION AND FOR CAPPING PROCEDURES. COORDINATE ALL DISRUPTIONS WITH UTILITY SERVICES WITH ARCHITECT AND ADJACENT BUSINESSES THREE DAYS PRIOR TO SCHEDULED DISRUPTION.
- E. REMOVE ALL LOOSE SOIL FROM AREAS OF EXCAVATION AND FILL WITH APPROVED BACKFILL.
- F. DURING ALL PHASES OF DEMOLITION AND CONSTRUCTION, PRECAUTION SHALL BE TAKEN NOT TO INCONVENIENCE THE ADJOINING BUSINESSES AS REASONABLY POSSIBLE AND TO MAINTAIN UNINTERRUPTED ACCESS.
- G. DEMOLITION CONTRACTOR SHALL OBTAIN ALL PERMITS NECESSARY TO COMPLETE HIS WORK. IN ADDITION, DEMOLITION CONTRACTOR SHALL OBTAIN ALL CERTIFICATES OF SEVERANCE OF ALL UTILITY SERVICES AS PART OF HIS WORK AND SUBMIT TO THE ARCHITECT/ENGINEER HIS DEMOLITION PROCEDURES AND OPERATIONAL SEQUENCE FOR APPROVAL.
- H. CONTRACTOR SHALL PROVIDE PROPER CONSTRUCTION SIGNAGE/BARRICADES AT ROADWAYS AND APPROACHES IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ACHD REQUIREMENTS.
- I. EXISTING TREES, DEBRIS, STRUCTURES, ASPHALT, CONCRETE, AND DELETERIOUS MATERIAL INCLUDING BUT NOT LIMITED TO CONCRETE FOOTINGS, BASEMENTS, SEPTIC TANKS AND UNDERGROUND UTILITIES TO BE REMOVED SHALL BE DISPOSED OF OFF-SITE AT THE CONTRACTOR'S EXPENSE. THE DEPRESSIONS LEFT BY REMOVAL SHALL BE BACKFILLED WITH CLEAN ENGINEERED FILL IN LAYERS NOT TO EXCEED 8 INCHES.
- J. THE CONTRACTOR SHALL COMPLETELY REMOVE THE EXISTING PAVED AREAS SPECIFIED. IN ADDITION, CONTRACTOR SHALL REMOVE UNDERGROUND UTILITIES AS IDENTIFIED ON THESE DRAWINGS, IN ACCORDANCE WITH ALL APPLICABLE AUTHORITIES HAVING JURISDICTION AND IN AN ORDERLY MANNER. COORDINATE REMOVAL AND CONSTRUCTION OF UTILITIES TO MAINTAIN UNINTERRUPTED SERVICE TO EXISTING FACILITIES.
- K. PERFORM ASPHALT STREET CUTS AND SURFACE REPAIRS PER ACHD POLICIES AND PROCEDURES. ANY DAMAGED ROADWAY PAVEMENT SHALL BE REPAIRED TO THE SATISFACTION OF ACHD.
- L. THIS PLAN SHOWS GENERAL DEMOLITION WORK TO BE PERFORMED AND DOES NOT RELIEVE THE CONTRACTOR FROM OTHER DEMOLITION WORK REQUIRED TO PRODUCE THE SITE MODIFICATIONS SHOWN ON THE REMAINING CONTRACT DOCUMENTS.
- M. AREAS INDICATED ASPHALT OR CONCRETE REMOVAL SHALL INCLUDE REMOVAL OF THE PAVEMENT SECTION FROM THE ASPHALT SURFACE DOWN TO EXISTING SUBGRADE.
- N. DEMOLITION OF LIGHT POLES, ELECTRICAL CONDUIT AND UNDERGROUND UTILITIES SHALL NOT INTERFERE WITH THE OPERATION OF EXISTING LIGHTING, ELECTRICAL SYSTEM OF UTILITIES WHICH REMAIN. TEMPORARY ROUTING OF LINES MAY BE REQUIRED TO ENSURE CONTINUOUS OPERATION OF THOSE SYSTEMS NOT SCHEDULED FOR DEMOLITION.
- O. ALL PAVEMENT REMOVAL SHALL BE SAWCUT WHERE INDICATED TO FORM A CLEAN EDGE AT THE LINE OF REMOVAL PER ACHD STANDARDS, POLICIES, AND PROCEDURES.
- P. EXISTING UNDERGROUND UTILITIES WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, OR WITHIN 2' OF THE BOTTOM OF EXCAVATION, SHALL BE REMOVED. UTILITIES TO BE DEMOLISHED BEYOND 2' BELOW SUBGRADE SHALL BE REMOVED OR ABANDONED IN PLACE AT THE CONTRACTOR'S OPTION. PIPES, CONDUIT, AND UTILITY LINES 6" OR LARGER SHALL BE GROUTED WITH CONCRETE MORTAR MIX IF ABANDONED IN PLACE.

SHEET NOTES:

- 1. SAWCUT LINE, SHOWN APPROXIMATE.
- 2. EXISTING ASPHALT TO BE REMOVED AS INDICATED BY HATCH PATTERN.
- 3. CONCRETE LANDING AT EXISTING DOOR TO BE REMOVED.
- 4. EXISTING METAL RAILING TO BE REMOVED.
- 5. EXISTING SEPTIC TANK TO BE REMOVED.
- 6. EXISTING PROPANE TANK TO BE RELOCATED, COORDINATE WITH OWNER FOR NEW LOCATION.
- 7. SEE ARCHITECTURAL DRAWINGS FOR DEMOLITION ASSOCIATED WITH BUILDING FEATURES.
- 8. EXISTING BUILDING WATER SERVICE IS EXPECTED TO RUN ALONG NORTH FACE OF EXISTING BUILDING. FIELD LOCATE AND ADJUST AS REQUIRED FOR BUILDING ADDITION.
- 9. REMOVE EXISTING DRAIN FIELD WITHIN 10 FEET OF NEW BUILDING ADDITION. BACKFILL WITH STRUCTURAL FILL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. EXTENTS OF DRAIN FIELD SHOWN APPROXIMATE.



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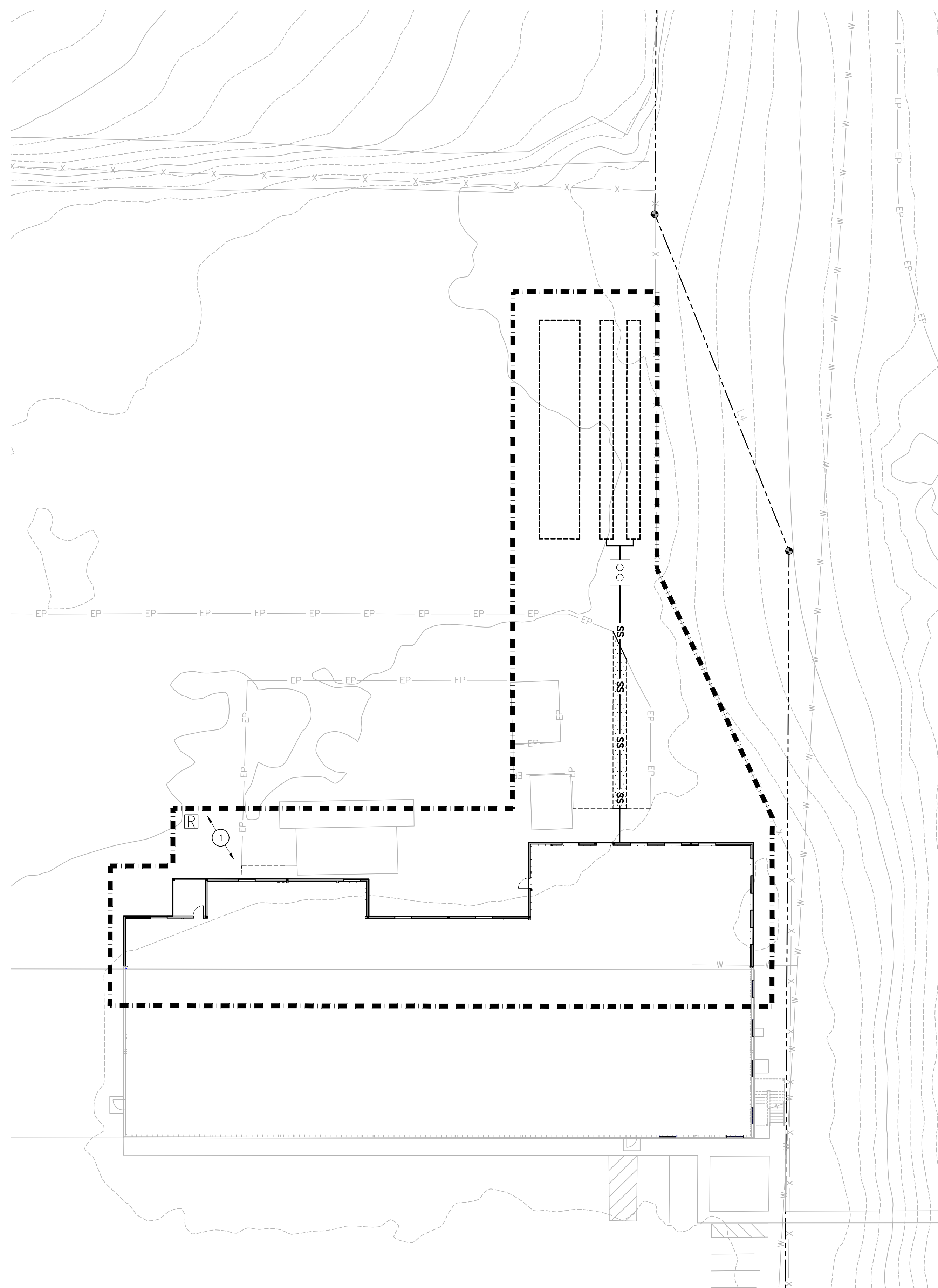
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JTW	JTW

REVISED

SHEET TITLE
SITE DEMOLITION PLAN

SHEET
C10

ORIGINAL SHEET SIZE
 30" x 42"



1 EROSION & SEDIMENT CONTROL PLAN
 SCALE: 1" = 20'
 SCALE IN FEET

EROSION CONTROL NOTES:

- A. ALL WORK ASSOCIATED WITH STABILIZING THE DISTURBED AREAS SHALL BE IN ACCORDANCE WITH THE CITY OF BOISE CONSTRUCTION SITE EROSION CONTROL & SEDIMENT CONTROL PROGRAM AND FIELD MANUAL.
 - B. CONTRACTOR OR DESIGNATED PERSON SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
 - C. THE IMPLEMENTATION OF THESE EROSION AND SEDIMENT CONTROL PLANS AND CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE EROSION AND SEDIMENT CONTROL PLAN FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE LOCAL JURISDICTION, AND VEGETATION/LANDSCAPING IS ESTABLISHED. THE DEVELOPER SHALL BE RESPONSIBLE FOR MAINTENANCE AFTER THE PROJECT IS APPROVED.
 - D. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE MARKINGS SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
 - E. THE EROSION AND SEDIMENT CONTROL FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, ADJACENT OPEN WATER SURFACES OR VIOLATE APPLICABLE WATER STANDARDS.
 - F. THE EROSION AND SEDIMENT CONTROL FACILITIES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING CONSTRUCTION PERIOD, THESE EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT LEAVE THE SITE.
 - G. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATIONS SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTEAM SYSTEM.
 - H. STORM DRAIN INLETS, BASINS, AND AREA DRAINS SHALL BE PROTECTED UNTIL PAVEMENT SURFACES ARE COMPLETED AND/OR VEGETATION IS RE-ESTABLISHED.
 - I. PAVEMENT SURFACES AND VEGETATION ARE TO BE PLACED AS RAPIDLY AS POSSIBLE.
 - J. CONCRETE WASHOUT MUST BE CONTAINED IN AN ABOVE GROUND CONTAINER PER IDEQ STORM WATER BMP #49.
- STOCKPILED TOPSOIL NOTES:**
- K. STOCKPILES SHALL BE STABILIZED (WITH PLASTIC COVERING OR OTHER APPROVED DEVICE) DAILY BETWEEN NOVEMBER 1 AND MARCH 31.
 - L. IN ANY SEASON, SEDIMENT LEACHING FROM STOCKPILES MUST BE PREVENTED.
- STORM WATER NOTES:**
- M. OPERATORS ARE RESPONSIBLE TO PREPARE AND FILE A NOTICE OF INTENT (NOI) AS REQUIRED BY THE EPA AND DEVELOP A PROJECT SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
 - N. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY OF BOISE STANDARDS AND THE CITY OF BOISE CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL PROGRAM AND FIELD MANUAL.
 - O. SHOULD THE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON THIS DRAWING NOT PROVE ADEQUATE TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL INSTALL ADDITIONAL FACILITIES AS NECESSARY TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES, AND/OR STORM DRAINAGE SYSTEMS.
 - P. THE CONTRACTOR SHALL CALL DIOCLINE (1-208-342-1585) AND HAVE THE LOCATION OF EXISTING UTILITIES MARKED A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATIONS.
 - Q. ALL EROSION CONTROL AND STORM WATER FACILITIES SHALL BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION.
 - R. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND OTHER RELATED OR REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY IN THE MUNICIPALITY'S RIGHT-OF-WAY. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS FOR TRAFFIC CONTROL AND SAFETY WHEN WORKING IN THE ROAD RIGHT-OF-WAY.
 - S. AT NO TIME SHALL MORE THAN ONE-HALF (1/2) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A PROTECTED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PROJECT COMPLETION. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTEAM SYSTEM.

GENERAL NOTES:

- A. CONSTRUCTION PARKING SHALL BE LOCATED ON EXISTING FACILITIES.

1 SHEET NOTES:

- 1. DESIGNATED AREA FOR WASHOUTS.

LEGEND

- AREA OF ACTIVE CONSTRUCTION/CONTRACT LIMIT LINE
- [R] SANITARY AND SEPTIC WASTE MANAGEMENT PER IDEQ BMP #50



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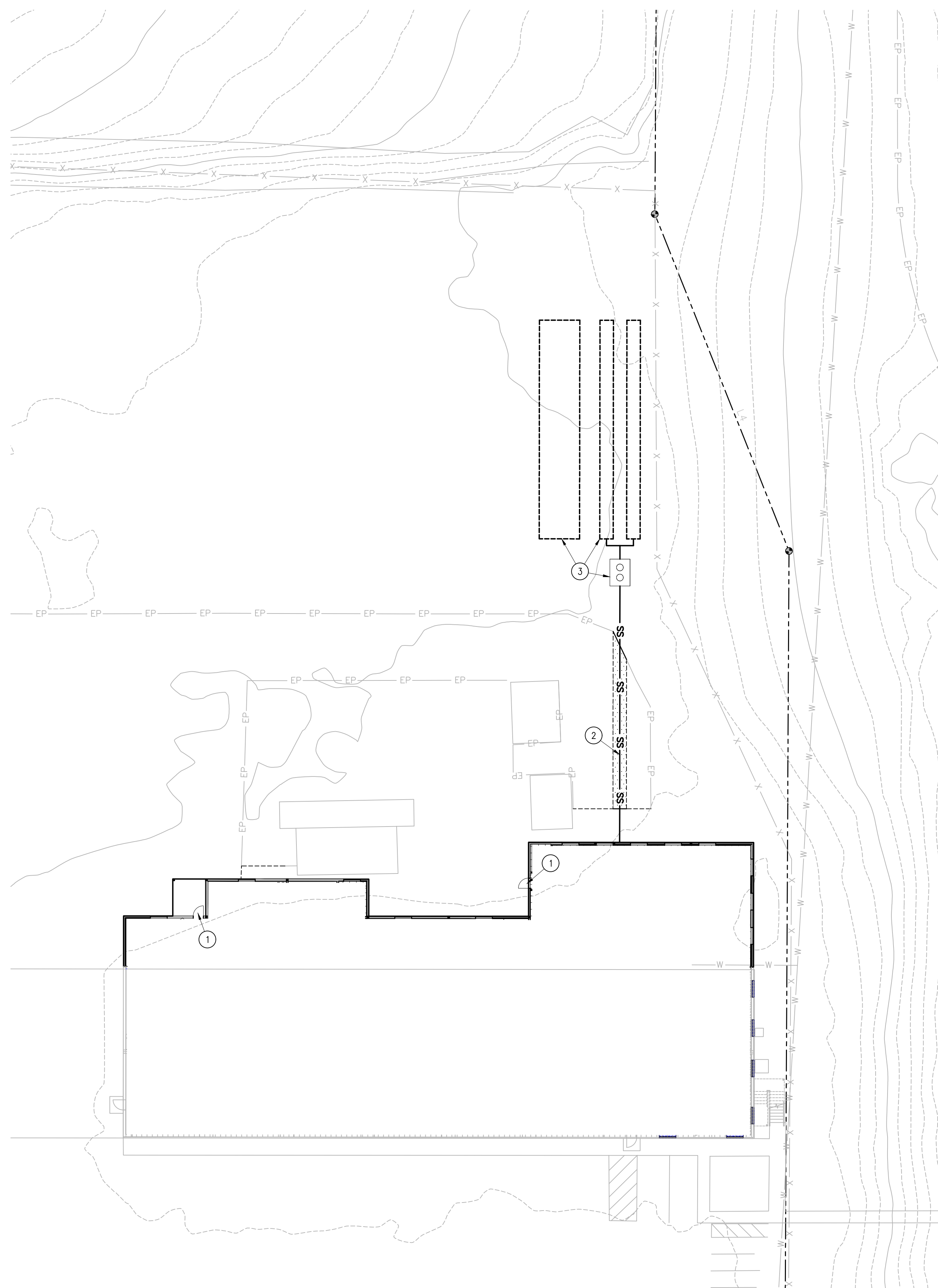
PROJECT	DATE
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JTW	JTW

REVISED

SHEET TITLE
EROSION & SEDIMENT CONTROL PLAN

SHEET
C20

ORIGINAL SHEET SIZE
 30" x 42"



1 SITE IMPROVEMENT PLAN
 SCALE: 1" = 20'
 0 10 20 40 60 80
 SCALE IN FEET

SITE IMPROVEMENT NOTES:

- A. FOR GENERAL NOTES SEE DRAWING C00.
- B. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER.
- C. THE MAXIMUM CROSS SLOPE OF ANY SIDEWALK OR RAMP SHALL BE 2%.
- D. UNLESS ELEVATIONS AND/OR CONTOURS ARE OTHERWISE SHOWN, NEW IMPERVIOUS SURFACE MUST BE PLACED TO ALLOW FOR POSITIVE DRAINAGE TO CURB, GUTTER, AND OTHER RUNOFF COLLECTION DEVICES. SLOPE TO BE MIN. 1.5% AND MAX. 5%, UNLESS OTHERWISE INDICATED OR DIRECTED BY THE ARCHITECT/ENGINEER.
- E. PROJECT BENCHMARK INFORMATION COMES FROM THE TOPOGRAPHIC SURVEY.
- F. COORDINATE WITH OTHER DISCIPLINES FOR CONDUIT LOCATIONS.
- G. UTILITY TRENCHING AND BACKFILLING SHALL BE IN ACCORDANCE WITH THE SOILS REPORT AND LOCAL REQUIREMENTS, AND SHALL COMPLY WITH ALL LOCAL, STATE, AND NATIONAL SAFETY STANDARDS.
- H. UTILITY CONSTRUCTION SHALL CONFORM TO PLUMBING CODE AND THE CURRENT EDITION OF THE ISPIC.
- I. EXISTING UTILITIES ARE SHOWN APPROXIMATELY AND FOR GENERAL INFORMATION PURPOSES ONLY. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES.
- J. WATER LINES SHALL BE INSTALLED WITH AT LEAST 42" COVER.

LEGEND:

HEAVY DUTY PAVEMENT: 3" AC ON 4" CRUSHED AB ON 16" GRANULAR SB ON PREPARED SUBGRADE, RE: GEOTECHNICAL REPORT

SHEET NOTES:

- 1. PROVIDE 5'X5' CONCRETE LANDING AT DOOR WITH SLOPE LESS THAN 2% IN ALL DIRECTIONS. FROM LANDING SLOPE 20:1 OR LESS TO MEET EXISTING GRADE.
- 2. 4" SDR 35 SANITARY SEWER LINE AT 2% SLOPE FROM BUILDING PLUMBING TO NEW SEPTIC TANK. COORDINATE EXACT LOCATION OF BUILDING CONNECTION WITH PLUMBING AND TANK WITH SEPTIC SYSTEM INSTALLER.
- 3. CONTRACTOR TO PROVIDE CERTIFIED INSTALLER FOR SEPTIC TANK, DRAIN FIELD, AND REPLACEMENT AREA DESIGN AND INSTALLATION IN COMPLIANCE WITH SOUTHWEST DISTRICT HEALTH DEPARTMENT STANDARDS. ITEMS SHOWN ARE INTENDED ONLY TO SHOW POTENTIAL GENERAL AREA OF FACILITIES THAT ARE SUBJECT TO INSTALLERS SITE SPECIFIC DESIGN.



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ITD MAINTENANCE BLDG. IMPROVEMENTS
 CALDWELL, IDAHO
 15430 HIGHWAY 44

CSHQ&A

PROJECT	DATE
22123.00	1/20/23
DRAWN	CHECKED
JTW	JTW

REVISED

SHEET TITLE
SITE IMPROVEMENT PLAN

SHEET
C40

ORIGINAL SHEET SIZE
 30" x 42"



COMcheck Software Version COMcheckWeb
Envelope Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: ITD Caldwell - shop addition
Location: Caldwell, Idaho
Climate Zone: 5b
Project Type: Addition
Vertical Glazing / Wall Area: 5%

Construction Site: 15430 Highway 44, Caldwell, Idaho 83605
Owner/Agent:
Designer/Contractor: Loren Broyles, CSHQA, 200 Broad St., Boise, Idaho 83714, 208-429-4046, loren.broyles@csaha.com

Building Area	Floor Area
1-Automotive Facility - Nonresidential	2686

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor ^(a)
Roof: Metal Building, Standing Seam, Filled Cavity with Thermal Blocks (d), [Bldg. Use 1 - Automotive Facility]	2686	38.0	5.0	0.031	0.035
Floor: Unheated Slab-On-Grade, Horizontal with vertical 2 ft., [Bldg. Use 1 - Automotive Facility] (c)	126	---	5.0	0.700	0.520
NORTH					
Ext. Wall: Steel-Framed, 24in. o.c., [Bldg. Use 1 - Automotive Facility]	1446	19.0	13.0	0.042	0.055
Door: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility]	21	---	---	0.370	0.370
Window: Metal Frame with Thermal Break: Fixed, Perf. Specs.: Product ID pending, SHGC 0.30, PF 0.20, [Bldg. Use 1 - Automotive Facility] (b)	100	---	---	0.380	0.360
EAST					
Ext. Wall: Steel-Framed, 24in. o.c., [Bldg. Use 1 - Automotive Facility]	137	19.0	13.0	0.042	0.055
WEST					
Ext. Wall: Steel-Framed, 24in. o.c., [Bldg. Use 1 - Automotive Facility]	363	19.0	13.0	0.042	0.055

- (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
- (b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
- (c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.
- (d) Thermal spacer block with minimum R-3.5 must be installed above the purlin/batt, and the roof deck secured to the purlins.

Project Title: ITD Caldwell - shop addition
Data filename: Report date: 01/12/23
Page 1 of 9

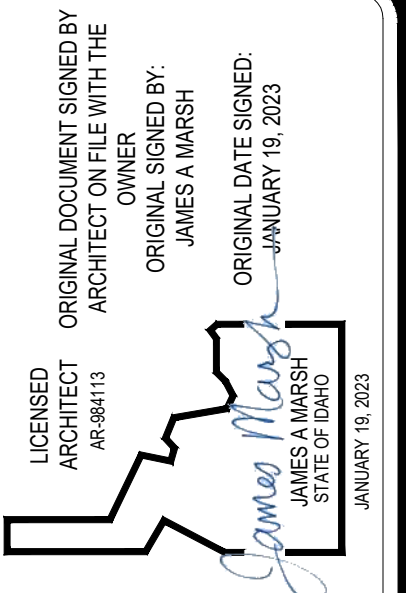
Envelope PASSES: Design 4% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title: Loren Broyles
Signature: [Signature]
Date: 1/12/23

SHOP ADDITION



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COMcheck Software Version COMcheckWeb
Envelope Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: ITD Caldwell - office addition
Location: Caldwell, Idaho
Climate Zone: 5b
Project Type: Addition
Vertical Glazing / Wall Area: 10%

Construction Site: 15430 Highway 44, Caldwell, Idaho 83605
Owner/Agent:
Designer/Contractor: Loren Broyles, CSHQA, 200 Broad St., Boise, Idaho 83714, 208-429-4046, loren.broyles@csaha.com

Building Area	Floor Area
1-Office - Nonresidential	1904

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor ^(a)
Roof: Metal Building, Standing Seam, Filled Cavity with Thermal Blocks (d), [Bldg. Use 1 - Office]	1904	38.0	5.0	0.031	0.035
Floor: Unheated Slab-On-Grade, Horizontal with vertical 2 ft., [Bldg. Use 1 - Office] (c)	126	---	5.0	0.700	0.520
NORTH					
Ext. Wall: Steel-Framed, 24in. o.c., [Bldg. Use 1 - Office]	577	19.0	13.0	0.042	0.055
Window: Metal Frame with Thermal Break: Fixed, Perf. Specs.: Product ID pending, SHGC 0.30, PF 0.20, [Bldg. Use 1 - Office] (b)	100	---	---	0.380	0.360
EAST					
Ext. Wall: Steel-Framed, 24in. o.c., [Bldg. Use 1 - Office]	474	19.0	13.0	0.042	0.055
Window: Metal Frame with Thermal Break: Fixed, Perf. Specs.: Product ID pending, SHGC 0.30, PF 0.20, [Bldg. Use 1 - Office] (b)	60	---	---	0.380	0.360
WEST					
Ext. Wall: Steel-Framed, 24in. o.c., [Bldg. Use 1 - Office]	474	19.0	13.0	0.042	0.055
Door: Insulated Metal, Swinging, [Bldg. Use 1 - Office]	21	---	---	0.370	0.370

- (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
- (b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
- (c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.
- (d) Thermal spacer block with minimum R-3.5 must be installed above the purlin/batt, and the roof deck secured to the purlins.

Project Title: ITD Caldwell - office addition
Data filename: Report date: 01/12/23
Page 1 of 9

Envelope PASSES: Design 0.4% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title: Loren Broyles, designer
Signature: [Signature]
Date: 1/12/23

OFFICE ADDITION

PROJECT	DATE
22123.00	1/20/23
DRAWN	CHECKED
LB	JM

REVISED

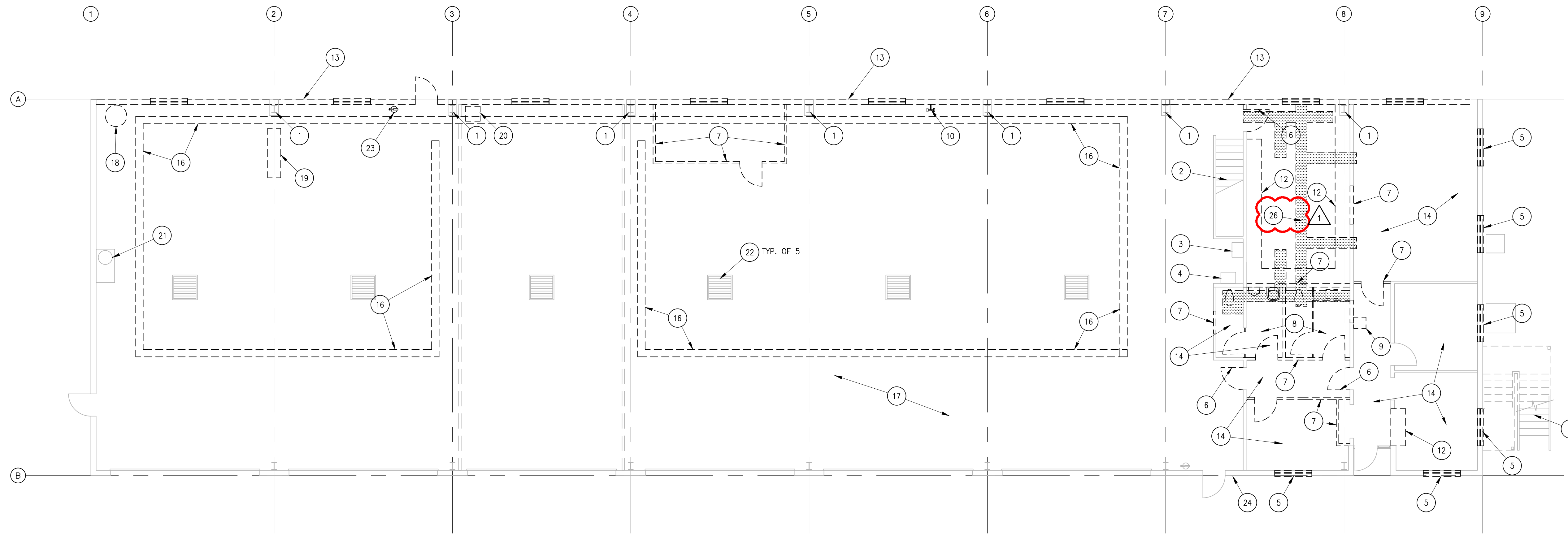
SHEET TITLE

ENERGY COMPLIANCE

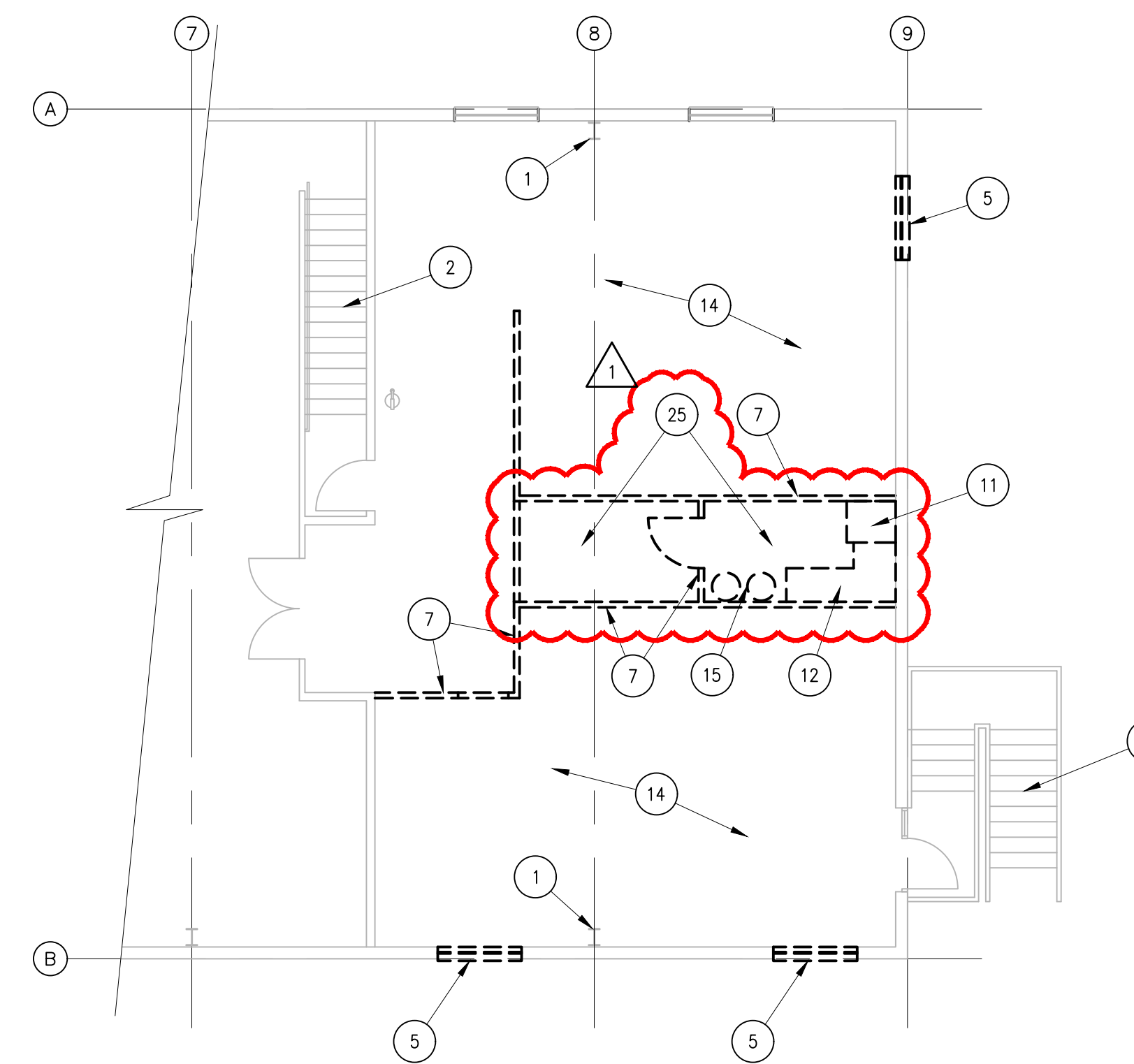
SHEET

A01

ORIGINAL SHEET SIZE
30" x 42"



1 DEMOLITION FLOOR PLAN
SCALE 1/8" = 1'-0"



2 DEMOLITION MEZZANINE PLAN
SCALE 1/8" = 1'-0"

LEGEND:

- EXISTING TO REMAIN
- - - EXISTING TO BE REMOVED

SHEET NOTES:

1. EXISTING STRUCTURAL COLUMN TO REMAIN.
2. EXISTING STAIRS TO REMAIN.
3. EXISTING ICE MAKER TO REMAIN.
4. EXISTING UTILITY SINK TO REMAIN.
5. WINDOW ASSEMBLY TO BE REMOVED.
6. DOOR AND FRAME ASSEMBLY TO BE REMOVED.
7. FRAME WALL ASSEMBLY TO BE REMOVED.
8. RESTROOM (IN ITS ENTIRETY) TO BE REMOVED.
9. DRINKING FOUNTAIN AND ASSOCIATED PLUMBING TO BE REMOVED. SEE PLUMBING FOR ADDITIONAL INFORMATION.
10. EYE WASH STATION TO BE RELOCATED. PROTECT FROM DAMAGE.
11. HVAC SYSTEM TO BE REMOVED. SEE MECHANICAL FOR ADDITIONAL INFORMATION.
12. MILLWORK TO BE REMOVED.
13. EXISTING WALL AND CONCRETE STEM WALL TO BE REMOVED. CONTRACTOR TO COORDINATE WITH OWNER FOR EQUIPMENT LOCATED ON WALL TO BE DEMOLISHED. RETAIN, STORE AND PROTECT FROM DAMAGE ANY ITEMS AND EQUIPMENT THAT IS TO BE RELOCATED TO NEW EXTERIOR WALL.
14. REMOVE ALL EXISTING FLOORING AT MAIN FLOOR OFFICE AREA AND MEZZANINE. NOTE THAT THE VINYL FLOOR BACKING IN THE HALL AND WOMEN'S RESTROOM HAS BEEN IDENTIFIED AS CONTAINING ASBESTOS (SEE ASBESTOS REPORT).
15. REMOVE WATER HEATER AND ASSOCIATED PLUMBING. SEE PLUMBING FOR ADDITIONAL INFORMATION.
16. RADIANT HEAT SYSTEM TO BE REMOVED. SEE MECHANICAL FOR ADDITIONAL INFORMATION.
17. REMOVE ALL METAL ROOFING. PROTECT ROOF FRAMING AND INSULATION.
18. EXISTING AIR COMPRESSOR TO BE RELOCATED.
19. EXISTING HOSE REELS AND SUPPORTS TO BE RELOCATED.
20. EXISTING VEHICLE EXHAUST FAN TO BE RELOCATED.
21. EXISTING HOTSYS EQUIPMENT TO REMAIN. PROTECT FROM DAMAGE.
22. EXISTING FLOOR DRAIN TO REMAIN.
23. EXISTING FIRE EXTINGUISHER AND MOUNTING BOARD TO BE RELOCATED.
24. EXISTING ELECTRICAL SERVICE TO REMAIN.
25. CEILING TO BE REMOVED.
26. SAWCUT AND REMOVE EXISTING CONCRETE SLAB AND REPOUR (SHADED AREA) AS NECESSARY FOR INSTALLATION OF NEW UNDER-SLAB PLUMBING. COORDINATE WITH PLUMBING.

GENERAL NOTES:

- A. MAINTAIN THE INTEGRITY OF ALL REMAINING BUILDING SYSTEMS AND RATINGS. REPAIR ANY DAMAGE DONE TO SURROUNDING AREAS DURING DEMOLITION.
- B. PATCH AND REPAIR ANY DAMAGE OR PENETRATIONS AT ALL ELEMENTS TO REMAIN (INCLUDING BUT NOT LIMITED TO WALLS, CEILINGS, FLOORS, ETC.) CAUSED BY DEMOLITION ACTIVITIES OR REMOVAL OF ELECTRICAL, MECHANICAL, AND ARCHITECTURAL ELEMENTS, AND EQUIPMENT. REPLACE ITEMS NOT REPAIRABLE TO ORIGINAL STATE. EXISTING FINISH MATERIALS, INCLUDING CEILINGS, TRIM, ETC. SHALL BE PROTECTED AND RETAINED UNLESS OTHERWISE NOTED.
- C. EXISTING EQUIPMENT, WALLS, CEILINGS, ETC., ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, FINISHES, AND LOCATIONS.
- D. CLEAN CONSTRUCTION DEBRIS AND DUST DAILY BEYOND CONSTRUCTION LIMITS.
- E. AT ALL LOCATIONS WHERE A WALL TO BE REMOVED INTERSECTS A WALL TO REMAIN, PATCH AND REPAIR WALL TO REMAIN. ALIGN FINISH FACE OF PATCH WITH ADJACENT FINISH FACE.
- F. COORDINATE ALL DEMOLITION WITH FLOOR PLAN. WHERE NEW WORK IS INDICATED, SUCH WORK SHALL INCLUDE ALL REQUIRED DEMOLITION OR REMOVAL OF EXISTING FINISHES, SYSTEMS, AND ALL RELATED ITEMS FOR THAT WORK.
- G. FIELD VERIFY ANY EXISTING PIPING LOCATIONS TO DETERMINE EXTENT OF ANY TRENCHING THAT MAY BE REQUIRED FOR MODIFICATIONS. FOR NEW PATCHES, DOWEL A 12" LONG #3 BAR AT 48" O.C. (6" MIN. EMBEDMENT) INTO THE EXISTING SLAB TO TIE THE NEW SLAB WITH THE EXISTING. A MINIMUM OF (2) DOWELS ARE REQUIRED FOR SMALLER PATCHES.
- H. UPON COMPLETION OF DEMOLITION THOROUGHLY CLEAN ALL SURFACES INDICATED TO REMAIN OF DUST, DIRT, AND DEBRIS IN PREPARATION FOR NEW CONSTRUCTION.
- I. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO COMMENCING WORK TO CONFIRM ANY ITEMS TO BE SALVAGED AND RETAINED BY OWNER.
- J. THIS PLAN SHOWS GENERAL DEMOLITION WORK TO BE PERFORMED AND DOES NOT RELIEVE THE CONTRACTOR FROM OTHER DEMOLITION WORK REQUIRED TO PRODUCE THE BUILDING MODIFICATIONS SHOWN ON THE REMAINING CONTRACT DOCUMENTS.
- K. CONTRACTOR SALVAGE ITEMS SHALL BE DISPOSED OF PROPERLY OFF SITE AND IN AN EXPEDITIOUS MANNER.

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ORIGINAL DOCUMENT SIGNED BY ARCHITECT JAMES MARSH
ORIGINAL DATE SIGNED: FEBRUARY 24, 2023

ITD MAINTENANCE BLDG. IMPROVEMENTS
CALDWELL, IDAHO
15430 HIGHWAY 44

200 BROAD STREET
BOISE, ID 83702
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WWW.CSHQA.COM

CSHQA

PROJECT	DATE
22123.00	1/20/23
DRAWN	CHECKED
LGB	JAM

REVISED	DATE	DESCRIPTION
1	2/24/23	ADDENDUM ONE

SHEET TITLE
DEMOLITION PLANS

SHEET
A11

ORIGINAL SHEET SIZE
30" x 42"

LEGEND:

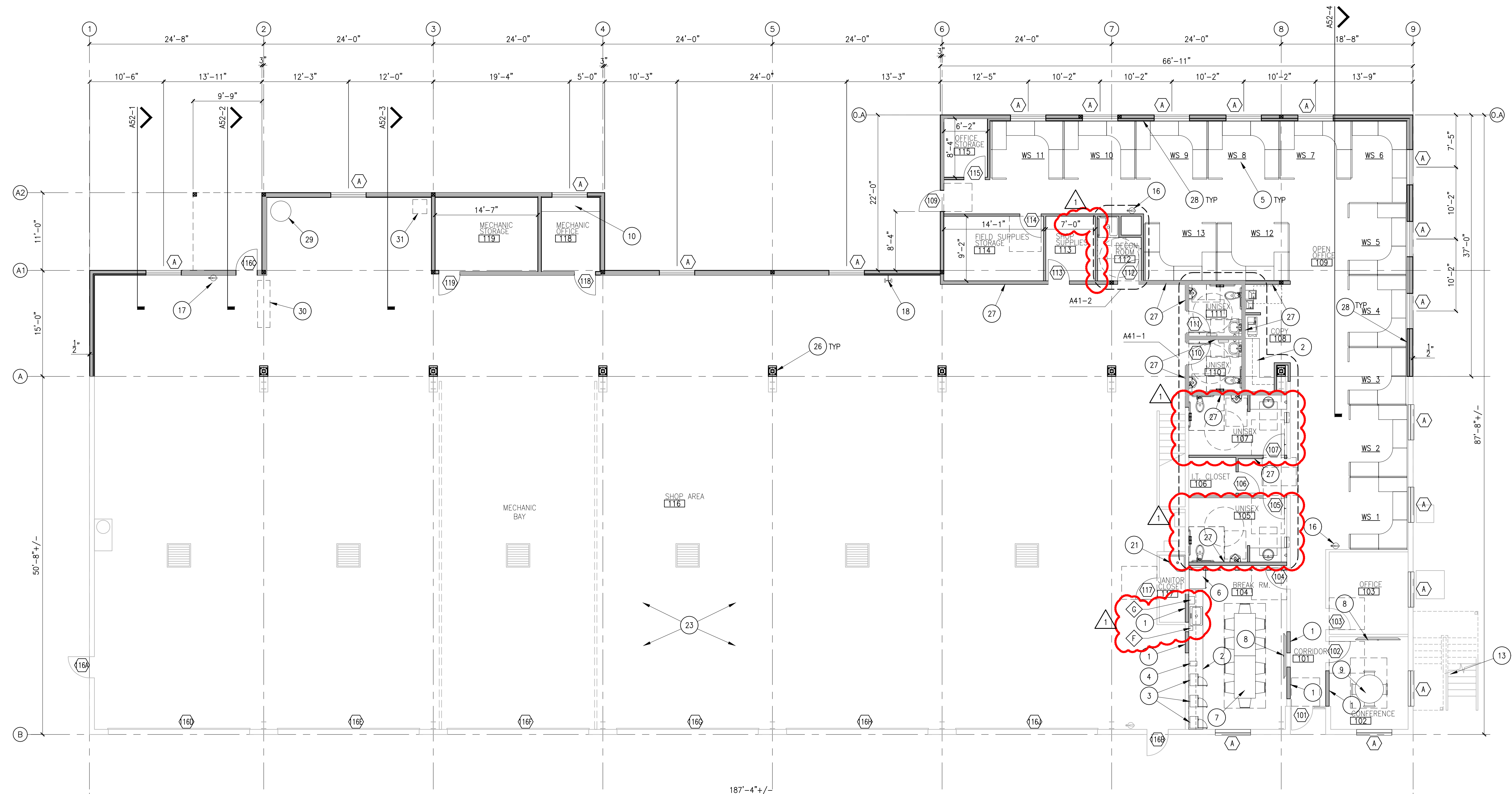
- EXISTING TO REMAIN
- NEW STUD WALL
- INTERIOR NON-LOAD-BEARING WALLS TO BE 3 5/8" x 20 GA METAL STUDS AT 24" O.C. EXCEPT WHERE NOTED TO BE 6" STUDS.
- PROVIDE HEADERS AT WALL OPENINGS PER DETAIL S4.0-4 (SM). (PROVIDE ONE TRIMMER AND ONE KING STUD AT EACH SIDE OF OPENING. HEADER STUD SIZE TO MATCH WALL STUD SIZE.)
- PROVIDE 5/8" GYP. BD. EACH SIDE, TAPED, TEXTURED AND PAINTED (EXCEPT MEZZANINE FURRED OUT WALL-ONE SIDE ONLY).
- WATER RESISTANT GYP. BD. AT TOILET ROOMS, SHOWERS, UTILITY ROOMS AND JANITOR CLOSETS.
- ALL WALLS TO EXTEND TO STRUCTURE/ROOF DECK ABOVE UNLESS OTHERWISE NOTED.
- AT SUSPENDED TILE CEILING LOCATIONS EXTEND WALLS TO 6" ABOVE CEILING.
- EXTERIOR WALLS TO BE 6" METAL STUDS. SEE WALL SECTIONS AND STRUCTURAL FOR ADDITIONAL INFORMATION.

GENERAL NOTES:

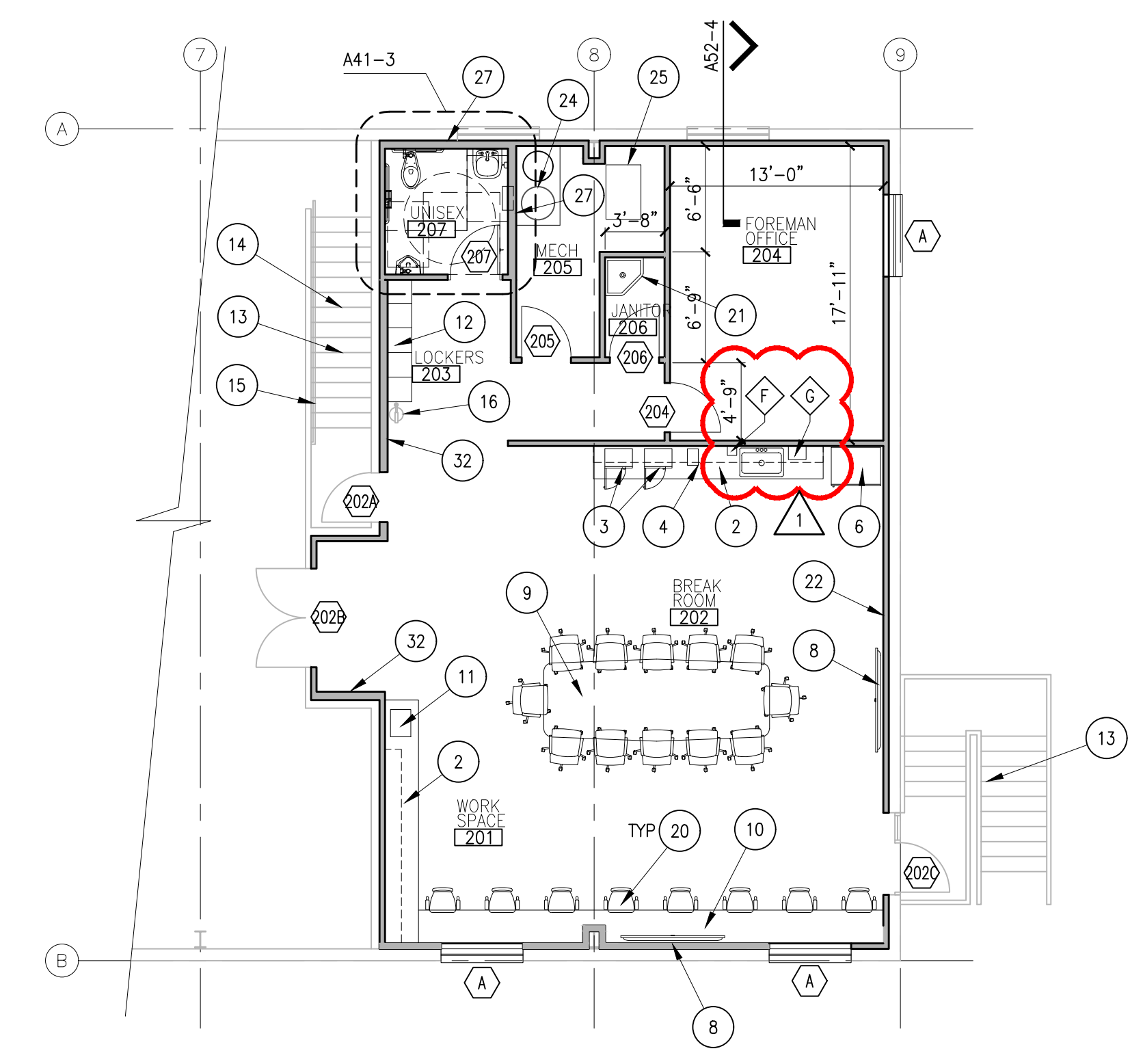
- A. ALL WALL DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
- B. VERIFY DIMENSIONS OF ALL FIXTURES AND EQUIPMENT PROVIDED BY OWNER AND OWNER'S OUTSIDE CONTRACTORS.
- C. PROVIDE BLOCKING AS REQUIRED FOR ALL WALL MOUNTED ITEMS.
- D. WHERE NEW WORK IS CALLED FOR, SUCH WORK SHALL INCLUDE REQUIRED DEMOLITION OR REMOVAL OF EXISTING FINISHES, SYSTEMS AND ALL RELATED ITEMS.
- E. SOUND INSULATE ALL RESTROOM WALLS.
- F. THE HINGE SIDE OF ALL DOOR FRAMES SHALL BE MOUNTED 4" FROM ADJACENT PERPENDICULAR WALL UNLESS OTHERWISE NOTED.
- G. CONTRACTOR SHALL FIELD MEASURE ALL AREAS TO RECEIVE MILLWORK PRIOR TO FABRICATION OF MILLWORK.
- H. REPLACE CONCRETE SLAB WHERE SAW-CUT AND REMOVED FOR INSTALLATION OF PLUMBING. SEE DEMOLITION PLAN FOR EXTENT.

SHEET NOTES:

1. FILL IN WALL OPENING AND FINISH TO MATCH ADJACENT.
2. MILLWORK, RE: SHEET A61.
3. MICROWAVE OVEN, PROVIDED AND INSTALLED BY ITD. CONTRACTOR TO PROVIDE ELECTRICAL. SEE ELECTRICAL FOR ADDITIONAL INFORMATION.
4. COFFEE MAKER, PROVIDED AND INSTALLED BY ITD. CONTRACTOR TO PROVIDE ELECTRICAL. SEE ELECTRICAL FOR MORE INFORMATION.
5. WORK STATION, TYPICAL. PROVIDED AND INSTALLED BY ITD.
6. REFRIGERATOR, PROVIDED AND INSTALLED BY ITD. CONTRACTOR TO PROVIDE POWER AND WATER FOR ICE MAKER. SEE PLUMBING AND ELECTRICAL FOR ADDITIONAL INFORMATION.
7. TABLE AND CHAIRS, PROVIDED AND INSTALLED BY ITD.
8. VIDEO MONITOR, PROVIDED AND INSTALLED BY ITD. CONTRACTOR TO PROVIDE A/V AND POWER.
9. CONFERENCE TABLE AND CHAIRS, PROVIDED AND INSTALLED BY ITD.
10. COUNTER TOP, RE: A61-5.
11. COPY MACHINE, PROVIDED AND INSTALLED BY ITD. CONTRACTOR TO PROVIDE POWER AND DATA CONNECTION. SEE ELECTRICAL FOR MORE INFORMATION.
12. LOCKERS, PROVIDED AND INSTALLED BY ITD.
13. EXISTING STAIRS TO REMAIN.
14. INSTALL NEW ANTI-SLIP STAIR TREADS ON EXISTING STAIRS. COLOR: DARK GRAY.
15. EXISTING HANDRAIL. REPAINT EXISTING COLOR.
16. FIRE EXTINGUISHER, PROVIDED AND INSTALLED BY ITD.
17. RELOCATED FIRE EXTINGUISHER AND WALL MARKING.
18. RELOCATED EYE WASH. SEE PLUMBING FOR ADDITIONAL INFORMATION.
19. WORK STATION, PROVIDED AND INSTALLED BY ITD.
20. CHAIR, PROVIDED BY ITD.
21. MOP SINK. SEE PLUMBING FOR ADDITIONAL INFORMATION.
22. 2x4 FURRING AT MEZZANINE PERIMETER WALLS.
23. CLEAN EXISTING SHOP CONCRETE SLAB AND SEAL WITH SIKAGARD 705L.
24. 4" HIGH HOUSEKEEPING PAD UNDER WATER HEATER AND PRESSURE TANK.
25. HVAC UNIT. SEE MECHANICAL.
26. NEW STRUCTURAL COLUMN ON RAISED CONCRETE STEM WALL. SEE STRUCTURAL. PAINT COLUMN TO MATCH EXISTING.
27. 2x6 STUD WALL.
28. 2x4 FURRING AT OPEN OFFICE EXTERIOR WALLS.
29. RELOCATED AIR COMPRESSOR. CONNECT TO EXISTING AIR LINE(S). VERIFY EXACT LOCATION WITH OWNER.
30. RELOCATED HOSE REELS AND SUPPORTS. VERIFY EXACT LOCATION WITH OWNER.
31. RELOCATED VEHICLE EXHAUST FAN. VERIFY EXACT LOCATION WITH OWNER.
32. 2x6 FURRING TO ACCOMMODATE RECESSED ELECTRICAL PANEL. COORDINATE WITH ELECTRICAL.



1 FIRST FLOOR PLAN
SCALE 1/8" = 1'-0"



2 MEZZANINE FLOOR PLAN
SCALE 1/8" = 1'-0"

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ORIGINAL DOCUMENT SIGNED BY ARCHITECT WITH THE OWNER
ORIGINAL DATE SIGNED: FEBRUARY 24, 2023
ORIGINAL DATE SIGNED: FEBRUARY 24, 2023
ORIGINAL DATE SIGNED: FEBRUARY 24, 2023

ITD MAINTENANCE BLDG. IMPROVEMENTS
CALDWELL, IDAHO
15430 HIGHWAY 44
CSHQA

PROJECT: 22123.00 DATE: 1/20/23
DRAWN: LGB CHECKED: JAM
REVISED: 2/24/23 ADDENDUM ONE

SHEET TITLE: FLOOR PLANS

SHEET: A21

ORIGINAL SHEET SIZE: 30" x 42"

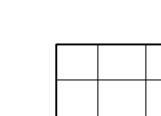
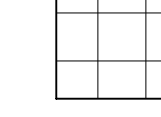



1 ROOF PLAN
SCALE 1/8" = 1'-0"

2 FIRST FLOOR REFLECTED CEILING PLAN
SCALE 1/8" = 1'-0"

3 MEZZANINE REFLECTED CEILING PLAN
SCALE 1/8" = 1'-0"

LEGEND:

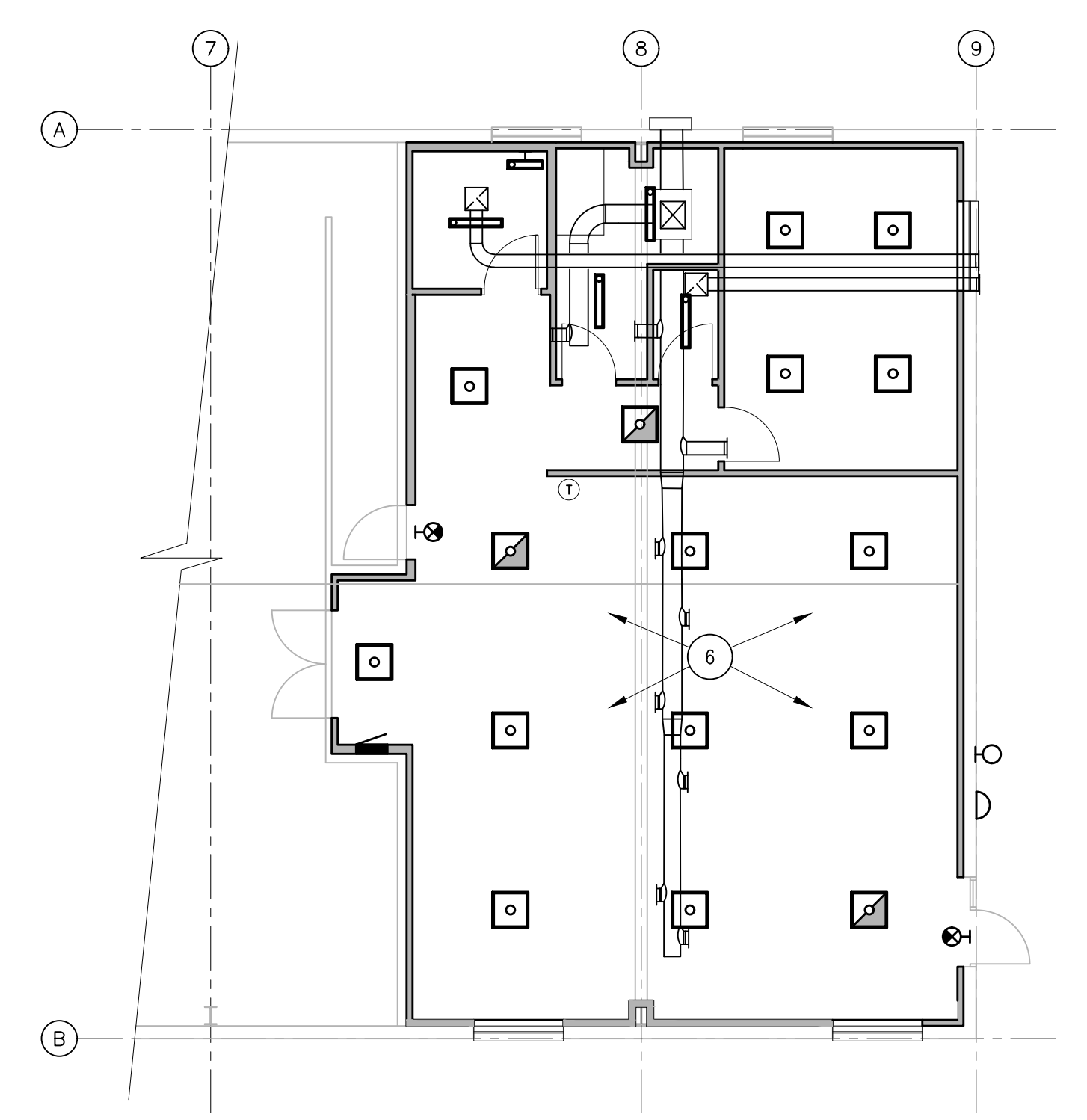
-  SUSPENDED 2'-2" TILE CEILING - HEIGHT TO MATCH EXISTING CYP. BD. CEILING (8'-0"+/-)
-  MFG: ARMSTRONG
TILE: CORTEGA
COLOR: WHITE
RE: A71-13
-  GYP. BD. CEILING - HEIGHT TO MATCH EXISTING CYP. BD. CEILING (8'-0"+/-)

GENERAL NOTES:

- A. FOR MECHANICAL EQUIPMENT/WORK SEE MECHANICAL PLANS.
- B. FOR ELECTRICAL FIXTURES/WORK SEE ELECTRICAL PLANS.
- C. NO PLUMBING VENTS OR EXHAUST UNITS WITHIN 10'-0" OF INTAKE OR 10'-0" OF EXTERIOR WALL.

SHEET NOTES:

1. EXISTING ROOFING TO BE REPLACED WITH NEW PREFINISHED STANDING SEAM METAL ROOFING. COLOR TO BE SELECTED BY OWNER. COORDINATE WITH STRUCTURAL FOR NEW ROOF DECKING.
2. NEW PREFINISHED STANDING SEAM METAL ROOFING. COLOR TO BE SELECTED BY OWNER.
3. EXISTING AWNING TO REMAIN. PAINT. COLOR TO BE SELECTED BY OWNER.
4. EXISTING RIGID BOARD INSULATION AT UNDERSIDE OF ROOF FRAMING TO REMAIN IN SHOP AREA.
5. NEW RIGID BOARD INSULATION AT UNDERSIDE OF ROOF FRAMING AT SHOP AREA ADDITION.
6. EXISTING RIGID BOARD INSULATION AT UNDERSIDE OF ROOF FRAMING TO REMAIN IN MEZZANINE AREA. PAINT. (NO NEW CEILING IN MEZZANINE)
7. EXISTING CYP. BD. CEILING UNDER MEZZANINE FLOOR FRAMING TO REMAIN (HT.: 8'-0"+/-). PATCH/REPAIR AS NEEDED. PAINT. COLOR PER SCHEDULE.
8. EXISTING ROOF VENT. PROVIDE NEW ROOFING MATERIAL TO MATCH ROOF BELOW.
9. UNIT HEATER SUSPENDED FROM STRUCTURE. RE: MECHANICAL.
10. EXISTING CRANE TO REMAIN. PROTECT FROM DAMAGE.
11. SOFFIT AT CEILING (HATCHED AREA) FOR DUCT WORK. COORDINATE WITH MECHANICAL.



LICENSED ARCHITECT
ARCHITECT SIGNATURE
OWNER
JAMES MARSH ARCHITECT
ORIGINAL DATE SIGNED: FEBRUARY 24, 2023
STATE OF IDAHO

JAMES MARSH ARCHITECT
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ITD MAINTENANCE BLDG. IMPROVEMENTS
CALDWELL, IDAHO
15430 HIGHWAY 44
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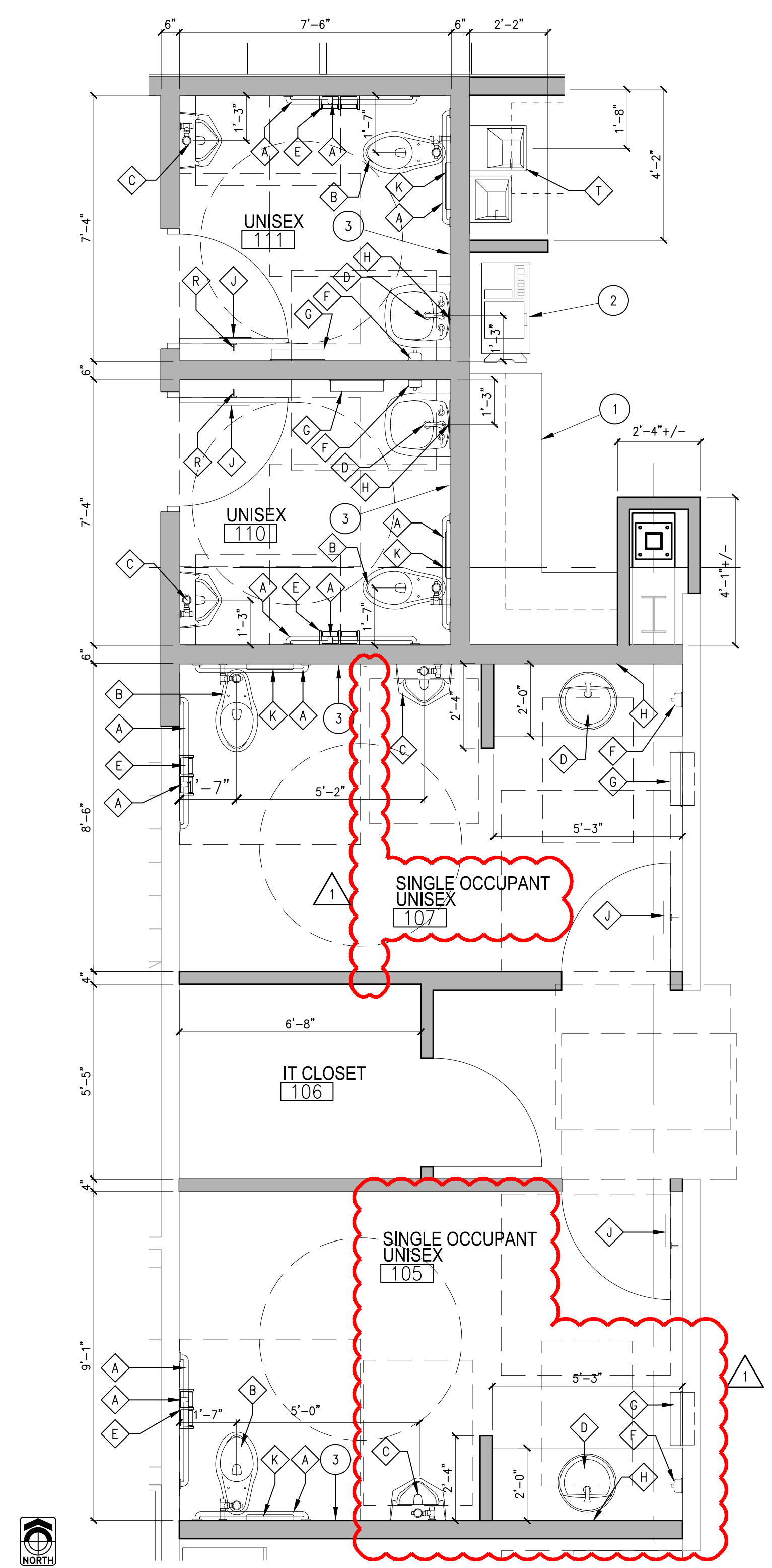
PROJECT: 22123.00
DATE: 1/20/23
DRAWN: LGB
CHECKED: JAM

REVISED:
1 2/24/23
ADDENDUM ONE

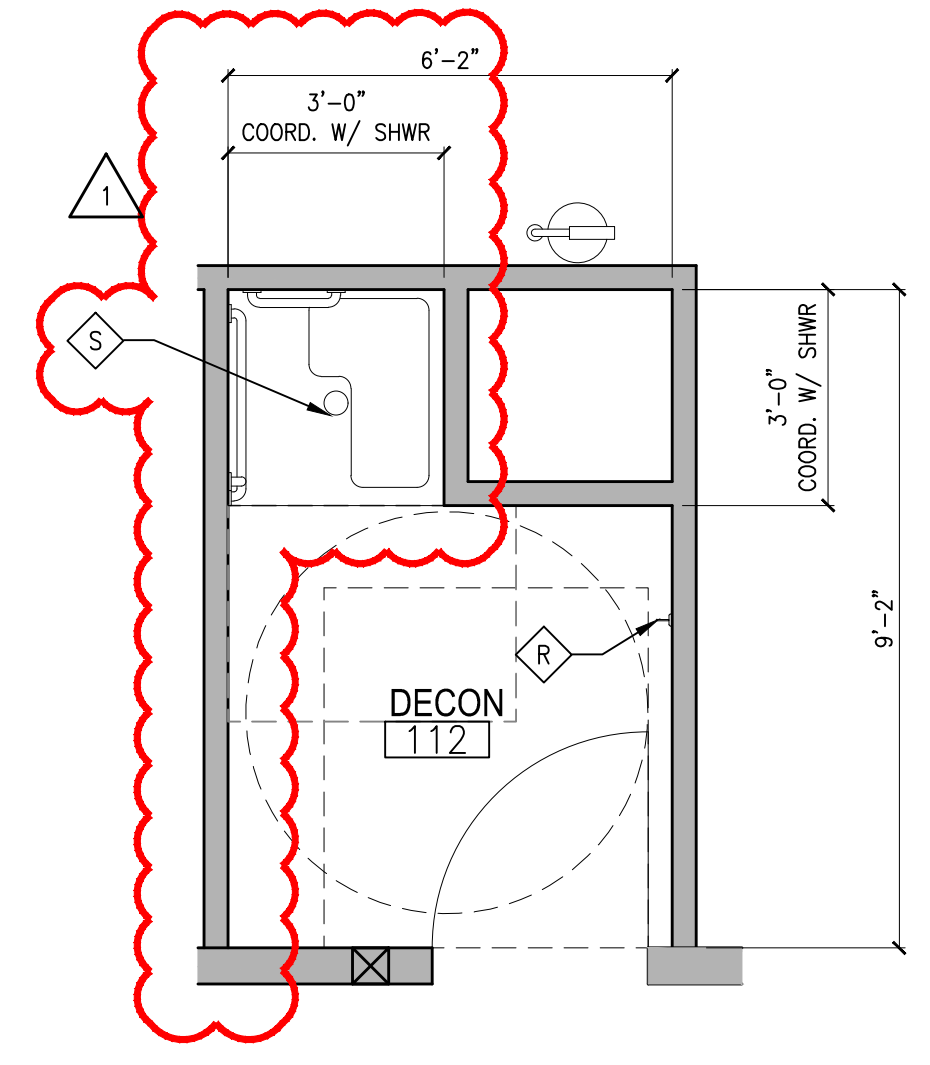
SHEET TITLE:
ROOF AND REFLECTED CEILING PLANS

SHEET:
A31

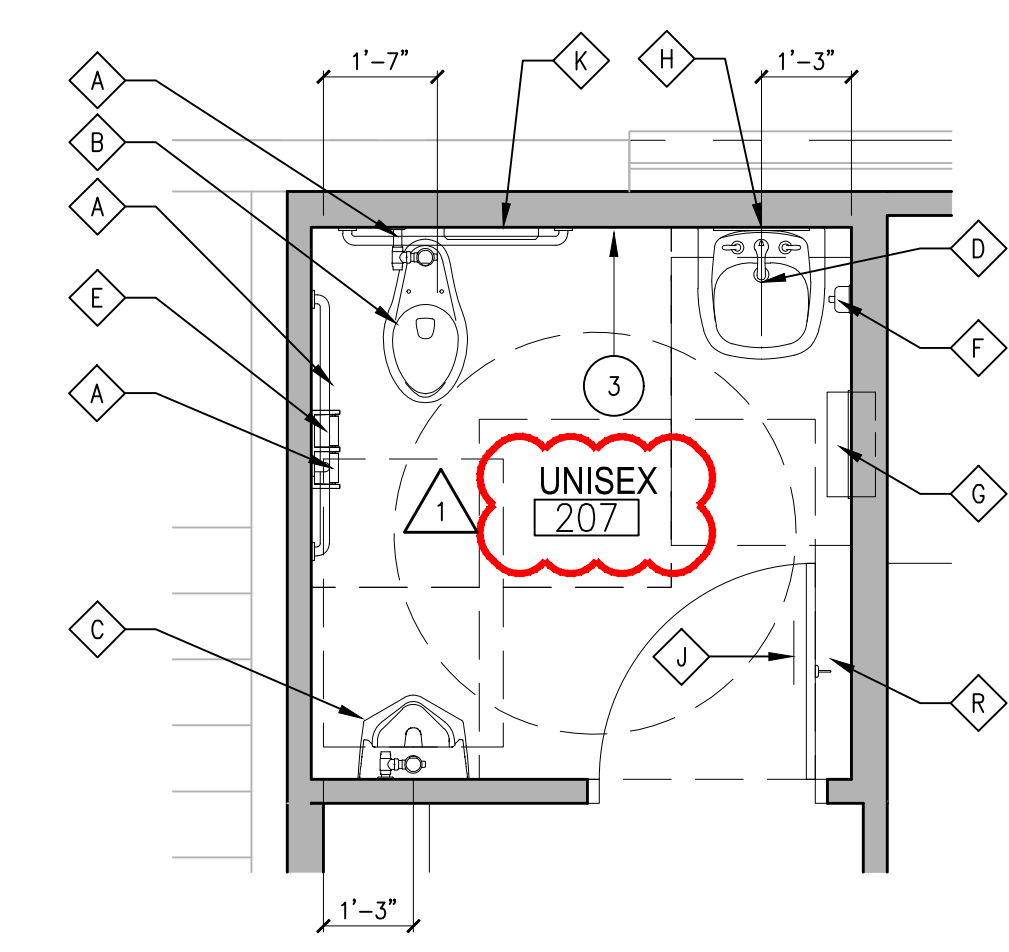
ORIGINAL SHEET SIZE:
30" x 42"



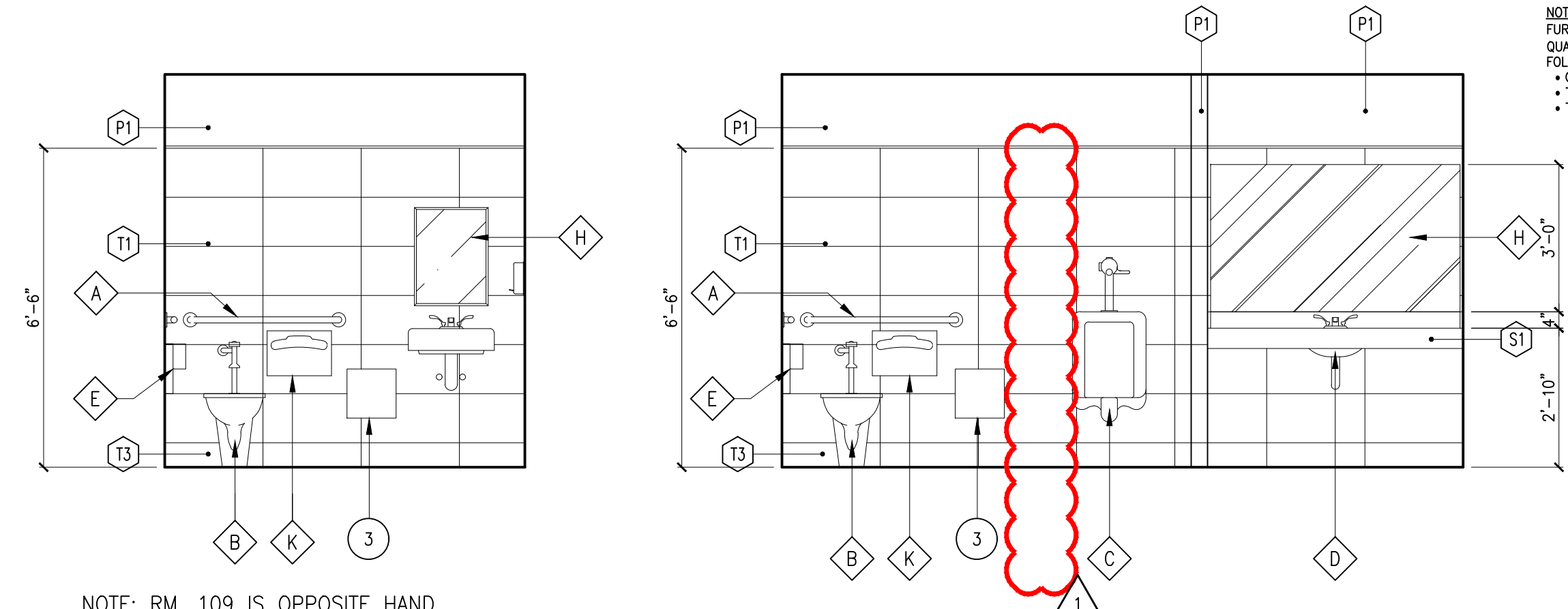
1 LG. SCALE RESTROOM PLAN
SCALE 3/8" = 1'-0"



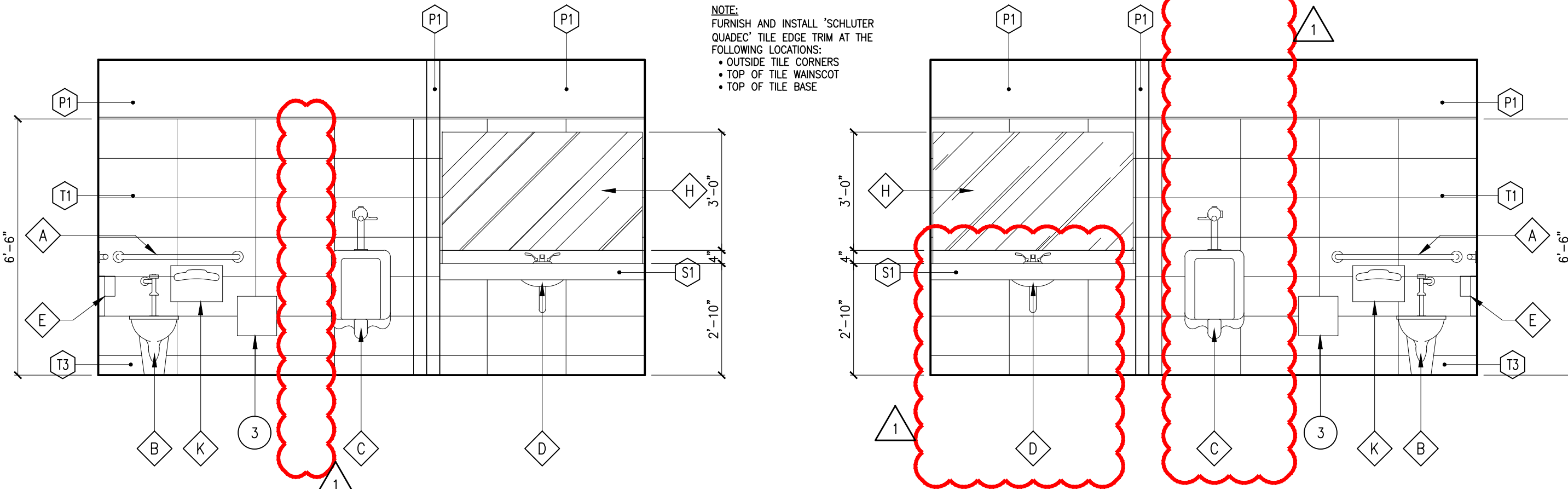
2 LG. SCALE DECON RM. PLAN
SCALE 3/8" = 1'-0"



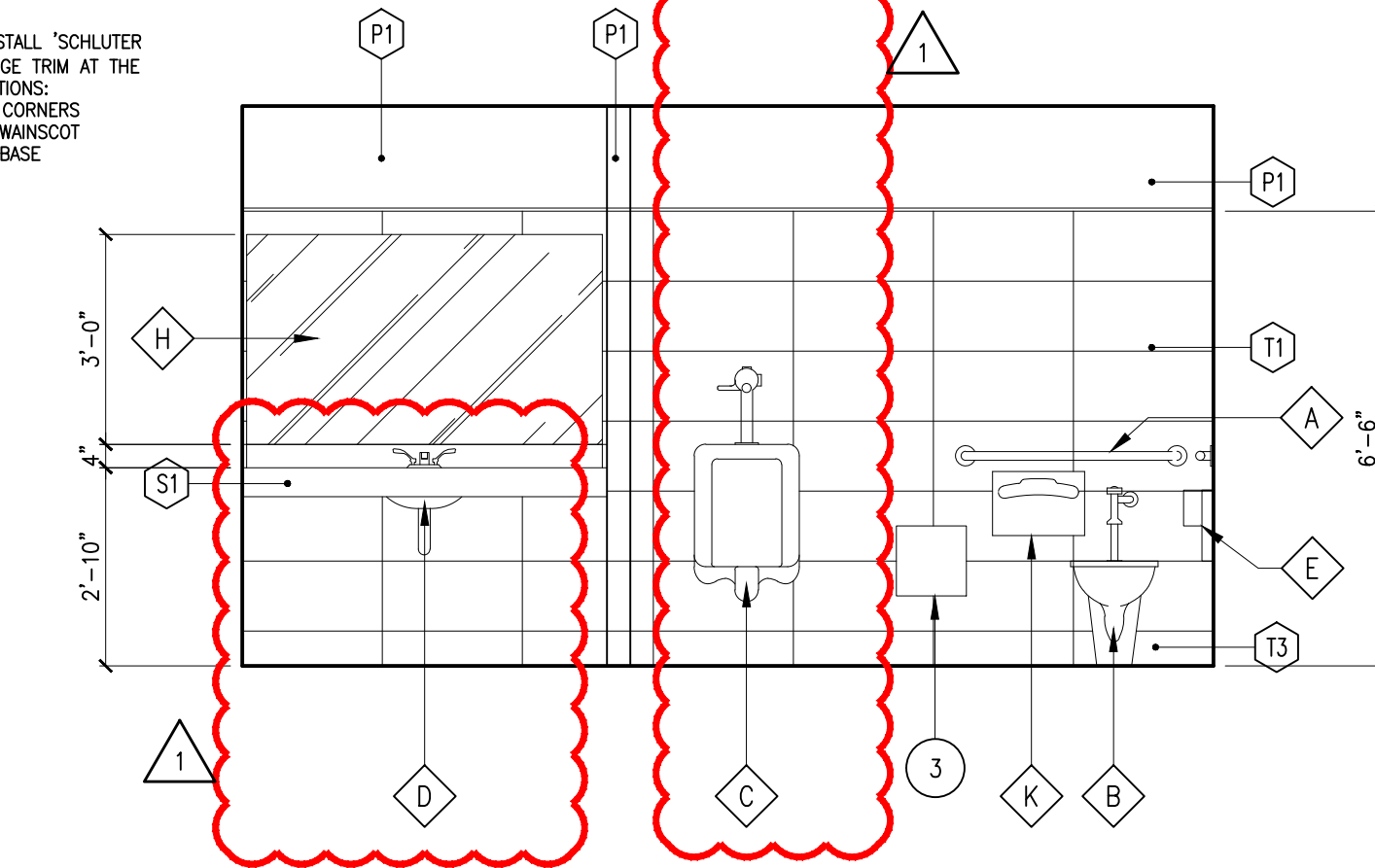
3 LG. SCALE RESTROOM PLAN
SCALE 3/8" = 1'-0"



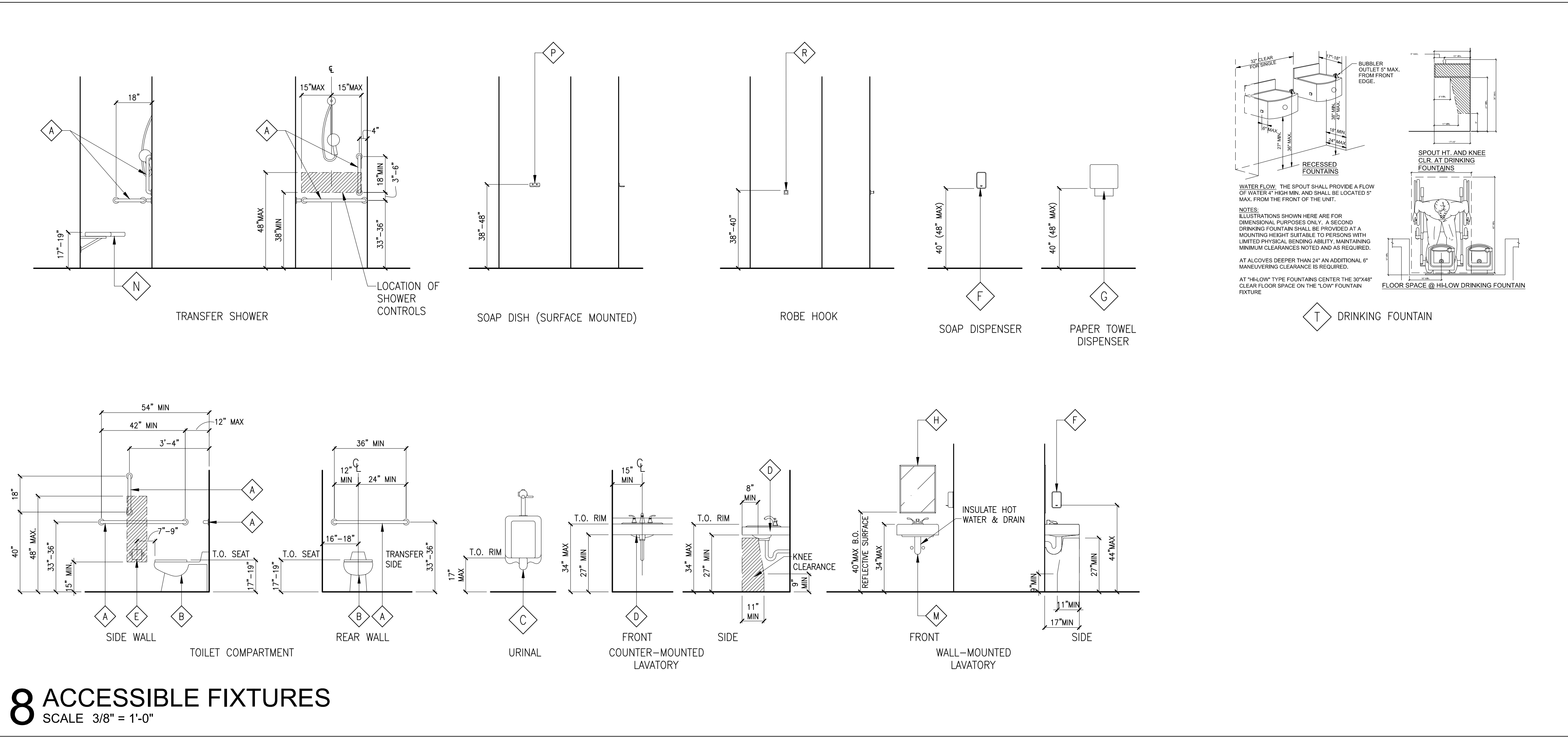
4 RESTROOMS 109, 110 & 206
SCALE 3/8" = 1'-0"



5 RESTROOM 107
SCALE 3/8" = 1'-0"



6 RESTROOM 105
SCALE 3/8" = 1'-0"



8 ACCESSIBLE FIXTURES
SCALE 3/8" = 1'-0"

SHEET NOTES:

- MILLWORK, RE: A6.1
- PHOTOCOPIER, PROVIDED AND INSTALLED BY ITD.
- 12"x12" ACCESS PANEL. COORDINATE LOCATION WITH PLUMBING.

FIXTURES/ACCESSORIES

A	GRAB BAR, RE: SPECS
B	TOILET, RE: PLUMBING
C	URINAL, RE: PLUMBING
D	SINK, RE: PLUMBING
E	TOILET PAPER DISPENSER: EQUAL TO ULINE H-1127 SINGLE ROLL JUMBO BATH TISSUE DISPENSER
F	SOAP DISPENSER: EQUAL TO ULINE H-3415BL
G	PAPER TOWEL DISPENSER: EQUAL TO KIMBERLY-CLARK H-2272 8" HANDS-FREE DISPENSER
H	MIRROR, RE: SPECS
J	ADA-COMPLIANT RESTROOM SIGN. MOUNT SO THAT SIGN IS CENTERED ON DOOR AND 60" ABOVE FLOOR TO CENTER OF SIGN.
K	TOILET SEAT COVER DISPENSER, RE: SPECS
L	NOT USED
M	WALL-MOUNTED LAVATORY, RE: PLUMBING
N	SHOWER SEAT (FOLDING OR NON-FOLDING)
P	SOAP DISH (SURFACE MOUNTED)
R	ROBE HOOK
S	TRANSFER SHOWER
T	DRINKING FOUNTAIN

ITD MAINTENANCE BLDG. IMPROVEMENTS
CALDWELL, IDAHO
15430 HIGHWAY 44

CSHQA

PROJECT: 22123.00 DATE: 1/20/23
DRAWN: LGB CHECKED: JAM
REVISION: 1 2/24/23 ADDENDUM ONE

SHEET TITLE: RESTROOM PLANS
SHEET: A41
ORIGINAL SHEET SIZE: 30" x 42"

LICENSED ARCHITECT: JAMES MARSH ARCHITECT
200 BROAD STREET, BOISE, ID 83702
PHONE: 208-343-4635 FAX: 208-343-1858
WWW.CSHQA.COM

ORIGINAL DOCUMENT SIGNED BY ARCHITECT: JAMES MARSH ARCHITECT
ORIGINAL DATE SIGNED: FEBRUARY 24, 2023

PHOTOCOPIER, PROVIDED AND INSTALLED BY ITD.

SHEET NOTES:

1. REPLACE EXISTING ROOFING WITH NEW PREFINISHED STANDING SEAM METAL ROOFING. COLOR TO BE SELECTED BY OWNER.
2. NEW PREFINISHED STANDING SEAM METAL ROOFING AT ADDITION. COLOR TO BE SELECTED BY OWNER.
3. EXISTING RAIN GUTTER AND DOWNSPOUTS. PAINT. COLOR TO BE SELECTED BY OWNER.
4. EXISTING OVERHEAD DOORS. PAINT TO MATCH EXISTING.
5. EXISTING AWNING. PAINT. COLOR TO BE SELECTED BY OWNER.
6. EXISTING METAL SIDING. PAINT. COLOR TO BE SELECTED BY OWNER.
7. EXISTING CONCRETE STEM WALL.
8. EXISTING STAIRS. PAINT TO MATCH EXISTING COLOR.
9. NEW PREFINISHED RIBBED METAL SIDING AT ADDITION. COLOR TO BE SELECTED BY OWNER.
10. NEW CONCRETE STEM WALL AT ADDITION. PROVIDE SACK CONCRETE FINISH.
11. REPLACE EXISTING WINDOW WITH NEW.
12. EXISTING DOOR. PAINT. COLOR TO BE SELECTED BY OWNER.
13. NEW COLUMN. PAINT. COLOR TO BE SELECTED BY OWNER.
14. MECHANICAL LOUVER. PAINT TO MATCH ADJACENT SURFACE.

ORIGINAL DOCUMENT SIGNED BY ARCHITECT ON FILE WITH THE OWNER
 ORIGINAL DATE SIGNED: JANUARY 19, 2023
 JAMES MARSH ARCHITECT
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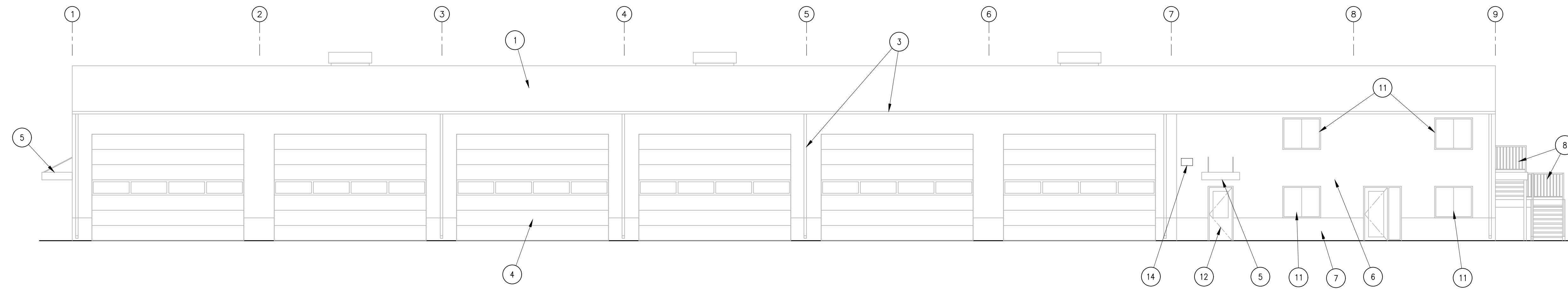
PROJECT	DATE
22123.00	1/20/23
DRAWN	CHECKED
LGB	JAM

REVISED

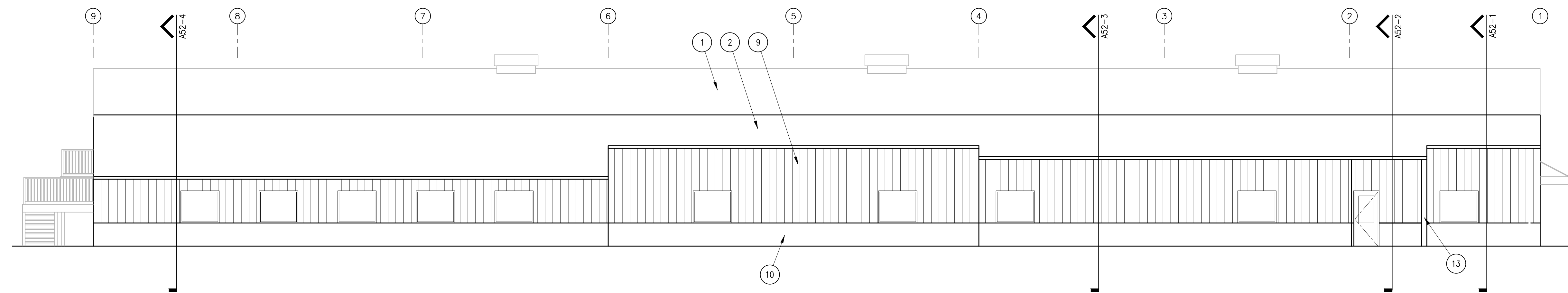
SHEET TITLE
 EXTERIOR ELEVATIONS

SHEET
 A51

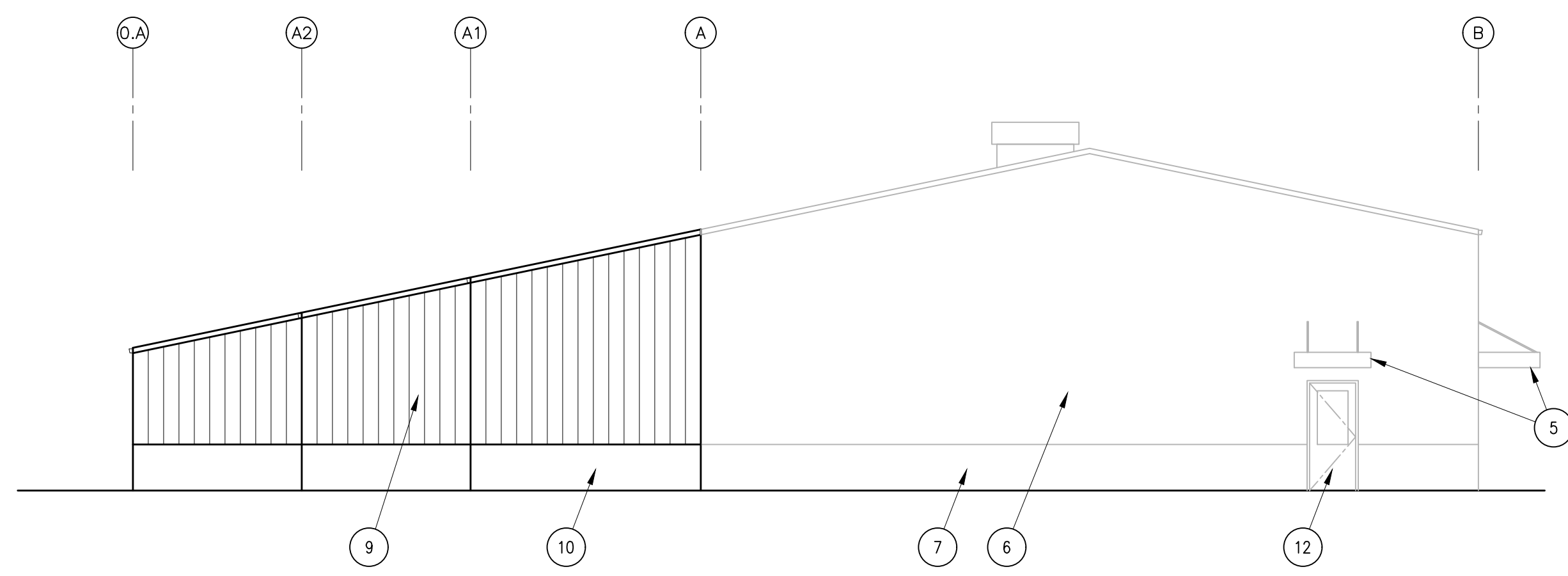
ORIGINAL SHEET SIZE
 30" x 42"



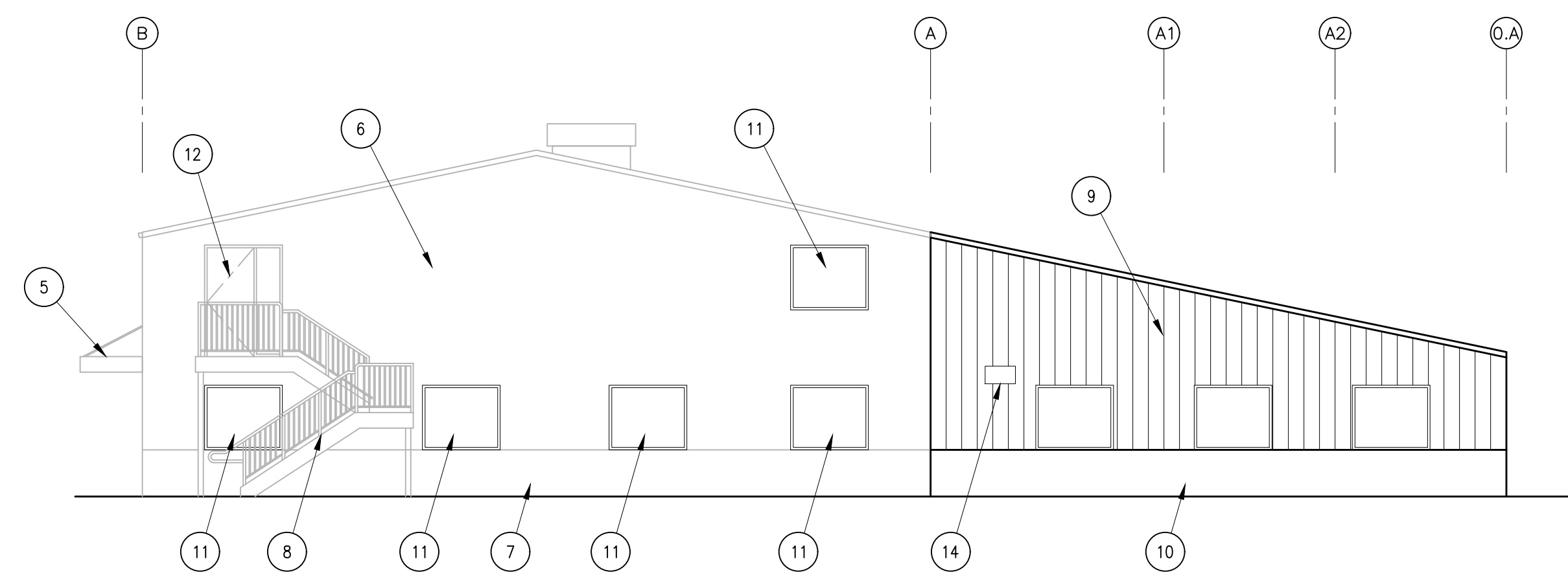
1 SOUTH ELEVATION
 SCALE 1/8" = 1'-0"



2 NORTH ELEVATION
 SCALE 1/8" = 1'-0"



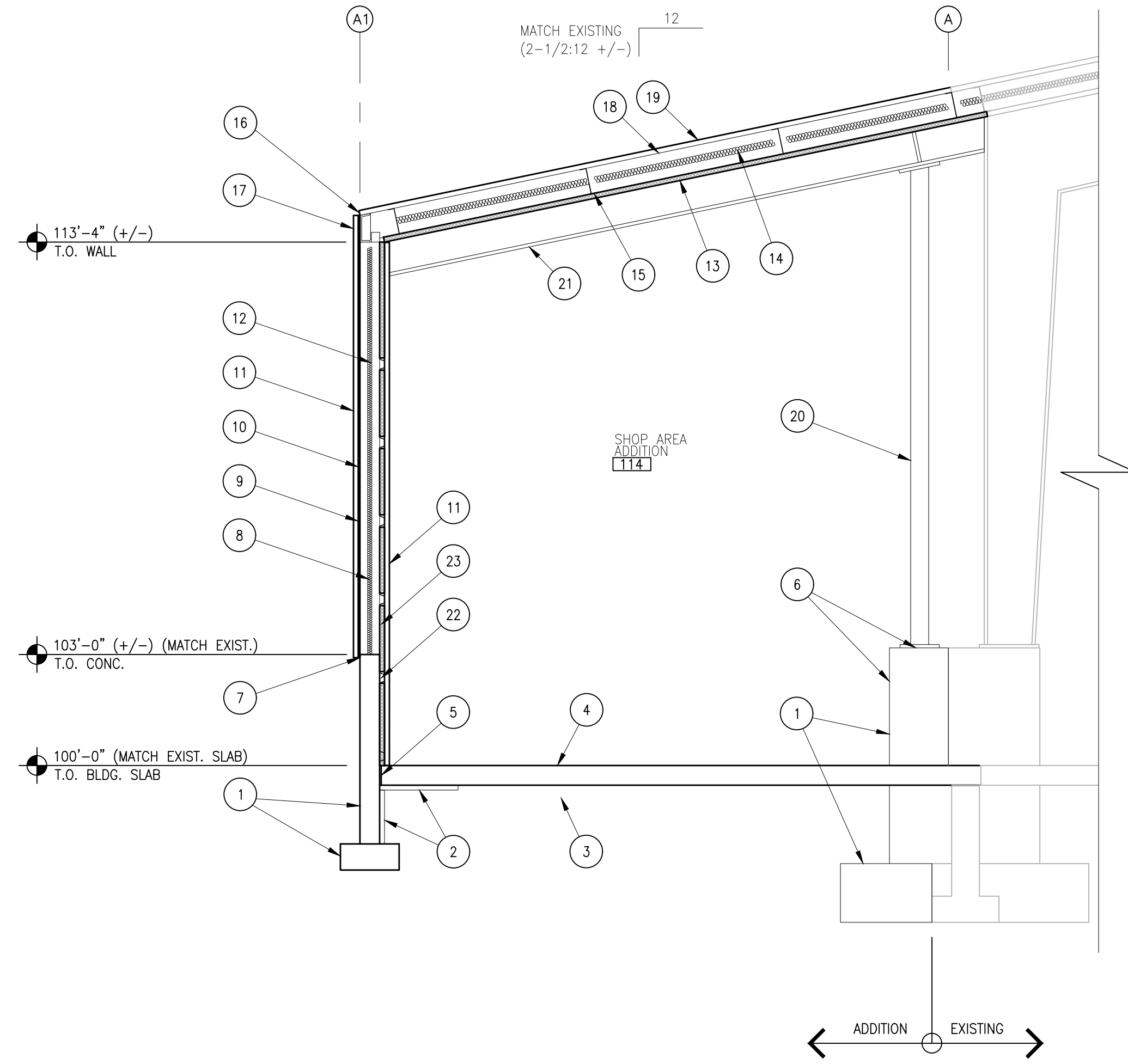
3 WEST ELEVATION
 SCALE 1/8" = 1'-0"



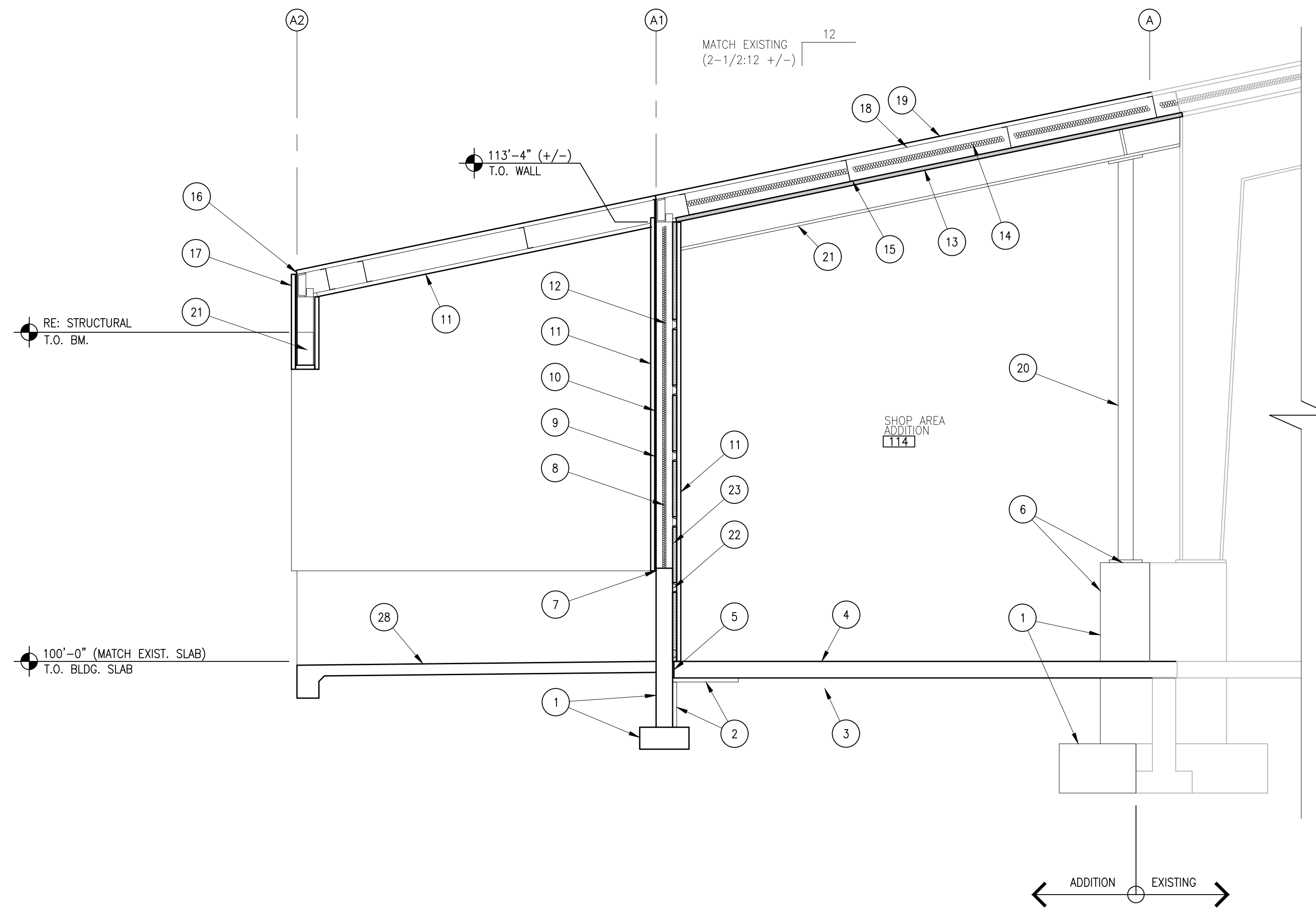
4 EAST ELEVATION
 SCALE 1/8" = 1'-0"

SHEET NOTES:

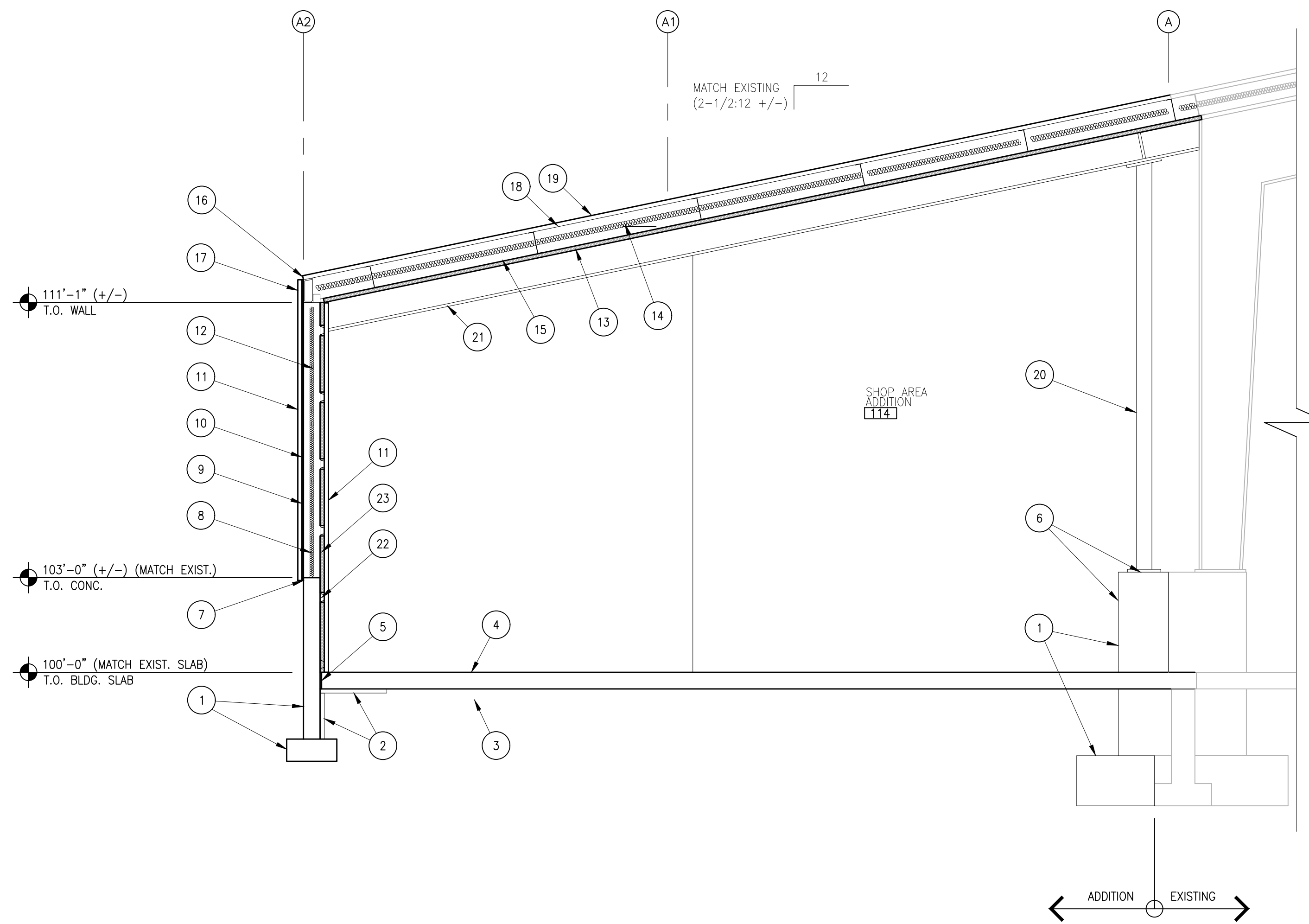
1. CONCRETE FOOTING AND STEM WALL, RE: STRUCTURAL
2. 1-1/2" PERIMETER INSULATION (R=5) AT ALL EXTERIOR LOCATIONS.
3. COMPACTED EARTH/GRAVEL PER GEOTECH REPORT AND STRUCTURAL.
4. CONCRETE SLAB, RE: STRUCTURAL.
5. 1/2" EXPANSION (TYPICAL)
6. CHAMFER ALL EXPOSED CONCRETE EDGES (TYPICAL)
7. INTERIOR CLOSURE. EXTEND SIDING BLOW T.O. STEM WALL MIN. 1.5".
8. METAL STUDS, RE: STRUCTURAL
9. STRUCTURAL SHEATHING, RE: STRUCTURAL
10. MOISTURE/VAPOR BARRIER
11. 24 GA. RIBBED METAL WALL PANELS
12. FULL INSULATION BETWEEN INNER AND EXTERIOR WALL SHEATHING (R=19)
13. RIGID INSULATION BD. (R=5) ATTACHED TO PURLINS
14. BATT INSULATION (R=38)
15. METAL PURLINS, RE: STRUCTURAL
16. INTERIOR CLOSURE
17. FACIA CAP CLOSURE (MATCH EXISTING)
18. METAL DECKING, RE: STRUCTURAL
19. STANDING SEAM METAL ROOF PANELS OVER MOISTURE BARRIER OVER COVER BOARD. (TYPICAL AT ENTIRE ROOF)
20. STRUCTURAL COLUMN, RE: STRUCTURAL
21. STRUCTURAL BEAM, RE: STRUCTURAL
22. 1-1/2" METAL FURRING RUNNERS TO CONC. FOUNDATION WALL.
23. 1-1/2" RIGID INSULATION
24. FURRED WALL - 2x4s AT 24" O.C.
25. 5/8" GYP. BD.
26. MOISTURE/VAPOR BARRIER BETWEEN CONCRETE WALL AND WALL FURRING.
27. SUSPENDED TILE CEILING.
28. CONCRETE STOOP, RE: CIVIL.



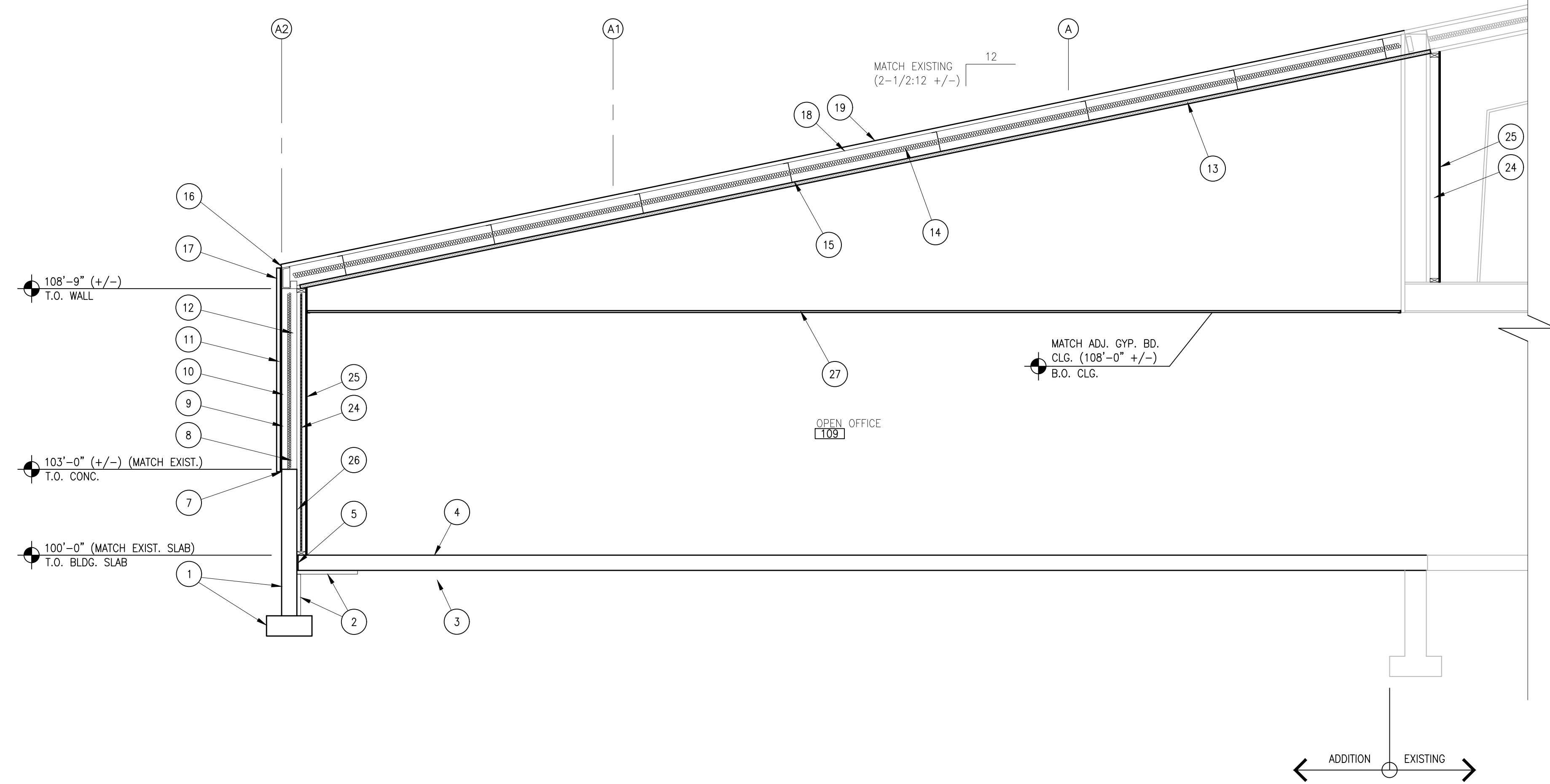
1 WALL SECTION
SCALE 3/8" = 1'-0"



2 WALL SECTION
SCALE 3/8" = 1'-0"



3 WALL SECTION
SCALE 3/8" = 1'-0"



4 WALL SECTION
SCALE 3/8" = 1'-0"

ORIGINAL DOCUMENT ISSUED BY ARCHITECT ON FILE WITH THE OWNER
 JAMES MARSH ARCHITECT
 ORIGINAL DATE SIGNED: JANUARY 19, 2023

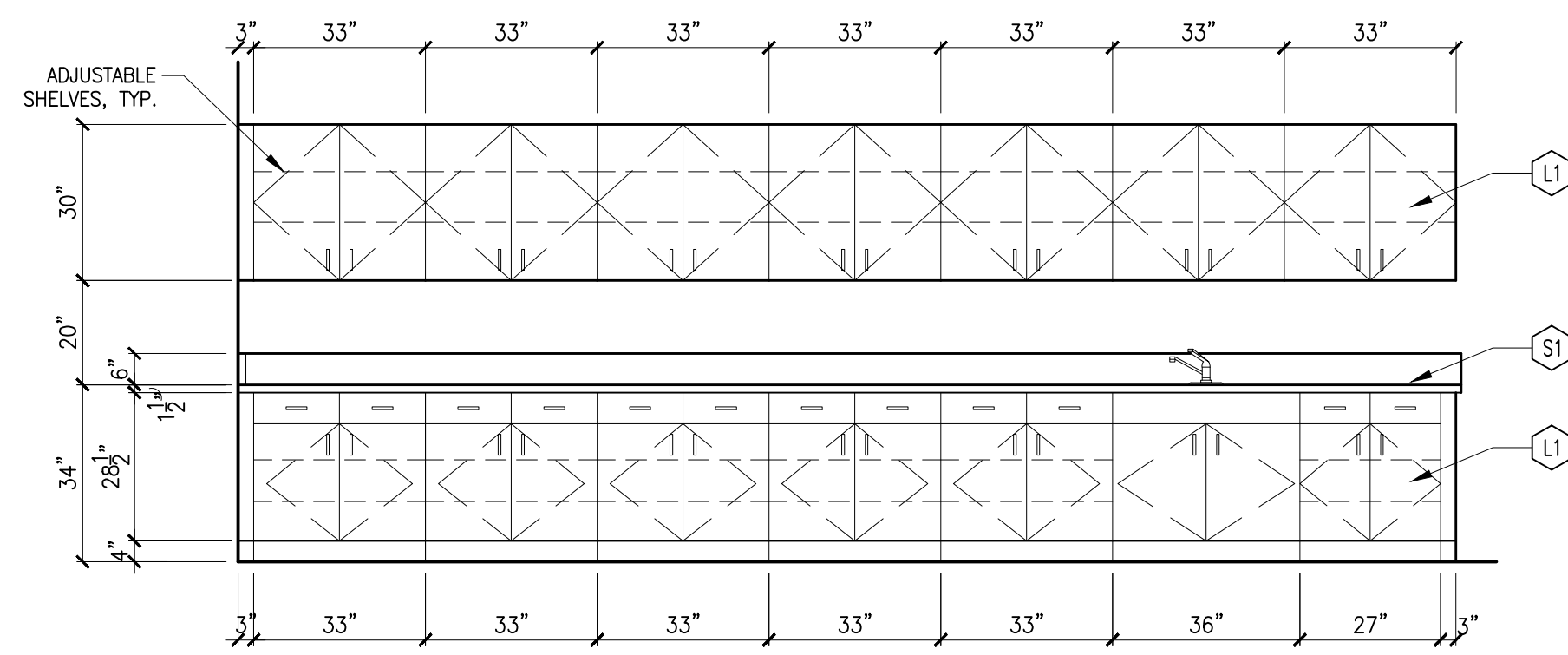
JAMES MARSH ARCHITECT
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 WWW.CSHQA.COM

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 15430 HIGHWAY 44
CSHQAA

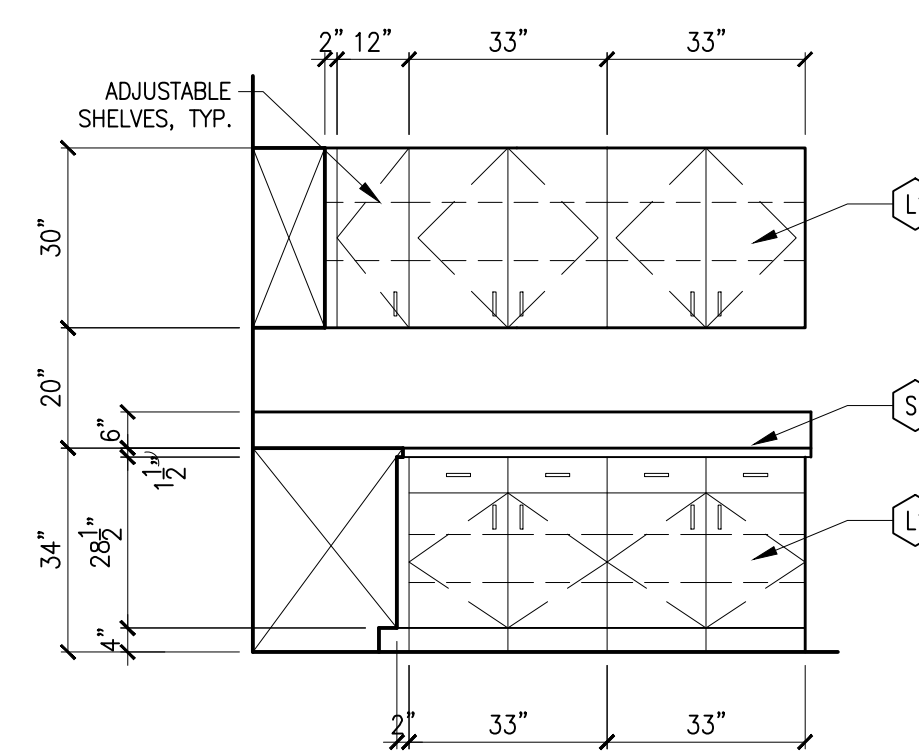
PROJECT: 22123.00 DATE: 1/20/23
 DRAWN: LGB CHECKED: JAM
 REVISED:

SHEET TITLE:
PARTIAL BUILDING SECTIONS

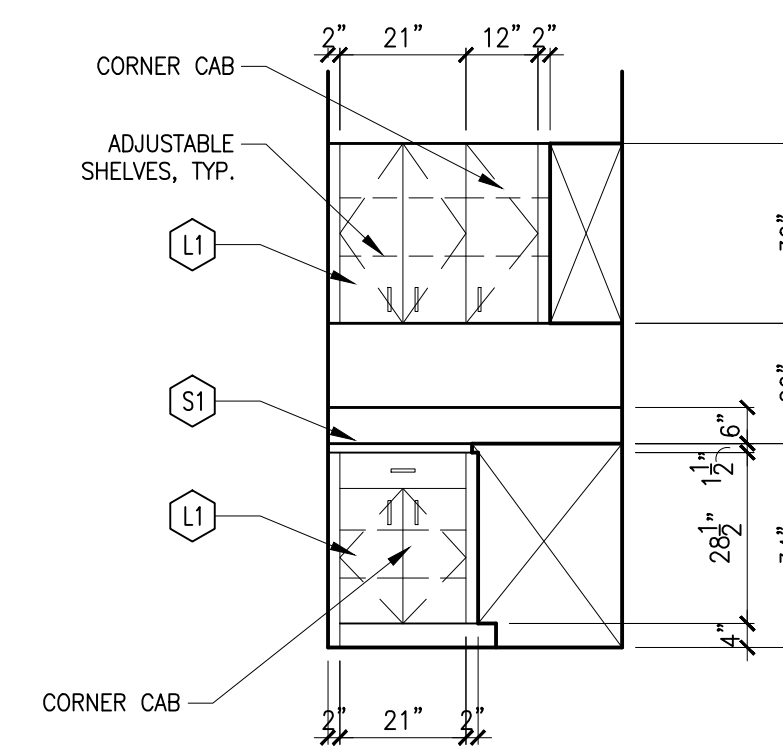
SHEET:
A52
 ORIGINAL SHEET SIZE: 30" x 42"



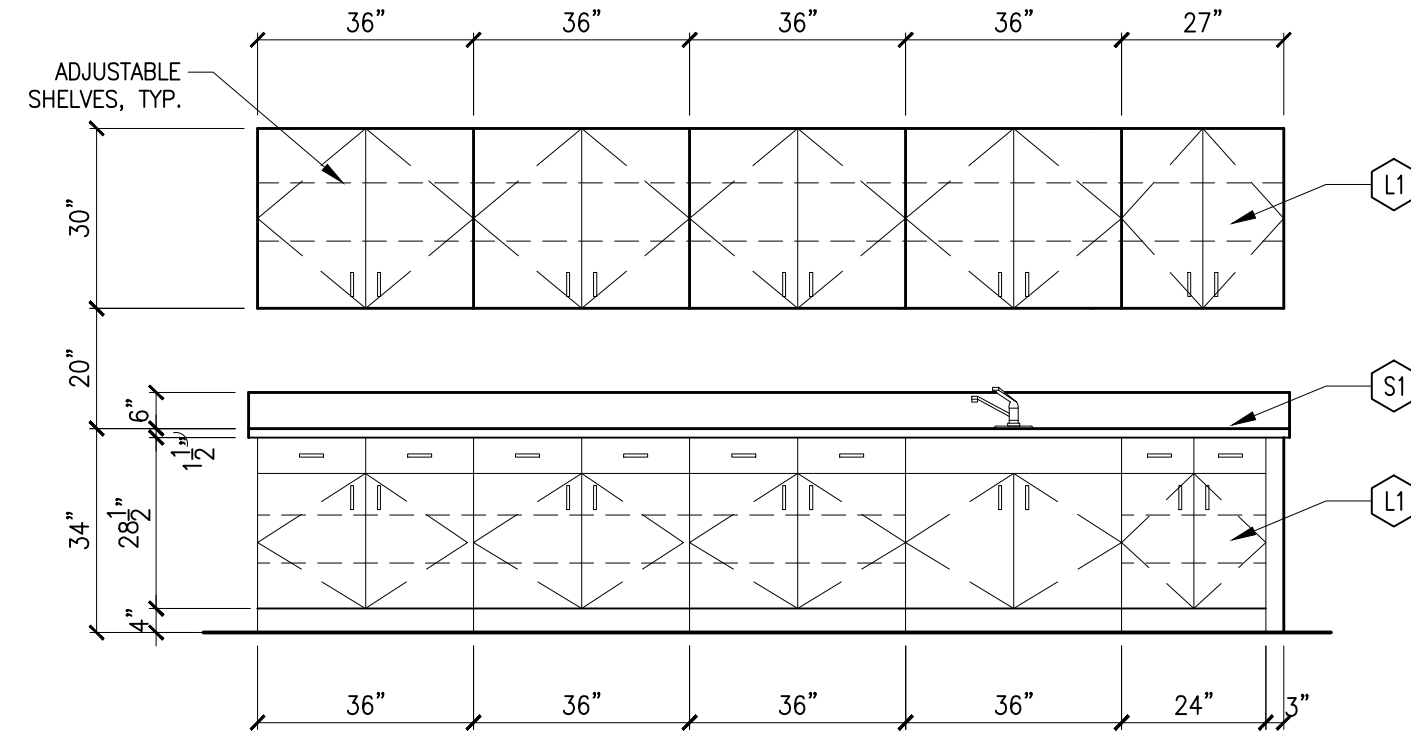
1 BREAK RM. MILLWORK
SCALE 3/8" = 1'-0"



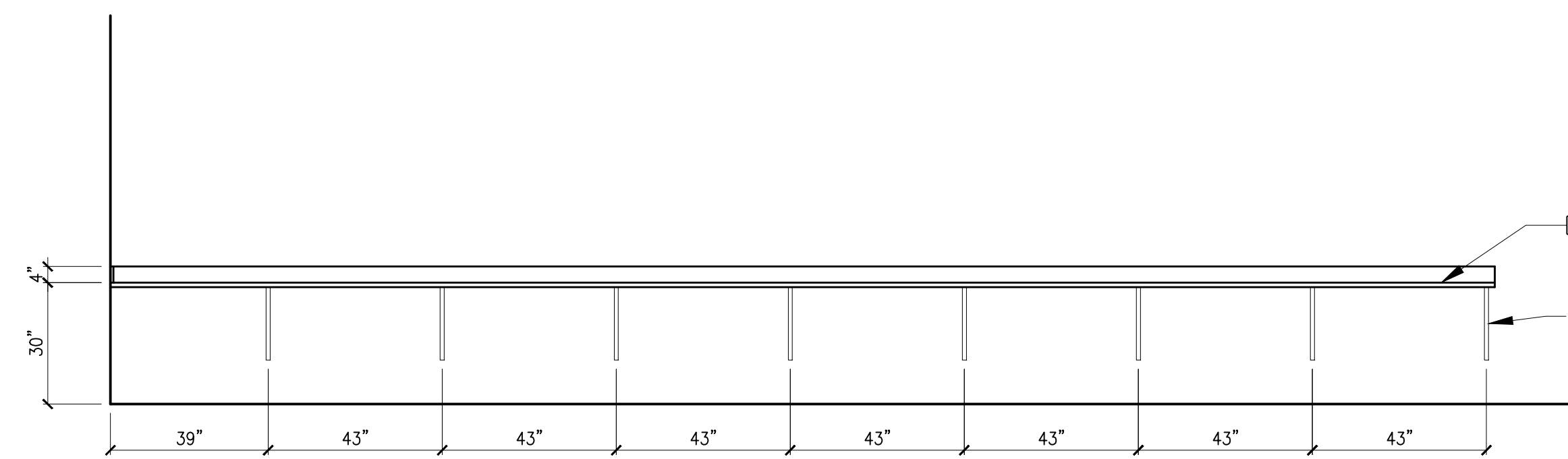
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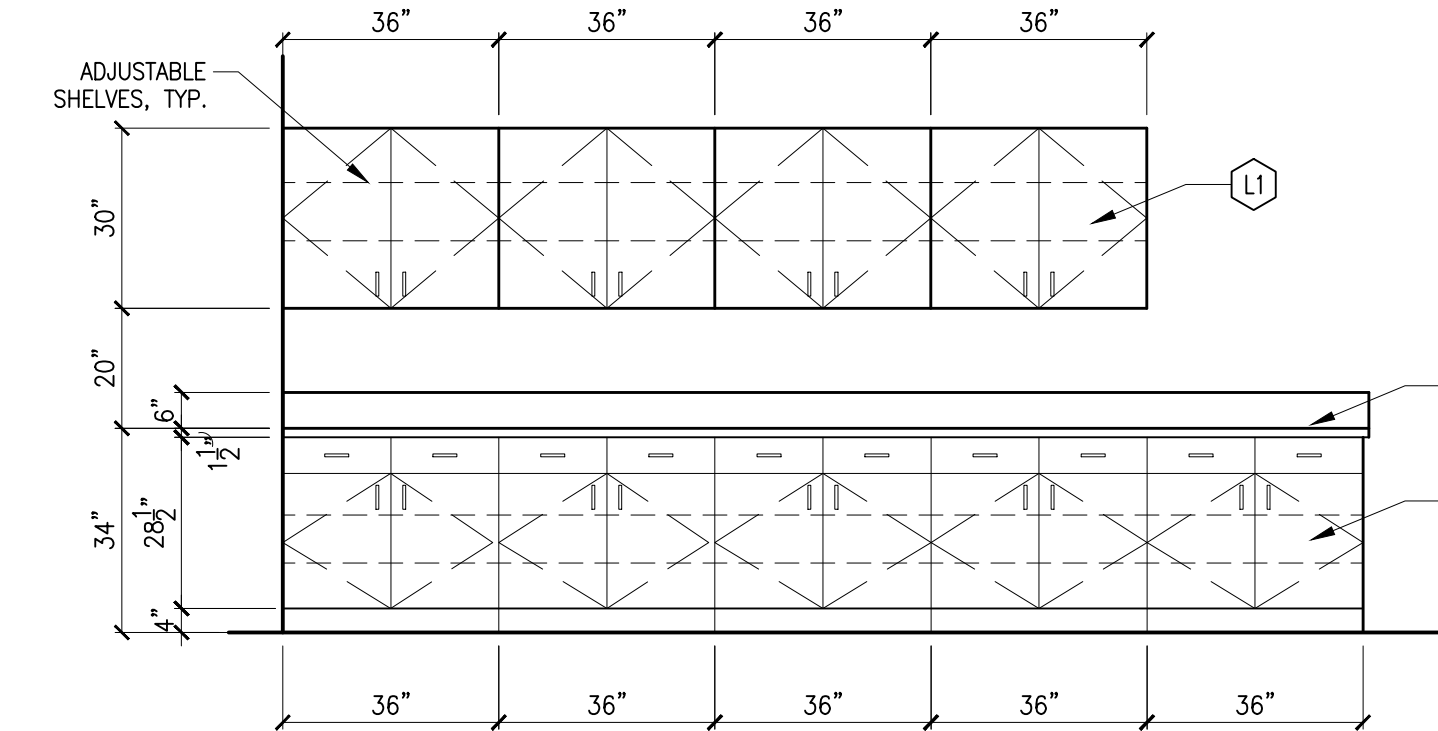
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SCALE 3/8" = 1'-0"



4 BREAK RM. 202 MILLWORK
SCALE 3/8" = 1'-0"

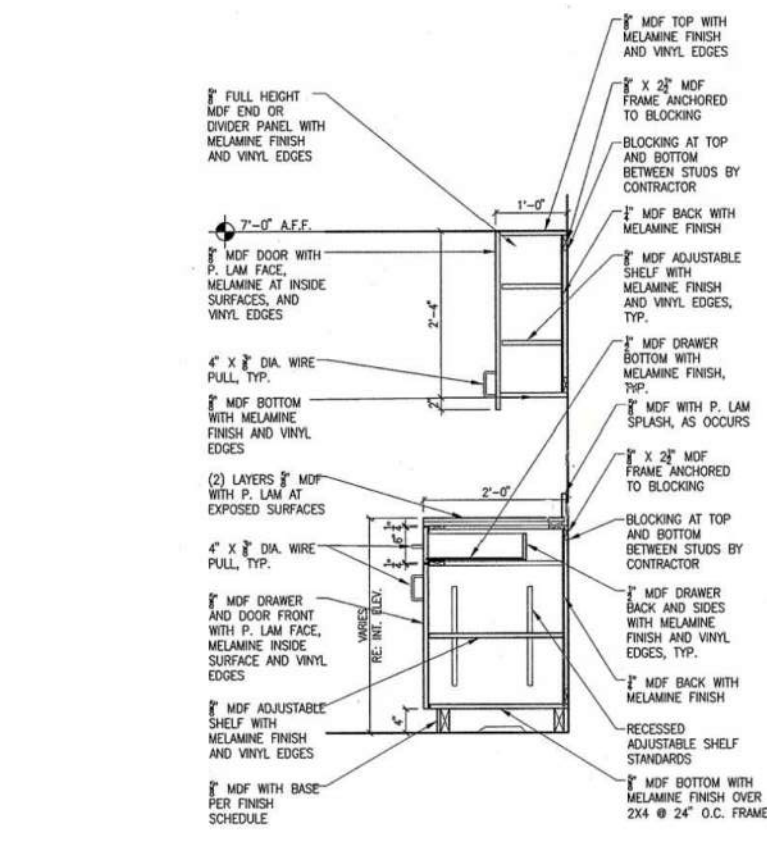


5 WORK COUNTER 201 MILLWORK
SCALE 3/8" = 1'-0"

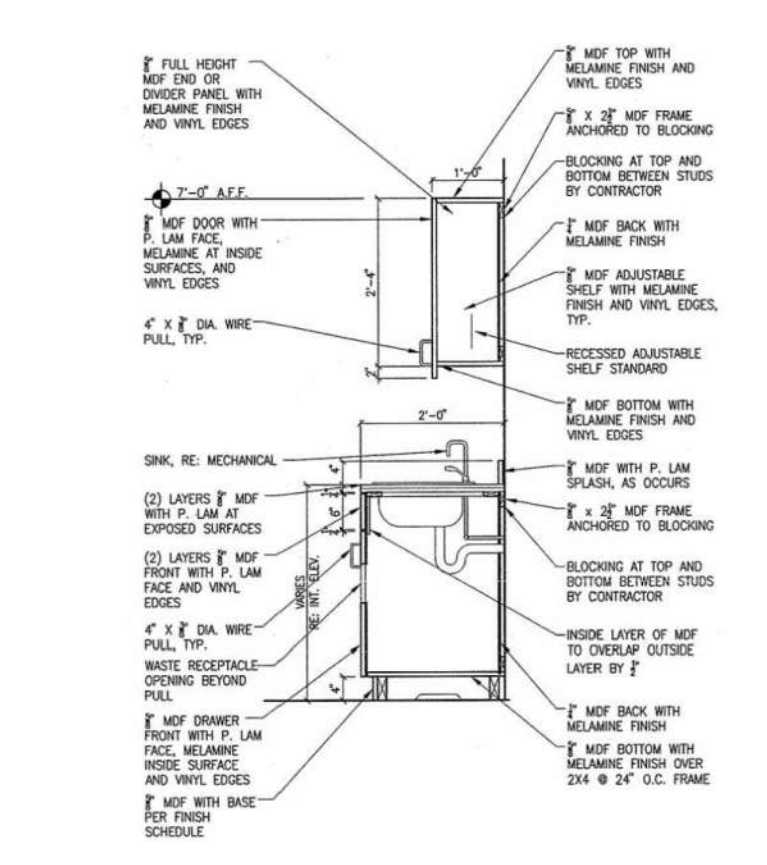


6 WORKSPACE 201 MILLWORK
SCALE 3/8" = 1'-0"

SCHEDULE OF INTERIOR MATERIALS AND FINISHES														
ROOM NO.	ROOM NAME	NORTH		EAST		SOUTH		WEST		FLOOR		CEILING		REMARKS
		MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	BASE	MATERIAL	FINISH	
101	CORRIDOR	(E) GYP	P1	(E) GYP	P1	(E) GYP	P1	(E) GYP	P1	F1	B1	(E) GYP	P1	
102	CONFERENCE	(E) GYP	P1	(E) GYP	P1	(E) GYP	P1	(E) GYP	P1	F1	B1	(E) GYP	P1	
103	OFFICE	(E) GYP	(E)	(E) GYP	(E)	(E) GYP	(E)	(E) GYP	(E)	F1	B1	(E) GYP	(E)	(E) WALL PAINT TO REMAIN AS IS. DO NOT PAINT.
104	BREAK ROOM	GYP	P1	(E) GYP	P1	(E) GYP	P1	(E) GYP	P1	F2	B1	(E) GYP	P1	
105	UNISEX	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	T2	T3	(E) GYP	P1	
106	I.T. CLOSET	GYP	P1	GYP	P1	GYP	P1	(E) GYP	P1	F1	B1	(E) GYP	P1	
107	UNISEX	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	T2	T3	(E) GYP	P1	
108	COPY AREA	GYP	P1			GYP	P1	GYP	P1	F1	B1	SAT	-	
109	OPEN OFFICE AREA	GYP	P1	GYP	P1	GYP	P1	GYP	P1	F1	B1	SAT	-	
110	UNISEX RESTROOM	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	T2	T3	GYP	P1	
111	UNISEX RESTROOM	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	T2	T3	GYP	P1	
112	DECONTAMINATION ROOM	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	T2	T3	GYP	P1	
113	SHOP SUPPLIES	GYP	P1	GYP	P1	GYP	P1	GYP	P1	CONC	-	SAT	-	
114	FIELD SUPPLIES STORAGE	GYP	P1	GYP	P1	GYP	P1	GYP	P1	CONC	-	SAT	-	
115	OFFICE STORAGE	GYP	P1	GYP	P1	GYP	P1	GYP	P1	CONC	-	SAT	-	
116	SHOP AREA	MPS	(E)MPS	(E)MPS	(E)MPS	(E)MPS	(E)MPS	(E)MPS	(E)MPS	CONC	-	(E)IB/IB	-	
117	JANITOR CLOSET	GYP	P1	GYP	P1	GYP	P1	GYP	P1	CONC	-	SAT	-	FRP AT WALLS AROUND MOP SINK TO 48" H.
118	MECHANIC OFFICE	MPS	MPS	GYP	P1	GYP	P1	GYP	P1	CONC	-	IB	-	
119	MECHANIC STORAGE	MPS	GYP	P1	GYP	P1	GYP	P1	GYP	CONC	-	IB	-	
201	WORK AREA	GYP	P1	GYP	P1	GYP	P1	GYP	P1	F1	B1	(E)IB	-	
202	BREAK ROOM	GYP	P1	GYP	P1	GYP	P1	GYP	P1	F1	B1	(E)IB	-	
203	LOCKERS	GYP	P1	GYP	P1	GYP	P1	GYP	P1	F1	B1	(E)IB	-	
204	FOREMAN OFFICE	GYP	P1	GYP	P1	GYP	P1	GYP	P1	F1	B1	(E)IB	-	
205	MECHANICAL	GYP	P1	GYP	P1	GYP	P1	GYP	P1	-	-	(E)IB	-	
206	JANITOR	GYP	P1	GYP	P1	GYP	P1	GYP	P1	-	-	(E)IB	-	FRP AT WALLS AROUND MOP SINK TO 48" H.
207	UNISEX RESTROOM	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	GYP, T1	P1 @ GYP	T2	T3	GYP	P1	



7 TYP. CAB SECTION
SCALE 3/8" = 1'-0"



8 TYP. CAB @ SINK SECTION
SCALE 3/8" = 1'-0"

MATERIAL	FLOORING	PAINT (FIELD)	TILE
GYP - 5/8" GYPSUM BOARD (WATER RESISTANT GYP. BRD. AT FRAMED RESTROOM WALLS) (E)GYP - EXISTING GYP. BD. CONC - CONCRETE (E)CONC - EXISTING CONCRETE MPS - METAL PANEL SIDING (E)MPS - EXISTING METAL PANEL SIDING SAT - 2'x2' SUSPENDED ACOUSTICAL TILE FRP - FIBERGLASS RESIN PANEL (E)IB - EXISTING INSULATION BOARD	F1 - CARPET TILE MFR: TARKETT STYLE: OFFSET 11338 COLOR: LITHOGRAPHY 30804 SIZE: 18x36 INSTALLATION: MONOLITHIC F2 - LVT MFR: TARKETT STYLE: CONTOUR SERIES STONE PATTERN: MODERN STONE COLOR: COSTA PWS 0616 QU SIZE: 18 X 18 INSTALLATION: MONOLITHIC	P1 (COLOR TO MATCH) MFR: SHERWIN WILLIAMS COLOR: #SW 7647 CRUSHED ICE FINISH: SATIN SOLID SURFACE (COUNTERTOP) S1 - SOLID SURFACE MFR: CORIAN COLOR: GLACIER WHITE THICKNESS: 2 CM. PLASTIC LAMINATE (MILLWORK) L1 - PLASTIC LAMINATE MFR: WILSONART STYLE: FAWN CYPRESS 820BK-16 FINISH: CASUAL RUSTIC EDGE BANDING: MATCH PLASTIC LAMINATE	T1 - RESTROOM WALLS MFR: DALTILE STYLE: VOLUME 1.0 COLOR: ELECTRIC MOSS VL79 SIZE: 12 X 24 INSTALLATION: MONOLITHIC GROUT: MAPEI 1/8" THK.; COLOR: 27 SILVER T2 - RESTROOM FLOORS MFR: DALTILE STYLE: VOLUME 1.0 COLOR: INTENSITY PEBBLE VL72 SIZE: 12 X 24 INSTALLATION: MONOLITHIC GROUT: MAPEI 1/8" THK.; COLOR: 107 IRON T3 - RESTROOM TILE BASE MFR: DALTILE STYLE: VOLUME 1.0 PATTERN: COME BASE COLOR: INTENSITY PEBBLE VL72 SIZE: 6 X 12 INSTALLATION: MONOLITHIC GROUT: MAPEI 1/8" THK.; COLOR: 107 IRON

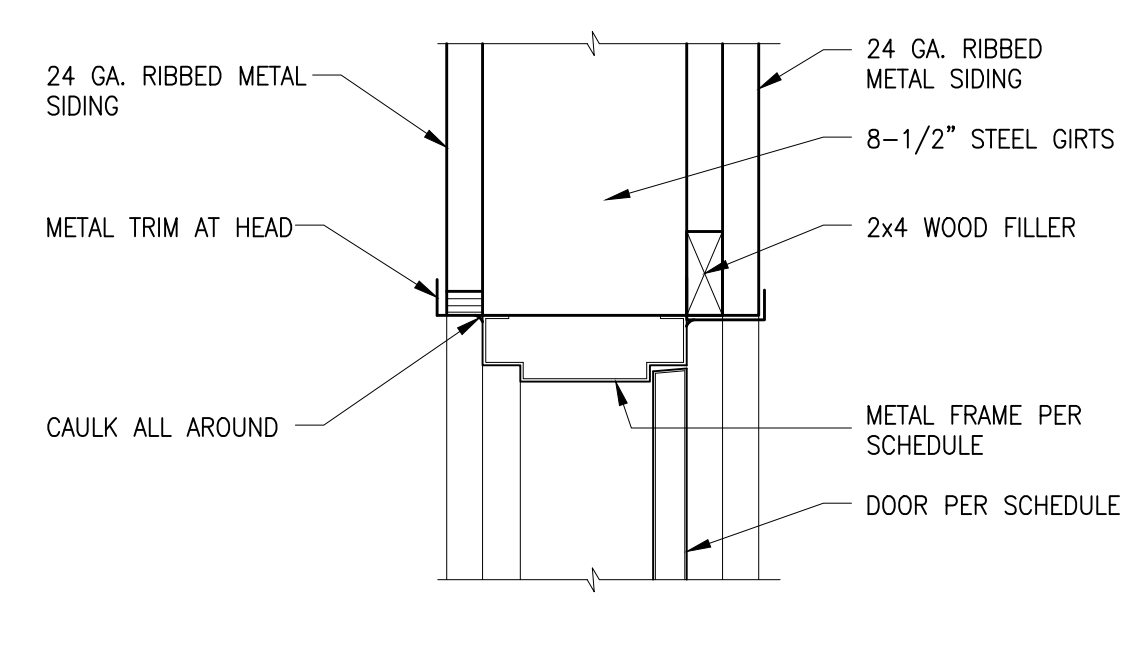
LICENSED ARCHITECT
JAMES MARSH ARCHITECT
200 BROAD STREET
BOISE, IDAHO 83702
PHONE: 208-343-4635 • FAX: 208-343-1858
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ORIGINAL DOCUMENT SIGNED BY ARCHITECT WITH THE ORIGINAL SEAL AND SIGNATURE OF JAMES MARSH ARCHITECT
ORIGINAL DATE SIGNED: FEBRUARY 24, 2023
JAMES MARSH ARCHITECT
200 BROAD STREET
BOISE, IDAHO 83702
PHONE: 208-343-4635 • FAX: 208-343-1858
WWW.CSHQA.COM

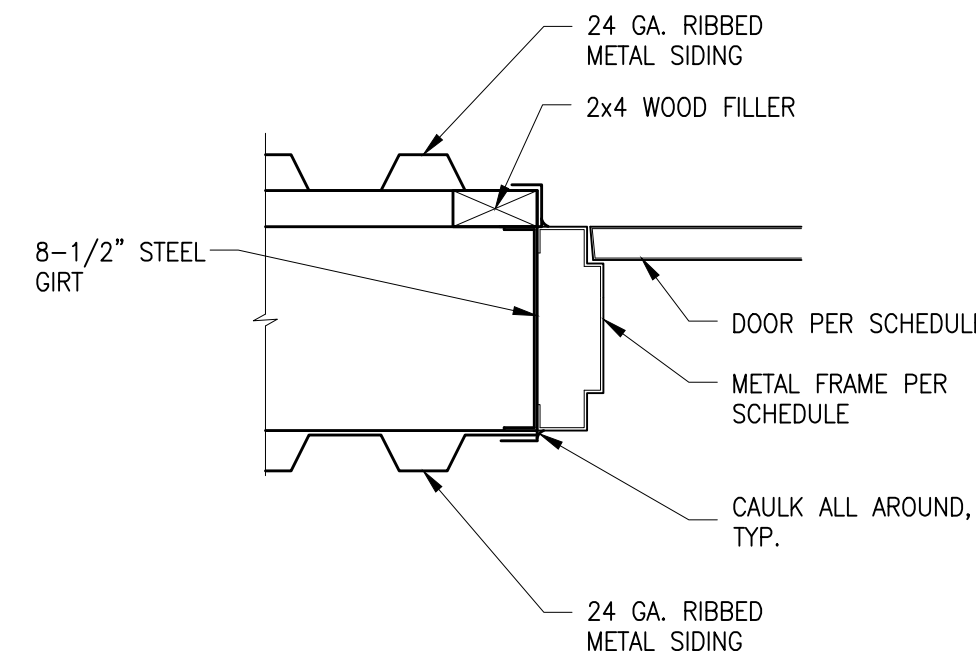
ITD MAINTENANCE BLDG. IMPROVEMENTS
CALDWELL, IDAHO
15430 HIGHWAY 44
CSHQAA

PROJECT: 22123.00
DATE: 1/20/23
DRAWN: LGB
CHECKED: JAM
REVISION: 1
2/24/23
ADDENDUM ONE

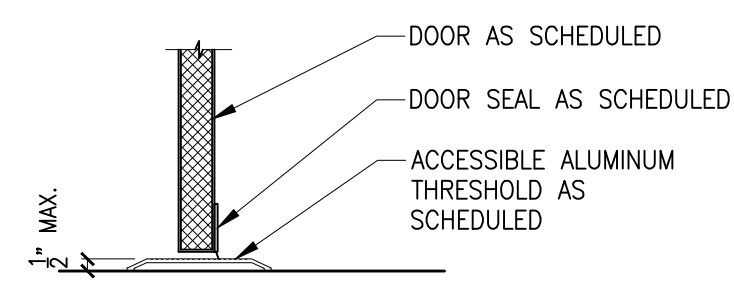
SHEET TITLE:
INT. FINISH SCHEDULE & MILLWORK
SHEET:
A61
ORIGINAL SHEET SIZE: 30" x 42"



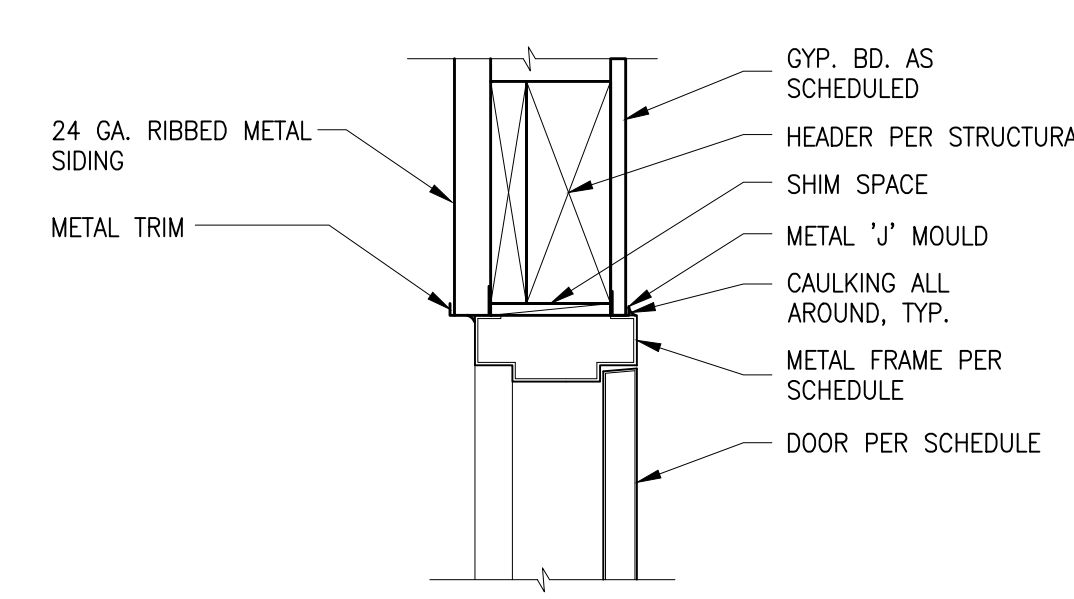
1 HEAD
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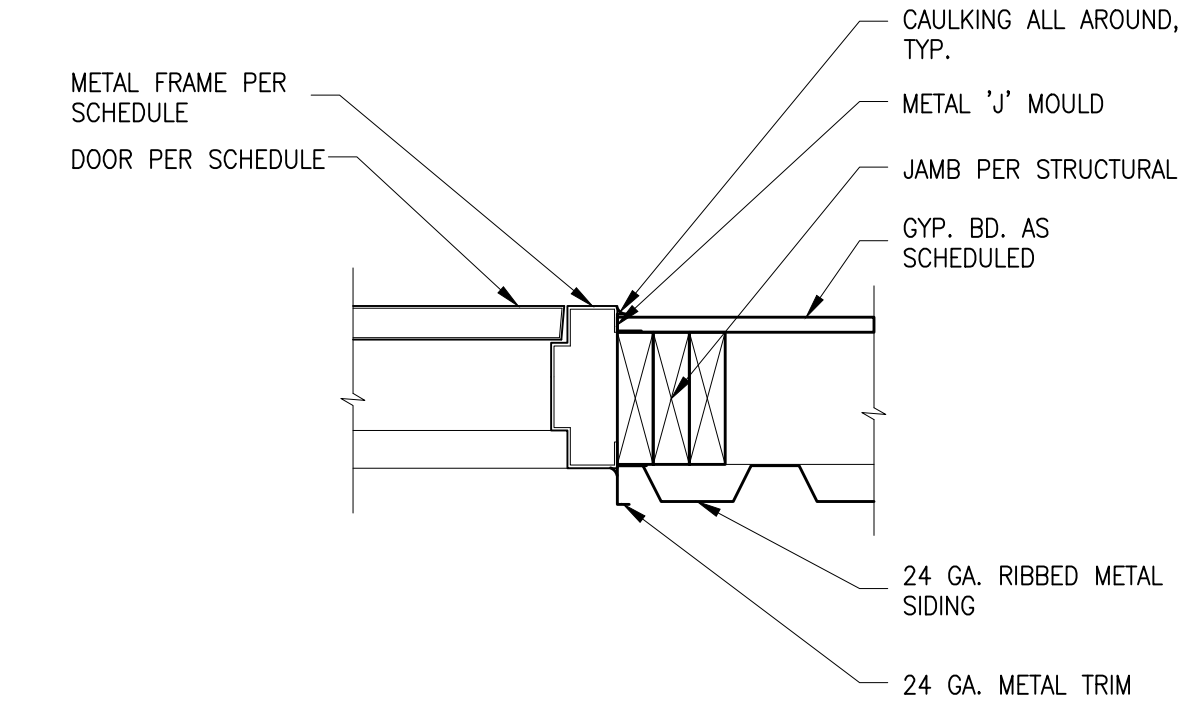
2 JAMB
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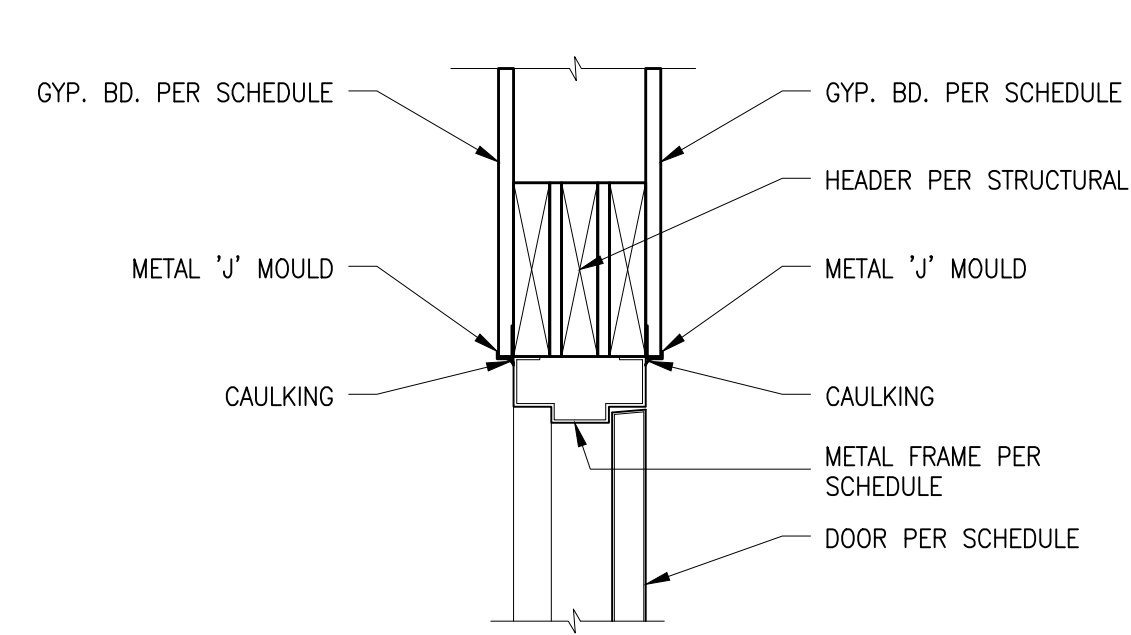
3 THRESHOLD
SCALE 1-1/2" = 1'-0"



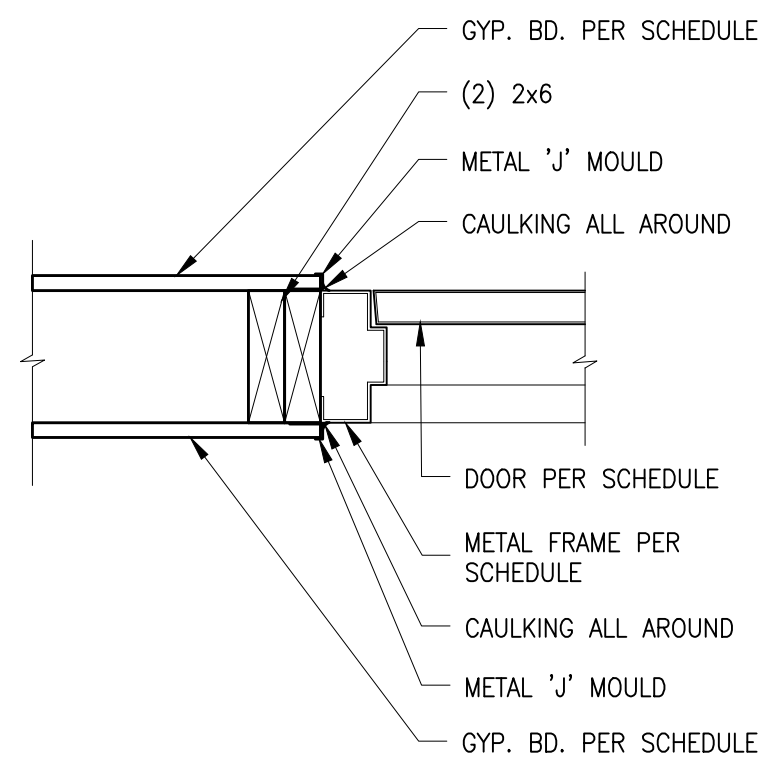
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SCALE 1-1/2" = 1'-0"



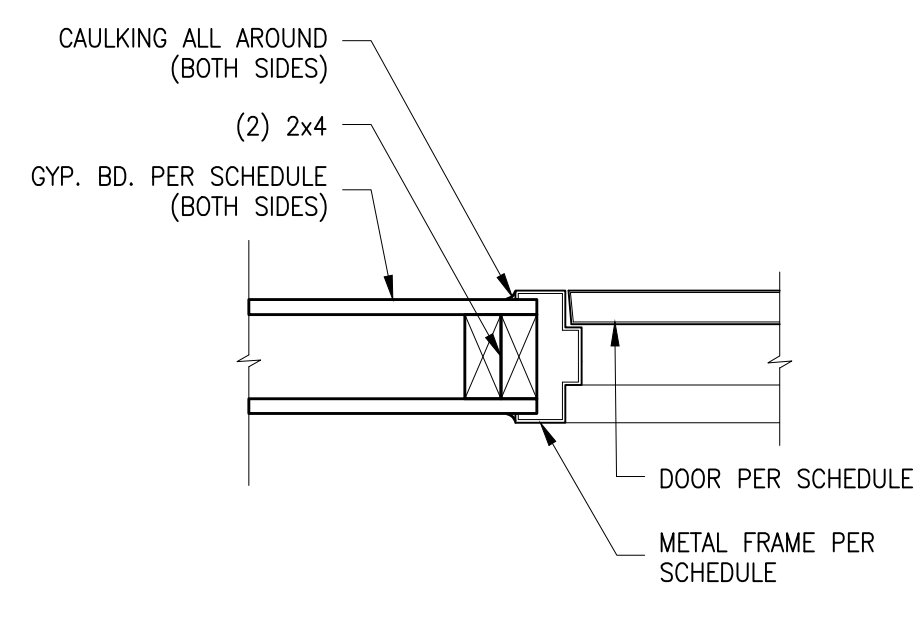
5 JAMB
SCALE 1-1/2" = 1'-0"



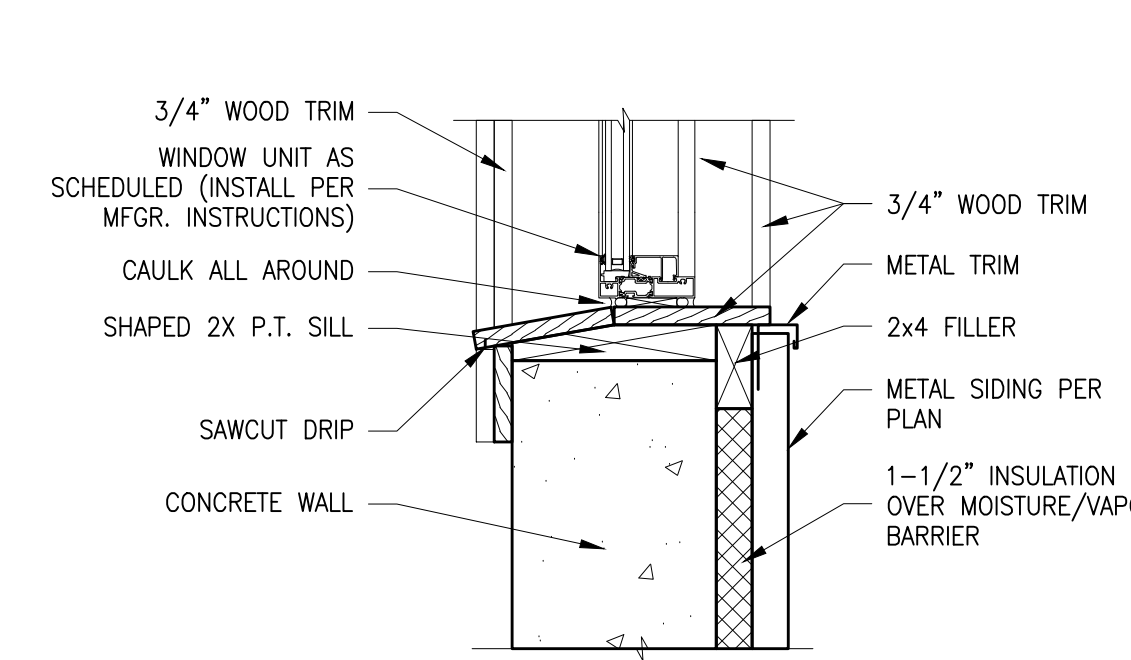
7 HEAD
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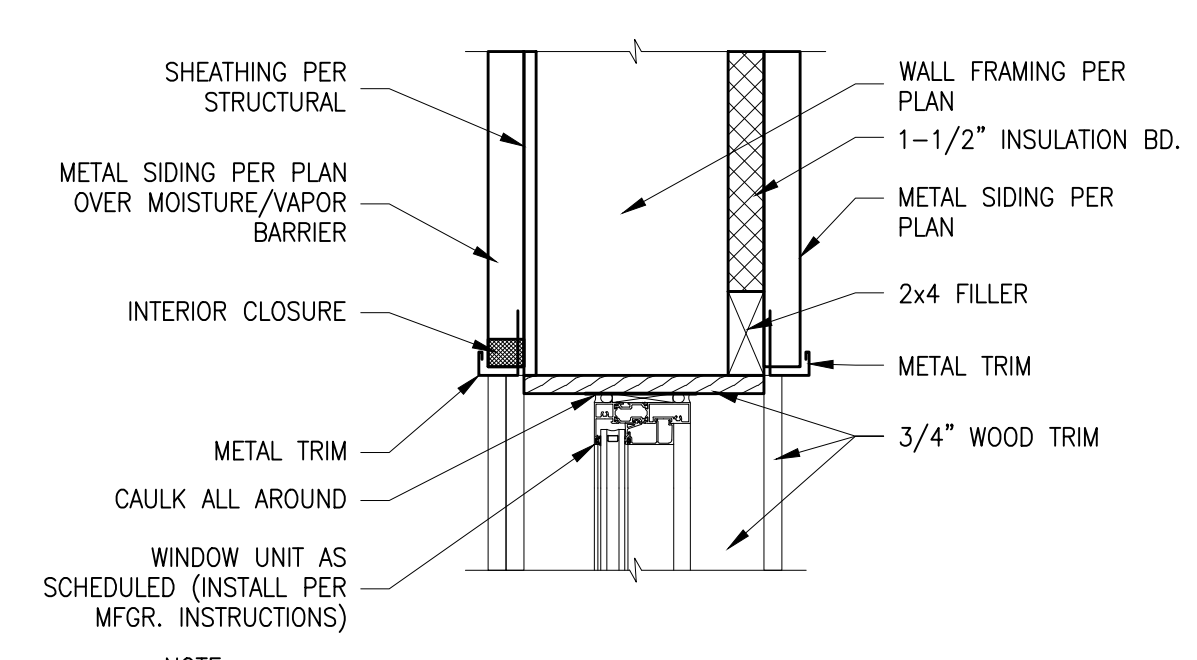
8 JAMB
SCALE 1-1/2" = 1'-0"



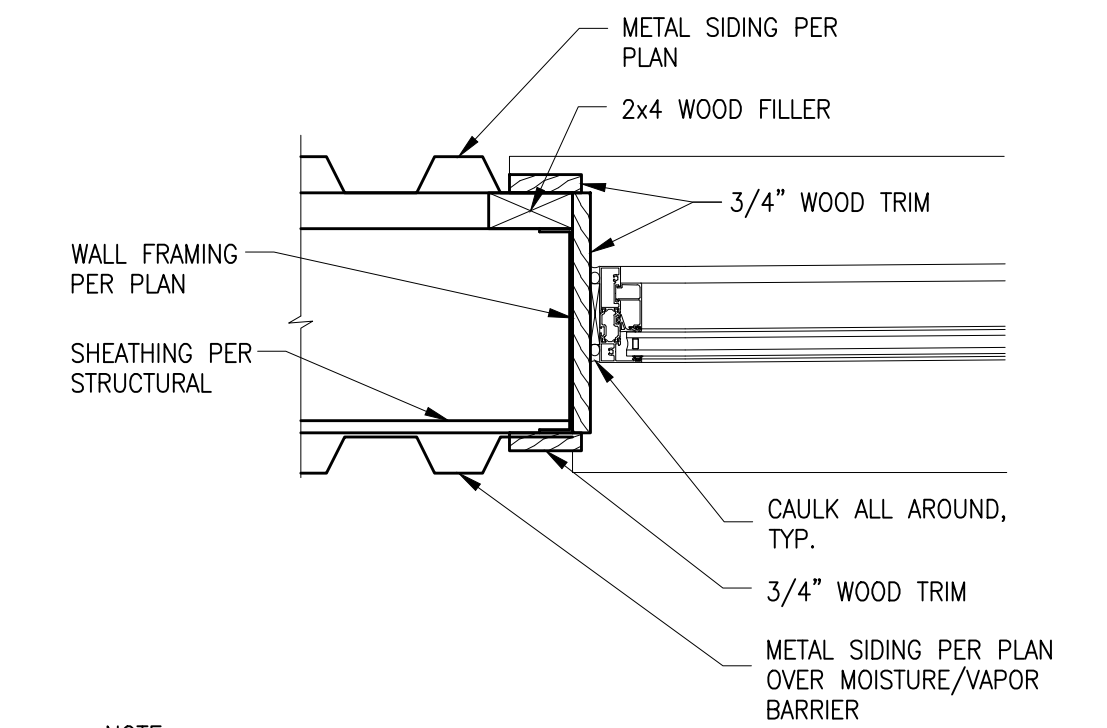
9 JAMB
SCALE 1-1/2" = 1'-0"



10 SILL
SCALE 1-1/2" = 1'-0"



11 HEAD
SCALE 1-1/2" = 1'-0"



12 JAMB
SCALE 1-1/2" = 1'-0"

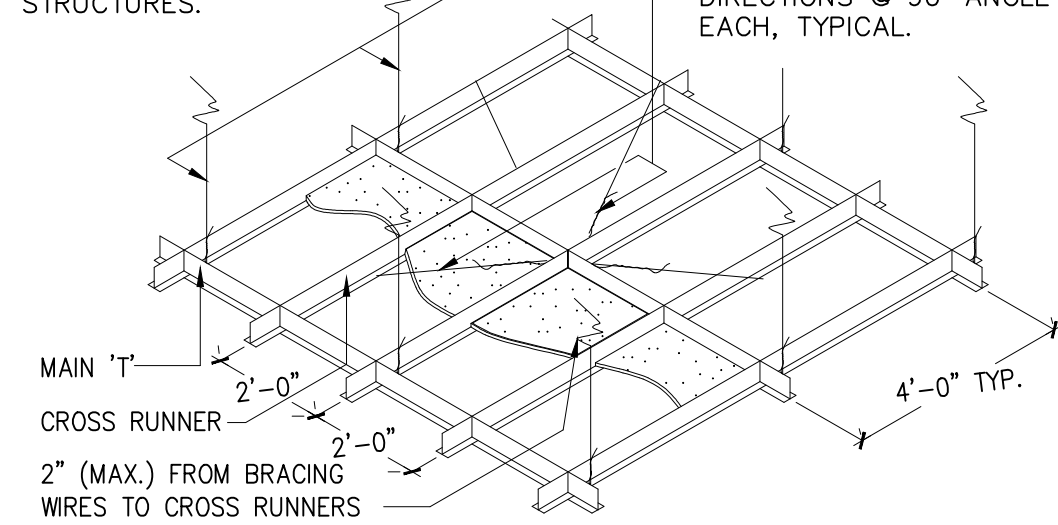
NOTES

1. ALL LIGHT FIXTURES & HVAC AIR REGISTERS SHALL BE SUPPORTED BY 12 GA. HANGER WIRES WITHIN 3" OF EACH CORNER AND TWO (2) HANGER WIRES (SLACK) AT DIAGONAL CORNERS. CEILING SYSTEM SHALL NOT SUPPORT OTHER ITEMS.

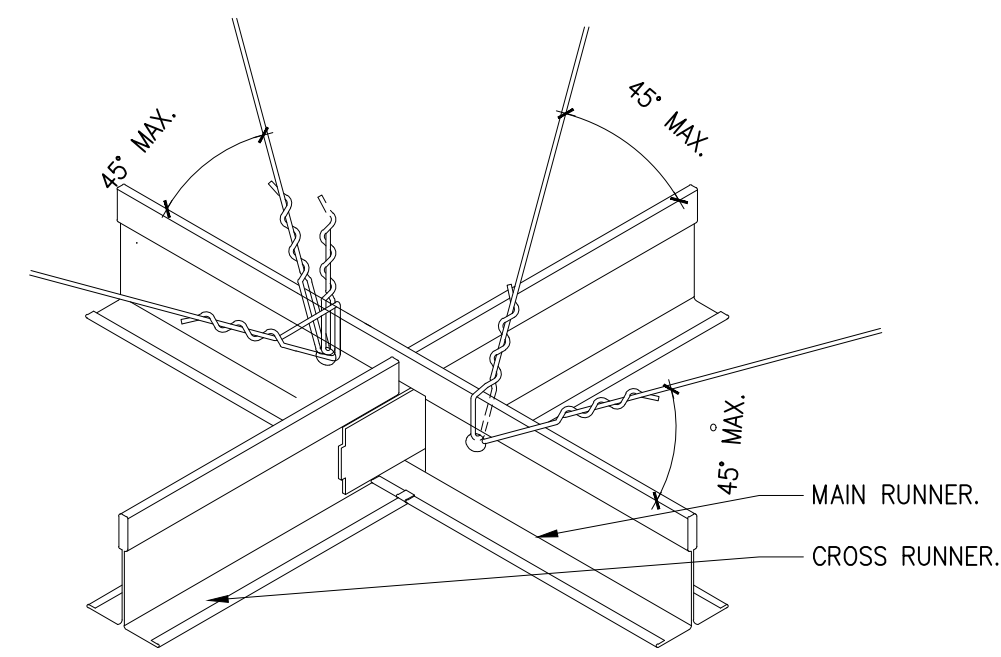
2. WIRES TO PENDANT MOUNTED FIXTURES SHALL BE 9 GAUGE AND FIXTURES SHALL BE INDEPENDANTLY SUPPORTED BY BUILDING STRUCTURES.

TYPICAL: 12 GA. VERTICAL HANGER WIRE @ 4'-0" E.A. WAY W/ MIN. 3 TIGHT TURNS IN 1 1/2" BOTH ENDS OF WIRE

12 GA. SPLAY WIRE @ 12'-0" O.C. E.A. WAY W/ MIN. 4 TIGHT TURNS IN 1 1/2" BOTH ENDS OF WIRE. INSTALL IN 4 DIRECTIONS @ 90° ANGLE TO EACH, TYPICAL.



13 SUSPENDED CEILING
SCALE 1" = 1'-0"



ORIGINAL DOCUMENT SIGNED BY ARCHITECT ON FILE WITH THE OWNER
 ORIGINAL DATE SIGNED: JANUARY 19, 2023
 JAMES MARSH ARCHITECT

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 200 BROAD STREET
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CSHOA

PROJECT	DATE
22123.00	1/20/23
DRAWN	CHECKED
LGB	JAM

REVISED

SHEET TITLE
DETAILS

SHEET
A71

ORIGINAL SHEET SIZE
 30" x 42"

DOOR SCHEDULE												
DOOR NO.	ROOM	DOOR TYPE	FIRE RATING	DOOR SIZE			FRAME TYPE	DOOR HARDWARE SET	DETAILS (ON SHT. A71)			REMARKS
				WIDTH	HT.	THICKNESS			SILL	HEAD	JAMB	
101	CORRIDOR	(E)										2
102	CONFERENCE	(E)										2
103	OFFICE	(E)										2
104	BREAK	C	-	3'-0"	7'-0"	1-3/4"	B	6	-	9	9	-
105	UNISEX	B	-	3'-0"	7'-0"	1-3/4"	B	5	-	9	9	-
106	L.T. CLOSET	B	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
107	UNISEX	B	-	3'-0"	7'-0"	1-3/4"	B	5	-	9	9	-
109	OPEN OFFICE	A	-	3'-0"	7'-0"	1-3/4"	B	1	3	4	5	-
110	UNISEX RESTRM.	B	-	3'-0"	7'-0"	1-3/4"	B	5	-	9	9	-
111	UNISEX RESTRM.	B	-	3'-0"	7'-0"	1-3/4"	B	5	-	9	9	-
112	DECON. RM.	B	-	3'-0"	7'-0"	1-3/4"	B	5	-	9	9	-
113	SHOP SUPPLIES	B	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
114	FIELD SUPPLIES	B	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
115	OFFICE STORAGE	B	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
116A	SHOP	(E)										
116B	SHOP	(E)										
116C	SHOP	A	-	3'-0"	7'-0"	1-3/4"	A	1	3	1	2	-
116D	SHOP	(E)										
116E	SHOP	(E)										
116F	SHOP	(E)										
116G	SHOP	(E)										
116H	SHOP	(E)										
116J	SHOP	(E)										
117	JANITOR CLOSET	A	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
118	MECH. OFFICE	C	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
119	MECH. STORAGE	B	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
202A	BREAK	(E)										1, 2
202B	BREAK	(E)										1, 2
202C	BREAK	(E)										2
204	OFFICE	B	-	3'-0"	7'-0"	1-3/4"	B	2	-	9	9	-
205	MECH.	B	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
206	JANITOR	B	-	3'-0"	7'-0"	1-3/4"	B	3	-	9	9	-
207	UNISEX RESTRM.	B	-	3'-0"	7'-0"	1-3/4"	B	5	-	9	9	-

REMARKS:
 1. INSTALL SMOKE SEALS AND DOOR BOTTOM SEAL ON EXISTING DOOR AND FRAME. OPENING MUST BE SEALED TO PREVENT ANY EXHAUST FUMES FROM ENTERING OFFICE AREA FROM SHOP AREA.
 2. PAINT. PROVIDE NEW HARDWARE TO MATCH NEW DOORS.

DOOR HARDWARE	
HARDWARE SET NO. 1 (EXTERIOR) 3 EA HINGES 1 EA RIM EXIT DEVICE 1 EA CORE 1 EA RIM CYLINDER 1 EA CLOSER 1 EA THRESHOLD 1 EA WEATHERSTRIP 1 EA SWEEP	HARDWARE SET NO. 4 (MULTI OCCUP. RESTROOMS) 3 EA HINGES 1 EA DOOR PULL 1 EA DOOR PUSH 1 EA CLOSER 1 EA WALL STOP 3 EA SILENCERS
HARDWARE SET NO. 2 (OFFICE) 3 EA HINGES 1 EA ENTRY/OFFICE LOCKSET 1 EA CORE 1 EA CLOSER 1 EA WALL STOP 3 EA SILENCERS	HARDWARE SET NO. 5 (SINGLE OCCUP. RESTROOMS) 3 EA HINGES 1 EA PRIVACY LOCKSET 1 EA CLOSER 3 EA SILENCERS
HARDWARE SET NO. 3 (STORAGE) 3 EA HINGES 1 EA STOREROOM LOCKSET 1 EA CORE 3 EA SILENCERS	HARDWARE SET NO. 6 (BREAKROOM) 3 EA HINGES 1 EA DOOR PULL 1 EA DOOR PUSH 1 EA CLOSER 1 EA WALL STOP 3 EA SILENCERS

GLAZING LEGEND / NOTES	
1. THE SYMBOL T REPRESENTS TEMPERED GLAZING.	
2. THE SYMBOL IG REPRESENTS 1" INSULATED GLAZING WITH U VALUE OF 0.35 AND SHGC OF 0.8 UNLESS OTHERWISE NOTED.	

DOOR NOTES	
A. ALL NEW WOOD DOORS TO BE FINISHED WITH CLEAR STAIN/SEALER.	
B. ALL NEW METAL DOORS AND FRAMES TO BE PAINTED.	

LICENSED ARCHITECT
 JAMES A. MARSH
 ORIGINAL DATE SIGNED: FEBRUARY 24, 2023
 STATE OF IDAHO

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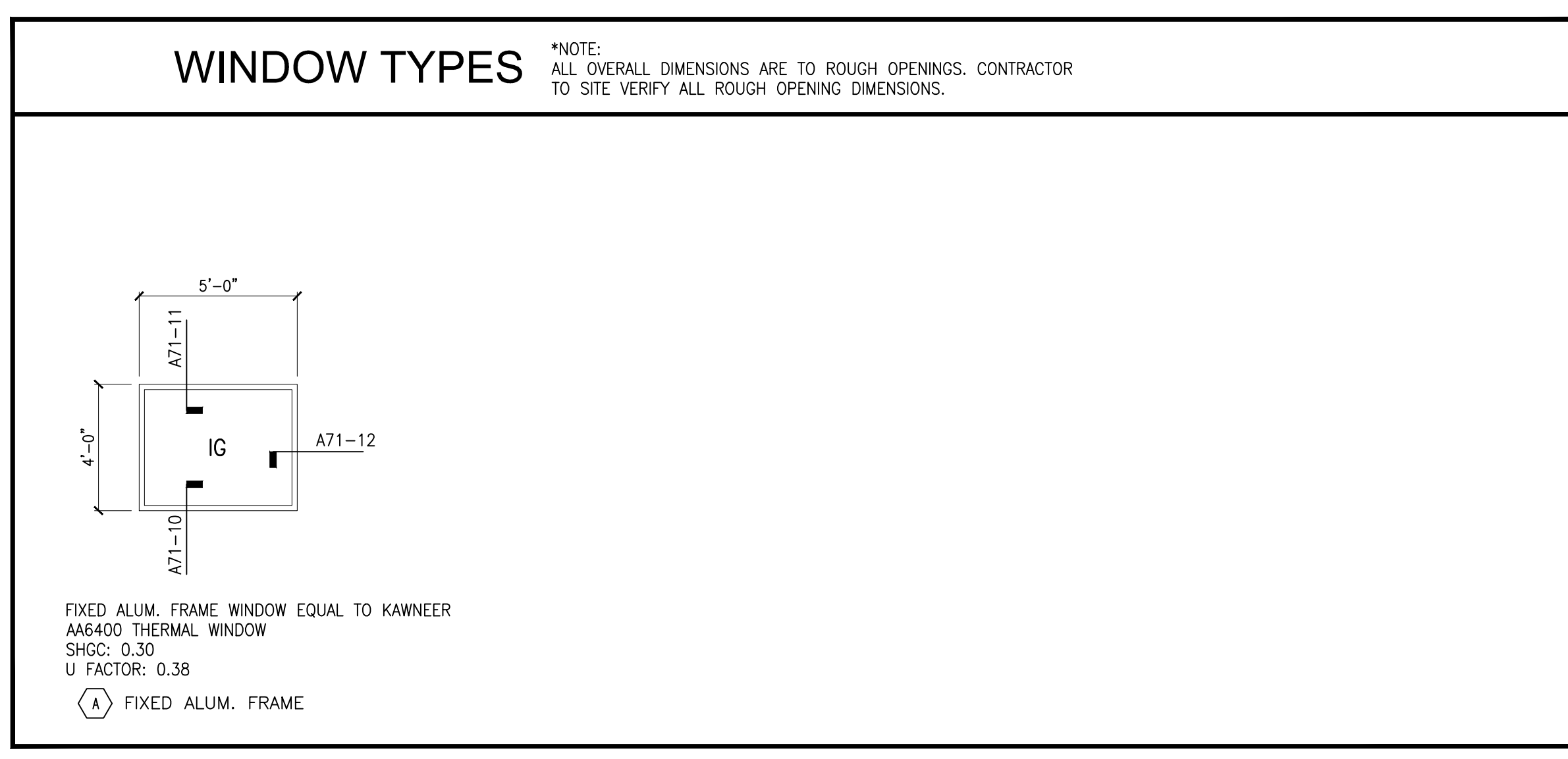
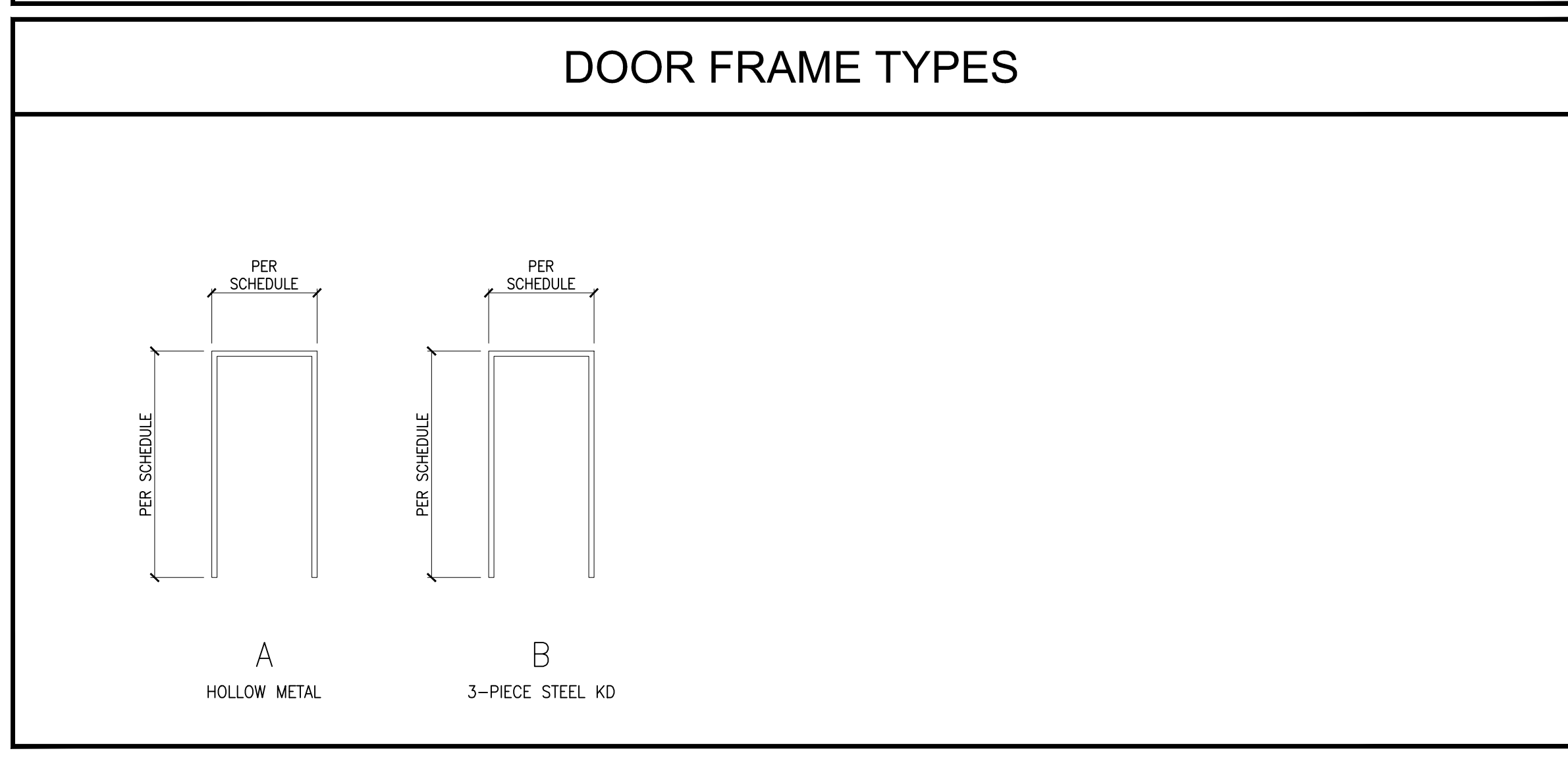
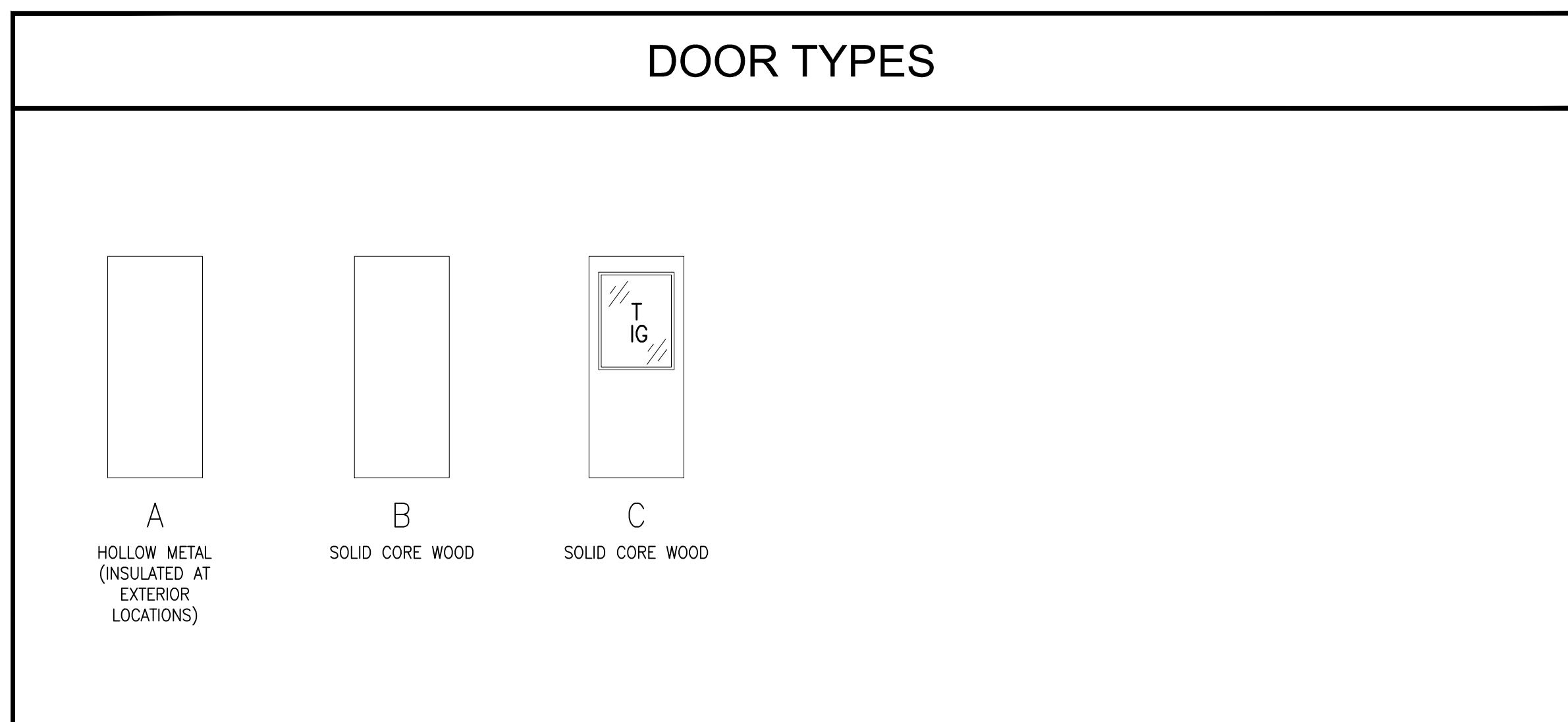
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 CALDWELL, IDAHO

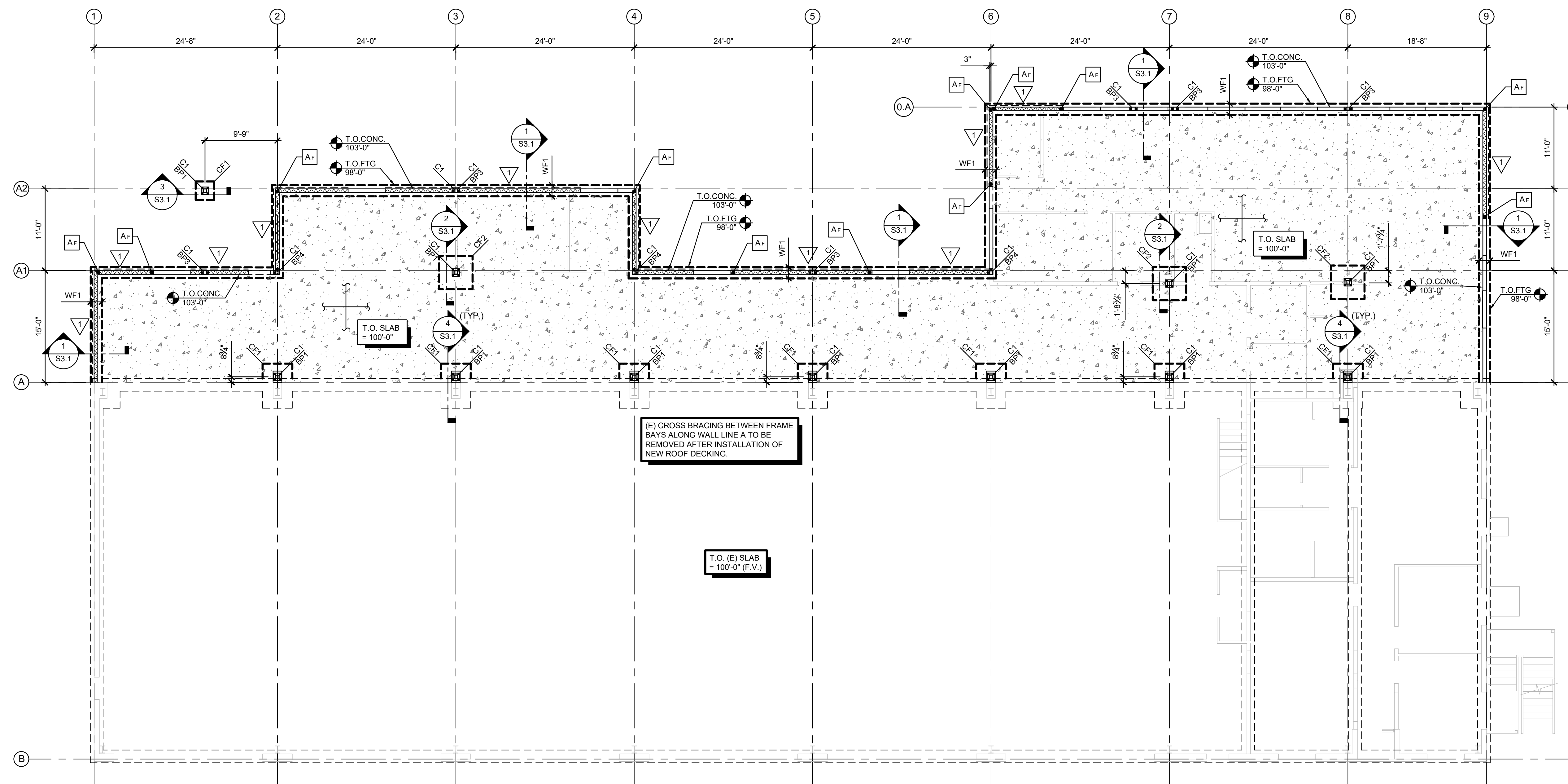
PROJECT: 22123.00
 DATE: 1/20/23
 DRAWN: LGB
 CHECKED: JAM
 REVISED: 2/24/23
 ADDENDUM ONE

SHEET TITLE:
DOOR & WINDOW SCHEDULES

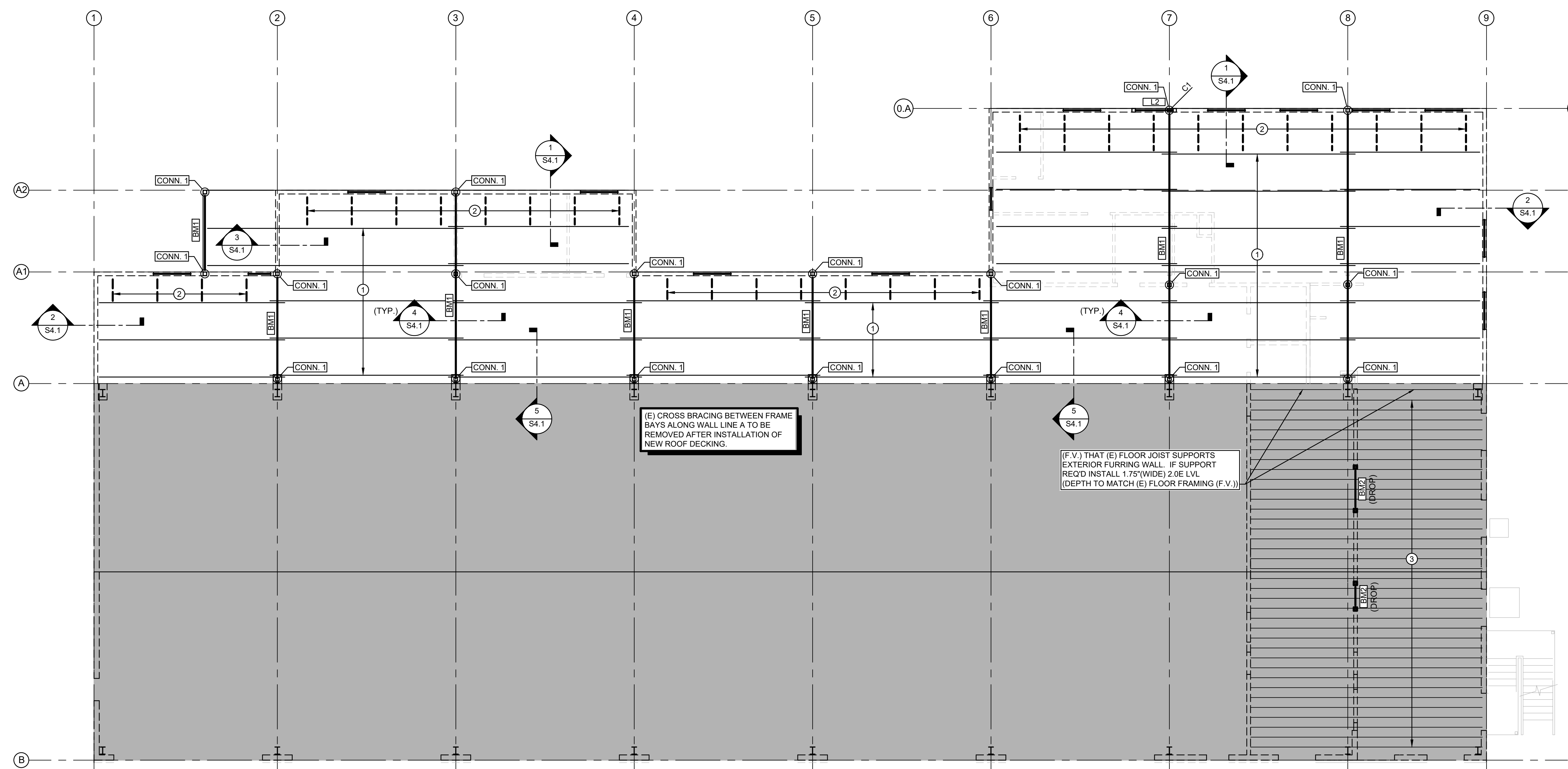
SHEET:
A81

ORIGINAL SHEET SIZE:
 30" x 42"





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



1 ROOF AND MEZZANINE FRAMING PLAN
SCALE: 1/8" = 1'-0"

FOUNDATION & FRAMING PLAN NOTES:

- FOR ANY ADDITIONAL DIMENSIONS NOT SHOWN, SEE ARCH PLANS. NOTIFY THE ARCHITECT OR ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE FOUND.
- DIMENSIONS ON EXISTING MEMBERS SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
- CONTACT ENGINEER FOR ANY REQUIRED CHANGES TO EXISTING STRUCTURE NOT SHOWN
- STRUCTURAL WALLS ARE CONSIDERED TO BE ALL LOAD BEARING WALLS, SHEAR WALLS AND ANY WALL THAT REQUIRES A FOOTING.
- (E) = EXISTING FRAMING MEMBER
- (F.V.) = FIELD VERIFY DIMENSION OR EXISTING FRAMING CONDITION
- FOR GENERAL STRUCTURAL NOTES SEE SHEET S1.0.
- FOR TYPICAL FOUNDATION DETAILS SEE SHEET S3.0.
- FOR TYPICAL STEEL FRAMING DETAILS SEE SHEET S4.0.
- T.O. SLAB = TOP OF CONCRETE SLAB ELEVATION
- T.O. FTG. = TOP OF FOOTING ELEVATION
- T.O. CONC. = TOP OF CONCRETE WALL ELEVATION
- SLAB JOINTS SHALL BE SPACED PER 1/S3.0
- CORNER REINF. IS REQ'D PER 2/S3.0.
- FOR TOP PLATE SPLICE DETAIL SEE 1/S4.0.
- FOR STEEL STUD LINTEL SCHEDULE AND DETAIL SEE 3/S4.0 & 4/S4.0.
- LABELLED COLUMN INDICATES COLUMN BEGINS ON DISPLAYED FLOOR. COLUMN WITHOUT LABEL INDICATED COLUMN BEGINS ON LOWER FLOOR.
- BRACE NONSTRUCTURAL WALLS PER DETAIL 6/S4.0 AND 7/S4.0.
- FOR EXTERIOR STEEL STUD WALLS, USE SHEAR WALL TYPE 1 PER SHEAR WALL SCHEDULE, DETAIL 4/S4.0.
- METAL ROOF DECK, 1/2" DEEP x 22 GA TYPE "PLB-30" METAL DECK @ 3-SPAN CONDITION, PROVIDE (4) HILT X-EDNK22 OR X-HSN 24 AT SUPPORTS & BUTTUN PUNCH @ 24" O.C. @ SEAMS.
- SEE DETAIL 9/S3.0 WHERE NEW FOUNDATION INTERSECTS EXISTING FOUNDATION.

FOUNDATION & FRAMING PLAN LEGEND:

- INDICATES STEEL STUD WALL:
AT EXTERIOR WALLS REQUIRING A FOOTING PROVIDE:
600S162-43 @ 24" & 600T250-43 TOP TRACK & 600T250-43 BOTTOM TRACK.
PROVIDE HORIZONTAL BRIDGING AT 4'-0" O.C. FOR ALL WALLS, SEE TYPICAL DETAIL 8/S4.0
- INDICATES STEEL STUD SHEAR WALL ABOVE. SEE DETAIL 2/S4.0 FOR SCHEDULE. SHEAR WALL LENGTH SHALL BE FULL LENGTH BETWEEN WINDOWS/DOORS OR WALL CORNERS PER SHEAR WALL DETAILS, U.N.O.
- INDICATES HOLD DOWN MARK. SEE DETAIL 7/S3.0 FOR SCHEDULE. COORDINATE HOLD DOWN AND HOLD DOWN ANCHOR BOLT PLACEMENT WITH HOLD DOWN SCHEDULE AND HEADER SCHEDULE.
- INDICATES 6" CONC. SLAB ON GRADE W/ #3 @ 18" O.C. EA. WAY (PLACED @ MID-DEPTH OF SLAB) OVER 10 MIL VAPOR BARRIER OVER 6" COMPACTED 3/4" MINUS GRAVEL.
- INDICATES CONCRETE SLAB CONTROL JOINT, LOCATIONS TO BE COORDINATED BY CONTRACTOR PER DETAIL 1/S3.0
- INDICATES STEEL HSS POST PER COLUMN SCHEDULE:
C1: STEEL HSS 5/8"x5/8"x4", WHERE EXTERIOR WALL SHFTG OCCURS ATTACH WALL STUD TO HSS PER DETAIL 10/S3.0
- INDICATES STEEL POST BASE PLATE PER BASE PLATE SCHEDULE:
BP1: BASE PLATE 1 w/ GROUT PAD PER DETAIL 5/S3.0
BP2: BASE PLATE 2 w/ GROUT PAD PER DETAIL 5/S3.0
BP3: BASE PLATE 3 w/ GROUT PAD PER DETAIL 5/S3.0
BP4: BASE PLATE 4 w/ GROUT PAD PER DETAIL 5/S3.0
- INDICATES HEADER BELOW. ALL UNMARKED LINTELS ARE "1" U.N.O. SEE HEADER SCHEDULE PER DETAIL 3/S4.0.
- INDICATES BEAM AND COLUMNS. SEE BEAM & COLUMN SCHEDULE:
BM1: STEEL W10x26
BM2: WOOD (2) 1.75"x9.5" 2.0E LVL W/ (2) 2x WALL STUD SUPPORTS EACH END
- INDICATES SPECIAL CONNECTION. SEE CONNECTION SCHEDULE:
CONN. 1: W BEAM TO W COLUMN PER DETAIL 5/S4.0
- INDICATES (E) ROOF. (E) ROOF TO BE REMOVED AND REPLACED WITH NEW ROOF DECKING PER PLAN, SEE METAL ROOF DECK PLAN NOTES.

WALL FOOTING SCHEDULE			
FOOTING MARK	WIDTH (W)	DEPTH (D)	REINF.
WF1	1'-6"	8"	(2) #4 (L)

- NOTES:**
- FOR EXTERIOR WALL FOOTINGS NOT MARKED, USE FOOTING TYPE WF1. FOR INTERIOR BEARING WALLS WHERE MARKED, USE FOOTING TYPE WF1.
 - ALL FOOTINGS ARE CENTERED UNDER WALLS UNLESS NOTED OR DETAILED OTHERWISE.
 - (H) = HORIZONTAL BARS IN STEM WALL - WHERE OCCURS
(L) = LONGITUDINAL BARS IN FOOTING
(V) = VERTICAL BARS IN STEM WALL - WHERE OCCURS
(T) = TRANSVERSE BARS IN FOOTING
E.F. = EACH FACE
T&B = TOP AND BOTTOM
 - (V) VERTICAL BARS IN STEM WALL MAY BE BENT (IN ALTERNATE DIRECTIONS) @ THE FOOTING AND USED IN LIEU OF (T) TRANSVERSE BARS - SEE DETAILS.

COLUMN FOOTING SCHEDULE			
FOOTING MARK	WIDTH x LENGTH (W) x (L)	DEPTH (D)	REINF.
CF1	2'-6" x 2'-6"	8"	(3) #4 EA DIRECTION
CF2	4'-6" x 4'-6"	10"	(5) #4 EA DIRECTION
CF3	2'-0" x 4'-0"	18"	(2) #4 (L) (T&B), (4) #4 (T) (T&B)

- NOTES:**
- WHERE COLUMN FOOTING OCCURS @ WALL FOOTING - RUN WALL FOOTING REINF. CONT. THRU COLUMN FOOTING.
 - ALL FOOTINGS ARE CENTERED UNDER WALLS UNLESS NOTED OR DETAILED OTHERWISE.
 - (L) = LONGITUDINAL BARS IN FOOTING
(T) = TRANSVERSE BARS IN FOOTING
T&B = TOP AND BOTTOM

FRAMING PLAN KEYNOTES:

- INDICATES 1200Z30096-100 (65KS) LIPPED Z PURLIN @ 5'-0" O.C.
- INDICATES S600S162-43 JOIST @ 6'-0" O.C.
- INDICATES (E) 12" MEZZANINE JOISTS (F.V.)

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WE ARE AN EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION EMPLOYER. WE DO NOT DISCRIMINATE IN EMPLOYMENT ON THE BASIS OF RACE, GENDER, RELIGION, NATIONAL ORIGIN, ANCESTRY, COLOR, SEX, OR AGE. WE ARE AN EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION EMPLOYER. WE DO NOT DISCRIMINATE IN EMPLOYMENT ON THE BASIS OF RACE, GENDER, RELIGION, NATIONAL ORIGIN, ANCESTRY, COLOR, SEX, OR AGE. WE ARE AN EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION EMPLOYER. WE DO NOT DISCRIMINATE IN EMPLOYMENT ON THE BASIS OF RACE, GENDER, RELIGION, NATIONAL ORIGIN, ANCESTRY, COLOR, SEX, OR AGE.

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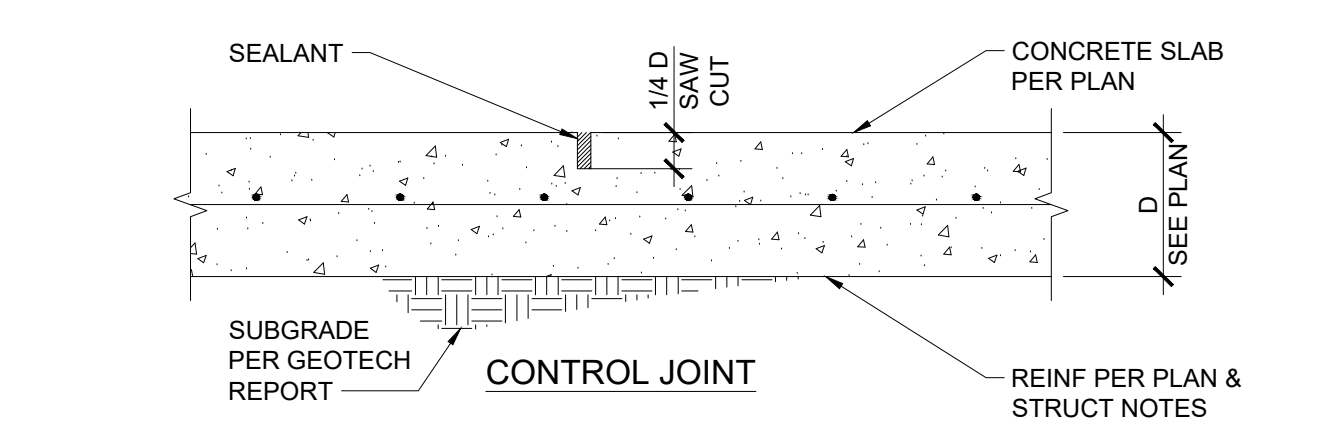
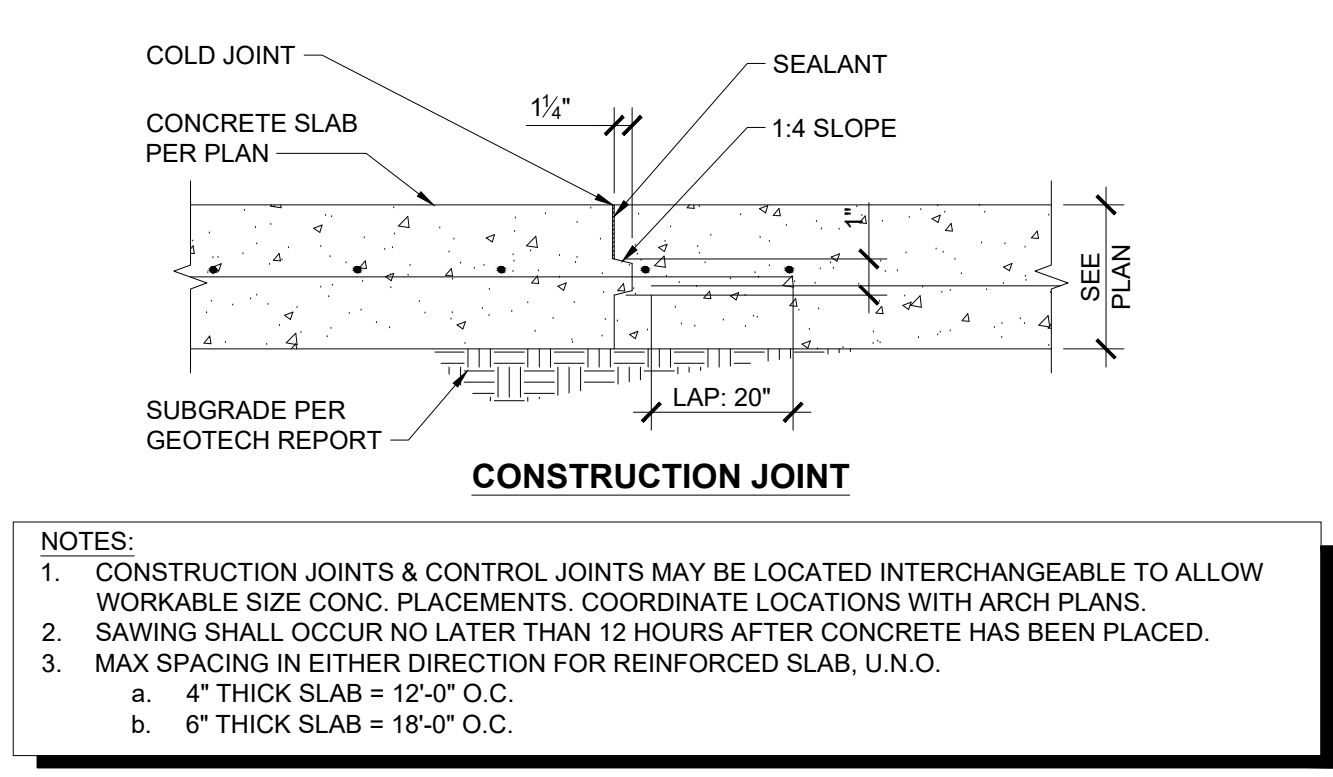
PROFESSIONAL ENGINEER
LICENSED
17720
STATE OF IDAHO
MATTHEW K. CHRISTIAN
01/18/2023

PROJECT: 1227.22 DATE: 01/17/23
DRAWN: NK CHECKED: MC
REVISED:

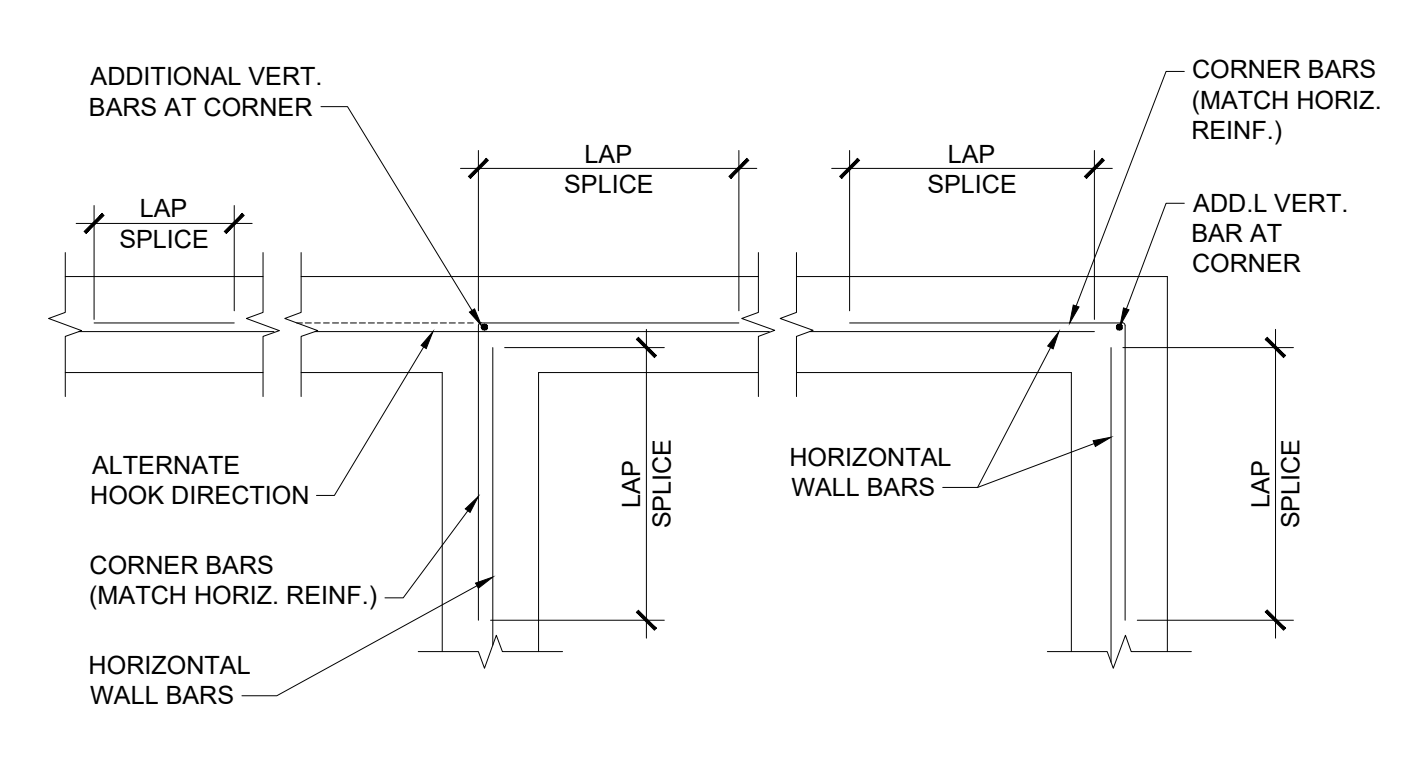
SHEET TITLE
FOUNDATION AND FRAMING PLAN

SHEET
S2.0

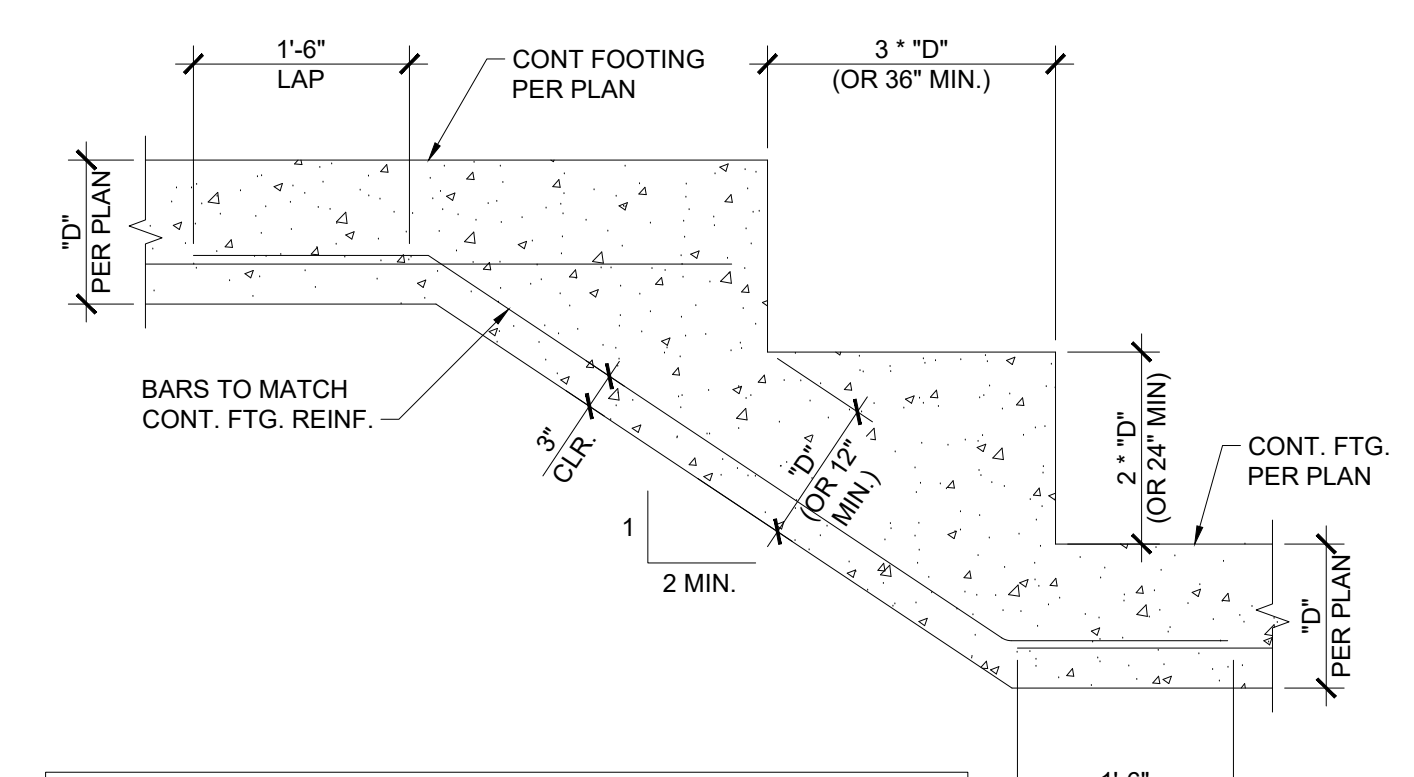
ORIGINAL SHEET SIZE
30" x 42"



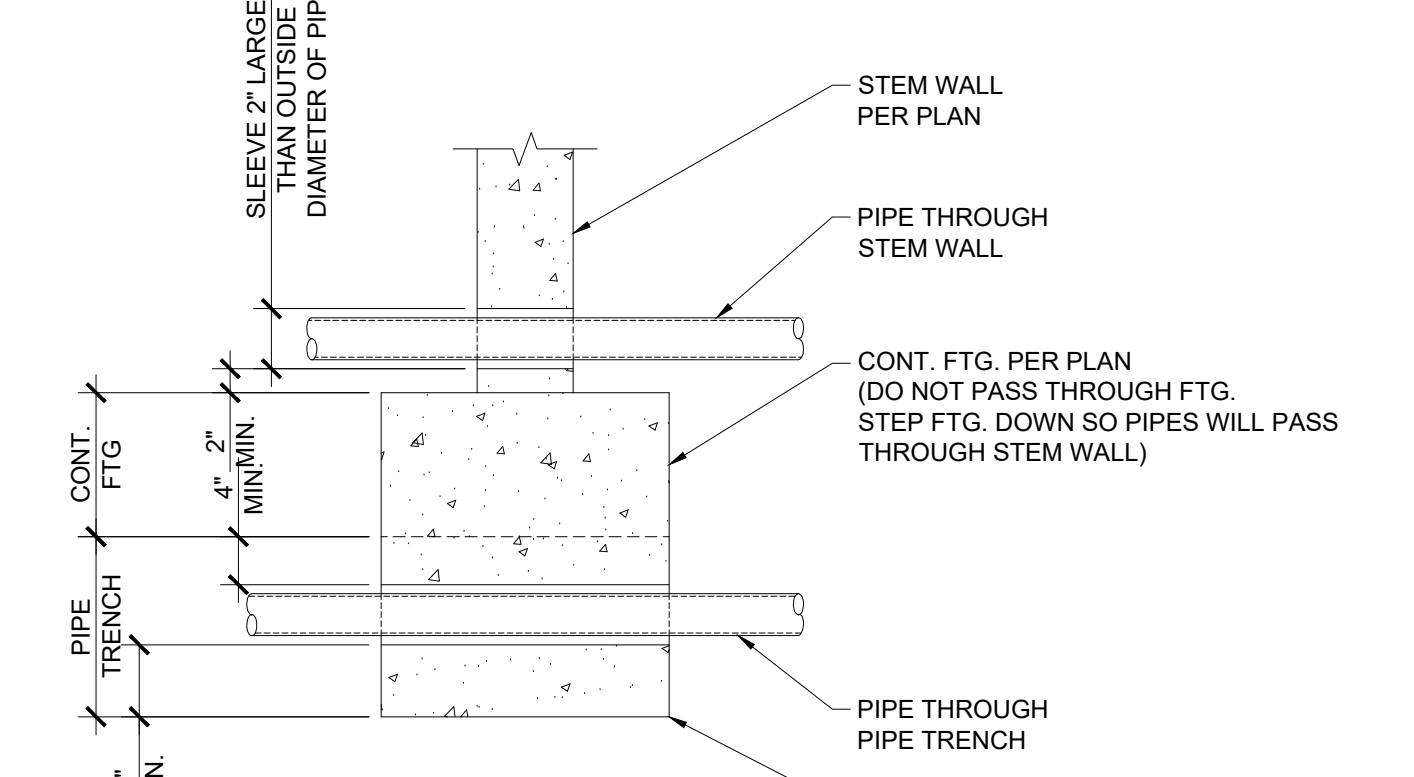
1 CONTROL & CONSTRUCTION JOINT SCALE: N.T.S.



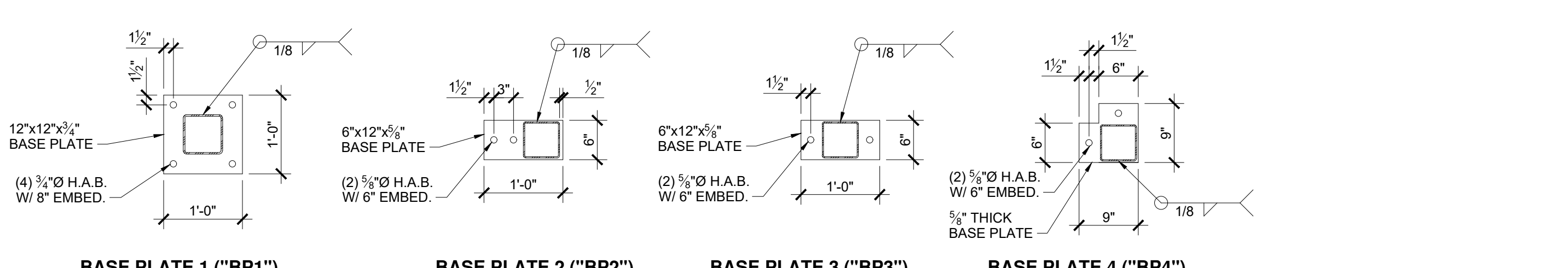
2 STEM WALL CORNER AND INTERSECTION REINF. SCALE: N.T.S.



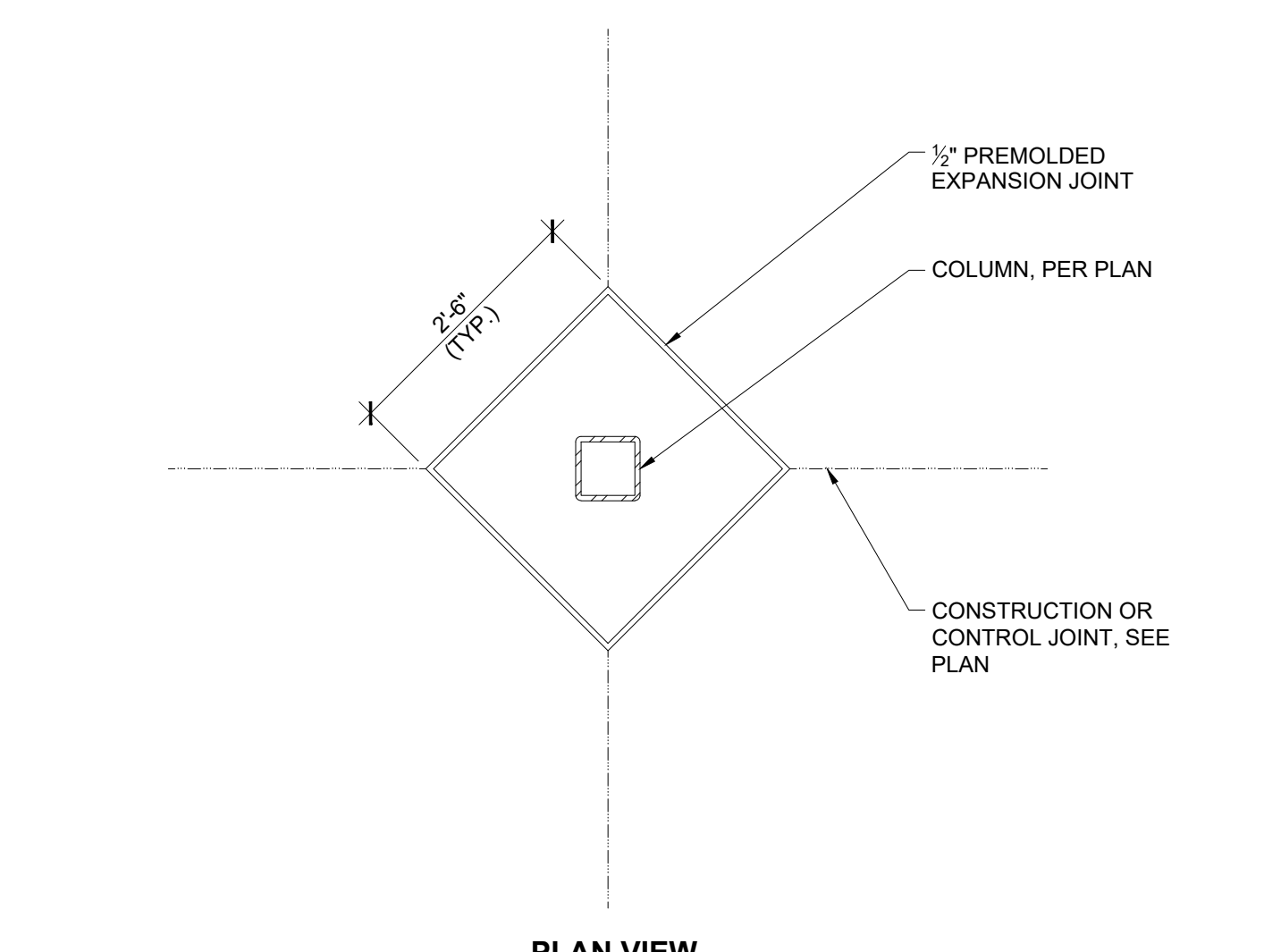
3 STEPPED FOOTING DETAIL SCALE: N.T.S.



4 PIPE TRENCH AT FOUNDATION DETAIL SCALE: N.T.S.



5 BASE PLATE SCHEDULE AND DETAIL SCALE: N.T.S.



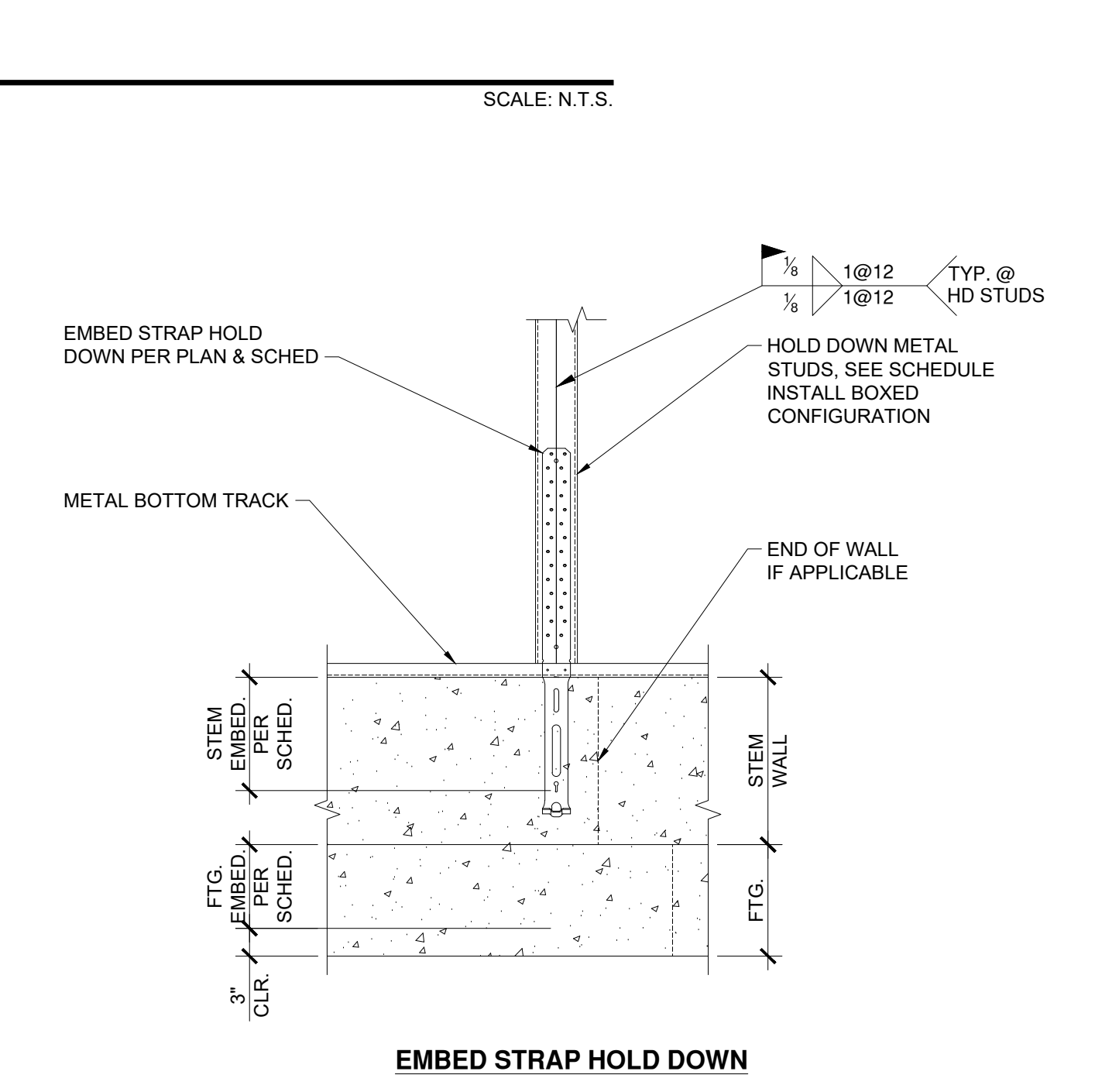
6 DIAMOND CLOSURE SCALE: N.T.S.

HOLD DOWN (HD) SCHEDULE

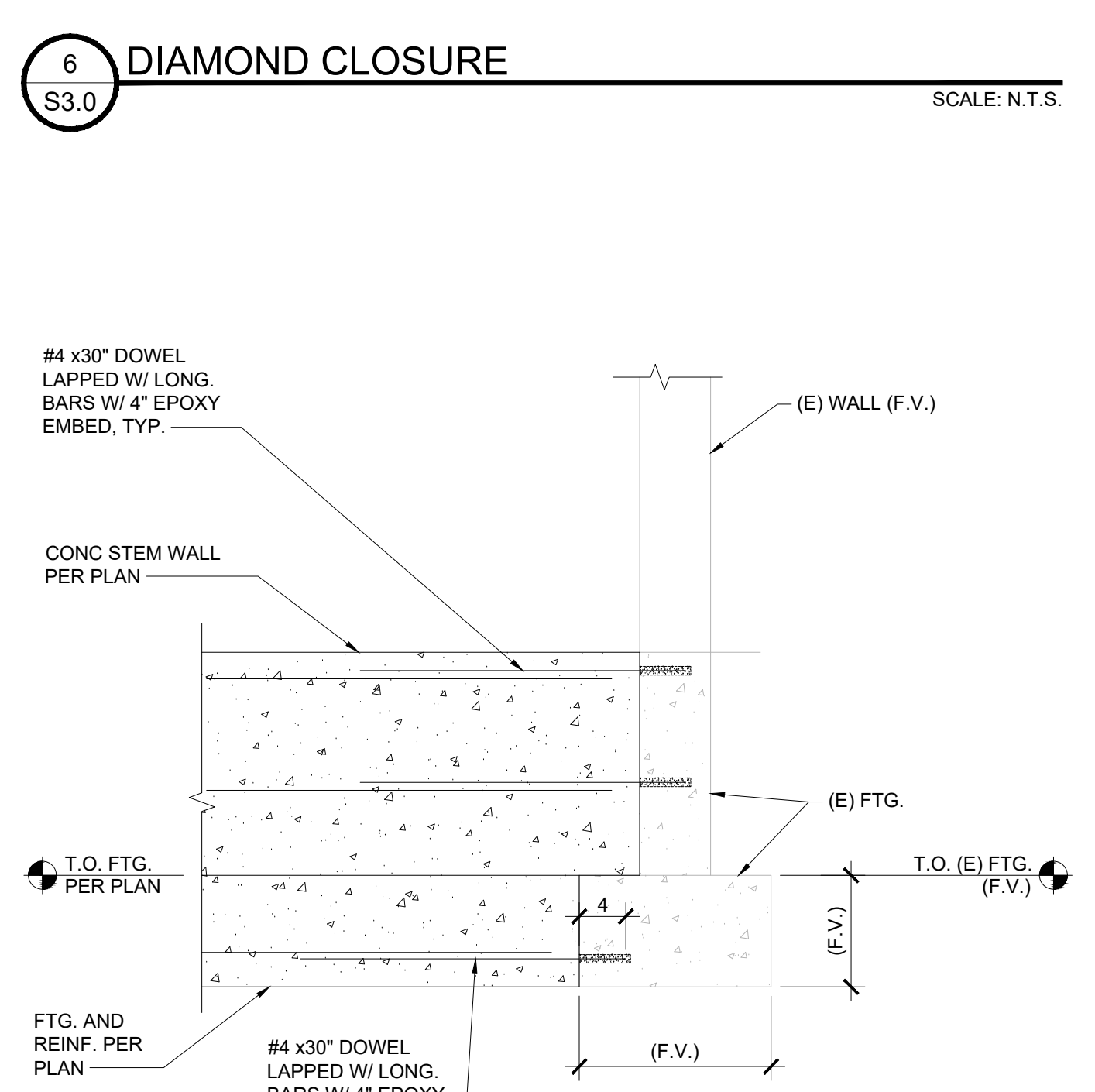
HD MARK	OPTION 1			OPTION 2		STUDS / POSTS	FTG SIZE
	STRAP HD SIZE	STUD SCREWS	SCREW HD SIZE	STUD SCREWS	ANCHOR BOLT		
A	STHD14	(30) #10	N/A	N/A	N/A	(2) 18 GA	N/A

NOTES:
 1. COMPARE HOLD DOWN STUDIOSPOT (PER HOLD DOWN SCHEDULE) TO KING STUD(S) (PER HEADER SCHEDULE). LARGER SIZE GOVERNS.
 2. DEEPEN OR WIDEN FOUNDATION AND STEM WALL AT FOOTING, WHERE REQUIRED.

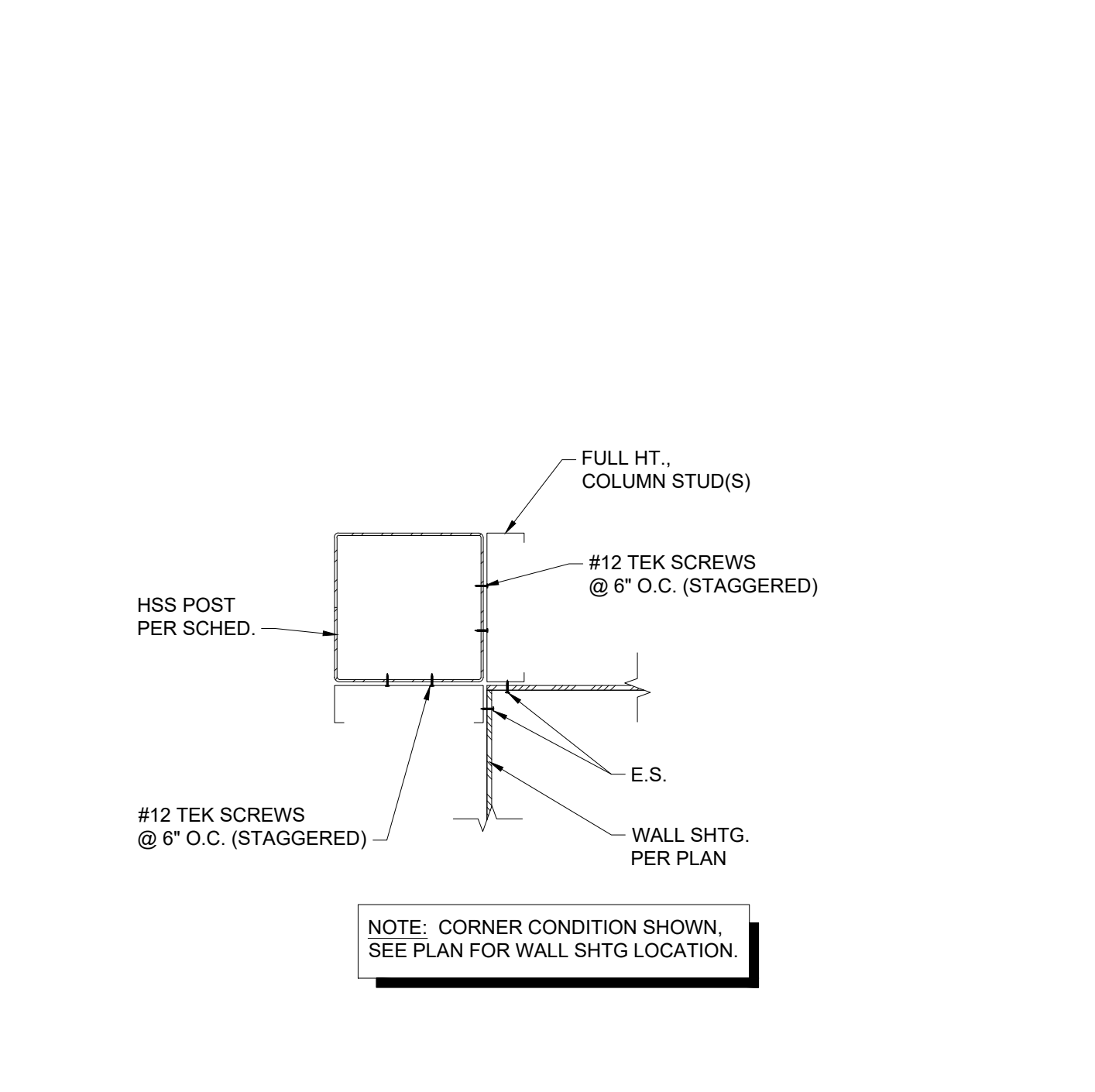
7 HOLD DOWN SCHEDULE - METAL STUDS SCALE: N.T.S.



8 FOUNDATION HOLD DOWN DETAIL SCALE: N.T.S.



9 SECTION @ FOOTING TRANSITION SCALE: 3/4\"/>



10 TYPICAL WALL WALL STUD TO HSS POST SCALE: 3/4\"/>

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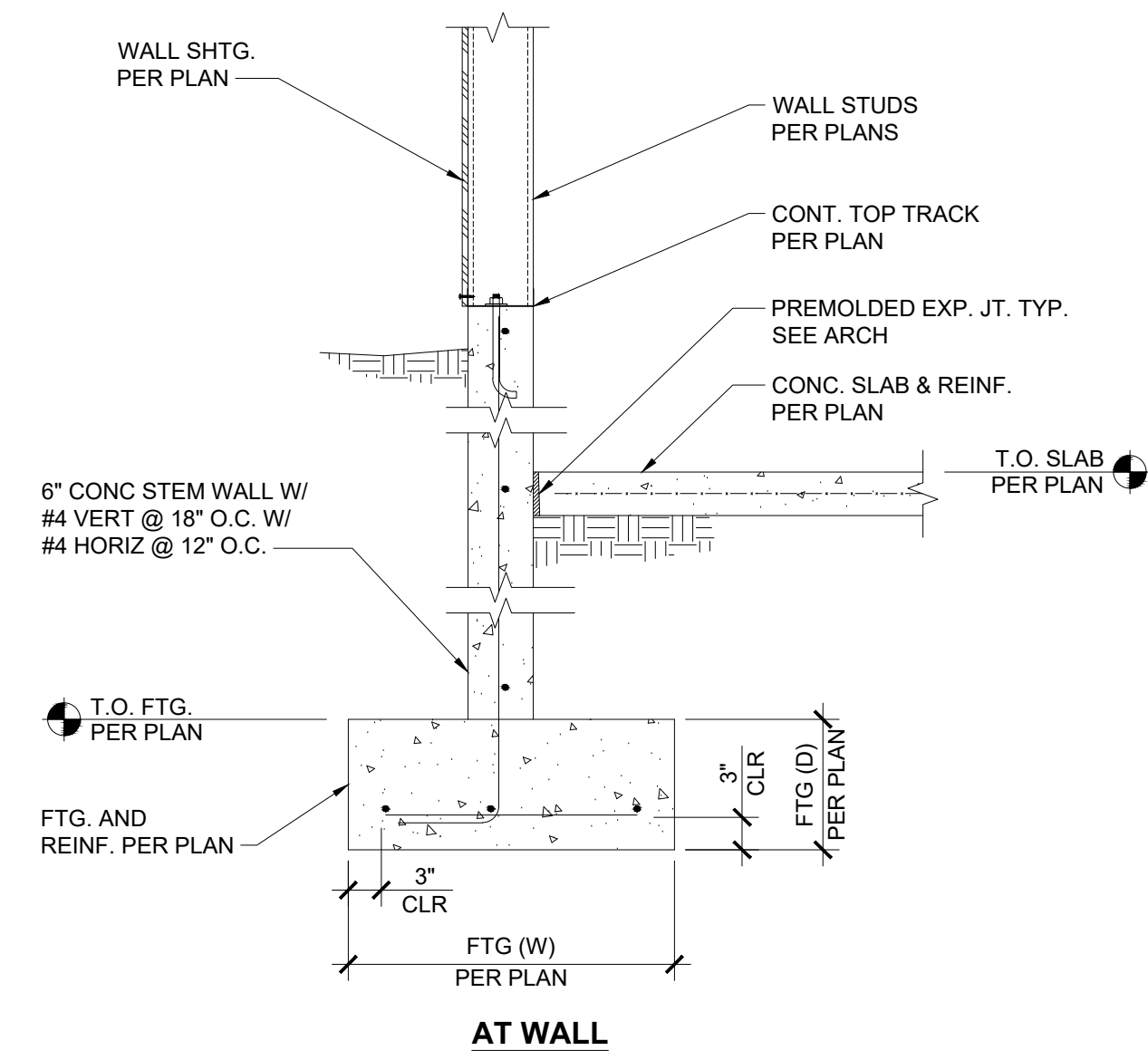
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 PROFESSIONAL ENGINEER
 LICENSE NO. 17720
 STATE OF IDAHO
 MATTHEW K. CHRISTIAN
 01/18/2023

PROJECT: 1227.22 DATE: 01/17/23
 DRAWN: NK CHECKED: MC
 REVISED:

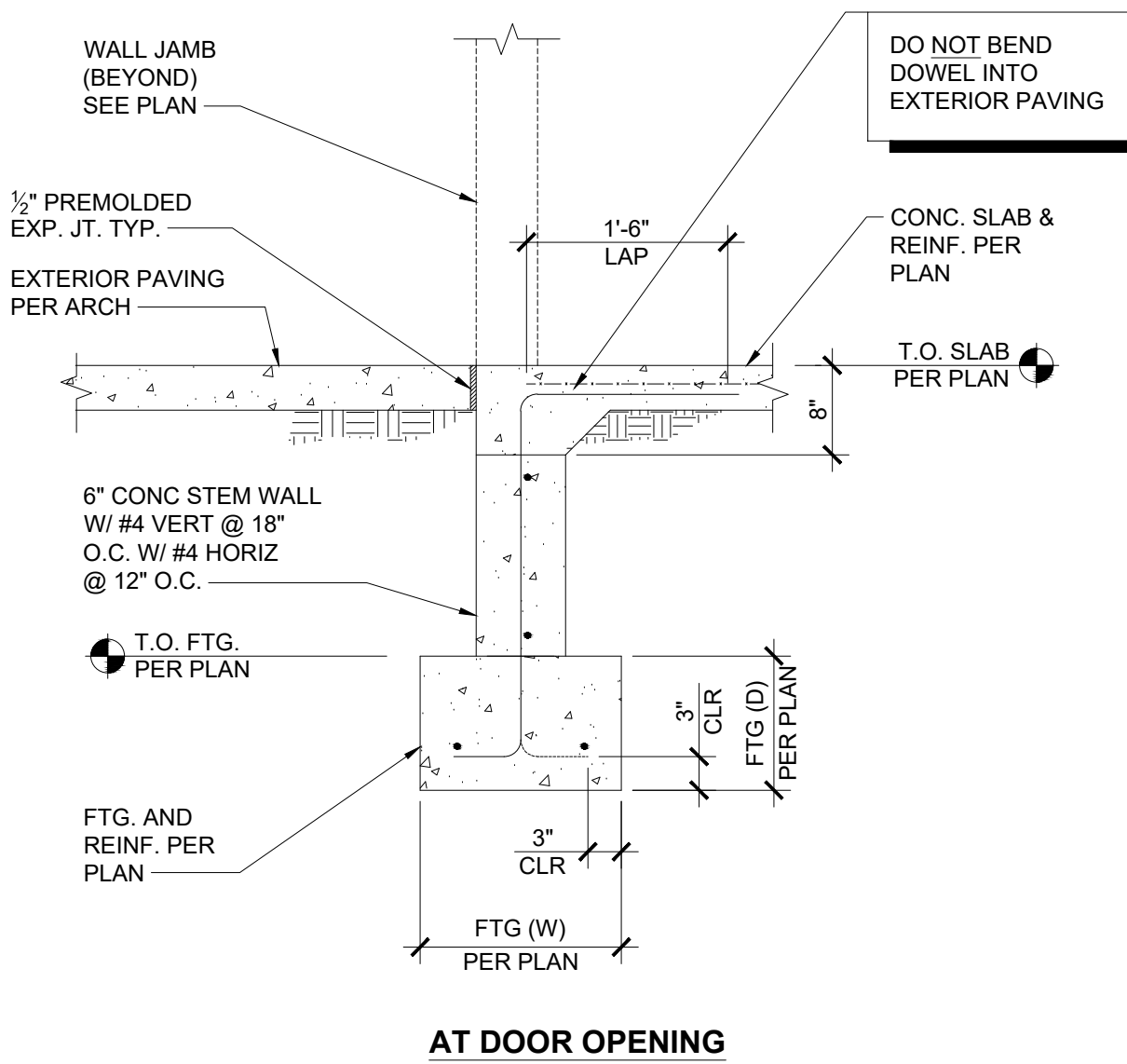
SHEET TITLE
 TYPICAL FOUNDATION DETAILS

SHEET
 S3.0
 ORIGINAL SHEET SIZE
 30" x 42"



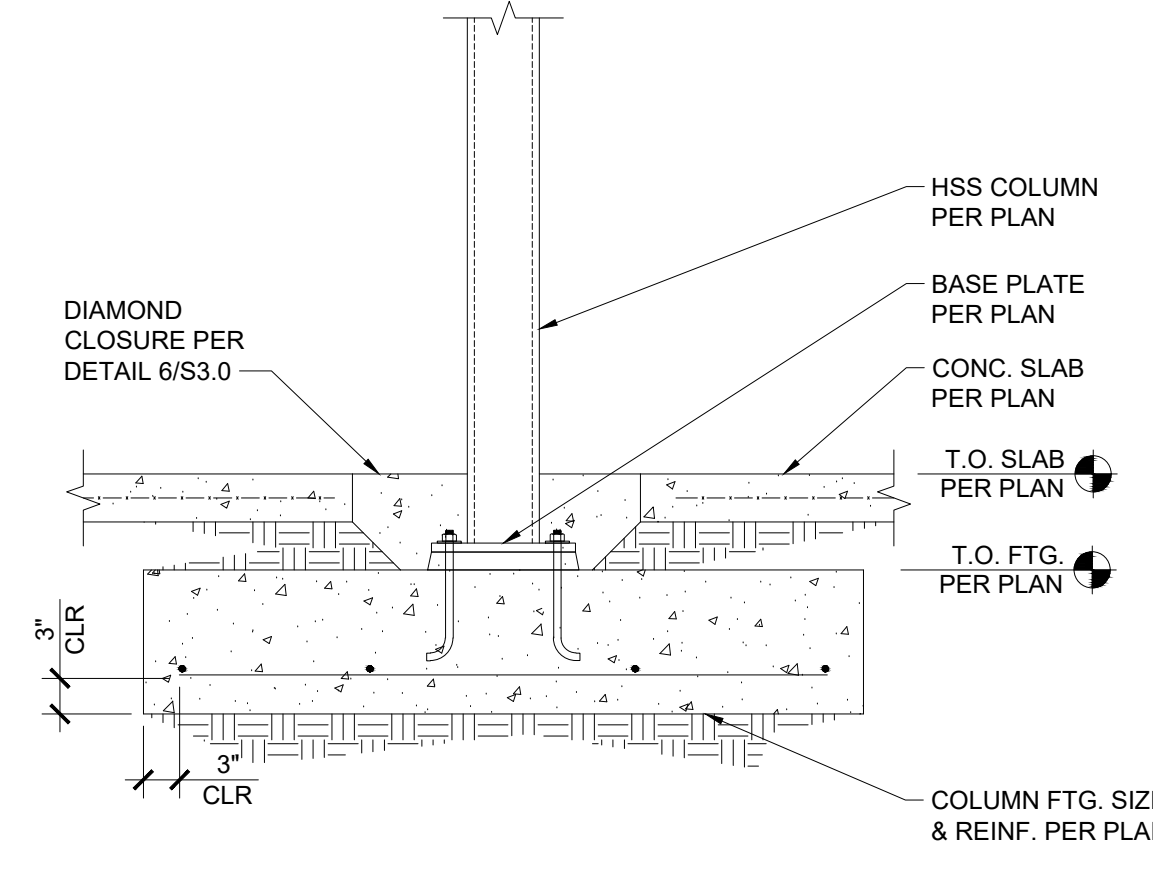
1 EXT. WOOD WALL FOOTING @ CONC. SLAB

SCALE: 3/4" = 1'-0"



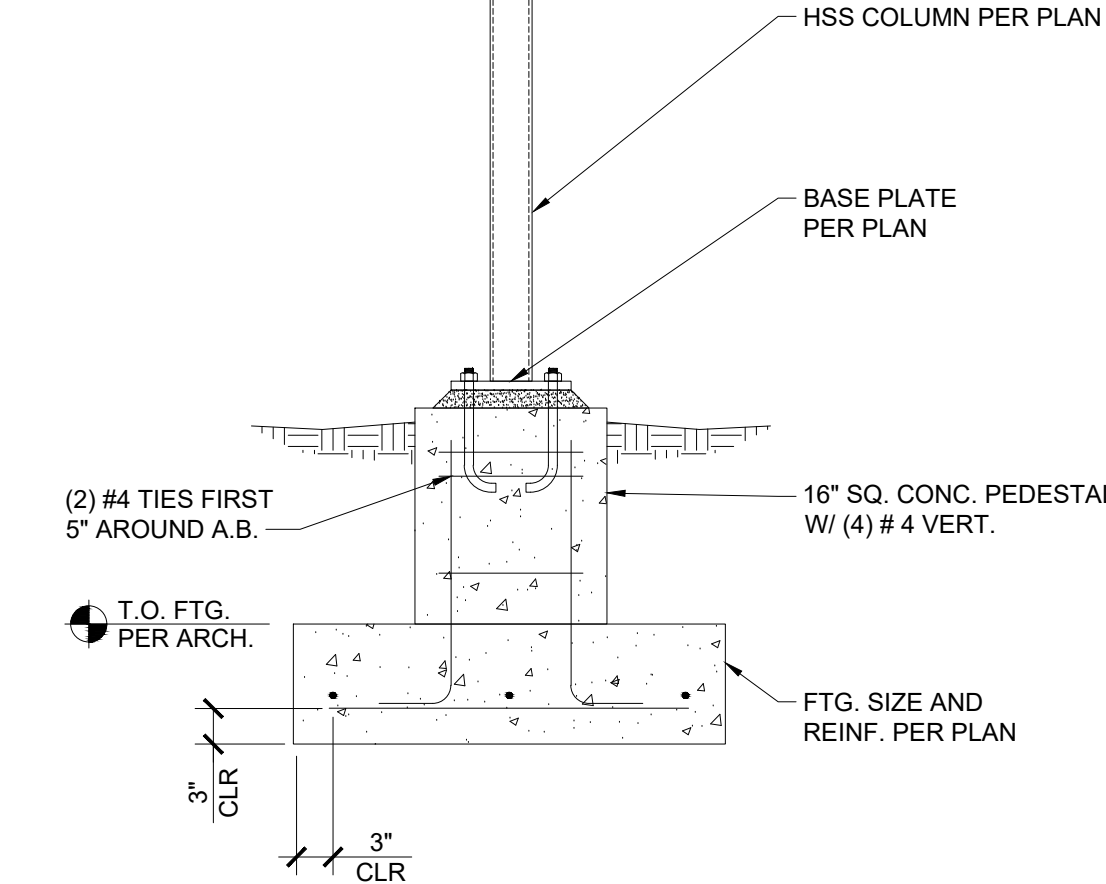
2 SECTION @ DOOR OPENING

SCALE: 3/4" = 1'-0"



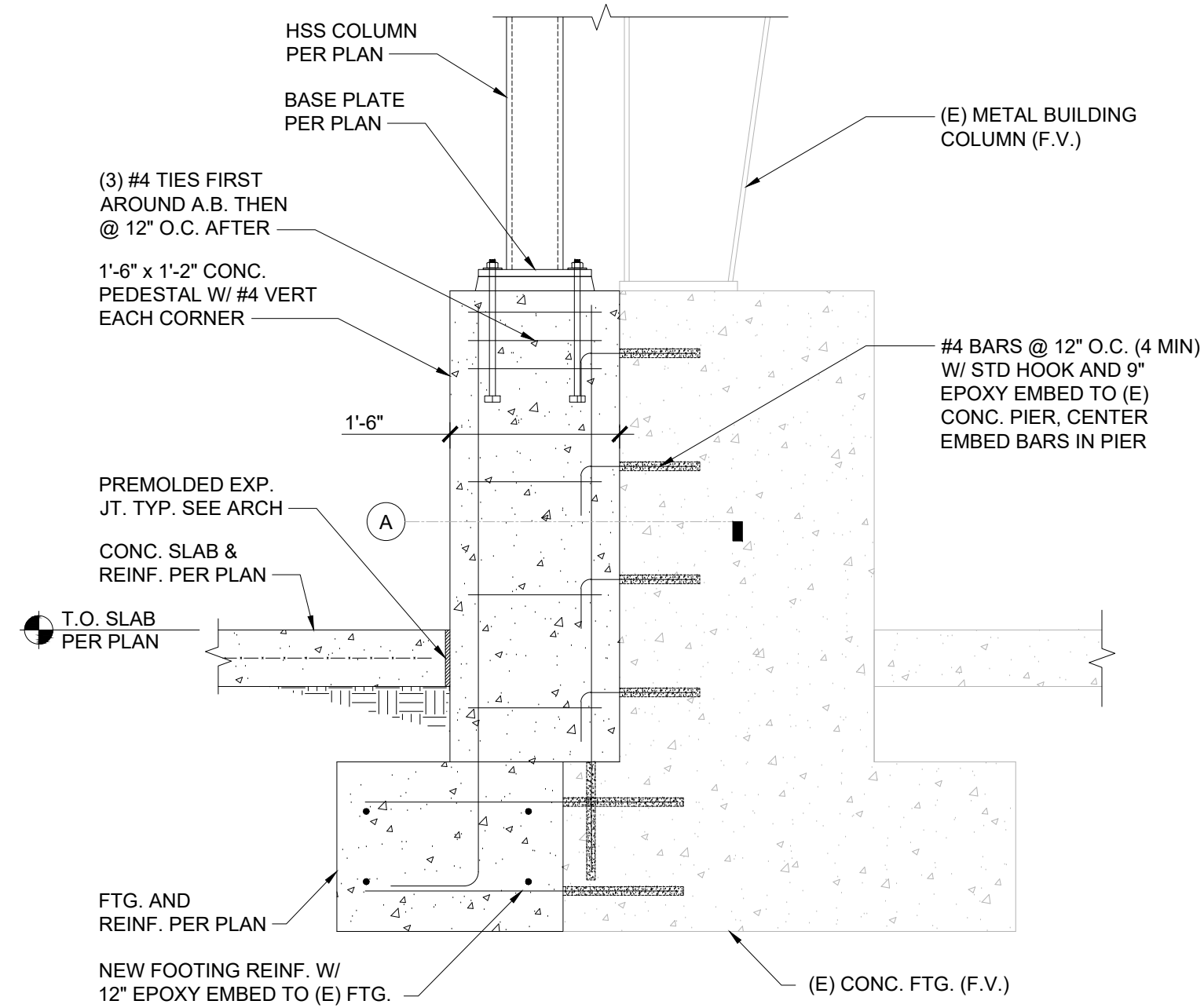
3 SECTION @ INTERIOR COLUMN

SCALE: 3/4" = 1'-0"



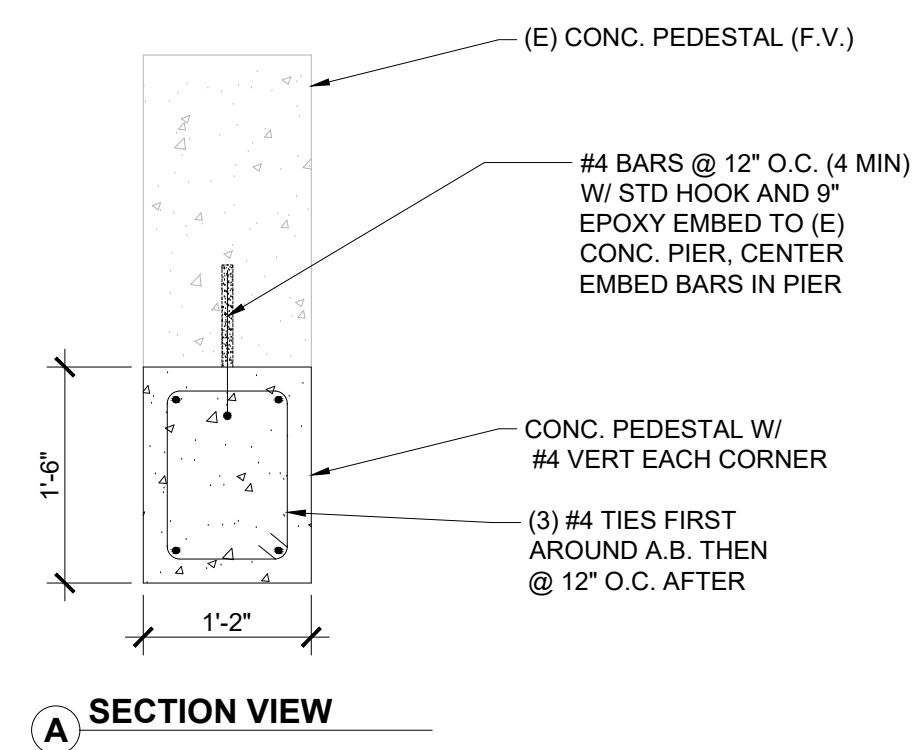
4 EXTERIOR STEEL COLUMN FOOTING

SCALE: 3/4" = 1'-0"



5 SECTION @ BUILT OUT COLUMN

SCALE: 3/4" = 1'-0"



A SECTION VIEW

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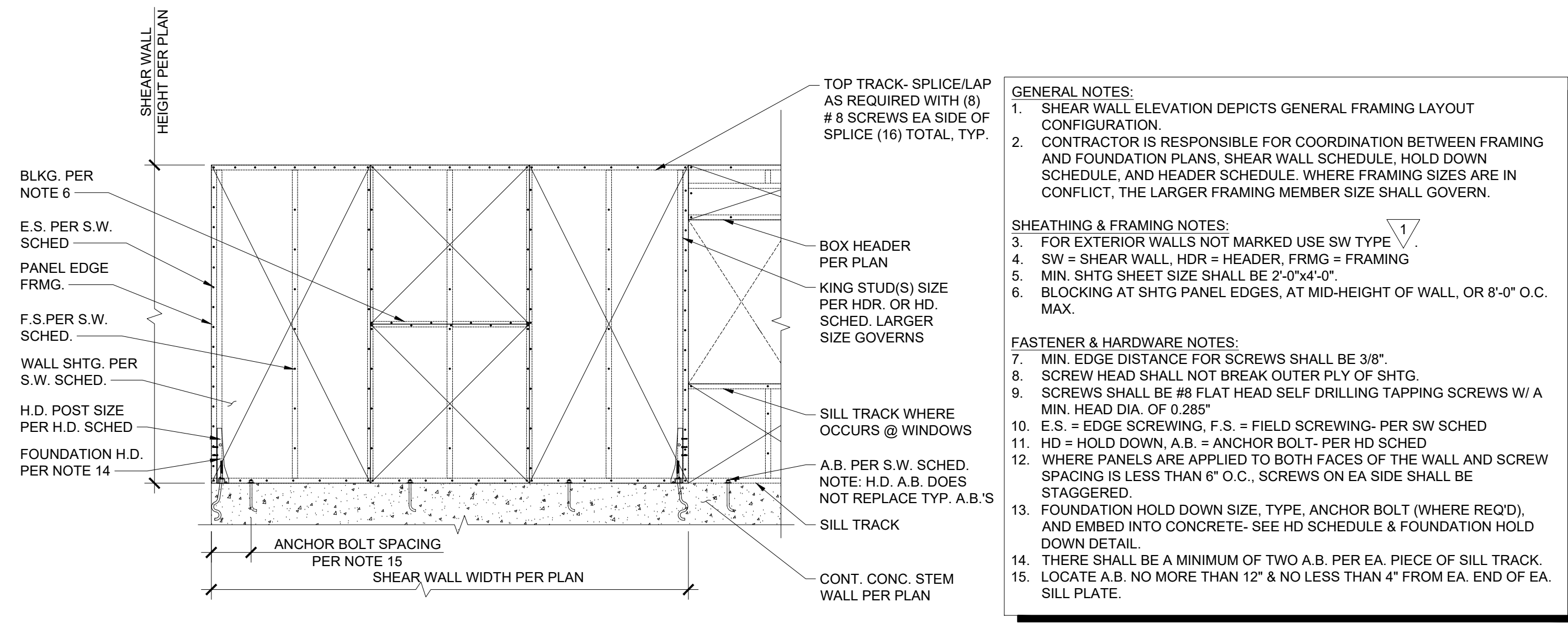
PROFESSIONAL ENGINEER
LICENSED
17720
STATE OF IDAHO
MATTHEW K. CHRISTIAN
01/18/2023

PROJECT: 1227.22 DATE: 01/17/23
DRAWN: NK CHECKED: MC
REVISED:

SHEET TITLE: FOUNDATION DETAILS

SHEET: S3.1

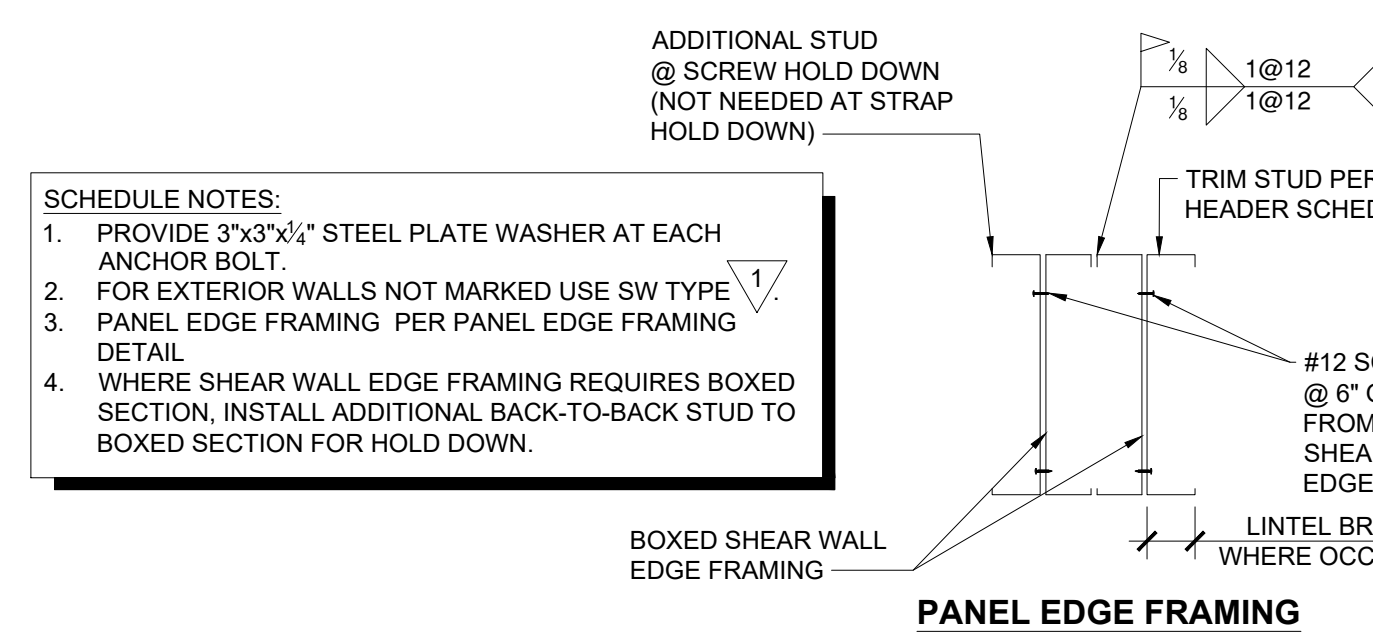
ORIGINAL SHEET SIZE: 30" x 42"



1 SHEAR WALL ELEVATION: SINGLE STORY: STEEL STUD FRAMING SCALE: N.T.S.

SHEAR WALL (SW) SCHEDULE

MARK	PANEL EDGE SCREW	PANEL FIELD SCREW	PANEL EDGE FRAMING	APA RATED SHTG.	SILL PLATE FASTENERS	BLKG TO TOP CHORD FASTENER
▽	#8 @ 6" O.C.	#8 @ 12" O.C.	(1) STUD	3/8" APA RATED	3/8" x 10" A.B. @ 48" O.C. W/ 7" EMBED	#8 @ 6" O.C.



2 SHEAR WALL SCHEDULE - STEEL STUD FRAMING SCALE: N.T.S.

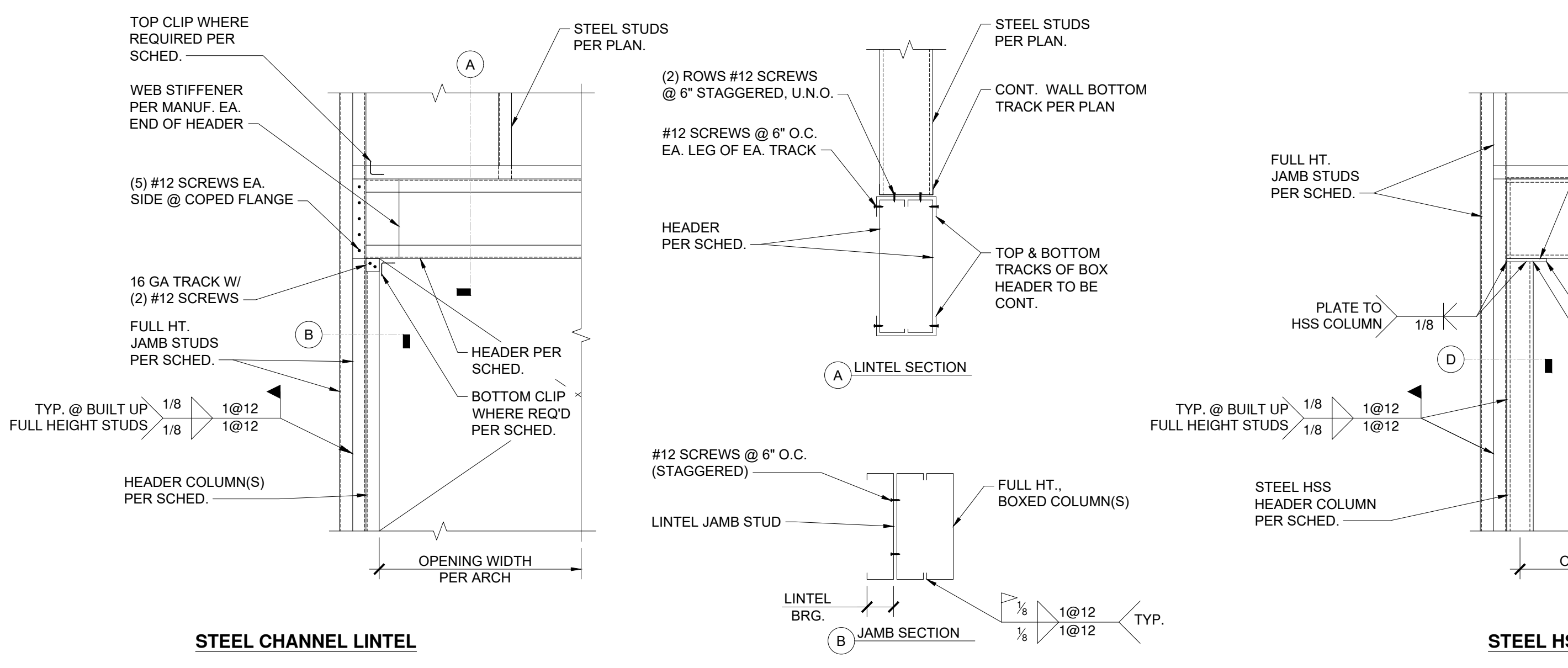
BOX LINTEL SCHEDULE

LINTEL MARK	LINTEL SIZE	LINTEL COLUMN STUD(S)	JAMB STUD(S)	HSS JAMB COLUMN	TOP CLIP	BOTTOM CLIP	WEB STIFFENER REQ'D?	NOTES
LL1	(2) 60SS162-43	(1)	(1)	NA	NA	NA	NO	SEE DETAIL 4/S4.0
LL2	HSS 5 1/2 x 5 1/2 x 3/16	NA	(1)	HSS 5 1/2 x 5 1/2 x 3/16	NA	NA	NO	SEE DETAIL 4/S4.0

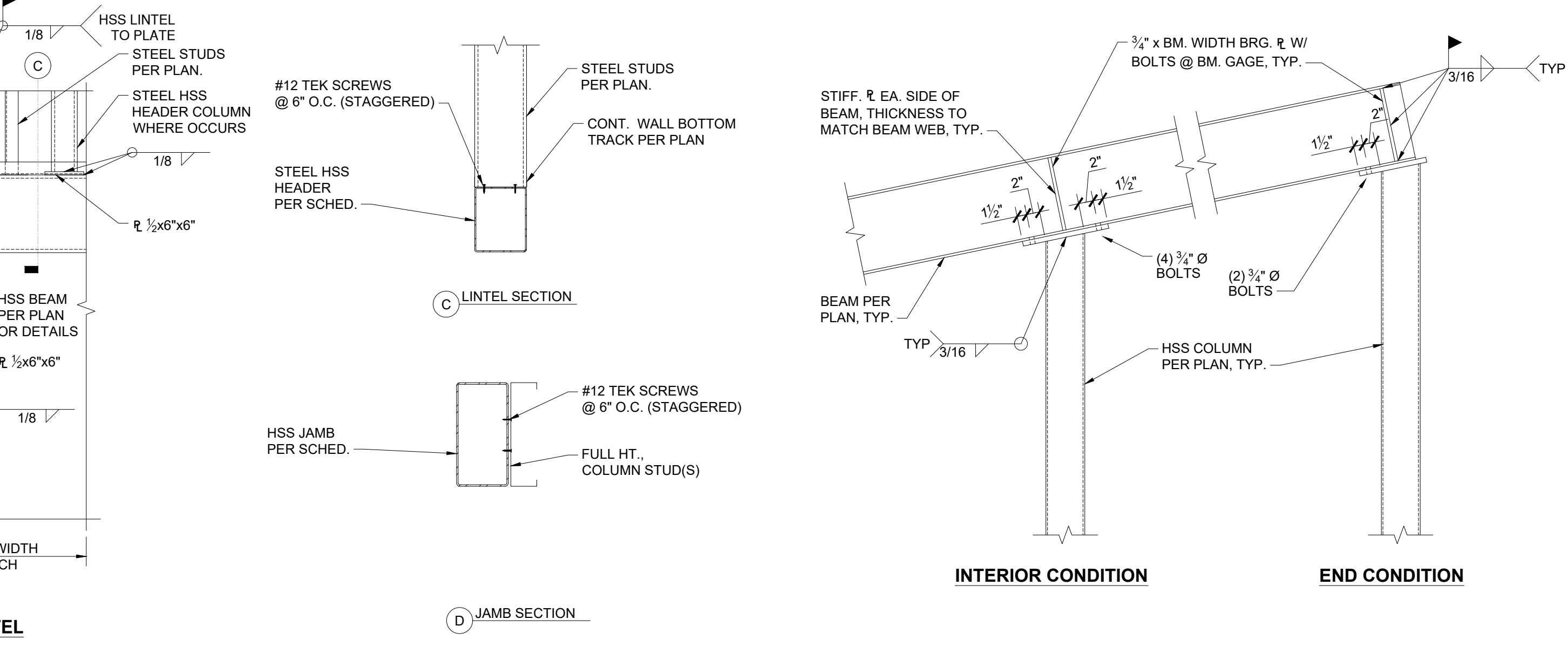
NOTES:

- COMPARE JAMB STUDS W/ HOLD DOWN STUD/POST W/ SHEAR WALL PANEL EDGE FRAMING. LARGER SIZE GOVERNS.
- ALL HEADER FRAMING MEMBERS TO BE 50 KSI.
- TOP & BOTTOM TRACK OF BOX HEADER SHALL BE CONT. MEMBERS AND SAME GAUGE AS THE HEADER FRAMING W/ MIN FLANGE DIMENSION OF 2" U.N.O.
- ASSEMBLED BOX HEADER TO BE SAME WIDTH AS WALL.
- HEADER FRAMING SHALL NOT HAVE STUD "KEY HOLES" OR "PUNCH OUTS" WITHIN 12" OF EITHER END.
- IF HEADER REQUIRED WEB STIFFENER PER SCHEDULE, INSTALL PER MANUF.

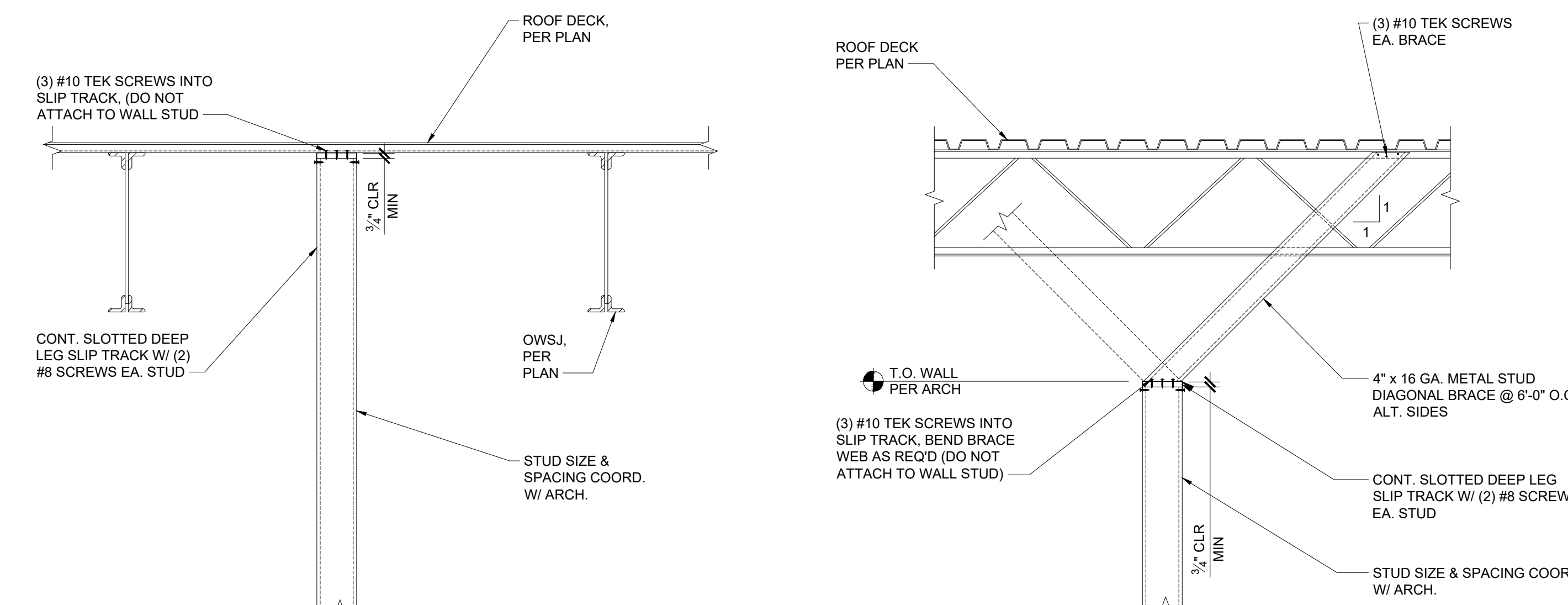
3 BOX LINTEL SCHEDULE SCALE: N.T.S.



4 SECTION @ WALL OPENING SCALE: N.T.S.

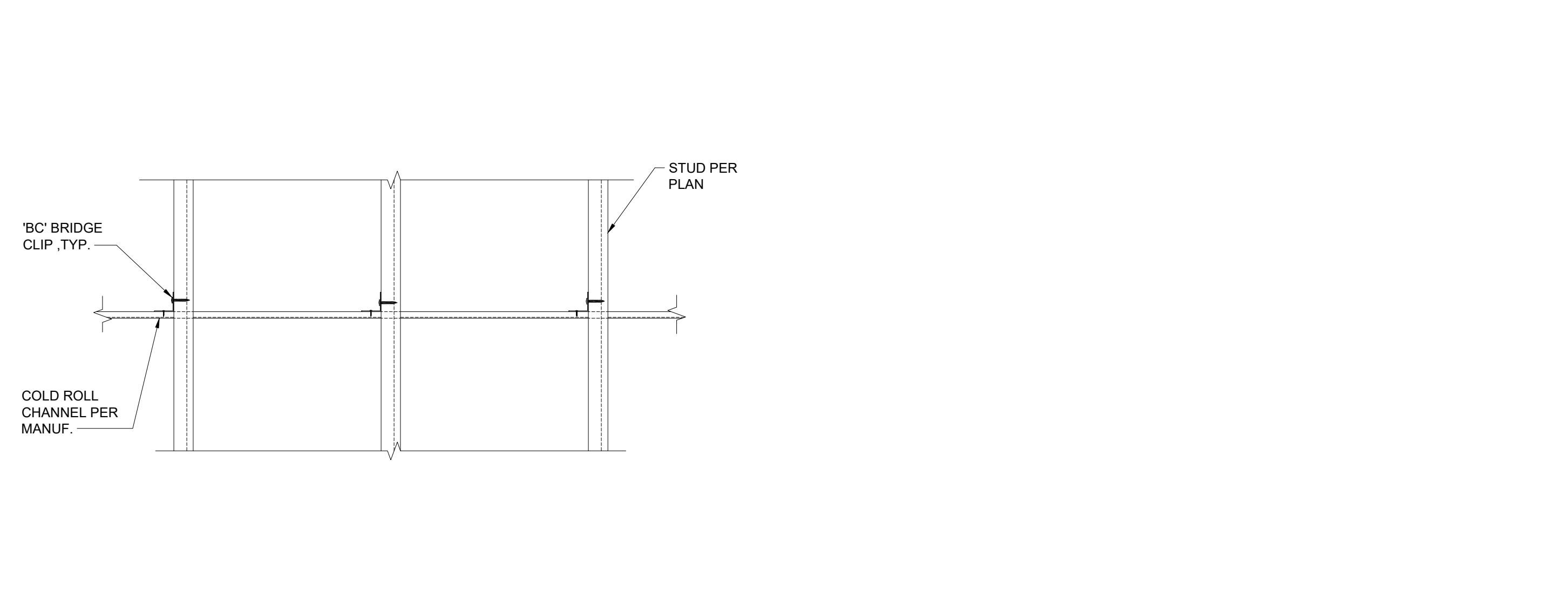


5 W BEAM TO HSS COLUMN SCALE: N.T.S.



6 SECTION @ FULL HEIGHT NON-BEARING WALL SCALE: N.T.S.

7 SECTION @ NON-BEARING WALL SCALE: N.T.S.



8 TYPICAL BRIDGING DETAIL SCALE: N.T.S.

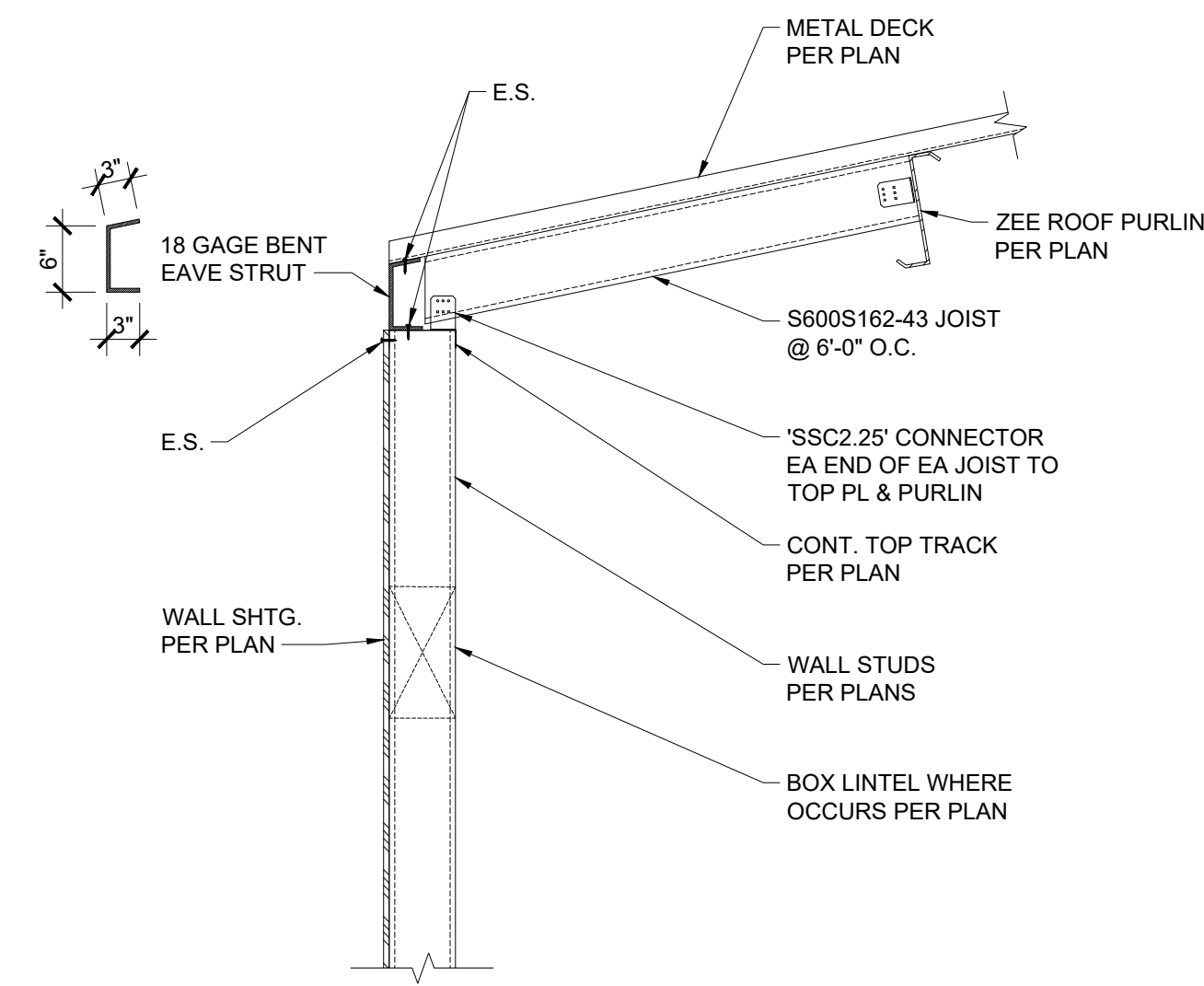
ITD MAINTENANCE BLDG. IMPROVEMENTS
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 15430 HIGHWAY 44
CSHQA

PROJECT: 1227.22 DATE: 01/17/23
 DRAWN: NK CHECKED: MC
 REVISIONS:

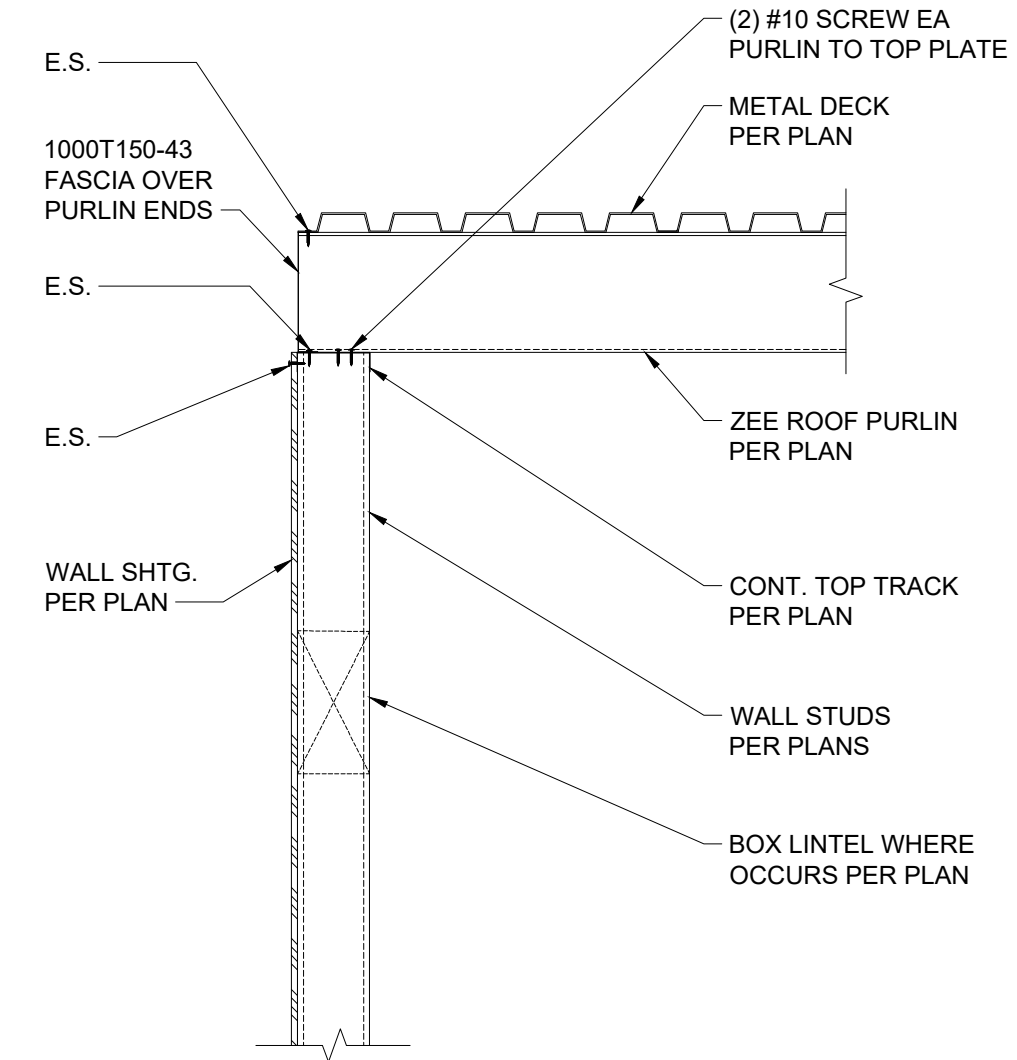
SHEET TITLE: TYPICAL FRAMING DETAILS
 SHEET: S4.0
 ORIGINAL SHEET SIZE: 30" x 42"

JAMES MARSH ARCHITECT
 200 BROAD STREET
 CALDWELL, IDAHO 83702
 PHONE: 208-343-4635 FAX: 208-343-1838
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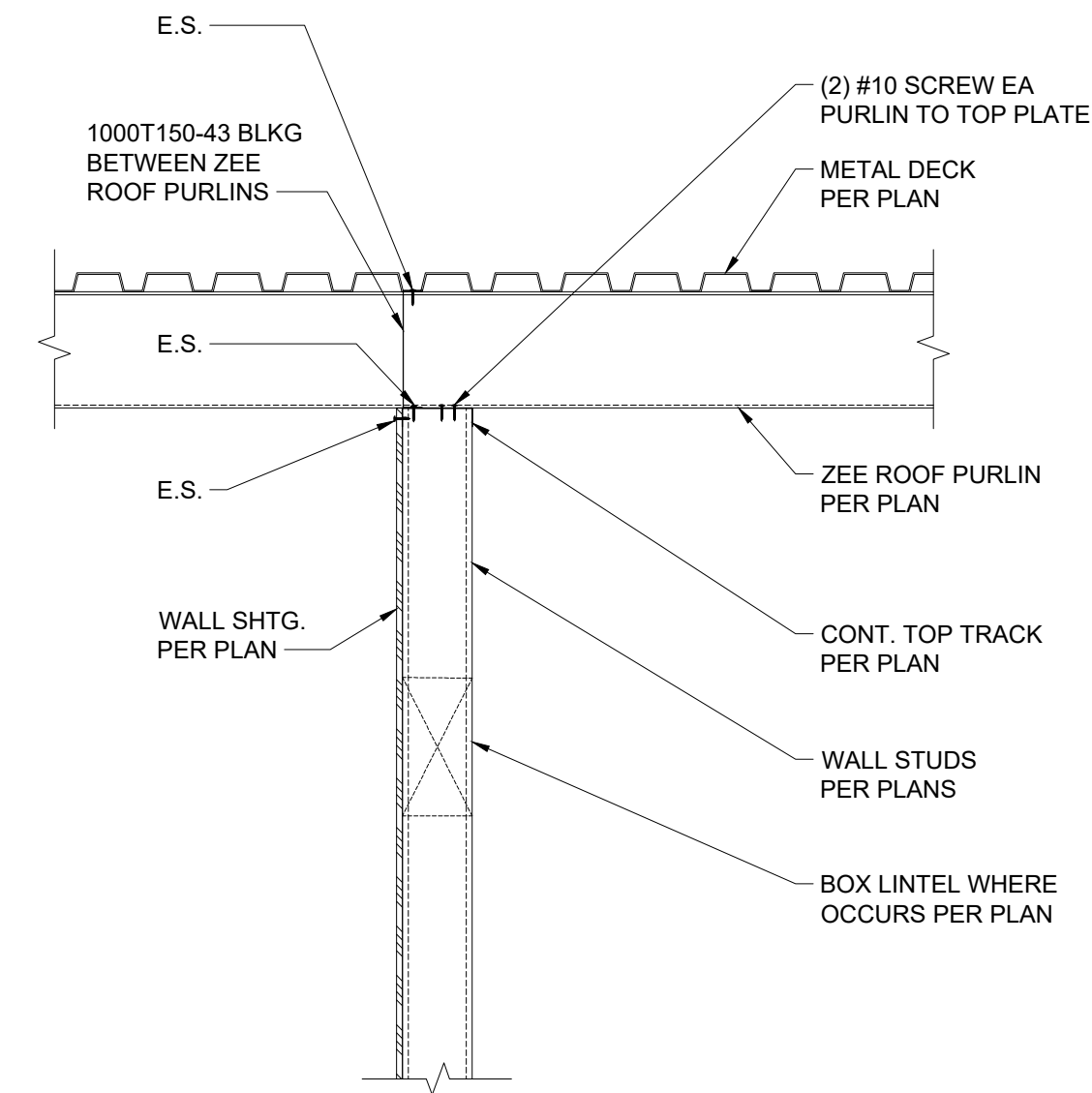
PROFESSIONAL ENGINEER
 LICENSE NO. 17720
 STATE OF IDAHO
 MATTHEW K. CHRISTIAN
 01/18/2023



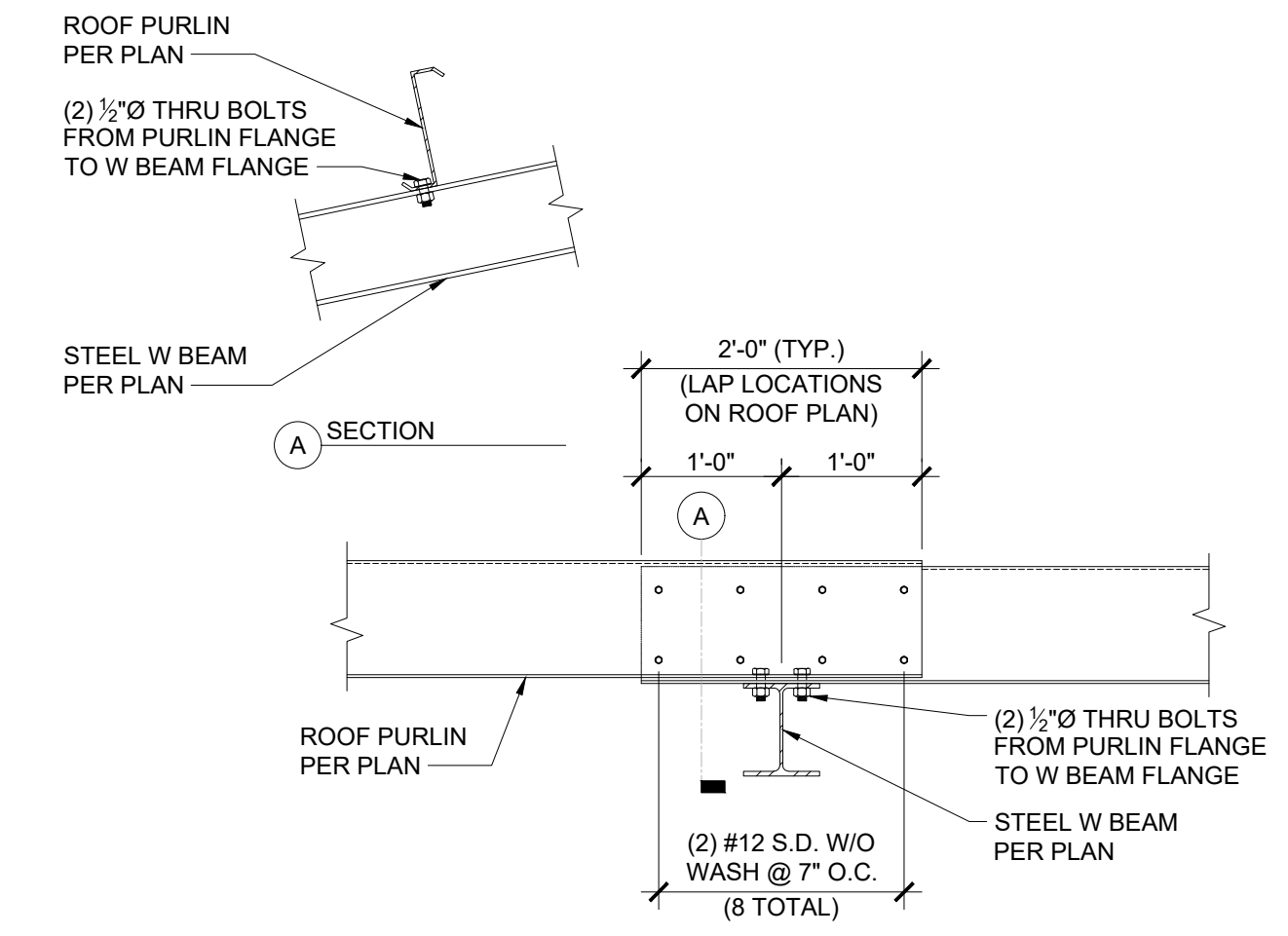
1 SECTION @ EXTERIOR WALL
S4.1 SCALE: N.T.S.



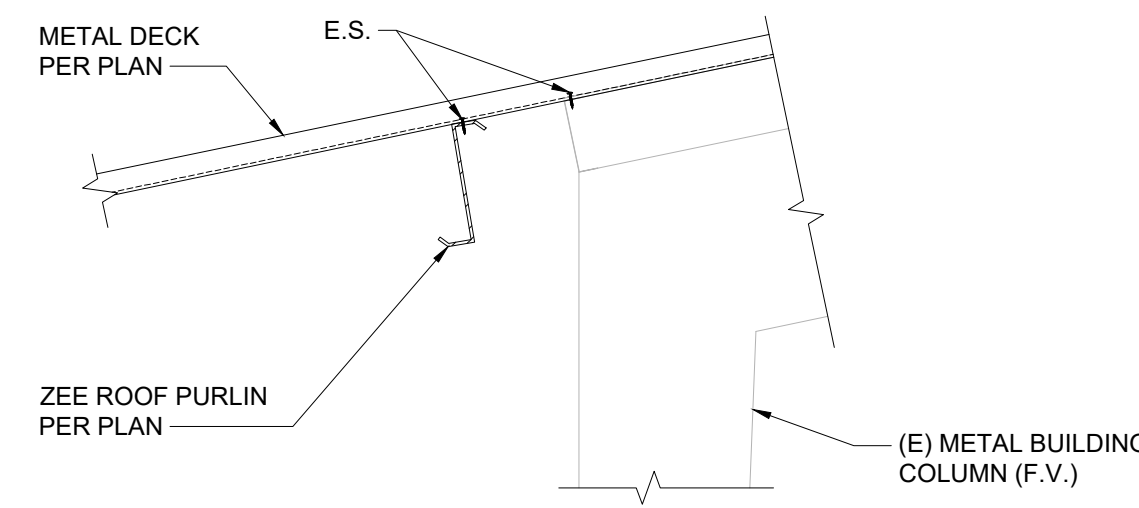
2 SECTION @ EXTERIOR WALL
S4.1 SCALE: N.T.S.



3 SECTION @ EXTERIOR WALL
S4.1 SCALE: N.T.S.



4 SECTION @ ZEE PURLIN TO BEAM
S4.1 SCALE: N.T.S.



5 (N) ROOF AT (E) ROOF
S4.1 SCALE: N.T.S.

JOSEPH H. HUFF, P.E.
JAMES MARSH, ARCHITECT

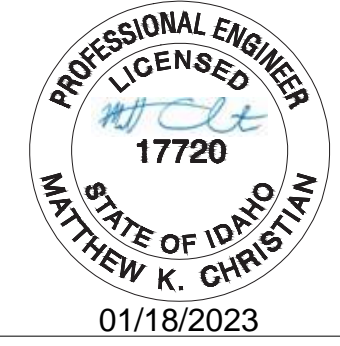
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15430 HIGHWAY 44

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PROJECT	DATE
1227.22	01/17/23
DRAWN	CHECKED
NK	MC

REVISED

SHEET TITLE
FRAMING
DETAILS

SHEET
S4.1

ORIGINAL SHEET SIZE
30" x 42"

COMcheck Software Version 4.1.5.5
Mechanical Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: ITD Maintenance BLDG. Improvements
 Location: Caldwell, Idaho
 Climate Zone: 5b
 Project Type: New Construction

Construction Site: 25430 Highway 44, Caldwell, ID 83607
 Owner/Agent: Joseph Huff, CSHQA, 200 W. Broad St., Boise, ID 83702
 Designer/Contractor: Joseph Huff, CSHQA, 200 W. Broad St., Boise, ID 83702

Additional Efficiency Package(s)
 Credits: 1.0 Required, 1.0 Proposed
 Reduced Lighting Power: 1.0 credit

Mechanical Systems List
 Quantity System Type & Description

- 1 2 - Ton Heat Pump (Single Zone):
 Split System Heat Pump
 Heating Mode: Capacity = 28 kBtu/h,
 Proposed Efficiency = 10.40 HSPF, Required Efficiency = 8.20 HSPF
 Cooling Mode: Capacity = 24 kBtu/h,
 Proposed Efficiency = 19.00 SEER, Required Efficiency = 14.00 SEER
 Fan System: 2 - Ton Heat Pump | Janitor 117 -- Compliance (Motor nameplate HP method) : Passes
 Fans:
 FC1 Supply, Constant Volume, 800 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
- 1 3.5 - Ton Heat Pump (Single Zone):
 Split System Heat Pump
 Heating Mode: Capacity = 48 kBtu/h,
 Proposed Efficiency = 10.00 HSPF, Required Efficiency = 8.20 HSPF
 Cooling Mode: Capacity = 42 kBtu/h,
 Proposed Efficiency = 15.40 SEER, Required Efficiency = 14.00 SEER
 Fan System: 3.5 - Ton Heat Pump | Mechanical Storage 205 -- Compliance (Motor nameplate HP method) : Passes
 Fans:
 FC2 Supply, Constant Volume, 1485 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
- 2 4 - Ton Heat Pump (Single Zone):
 Split System Heat Pump
 Heating Mode: Capacity = 54 kBtu/h,
 Proposed Efficiency = 11.00 HSPF, Required Efficiency = 8.20 HSPF

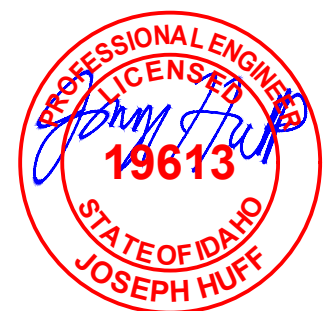
Project Title: ITD Maintenance BLDG. Improvements Report date: 01/20/23
 Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\70 HVAC\05_Calcs\22123 - ITD Maintenance Building.cck Page 1 of 17

- 3 EH (1-3) - Electric Heater (Single Zone):
 Heating: 3 each - Unit Heater, Electric, Capacity = 4 kBtu/h
 No minimum efficiency requirement applies
 Fan System: EH (1-3) - Electric Heater | EH1 - STORAGE 119, EH2 - SUPPLIES 113, EH3 - ROOM 112 -- Compliance (Motor nameplate HP method) : Passes
- 9 UH (1-9) - Unit Heater (Single Zone):
 Heating: 9 each - Unit Heater, Gas, Capacity = 105 kBtu/h
 Proposed Efficiency = 83.00% Ec, Required Efficiency: 80.00 % Ec
 Fan System: UH (1-9) - Unit Heater | UH (1-9) - SHOP AREA 116 -- Compliance (Motor nameplate HP method) : Passes

- Fans:
 EH1 Supply, Single-Zone VAV, 65 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
 EH2 Supply, Constant Volume, 65 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
 EH3 Supply, Constant Volume, 65 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
- Fans:
 UH1 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
 UH2 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
 UH3 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
 UH4 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
 UH5 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
 UH6 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
 UH7 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
 UH8 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
 UH9 Supply, Constant Volume, 1345 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
- 1 Water Heater 1:
 Electric Storage Water Heater, Capacity: 55 gallons w/ Circulation Pump
 Proposed Efficiency: 0.79 SL, %/h (if > 12 kW), Required Efficiency: 0.79 SL, %/h (if > 12 kW)

Mechanical Compliance Statement
 Compliance Statement: The proposed mechanical design represented in this document is consistent with the building p specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.
 Joseph Huff, Signature, 1/20/2023, Date

Project Title: ITD Maintenance BLDG. Improvements Report date: 01/20/23
 Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\70 HVAC\05_Calcs\22123 - ITD Maintenance Building.cck Page 2 of 17



Digitally signed by Joseph Huff
 Date: 2023.01.20 13:56:07 -0700
 Contact Info: jhuff@stqa.com

ORIGINAL DOCUMENTS ARE HELD AT
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 BOISE, ID 83702

JOSEPH HUFF, P.E.
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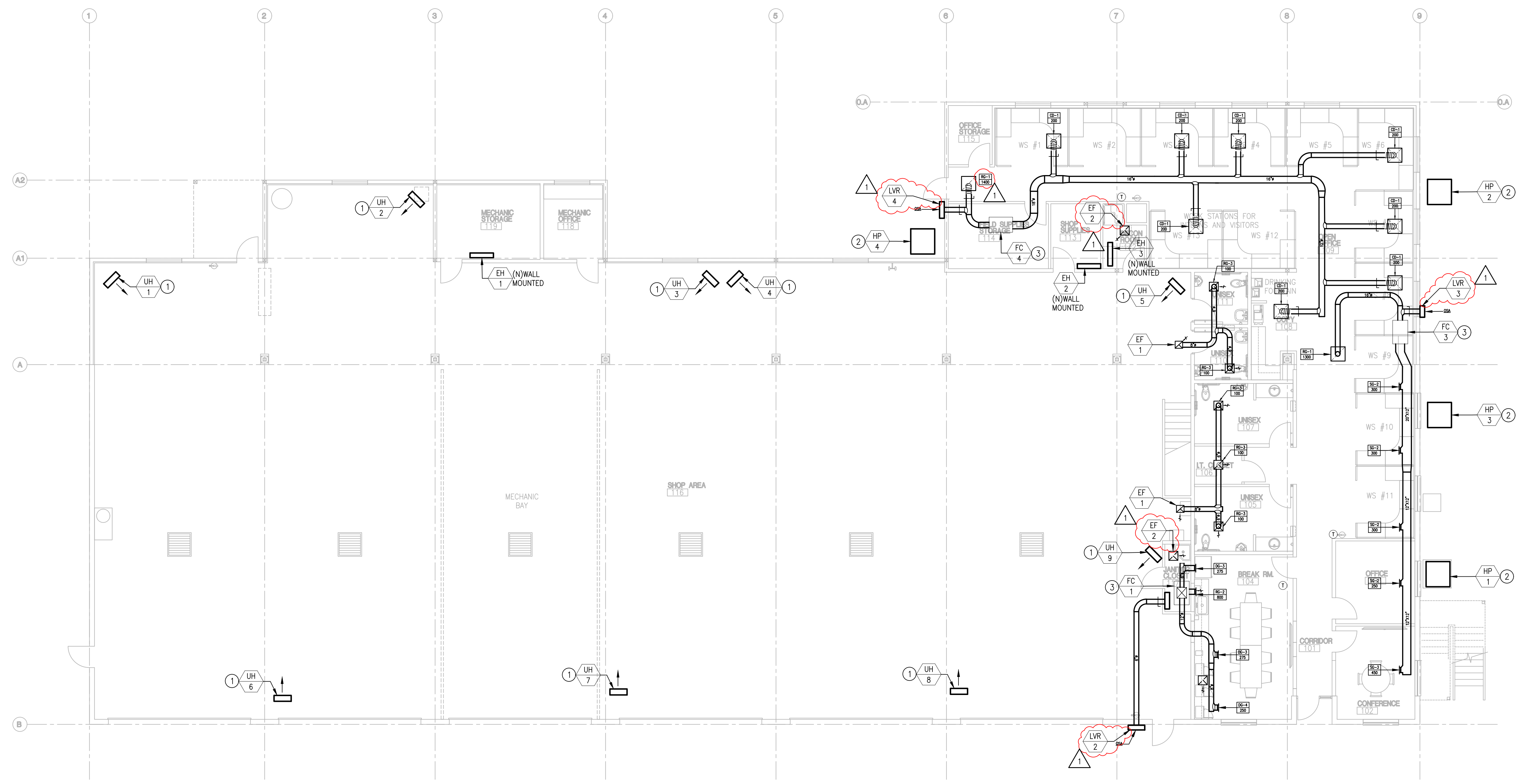
PROJECT: 22123.00 DATE: 1/20/23
 DRAWN: JH CHECKED: JH
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REVISED

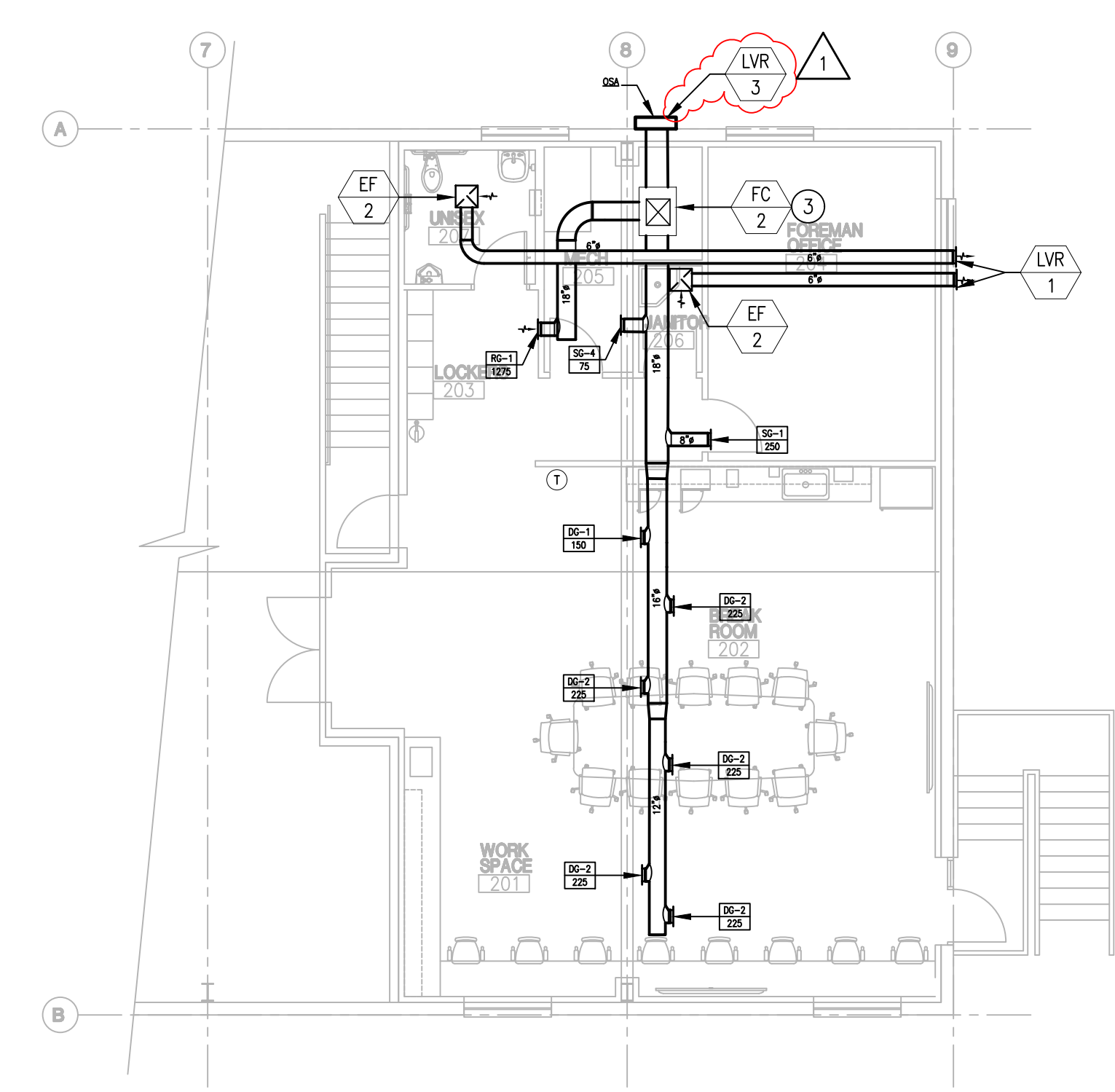
SHEET TITLE
ENERGY COMPLIANCE

SHEET
M02

ORIGINAL SHEET SIZE
 30" x 42"



1 FIRST FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"



2 MEZZANINE HVAC PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- A. FOR LOW PRESSURE DUCTWORK, WHERE RECTANGULAR DUCT IS INDICATED ON PLANS, EQUIVALENT SIZE ROUND DUCT MAY BE USED. EQUIVALENT SIZE RECTANGULAR DUCT MAY BE USED IN PLACE OF ROUND DUCT, EXCEPT IN EXPOSED AREAS. EQUIVALENT RECTANGULAR SIZE MAY NOT BE USED ON DUCTS EXPOSED TO VIEW OR AS INDICATED OTHERWISE.
- B. CONTRACTOR SHALL PROVIDE ALL NECESSARY TRANSITIONS TO AVOID CONFLICT WITH OTHER DUCTWORK, PIPING, STRUCTURE, ETC. AS PART OF THIS CONTRACT. WHEREVER AVAILABLE SPACE ALLOWS, OFFSETS SHALL BE MADE WITH 45 DEGREE ELBOWS WITH TURNING VANES.
- C. DUCTWORK SIZES NOTED ON DRAWINGS ARE FREE AREA SIZES. HVAC CONTRACTOR SHALL BE RESPONSIBLE TO COMPENSATE FOR INSULATION, ETC.
- D. ALL SQUARE SUPPLY DIFFUSERS SHALL BE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLAN.
- E. ALL ELBOWS ARE STANDARD RADIUS (R=3W/2) UNLESS NOTED OTHERWISE. DO NOT SUBSTITUTE MITERED ELBOWS FOR RADIUS ELBOWS UNLESS APPROVED IN WRITING BY THE ENGINEER OF RECORD.
- F. PROVIDE ACCESS DOORS IN DUCTWORK FOR RESETTING OF FIRE/SMOKE DAMPERS WHERE INDICATED AND AS REQUIRED BY SPECIFICATIONS OR CODE.
- G. FIRE DAMPERS SHALL BE 1-1/2 HOUR RATED UNLESS OTHERWISE NOTED. RE: DIVISION 23 SECTION "AIR DUCT ACCESSORIES" FOR SPECIFICATIONS.
- H. ALL WIRING, PIPING, AND EQUIPMENT INSTALLED IN PLENUMS SHALL BE PLENUM RATED OR INSTALLED IN CONDUIT.
- I. THERMOSTATS, TEMPERATURE SENSORS, AND CO2 SENSORS SHALL BE INSTALLED AT 48" AFF UNLESS NOTED OTHERWISE. COORDINATE JUNCTION BOX INSTALLATION WITH ELECTRICAL CONTRACTOR.
- J. PIPING PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE FIRESTOPPED IN ACCORDANCE WITH 2015 IBC SECTION 713.
- K. OUTSIDE AIR INTAKES SHALL BE INSTALLED WITH A MINIMUM SEPARATION OF 10'-0" FROM ALL EXHAUST AIR DISCHARGE, GAS FLUES, AND PLUMBING VENTS.
- L. MATERIALS UTILIZED WITHIN RETURN PLENUMS SHALL HAVE A FLAME-SPREAD INDEX OF NOT MORE THAN 25, AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50.
- M. ALL EXPOSED DUCTWORK SHALL BE PAINTED PER ARCHITECTURAL CEILING PLANS. COORDINATE WITH CONSTRUCTION MANAGER.

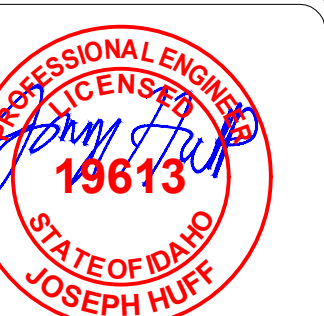
SHEET NOTES:

- 1. MOUNT PROPANE FIRED HEATER FROM WALL AT 9'-0" AFF. UNIT TO MAINTAIN A MINIMUM OF 50° TEMPERATURE IN SPACE.
- 2. FURNISH WITH 18" TALL CONDENSER STAND SECURE TO ROOF. VERIFY ALL MANUFACTURER RECOMMENDED UNIT CLEARANCES FOR PERFORMANCE AND MAINTENANCE ARE MET PRIOR TO INSTALL.
- 3. MOUNT FAN COIL UNIT TO THE CEILING. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL PLANS FOR FINAL LOCATION. PROVIDE 24 VOLT INTERFACE KIT AS REQUIRED FOR CONNECTION TO WIRED 7-DAY PROGRAMMABLE THERMOSTAT.

LEGEND:

(RE: M01 FOR ADDITIONAL INFORMATION)

SUPPLY DIFFUSER	SUPPLY DUCT THRU ROOF OR FLOOR
RETURN GRILLE	RETURN DUCT THRU ROOF OR FLOOR
EXHAUST GRILLE	EXHAUST DUCT THRU ROOF OR FLOOR
SIDEWALL OR DOOR GRILLE	OUTSIDE AIR DUCT THRU ROOF OR FLOOR
FIRE DAMPER	ROUND DUCT/FLUE THRU ROOF OR FLOOR
SMOKE DETECTOR (ROOM OR UNIT#)	THERMOSTAT (ROOM OR UNIT#)
OPPOSED BLADE DAMPER (ROOM OR UNIT#)	WALL-MOUNT TEMPERATURE SENSOR (ROOM OR UNIT#)
PARALLEL BLADE DAMPER (ROOM OR UNIT#)	SWITCH (ROOM OR UNIT#)
FLEX DUCT	EQUIPMENT CALLOUT (STANDARD)
BALANCE DAMPER	SHEET NOTES
CONNECT NEW TO EXISTING	
SHADED SIDE IS NEW WORK	



Digitally signed by Joseph Huff
Date: 2023.02.24 15:28:07
Contact: joseph.huff@csghoa.com

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95% CD
OWNER REVIEW

PROJECT 22123.00	DATE 1/20/23
DRAWN LO	CHECKED JH

REVISED
2/24/2023
ADDENDUM ONE

SHEET TITLE
HVAC PLAN

SHEET
M21

ORIGINAL SHEET SIZE
30" x 42"

DUCT INSULATION SCHEDULE

PLENUM OR DUCTWORK TYPE	INSULATION TYPE	LOCATION		INSULATION		JACKET
		INDOOR	OUTDOOR	DENSITY (PCF)	THICKNESS (INCHES)	
Rectangular Supply, Outside Air Ductwork, and Return Ductwork in Mechanical Rooms, All Exposed Areas and Duct Shafts	Rigid Mineral Fiber Board	X		3	1.5	All-Service
			X	6	2	+
Rectangular Supply, Outside Air Ductwork, and Return Ductwork in Concealed Areas	Rigid Mineral Fiber Board	X		3	1.5	All-Service
			X	6	2	+
OR						
Outside Air Intake, Relief and Exhaust Plenums	Mineral Fiber Wrap	X		0.75	2.25	All-Service
			X	0.75	2.25	+
Louver Blank-Off Panels	Rigid Mineral Fiber Board	X		6	2	All-Service +
			X	6	2	Galvanized Sheet Metal (Two Sides)
Round and Flat-Oval Supply, Outside Air Ductwork, and Return Ductwork in Mechanical Rooms	Mineral Fiber Wrap	X		0.75	2.25	All-Service +
			X	0.75	2.25	
Emergency or Standby Power Generator Air Intake/Plenum, Intake Ductwork and Intake Attenuator	Rigid Mineral Fiber Board	X		6	1.5	All-Purpose Jacket with Vapor Barrier
Ductwork Requiring Noise Transmission Control (as indicated on the Drawings)	Rigid Mineral Fiber Board	X		6	2	Noise Barrier Jacket

* = For rectangular ducts and plenums exposed to weather, pitch ductwork or insulation board minimum 1/4 inch per foot to prevent rainwater from accumulating on top of duct or plenum. Additionally apply a 1/16-inch coat of mastic to the insulation board. Embed one layer of open mesh fiberglass or polyester reinforcing cloth into the mastic, apply 1/8-inch final coat of mastic covering the cloth completely. As an alternate, cover insulation board with corrugated rolled aluminum jacketing installed in strict accordance with manufacturer's recommendations.
 *** = Use double-layer application of two 2 inch thick panels to ensure overlapping of all seams and joints to minimize heat loss and hot spots.

INSULATION SPECIFICATION:
Rigid and Semi Rigid Mineral Fiber Board (w/ vapor barrier): ASTM C 612, k = 0.23 Btu-in/h-ft2 at 75°F
Mineral Fiber Wrap (w/ vapor barrier): ASTM C 563, k = 0.27 Btu-in/h-ft2 at 75°F
Calcium Silicate: ASTM C 533, k = 0.38 Btu-in/h-ft2 at 100°F
Ceramic Fiber Blanket: k = 0.27 Btu-in/h-ft2 with a melting point of 3200°F and a 3-hour fire rating for 5-inch thickness when tested in accordance with ASTM E 119
Thermal Insulating Wool: k = 0.22 Btu-in/h-ft2 at 100°F
Flexible Cellular: ASTM C 534, k = 0.27 Btu-in/h-ft2 at 75°F

ELECTRIC UNIT HEATER SCHEDULE

MARK	BASIS OF DESIGN		OPERATING WEIGHT LBS	AREA AND/OR BLDG SERVED	MOUNTING	TYPE	AIR FLOW	HEAT INPUT	HEATER POWER		MIN CAPACITY BTUH	POWER				REMARKS
	MANUFACTURER	MODEL NUMBER					CFM	KW	PHASE	VOLT		AMP	FAN HP	PHASE	VOLT	
EH-1	MARKEL	CWH1101DS	10	MECHANIC STORAGE 119	WALL	ELEC. FORCED AIR	65	1	-	-	3413	8.4	-	1	120	1-3
EH-2	MARKEL	CWH1101DS	10	SHOP SUPPLIES 113	WALL	ELEC. FORCED AIR	65	1	-	-	3413	8.4	-	1	120	1-3
EH-3	MARKEL	CWH1101DS	10	DECON ROOM 112	WALL	ELEC. FORCED AIR	65	1	-	-	3413	8.4	-	1	120	1-3

REMARKS
 1. FURNISH WITH LOW-VOLTAGE THERMOSTAT.
 2. FURNISH WITH 2V TRANSFORMER
 3. FURNISH WITH WALL MOUNTING KIT

FUEL FIRED UNIT HEATER SCHEDULE

MARK	BASIS OF DESIGN		OPERATING WEIGHT LBS	LOCATION	AREA AND/OR BLDG SERVED	FUEL	AIR FLOW CFM	EAT °F	HEATING (SCHEDULED VALUES HAVE BEEN DERATED FOR ALTITUDE, 2441 FT)				ELECTRICAL					REMARKS
	MANUFACTURER	MODEL NUMBER							INPUT CAPACITY MBH	OUTPUT CAPACITY MBH	EFF. %	TEMP. RISE °F	HP	VOLT	PHASE	FLA	MOCOP	
UH-1-9	REZTOR	UDAP	96	-	SHOP AREA 116	PROPANE	1345	-	105	87.2	83	80	0.25	115	1	3.9	15	1, 2, 3, 4

REMARKS
 1. FURNISH WITH SINGLE-VOLTAGE THERMOSTAT.
 2. FURNISH WITH CEILING SUSPENSION KIT.
 3. FURNISH WITH GAS CONVERSION KIT (NATURAL AND PROPANE)
 4. FURNISH WITH TWO STAGE PROPANE GAS VALVE

FAN SCHEDULE

MARK	BASIS OF DESIGN			LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	AIR FLOW CFM	ESP IN	FAN			MOTOR ELECTRICAL							REMARKS		
	MANUFACTURER	QUANTITY	MODEL NUMBER						OPERATING WEIGHT LBS	TYPE	DRIVE	FAN MAX RPM	NOMINAL POWER		PHASE	VOLT	RPM	SPEED CONTROL		DAMPER TYPE	CONTROL SEQUENCE
EF-1	GREENHECK	2	G-070-VG	20	ROOF	TOILET EXHAUST	RESTROOM EXHAUST	300	.25	CENTRIFUGAL	DIRECT	1669	.03	1/15	1	115	-	-	BACK DRAFT	TIMECLOCK	1-5
EF-2	GREENHECK	4	SP-A90	12	CEILING	TOILET/ROOM EXHAUST	RESTROOM / JANITOR EXHAUST	75	.25	CENTRIFUGAL	DIRECT	900	-	14	1	115	-	-	BACK DRAFT	TIMECLOCK	1-5

REMARKS
 1. PREFAB ROOF CURB SLOPED TO MATCH ROOF. REFER TO ARCHITECTURAL DRAWINGS.
 2. WEATHER PROOF DISCONNECT SWITCH.
 3. BIRDSCREEN
 4. FURNISH WITH GRAVITY BACK DRAFT DAMPER
 5. TIMECLOCK FAN WITH LIGHTING CONTROLS TO MATCH BUILDING OCCUPIED HOURS. COORDINATE WITH ELECTRICAL CONTRACTOR.

WALL LOUVER SCHEDULE

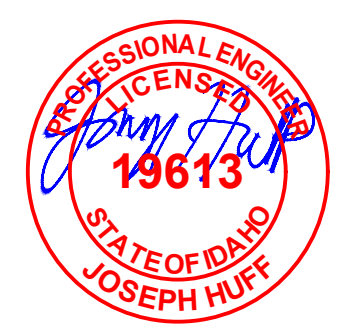
MARK	BASIS OF DESIGN		LOCATION	SYSTEM AND/OR SERVICE	TYPE	APPLICATION	WIDTH	HEIGHT	FRAME DEPTH	FREE AREA	AIR FLOW	MAX VELOCITY	APD	DAMPER TYPE	REMARKS
	MANUFACTURER	MODEL NUMBER					IN	IN	IN	FT²	CFM	PPM	IN		
LVR-1	GREENHECK	ESD-202	MEZZANINE	EXHAUST	DRAINABLE	EXHAUST	8	8	2	0.09	75	851	0.09	N/A	1
LVR-2	GREENHECK	ESD-202	LEVEL 1	VENTILATION	DRAINABLE	AIR INTAKE	12	12	2	0.22	88	360	0.02	N/A	1
LVR-3	GREENHECK	ESD-202	LEVEL 1, MEZZ	VENTILATION	DRAINABLE	AIR INTAKE	16	16	2	0.51	330	630	0.05	N/A	1
LVR-4	GREENHECK	ESD-202	LEVEL 1	VENTILATION	DRAINABLE	AIR INTAKE	14	14	2	0.33	200	575	0.04	N/A	1

REMARKS
 1. EXTRUDED ALUMINUM LOUVER PROVIDED WITH DRAIN GUTTERS, EXTENDED SILL, 1/4" GALV. BIRD SCREEN.

SPLIT SYSTEM HEAT PUMP SCHEDULE

MARK	BASIS OF DESIGN			FCU LOCATION	CONDENSING UNIT LOCATION	AREA AND/OR BLDG SERVED	SUPPLY AIR FLOW CFM	MIN. OUTSIDE AIR FLOW CFM	EXT. STATIC PRESSURE IN	MIN TOTAL CAPACITY MBH	COOLING CAPACITY			HEATING CAPACITY			ELECTRICAL DATA						REMARKS					
	MANUFACTURER	FAN COIL MODEL NUMBER	CONDENSING UNIT MODEL NUMBER								OPERATING WEIGHT LBS	MIN SEER	EAT		OSA DESIGN TEMP	MIN. HEAT CAPACITY	EAT DB	LAT DB	OSA DESIGN TEMP	INDOOR FAN		OUTDOOR UNIT FAN		MCA	MOCOP	PHASE	VOLT	
FC-1	TRANE	TPVA0A024	-	141	JANITOR 117	-	OFFICE	800	88	0.8	24	19	77	61	96	26.00	58	94	2	3.3	THERMOSTAT	-	-	-	-	-	1-7	
HP-1	TRANE	-	TRUZH024	190	-	OUTSIDE	-	-	-	-	-	-	-	-	96	-	-	-	2	-	-	74	INDOOR	17	27	1	208	1-7
FC-2	TRANE	TPVA0A042	-	172	MECHANICAL STORAGE 205	-	OFFICE	1485	330	.8	42	15.4	79	63	96	48.00	59	95	2	4.5	THERMOSTAT	-	-	-	-	-	1-7	
HP-2	TRANE	-	TRUZH042	283	-	OUTSIDE	-	-	-	-	-	-	-	-	96	-	-	-	2	-	-	74	INDOOR	36	44	1	208	1-7
FC-3	TRANE	TPEFYP048MA	-	86	OPEN OFFICE 109	-	OFFICE	1600	320	.6	48	14	79	63	96	54.00	52	88	2	3.5	THERMOSTAT	-	-	4	15	1	208	1-7
HP-3	TRANE	-	TUMYP048	271	-	OUTSIDE	-	-	-	-	-	-	-	-	96	-	-	-	2	-	-	74	INDOOR	29	44	1	208	1-7
FC-4	TRANE	TPEFYP048MA	-	86	STORAGE 114	-	OFFICE	1600	200	.6	48	14	77	61	96	54.00	57	95	2	3.5	THERMOSTAT	-	-	4	15	1	208	1-7
HP-4	TRANE	-	TUMYP048	271	-	OUTSIDE	-	-	-	-	-	-	-	-	96	-	-	-	2	-	-	74	INDOOR	29	15	1	208	1-7

REMARKS
 1. REFRIGERANT LINES SHALL BE SIZED AND INSTALLED PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS FOR DEVELOPED LINE LENGTH.
 2. PROVIDE WITH LOW AMBIENT CONTROLS (0°F).
 3. FURNISH CONDENSING UNIT WITH BASE PAN HEATER, 12" UNIT STAND WIND BAFFLES DRIAN PAN AND SOCKET.
 4. INDOOR UNIT POWER SHALL NOT BE FED FROM CONDENSING UNIT. SEPARATE CONNECTIONS ARE REQUIRED.
 5. FURNISH INDOOR UNIT WITH DRAIN PAN WITH LEVEL SENSOR/CONTROL.
 6. FURNISH INDOOR UNIT WITH BLUE DIAMOND CONDENSATE PUMP WITH REVIOR AND SENSOR.
 7. FURNISH UNIT WITH 24 VOLT INTERFACE KIT AND 7 DAY PROGRAMMABLE ELECTROINC THERMOSTAT. CONTROLS SHALL HAVE 5 DEGREE DEADBAND, AUTO SETBACK, AND MANUAL OVRIRDR.



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95% CD
 OWNER REVIEW

PROJECT: 22123.00 DATE: 1/20/23
 DRAWN: LO CHECKED: JH

REVISED: 2/24/2023
 ADDENDUM ONE

SHEET TITLE: MECHANICAL SCHEDULES

SHEET: M41

ORIGINAL SHEET SIZE: 30" x 42"

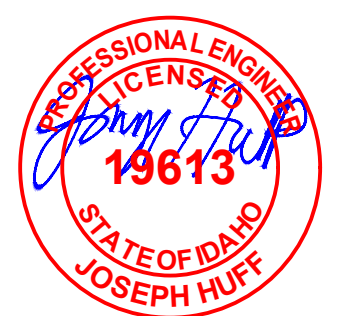
DIFFUSERS, REGISTERS AND GRILLES

MARK	BASIS OF DESIGN		DESCRIPTION	TYPE	MATERIAL	AIR FLOW			MOUNTING	FRAME SIZE		FACE SIZE		NECK SIZE		NC	DAMPER	FINISH	REMARKS
	MANUFACTURER	MODEL NUMBER				MIN CFM	MAX CFM	IN WG		IN x IN	IN x IN	IN							
CD-1	TITUS	TDC	SUPPLY DIFFUSER	LOUVERED FACE	STEEL	174	209	0.059	CEILING	24 x 24	12 x 12	8 ø	16	NONE	WHITE	1-4			
SG-1	TITUS	271RS	SUPPLY GRILLE	AEROBLADE	STEEL	123	287	0.089	SURFACE	14 x 8	12 x 6	12 x 6	18	OBD	WHITE	1-3			
DG-1	TITUS	S301FS	DUCT MTD GRILLE	LOUVERED FACE	ALUMINUM	102	170	0.077	DUCT	17 1/2 x 5 3/4	16 x 4	-	12	NONE	WHITE	1-3			
DG-2	TITUS	S301FS	DUCT MTD GRILLE	LOUVERED FACE	ALUMINUM	129	258	0.022	DUCT	15 1/2 x 7 3/4	14 x 6	-	19	NONE	WHITE	1-3			
DG-3	TITUS	S301FS	DUCT MTD GRILLE	LOUVERED FACE	ALUMINUM	156	312	0.022	DUCT	15 1/2 x 7 3/4	14 x 6	-	20	NONE	WHITE	1-3			
DG-4	TITUS	S301FS	DUCT MTD GRILLE	LOUVERED FACE	ALUMINUM	156	280	0.022	DUCT	17 1/2 x 7 3/4	16 x 6	-	14	NONE	WHITE	1-3			
SG-2	TITUS	271RS	SUPPLY GRILLE	AEROBLADE	STEEL	216	288	0.029	SURFACE	14 x 10	12 x 10	12 x 10	-	OBD	WHITE	1-3			
SG-3	TITUS	271RS	SUPPLY GRILLE	AEROBLADE	STEEL	216	504	0.089	SURFACE	14 x 10	12 x 10	12 x 10	21	OBD	WHITE	1-3			
SG-4	TITUS	271RS	SUPPLY GRILLE	AEROBLADE	STEEL	57	95	0.045	SURFACE	8 X 8	6 X 6	6 x 6	-	OBD	WHITE	1-3			
RG-1	TITUS	50F	RETURN GRILLE	EGGCRATE	STEEL	-	1449	0.073	SURFACE	20 x 20	18 x 18	-	19	NONE	WHITE	1-3			
RG-2	TITUS	50F	RETURN GRILLE	EGGCRATE	STEEL	-	945	0.073	SURFACE	20 x 14	18 x 12	-	19	NONE	WHITE	1-3			
RG-3	TITUS	50F	RETURN GRILLE	EGGCRATE	STEEL	-	945	0.073	CEILING	20 x 14	18 x 12	-	19	NONE	WHITE	1-3			

REMARKS
 1. VERIFY CEILING AND WALL CONSTRUCTION ON ARCHITECTURAL DRAWINGS. PROVIDE CORRECT FRAME TYPES.
 2. SEE FLOOR PLAN FOR THROW PATTERN.
 3. PROVIDE 24x24 LAY-IN MODULE FRAME IN LAY-IN CEILING GRIDS.
 4. PROVIDE SQUARE TO ROUND ADAPTER.

CODE REQUIRED OUTSIDE AIR VENTILATION RATES (2018 IMC)

ZONE & AREA	OCCUPANCY CATEGORY	NET AREA SQ. FT.	AREA OUTDOOR AIR RATE CFM/SQ. FT.	CODE REQ'D CFM BASED ON FLOOR AREA	NO. OF PEOPLE	PEOPLE OUTDOOR AIR RATE CFM/PERSON	CODE REQ'D CFM BASED ON PEOPLE	TOTAL OSA CFM REQUIRED BY CODE	ZONE AIR DIST. EFF.	SPACE OUTDOOR AIR CFM	DESIGN OSA CFM PROVIDED	REMARKS
FCU-1												
BREAK RM. 104	OFFICE SPACE: BREAK ROOM	329	0.06	20	10	5	50	70	0.8	88	88	
TOTAL=										88	88	
FCU-2												
WORK SPACE 201	OFFICE SPACE	286	0.06	18	8	5	40	58	0.8	73	85	
BREAK ROOM 202	OFFICE SPACE: BREAK ROOM	597	0.06	36	15	5	75	111	0.8	139	150	
LOCKERS 203	STORAGE	199	0.12	24	0	0	0	24	0.8	30	30	
FORMAN OFFICE 204	OFFICE SPACE	233	0.06	14	2	5	10	24	0.8	30	50	
MECH 205	STORAGE	90	0.12	11	0	0	0	11	0.8	14	15	
JANITOR 206	STORAGE (NOT OCCUPIED)	22	0.12	3	0	0	0	3	0.8	4	0	75 CFM EXHAUST
UNISEX 207	TOILET	57	0	0	0	0	0	0	0.8	0	0	75 CFM EXHAUST
TOTAL=										289	330	
FCU-3												
WORK STATION 9	OFFICE SPACE	67	0.06	5	1	5	5	10	0.8	13	40	
WORK STATION 10	OFFICE SPACE	83	0.06	5	1	5	5	10	0.8	13	40	
WORK STATION 11	OFFICE SPACE	83	0.06	5	1	5	5	10	0.8	13	40	
OFFICE 103	OFFICE SPACE	130	0.06	8	2	5	10	18	0.8	23	50	
CONFERENCE 102	OFFICE SPACE	146	0.06	9	4	5	20	29	0.8	36	90	
CORRIDOR 101	GENERAL	349	0.06	21	0	0	0	21	0.8	26	60	
TOTAL=										123	320	
FCU-4												
COPY 108	OFFICE SPACE	150	0.06	9	1	5	5	14	0.8	18	25	
OPEN OFFICE 109	OFFICE SPACE	1129	0.06	68	10	5	50	118	0.8	148	175	
TOTAL=										165	200	
FCU-5												
MECHANIC OFFICE 118	OFFICE SPACE	87	0.06	6	1	5	5	11	0.8	14	15	
TOTAL=										14	15	



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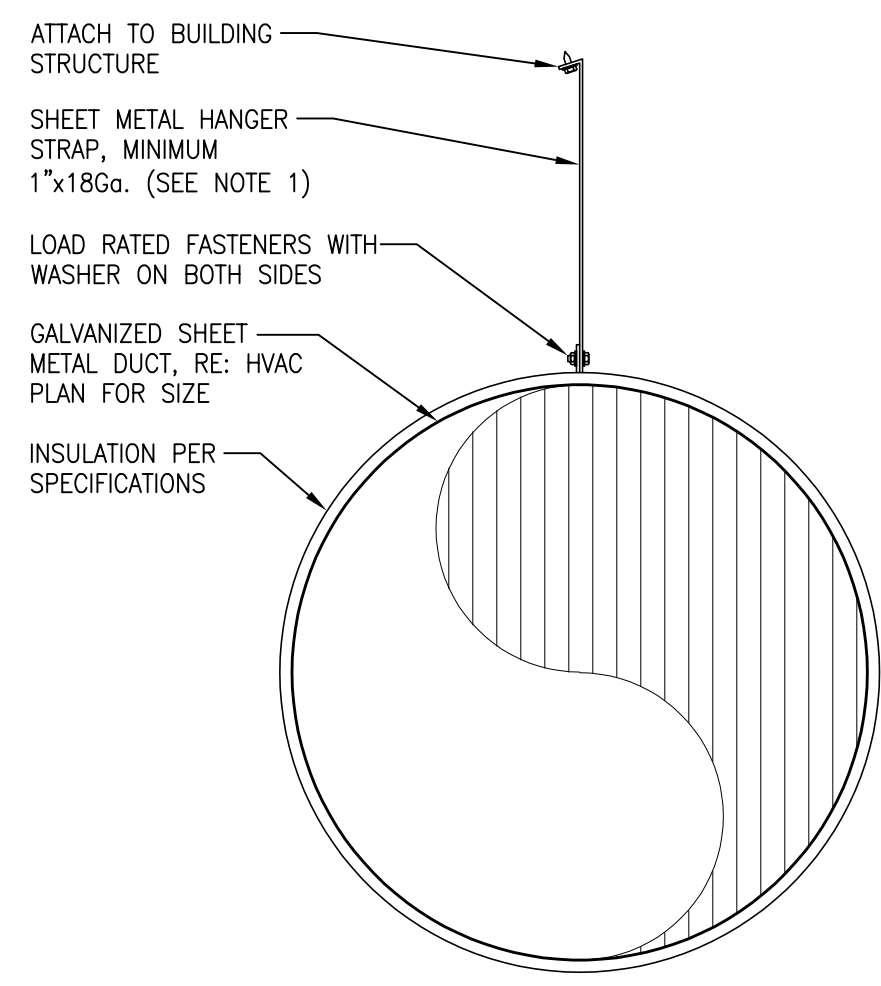
REVISED

SHEET TITLE
MECHANICAL SCHEDULES

SHEET

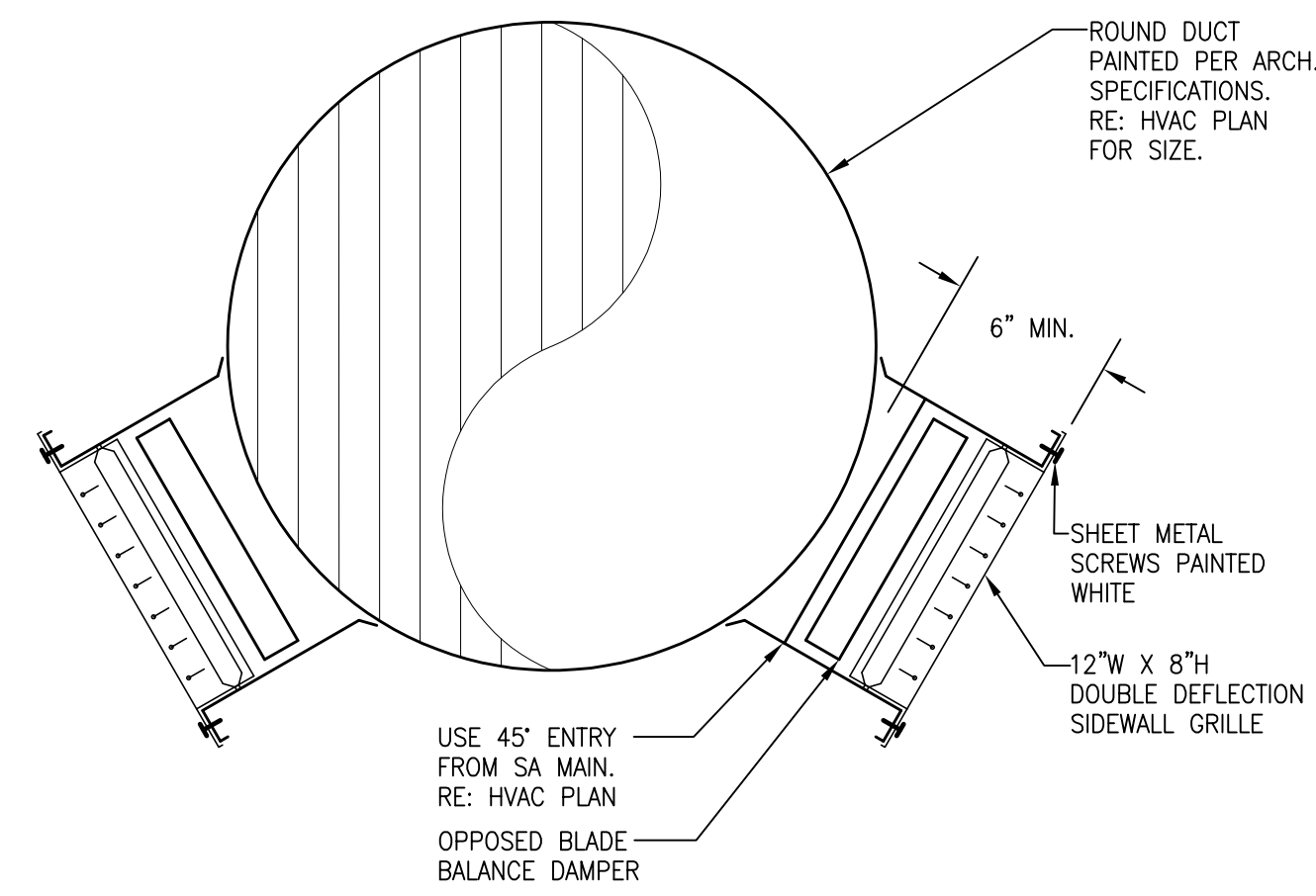
M42

ORIGINAL SHEET SIZE
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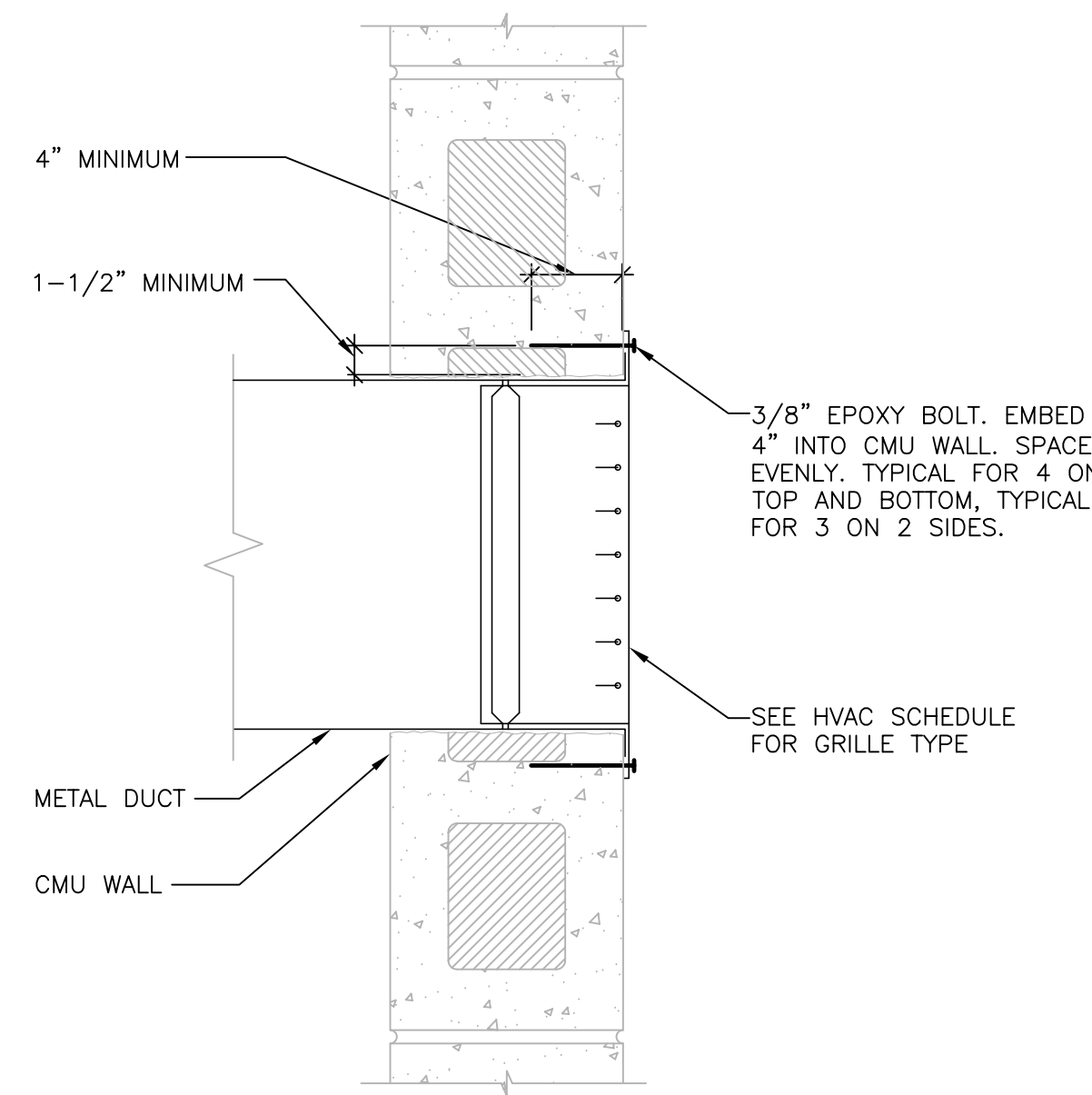


NOTES:
1. STRAP SIZING AND SPACING SHALL BE DETERMINED FROM SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION.

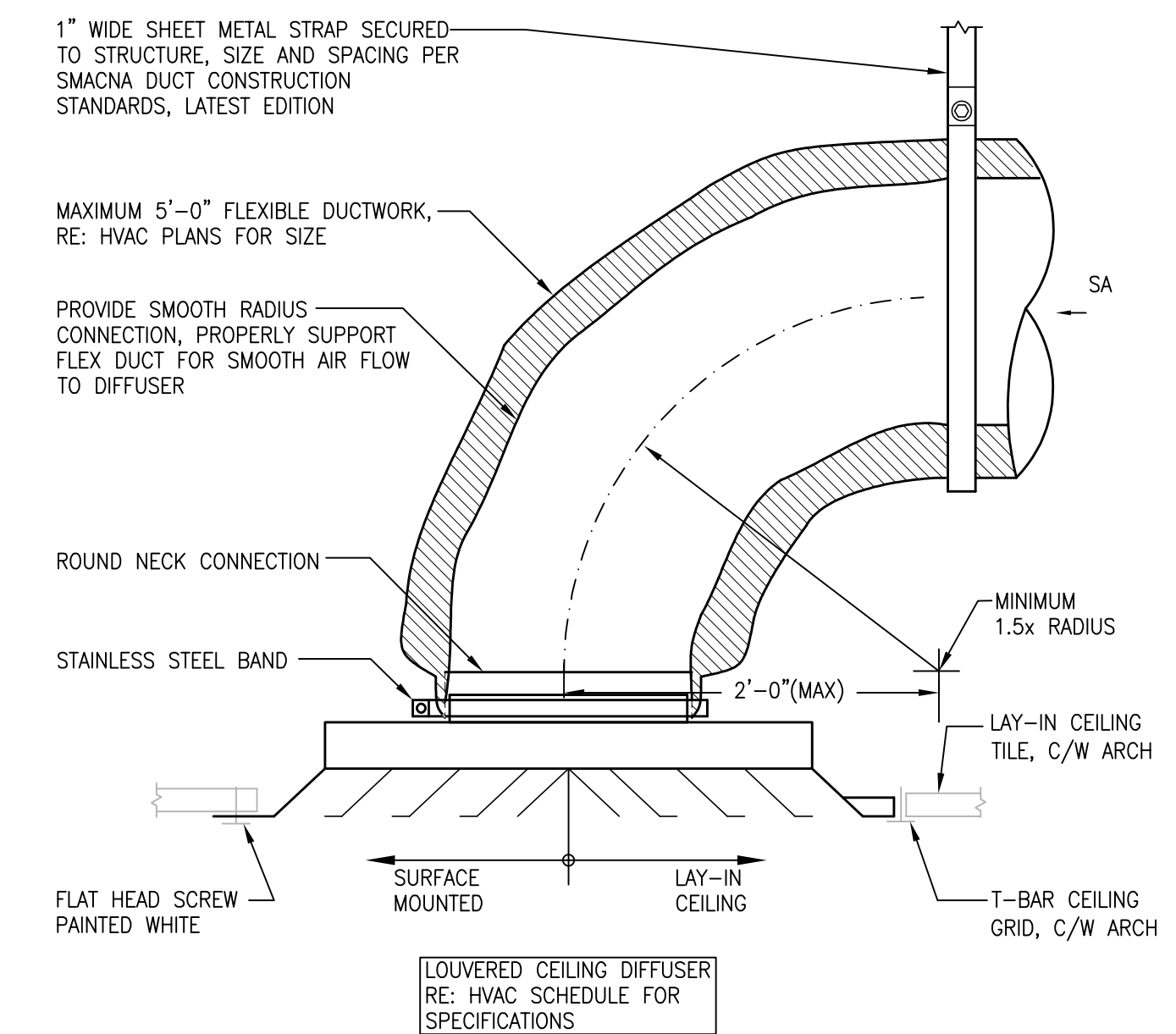
1 ROUND DUCT SUPPORT DETAIL
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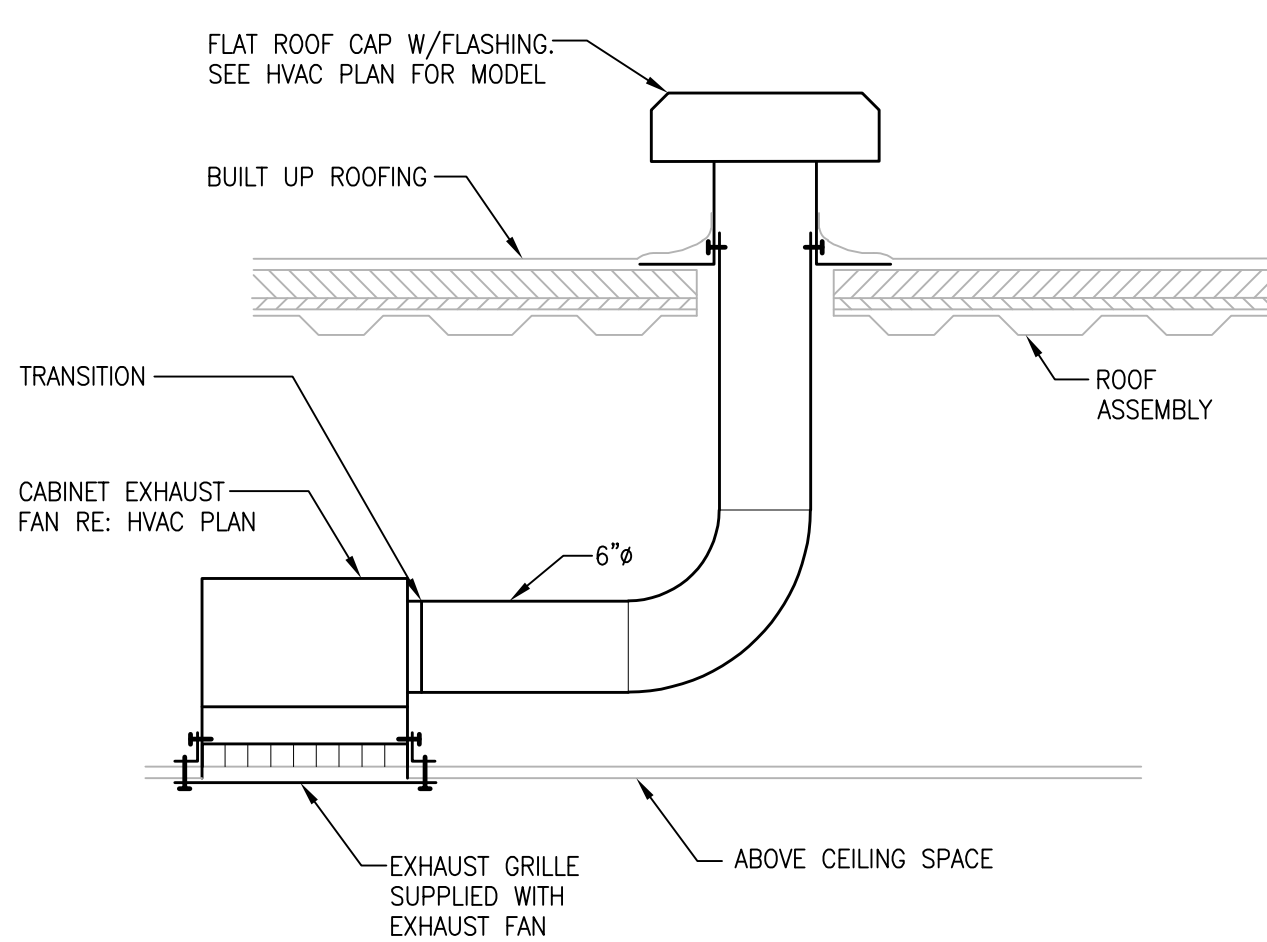
2 SUPPLY REGISTER ON DUCT DETAIL
SCALE: NTS



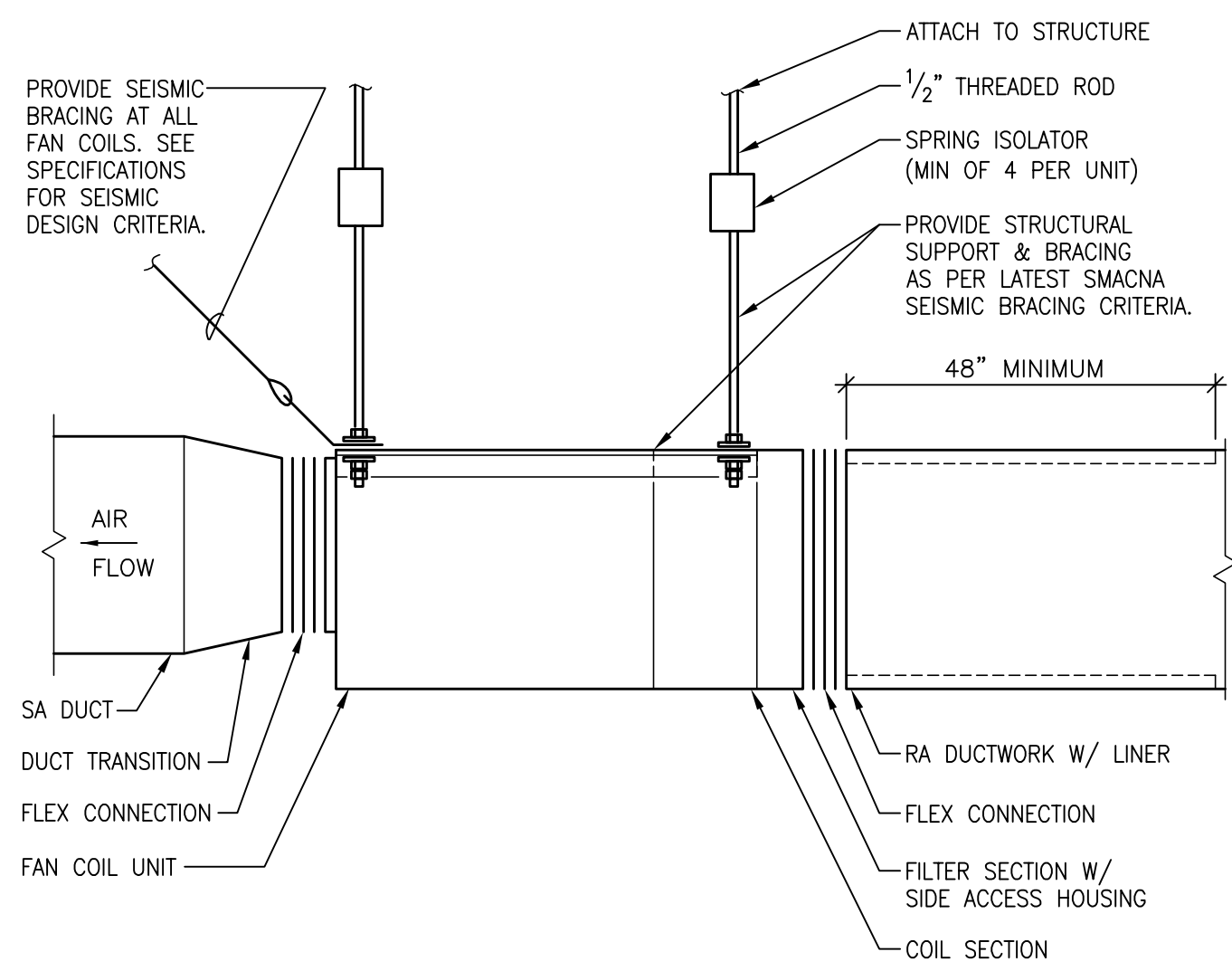
3 GRILLE ON CMU WALL DETAIL
SCALE: NTS



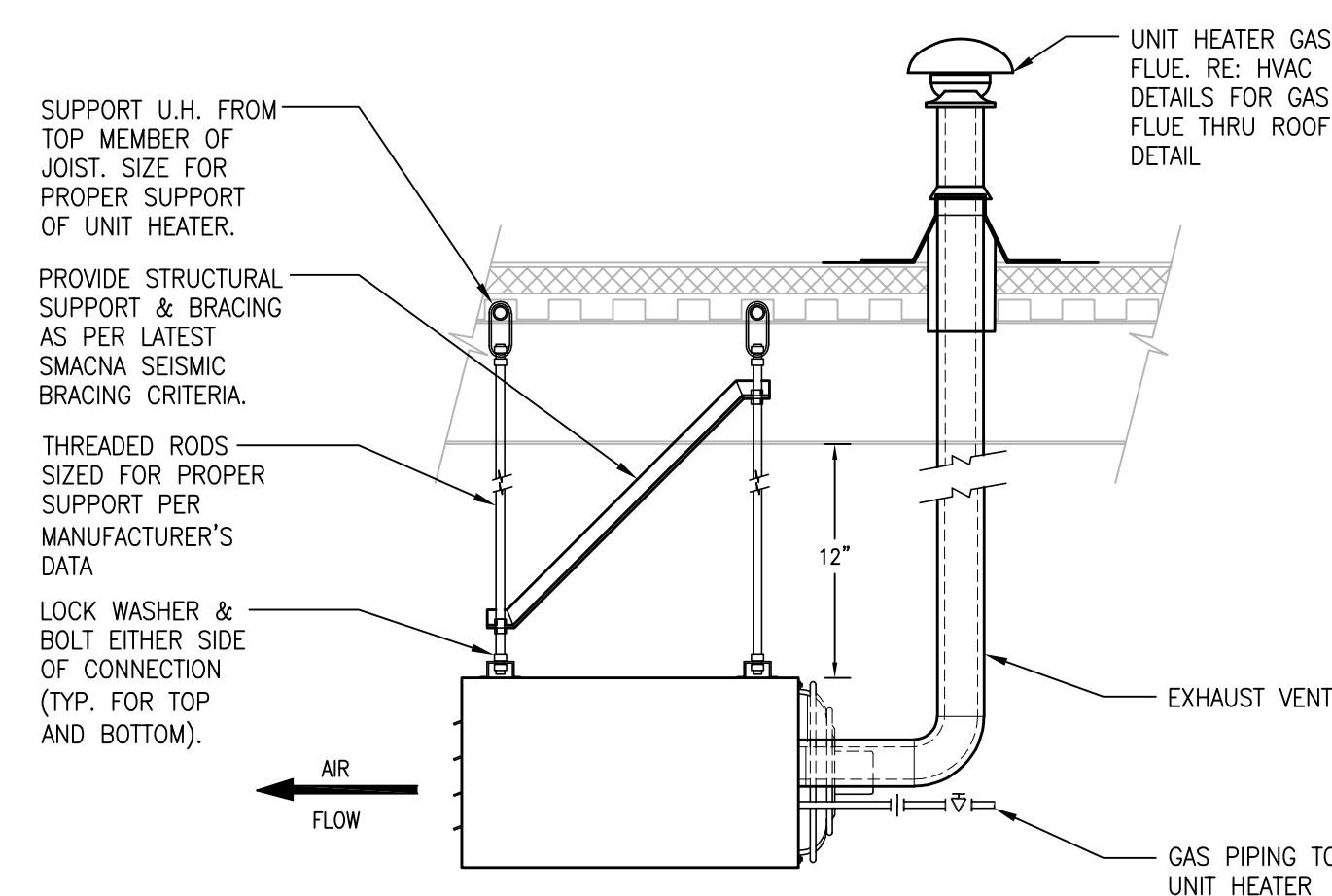
4 CEILING DIFFUSER CONNECTION DETAIL
SCALE: NTS



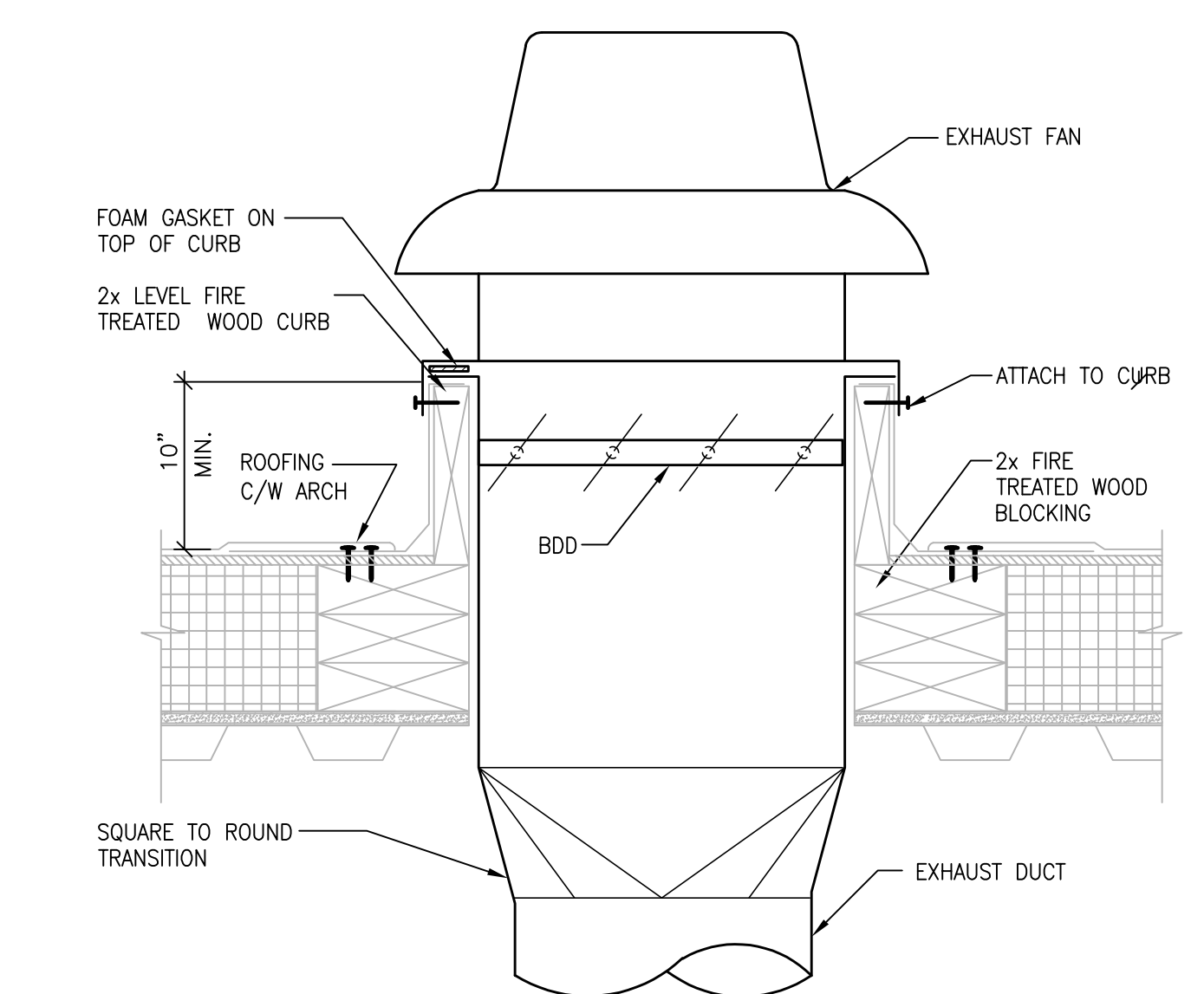
5 CEILING MOUNTED EXHAUST FAN DETAIL
SCALE: NTS



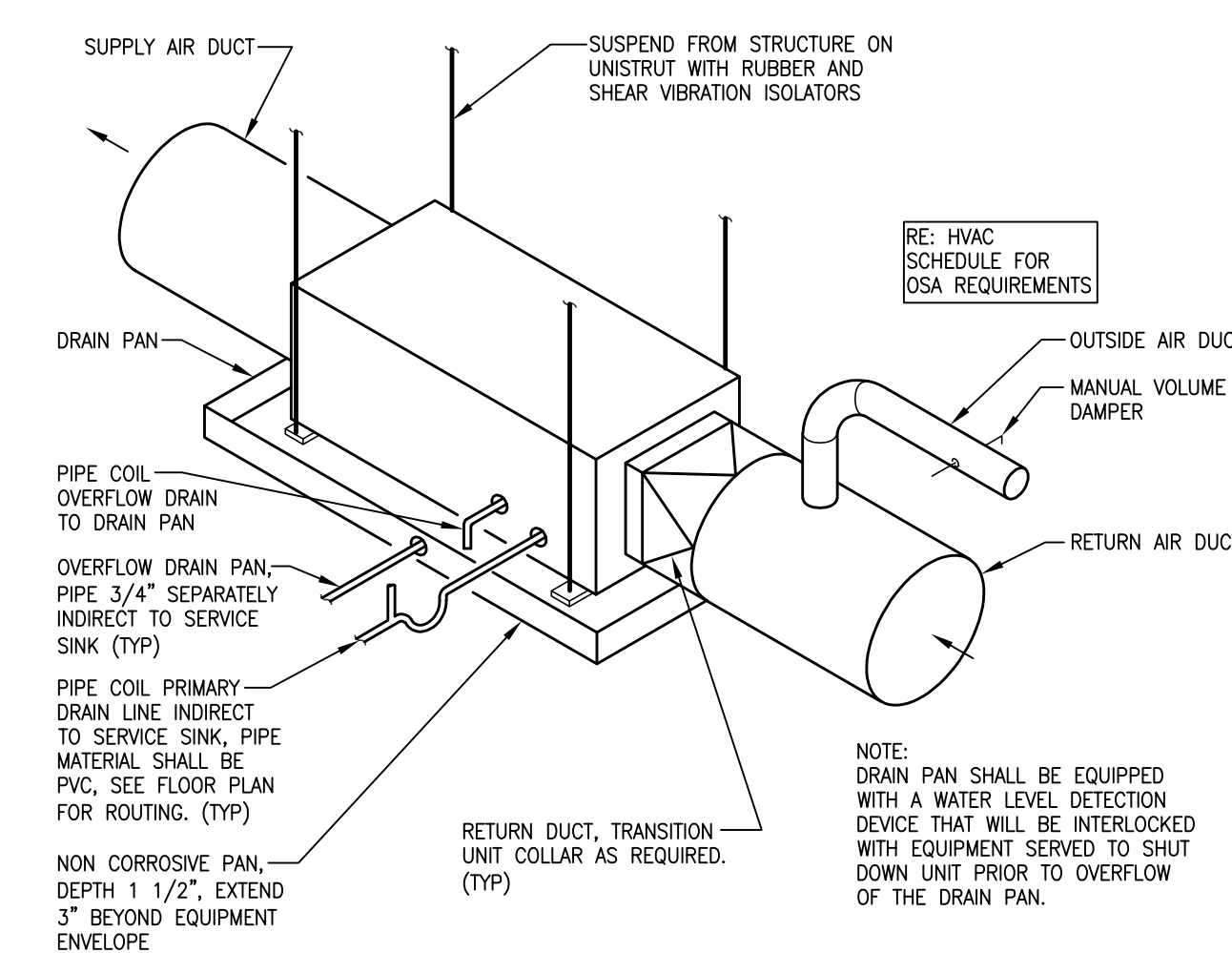
6 HORIZONTAL FAN COIL UNIT HANGING DETAIL
SCALE: NTS



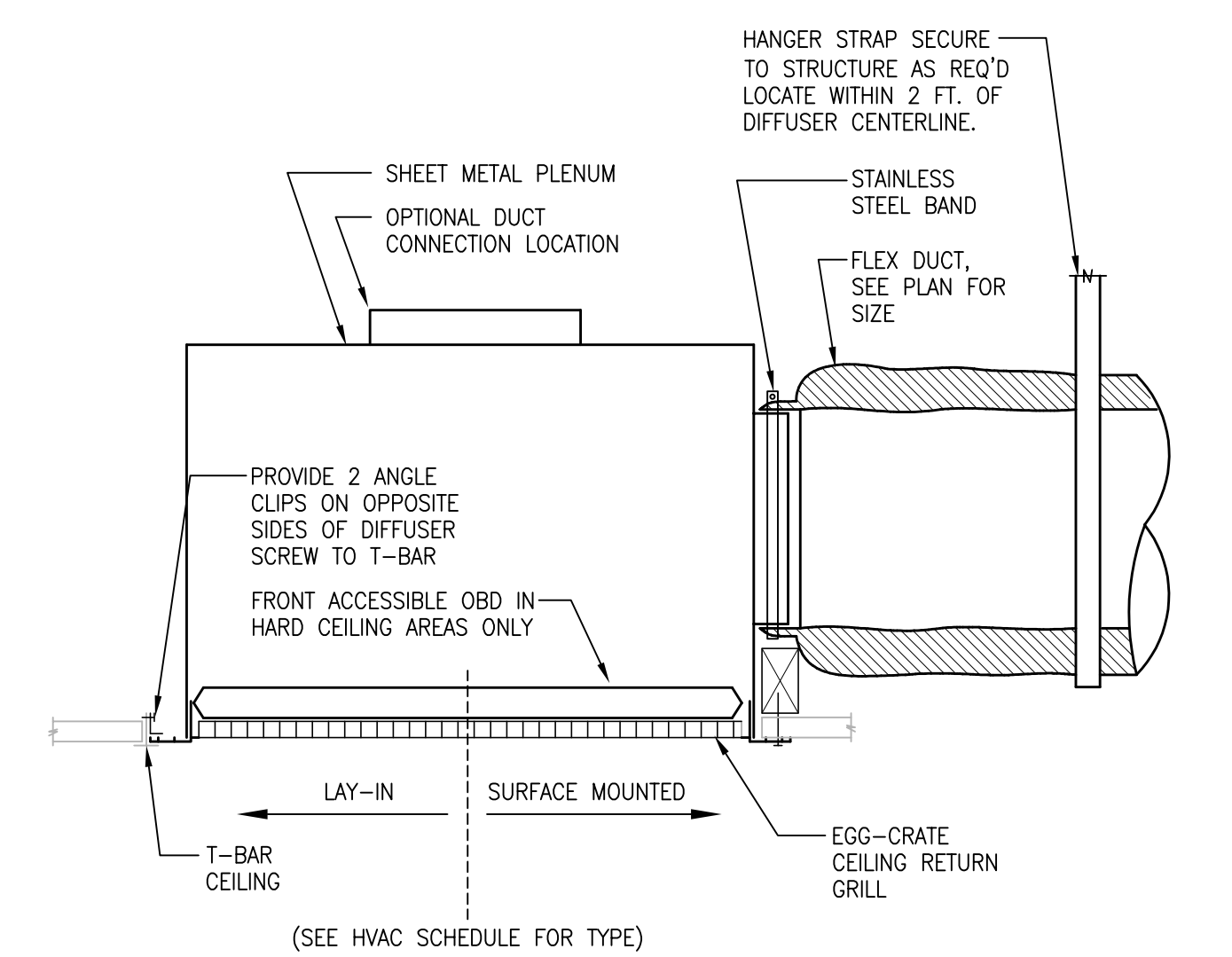
7 GAS FIRED UNIT HEATER DETAIL
SCALE: NTS



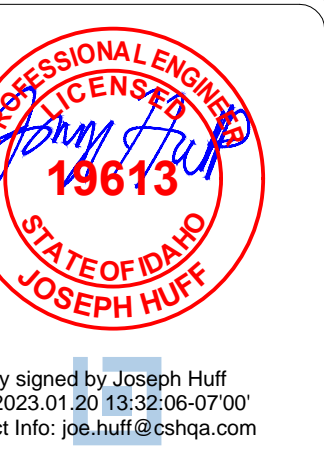
8 EXHAUST FAN MOUNTING DETAIL
SCALE: NTS



9 FAN COIL UNIT MOUNTING DETAIL
SCALE: NTS



10 CEILING RETURN CONNECTION DETAIL
SCALE: NTS



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PROJECT: 22123.00 DATE: 1/20/23
DRAWN: LO CHECKED: JH
REVISIONS:

SHEET TITLE: MECHANICAL DETAILS

SHEET: M51

ORIGINAL SHEET SIZE: 30" x 42"

SECTION 220500 – BASIC MECHANICAL REQUIREMENTS

PART 1 – GENERAL

- 1.1 GENERAL
 - A. REFER TO THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, AND DIVISION 1 GENERAL REQUIREMENTS.
- 1.2 SCOPE OF WORK
 - A. PROVIDE ALL DETAILED DESIGN AND COORDINATION, LABOR, EQUIPMENT, AND MATERIALS THAT ARE REQUIRED TO PROVIDE A COMPLETE INSTALLATION AND COMPLETE OPERATING SYSTEM(S) AS INDICATED ON THE DRAWINGS AND AS DESCRIBED IN THESE SPECIFICATIONS INCLUDING THAT REASONABLY IMFERRED FOR PROPER EXECUTION OF WORK AND SYSTEM OPERATION.
 - B. PROVIDE CUTTING, PATCHING EXCAVATION AND BACK FILL AS REQUIRED FOR EXECUTION OF WORK PERFORMED UNDER THIS SECTION UNLESS SPECIFICALLY PROVIDED FOR OTHER SECTIONS.
 - C. COORDINATE WITH WORK PERFORMED BY OTHER SECTIONS IN ORDER TO ACCOMMODATE THE REQUIREMENTS OF THIS SECTION AND TO ENSURE ADEQUATE SPACE AND PROPER LOCATION FOR ALL NECESSARY WORK ON THIS PROJECT WHETHER OR NOT WORK IS UNDER THIS SECTION. PROVIDE COORDINATION DRAWINGS AS NECESSARY.
 1. SPACE PREFERENCE: CAREFULLY CHECK AND COORDINATE THE LOCATION AND LEVEL OF ALL PIPES, DUCTS, ETC. RUN PRELIMINARY LEVELS AND CHECK WITH ALL TRADES SO THAT CONFLICTS IN ALL LOCATIONS MAY BE AVOIDED. WHERE CONFLICTS OCCUR, IF ANY, THE FOLLOWING PREFERENCE SCHEDULE SHALL BE FOLLOWED:
 - a. RECESSED ELECTRICAL LIGHT FIXTURES.
 - b. DUCTWORK.
 - c. SPRINKLER PIPING.
 - d. SOIL, WASTE, VENT AND STORM PIPING.
 - e. REFRIGERATION PIPING.
 - f. DOMESTIC WATER PIPING.
 - g. ELECTRICAL CONDUITS.
 - D. HOWEVER, NO DUCTWORK OR REFRIGERANT LINES SHALL HAVE PREFERENCE OVER PLUMBING LINES BELOW PLUMBING FIXTURES, OR OVER ELECTRICAL CONDUITS ABOVE OR BELOW ELECTRICAL SWITCHGEAR AND PANELS. NO PIPING CONVEYING FLUIDS SHALL BE INSTALLED DIRECTLY OVER ELECTRICAL EQUIPMENT.
 - E. PROVIDE ALL NECESSARY RIGGING, EQUIPMENT AND MANPOWER TO SET EQUIPMENT AND MATERIALS IN PLACE AND TO REMOVE DEMOLISHED EQUIPMENT AND MATERIALS FROM THE SITE.
 - F. PROVIDE ALL SEISMIC RESTRAINTS REQUIRED BY CODE, FOR ALL EQUIPMENT, DUCT, PIPE, AND MATERIALS FURNISHED UNDER THIS SECTION. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE RESTRAINTS AND FOR PROOF OF ADEQUACY OF THE RESTRAINTS AND SHALL SUBMIT SIGNED SEISMIC CALCULATIONS PREPARED BY A REGISTERED CIVIL OR STRUCTURAL ENGINEER, WHERE REQUIRED.
 - G. PROVIDE LAYOUT OF EQUIPMENT SUPPORTS, PIPING, AND DUCTWORK.
 - H. PROVIDE COMPLETE START-UP CHECKOUT, TESTING, AIR/WATER BALANCE AND CERTIFICATION OF SYSTEMS. TEST AND BALANCE TO BE PERFORMED BY AN INDEPENDENT, QUALIFIED FIRM.
 - I. PROVIDE COMPLETE TEMPERATURE AND EQUIPMENT CONTROL SYSTEMS AS INDICATED.
 1. PROVIDE COLD AND HOT WATER SYSTEMS, GAS, PLUMBING WASTES, VENTS, INDIRECT DRAINS, RAIN LEADERS AND CONNECTIONS TO SITE PLUMBING AS REQUIRED.
 - J. PROVIDE PLUMBING EQUIPMENT, FIXTURES, AND TRIM AS INDICATED HEREIN AND ON THE DRAWINGS.
 - K. PROVIDE ROUGH IN ALL FINAL CONNECTIONS TO EQUIPMENT AND FIXTURES. PROVIDE CHROME-PLATED STOPS AND SUPPLIES AND ESCUTCHEON PLATES, SERVICE STOPS, AND ACCESS PANELS FOR ALL FIXTURES AND EQUIPMENT.
 - L. PROVIDE ALL PLUMBING ITEMS REQUIRED FOR COMPLETE AND PROPERLY OPERATING PLUMBING INSTALLATION IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.
 - 1.3 CODES AND STANDARDS
 - A. THE WORK INSTALLED UNDER THIS SECTION SHALL CONFORM TO ALL APPLICABLE LOCAL CODES, REGULATIONS, LOCAL CODE AMENDMENTS AND STANDARDS.
 - B. DO NOT CONSTITUTE ANYTHING CONTAINED IN THESE SPECIFICATIONS OR DRAWINGS TO PERMIT WORK TO BE INSTALLED THAT DOES NOT CONFORM TO CODE.
 - 1.4 DRAWINGS AND SPECIFICATIONS
 - A. THE DRAWINGS PROVIDED ARE SCHEMATIC IN NATURE. ABSOLUTE ACCURACY OF THE DRAWINGS AND SPECIFICATIONS CAN NOT BE GUARANTEED. WHILE REASONABLE EFFORT HAS BEEN MADE TO COORDINATE THE LOCATION OF EQUIPMENT AND MATERIALS WITH THE STRUCTURE AND OTHER TRADES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE EXACT REQUIREMENTS AND LOCATIONS AS GOVERNED BY ACTUAL JOB CONDITIONS. CHECK ALL INFORMATION AND REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE FABRICATION AND IN TIME TO AVOID ANY UNNECESSARY CHANGES.
 - 1.5 GUARANTEE AND WARRANTIES
 - A. ALL MATERIALS, PARTS, EQUIPMENT, MODIFICATIONS MADE, AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE OF WORK. SHOULD SUCH PARTS, MATERIALS, OR WORKMANSHIP BE FOUND TO BE DEFECTIVE DURING THIS PERIOD, THEY SHALL BE RECTIFIED AT NO COST TO THE OWNER.
 - 1.6 FEES
 - A. PROVIDE, PROCURE, AND PAY FOR ALL PERMITS, SERVICES, METERS, LICENSES, FEES, ETC., REQUIRED FOR PERFORMANCE OR WORK OF THIS SECTION. THIS INCLUDES COORDINATION WITH UTILITY PROVIDERS FOR PROPER FRASING OF INSTALLATION.
 - B. UPON COMPLETION OF THE WORK, DELIVER TO THE ARCHITECT, ALL CERTIFICATES OF APPROVAL SIGNED BY THE CONTROLLING AUTHORITIES.
 - 1.7 SUBMITTAL DATA
 - A. COMPLETE SUBMITTAL DATA SHALL BE FURNISHED ON ALL MECHANICAL AND PLUMBING ITEMS WHETHER AS SPECIFIED OR PROPOSED AS ALTERNATES. THE SUBMITTALS SHALL BE SUBMITTED ELECTRONICALLY.
 - B. EQUIPMENT, MATERIALS, AND PRODUCTS SPECIFICALLY IDENTIFIED, DESCRIBED, OR SCHEDULED ON THE DRAWINGS AND MARKED FIRST IN THE SPECIFICATIONS ARE THE BASIS OF DESIGN. THE OTHER MANUFACTURERS OR SUPPLIERS WHICH MAY BE NAMED IN THE SPECIFICATION ONLY INDICATE THE GENERAL ACCEPTABILITY OF THE MANUFACTURER OR SUPPLIER AND ARE CONSIDERED SUBSTITUTIONS.
 - C. THIS CONTRACTOR ASSUMES FULL RESPONSIBILITY THAT ALTERNATE ITEMS SUBSTITUTED FOR THE FIRST NAMED MANUFACTURER WILL MEET THE JOB REQUIREMENTS AND IS RESPONSIBLE FOR THE COST OF REDESIGN AND MODIFICATIONS NECESSARY DUE TO THIS SUBSTITUTION.
 - 1.8 RECORD DRAWINGS
 - A. RECORD OF JOB PROGRESS: KEEP AN ACCURATE, DIMENSIONAL RECORD OF THE AS-BUILT LOCATIONS OF ALL WORK.
 - B. FINAL AS-BUILT REPRODUCIBLE DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND OWNER PRIOR TO FINAL ACCEPTANCE.
 - 1.9 OPERATING AND MAINTENANCE INSTRUCTIONS
 - A. FURNISH THREE (3) COMPLETE SETS OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT BOUND IN A RIGID BINDER AND INDEXED.
 - 1.10 EQUIPMENT SUPPORT AND RESTRAINTS
 - A. GENERAL: ALL EQUIPMENT, PIPING, DUCTWORK, AND MATERIALS SHALL BE FASTENED TO THE STRUCTURE WITH PROPERLY SIZED AND STRUCTURALLY ENGINEERED ANCHORS, BOLTS, AND RESTRAINTS TO PREVENT PERMANENT DISPLACEMENT IN ANY DIRECTION CAUSED BY LATERAL MOTION, OVERTURNING, OR UPLIFT AS REQUIRED BY THE BUILDING CODE.
 - B. ALL ISOLATORS SHALL BE FASTENED TO THE STRUCTURE AND TO THE EQUIPMENT WITH PROPERLY SIZED AND STRUCTURALLY ENGINEERED ANCHORS AND BOLTS.
 - C. THE ENGINEER PROVIDING THE REQUIRED CALCULATIONS SHALL INSPECT ALL SUPPORTS AND ATTACHMENTS DESIGNED BY HIM AND PROVIDE A LETTER TO ARCHITECT OF RECORD CERTIFYING THAT THEY HAVE BEEN INSTALLED AS DESIGNED.
 - 1.11 RELATED WORK SPECIFIED ELSEWHERE
 - A. THE FOLLOWING ITEMS ARE TO BE INCLUDED IN OTHER SECTIONS TO BE DONE BY OTHER TRADES. WHERE COORDINATION IS NECESSARY, THIS CONTRACTOR SHALL PROVIDE IT:
 1. ALL ELECTRICAL POWER WIRING INCLUDING FIELD CONNECTIONS.
 2. PAINTING AND PATCHWORK.
 3. STRUCTURAL INTERFERENCE AND PENETRATIONS.
 - 1.12 START-UP SERVICES
 - A. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER OPERATION OF ALL SYSTEMS, MINOR SUBSYSTEMS, AND SERVICES PROVIDED UNDER THIS DIVISION. HE SHALL COORDINATE START-UP PROCEDURES, CALIBRATION, AND SYSTEM CHECK-OUT WITH ALL SUBCONTRACTOR AND TRADES INVOLVED. ANY SYSTEM OPERATIONAL PROBLEMS SHALL BE DIAGNOSED AND ALL CORRECTION PROCEDURES SHALL BE INITIATED WITH THE VARIOUS SUBCONTRACTORS AS REQUIRED TO BRING THE SYSTEM INTO COMPLIANCE WITH THE DESIGN INTENT.
 - B. PERSONNEL PERFORMING START-UP SERVICES SHALL BE FULLY QUALIFIED, EXPERIENCED, AND NORMALLY EMPLOYED IN THIS TYPE OF WORK. IF THE CONTRACTOR DOES NOT HAVE SUCH PERSONNEL AVAILABLE FROM HIS OWN COMPANY, HE SHALL HIRE, AT HIS OWN EXPENSE, SUBCONTRACTORS WHO ARE QUALIFIED.
 - C. THE CONTRACTOR SHALL CHECK ALL EQUIPMENT DURING THE INITIAL START-UP TO ENSURE PROPER OPERATION, ADEQUATE FLUIDS AND WATER FLOWS OR AIR FLOWS, AND VIBRATION ISOLATION. SYSTEMS SHALL BE CHECKED FOR AIR AND/OR WATER FLOWS THROUGHOUT WITHOUT BLOCKAGES. AIR HANDLING SYSTEMS SHALL BE CHECKED FOR PROPER DAMPER CONNECTIONS AND POSITIONS, AND MINIMAL VIBRATION. OTHER MISCELLANEOUS EQUIPMENT SHALL BE STARTED AND OPERATED AS DESCRIBED ABOVE AS APPLICABLE.
 - D. A FINAL AND COMPLETE START-UP AND BALANCE REPORT SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE AND PAYMENT. THIS REPORT SHALL BE SIGNED BY EACH PERSON DOING THE START-UP TASK AND BY THE RESPONSIBLE FIELD PERSON. REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO: DATE OF TEST; DATE OF LAST CALIBRATION; TEMPERATURES; HUMIDITIES; SET POINTS; RPN VOLTAGE; AMPERAGE; PRESSURES; STABILITY; SUPPLY, RETURN AND OUTSIDE AIRFLOWS AT EACH UNIT AND EACH UNIT AND EACH TERMINAL; ETC.

END OF SECTION 220500

SECTION 221000 – PLUMBING

PART 1 – GENERAL

- 1.1 GENERAL
 - A. REFER TO SECTION 220500 – BASIC MECHANICAL REQUIREMENTS.
- 2.1 MATERIALS
 - 2.1 VALVES
 - A. ALL BALL OR BUTTERFLY VALVES FOR GENERAL USE SHALL HAVE EPT SEALS.
 - B. GENERAL USE VALVES:
 1. GATE VALVES:
 - a. 1/2" THROUGH 2" – SWEAT. STOCKHAM FIGURE B-108.
 - b. 1/2" THROUGH 2" – THREADED. STOCKHAM FIGURE B-105.
 - c. 2-1/2" AND ABOVE – FLANGED. STOCKHAM FIGURE G-634 BRONZE FITTED.
 2. BALL VALVES – 1/2" THROUGH 2" – HAMMOND 8000 SERIES.
 3. PRESSURE REDUCING VALVES: 2" AND SMALLER – THREADED; BRONZE CONSTRUCTION, WATTS UL5B.
 4. SAFETY AND RELIEF VALVES: WATTS NO. 740 SERIES OR WATTS NO. 174A SERIES.
 5. CROSS CONNECTION CONTROL: BACKFLOW PREVENTION IN ACCORDANCE WITH CODE FOR EACH PIECE OF EQUIPMENT CAPABLE OF CONTAMINATING THE POTABLE WATER SYSTEM, WHERE PERMITTED BY CODE, VACUUM BREAKERS MAY BE USED. USE BACKFLOW PREVENTERS IN ALL OTHER INSTANCES.
 - C. MANUFACTURERS: HAMMOND, LEISOLD, STOCKHAM, WATTS, NISCO, WILKINS.
- 2.2 PIPES AND FITTINGS
 - A. SANITARY WASTE, VENT, WASTE, RAIN LEADER SYSTEM:
 1. UNDERGROUND:
 - a. CAST IRON; ASTM A888 OR C151 301, SOIL, BELL AND PLAIN END WITH NEOPRENE COMPRESSION GASKETS. A888 COMPLIANTS OR "HUSKEY" COUPLINGS ARE ACCEPTABLE ALTERNATES. WRAP WITH "CALPROOF" TAPE PER MANUFACTURER'S INSTRUCTION.
 - b. CONTRACTOR'S OPTION WHEN CONCEALED ABOVE CEILING (NON-RETURN AIR PLENUM), IN WALLS OR BELOW SLAB, EITHER PVC; ASTM D2665/F891 OR ABS; ASTM D2661/F828 SCHEDULE 40 DWV PIPING WITH SOLVENT WELD FITTINGS MAY BE USED, UNLESS SHOWN OTHERWISE. IF ALLOWED BY LOCAL GOVERNING AUTHORITIES, DO NOT MIX USE OF PVC AND ABS MATERIALS. TRANSITION OF MATERIALS SHALL OCCUR BELOW SLAB OR ABOVE CEILING. FLOOR AND WALL CLEANOUTS SHALL BE CAST IRON AS HEREAFTER SPECIFIED.
 2. ABOVEGROUND:
 - a. CAST IRON; ASTM A888 OR C151 301, SOIL, PLAIN END (NO HUB).
 - b. CONTRACTOR OPTION DWV COPPER; ASTM B306 OR STEEL ASTM A53, WITH DRAINAGE PATTERN FITTINGS MAY BE USED FOR PIPE SIZES 2-1/2" AND SMALLER.
 3. ALL VENT PIPING PROTRUDING THROUGH THE ROOF SHALL BE REQUIRED TO ACCESS THE VALVE. PROVIDE HOSE BIBB WITH INTEGRAL WOODER BRACKET.
 - 2.1 SHOCK ABSORBER/WATER HAMMER ARRESTOR:
 - a. PROVIDE WITH ACCESS PANEL AS NECESSARY. SIZE PER PRESSURE DRAINAGE INSTITUTE (PDI) RECOMMENDATIONS.
 - b. MANUFACTURERS: SIOUX CHEF, JR. SMITH, ZURN.
 - 2.1 WATER HEATERS:
 - A. STORAGE TYPE:
 1. GENERAL: UL APPROVED, STORAGE TYPE, COMPLY WITH LOCAL ENERGY STANDARDS.
 2. MANUFACTURERS: PHOENIX, JO SMITH, STATE, LOCHNAGH, OR APPROVED SUBSTITUTE. SIZE AND MODEL NUMBER IS SCHEDULED ON THE DRAWINGS.
 3. SECURE WATER HEATER TO WALL WITH SHEET METAL STRAP.
 4. PROVIDE DRAIN PAN PIPED TO FLOOR SINK BEHIND ELEVATED WATER HEATER.
 - B. ELECTRIC TANKLESS:
 1. GENERAL: UL APPROVED, ELECTRIC TANKLESS, COMPLY WITH LOCAL ENERGY STANDARDS.
 2. MANUFACTURERS: PHOENIX, JO SMITH, STATE, LOCHNAGH, OR APPROVED SUBSTITUTE. SIZE AND MODEL NUMBER IS SCHEDULED ON THE DRAWINGS.
 3. INSTALL TANKLESS WATER HEATER ON WALL PER THE MANUFACTURERS REQUIREMENTS.
- 2.3 PIPING SPECIALTIES
 - A. THERMOMETERS AND WELLS: WEKSLER TYPE A, "ADJUST-ANGLE," 5" DIA. BIMETAL THERMOMETER.
 - B. PRESSURE GAUGES: WEKSLER MODEL BA. PROVIDE WITH EQUAL WEIGHT, MARCH, OR ASHCRIFT, 3-1/2" DIAMETER PHENOLACNE WITH BLACK NUMERALS ON WHITE FACE. INSTALL WITH BOLT/NUT #250FF BAR STOCK NEEDLE VALVE. SELECT DIAL RANGE SO THAT THE NORMAL OPERATING PRESSURE WILL OCCUR AS CLOSE TO THE MIDPOINT OF THE DIAL RANGE AS POSSIBLE.
 - C. TEMPERATURE AND PRESSURE TEST STATION: 1/4" OR 1/2" MPT "PETE'S PLUG" WITH SOLID BRASS FITTING CAP ON ALL SUPPLY AND RETURN PIPING TO EACH PIECE OF MECHANICAL EQUIPMENT.
 - D. AIR VENTS: HOFFMAN #79 WHERE AUTOMATIC TYPE IS SHOWN UNLESS SPECIFIED OTHERWISE. INSTALL WITH BOLT/NUT #250FF BAR STOCK NEEDLE VALVE. PROVIDE BOLT/NUT #250FF BAR STOCK NEEDLE VALVE COCK FOR MANUAL AIR VENT AT COLLS AND AT EACH HIGH POINT IN PIPING SYSTEMS.
 - E. FLEXIBLE PIPE CONNECTORS: FLEX HOSE, 1-FLEX OR FLEXORBER JOINTS, ARCH TYPE CONSTRUCTION OF MOLDED NEOPRENE ELASTOMER OR TEFLON, COMPLETE WITH LIMIT BOLTS AND THE RODS (MASON MENC OR APPROVED SUBSTITUTION).
- 2.4 PIPE INSULATION
 - A. PIPE INSULATION
 1. PREFORMED MINERAL-FIBER PIPE INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN COMPLYING WITH ASTM C547, TYPE 1, WITH FACTORY-APPLIED, ALL-PURPOSE, VAPOR-RETARDER JACKET.
 2. APPLICATION: REFER TO THE PLUMBING PIPING INSULATION SCHEDULE FOR ALL PIPE INSULATION APPLICATIONS AND SIZES.
 3. INSULATION INSTALLED INDOORS SHALL HAVE A FLAME/SMOKE SPREAD INDEX OF 25/50 OR LESS.
- 2.5 EQUIPMENT, PIPE SUPPORTS AND PENETRATIONS
 - A. ALL ROTATING EQUIPMENT AND EQUIPMENT CAPABLE OF TRANSMITTING VIBRATION INTO THE SPACE SHALL BE MOUNTED ON VIBRATION ISOLATORS AND BASES OR AS SHOWN ON DRAWINGS. THE ISOLATORS AND BASES SHALL BE PROPERLY SIZED BY THE ISOLATOR MANUFACTURER, TAKING INTO ACCOUNT THE PIECE OF EQUIPMENT AND THE STRUCTURE UPON WHICH IT IS SETTING, SO THAT VIBRATION TRANSMITTED TO THE STRUCTURE IS HELD TO AN ACCEPTABLE LEVEL.
 - B. OPEN SPRINGS WITH SEPARATE SHIMMERS MAY ALSO BE USED.
 - C. THE BASES AND ISOLATORS SHALL BE AS MANUFACTURED BY MASON, KINETICS, SAUSSE, OR AMBER/BOOTH.
 - D. ALL ISOLATORS SHALL BE PROPERLY ADJUSTED SO THAT EQUIPMENT IS LEVEL, SNUBBERS AND SEISMIC TYPE MOUNTS ARE CENTERED, AND NO SHORT CIRCUITING OCCURS.
 - E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SIZING ALL PIPING SUPPORTS, HANGERS, AND ACCESSORIES INCLUDING ALL ATTACHMENTS TO THE STRUCTURE.
 - F. PROVIDE PIPE SHIELDS ANCHORS, GUIDES, AND SUPPORTS EQUAL TO GRINNELL, EILEN, SUPERSTRUT, UNISTRUT, SUPPORTS, ANCHORS, GUIDES, AND STRUCTURAL ATTACHMENTS SHALL BE INSTALLED ACCORDING TO GOOD STANDARD PRACTICE AND ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
 - G. USE CADMIUM PLATED OR GALVANIZED HANGERS, ATTACHMENTS, RODS, NUTS, BOLTS, AND OTHER ACCESSORIES.
 - H. ON PIPES 1-1/4" AND SMALLER THAT ARE INSULATED, RUN THE INSULATION CONTINUOUS THROUGH THE HANGER AND PROVIDE GRINNELL (TACO) FIGURE 167 (OR EQUIVALENT) GALVANIZED SHEET METAL SHIELDS UNDER THE INSULATION TO PREVENT CRUSHING.
 - J. ON PIPES 1-1/2" AND LARGER THAT ARE INSULATED, PROVIDE PIPE SHIELDS, INC., INSULATED PIPE SUPPORTS.
 - K. ALL ROOFTOP PIPING (GAS, COND. DRAIN, ETC.) IS TO BE SUPPORTED BY ADJUSTABLE PIPE SUPPORTS (MIRO, VERSABLOCK, ETC.). WOOD SUPPORTS ARE UNACCEPTABLE.

END OF SECTION 221000

2.6 DRAINAGE SPECIALTIES

- A. CLEANOUTS: PROVIDE WHERE SHOWN AND AS REQUIRED. TYPES AND SIZES AS SCHEDULED. PROVIDE LUBRICATION ON CLEANOUT THREADS AND PROVIDE OWNER WITH THREE (3) CLEANOUT PLUG REMOVAL TOOLS.
 1. WALL CLEANOUT: WITH STAINLESS STEEL COVER.
 2. FLOOR CLEANOUT: WITH BRONZE TOP AND CARPET RING (AS REQUIRED).
 3. GRAZE CLEANOUT (GCO) SHALL BE SUPPLIED WITH HEAVY DUTY CAST IRON TOP.
- B. FLOOR DRAINS/ FLOOR SINKS: CAST IRON BODY WITH INTEGRAL STRAINER, AND NICKEL BRONZE RM AND TOP COVER.
 1. ACC RESISTANT URETHANE COATING AT SANITARY LOCATIONS.
 2. MANUFACTURERS: JR SMITH, ZURN, JOSAM, WADE, COMMERCIAL ENAMEL.
- C. ROOF / OVERFLOW DRAINS: CAST IRON BODY WITH METAL STRAINER, SUMP RECEIVER UNDER DECK CLAMP.
 1. MANUFACTURERS: JR SMITH, ZURN, JOSAM, WADE.
- 2.7 FUTURE SUPPORTS
 - A. GENERAL: PROVIDE PLUMBING FUTURE CARRIERS, SUPPORTS, AND DEVICES TO CARRY LOADS INDEPENDENTLY OF WALLS OR PARTITIONS. SECURELY BOLT SUPPORTS TO FLOOR WITH POWER-DOWNED OR DRILLED INSERTS OR STUDS.
 1. TRAP PRIMER CONNECTIONS.
- 2.8 PLUMBING FIXTURES
 - A. FIXTURE SCHEDULE: FURNISH AND INSTALL AS INDICATED ON THE DRAWINGS. WATER SWEER FIXTURES AND ACCESSORIES SHALL HAVE A PROVEN TRAP RECORD IN THE FIELD.
 1. INSULATE ALL SUPPLIES AND STOPS PER ADA STANDARDS.
 2. MANUFACTURERS: BRASSCRAFT, EASTMAN, WATTS, WOODRUFF.
 - B. PROVIDE TRAP PRIMERS AT ALL FLOOR DRAINS AND FLOOR SINKS AS INDICATED ON THE DRAWINGS.
 - C. MANUFACTURERS: PFF, JR SMITH, ZURN, SIOUX CHEF.
 - D. FUTURE SUPPLIES AND STOPS:
 1. GENERAL: ALL SUPPLIES AND STOPS SHALL BE NEW. PROVIDE CHROME PLATED ESSOUTCHENS AT ALL WALL PENETRATIONS.
 2. MANUFACTURERS: BRASSCRAFT, EASTMAN, WATTS, WOODRUFF.
 - E. FUTURE FLOW CONTROLS TO BE PROVIDED AT EACH FIXTURE AS FOLLOWS:
 1. LAVATORY: 0.5 GPM.
 2. FUTURE / SUPPLY FITTINGS: BRASS CONSTRUCTION, NEEDED HANDLES.
 3. MANUFACTURERS: CHICAGO, T&S, SYMCOET, WEST AMERICAN STANDARD, ELKAY, MON.
 - F. FUTURE CLOSURE (UNLESS SELECTED BY ARCHITECT): WHITE BRIM FINISH POLISHED CHROME PLATED.
 1. TOPS: 17 GAUGE CHROME PLATED WITH CHROME PLATED ESCUTCHEONS AT WALL PENETRATIONS.
 - G. HOSE BIBB:
 1. PROVIDE SERVICE STOP FOR EACH HOSE BIBB WITH ACCESS PANEL AS REQUIRED TO ACCESS THE VALVE. PROVIDE HOSE BIBB WITH INTEGRAL WOODER BRACKET.
 2. MANUFACTURERS: JR SMITH, WOODRUFF, ZURN.
- 2.9 WATER HEATERS:
 - A. STORAGE TYPE:
 1. GENERAL: UL APPROVED, STORAGE TYPE, COMPLY WITH LOCAL ENERGY STANDARDS.
 2. MANUFACTURERS: PHOENIX, JO SMITH, STATE, LOCHNAGH, OR APPROVED SUBSTITUTE. SIZE AND MODEL NUMBER IS SCHEDULED ON THE DRAWINGS.
 3. SECURE WATER HEATER TO WALL WITH SHEET METAL STRAP.
 4. PROVIDE DRAIN PAN PIPED TO FLOOR SINK BEHIND ELEVATED WATER HEATER.
 - B. ELECTRIC TANKLESS:
 1. GENERAL: UL APPROVED, ELECTRIC TANKLESS, COMPLY WITH LOCAL ENERGY STANDARDS.
 2. MANUFACTURERS: PHOENIX, JO SMITH, STATE, LOCHNAGH, OR APPROVED SUBSTITUTE. SIZE AND MODEL NUMBER IS SCHEDULED ON THE DRAWINGS.
 3. INSTALL TANKLESS WATER HEATER ON WALL PER THE MANUFACTURERS REQUIREMENTS.
- 3.1 WATER HEATERS
 - A. INSTALLER MUST EXAMINE AREAS AND CONDITIONS UNDER WHICH WATER HEATERS ARE TO BE INSTALLED, AND NOTIFY GENERAL CONTRACTOR IN WRITING OF CONDITIONS REQUIRING TO PROPER COMPLETION OF THE WORK. DO NOT PROCEED WITH THE WORK UNLESS SATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN A MANNER ACCEPTABLE TO INSTALLER.
 - B. PROVIDE EACH AS OTHERWISE SPECIFIED. PROVIDE INSTALL WATER HEATER WITH NECESSARY COMPONENTS REQUIRED, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - C. PROVIDE CLEARANCE FROM THE POSITION INDICATED IN RELATION TO OTHER WORK. POSITION UNIT WITH SUFFICIENT CLEARANCE FOR NORMAL SERVICE AND MAINTENANCE.
 - D. LEVEL OR TYPH UNITS TO THE INDICATED TOLERANCE.
 - E. REMOVE WATER HEATERS FROM THE STRUCTURE AS DETAILED ON THE PLANS.
 - F. CLEAN OUTS AND DEBRIS FROM EACH WATER HEATER PRIOR TO INSTALLATION AND AFTER START-UP AND TESTING.
 - G. INSULATE WATER HEATER (AIR HANDLER UNIT).
 - H. AFTER INSTALLATION HAS BEEN COMPLETED, TEST EACH WATER HEATER TO DEMONSTRATE PROPER OPERATION OF UNIT AT PERFORMANCE REQUIREMENTS SPECIFIED. WHEN POSSIBLE, TEST CORRECT MAINTENANCE LINES, THEN RETEST TO DEMONSTRATE COMPLIANCE. REPLACE UNITS WHICH CANNOT BE SATISFACTORILY CORRECTED.
 - I. MINIMUM TEMPERATURE SETTING IS 140°F TO AVOID LEGIONELLA DISEASE.
- 3.2 GENERAL PIPING
 - A. CUT PIPING ACCURATELY TO JOB MEASUREMENTS AND INSTALL WITHOUT SPRINKING OR FORGING, TRUE TO LINE AND GRADE, GENERALLY SQUARE WITH BUILDING AND ACCURATELY SUPPORTED TO PREVENT SAGGING OR UNDEI STRESS ON PIPE, FITTINGS, AND ACCESSORIES.
 - B. THROUGHTIGHT CLEAN ALL PIPE AND MAINTAIN IN SUCH CONDITION THROUGHOUT CONSTRUCTION. TEMPORARILY CAP OFF OR PLUG ENDS OF UNPROTECTED PIPE.
 - C. ARRANGE PIPES AND HANGERS TO ALLOW FOR EXPANSION, CONTRACTION, AND STRUCTURAL SETTLEMENT. DO NOT INSTALL PIPING IN CONTACT WITH THE BUILDING STRUCTURE. ANCHOR PIPES PROPERLY SO EXPANSION/CONTRACTION IS CONTROLLED.
 - D. "HILL HEAD" TEES SHALL NOT BE INSTALLED.
 - E. FLUSH ALL PIPES FREE FROM FOREIGN SUBSTANCES BEFORE INSTALLING VALVES, STOPS, OR MAKING FINAL CONNECTIONS.
 - F. INSTALL PIPING AT THE COLLS SO THAT COLLS CAN BE REMOVED WITH A MINIMUM OF PIPE DISLOCATION. ALL FITTINGS, ETC., SHALL BE READILY ACCESSIBLE.
 - G. VERTICAL COUPLINGS WITH GROOVED PRIMING MAY BE USED ON EXPOSED PIPING SECTIONS IN LEU OF WELDED JOINTS. OPTION WILL REQUIRE ADDITIONAL SUPPORTS TO PREVENT SAGGING OF PIPE.
 - H. PROVIDE A SUPPORT OR HANGER CLOSE TO EACH CHANGE OF DIRECTION IN THE PIPE, EITHER HORIZONTAL OR VERTICAL.
- 3.3 PIPE TESTING
 - A. TEST ALL PRESSURE PIPING AT 150 PSID FOR 4 HOURS WITH NO LEAK OR LOSS OF PRESSURE. REPAIR OR REPLACE DEFECTIVE PIPING UNTIL TESTS ARE ACCOMPLISHED SUCCESSFULLY.
 - B. WASTE, VENT, AND CONDENSATE – FILL TO TOP OF HIGHEST VENT WITH WATER FOR 4 HOURS WITH NO LOSS OF HEAD. REPAIR OR REPLACE DEFECTIVE PIPING UNTIL TESTS ARE ACCOMPLISHED SUCCESSFULLY.
 - C. FUEL GAS PIPING – PRIOR TO INITIAL OPERATION, TEST AND PURGE FUEL GAS PIPING IN ACCORDANCE WITH ANSI Z223.1. REPAIR OR REPLACE DEFECTIVE PIPING UNTIL TESTS ARE COMPLETED SUCCESSFULLY.
- 3.4 IDENTIFICATION
 - A. PIPING:
 1. IDENTIFY ALL PIPELINES WITH ADHESIVE MARKERS INDICATING THE CONTENTS AND DIRECTION OF FLOW.
 2. MANUFACTURERS: SETON PIPE MARKER, BRADY, OR PERMA-COLOR.
 3. PROVIDE PIPE MARKING AS FOLLOWS:
 - a. PROVIDE AT EACH END OF EACH MARKER, BRADY OR EQUAL, 2-1/4" WIDE SELF-STICKING CLEAR TAPE AROUND THE PERIPHERY OF PIPE OR INSULATION TO FURTHER SECURE THE MARKER. ALL MARKERS SHALL BE INSTALLED AFTER FINISH PAINTING IS COMPLETE. COAT FULL MARKER WITH CLEAR LOCQUER AFTER INSTALLATION.
 - b. GUARANTEE THAT "PIPE MARKERS" WILL STAY ON PIPE SYSTEMS FOR A PERIOD OF NOT LESS THAN 5 YEARS.
 - c. IDENTIFY PIPING 2-1/2" AND SMALLER WITH 1" MINIMUM HEIGHT LETTERING EVERY 20" WHERE EXPOSED TO VIEW AND AT VALVES WHERE CONCEALED.
 - d. IDENTIFY PIPING 3" AND LARGER WITH 2" MINIMUM HEIGHT LETTERING EVERY 30" WHERE EXPOSED TO VIEW AND AT VALVES WHERE CONCEALED.
 - e. WHERE PIPING IS PROVIDED WITH INSULATION, PROVIDE THE SIZE LETTERS SCHEDULED ABOVE IN ACCORDANCE WITH THE OUTSIDE DIMENSIONS OF INSULATION.
 - B. EQUIPMENT IDENTIFICATION: IDENTIFY EACH NEW AND EXISTING EQUIPMENT WITH LAMINATED BLACK PLASTIC TAGS WITH ENGRAVED WHITE CORE LETTERING. USE TAGS WITH A MINIMUM THICKNESS OF 1/16", A MINIMUM SIZE OF 1-1/2" X 4", AND WITH 1" HIGH LETTERING. ACCEPTABLE MANUFACTURERS: SETON, W.W. MILCOX, OR BRADY. SECURE TAGS TO EQUIPMENT BY MEANS OF SCREWS OR BOLTS.
 - C. VOLUME DAMPER IDENTIFICATION: INDICATE DAMPER POSITION ON ALL SUPPLY DUCT VOLUME DAMPERS.
- 3.5 STERILIZATION OF PIPES
 - A. GENERAL:
 1. AFTER PRELIMINARY PURGING OF THE SYSTEM, CHLORINATE THE ENTIRE POTABLE DOMESTIC WATER SYSTEM IN ACCORDANCE WITH THE CURRENT RECOMMENDATIONS OF THE AMERICAN WATER WORKS ASSOCIATION AND IN ACCORDANCE WITH ALL PERTINENT STATE AND LOCAL HEALTH CODES AND REGULATIONS.
 2. UPON COMPLETION OF THE STERILIZATION, THROUGHTIGHTLY FLUSH THE ENTIRE POTABLE WATER SYSTEM AND IMMEDIATELY FILL THE SYSTEM.

END OF SECTION 221000

SECTION 231000 – HEATING, VENTILATION AND AIR CONDITIONING

PART 1 – GENERAL

- 1.1 GENERAL
 - A. REFER TO SECTION 220500 – BASIC MECHANICAL REQUIREMENTS.
- 2.1 MATERIALS
 - 2.1 SHEET METAL DUCT AND ACCESSORIES
 - A. DUCT SHALL BE FABRICATED OF GALVANIZED CARBON SHEET STEEL CONFORMING TO ASTM A527 (900) AND THE LATEST SMACNA DUCT CONSTRUCTION MANUALS.
 - B. EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO FOLLOWING PRESSURE CLASSIFICATIONS:
 1. SUPPLY DUCTS:
 - a. 2" W.G., POSITIVE
 - b. 2" W.G., NEGATIVE
 - c. 2" W.G., NEGATIVE
 2. RETURN AND EXHAUST DUCTS:
 - a. 2" W.G., NEGATIVE
 - C. EXCEPT WHERE OTHERWISE INDICATED, USE DUCT SEALANTS OF THE FOLLOWING PRESSURE CLASSIFICATION:
 1. SUPPLY DUCTS (CLASS B):
 - a. 3" W.G.
 2. RETURN DUCTS (CLASS C):
 - a. 3" W.G.
 - D. FLEXIBLE DUCT: FINAL FIVE FEET MAXIMUM TO CONNECTIONS TO ALL SUPPLY AIR OUTLETS, RETURN AIR GRILLES, AND EXHAUST GRILLES SHALL BE MADE WITH SOUND ABSORBING FLEXIBLE DUCT. FACTORY INSULATED, 4" W.G. NEGATIVE TO 6" W.G. POSITIVE PRESSURE CLASS ACOUSTICAL DUCT, WITH FULL INTERNAL LINER TO SHIELD AIR FROM FIBERGLASS. MANUFACTURERS: FLEXMASTER TYPE BM, ATCO INSUL-FLEX, FLEX-ARE, HART AND COLEY (GENEX).
 - E. FLEXIBLE CONNECTIONS: 30 DUNCE NEOPRENE FIBERGLASS, VENTIFAB OR VENTGLAS IF EXPOSED TO THE WEATHER. NO TURNS SHALL HAVE A BEND RADIUS OF R/D > 1.5.
 - F. TURNING VANES: ALL MITERED RECTANGULAR ELBOWS SHALL HAVE TURNING VANES INSTALLED PER SMACNA.
- 2.2 DUCT INSULATION
 - A. GENERAL:
 1. MINERAL-FIBER BOARD THERMAL INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 612, TYPE IB, WITHOUT FACING AND WITH ALL-SERVICE JACKET MANUFACTURED FROM HEAT PAPER, REINFORCING SCIM, ALUMINUM FOIL, AND VINYL FILM.
 2. MINERAL-FIBER BLANKET THERMAL INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 553, TYPE 1, WITHOUT FACING AND WITH ALL-SERVICE JACKET MANUFACTURED FROM HEAT PAPER, REINFORCING SCIM, ALUMINUM FOIL, AND VINYL FILM.
 3. INSULATE ALL CONCEALED SUPPLY DUCTWORK.
 4. INSULATION INSTALLED INDOORS SHALL HAVE A FLAME/SMOKE SPREAD INDEX OF 25/50 OR LESS.
- 2.3 GRILLES AND DIFFUSERS
 - A. DIFFUSERS AND RETURN AIR REGISTERS SHALL BE TITUS AS SCHEDULED OR APPROVED SUBSTITUTION (KREUEGER, PRICE).
 - B. DRUM LOUVER SHALL BE TITUS WITH OPPOSED BLADE DAMPER AS INDICATED OR EQUIVALENT.
- 2.4 BALANCE DAMPERS
 - A. OPPOSED BLADE BALANCE DAMPERS: RUSKIN CD35. DAMPERS FOR ROUND DUCTS SHALL BE RUSKIN CDR-25.
 - B. UPSTREAM OF EACH DUCT TO SUPPLY AIR OUTLETS, RETURN GRILLES AND EXHAUST GRILLES:
 1. DAMPERS SHALL BE 2 GAUGE GALVANIZED STEEL AND SHALL HAVE A 3/8" MINIMUM SHAFT AND A DURO-DYNE K5385 QUADRANT SET. QUADRANT SHALL BE ACCESSIBLE AND EASILY VISIBLE, WHERE DIFFICULT TO LOCATE, THEY SHALL BE MARKED WITH A RED RIBBON HANGING BELOW THE DUCTS.
 2. PROVIDE STANDOFF PLATE FOR INSULATED DUCTS.
- 2.5 AIR HANDLING UNITS HEAT PUMP CONDENSING UNITS
 - A. MANUFACTURER: CARRIER OR EQUAL TO MANUFACTURER'S MODEL WITH CAPACITY AND OPERATING CHARACTERISTICS AS SCHEDULED.
 - B. INDOOR UNIT (AIR HANDLER UNIT):
 1. SELF-CONTAINED, FACTORY-ASSEMBLED, PRE-WIRED UNIT CONSISTING OF CABINET, SUPPLY FAN, DX COOLING COIL, AUX ELECTRIC HEAT SECTION, CONTROLS, AND ACCESSORIES.
 2. FURNISH UNIT FOR SINGLE POINT ELECTRICAL CONNECTION.
 - C. OUTDOOR UNIT (HEAT PUMP CONDENSING UNIT):
 1. SELF-CONTAINED, PACKAGED, PRE-WIRED UNIT CONSISTING OF CABINET WITH COMPRESSOR AND CONDENSER.
 2. RETROFIT/REPAIR PIPING
 1. PIPE MATERIAL: COPPER TUBE, ASTM B280, HSB HARD DRAWN OR O60 SOFT ANNEALED.
 2. FITTINGS: ASME B16.22 WROUGHT COPPER.
 3. JOINTS: BRAZE, AWS AS.8 BOUP SILVER/PHOSPHORUS/COPPER ALLOY.
 - E. ELECTRICAL:
 1. FURNISH EACH UNIT FOR SINGLE POINT ELECTRICAL CONNECTION. EACH UNIT SHALL HAVE INTEGRAL SHORT CIRCUIT PROTECTION OF ALL INTERNAL ELECTRICAL COMPONENTS, AND ALL NECESSARY MOTOR START, CONTACTOR AND OVER-CURRENT PROTECTION.
 2. EACH UNIT TO INCLUDE LOW VOLTAGE CONTROL TRANSFORMER.
 3. VOLTAGES SHALL BE AS SCHEDULED.
 - F. UNIT CONTROLS:
 1. THIS CONTRACTOR SHALL PROVIDE ALL TEMPERATURE CONTROL AND INTERLOCKING DEVICES NECESSARY TO PERFORM TEMPERATURE CONTROL SERVICE.
 2. HEAT PUMP SPACE THERMOSTAT TO PROVIDE HEATING AND COOLING STAGES AS SCHEDULED, AUTOMATIC CHANGEOVER AND FAN CONTROL. PROVIDE MATCHING SUB-BASE AS NECESSARY.
 3. UNIT MANUFACTURERS SHALL PROVIDE THE FOLLOWING CONTROLS:
 - a. SWITCHING SUB-BASE ON THERMOSTAT OR REMOTE STATUS PANEL SHALL START/STOP UNIT FAN BASED ON "ON-OFF-AUTO" SETTING.
 - b. SPACE THERMOSTAT SHALL SCHEDULE HEAT PUMP HEATING AND COOLING TO MAINTAIN THERMOSTAT SETPOINT.
 - c. THERMOSTATIC CONTROLS SHALL HAVE A 5 DEGREE DEADBAND.
 - d. AUTOMATIC CONTROLS: SETBACK 55 DEGREE (HEAT) AND 85 DEGREE (COOL); 7-DAY CLOCK, 2 HOUR OCCUPANT OVERRIDE, 10 HOUR BACKUP.

END OF SECTION 231000

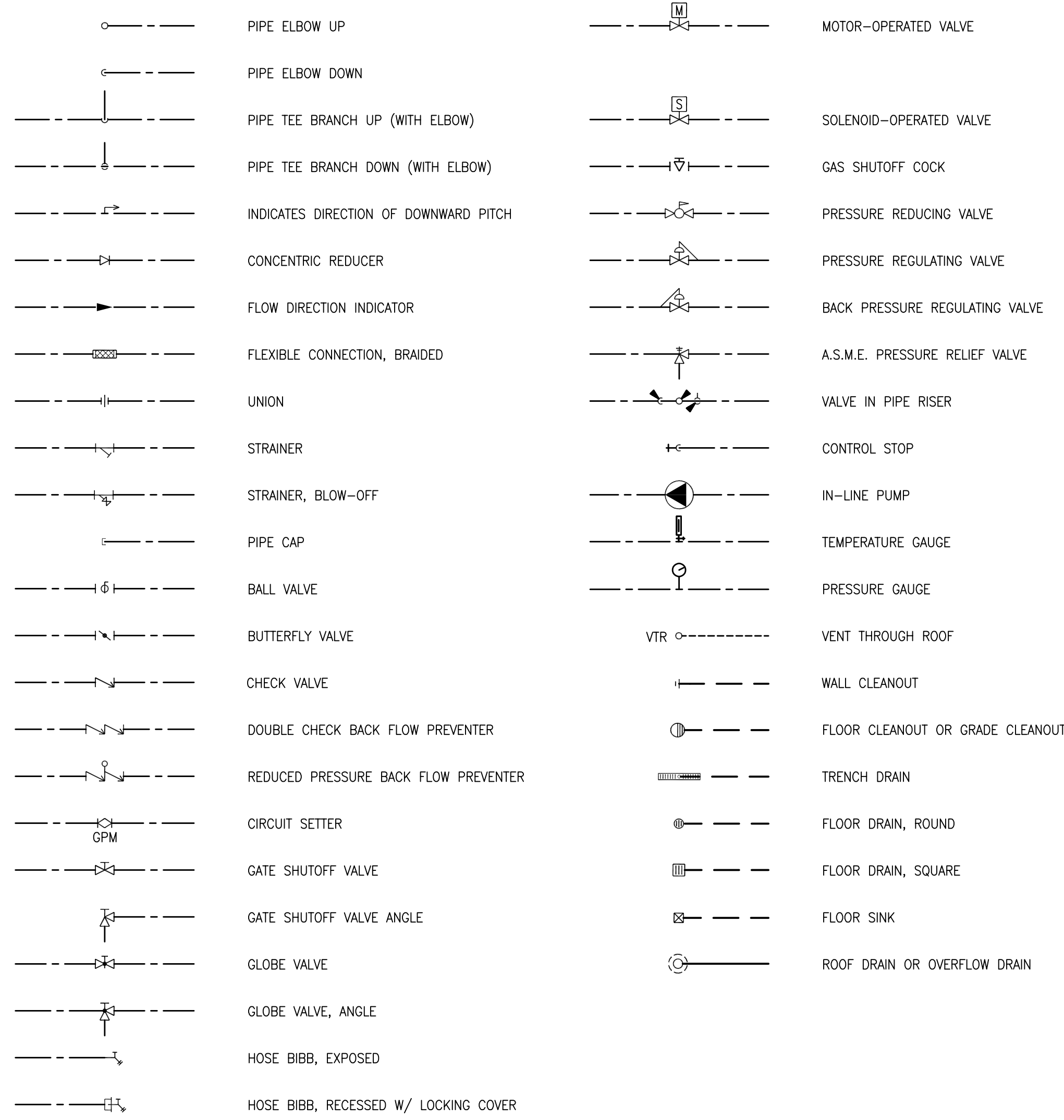
2.6 EXHAUST FANS

- A. MANUFACTURER: COOK, GREENHECK, PENN, JENN-AIR OR ACME.
 - B. CONSTRUCT HOUSING OF GALVANIZED SHEET METAL, CONFIGURATION AS SCHEDULED AND SHOWN ON THE PLANS.
 - C. UNITS INTERIORS SHALL BE FURNISHED WITH LINED ACOUSTICAL INSULATION.
 - D. UNITS TO BE UL LISTED OR CSA CERTIFIED.
 - E. INSTALL PER MANUFACTURER'S INSTRUCTIONS WITH BACKDRAFT DAMPER.
- 2.7 GAS FIRED HEATER
 - A. MANUFACTURER: REZNOR, MOJINE, HASTINGS, STERLING, TRANE.
 - B. CONTROLS: INTEGRAL JUNCTION BOX FOR ALL POWER AND CONTROL CONNECTIONS. INCLUDE HIGH LIMIT SWITCH, FAN CONTROLS, AND A 24 VOLT AUTOMATIC GAS VALVE WITH SAFETY PILOT SHUT-OFF (100%).
 - C. PRESSURE REGULATOR WITH LEAK LIMITING DEVICE, AND MANUAL MAN AND PILOT (A AND B) VALVES. GAS VALVES SHALL BE SUITABLE FOR MAXIMUM 0.5 PSIG INLET PRESSURE FOR NATURAL GAS. PROVIDE WITH ELECTRIC IGNITION AND CONTROLS TRANSFORMERS.
- 2.8 TYPE B DOUBLE WALL GAS VENTS
 - A. PROVIDE DOUBLE WALL GAS VENTS, UL-LISTED FOR TYPE B, CONSISTING OF DOUBLE WALL METAL CONSTRUCTION PIPE SECTIONS AND FITTINGS AND ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION.
 - B. ACCESSORIES: PROVIDE MANUFACTURER'S STANDARD ACCESSORY ITEMS AS INDICATED, FOR COMPLETE INSTALLATION.
 - C. MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE TYPE B DOUBLE WALL GAS VENTS OF ONE OF THE FOLLOWING:
 1. AMERICAN METAL PRODUCTS CO.
 2. GENERAL PRODUCTS CO., INC.
 3. METAL-TEC SYSTEMS, WALLACE-MURRAY CORP.
 4. META-FAB, INC.
- 3.1 SHEET METAL DUCT AND ACCESSORIES
 - A. FABRICATE AND INSTALL THE DUCT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE – LATEST EDITION" AND THE FOLLOWING:
 1. SUPPLY DUCT: 2" STATIC PRESSURE SEAL CLASS A.
 2. RETURN DUCTS: 2" STATIC PRESSURE SEAL CLASS A.
 3. KITCHEN EXHAUST DUCT: 2"STATIC PRESSURE SEAL CLASS A.
 - B. PROVIDE ALL NECESSARY TRANSITIONS AND ADDITIONAL FITTINGS AS REQUIRED TO CLEAR OBSTRUCTIONS, MAINTAIN CLEARANCES, AND COORDINATE WITH OTHER TRADES AT NO EXTRA COST TO THE OWNER.
 - C. ACCESS DOORS: GASKETED, AIRTIGHT, HINGED SHEET METAL DOORS. INSTALL METAL ACCESS DOORS AND FRAMES OF SIZE TO PERMIT ACCESS BUILT-IN EQUIPMENT. USE WOODER METAL TYPE AT-7 OR APPRO

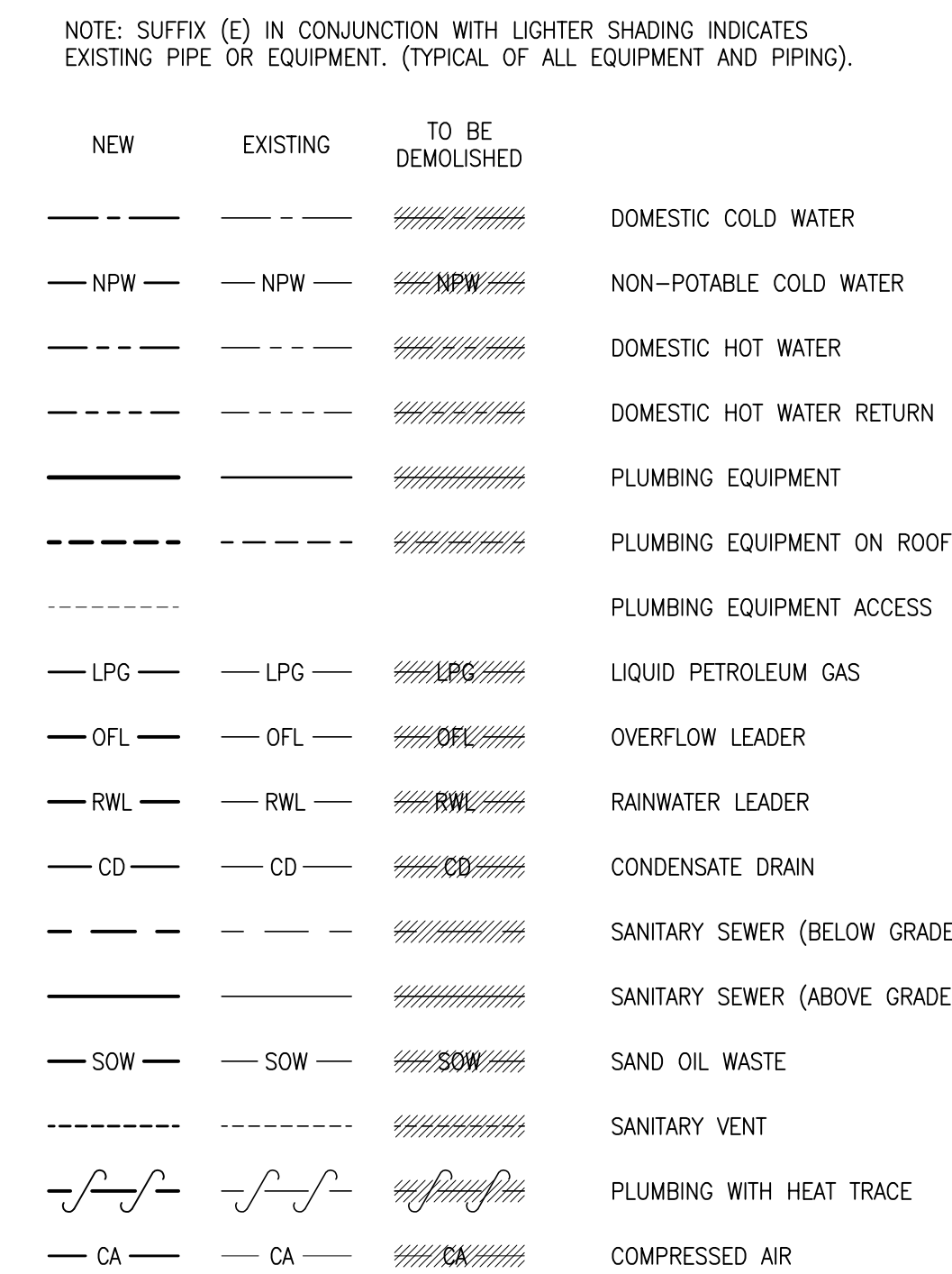
PLUMBING ABBREVIATIONS

Table of plumbing abbreviations with columns for symbol, description, and units.

PLUMBING PIPING SYMBOLS

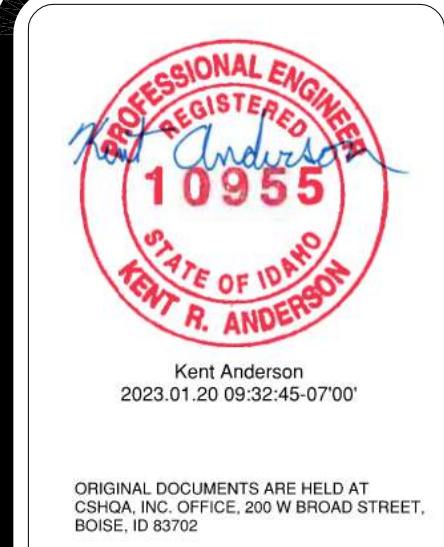


PLUMBING LINETYPE LEGEND



PLUMBING SHEET INDEX

Index table listing sheet numbers (P01-P51) and their corresponding titles like 'PLUMBING COVER SHEET' and 'WASTE AND VENT DEMOLITION PLAN'.



Original documents are held at CSH&A, INC. OFFICE, 200 W BROAD STREET, BOISE, ID 83702

Professional Engineer information and contact details for Kent Anderson, P.E.

Vertical text: ITD MAINTENANCE BLDG. IMPROVEMENTS CALDWELL, IDAHO 15430 HIGHWAY 44

Vertical text: CSH&A

Vertical text: PROJECT 22123.00 DATE 1/20/23 DRAWN KRA CHECKED KRA

Vertical text: SHEET TITLE PLUMBING COVER SHEET

Vertical text: SHEET P01 ORIGINAL SHEET SIZE 30" x 42"

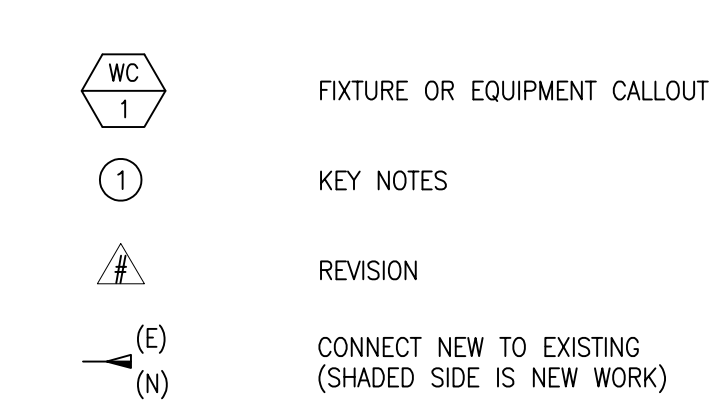
PLUMBING GENERAL NOTES

- List of 18 general notes regarding work performance, seal requirements, piping sizes, installation details, and coordination with other trades.

SUBMITTAL REVIEW NOTES

- List of 7 submittal review notes detailing the review process, strict adherence to specifications, and the contractor's responsibility for reviewing submittals.

PLUMBING ANNOTATION SYMBOLS



WATER MAIN SIZING CALCULATION - 2017 IDAHO STATE PLUMBING CODE

Summary table for water main sizing calculation, including project name, date, designer, and pressure/length data.

Main fixture schedule table with columns for Fixture, Service, WFU, Fix Qty, and Total WFU.

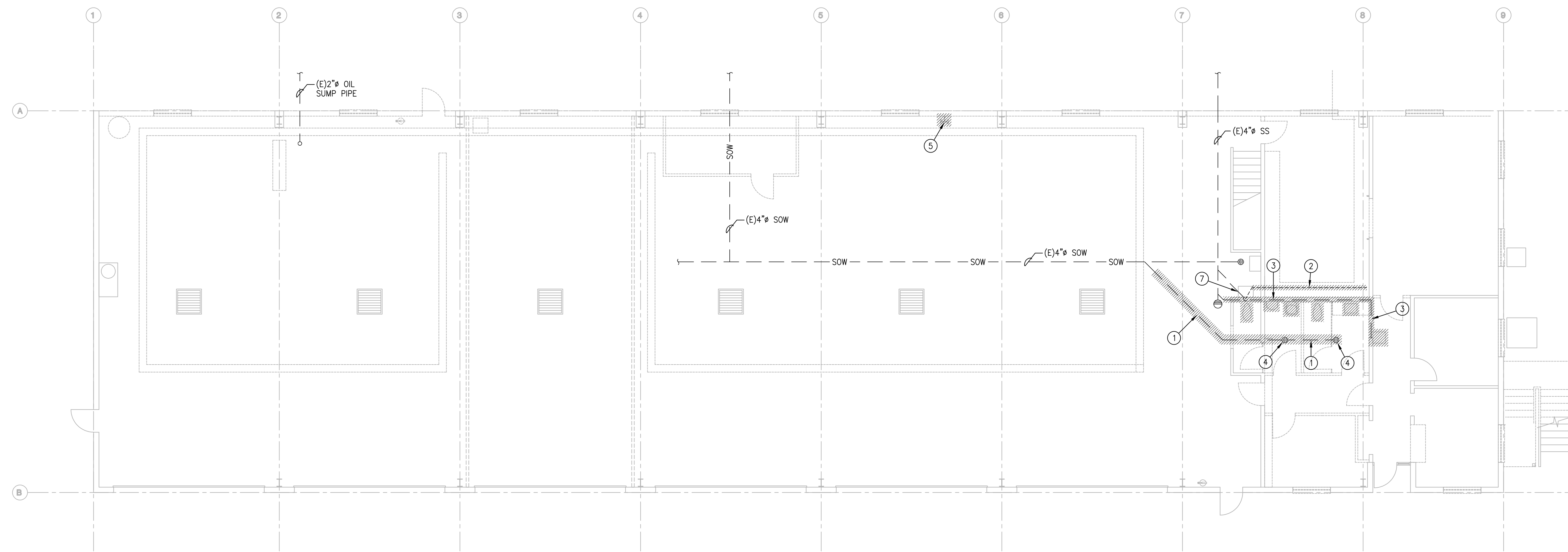
Branch pipe chart table showing pipe sizes for different flow rates and velocities.

WASTE MAIN SIZING CALCULATION - 2017 IDAHO STATE PLUMBING CODE

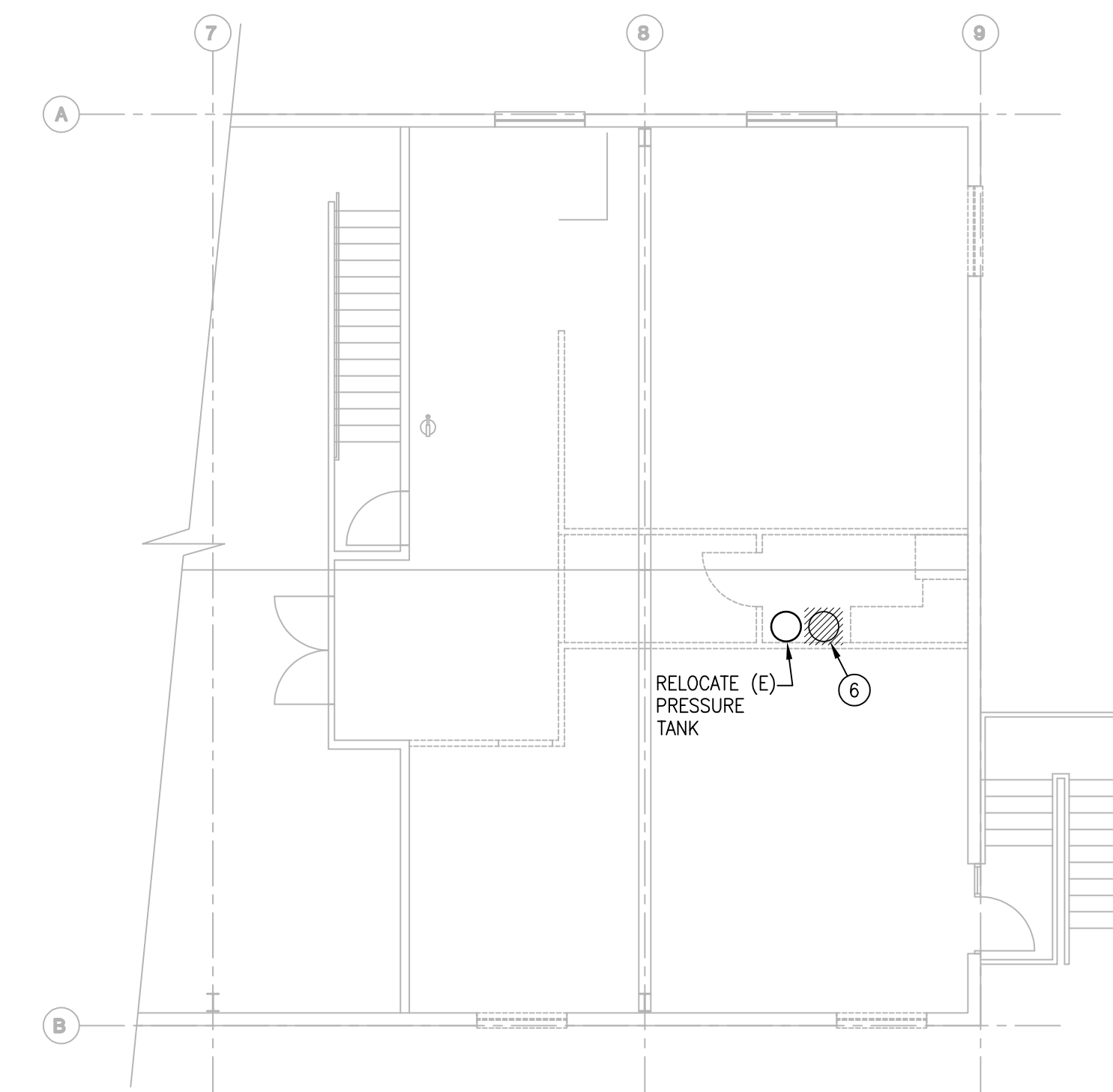
Summary table for waste main sizing calculation, including project name, date, and designer.

Main fixture schedule table for waste main sizing, including columns for Fixture, Service, DFU, and Sanitary.

Notes for waste main sizing calculation, including references to tables 702.1 and 702.2.



1 WASTE AND VENT DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



2 MAZZANINE WASTE AND VENT DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

- A. RECORD DRAWINGS USED FOR DESIGN MAY NOT REFLECT CURRENT SPACE LAYOUT. PLUMBING CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPING AND FIXTURE LOCATIONS PRIOR TO START OF WORK.
- B. WASTE AND VENT PIPING FROM DEMOLISHED FIXTURES AND EQUIPMENT SHALL BE CAPPED AT MAIN ABOVE CEILING, BELOW FLOOR, AND AT WALL AS REQUIRED. ALL ABANDONED PIPING SHALL BE REMOVED FROM THE BUILDING AND DISPOSED OF PROPERLY. PATCH FLOOR AND WALLS AS REQUIRED TO MATCH EXISTING CONDITIONS.
- C. DEMOLISH ALL WASTE AND VENT PIPING FROM THE EXISTING SPACE, AND ELSEWHERE AS NECESSARY, AND DISPOSE OF OFF SITE.
- D. DEMOLISHED FIXTURES AND EQUIPMENT SHALL BE REMOVED FROM THE BUILDING AND DISPOSED OF PROPERLY.
- E. COORDINATE THE REMOVAL OF ALL PIPING, FIXTURES, AND EQUIPMENT WITH ALL OTHER DISCIPLINES PRIOR TO START OF WORK.

SHEET NOTES

- 1. DEMOLISH EXISTING WASTE PIPING AS SHOWN SHADED AND REMOVE OFF SITE. CAP AND ABANDON PIPING BELOW FLOOR AND CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- 2. DEMOLISH EXISTING VENT PIPING AS SHOWN SHADED AND REMOVE OFF SITE. CAP AND ABANDON PIPING BELOW FLOOR AND DEMOLISH ALL PIPING ABOVE CEILING. CAP ALL PIPING CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- 3. DEMOLISH ALL EXISTING WASTE PIPING, VENT PIPING, FLOOR DRAINS, FLOOR CLEANOUTS, AND PLUMBING FIXTURES IN THE SHADED AREA AND REMOVE OFF SITE. CAP AND ABANDON ALL WASTE PIPING BELOW FLOOR CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- 4. DEMOLISH EXISTING FLOOR DRAIN, FLOOR SINK, HUB DRAIN, OR FLOOR CLEANOUT AS SHOWN SHADED. CAP AND ABANDON WASTE PIPING BELOW FLOOR AND CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- 5. DEMOLISH EXISTING PLUMBING FIXTURE WITH ALL ASSOCIATED WASTE AND VENT PIPING AND REMOVE OFF SITE. CAP AND ABANDON PIPING BELOW FLOOR OR ABOVE CEILING AND CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- 6. DEMOLISH EXISTING WATER HEATER, EXPANSION TANK, AND ALL ASSOCIATED INDIRECT WASTE PIPING AND REMOVE OFF SITE. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- 7. EXISTING PLUMBING FIXTURE TO REMAIN.

LEGEND

(RE: P01 FOR ADDITIONAL INFORMATION)

— (E) PLUMBING EQUIPMENT	⊕ — (E) FLOOR CLEAN OUT
— SOW — (E) SAND OIL WASTE	⊙ — (E) FLOOR DRAIN, ROUND
- - - (E) SANITARY SEWER	⊗ — (E) FLOOR SINK
- - - (E) SANITARY SEWER	
- - - (E) SANITARY VENT	
- - - (E) CONDENSATE	
— RWL — (E) RAINWATER LEADER	
— OFL — (E) OVERFLOW LEADER	
▨ TO BE DEMOLISHED	



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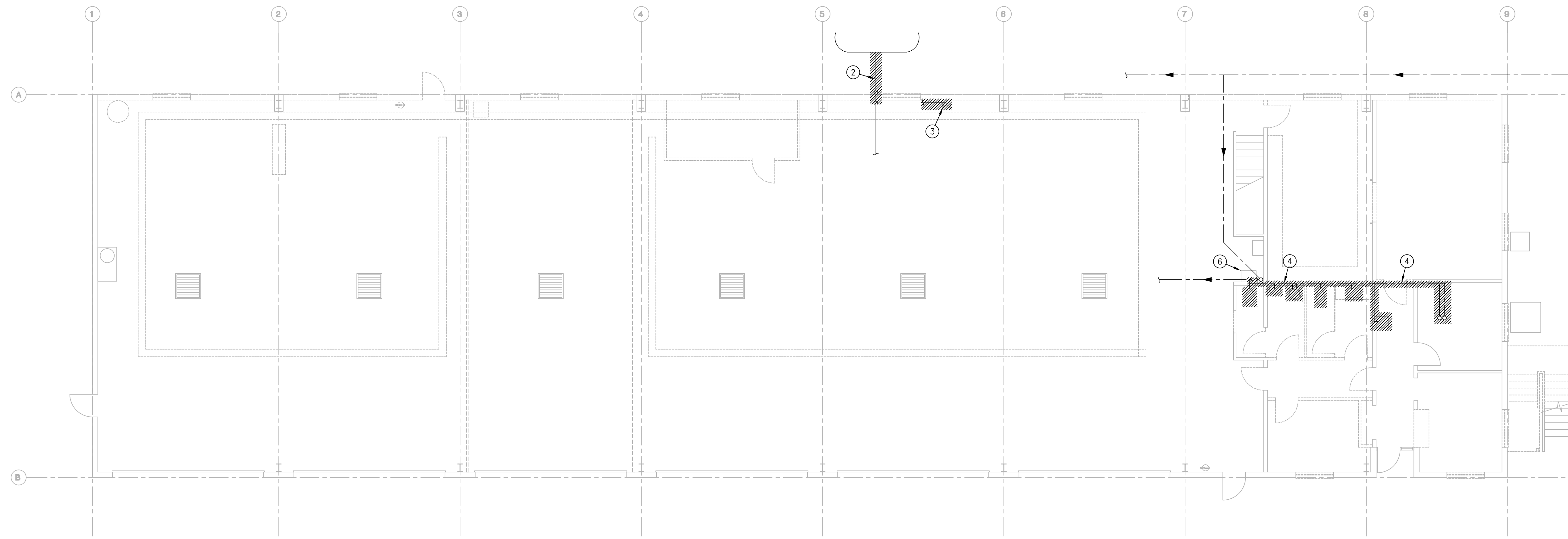
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PROJECT 22123.00	DATE 1/20/23
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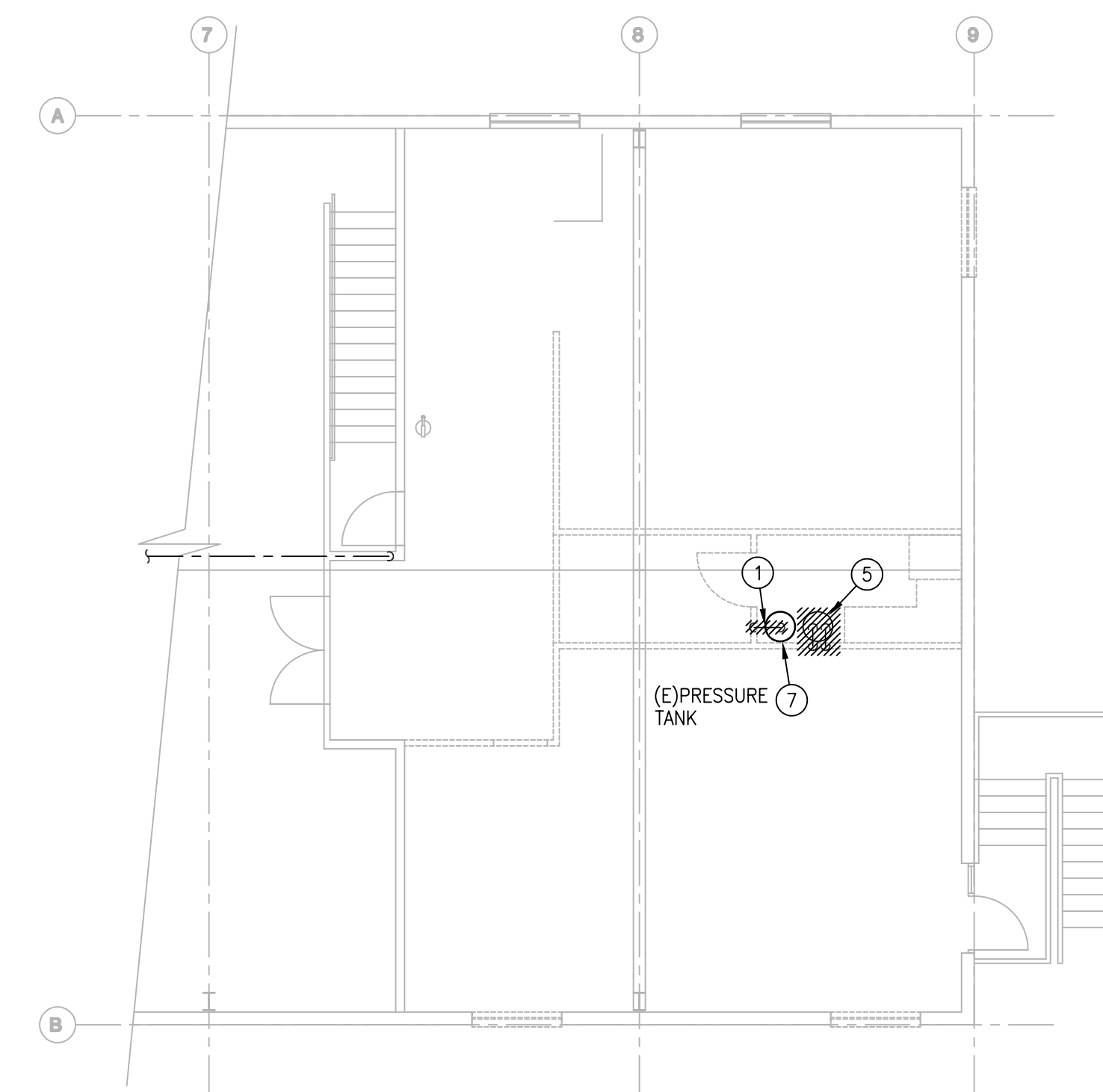
REVISIONS

SHEET TITLE
WASTE AND VENT DEMOLITION PLAN

SHEET
P11
ORIGINAL SHEET SIZE
30" x 42"



1 WATER AND GAS DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



2 MAZZANINE WATER AND GAS DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

- RECORD DRAWINGS USED FOR DESIGN MAY NOT REFLECT CURRENT SPACE LAYOUT. PLUMBING CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPING AND FIXTURE LOCATIONS PRIOR TO START OF WORK.
- WATER AND GAS PIPING FROM DEMOLISHED FIXTURES AND EQUIPMENT SHALL BE CAPPED AT MAIN ABOVE CEILING, BELOW FLOOR, AND AT WALL, AS REQUIRED. ALL ABANDONED PIPING SHALL BE REMOVED FROM THE BUILDING AND DISPOSED OF PROPERLY. PATCH FLOOR AND WALLS AS REQUIRED TO MATCH EXISTING CONDITIONS.
- DEMOLISH ALL WATER AND GAS PIPING FROM THE EXISTING SPACE, AND ELSEWHERE AS NECESSARY, AND DISPOSE OF OFF SITE.
- DEMOLISHED FIXTURES AND EQUIPMENT SHALL BE REMOVED FROM THE BUILDING AND DISPOSED OF PROPERLY.
- COORDINATE THE REMOVAL OF ALL PIPING, FIXTURES, AND EQUIPMENT WITH ALL OTHER DISCIPLINES PRIOR TO START OF WORK.

SHEET NOTES

- DEMOLISH EXISTING WATER PIPING AS SHOWN SHADED WITH ALL ASSOCIATED SHUT-OFF VALVES AND REMOVE OFF SITE. CAP PIPING ABOVE CEILING CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- DEMOLISH EXISTING LIQUID PETROLEUM GAS PIPING AS SHOWN SHADED WITH ALL ASSOCIATED SHUT-OFF VALVES, PRESSURE REGULATORS, AND APPLIANCE CONNECTORS AND REMOVE OFF SITE. CAP PIPING ABOVE CEILING CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- DEMOLISH EXISTING PLUMBING FIXTURE WITH ALL ASSOCIATED WATER AND GAS PIPING AND REMOVE OFF SITE. CAP PIPING ABOVE CEILING OR BELOW FLOOR OR ABOVE CEILING AND CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- DEMOLISH ALL EXISTING WATER PIPING, GAS PIPING, AND PLUMBING FIXTURES IN THE SHADED AREA AND REMOVE OFF SITE. CAP WATER PIPING ABOVE CEILING CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- DEMOLISH EXISTING WATER HEATER, EXPANSION TANK, AND ALL ASSOCIATED WATER PIPING AND REMOVE OFF SITE. CAP WATER PIPING ABOVE CEILING CLOSE TO MAIN. VERIFY EXACT DEMO REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
- EXISTING PLUMBING FIXTURE TO REMAIN.
- RELOCATE EXISTING PRESSURE TANK. RE: WATER AND GAS PLAN FOR NEW LOCATION.

LEGEND
(RE: P01 FOR ADDITIONAL INFORMATION)

— (E) PLUMBING EQUIPMENT	○ (E) PIPE ELBOW UP
- - - (E) COLD WATER	○ (E) PIPE ELBOW DOWN
- · - · (E) HOT WATER	⊥ (E) PIPE TEE BRANCH UP
- · - · (E) HOT WATER RETURN	⊥ (E) PIPE TEE BRANCH DOWN
— LPG — (E) LIQUID PETROLEUM GAS	→ (E) FLOW DIRECTION INDICATOR
▨ TO BE DEMOLISHED	⊥ (E) BALL VALVE



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PROJECT 22123.00	DATE 1/20/23
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REVISED

SHEET TITLE

WATER AND GAS DEMOLITION PLAN

SHEET

P12

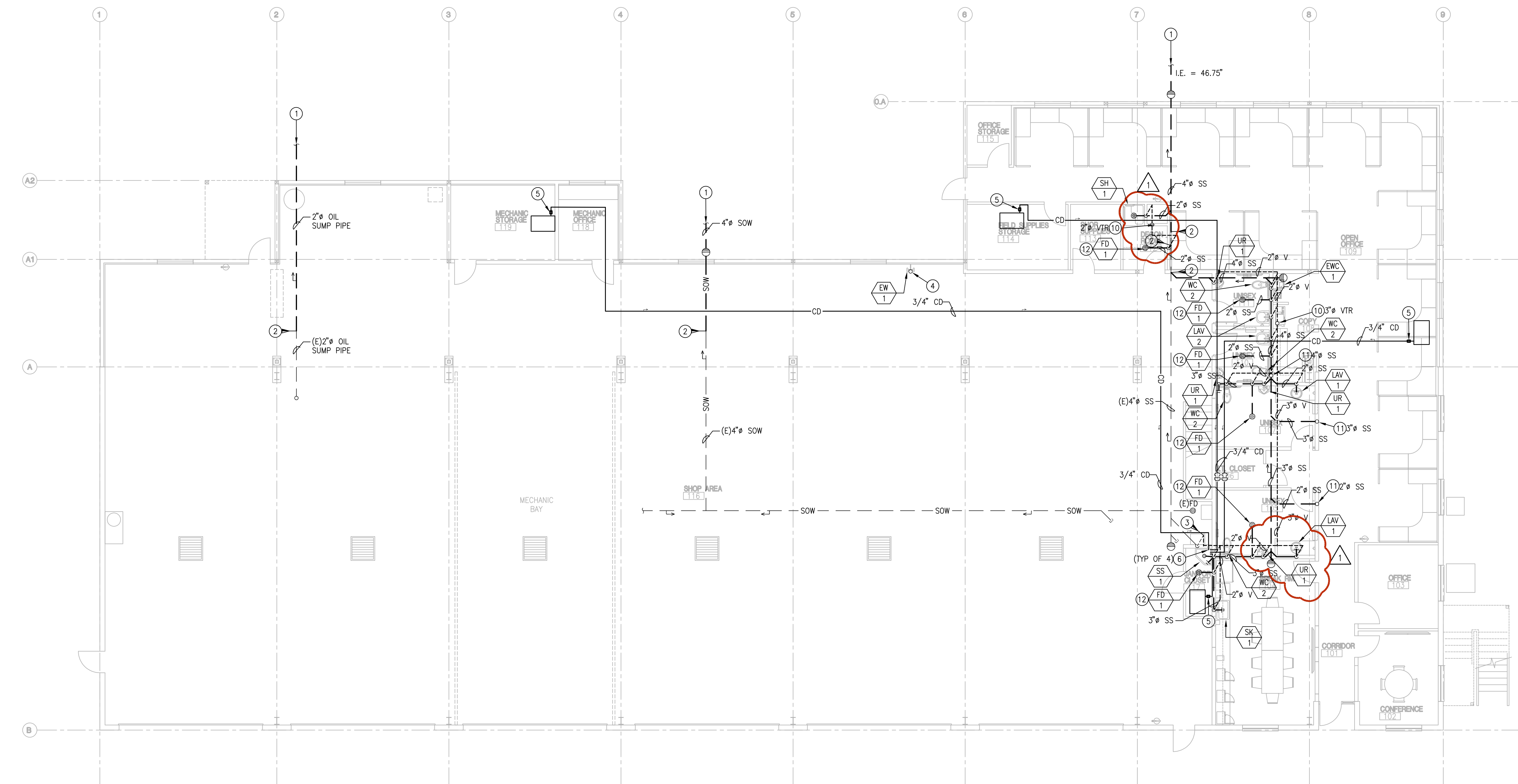
ORIGINAL SHEET SIZE
30" x 42"

GENERAL NOTES

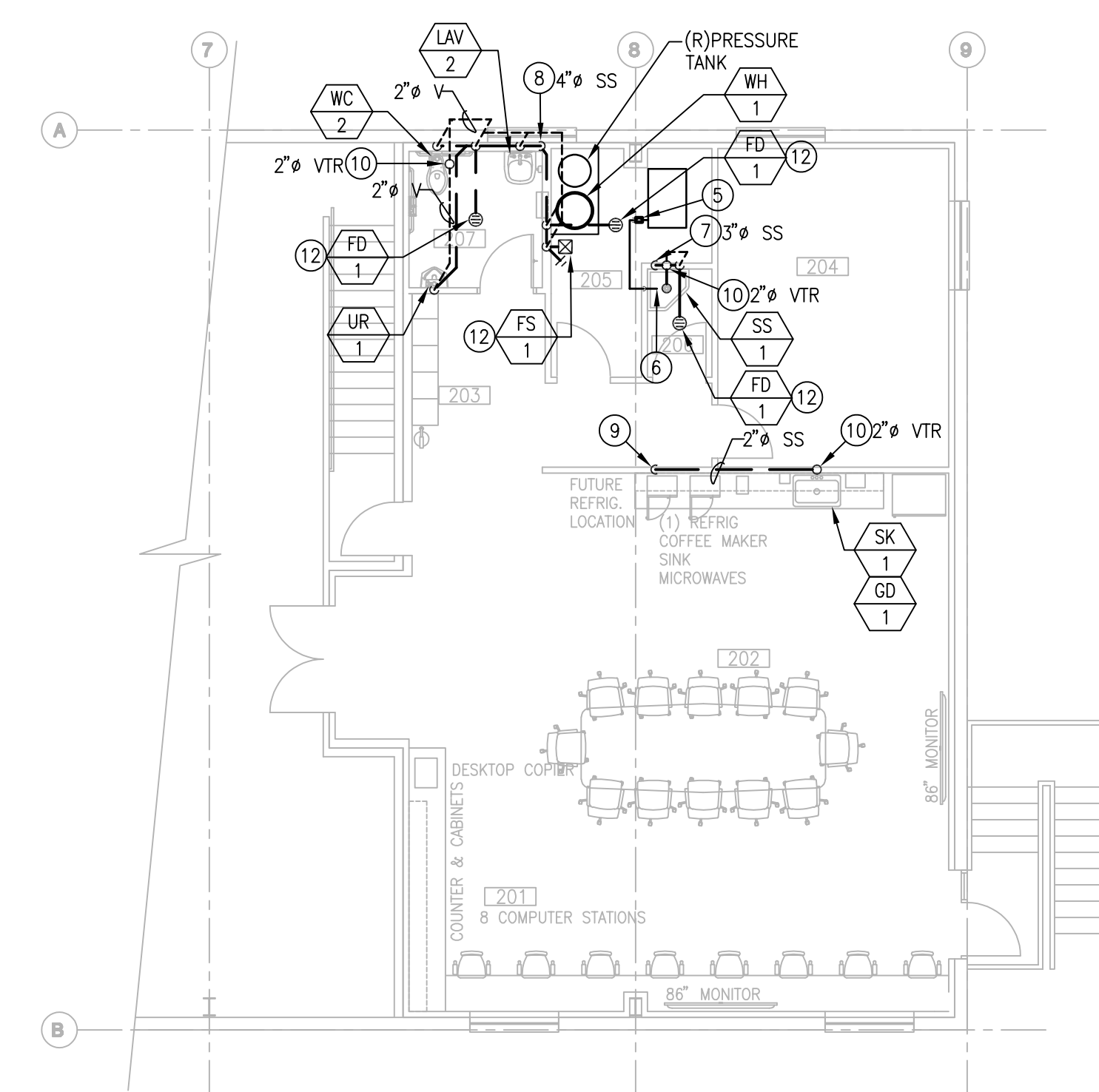
- A. EXISTING BUILDING WASTE AND VENT PIPING IS EXISTING. CONTRACTOR SHALL VERIFY EXACT LOCATION AND FLOW LINE ELEVATION OF ALL CONNECTION POINTS PRIOR TO INSTALLATION OF NEW PIPING. ALERT GENERAL CONTRACTOR IMMEDIATELY UPON DISCOVERY OF ANY CONDITIONS THAT WILL NOT ALLOW FOR INVERTS AND CONNECTION POINTS NOTED.
- B. SLOPE ALL SS, GW, CD, RWL, AND OFL PIPING AT 1/4" PER FOOT UNLESS NOTED OTHERWISE.
- C. ALL CONDENSATE PIPING IS 1" UNLESS NOTED OTHERWISE.
- D. PROVIDE INDIRECT WASTE PIPING TO RECEPTORS FROM ALL EQUIPMENT AS REQUIRED. REFER TO FIXTURE SCHEDULES FOR FURTHER INFORMATION. PIPING SHALL BE TYPE DWV OR TYPE M COPPER INSTALLED A MINIMUM OF 1/2" OFF OF ADJACENT FLOOR AND WALL SURFACES.
- E. INSTALL ALL PLUMBING VTR AND GAS VENTS A MINIMUM OF 10'-0" FROM ALL OSA INTAKES.
- F. INSTALL ALL NEW BELOW GROUND WASTE OR VENT PIPING. PROVIDE FOR ALL EXCAVATION AND BACKFILL AS REQUIRED. REFER TO GENERAL NOTES FOR SLOPE REQUIREMENTS.
- G. ROUTE ALL ABOVE GROUND VENT PIPING OVERHEAD AS HIGH AS POSSIBLE IN ROOF STRUCTURE. COORDINATE ROUTING WITH STRUCTURE AND DUCTWORK LAYOUT.
- H. INSTALL NORTH TOWN COMPANY LOW DENSITY POLYWRAP POLYETHYLENE ENCASEMENT OR EQUAL ON ALL BELOW GROUND CAST IRON PIPING.
- I. FURNISH ALL FLOOR CLEANOUTS WITH HEAVY DUTY NICKEL BRONZE TOP WITH CAST IRON ADJUSTABLE STRAINER AND ASS FLUG.
- J. REFER TO THE PLUMBING DETAIL SHEET FOR ALL DETAILS THAT ARE NOT REFERENCED.

SHEET NOTES

1. EXTEND SS 5'-0" FROM EDGE OF BUILDING AND CONNECT TO SANITARY SEWER MAIN. RE: CIVIL DRAWINGS FOR CONTINUATION.
2. CONNECT NEW WASTE LINE TO EXISTING WASTE LINE BELOW FLOOR. VERIFY EXACT SIZE, LOCATION, AND INVERT ELEVATION OF EXISTING PIPING IN FIELD PRIOR TO START OF WORK.
3. CONNECT NEW OVERHEAD VENT PIPING TO EXISTING VENT SYSTEM AND VENT THROUGH ROOF. VERIFY EXACT LOCATION OF EXISTING VENT PIPING AND CONNECTION REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
4. DRAIN EYEWASH WASTE INDIRECTLY TO FLOOR.
5. FURNISH UNIT WITH CONDENSATE PUMP. MODEL BECKETT CB251UL. 40CPH. 1/22HP-115V/60HZ/1.3 FLA. PUMP SHALL BE CONFIGURED FOR HARDWARE INSTALLATION. COORDINATE WITH ELECTRICAL CONTRACTOR. INSTALL ADJACENT TO FAN COIL UNIT IN ACCESSIBLE LOCATION.
6. ROUTE 3/4" CD PIPING DOWN FROM ABOVE AND ROUTE IN WALL AND DRAIN INDIRECT TO NEAREST DRAIN/SERVICE SINK.
7. DROP 3" WASTE DOWN TO BELOW. RE:1/P21 WASTE AND VENT PLAN. ROUTE 2" VENT UP IN WALL AND ROUTE ABOVE CEILING.
8. DROP 4" WASTE DOWN TO BELOW. RE:1/P21 WASTE AND VENT PLAN. ROUTE 2" VENT UP IN WALL AND ROUTE ABOVE CEILING.
9. DROP 2" SS WASTE DOWN TO BELOW. RE:1/P21 WASTE AND VENT PLAN. ROUTE 2" VENT UP IN WALL AND ROUTE ABOVE CEILING.
10. ROUTE SANITARY VENT PIPING UP THROUGH ROOF.
11. ROUTE SS DOWN FROM ABOVE. ROUTE BELOW FLOOR. RE:1/P21 WASTE AND VENT MAZZINENE PLAN. SIZE AS INDICATED.
12. INSTALL TRAP PRIMER PIPING ON FLOOR DRAIN OR FLOOR SINK OUTLET TO THE TRAP PRIMER SYSTEM INDICATED. RE: WATER AND GAS PLAN FOR WATER CONNECTION AND TRAP PRIMER LOCATIONS.



1 WASTE AND VENT PLAN
SCALE: 1/8" = 1'-0"



1 WASTE AND VENT MAZZINENE PLAN
SCALE: 1/8" = 1'-0"

LEGEND

(RE: P01 FOR ADDITIONAL INFORMATION)

— PLUMBING EQUIPMENT	⊙ FLOOR CLEAN OUT
- - - SANITARY SEWER	⊙ FLOOR DRAIN, ROUND
— SOW — SAND OIL WASTE	⊙ FLOOR SINK
— GW — GREASE WASTE	
- - - - - SANITARY VENT	
— CD — CONDENSATE	
— RWL — RAINWATER LEADER	
— OFL — OVERFLOW LEADER	



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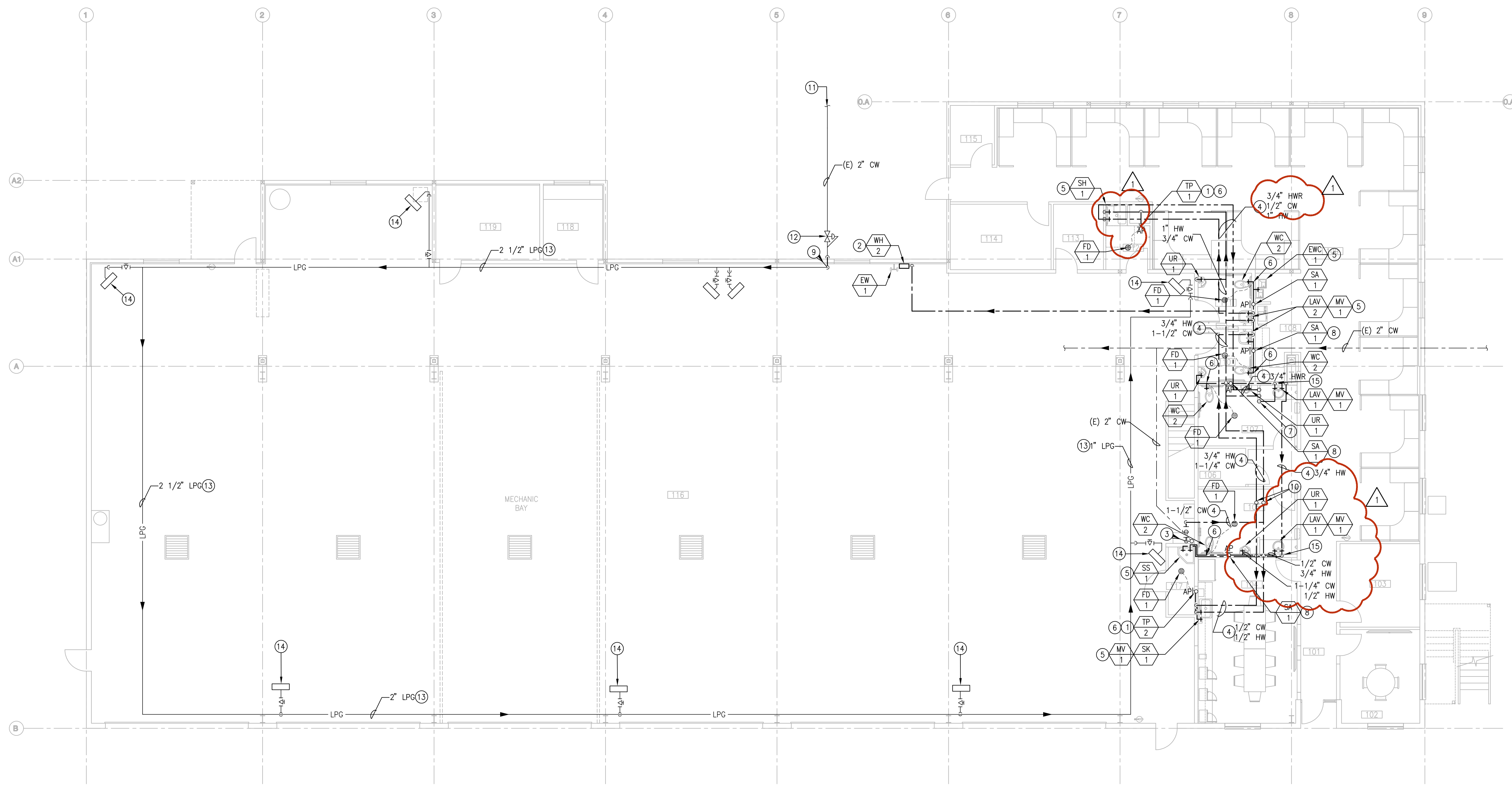
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PROJECT 22123.00 DATE 1/20/23
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REVISIONS
1 ADDENDUM ONE 2/24/23

SHEET TITLE
WASTE AND VENT PLAN

SHEET
P21

ORIGINAL SHEET SIZE
30" x 42"



1 WATER AND GAS PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

- A. CONTRACTOR TO INSTALL SHUT OFF VALVES AT EACH BRANCH LINE TAKE-OFF. ALL PLUMBING FIXTURES, APPLIANCES, AND BRANCH LINES SHALL HAVE THEIR OWN INDEPENDENT SHUT-OFF VALVES INSTALLED IN AN EASILY ACCESSIBLE AND CONVENIENT LOCATION. BRANCHES SHALL COME OFF BOTTOM OR SIDE OF MAIN TO PREVENT AIR ENTRAPMENT.
- B. PROVIDE MIXING VALVE ON ALL HAND SINKS, LAVATORIES AND BREAK ROOM COUNTERTOP SINKS LOCATED TO BE EASILY ACCESSIBLE. REFER TO SCHEDULE AND DETAILS FOR MAKE, MODEL AND TEMPERATURE SETTING.
- C. PROVIDE FIXTURE BRANCH PIPING, PRESSURE REGULATORS AND BACKFLOW PREVENTION TO ALL EQUIPMENT AS REQUIRED. REFER TO FIXTURE SCHEDULES FOR FURTHER INFORMATION.
- D. INSTALL CHECK VALVES IN HOT AND COLD WATER SUPPLY LINES SERVING ALL 1, 2 AND 3-COMPARTMENT SINKS AND MOP SINKS.
- E. ROUTE ALL WATER OR GAS PIPING OVERHEAD AS HIGH AS POSSIBLE. RE: PIPING SUPPORT DETAILS. COORDINATE ROUTING WITH STRUCTURE AND DUCTWORK LAYOUT.
- F. VENT-LESS GAS REGULATORS ARE NOT ALLOWED.
- G. RE: PLUMBING DETAIL SHEET FOR ALL DETAILS THAT ARE NOT REFERENCED.

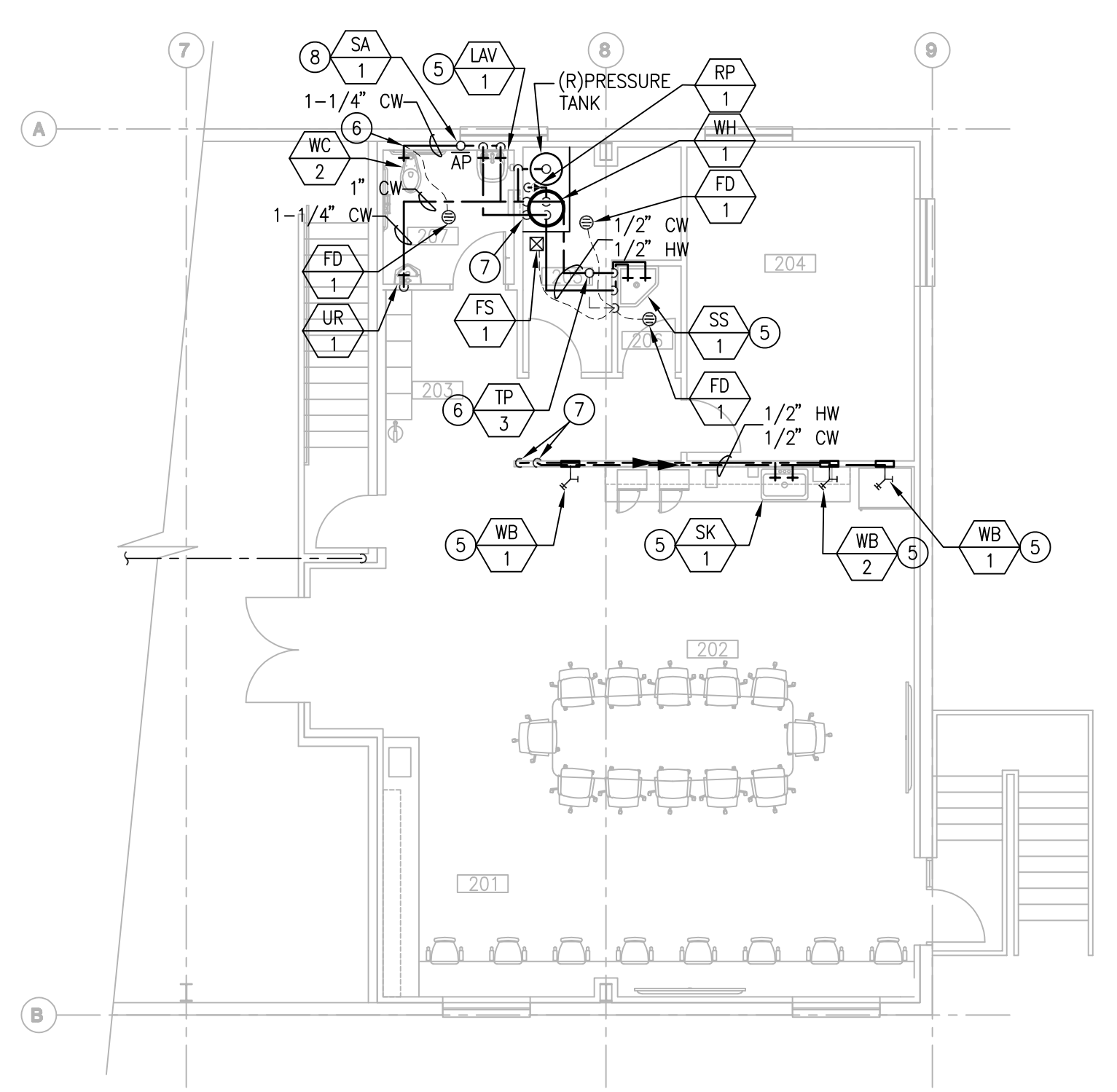
SHEET NOTES

1. INSTALL FIXTURE IN WALL AT 12" AFF MIN.
2. INSTALL INSTANTANEOUS WATER HEATER NEXT TO EMERGENCY EYE WASH PER THE MANUFACTURERS REQUIREMENTS AND MOUNTING HEIGHT.
3. CONNECT NEW OVERHEAD WATER PIPING TO EXISTING OVERHEAD PIPING. VERIFY EXACT SIZE, LOCATION, AND CONNECTION REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
4. ROUTE WATER PIPING OVERHEAD, COORDINATE ROUTING WITH STRUCTURE AND DUCTWORK LAYOUT PRIOR TO CONSTRUCTION.
5. ROUTE WATER PIPING DOWN IN WALL TO FIXTURES AND EQUIPMENT. REFER TO FIXTURE SCHEDULE FOR CONNECTION SIZES AND REQUIREMENTS. SIZE AS INDICATED.
6. ROUTE 1/2" PEX TUBING INDEPENDENTLY FROM TRAP PRIMER MANIFOLD DOWN IN WALL AND CONNECT TO FLOOR DRAIN TRAPS. REFER TO WASTE AND VENT DRAWING FOR FLOOR DRAIN LOCATIONS.
7. DROP PIPING DOWN FROM LEVEL 2 SPACE TO LEVEL 1 CEILING SPACE.
8. INSTALL SHOCK ARRESTER ON THE CW PIPE IN WALL SPACE. FURNISH AND INSTALL A 12" X 12" ACCESS PANEL. COORDINATE THE EXACT ACCESS PANEL AND LOCATION WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
9. CONNECT NEW LIQUID PETROLEUM GAS TO EXISTING GAS LIQUID PETROLEUM GAS PIPING. VERIFY EXACT SIZE, LOCATION, AND CONNECTION REQUIREMENTS IN FIELD PRIOR TO START OF WORK.
10. PIPE UP AND CONNECT TO LEVEL 2 WATER PIPING FROM LEVEL 1. SIZE AS INDICATED.
11. CONTRACTOR IS TO FIELD VERIFY THE LOCATION OF THE EXISTING RELOCATED UNDILUTED PROPANE TANK WITH OWNER PRIOR TO START OF WORK. CONNECT GAS PIPING PER MANUFACTURERS REQUIREMENTS.
12. GENERAL CONTRACTOR IS TO RELOCATE AND RECONNECT EXISTING PRESSURE REGULATORS. CONNECT ACCORDING TO EXISTING CONDITIONS FOR INLET AND OUTLET PRESSURES. CONTRACTOR IS TO INSPECT EXISTING PRESSURE REGULATOR TO VERIFY IT IS IN WORKING ORDER OR REPAIR TO LIKE "NEW CONDITION". IF GENERAL CONTRACTOR DEEMS IRREPARABLE GENERAL CONTRACTOR IS TO MAKE OWNER AWARE PRIOR TO REPLACEMENT. CONNECT NEW PIPING TO EXISTING EQUIPMENT PER MANUFACTURERS REQUIREMENTS.
13. UNDILUTED PROPANE IS SIZED FOR AN INLET PRESSURE OF 2PSI WITH A 11.0 INCH WATER COLUMN. ROUTE PIPING AS HIGH AS POSSIBLE ACCORDING TO ARCHITECTURAL AND STRUCTURAL PLANS.
14. CONNECT NEW GAS PIPING UP TO STUB IN THE EXISTING GAS PIPING. CONNECT GAS PIPING TO EQUIPMENT. PROVIDE CSA-LISTED SHUT-OFF VALVE, FLEXIBLE APPLIANCE CONNECTOR, 5" DIRT LEG, AND UNION. GAS TO UNIT CONNECTION DETAIL. CONTRACTOR TO VERIFY LOCATION OF EXISTING GAS PIPING PRIOR TO START OF WORK AND SIZE AS INDICATED.
15. ROUTE HW MAIN DOWN IN WALL TO LAVATORY ROUGH-IN HEIGHT, OFFSET HORIZONTALLY, AND ROUTE IN WALL TO FIXTURES. TERMINATE EACH LAVATORY HW SUPPLY WITHIN 2'-0" OF THE FIXTURE SUPPLY PIPE.

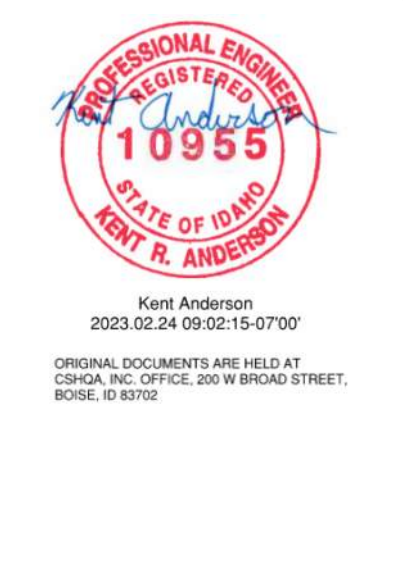
LEGEND

(RE: P01 FOR ADDITIONAL INFORMATION)

---	COLD WATER	○	PIPE ELBOW UP
---	HOT WATER	○	PIPE ELBOW DOWN
---	HOT WATER RETURN	┌	PIPE TEE BRANCH UP
---	LPG	└	PIPE TEE BRANCH DOWN
---		→	FLOW DIRECTION INDICATOR
---		⊖	BALL VALVE



1 WATER AND GAS MEZZANINE PLAN
SCALE: 1/8" = 1'-0"



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PROJECT	22123.00	DATE	1/20/23
DRAWN	KRA	CHECKED	KRA
REVISED	ADDENDUM ONE 2/24/23		

SHEET TITLE
WATER AND GAS PLAN

SHEET
P22

ORIGINAL SHEET SIZE
30" x 42"

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE ITEM	BASIS OF DESIGN		TRIM			CONNECTIONS, IN				REMARKS
		MFR	MODEL	ITEM	MFR	MODEL	CW	HW	W	V	
EW-1	EMERGENCY EYEWASH	CHRONOMITE	ER-90S/208_3P	-	-	-	3/4	-	2	1-1/2	WALL-MOUNTED EYEWASH WITH TAILPIECE AND STAINLESS STEEL BOWL. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONNECT TO INSTANTANEOUS WATER HEATER RE: ELECTRIC WATER HEATER SCHEDULE AND INSTALL PER MANUFACTURER'S INSTALLATION REQUIREMENTS.
EWC-1	ADA ELECTRIC WATER COOLER (HI-LOW, BOTTLE FILLER)	ELKAY	LZ31L8W5LK	-	-	-	1/2	-	2	1-1/2	DUAL "HIGH-LOW" WALL MOUNTED DRINKING FOUNTAIN WITH STAINLESS STEEL TOP, 1.1 GPM BOTTLE FILLER, AND 8 GPH CHILLED WATER CAPACITY. FURNISH WITH MOUNTING HANGER AND FLEXIBLE SAFETY BUBBLER HEADS. ELECTRICAL LOAD 6.0 FLA 115 VOLTS, 5 YEAR WARRANTY. ADA COMPLIANT (BARRIER-FREE).
FD-1	FLOOR DRAIN (ROUND)	J.R. SMITH	2005YA-P050-U	-	-	-	-	-	2	1-1/2	CAST IRON BODY WITH ADJUSTABLE STRAINER HEAD. FURNISH WITH ROUND TOP, VANDAL PROOF SCREWS, AND 1/2" CW TRAP PRIMER CONNECTION.
FS-1	FLOOR SINK (SHALLOW BODY - 1/2 GRATE)	J.R. SMITH	3100Y-12	-	-	-	-	-	2	1-1/2	FURNISH 8-1/2"x8-1/2"x6" DEEP FLOOR SINK WITH CAST IRON BODY AND ACID RESISTANT ENAMEL FINISH. FURNISH WITH 1/2" TOP GRATE AND BOTTOM DOME STRAINER.
GD-1	GARBAGE DISPOSAL	IN SINK ERATOR	BADGER 5	-	-	-	-	-	1-1/2	-	CONTINUOUS FEED GARBAGE DISPOSAL. FURNISH WITH GALVANIZED STEEL GRINDING COMPONENTS AND GRINDING CHAMBER, AND QUIET DURA-DRIVE INDUCTION MOTOR. ELECTRICAL REQUIREMENTS: 1/2 HP, 120V, 1 PHASE, 60 HZ, 8.9 AMPS.
LAV-1	ADA LAVATORY (ROUND COUNTER-MTD)	ZURN	Z5114	FAUCET	ZURN	ZB915-XL-F	1/2	1/2	2	1-1/2	COUNTER MOUNTED VITREOUS CHINA LAVATORY. FURNISH WITH FAUCET (4" CENTERS) WITH BATTERY POWERED SENSOR OPERATED VALVE, VANDAL PROOF STRAINER, MIXING VALVE (NO. P6900-TMV-1), AND 0.5 GPM FLOW RESTRICTOR. INSULATE CW, HW, AND SS LINES FOR ADA COMPLIANCE. ADA COMPLIANT (BARRIER-FREE). SET MIXING VALVE OUTLET TO 105°F.
LAV-2	ADA LAVATORY (SQUARE WALL-MTD)	ZURN	Z5344	FAUCET	ZURN	ZB915-XL-F	1/2	1/2	2	1-1/2	WALL MTD VITREOUS CHINA LAVATORY WITH FLOOR MOUNTED SUPPORTS. FURNISH WITH FAUCET (4" CENTERS) WITH BATTERY POWERED SENSOR OPERATED VALVE, VANDAL PROOF STRAINER, MIXING VALVE (NO. P6900-TMV-1), AND 0.5 GPM FLOW RESTRICTOR. INSULATE CW, HW, AND SS LINES FOR ADA COMPLIANCE. ADA COMPLIANT (BARRIER-FREE). SET MIXING VALVE OUTLET TO 105°F.
MV-1	MIXING VALVE (LAVATORIES, HAND SINKS)	WATTS	LFUSG-B	-	-	-	3/8	3/8	-	-	INSTALL VALVE UNDER FIXTURE AND SIZE ACCORDING TO FIXTURE WATER SUPPLY. SET TO 105°F. RE: MIXING VALVE DETAIL.
MV-2	MIXING VALVE (WATER HEATER)	WILKINS	ZW1017XL	-	-	-	1	1	-	-	INSTALL VALVE ABOVE WATER HEATER IN AN ACCESSIBLE LOCATION. SET TO 120°F.
SA-1	SHOCK ARRESTER	J.R. SMITH	5005 THRU 5050	-	-	-	-	-	-	-	STAINLESS STEEL PRECHARGED HYDROTROL WATER HAMMER ARRESTER. SIZE ARRESTER FOR THE FIXTURES SERVED AND INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
SH-1	ADA SHOWER (ONE-PIECE INSERT)	BEST BATH	L534038A5T	SHOWER SYSTEM	SYMMONS	C-96-500-830-V	1/2	1/2	2	1-1/2	ONE-PIECE TRANSFER SHOWER SURROUND, 38-1/4"x37-7/8-5/8" FIBERGLASS CONSTRUCTION WITH INTEGRAL CAULKLESS DRAIN. FURNISH WITH LEFT PLUMBING ORIENTATION, INTEGRAL PLYWOOD BACKING, CURTAIN ROD WITH CURTAIN, L-SHAPED GRAB BAR, FOLDING SEAT, COLLAPSIBLE RUBBER WATER RETAINER, SEMI-PERMANENT THRESHOLD ADAPTER AND FACTORY INSTALLED SHOWER SYSTEM. SYMMONS SHOWER SYSTEM TO INCLUDE PRESSURE BALANCING MIXING VALVE WITH SINGLE-LEVER CONTROL, 2.5 GPM HAND-HELD SHOWER WITH 60" METAL BRAIDED HOSE, INLINE VACUUM BREAKER, 30" SLIDE BAR, AND SOAP DISH. ADA COMPLIANT (BARRIER-FREE).
SK-1	ADA SINK (COUNTER-MTD)	ELKAY	LRAD2219	FAUCET	ZURN	ZB12B1-XL	1/2	1/2	2	1-1/2	COUNTER MOUNTED, 18 GA TYPE 304 STAINLESS STEEL, SINGLE BOWL SINK WITH SELF-RIMMING EDGE, STRAINER, AND TWO (2) HOLES (4") OC. INSIDE BOWL DIMENSIONS: 18" L, 14" W, 6-1/2" D. FURNISH WITH ADA COMPLIANT DECK MOUNTED SWIVEL GOOSENECK FAUCET WITH LEVER HANDLES AND 2.2 GPM PRESSURE COMPENSATING AERATOR. ADA COMPLIANT (BARRIER-FREE).
SS-1	SERVICE SINK (FLOOR-MTD)	ZURN	Z5850-D3-RG	FAUCET	ZURN	ZB42M1	1/2	1/2	3	2	FLOOR (CORNER) MOUNTED ENAMELED CAST IRON SERVICE SINK. FURNISH WITH VINYL-COATED WIRE RIM GUARD, GRID DRAIN, 2 FT HOSE WITH WALL HOOK, AND WALL MOUNTED POLISHED CHROME FAUCET WITH TOP BRACE, STOPS, VACUUM BREAKER, 3/4" THREADED HOSE OUTLET, AND PAIL HOOK WITH WALL SUPPORT.
TP-1	TRAP PRIMER (AUTO-ELECTRIC)	PPP	SMP-500-115V	-	-	-	1/2	-	-	-	ELECTRONIC PRIMER ASSEMBLY COMPLETE WITH TIME CLOCK, SOLENOID, AND VACUUM BREAKER. INSTALL TRAP PRIMER IN WALL IN AN ACCESSIBLE LOCATION. FURNISH TRAP PRIMER WITH DISTRIBUTION UNIT (NO. DU-U) FOR PRIMING 2 FLOOR DRAIN TRAPS AND A LOCKABLE STAINLESS STEEL ACCESS COVER. ELECTRICAL REQUIREMENTS: 115 V, 1 PH, 60 HZ.
TP-2	TRAP PRIMER (AUTO-PNEUMATIC)	PPP	P2-500	-	-	-	1/2	-	-	-	INSTALL TRAP PRIMER IN WALL IN AN ACCESSIBLE LOCATION. FURNISH TRAP PRIMER WITH A LOCKABLE STAINLESS STEEL ACCESS COVER.
TP-3	TRAP PRIMER (AUTO-PNEUMATIC)	PPP	P1-500	-	-	-	1/2	-	-	-	INSTALL TRAP PRIMER ABOVE CEILING IN AN ACCESSIBLE LOCATION. FURNISH TRAP PRIMER WITH DISTRIBUTION UNIT (NO. DU-U) FOR PRIMING 3 FLOOR DRAIN TRAPS.
UR-1	ADA URINAL (WALL-MTD)	ZURN	Z5755	FLUSH VALVE	SLOAN	G2 OPTIMA PLUS 8185-1	3/4	-	2	1-1/2	VITREOUS CHINA WALL MOUNTED URINAL WITH WASHOUT FLUSH ACTION. FURNISH WITH 1.0 GPF BATTERY POWERED SENSOR OPERATED FLUSH VALVE WITH METAL VALVE COVER, STAINLESS STEEL STRAINER, AND J.R. SMITH 0637 CARRIER SUPPORT. ADA COMPLIANT (BARRIER FREE).
WB-1	WATER BOX (REFRIGERATOR/ICE MAKER)	GUY GRAY	MIB1AB	-	-	-	1/2	-	-	-	STEEL ICEMAKER BOX WITH WHITE POWDER COAT FINISH AND ONE QUARTER-TURN VALVE. MOUNT FIXTURE FLUSH TO WALL AT 48" AFF TO TOP OF BOX.
WB-2	WATER BOX (DISHWASHER)	GUY GRAY	MDWB1AB	-	-	-	-	1/2	-	-	STEEL DISHWASHER BOX WITH WHITE POWDER COAT FINISH AND ONE QUARTER-TURN VALVE. MOUNT FIXTURE FLUSH TO WALL BELOW COUNTER IN AN ACCESSIBLE LOCATION.
WC-1	WATER CLOSET (FLOOR-MTD)	ZURN	Z5855-BWL1	-	-	-	1	-	3	2	VITREOUS CHINA, FLOOR MOUNTED, WATER CLOSET WITH SIPHON-JET ACTION. FURNISH WITH 1.6 GPF BATTERY POWERED SENSOR OPERATED FLUSH VALVE WITH METAL VALVE COVER AND CHURCH NO. 9500CT SEAT.
WC-2	ADA WATER CLOSET (FLOOR-MTD)	ZURN	Z5865-BWL1	FLUSH VALVE TRAP PRIMER	SLOAN SLOAN	G2 OPTIMA PLUS 8111-1.6 VBF-72-A1	1	-	3	2	VITREOUS CHINA, FLOOR MOUNTED, ADA WATER CLOSET WITH SIPHON-JET ACTION. FURNISH WITH 1.6 GPF BATTERY POWERED SENSOR OPERATED FLUSH VALVE WITH METAL VALVE COVER, TRAP PRIMER DIVERTER, AND CHURCH NO. 9500CT SEAT. ADA COMPLIANT (BARRIER FREE). RE: TRAP PRIMER AT FLUSH VALVE DETAIL.

REMARKS:
1. RE: ARCHITECTURAL DRAWINGS FOR ADA ACCESSIBLE FIXTURE APPLICABILITY, BARRIER CLEARANCE, AND MOUNTING HEIGHT.

PLUMBING PIPING INSULATION SCHEDULE

System Or Service	Avg. Pipe Temp (°F)	Insulation Type	Pipe Location		Jacket (c)		Insulation Thickness				
			Indoor	Outdoor	All Svc.	Metal	Pipe Sizes (in.)				
							0.5-1.25	1.5-4	5-8	10-30	
Condensate Drains for Air-Conditioning Equipment	60	Mineral Fiber	X				0.5	-	-	-	
		OR Flexible Cellular	X	X(a)			0.5	-	-	-	
Hot and Recirculated Hot Water	105 to 140	FOR MAINS									
		Mineral Fiber	X		X		1	1.5	1.5	1.5	
		FOR BRANCHES, DROPS, AND RUNOUTS:									
		Mineral Fiber	X		X		1	-	-	-	
Handicapped Fixture Trap and Supply	40 to 140	OR Flexible Cellular	X				1	-	-	-	
		Mineral Fiber	X(b)				0.5	-	-	-	
		FOR MAINS									
		Mineral Fiber	X		X		0.5	1	1	1	
Domestic Cold, Trap Primer Water	40 to 50	FOR BRANCHES, DROPS, AND RUNOUTS:									
		Mineral Fiber	X		X		1	-	-	-	
		OR Flexible Cellular	X				1	-	-	-	
		Flexible Cellular	X				1	-	-	-	

a = Jacket required on outdoor piping.
b = Polyvinyl chloride (PVC) jacket required.
c = Protective jackets consisting of 0.016 inches 316 stainless steel shall be used for exposed (exterior) insulation systems and where exposed in interior mechanical equipment rooms, or other high traffic areas (up to 10 feet above finished floor). As an alternative, PVC jacket and fitting covers may be used in these interior spaces.

INSULATION SPECIFICATION:

Flexible Cellular: ASTM C 534, 5 pcf density, k = 0.27 Btu-in-h-r² at 75 °F
Mineral Fiber: ASTM C 547, 4 pcf density, k = 0.23 Btu-in-h-r² at 75 °F

ELECTRIC WATER HEATER SCHEDULE

MARK	ITEM	BASIS OF DESIGN		TYPE	LOCATION	DETAIL REFERENCE	PERFORMANCE				CONNECTIONS		ELECTRICAL			REMARKS		
		MFR	MODEL				FUEL TYPE	NO. OF ELEMENTS	STORAGE GAL	RECOVERY GPH	TEMP RISE °F	CW IN	HW IN	EL. INPUT KW	VOLTAGE		PHASE	OP. WEIGHT LBS
WH-1	WATER HEATER	AO SMITH	DEN-52	ELECTRIC STORAGE	MECHANICAL STORAGE 205	P71-12	ELEC.	2	55	24	100	3/4	3/4	6	240	1	610	1, 2, 3
WH-2	WATER HEATER	CHRONOMITE	ER-90S/208_3P	ELECTRIC INSTANTANEOUS STORAGE	MECHANICAL BAY 116	-	ELEC.	-	-	-	68	3/4	3/4	18.7	208	3	30	4, 5

REMARKS:
1. SET OPERATING TEMPERATURE AT 140°F.
2. INSTALL WITH HEAT TRAPS AT CW AND HW CONNECTIONS.
3. FURNISH WATER HEATER WITH NON-SIMULTANEOUS ELEMENT OPERATION.
4. FACTORY PRESET TEMPERATURE FOR 80°F.
5. INSTALL WITH DIGITAL READOUT.

EXPANSION TANK SCHEDULE

MARK	BASIS OF DESIGN		SERVICE	LOCATION	DETAIL REFERENCE	PERFORMANCE			CONNECTION IN	WEIGHT LBS	REMARKS
	MFR	MODEL				TANK VOL GAL	ACCEPT. FACTOR	PHASE			
ET-1	AMTROL	ST-12	DOMESTIC HOT WATER	MECHANICAL STORAGE 205	P71-12	DIAPHRAGM	4.4	0.73	3/4	36	1, 2

REMARKS:
1. PROVIDE UNISTRUT BRACKET SECURED TO WALL WITH STRAP AROUND TANK.
2. PROVIDE ISOLATION VALVE (LESS HANDLE OR LOCK-SHIELD).

WATER PUMP SCHEDULE

MARK	ITEM	BASIS OF DESIGN		TYPE	LOCATION	DETAIL REFERENCE	PERFORMANCE			ELECTRICAL			REMARKS	
		MFR	MODEL				FLOW GPM	TDH FT	TEMP. °F	MOTOR HP	VOLTS	PHASE		MCA
RP-1	HOT WATER CIRCULATOR	GRUNDFOS	UP15-42FC	SYMPLEX	MECHANICAL STORAGE 205	P71-12	2	12	140	1/25	115	1	0.74	1, 2, 3, 4

REMARKS:
1. PUMP MUST BE LISTED FOR POTABLE WATER USE.
2. PROVIDE PUMP WITH ALL BRONZE CONSTRUCTION DESIGNED FOR DOMESTIC SERVICE.
3. FURNISH PUMP WITH AUTOMATIC TIME CLOCK AND 5°F DIFFERENTIAL AQUASTAT FOR PUMP CONTROL.
4. ALL PUMP CONTROL WIRING SHALL BE INSTALLED BY THE PLUMBING CONTRACTOR.

UNDILUTED GAS CALCULATION

Project Name: ITD Caldwell Maintenance Building		Date: 1/20/2023					
Project Number: 22123		Designer: Luis Ojeda					
DELIVERY PRESSURE = 2 PSI		CODE USED = 2019 INTERNATIONAL FUEL GAS CODE					
TOTAL DEVELOPED LENGTH = 390 FT		TABLES USED = 402.4(27) AND 402.4(28)					
TOTAL BUILDING CONNECTED LOAD = 945 MBH							
DELIVERY PIPE SIZE = 1 IN							
MARK TOTAL MBH	DIST. METER TO PRV, FT	PIPE SIZE ENTER. PRV, IN	PIPE SIZE EXIT. PRV, IN	EQUIPMENT SERVED	CAPACITY MBH	DIST. PRV TO EQUIP., FT	PIPE SIZE SERV. EQUIP., IN
945 MBH	65	1(E)	2-1/2 (E)	UH - 1	105	120	1
				UH - 2	105	85	1
				UH - 3	105	35	3/4
				UH - 4	105	33	3/4
				UH - 5	105	390	1 1/4
				UH - 6	105	192	1
				UH - 7	105	245	1
				UH - 8	105	300	1
				UH - 9	105	355	1 1/4
TOTAL CONNECTED LOAD =				945			

NOTES:
1. A 1" EXISTING UNDILUTED PROPANE GAS PIPE AT 2 PSI AND 400 FT TOTAL DEVELOPED LENGTH CAN DELIVER 1,430 CFH.
2. THE LONGEST LENGTH METHOD WAS USED TO CALCULATE THE GAS PIPING. ALL PIPING LENGTHS ARE SHOWN AS TOTAL DEVELOPED LENGTH FROM METER TO PRV OR PRV TO EQUIPMENT. ALL GAS PIPING SHALL BE STANDARD WEIGHT BLACK STEEL PER SPECIFICATION.
3. THE SYSTEM PRESSURE ENTERING THE PRESSURE REGULATORS IS 2 PSI AND THE PRESSURE EXITING THE REGULATORS IS 11 IN WC.
4. FURNISH GAS PRESSURE REGULATOR FISHER SERIES CS400 OR EQUAL FOR ALL NEW REGULATORS. SIZE FOR USE WITH UNDILUTED PROPANE GAS.



Kent Anderson
2023.01.24 11:29:54 0700

ORIGINAL DOCUMENTS ARE HELD AT
CSHQA REG. OFFICE, 200 W BRADY STREET,
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PROJECT 22123.00 DATE 1/20/23

DRAWN KRA CHECKED KRA

REVISED

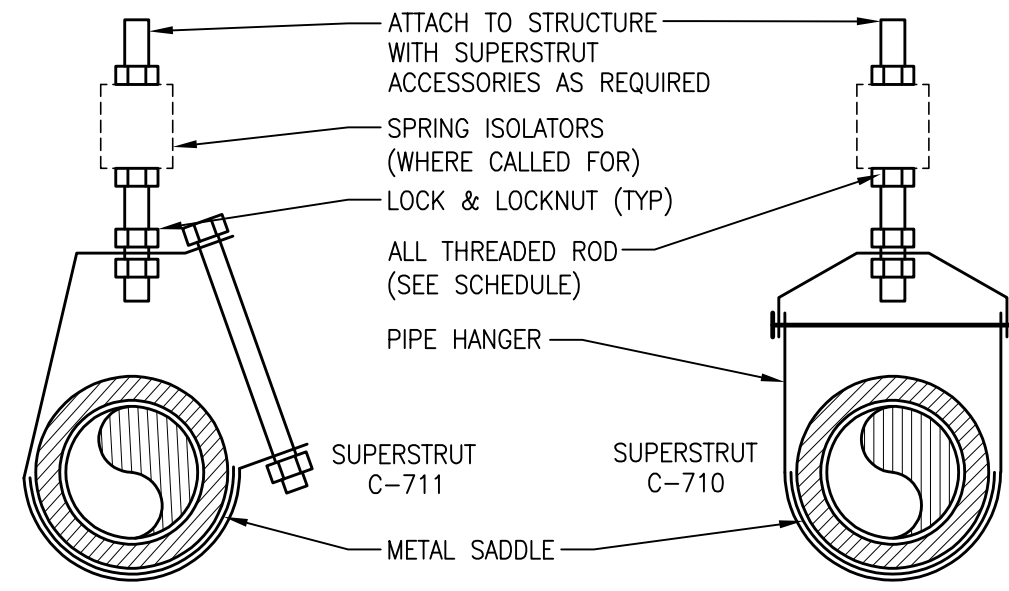
SHEET TITLE

PLUMBING SCHEDULES

SHEET

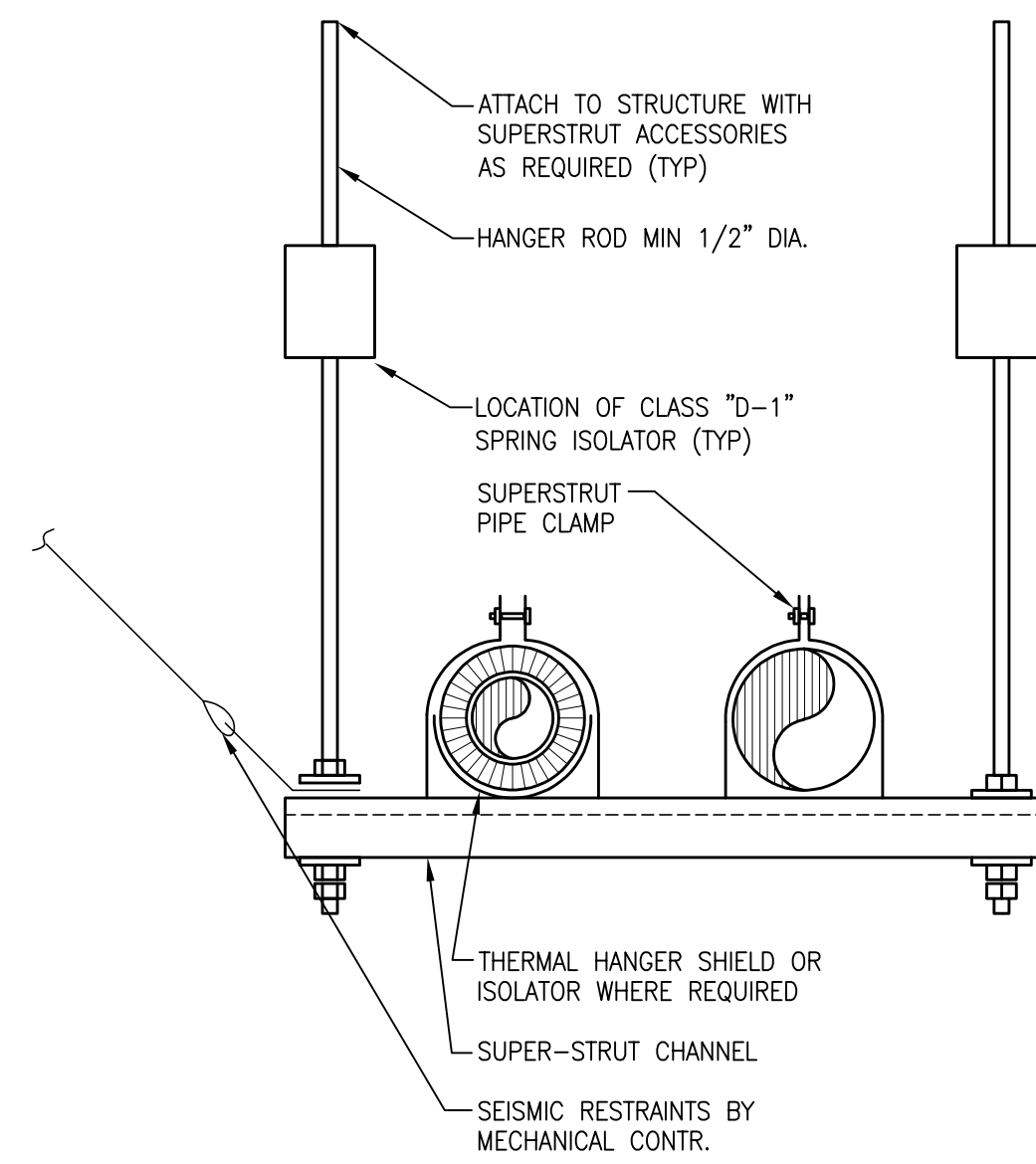
P41

ORIGINAL SHEET SIZE
30" x 42"

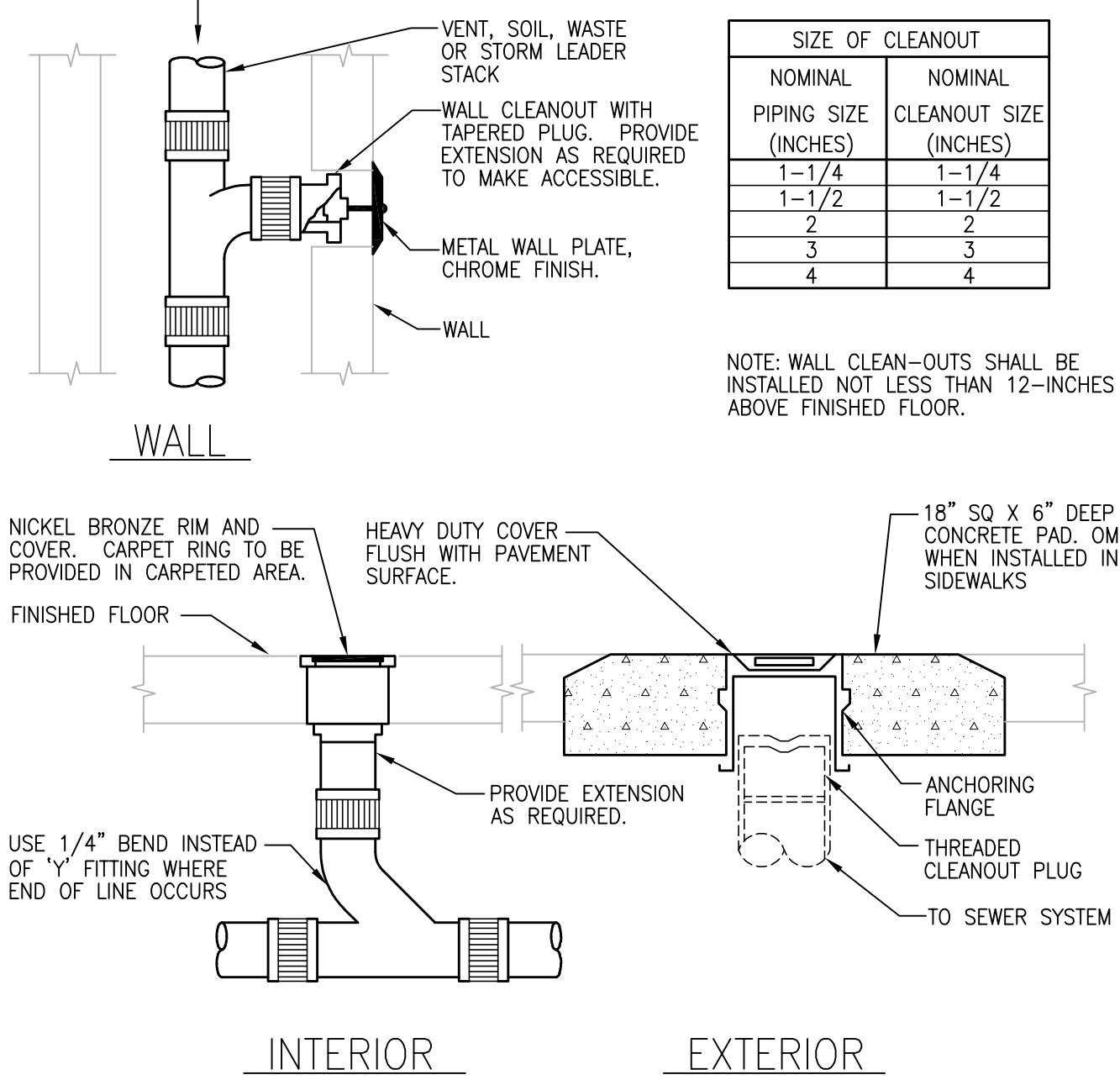


PIPE TYPE	MAX. HORIZONTAL HANGER SPACING	THREADED ROD SIZE
ABS PIPE	4 FT	1/2 IN
CAST IRON PIPE	5 FT	5/8 IN
CPVC 1 IN AND SMALLER	3 FT	1/2 IN
CPVC 1-1/4 IN AND LARGER	4 FT	1/2 IN
COPPER PIPE	12 FT	3/8 IN
COPPER TUBE 1-1/4 IN AND SMALLER	6 FT	3/8 IN
COPPER TUBE 1-1/2 IN AND LARGER	10 FT	1/2 IN
STEEL PIPE	12 FT	5/8 IN
PEX PIPE	32 IN	3/8 IN
PVC PIPE	4 FT	1/2 IN
POLYPROPYLENE 1 IN AND SMALLER	32 IN	1/2 IN
POLYPROPYLENE 1-1/4 IN AND LARGER	4 FT	1/2 IN

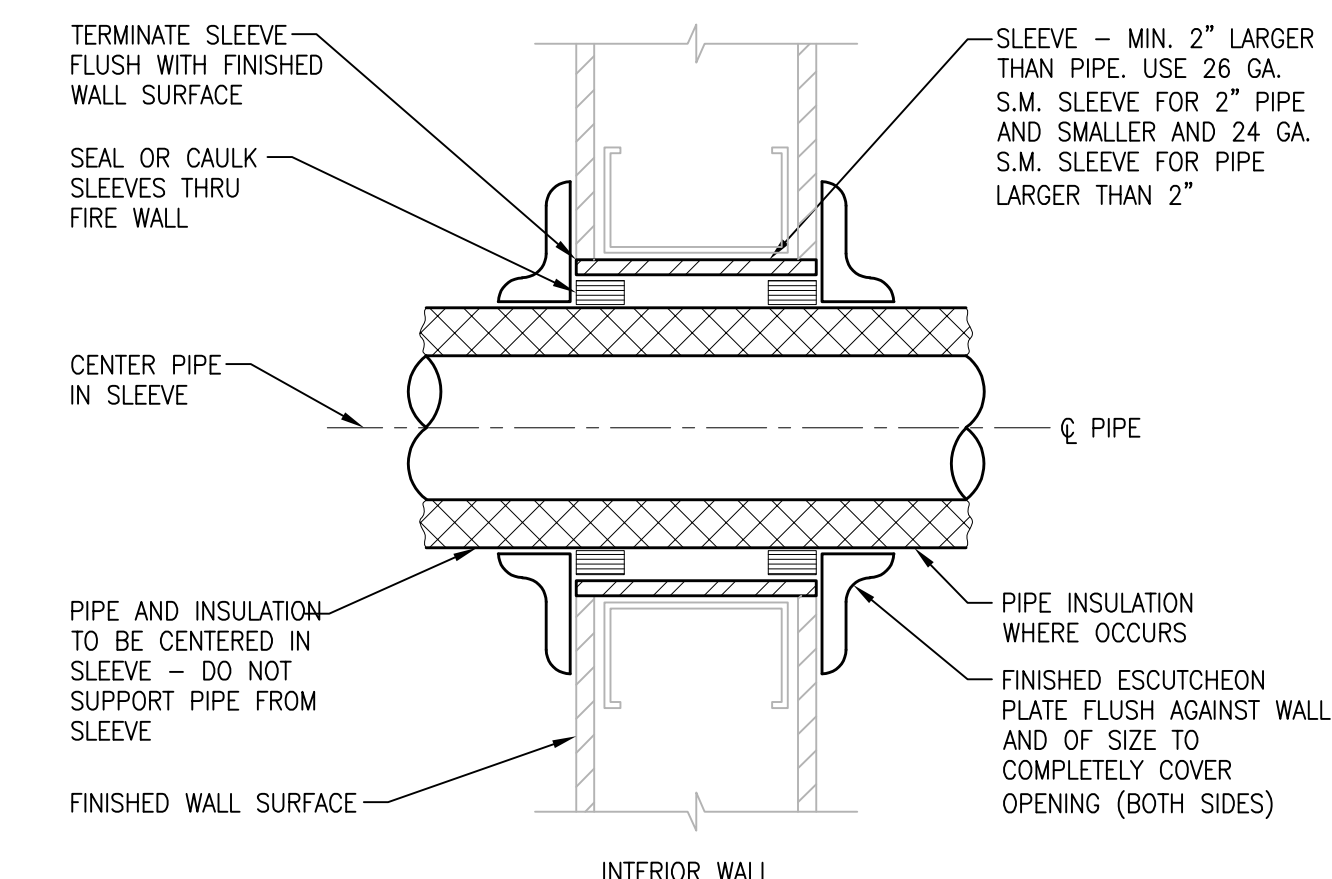
1 SINGLE PIPE SUPPORT DETAIL
SCALE: NTS



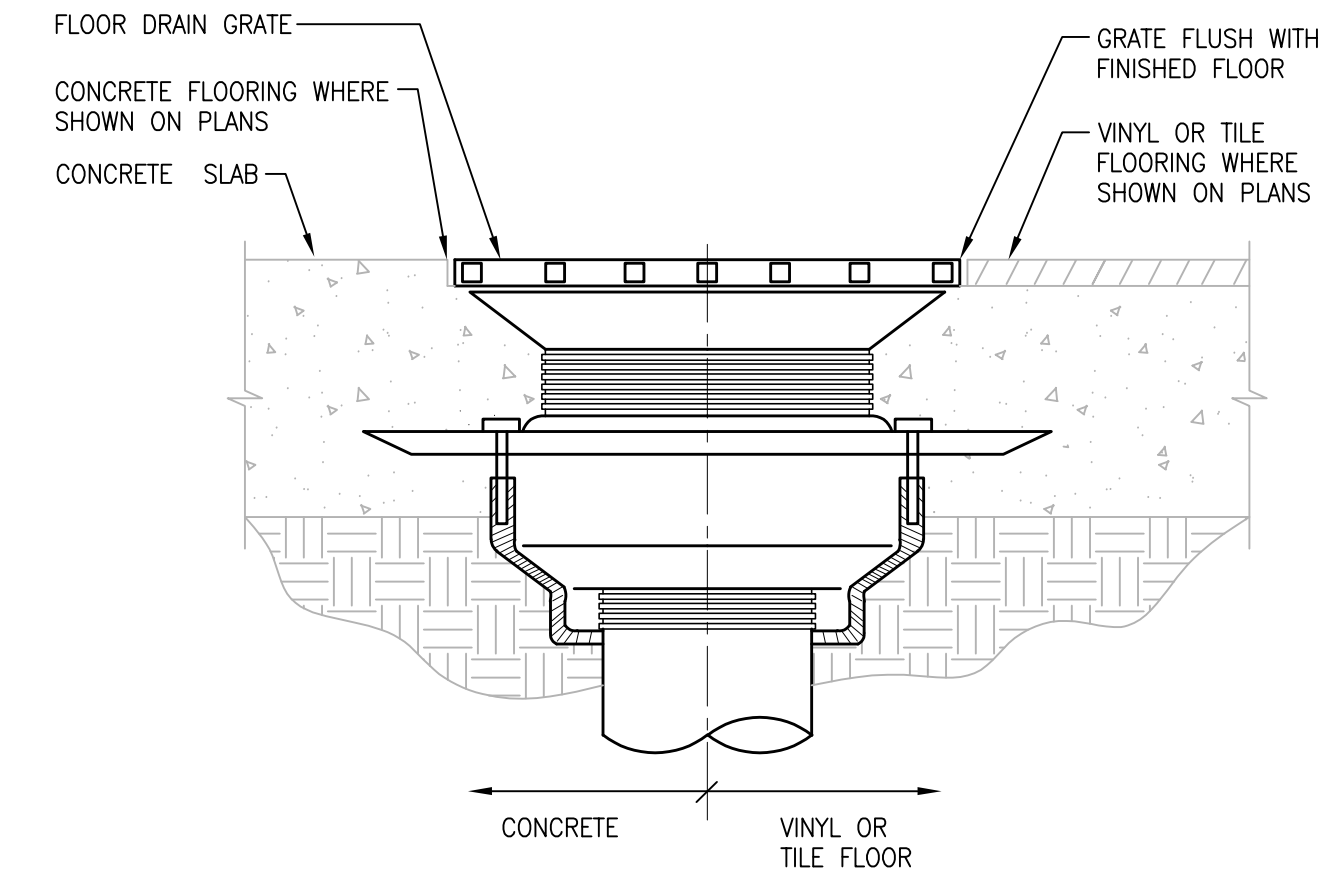
2 TRAPEZE SPRING HANGER DETAIL
SCALE: NTS



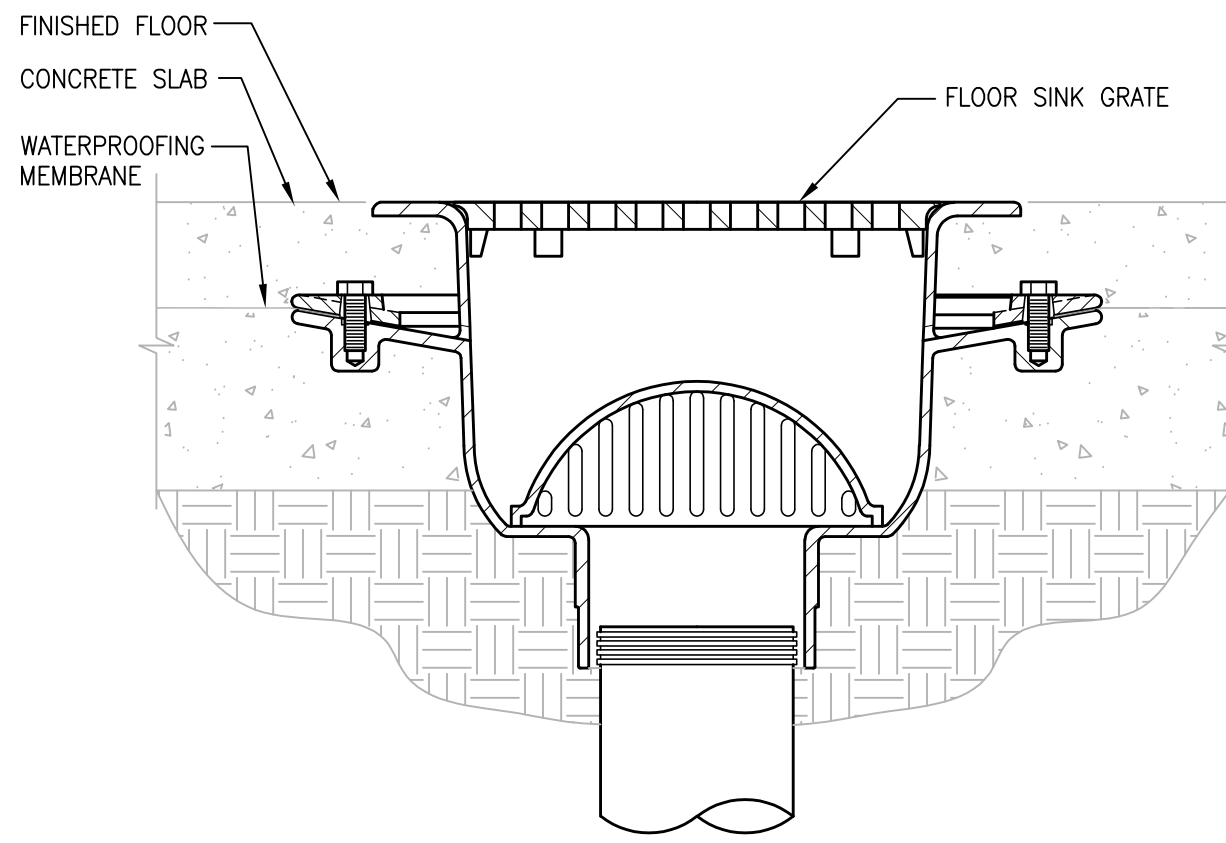
3 FLOOR AND WALL CLEANOUT DETAIL
SCALE: NTS



4 PIPE THRU FRAMED WALL DETAIL
SCALE: NTS

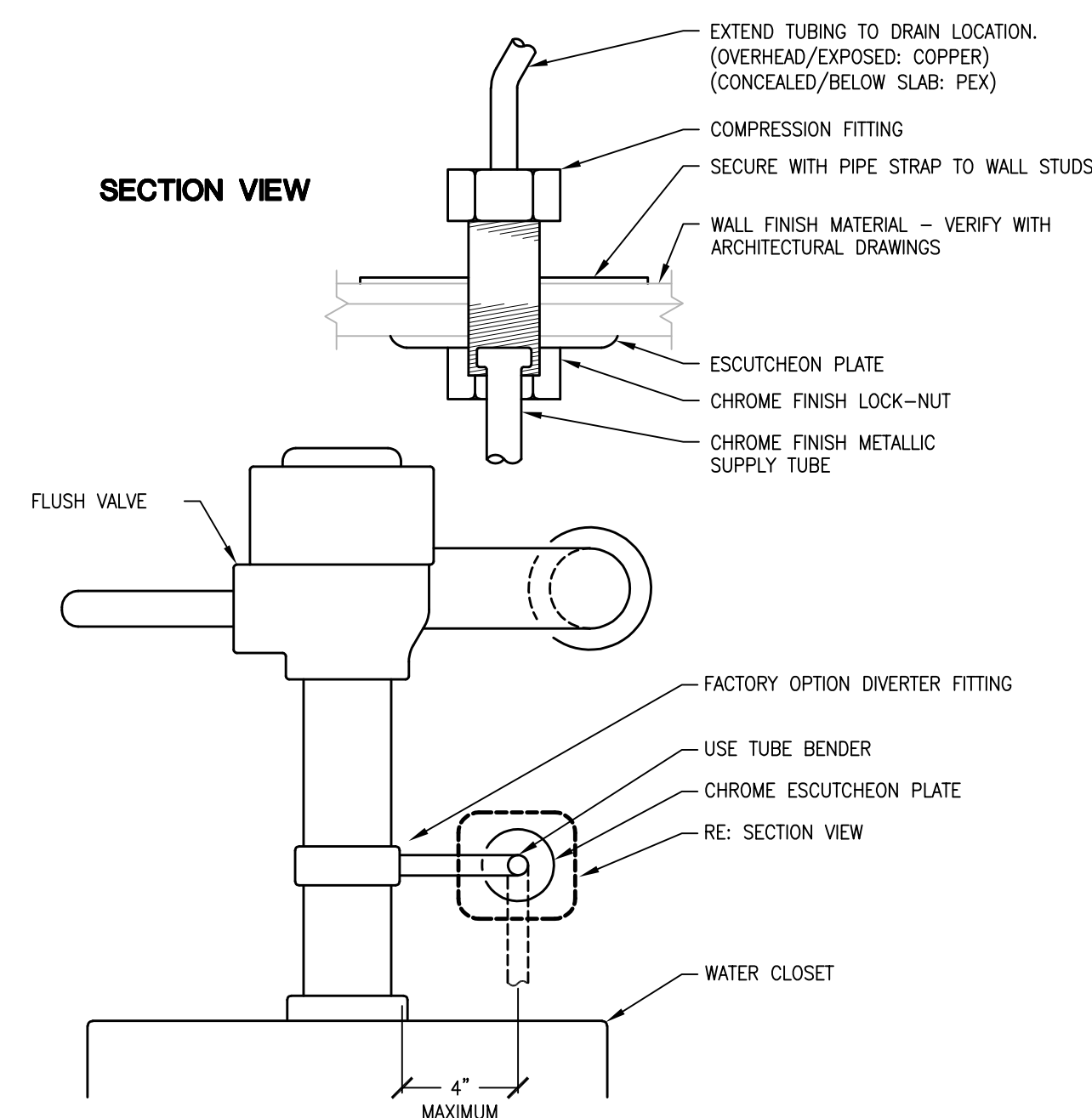


5 FLOOR DRAIN DETAIL
SCALE: NTS

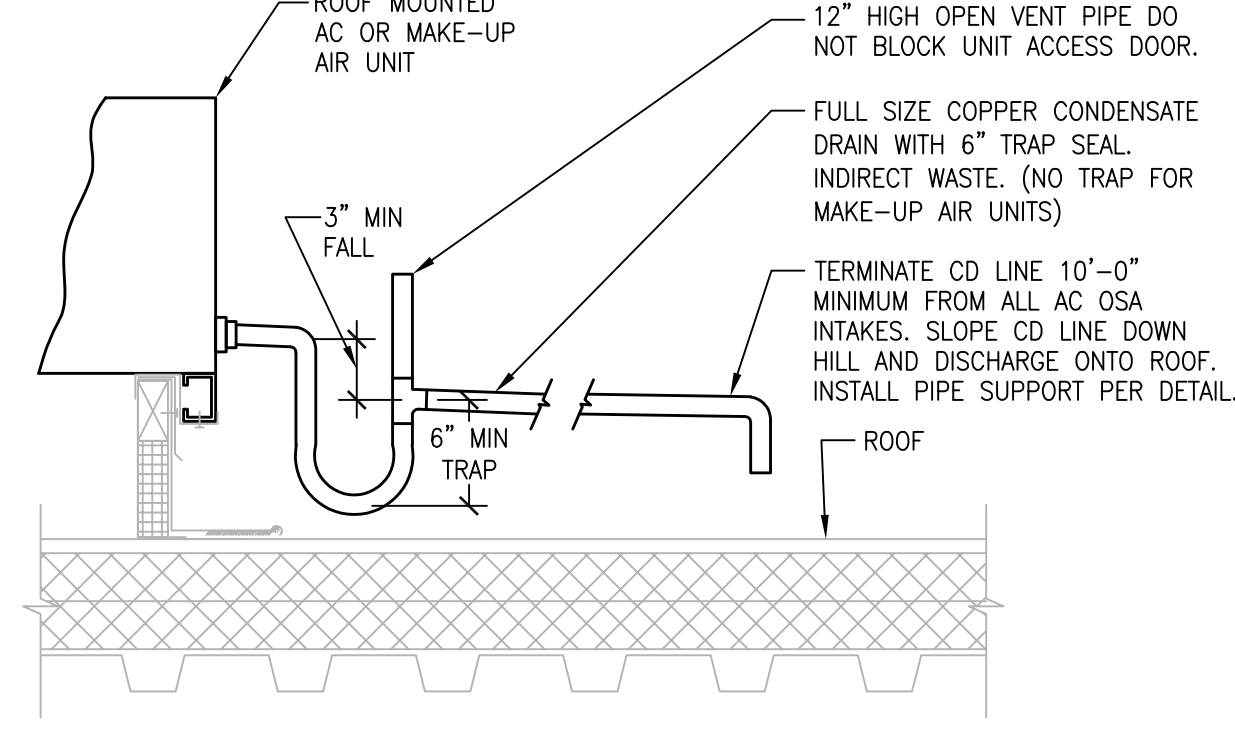


NOTES: RE: ARCHITECTURAL PLANS FOR WATERPROOFING REQUIREMENTS IF APPLICABLE.

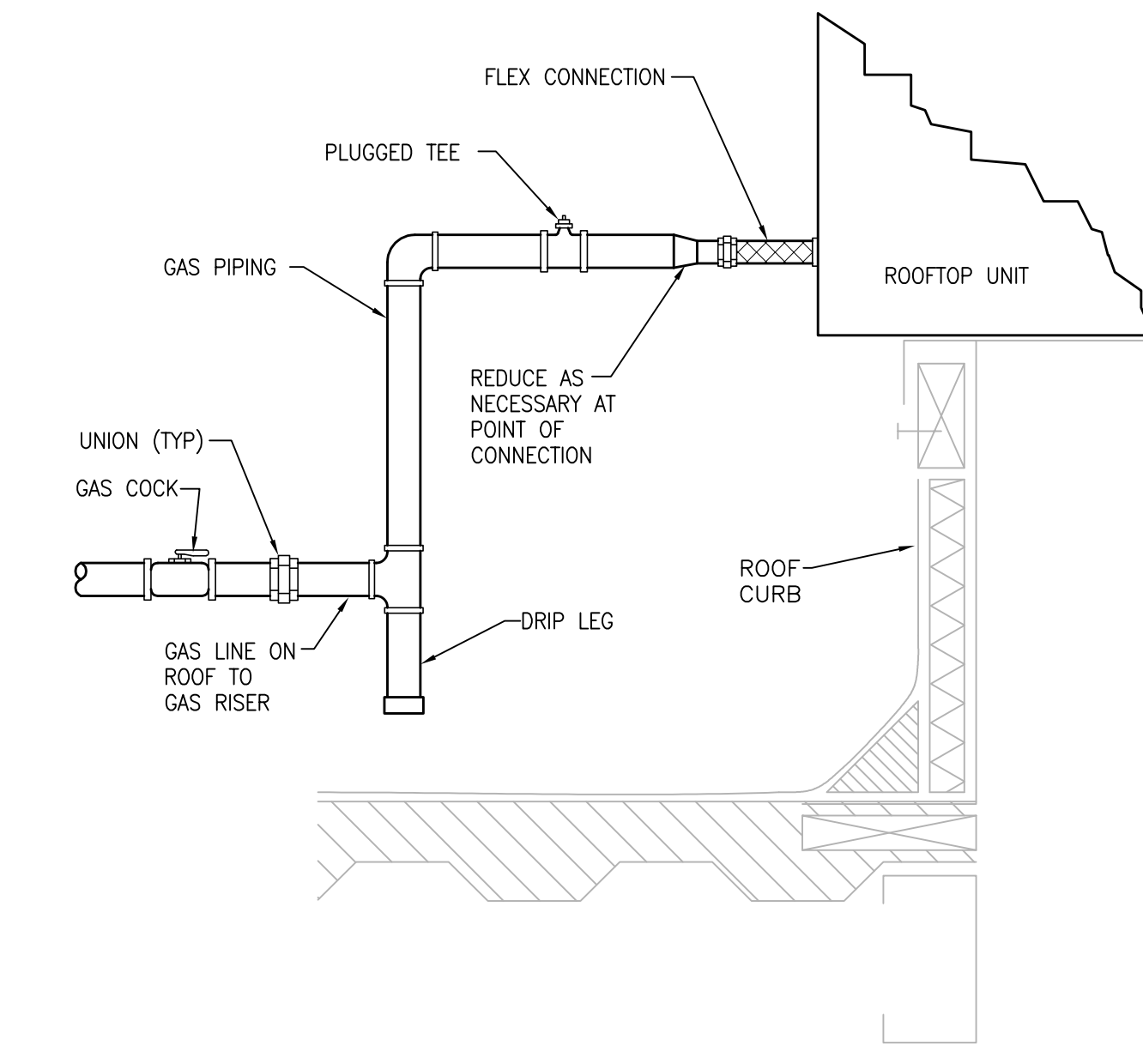
6 FLOOR SINK DETAIL
SCALE: NTS



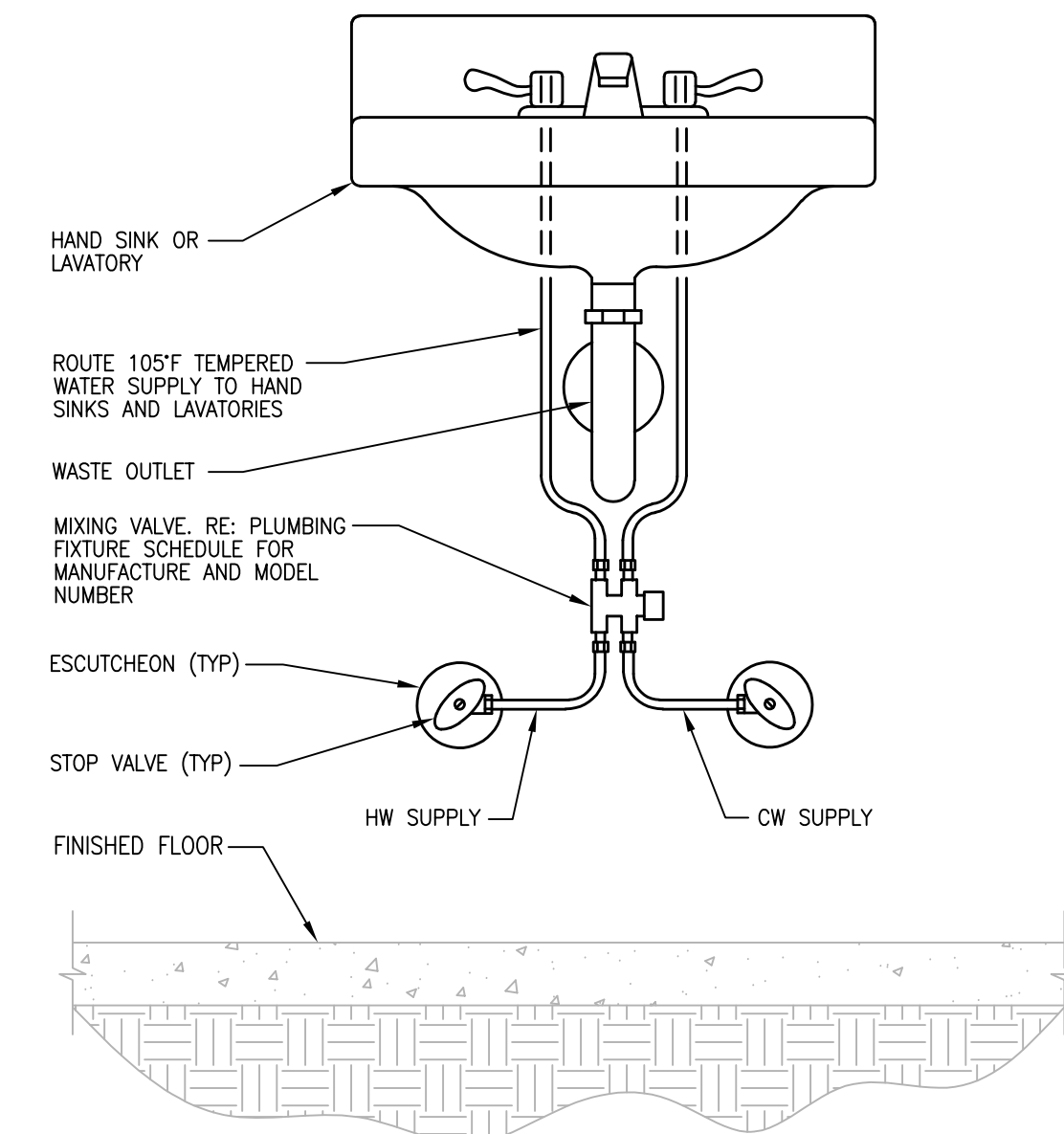
7 TRAP PRIMER AT FLUSH VALVE DETAIL
SCALE: NTS



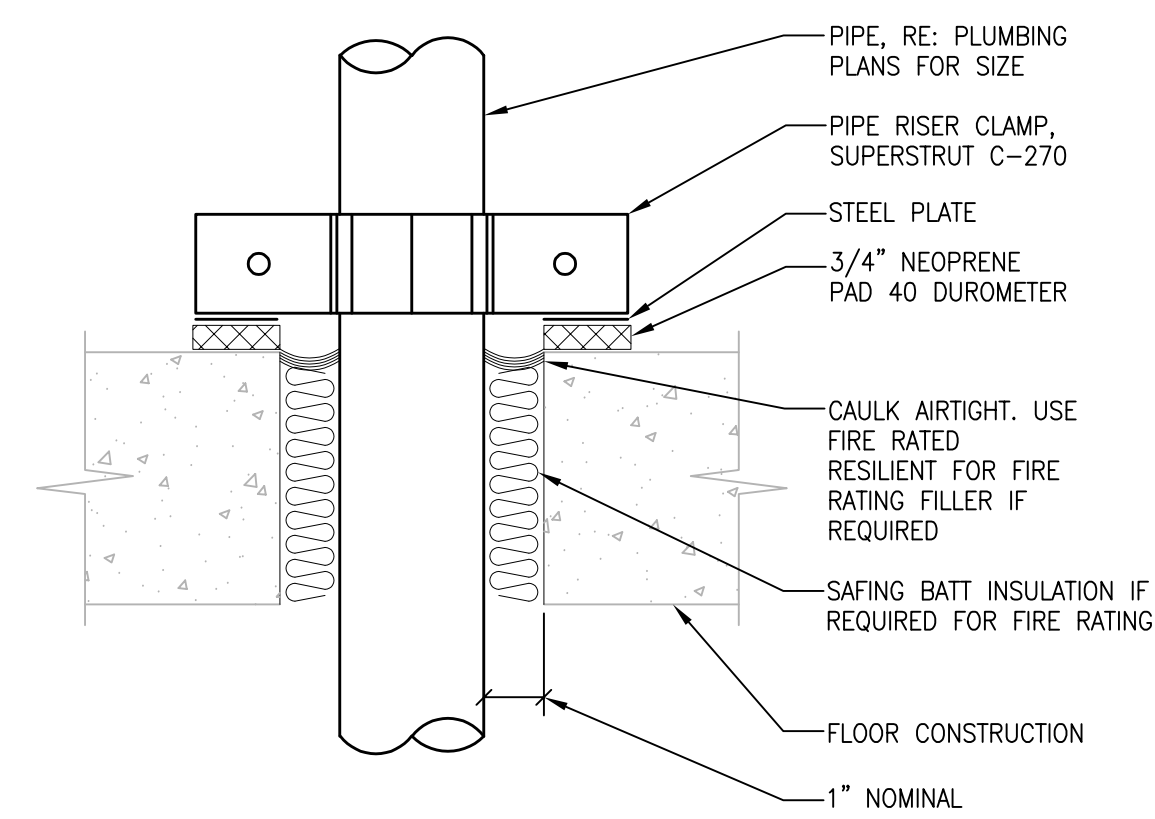
8 AC UNIT CONDENSATE DRAIN DETAIL
SCALE: NTS



9 GAS TO AC UNIT CONNECTION DETAIL
SCALE: NTS

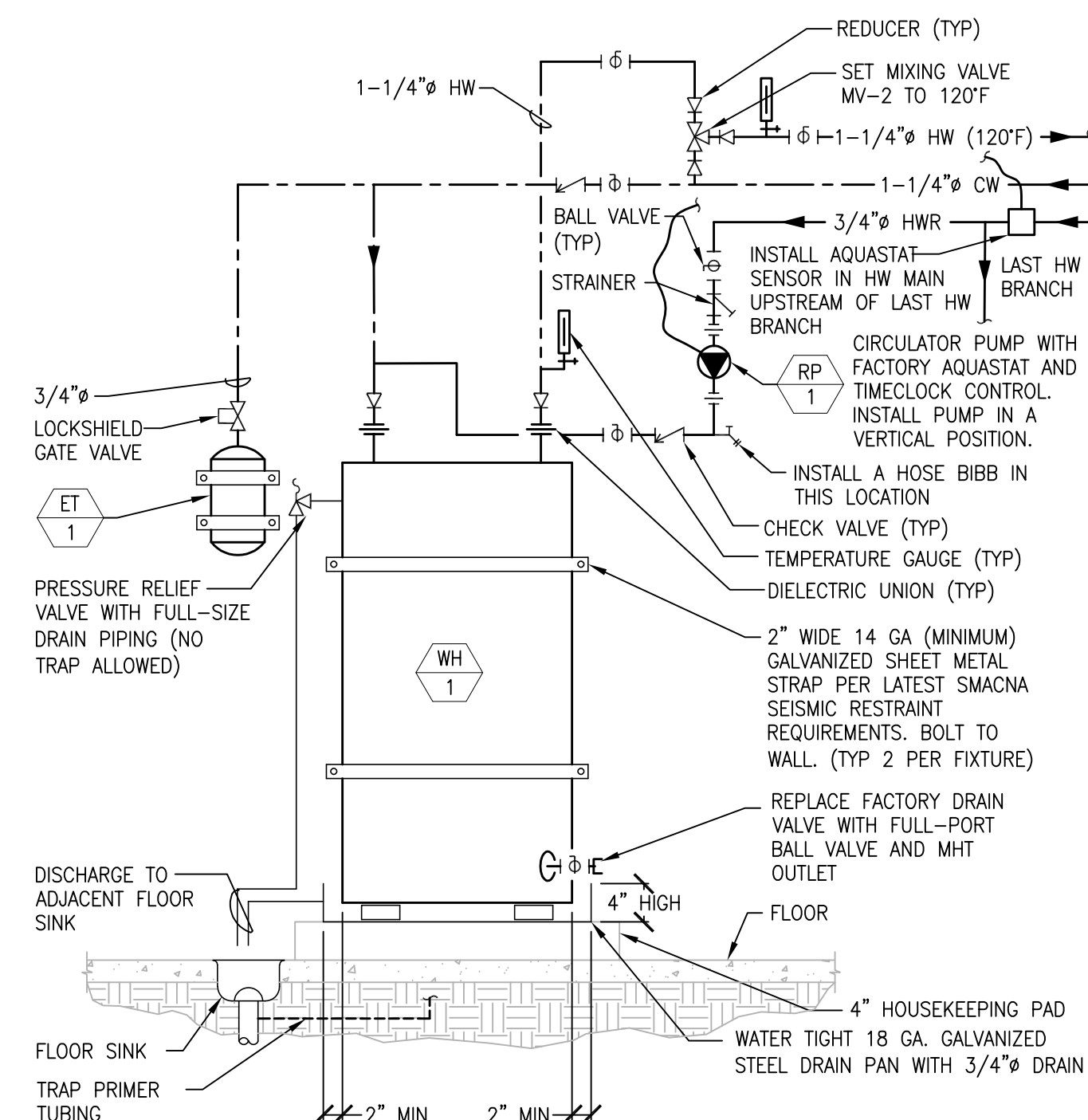


10 MIXING VALVE DETAIL
SCALE: NTS



NOTE: IF PIPE IS SUSPENDED FROM OR DIRECTLY ATTACHED TO STRUCTURE OR OTHER BUILDING ELEMENTS, USE 1/2\"/>

11 PIPE ISOLATION AT FLOOR PENETRATION DETAIL
SCALE: NTS



12 GAS-FIRED WATER HEATER PIPING DETAIL
SCALE: NTS



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CALDWELL, IDAHO
15430 HIGHWAY 44

CSHQA

PROJECT: 22123.00 DATE: 1/20/23
DRAWN: KRA CHECKED: KRA

SHEET TITLE: PLUMBING DETAILS

SHEET: P51

ORIGINAL SHEET SIZE: 30" x 42"

FIRE ALARM SYSTEM NOTES:

- A. THIS PROJECT SHALL INCLUDE UPGRADES AND MODIFICATIONS TO THE EXISTING FIRE ALARM SYSTEM AS REQUIRED FOR CODE COMPLIANCE.
- B. REVISIONS AND ADDITIONS TO EXISTING FIRE ALARM SYSTEM SHALL BE DESIGNED AND CONSTRUCTED BY FIRE ALARM SYSTEM CONTRACTOR. SYSTEM SHALL BE DESIGNED AND CONSTRUCTED IN FULL ACCORDANCE WITH LOCAL PREVALENT CODES AND PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. FIRE ALARM CONTRACTOR SHALL SUBMIT ALL DOCUMENTATION TO THE PROPER ENTITIES TO OBTAIN ALL PERMITS FOR THE PROJECT FIRE ALARM SYSTEM. FIRE ALARM CONTRACTOR SHALL CONSTRUCT THE FIRE ALARM SYSTEM AND SECURE ALL INSPECTIONS AND APPROVALS FOR THE INSTALLED PROJECT FIRE ALARM SYSTEM. INSTALLATION SHALL BE COMPLETE, OPERATIONAL, AND TESTED IN EVERY DETAIL TO THE FULL ACCEPTANCE OF THE AUTHORITY HAVING JURISDICTION. FINAL INSTALLATION DOCUMENTATION SHALL BE SUBMITTED TO CSQA AND THE AUTHORITY HAVING JURISDICTION. PROJECT FIRE ALARM SYSTEM SHALL BE GUARANTEED FOR ALL PARTS AND LABOR FOR ONE FULL YEAR STARTING AT THE FINAL ACCEPTANCE BY THE AUTHORITY HAVING JURISDICTION.
- C. DEFERRED SUBMITTAL TO AGENCY BY CONTRACTOR.

GENERAL NOTES:

- A. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCALLY ADOPTED ELECTRICAL CODE, ALL LOCAL CODES, AND TO THE FULL ACCEPTANCE OF THE AUTHORITY HAVING JURISDICTION. WHENEVER THE REQUIREMENTS OF THE ELECTRICAL SPECIFICATION OR DRAWINGS EXCEED THOSE OF THE APPLICABLE CODES OR STANDARDS, THE REQUIREMENTS OF THE SPECIFICATIONS AND DRAWINGS SHALL GOVERN.
- B. CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF AS-BUILT DRAWINGS. AS-BUILT SET OF DRAWINGS SHALL BE UPDATED DAILY AND SHALL DOCUMENT THE ACTUAL INSTALLED CONDITION OF THE ENTIRE ELECTRICAL INSTALLATION. AS-BUILT SET OF DRAWINGS SHALL BE AVAILABLE AT ALL TIMES ON THE SITE FOR INSPECTION BY CODE OFFICIALS, OWNER, ARCHITECT, AND ENGINEER.
- C. PROPOSED MODIFICATIONS OF ENGINEERED ELECTRICAL DRAWINGS SHALL BE APPROVED BY ENGINEER OF RECORD PRIOR TO PROCEEDING WITH WORK. PROPOSED CHANGES SHALL COMPLY WITH ALL APPLICABLE CODES/JURISDICTION REQUIREMENTS. COST OF ANY ENGINEERING/REVIEW REQUIRED BY PROPOSED CHANGES SHALL BE BORNE BY ENTITY PROPOSING CHANGE.
- D. ALL EXISTING ELECTRICAL EQUIPMENT SHALL REMAIN FULLY FUNCTIONAL, UNO.
- E. CONTRACTOR SHALL COORDINATE ALL POWER OUTAGES WITH THE OWNER AND OBTAIN PERMISSION A MINIMUM OF (7) DAYS PRIOR TO REMOVAL OF POWER.
- F. PROTECT ALL EXISTING WORK FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGED MATERIALS, SYSTEMS, COMPONENTS, FINISHES, AND THE LIKE, SHALL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR TO THE ACCEPTANCE OF THE OWNER.
- G. DESIGN IS BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS TO DETERMINE STATUS OF ACTUAL CONDITIONS AS THEY RELATE TO THE SCOPE OF WORK AS SHOWN ON THESE PLANS.
- H. DEMOLITION WORK IS A PART OF THIS PROJECT. SEE DRAWINGS FOR EXISTING ELECTRICAL DEVICES TO BE REMOVED. REMOVE ASSOCIATED BOXES, RACEWAYS AND CONDUCTORS BACK TO SOURCE, AND MAKE SAFE. RACEWAYS THAT ARE IN WALLS OR FLOORS WHICH ARE TO REMAIN SHALL BE ABANDONED IN PLACE. THE RACEWAY SHALL BE REMOVED TO BELOW THE SURFACE OF THE ASSOCIATED WALL OR FLOOR. THE RESULTING DEPRESSION SHALL BE REPAIRED TO MATCH THE ADJACENT SURFACE.
- I. CONTRACTOR SHALL DISPOSE OF THE REMOVED ELECTRICAL DISPOSAL OF DEVICES SHALL COMPLY WITH ALL APPROPRIATE CODES. REUSE EXISTING CONDUITS AND JUNCTION BOXES AS IS PRACTICAL.
- J. ALL EXISTING CIRCUITS TO REMAIN THAT RUN THROUGH WALLS TO BE REMOVED SHALL BE REROUTED AND RECONNECTED. REPAIR AND PATCH ALL WALLS TO MATCH SURROUNDING SURFACES.
- K. IF A CIRCUIT TO REMAIN IS INTERRUPTED AS A RESULT OF WORK RELATING TO THIS PROJECT, THE CIRCUIT SHALL BE RE-ENERGIZED AS REQUIRED TO MAINTAIN POWER TO THE AFFECTED DEVICES.
- L. BOXES MOUNTED IN A COMMON WALL SHALL BE OFFSET A MINIMUM OF 12" OR MOUNTED IN ADJACENT STUB SPACES. BOXES MOUNTED BACK-TO-BACK ARE NOT ALLOWED.
- M. FURNISH AND INSTALL A PULL CORD IN ALL EMPTY CONDUITS FOR ACCESS CONTROL AND COMMUNICATIONS DISTRIBUTION.
- N. EQUIPMENT REMOVED AND RELOCATED SHALL HAVE ALL CONDUCTORS AND CONDUITS LABELED IN A LOGICAL FASHION. CONTRACTOR SHALL COORDINATE WITH LABELING SCHEME FOR RECONNECTION OF EQUIPMENT.
- O. THE ELECTRICAL CONTRACTOR SHALL VERIFY ELECTRICAL LOADS ON EXISTING CIRCUITS(S) AND PANELBOARDS PRIOR TO MAKING ANY MODIFICATION TO ENSURE ADEQUATE CAPACITY FOR NEW DEVICES AND LIGHT FIXTURES. FURNISH AND INSTALL CIRCUIT BREAKERS OF THE SAME TYPE AND RATINGS IN PANELBOARD AS NEEDED.
- P. FOR CIRCUITS THAT ARE MADE SPARE, THE CIRCUIT BREAKER SHALL REMAIN IN PLACE. THE CIRCUIT CONDUCTORS SHALL BE DISCONNECTED FROM THE CIRCUIT BREAKER AND REMOVED FROM THE RACEWAY. THE CIRCUIT BREAKER SHALL BE MARKED SPARE.
- Q. CLEARLY LABEL ALL ACCESSIBLE CONDUIT STUBS WITH SYSTEM NAME AND LOCATION (ROOM NUMBER) WHERE THE OTHER END OF THE CONDUIT TERMINATES. USE INDELIBLE INK. THE LABELS SHALL BE LOCATED ON THE CONDUIT IN A POSITION THAT CAN BE EASILY READ BY THE OWNER IN THE FUTURE.
- R. THE CONTRACTOR SHALL PROVIDE UPDATED CIRCUIT PANEL DIRECTORIES FOR ALL PANELS THAT CONTAIN CIRCUITS IMPACTED BY THIS PROJECT. NEW DIRECTORIES SHALL BE TYPED, AND OLD DIRECTORIES SHALL BE RETAINED BEHIND THE NEW.

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- E02B SHEET SPECIFICATIONS
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- E06 ELECTRICAL DEMO PLAN
- E11 LIGHTING PLAN
- E21 POWER PLAN
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SYMBOLS NOT ALL SYMBOLS MAY BE UTILIZED

	CONDUIT CONTINUATION		EMERGENCY EXIT SIGN WITH BATTERY BACKUP: SHADED QUARTER OF SYMBOL INDICATES LIGHTED 'EXIT' ON THAT FACE. ARROWS INDICATE LIGHTED DIRECTIONAL ARROW ON THAT FACE. CONNECT TO UNSWITCHED LOCAL LIGHTING CIRCUIT.		TELEPHONE TERMINAL BOARD (PLAN VIEW)
	CONDUIT CONCEALED IN WALL OR CEILING		EMERGENCY LIGHTING (SURFACE, RECESSED) CONNECT TO UNSWITCHED LOCAL LIGHTING CIRCUIT		SIGNAL OUTLETS SYSTEM NOTES: SYSTEMS ARE RACEWAY ONLY FOR THIS CONTRACTOR UNO. 4" SQUARE BOX MINIMUM WITH SINGLE GANG MID RING UNO. 1" MINIMUM CONDUIT SIZE FROM BOX TO NEAREST ACCESSIBLE CEILING.
	CONDUIT EXISTING		FIXTURES WITH HALF-SHADING ARE EMERGENCY LIGHTS WITH BATTERY BACKUP. BATTERY BACKUP SHALL PROVIDE MINIMUM 1100 LUMENS PER FIXTURE FOR 90 MINUTES. EMERGENCY BATTERY UNIT SHALL BE CONNECTED TO UNSWITCHED LOCAL LIGHTING CIRCUIT. FIXTURES SHALL BE SWITCHED WITH ROOM LIGHTS. FIXTURES TO REMAIN ON AT LOSS OF POWER. FIXTURES WITH 'NL' SHALL BE EMERGENCY/NIGHT LIGHTS CONNECTED FOR 24 HOUR OPERATION.		TELEPHONE-DATA OUTLET
	CONDUIT CONCEALED UNDERGROUND		2X4 LIGHT FIXTURE		MOTOR CONNECTION
	HOMERUN		2X2 LIGHT FIXTURE		STARTER OR CONTACTOR: SIZE AS REQUIRED BY EQUIPMENT MANUFACTURER
	CONDUIT STUB DOWN		STRIP LIGHT FIXTURE		COMBINATION MOTOR STARTER/DISCONNECT: SIZE AS REQUIRED BY EQUIPMENT MANUFACTURER
	STUB THROUGH		PENDANT FIXTURE		DISCONNECT SWITCH: SIZE AS REQUIRED BY EQUIPMENT MANUFACTURER F=FUSED, BLANK=UNFUSED
	CONDUIT STUB UP		RECESSED ROUND FIXTURE		SWITCH/DISCONNECT CONFIGURATION DESIGNATION
	JUNCTION BOX (NEW, EXISTING, DEMO)		WALL SCONCE		NUMBER OF POLES
	ELECTRICAL DISTRIBUTION PANELBOARD		WALL MOUNTED FIXTURE		AMPERE RATING OF THE SWITCH
	EQUIPMENT ENCLOSURE AS NOTED		RECESSED STEP FIXTURE		NEMA CLASSIFICATION
	DUPLEX RECEPTACLE (NEW, EXISTING, DEMO)		BOLLARD FIXTURE		THERMOSTAT OR TEMPERATURE SENSOR: SEE MECHANICAL DRAWINGS FOR LOCATIONS FURNISH AND INSTALL BACKBOX AND 1" C TO ABOVE ACCESSIBLE CEILING. COORDINATE INSTALLATION WITH MECHANICAL
	DOUBLE DUPLEX RECEPTACLE (NEW, EXISTING, DEMO)		POST TOP LIGHT FIXTURE, POLE, AND BASE		DUCT TYPE SMOKE DETECTOR: SEE MECHANICAL DRAWINGS FOR LOCATIONS VERIFY REQUIREMENTS WITH MECHANICAL AND FIRE PROTECTION FURNISH AND INSTALL ALL ELECTRICAL REQUIRED FOR COMPLETE OPERATIONAL SYSTEM
	OVER-COUNTER RECEPTACLE		LIGHT FIXTURE CALLOUT		SMOKE DAMPER: SEE MECHANICAL DRAWINGS FOR LOCATIONS VERIFY REQUIREMENTS WITH MECHANICAL AND FIRE PROTECTION FURNISH AND INSTALL ALL ELECTRICAL REQUIRED FOR COMPLETE OPERATIONAL SYSTEM
	CONTROLLED RECEPTACLE		SWITCH		MECHANICAL EQUIPMENT CALLOUT
	GFCI RECEPTACLE		X = 2 - DOUBLE POLE-DOUBLE THROW		SHEET NOTE CALLOUT
	GFCI OVER-COUNTER RECEPTACLE		X = 3 - THREE-WAY		REVISION DELTA
	GFCI CONTROLLED RECEPTACLE		X = 4 - FOUR-WAY		
	WEATHERPROOF GFCI RECEPTACLE		D - DIMMER		
	OVER-COUNTER WEATHERPROOF GFCI RECEPTACLE		HP - HORSEPOWER RATED SWITCH WITH THERMAL OVERLOADS SIZED AS REQUIRED BY EQUIPMENT LABEL RATING		
	ISOLATED GROUND RECEPTACLE		K - KEY OPERATED		
	USB CHARGER/DUPLEX RECEPTACLE		OS - OCCUPANCY SENSOR PASSIVE-INFRARED WALL SWITCH, WITH A 30 MINUTE TIME DELAY		
	OVER-COUNTER USB CHARGER/DUPLEX RECEPTACLE		P - NEON PILOT LIGHT		
	CONTROLLED USB CHARGER/DUPLEX RECEPTACLE		L - LIGHTED SWITCH		
	FLOOR RECEPTACLE, FLUSH WITH COVER		T - TIMER AS NOTED		
	FLUSH FLOOR BOX		W - WIRELESS SWITCH		
	DUPLEX RECEPTACLE, COMM/DATA, A/V		WP - WEATHERPROOF		
	CEILING RECEPTACLE, FLUSH WITH CEILING		CEILING OCCUPANCY SENSOR		
	SPECIAL ELECTRICAL CONNECTION: COORDINATE REQUIREMENTS WITH EQUIPMENT BEING SERVED		WALL-MOUNTED OCCUPANCY SENSOR		
	HAND HOLE, RATED AS REQUIRED FOR APPLICATION		INTERIOR DAYLIGHT SENSOR		
			EXTERIOR PHOTOCELL		

ABBREVIATIONS

#/C	SIZE OF TRADE SIZE CONDUIT, # = 1/2", 3/4", 1"	KW	KILOWATT
#P	NUMBER OF POLES, # = 1P, 2P, ETC.	KWH	KILOWATT HOUR
#W	NUMBER OF WIRES, # = 3W, 4W, ETC.	LCP	LIGHTING CONTROL PANEL
A	AMPERE	LTS	LIGHTS / LIGHTING
AC	ALTERNATING CURRENT	LV	LOW VOLTAGE
ADA	AMERICANS WITH DISABILITIES ACT	MCC	MOTOR CONTROL CENTER
AF	ABOVE FINISHED FLOOR	MDSB	MAIN DISTRIBUTION SWITCHBOARD
AFG	ABOVE FINISHED GRADE	MFR	MANUFACTURER
AHJ	AUTHORITY HAVING JURISDICTION	MLO	MAIN LUG ONLY
AIC	AMPERE INTERRUPTING CAPACITY	(N)	NEW DEVICE/EQUIPMENT - FOR CLARIFICATION
AL	ALUMINUM	N/A	NOT APPLICABLE
ANN	ANNUNCIATOR	NC	NORMALLY CLOSED
AUX	AUXILIARY	NEC	NATIONAL ELECTRICAL CODE
AWG	AMERICAN WIRE GAUGE	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CB	CIRCUIT BREAKER	NESIC	NATIONAL ELECTRICAL SAFETY CODE
CLG	CEILING	NO	NORMALLY OPEN
C	CONDUIT	NO.	NUMBER
Cd	CANDELLA	NRTL	NATIONALLY RECOGNIZED TESTING LABORATORY - AS DEFINED BY OSHA
CT	CURRENT TRANSFORMER	OC	OVER COUNTER TOP BACKSPLASH - COORDINATE INSTALLATION
CU	COPPER	O.H.	OPPOSITE HAND - MIRROR OR ROTATED LAYOUT
DC	DIRECT CURRENT	OS	OCCUPANCY SENSOR
DPDT	DOUBLE POLE, DOUBLE THROW	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
DPST	DOUBLE POLE, SINGLE THROW	PF	POWER FACTOR
(E)	EXISTING DEVICE/EQUIPMENT - FOR CLARIFICATION	PH	PHASE
EMT	ELECTRICAL METALLIC TUBING	(R)	RELOCATED DEVICE/EQUIPMENT - FOR CLARIFICATION
EP	EXPLOSION PROOF	REC	RECEPTACLE
EPH	ELECTRIC WALL HEATER	REV	REVISION
F	FUSE	RTU	ROOF TOP UNIT
FACP	FIRE ALARM CONTROL PANEL	SPDT	SINGLE POLE, DOUBLE THROW
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SPST	SINGLE POLE, SINGLE THROW
GFI	GROUND FAULT INTERRUPTER	SST	SOFT START/STOP MOTOR STARTER
GFPE	GROUND FAULT PROTECTION OF EQUIPMENT	SYMM	SYMMETRICAL
GND	GROUND	TK	TOE KICK
HOA	HAND-OFF-AUTO	TTB	TELEPHONE TERMINAL BOARD
HP	HORSE POWER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
HVAC	HEATING VENTILATION AND AIR CONDITIONING	TYP	TYPICAL
I/O	INPUT / OUTPUT	UNO	UNLESS OTHERWISE NOTED
IG	ISOLATED GROUND	UPS	UNINTERRUPTIBLE POWER SUPPLY
INC	INCANDESCENT	V	VOLTAGE
J-BOX	JUNCTION BOX	VA	VOLT-AMPERE
KCMIL	THOUSAND CIRCULAR MIL	VFD	VARIABLE FREQUENCY MOTOR DRIVE
KO	KNOCK OUT	WH	WATER HEATER
KV	KILOVOLT	WP	WEATHERPROOF
KVA	KILOVOLT AMPERE	XFMR	TRANSFORMER
		XFR	TRANSFER SWITCH



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RJL	JLB

REVISED

SHEET TITLE
ELECTRICAL SYMBOLS & ABBREVIATIONS

SHEET
E01

ORIGINAL SHEET SIZE
30" x 42"



ORIGINAL DOCUMENTS ARE HELD AT
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ELECTRICAL SPECIFICATIONS

SECTION 260100 - BASIC ELECTRICAL REQUIREMENTS

1.1 GENERAL REQUIREMENTS

- A. THE REQUIREMENTS OF THIS SECTION SHALL APPLY TO ALL SUBSEQUENT SECTIONS OF THESE SPECIFICATIONS. NOT ALL EQUIPMENT LISTED MAY BE NEEDED FOR THE PROJECT; REFER TO THE ELECTRICAL DRAWINGS FOR REQUIRED EQUIPMENT. ADDITIONAL EQUIPMENT DESCRIBED OR SPECIFIED ON THE ELECTRICAL DRAWINGS THAT IS NOT LISTED IN THESE SPECIFICATIONS SHALL MEET ALL REQUIREMENTS HEREON.
B. FURNISH AND INSTALL ALL NEW MATERIAL AND EQUIPMENT BEARING THE LISTING LABEL OF UNDERWRITERS LABORATORIES (UL), OR A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) AS DEFINED BY OSHA IN 29CFR 1910.7, AND IS ACCEPTABLE TO AUTHORITY HAVING JURISDICTION, WHERE APPLICABLE.
C. UNLESS SPECIFICALLY NOTED TO THE CONTRARY, ALL MATERIALS AND EQUIPMENT SHALL BE OF STANDARD CATALOG AND PRODUCTION AS REQUIRED TO PRODUCE COMPLETE OPERATING SYSTEMS.
D. THE ENTIRE INSTALLATION MUST BE IN STRICT ACCORDANCE WITH THE REGIONALLY ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, LATEST RULES AND REGULATIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, STATE AND LOCAL CODES AND INSPECTORS, AND ALL OTHER APPLICABLE CODES, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
1. OCCUPATIONAL SAFETY AND HEALTH ACT STANDARDS (OSHA).
2. NFPA 70 - NATIONAL ELECTRICAL CODE (NEC).
3. ADA STANDARDS - AMERICANS WITH DISABILITIES ACT.
4. ANSI/IEEE C-2 - NATIONAL ELECTRICAL SAFETY CODE.
5. NEC - STANDARD OF INSTALLATION.
6. INTERNATIONAL BUILDING CODE.
7. INTERNATIONAL FIRE CODE.
8. OSHA/ANSI 1177.1.
E. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
F. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSTRUCTION PERMITS.

1.2 DRAWINGS

- A. ALL CONTRACT DRAWINGS ARE A PART OF THE ELECTRICAL WORK INsofar AS THEY APPLY, AS IF REFERRED TO IN FULL. THE DRAWINGS ARE MADE ON A SMALL SCALE AND OUTLETS ARE INDICATED ONLY IN THEIR APPROXIMATE LOCATION, UNLESS DIMENSIONED. LOCATE OUTLETS, FIXTURES, AND APPARATUS SYMMETRICALLY ON FLOORS, WALLS, AND CEILINGS WHERE NOT DIMENSIONED AND COORDINATE SUCH LOCATIONS WITH WORK OF OTHER TRADES TO PREVENT INTERFERENCES. VERIFY ALL DIMENSIONS ON THE JOB DO NOT SCALE ELECTRICAL DRAWINGS. REFER TO ARCHITECTURAL, STRUCTURAL, CIVIL, AND MECHANICAL DRAWINGS FOR DIMENSIONS.

1.3 COORDINATION

- A. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE PROJECT SCHEDULE AS WELL AS OTHER TRADES. THE CONTRACTOR SHALL REPAIR OR REPLACE SURFACES REMOVED OR DAMAGED DUE TO INTERFERENCE WITH OTHER TRADES (NOT COORDINATED) AT HIS EXPENSE WITHOUT IMPACT TO THE PROJECT SCHEDULE.
B. THE ENTIRE ELECTRICAL INSTALLATION AND COORDINATION (IF NECESSARY SHALL BE CAREFULLY COORDINATED WITH THE ARCHITECTURAL PHASING PLAN, FOR AREAS, WHICH ARE TO BE OCCUPIED PRIOR TO COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES IF PERMANENT SERVICES ARE NOT AVAILABLE.
C. COORDINATE LAYOUT AND INSTALLATION OF ELECTRICAL EQUIPMENT AND COMPONENTS WITH OTHER CONSTRUCTION AND TRADES, INCLUDING CONDUIT, PIPING, EQUIPMENT, AND ADJACENT SURFACES. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND INSURE EQUIPMENT AND COMPONENTS WILL FIT IN SPECIFIED LOCATIONS TO ORDERING EQUIPMENT OR ROUGH-IN, MAINTAIN REQUIRED WORKING CLEARANCES.

1.4 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. MEASURE INDICATED MOUNTING HEIGHTS TO BOTTOM OF UNIT FOR SUSPENDED ITEMS AND TO CENTER OF UNIT FOR WALL-MOUNTED ITEMS.
B. IF MOUNTING HEIGHTS OR OTHER LOCATION CRITERIA ARE NOT INDICATED, ARRANGE AND INSTALL COMPONENTS AND EQUIPMENT TO PROVIDE MAXIMUM POSSIBLE HEADROOM CONSISTENT WITH THESE REQUIREMENTS.
C. INSTALL EQUIPMENT TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS OF BOTH ELECTRICAL EQUIPMENT AND OTHER NEARBY INSTALLATIONS. CONNECT IN SUCH A WAY AS TO FACILITATE FUTURE DISCONNECTING WITH MINIMUM INTERFERENCE WITH OTHER ITEMS IN THE VICINITY.
D. YIELD RIGHT OF WAY TO PIPING SYSTEMS INSTALLED AT A REQUIRED SLOPE.

1.5 TEMPORARY ELECTRICAL SERVICES

- A. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER SERVICES FOR THE DURATION OF THE PROJECT WHERE THE SITE DOES NOT HAVE A USABLE EXISTING SERVICE. ALL TEMPORARY SERVICES SHALL BE INSTALLED IN A SAFE AND WORKMANLIKE MANNER TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO THE PROJECT WORKSITE.

1.6 SITE VISIT

- A. THE CONTRACTOR SHALL CAREFULLY INSPECT THE SITE PRIOR TO SUBMITTING HIS BID. NO ADDITIONAL CHARGES WILL BE ALLOWED DUE TO THE LACK OF SUCH INSPECTION.

1.7 MATERIAL SUBMITTALS AND SUBSTITUTIONS

- A. THE CONTRACTOR SHALL CHECK, STAMP, AND APPROVE ALL MATERIAL SUBMITTALS. THE SIGNED STAMP OF APPROVAL SHALL APPEAR ON THE COVER SHEET OF EACH SUBMITTAL SET. PROVIDE SUBMITTALS AS INDICATED IN RESPECTIVE SPECIFICATION SECTIONS.
B. BY SPECIFIC DESIGNATION AND DESCRIPTION, STANDARDS ARE ESTABLISHED FOR MATERIALS AND EQUIPMENT. OTHER NAMES AND EQUIPMENT OF EQUAL QUALITY WILL BE CONSIDERED, PROVIDED SUCH REQUESTS FOR SUBSTITUTION ARE SUBMITTED FOR REVIEW. NO CHANGES IN SIZE, LOCATION, TYPE, FUNCTION, BRAND, FINISH, ETC., SHALL BE MADE WITHOUT THE SPECIFIC PERMISSION OR DIRECTION OF THE ARCHITECT OR HIS REPRESENTATIVE. A SCHEDULE SHOWING MAKE, TYPE, MANUFACTURER'S NAME, AND TRADE DESIGNATION OF ALL MATERIALS AND EQUIPMENT PROPOSED AS A SUBSTITUTION SHALL BE SUBMITTED FOR APPROVAL.

1.8 COMPLETION OF WORK

- A. THE WORK SHALL INCLUDE ALL LABOR, EQUIPMENT, APPLIANCES, MATERIALS, TRANSPORTATION, FACILITIES, AND SERVICES NECESSARY FOR PRODUCING A COMPLETE OPERATING ELECTRICAL SYSTEM IN CONFORMANCE WITH ALL CONTRACT DOCUMENTS.
B. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE COMPLETED IN EVERY DETAIL AS SPECIFIED AND/OR INDICATED ON THE DRAWINGS AND TESTED FOR PROPER OPERATION.

1.9 WORKMANSHIP

- A. WHERE CUTTING, DRILLING, OR CHANNING BECOMES NECESSARY FOR PROPER INSTALLATION, PERFORM WITH CARE USING SKILLED MECHANICS OF TRADES INVOLVED, REPAIR DAMAGE TO BUILDING AND EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER. GET STRUCTURAL MEMBERS ONLY WITH SPECIFIC APPROVAL OF THE ARCHITECT.
B. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER BY COMPETENT SPECIALISTS FOR EACH SUBSTRATE. THE INSTALLATION OF ANY MATERIAL OR EQUIPMENT NOT MEETING THESE STANDARDS MAY BE CONSIDERED BY THE ARCHITECT OR HIS REPRESENTATIVE AND SHALL BE REMOVED. PROPER MATERIAL OR EQUIPMENT SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER. ALL MATERIALS SHALL BE STORED IN SUCH A WAY AS TO PREVENT DAMAGE OR WEATHERING PRIOR TO INSTALLATION.
C. PENETRATIONS THROUGH FIRE RESISTIVE STRUCTURES SHALL BE DONE SUCH THAT THE INTEGRITY RATING OF THE STRUCTURE(S) IS NOT COMPROMISED. THIS INCLUDES COMPLIANCE WITH ALL CODES AND INSPECTION AGENCIES.

1.10 RECORD DRAWINGS

- A. MAINTAIN A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES, TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. INDICATE TERMINATION LOCATION OF ALL SPARE CONDUITS.
B. ACCURATE PROGRESS MARK-UPS SHALL BE AVAILABLE ON SITE FOR EXAMINATION BY THE OWNER, ARCHITECT, OR ELECTRICAL ENGINEER AT ALL TIMES. INDICATE ITEMS OTHER THAN THAT INDICATED ON THE DRAWINGS AND ALL ITEMS ADDED BY CHANGE ORDER OR ADDENDUM.

1.11 GUARANTEE

- A. REPAIR OR REPLACE WITHOUT CHARGE, ALL MATERIAL AND EQUIPMENT, WHICH FAILS TO PERFORM IN A NORMAL, PROPER, OR SPECIFIED MANNER FOR A PERIOD OF ONE (1) YEAR AFTER FINAL ACCEPTANCE OF THE WORK.

SECTION 260500 - ELECTRICAL MATERIALS AND METHODS

1.1 CONDUCTORS AND CABLES

- A. COPPER CONDUCTORS, UNLESS ALUMINUM IS SPECIFICALLY SHOWN. SOLID ALLOWED FOR NO. 10 AWG AND SMALLER; STRANDED ONLY FOR NO. 8 AWG AND LARGER. COMPLY WITH NEMA WC 70.
1. SERVICE ENTRANCE: TYPE THIN-THIN OR XHM. SINGLE CONDUCTORS IN RACEWAY.
2. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THIN-THIN, SINGLE CONDUCTORS IN RACEWAY.
3. BRANCH CIRCUITS CONCEALED IN CEILINGS, WALLS, AND PARTITIONS: TYPE THIN-THIN, SINGLE CONDUCTORS IN RACEWAY OR METAL-CLAD CABLE, TYPE MC. MC CABLE NOT ALLOWED FOR HOMERUNS TO PANELBOARDS OR FOR RUNS EXCEEDING 10 FT.
4. MULTICONDUCTOR CABLE FOR CORD AND PLUG CONNECTED EQUIPMENT: TYPE SOW.
5. CLASS 1, 2 AND 3 CONDUCTORS: PROVIDE MULTICONDUCTOR CABLE AS REQUIRED FOR APPLICATION WITH STRANDED-COPPER TYPE CONDUCTORS NOT SMALLER THAN NO. 18 AWG.
B. BRANCH CIRCUIT CONDUCTORS MAY BE COMBINED INTO SINGLE HOMERUNS PROVIDED THE ALLOWABLE AMPACITIES OF THE CONDUCTORS ARE NOT EXCEEDED AS A RESULT OF BENDING FOR THE QUANTITY OF CONDUCTORS INSTALLED IN THE CONDUIT OR RACEWAY. INCREASE MINIMUM RACEWAY SIZE AS NECESSARY FOR CONDUCTOR FILL.
C. EACH SINGLE-POLE BRANCH CIRCUIT SHALL HAVE ITS OWN NEUTRAL CONDUCTOR; SHARED NEUTRALS ARE NOT ALLOWED ON MULTIWIRE BRANCH CIRCUITS.
D. CONNECTIONS AND SPLICES: MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS. TOGHER ELECTRICAL CONNECTORS AND TERMINALS.
E. USE PULLING MEANS, INCLUDING FISH TAPE, CABLE, ROPE, AND BASKET-WEAVE WIRE/CABLE GRIPS, THAT WILL NOT DAMAGE CABLES OR RACEWAY.

- F. USE MANUFACTURER-APPROVED PULLING COMPOUND OR LUBRICANT WHERE NECESSARY; COMPOUND USED MUST NOT DEGRADATE CONDUIT OR INSULATION OR NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE VALUES.
G. WIRING AT OUTLETS: INSTALL CONDUCTOR AT EACH OUTLET, WITH AT LEAST 12 INCHES OF SLACK.

1.2 CONDUIT AND TUBING

- A. PROVIDE RACEWAYS AND FITTINGS LISTED FOR TYPE AND SIZE OF RACEWAY AND FOR APPLICATION AND ENVIRONMENT IN WHICH INSTALLED. MINIMUM SIZE AS FOLLOWS UNLESS OTHERWISE NOTED:
1. POWER: HOMERUNS TO PANELBOARD 3/4" TRADE SIZE, BETWEEN ELECTRICAL BOXES 1/2" TRADE SIZE.
2. COMMUNICATIONS: 1" TRADE SIZE.
B. ELECTRICAL METALLIC TUBING (EMT): ANSI C80.3; FOR USE IN INDOOR AND ABOVEGROUND, CONCEALED EXTERIOR SPACES. USE STEEL SET-SCREW OR COMPRESSION TYPE FITTINGS, USE CAST FITTINGS NOT ALLOWED.
C. ELECTRICAL NONMETALLIC TUBING (ENT): NOT ALLOWED.
D. FLEXIBLE METAL CONDUIT (FMC): ZINC-COATED STEEL, FOR CONNECTION TO ABOVEGROUND EQUIPMENT INCLUDING TRANSFORMERS AND MOTOR DRIVEN EQUIPMENT AND RECESSED OR SEMI-RECESSED LIGHT FIXTURES.
E. INTERMEDIATE METAL CONDUIT (IMC): NOT ALLOWED.
F. LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC): NEMA RN 1, WITH MINIMUM 0.040 INCH THICK SUNLIGHT AND MINERAL-OIL RESISTANT PVC COATING FOR CONNECTION TO WIRING EQUIPMENT IN DAMP OR WET LOCATIONS. USE MATCHING FITTINGS WITH OVERLAPPING SLEEVES PROTECTING THREADED JOINTS.
G. LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC): NOT ALLOWED.
H. RIGID STEEL CONDUIT (RSC): ANSI C80.1, FOR EXPOSED INTERIOR SPACES WHERE PHYSICAL DAMAGE IS LIKELY AND IN EXPOSED, EXTERIOR LOCATIONS. USE THREADED RIGID STEEL CONDUIT FITTINGS.
I. RIGID NONMETALLIC CONDUIT (RNC): NEMA TC 2, TYPE EPC-40-FMC, UNLESS OTHERWISE INDICATED FOR DIRECT BURIAL. FITTINGS TO MATCH COMPLYING WITH NEMA TC 3.
J. RIGID POLYETHYLENE CONDUIT (RPEC): NEMA TC 2, TYPE EPC-40-FMC, UNLESS OTHERWISE INDICATED FOR DIRECT BURIAL. FITTINGS TO MATCH COMPLYING WITH NEMA TC 3.

1.3 BOXES, ENCLOSURES, AND CABINETS

- A. SHEET METAL OUTLET AND DEVICE BOXES: NEMA OS 1, 2 1/4 INCHES DEEP.
B. CAST-METAL OUTLET AND DEVICE BOXES: NEMA FB 1, FERROUS ALLOY OR ALUMINUM, TYPE FD, WITH GASKETED COVER FOR USE IN DAMP, WET OR HAZARDOUS LOCATIONS.
C. NONMETALLIC OUTLET AND DEVICE BOXES: NEMA OS 2, 2 1/4 INCHES DEEP.
D. METAL FLOOR BOXES: CAST OR SHEET METAL, FULLY ADJUSTABLE, RECTANGULAR.
E. NONMETALLIC OUTLET AND DEVICE BOXES: NEMA OS 2.
F. SMALL SHEET METAL PULL AND JUNCTION BOXES: NEMA OS 1.
G. CAST-METAL ACCESS, PULL, AND JUNCTION BOXES: NEMA FB 1, CAST ALUMINUM OR GALVANIZED, CAST IRON WITH GASKETED COVER.
H. METAL WREWAYS: SHEET METAL SIZED AND SHAPED AS INDICATED, NEMA 250, TYPE 1, WITH SCREW-COVER IN MANUFACTURER'S STANDARD ENAMEL FINISH. INCLUDE ALL ACCESSORIES AND FITTINGS FOR A COMPLETE SYSTEM.
I. HANDHOLES: POLYMER CONCRETE, FIBERGLASS ENCLOSURES WITH POLYMER-CONCRETE FRAME AND COVER OR FIBERGLASS-REINFORCED POLYESTER RESIN, SCSZ 77, TIER 15 STRUCTURAL LOAD RATINGS IN TRAFFIC AREAS AND SCSZ 77, TIER 8 ELSEWHERE.

1.4 HANGERS, SUPPORTS, AND ATTACHMENT

- A. DESIGN SUPPORTS CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS AND COMPONENTS USING MATERIALS WITH TENSION, SHEAR, AND PULLOUT CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS WHERE USED.
B. STEEL SLOTTED SUPPORT SYSTEMS: COMPLY WITH MFM-4, FACTORY-FABRICATED COMPONENTS FOR FIELD ASSEMBLY WITH CHANNEL DIMENSIONS SELECTED FOR APPLICABLE LOAD CRITERIA.
C. THREADED RODS: STEEL, MINIMUM 1/4 INCH IN DIAMETER.
D. CONDUIT AND CABLE SUPPORT DEVICES: STEEL HANGERS, CLAMPS, AND ASSOCIATED FITTINGS, DESIGNED FOR TYPES AND SIZES OF RACEWAY OR CABLE TO BE SUPPORTED.
E. RACEWAY SUPPORT METHODS: IN ADDITION TO METHODS DESCRIBED IN NECA 1, EMT AND FMC MAY BE SUPPORTED BY OPENINGS THROUGH STRUCTURE MEMBERS, AS PERMITTED IN NFPA 70.
F. MOUNTING AND ANCHORAGE OF SURFACE-MOUNTED EQUIPMENT AND COMPONENTS: ANCHOR AND FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTS TO BUILDING STRUCTURAL ELEMENTS BY THE FOLLOWING METHODS UNLESS OTHERWISE INDICATED BY CODE:
1. TO WOOD: FASTEN WITH LAG SCREWS OR THROUGH BOLTS.
2. TO NEW CONCRETE: BOLT TO CONCRETE INSERTS OF STEEL OR MALLEABLE-IRON OR SLOTTED SUPPORT SYSTEM.
3. TO EXISTING CONCRETE: EXPANSION ANCHOR SYSTEMS, INSERT-WELDED WIRE, STAINLESS STEEL.
4. TO MASONRY UNITS: TOGGLE-TYPE BOLTS ON HOLLOW EXPANSION ANCHOR FASTENERS ON SOLID.
5. TO STEEL: WELDED THROUGH STUDS WITH NUTS, BEAM CLAMPS OR SPRING-TENSION CLAMPS IN COORDINATION WITH STRUCTURAL REQUIREMENTS.
6. TO LIGHT STEEL: SHEET METAL SCREWS.
G. ITEMS MOUNTED ON HOLLOW WALLS AND NONSTRUCTURAL BUILDING SURFACES: MOUNT CABINETS, PANELBOARDS, DISCONNECT SWITCHES, CONTROL ENCLOSURES, PULL AND JUNCTION BOXES, TRANSFORMERS, AND OTHER DEVICES ON SLOTTED-CHANNEL RACKS ATTACHED TO SUBSTRATE BY MEANS THAT MEET SEISMIC-RESTRAINT STRENGTH AND ANCHORAGE REQUIREMENTS.
H. MULTIPLE RACEWAYS OR CABLES: INSTALL TRAFFIC-TYPE SUPPORTS FABRICATED WITH STEEL SLOTTED CHANNEL SUPPORT SYSTEM, SIZES SO CAPACITY CAN BE INCREASED BY AT LEAST 50 PERCENT IN FUTURE WITHOUT EXCEEDING SPECIFIED DESIGN LOAD LIMITS.
I. SPRING-TIED CLAMPS DESIGNED FOR SUPPORTING SINGLE CONDUITS WITHOUT BOLTS MAY BE USED FOR 1 1/2 INCH AND SMALLER RACEWAYS SERVING BRANCH CIRCUITS AND COMMUNICATION SYSTEMS ABOVE SUSPENDED CEILING AND FOR FASTENING RACEWAYS TO TRAFFICE SUPPORTS.
J. CONCRETE BASES: CONSTRUCT CONCRETE BASES OF 3000-PSI, 28-DAY COMPRESSIVE-STRENGTH CONCRETE NOT LESS THAN 4 INCHES LARGER IN BOTH DIRECTIONS THAN SUPPORTED UNIT, AND SO ANCHORS WILL BE A MINIMUM OF 10 BOLT DIAMETERS FROM EDGE OF THE BASE. INSTALL ANCHOR FOR PROPER ATTACHMENT TO SUPPORTED EQUIPMENT AND ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

1.5 INSTALLATION

- A. INSTALL RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES WITH NO MORE THAN THE EQUIVALENT OF FOUR 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR COMMUNICATIONS CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED.
B. KEEP RACEWAYS AT LEAST 8 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES.
C. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING.
D. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE THE FINISHED SLAB.
E. CONCEAL CONDUIT AND CABLES WITHIN FINISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED.
F. RACEWAYS EMBEDDED IN SLABS: RUN CONDUIT LARGER THAN 1-INCH TRADE SIZE, PARALLEL OR AT RIGHT ANGLES TO MAIN REINFORCEMENT, WHERE AT RIGHT ANGLES TO REINFORCEMENT, PLACE CONDUIT CLOSE TO SLAB SUPPORT.
G. ARRANGE RACEWAYS TO CROSS BUILDING EXPANSION JOINTS AT RIGHT ANGLES WITH EXPANSION FITTINGS.
H. THREADED CONDUIT JOINTS, EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS: APPLY LISTED COMPOUND TO THREADS OF RACEWAY AND FITTINGS BEFORE MAKING UP JOINTS.
I. FLEXIBLE CONDUIT CONNECTIONS: USE MAXIMUM OF 72 INCHES OF FLEXIBLE CONDUIT FOR RECESSED AND SEMI-RECESSED LIGHTING FIXTURES, EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT; AND FOR TRANSFORMERS AND MOTORS. USE INSULATING BUSHINGS TO PROTECT CONDUITS.
J. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 220-LB TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES OF SLACK AT EACH END OF PULL WIRE.
K. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING FOR BOX IN CENTER OF CELL OF MASONRY BLOCK, AND INSTALL BOX FLUSH WITH SURFACE OF WALL.
L. SET FLOOR BOXES LEVEL AND FLUSH WITH FINISHED FLOOR SURFACE.
M. FIRE-RATED-ASSEMBLY PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT RACEWAY AND CABLE PENETRATIONS. APPLY APPROVED FIRESTOPPING TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY.
N. ROOF-PENETRATION SLEEVES: SEAL PENETRATION OF INDIVIDUAL RACEWAYS AND CABLES WITH FLEXIBLE BOOT-TYPE FLASHING UNITS APPLIED IN CONCORD WITH WITH ROOFING WORK.
O. ENVIRONMENTAL TRANSITIONS: SEAL PENETRATIONS OF INDIVIDUAL RACEWAYS AND CABLES WHERE PASSING THROUGH BARRIERS BETWEEN PLENUM SPACES, COOLER AND FREEZER BOXES, AND CONDITIONED AND UNCONDITIONED SPACES OF BOTH INTERIOR AND EXTERIOR WALLS.
P. UNDERGROUND CONDUIT: EXCAVATE TRENCH BOTTOM TO PROVIDE FIRM AND UNIFORM SUPPORT FOR CONDUIT. AFTER INSTALLING CONDUIT, BACKFILL AND COMPACT. INSTALL MANUFACTURED ELBOWS FOR STUB-UPS WITH ENTIRE ELEVATION BELOW FINISHED SURFACE SUCH THAT EXPOSED CONDUIT IS PLUMB.
Q. INSTALL HANDHOLES LEVEL AND PLUMB ON A 6 INCH BED OF CRUSHED STONE OR GRAVEL WITH BOTTOM BELOW FROST LINE ORIENTED AND SIZED TO MINIMIZE BENDS AND DEFLECTIONS IN CONNECTING CONDUITS. IN PAVED AREAS, SET 30 COVER SURFACE WILL BE FLUSH WITH FINISHED GRADE. OTHERWISE, SET COVERS 1 INCH ABOVE GRADE.

1.6 IDENTIFICATION

- A. PROVIDE A COMPLETE, MEANINGFUL, NEAT, AND WELL LABELED INSTALLATION. NAMEPLATES AND TAPE LABELS SHALL BE INSTALLED PARALLEL TO EQUIPMENT LINES.
B. ENGRAVED NAMEPLATES: LAMINATED PHENOLIC PLASTIC, ENGRAVED WITH 3/8 INCH WHITE LETTERING ON BLACK BACKGROUND FOR IDENTIFICATION OF MAIN SERVICE DISCONNECTS, SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, MOTOR STARTERS, SAFETY SWITCHES, LIGHTING CONTROLS, CONTACTORS, RELAYS, AND SAFETY SWITCHES. LOCATE ON EQUIPMENT EXTERIORS, CLEARLY VISIBLE FROM WORKING SPACES AND FASTENED WITH A MINIMUM OF (2) SCREWS OR NUTS.
C. TAPE LABELS: EMBOSSED, 3/8 INCH, HEAVY DUTY ADHESIVE TAPE WITH 3/16 INCH, MECHANICALLY LABELED, BLACK LETTERS ON CLEAR BACKGROUND FOR IDENTIFICATION OF INDIVIDUAL METAL SWITCHES AND RECEPTACLES TO INDICATE PANEL AND CIRCUIT NUMBER TO WHICH DEVICE IS CONNECTED.
D. PANELBOARD CIRCUIT DIRECTIONS: TYPEWRITTEN FOR EACH BRANCH CIRCUIT PANELBOARD TO IDENTIFY AREAS AND EQUIPMENT SERVED BY INDIVIDUAL CIRCUITS. THE CARDS SHALL REFLECT THE AS BUILT CONDITIONS AND BE PLACED UNDER A PROTECTIVE, TRANSPARENT COVER LOCATED ON INSIDE OF PANEL DOOR.
E. UNDERGROUND-LINE WARNING TAPE: PERMANENT, BRIGHT-COLORED, POLYETHYLENE TAPE 6 INCHES WIDE BY 4 MILS THICK SUITABLE FOR DIRECT-BURIAL, WITH ENGRAVED, CONTINUOUS METALLIC STRIP AND PRINTED WITH TYPE OF UNDERGROUND LINE.
F. JUNCTION BOX COVERS WITH POWER WIRING SHALL BE LABELED WITH SOURCE PANEL AND CIRCUIT NUMBER. JUNCTION BOX COVERS FOR SPECIAL SYSTEMS SHALL BE LABELED WITH THE SYSTEM NAME. ALL LABELS FOR EXPOSED JUNCTION BOXES IN "FINISHED AREAS" SHALL BE LABELED UTILIZING TAPE LABELS. LABELS FOR JUNCTION BOX COVERS IN CONCEALED LOCATIONS SHALL BE NEATLY HANDWRITTEN ON THE OUTSIDE SURFACE OF THE COVER WITH A PERMANENT STYLE MARKER. JUNCTION BOX COVERS FOR FIRE ALARM AND EMERGENCY SYSTEMS SHALL BE PAINTED RED AND LABELED "FA" AND "E" RESPECTIVELY.
G. CONDUCTORS: FACTORY COLORED PER SIZES #6 AND SMALLER. WIRE #4 AWG AND LARGER MAY BE IDENTIFIED BY COLORED PVC TAPE WRAPPED FOR AT LEAST 4 INCHES ON EACH END OF THE CONDUCTOR.
1. COLOR CODING FOR PHASE IDENTIFICATION SHALL BE AS FOLLOWS:

208Y/120 VOLT SYSTEM	240/120V HIGH LEG DELTA
BLACK PHASE A	—BLACK
RED PHASE B	—ORANGE
BLUE PHASE C	—BLUE
WHITE NEUTRAL	—WHITE
GREEN GROUND	—GREEN OR BARE

- 2. ISOLATED GROUND CONDUCTORS SHALL BE GREEN WITH A YELLOW STRIPE.

1.7 PROTECTION

- A. STORE PRODUCTS AND MATERIALS IN MANUFACTURER'S PACKAGING OR OTHERWISE PROTECTED UNTIL THEY ARE USED OR INSTALLED. REPAIR OR REPLACE DAMAGED PRODUCTS.
B. KEEP OUTLET BOXES FREE OF PLASTER, DRYWALL JOINT COMPOUND, MORTAR, CEMENT, CONCRETE, DUST, PAINT, AND OTHER MATERIAL THAT MAY CONTAMINATE THE RACEWAY SYSTEM, CONDUCTORS, AND CABLES.

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

1.1 QUALITY ASSURANCE

- A. COMPLY WITH UL 467 FOR GROUNDING AND BONDING MATERIALS AND EQUIPMENT.
B. FOLLOW REQUIREMENTS OF NEC-250.

1.2 MATERIALS

- A. INSULATED CONDUCTORS: COPPER WIRE OR CABLE INSULATED FOR 600 V UNLESS OTHERWISE REQUIRED BY APPLICABLE CODE OR AUTHORITIES HAVING JURISDICTION.
B. BARE COPPER CONDUCTORS:
1. SOLID CONDUCTORS: ASTM B 3.
2. STRANDED CONDUCTORS: ASTM B 3.
3. TINNED CONDUCTORS: ASTM B 33.
4. BONDING CABLE: 28 KCMIL 14 STRANDS OF NO. 17 AWG CONDUCTOR, 1/4 INCH IN DIAMETER.
5. BONDING CONDUCTOR: NO. 4 OR NO. 6 AWG, STRANDED CONDUCTOR.
6. BONDING JUMPER: COPPER OR TINNED-COPPER TAPE, GRADED CONDUCTORS, TERMINATED WITH COPPER FERRULES, 1-5/8 INCHES WIDE AND 1/16 INCH THICK.
C. GROUNDING BUS: RECTANGULAR BARS OF ANNEALED COPPER, NOT LESS THAN 1/4 BY 2 INCHES IN CROSS SECTION, 12 INCHES LONG WITH INSULATORS.
D. BOLTED CONNECTORS FOR CONDUCTORS AND PIPES: COPPER OR COPPER ALLOY, BOLTED PRESSURE-TYPE, WITH AT LEAST TWO BOLTS AND CLAMP TYPE, SIZED FOR PIPE.
E. WELDED CONNECTORS: EXTERMINC-WELDING KITS OF TYPES RECOMMENDED BY KIT MANUFACTURER FOR MATERIALS BEING JOINED AND INSTALLATION CONDITIONS.
F. GROUND RODS: COPPER-CLAD STEEL, 3/4 INCH DIAMETER BY 10 FEET IN LENGTH.

1.3 APPLICATIONS

- A. UNDERGROUND GROUNDING CONDUCTORS: BURY NO. 2/0 AWG MINIMUM, BARE COPPER CONDUCTOR AT LEAST 24 INCHES BELOW GRADE.
B. GROUNDING BUS: INSTALL IN ELECTRICAL AND TELEPHONE EQUIPMENT ROOMS, IN ROOMS HOUSING SERVICE EQUIPMENT, AND ELSEWHERE AS INDICATED. INSTALL BUS ON INSULATED SPACERS 1 INCH, MINIMUM, FROM WALL 6 INCHES ABOVE FINISHED FLOOR, UNLESS OTHERWISE INDICATED.
C. CONDUCTOR TERMINATIONS AND CONNECTIONS:
1. PIPE AND EQUIPMENT GROUNDING CONDUCTOR TERMINATIONS: BOLTED CONNECTORS.
2. UNDERGROUND CONNECTIONS: WELDED CONNECTORS EXCEPT AT TEST WELLS AND AS OTHERWISE INDICATED.
3. CONNECTIONS TO STRUCTURAL STEEL: WELDED CONNECTORS.

1.4 INSTALLATION

- A. GROUNDING CONDUCTORS: ROUTE ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE, UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECT TO STRAIN, IMPACT, OR DAMAGE.
B. GROUNDING AND BONDING FOR PIPING:
1. METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCE TO BUILDING. CONNECT GROUNDING CONDUCTORS TO MAIN METAL WATER SERVICE PIPES, USING A BOLTED CLAMP CONNECTOR OR BY BOLTING A LUG-TYPE CONNECTOR TO A PIPE FLANGE, USING ONE OF THE LUG BOLTS OF THE FLANGE, WHERE A DIELECTRIC MAIN WATER FITTING IS INSTALLED, CONNECT GROUNDING CONDUCTOR ON STREET SIDE OF FITTING, BOND METAL GROUNDING CONDUCTOR OUTLET OR SLEEVE TO CONDUCTOR AT EACH END.
2. WATER METER PIPING: USE BRASS-OR-TYPE BONDING JUMPERS TO ELECTRICALLY BYPASS WATER METERS. CONNECT TO PIPE WITH A BOLTED CONNECTOR.
3. BOND EACH ABOVE GROUND PORTION OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE.
4. BONDING INTERIOR METAL DUCTS: BOND METAL AIR DUCTS TO EQUIPMENT GROUNDING CONDUCTORS OF ASSOCIATED FANS, BLOWERS, ELECTRIC HEATERS, AND AIR CLEANERS. INSTALL BONDING JUMPER TO BOND ACROSS FLEXIBLE DUCT CONNECTIONS TO ACHIEVE CONTINUITY.
5. BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE, EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT.

1.5 EQUIPMENT GROUNDING

- A. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS IN ALL RACEWAYS WITH FEEDERS AND BRANCH CIRCUITS. USE COPPER CONDUCTORS ONLY. THE CONDUIT SYSTEM MAY NOT BE USED FOR EQUIPMENT GROUNDING.
B. ISOLATED GROUNDING CIRCUITS: INSTALL A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR CONNECTED TO THE GROUNDING TERMINAL ISOLATE CONDUCTOR FROM RACEWAY AND FROM PANELBOARD GROUNDING TERMINALS. TERMINATE AT EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE APPLICABLE DERIVED SYSTEM OR SERVICE, UNLESS OTHERWISE INDICATED. GREEN-COLORED INSULATION WITH CONTINUOUS YELLOW STRIPE.

1.6 FIELD QUALITY CONTROL

- A. AFTER INSTALLING GROUNDING SYSTEM BUT BEFORE PERMANENT ELECTRICAL CIRCUITS HAVE BEEN ENERGIZED, TEST FOR COMPLIANCE WITH REQUIREMENTS.

SECTION 262400 - ELECTRICAL DISTRIBUTION EQUIPMENT

1.1 SUBMITTALS

- A. PRODUCT DATA: FOR EACH TYPE OF EQUIPMENT INDICATED, INCLUDE DIMENSIONS AND MANUFACTURER'S TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS, ACCESSORIES, AND FINISHES.
B. SHOP DRAWINGS: FOR EACH SWITCHBOARD, PANELBOARD, TRANSFORMER SWITCHING AND OVERCURRENT PROTECTIVE DEVICE, MOTOR STARTER AND RELATED EQUIPMENT:
1. INCLUDE DIMENSIONED PLANS, ELEVATIONS, SECTIONS, AND DETAILS. SHOW TABULATIONS OF INSTALLED DEVICES, EQUIPMENT FEATURES, AND RATINGS.
2. DETAIL BUS CONFIGURATION, CURRENT, AND VOLTAGE RATINGS.
3. SHORT-CIRCUIT CURRENT RATING OF SWITCHBOARDS, PANELBOARDS AND OVERCURRENT PROTECTIVE DEVICES.
4. INCLUDE EVIDENCE OF MATERIAL LISTING FOR SERIES RATING OF INSTALLED DEVICES.
5. INCLUDE TIME-CURRENT COORDINATION CURVES FOR EACH TYPE AND RATING OF OVERCURRENT PROTECTIVE DEVICE.

1.2 MANUFACTURERS

- A. OBTAIN ALL ELECTRICAL DISTRIBUTION EQUIPMENT THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER.

1.3 PROJECT CONDITIONS

- A. ENVIRONMENTAL LIMITATIONS: RATE EQUIPMENT FOR CONTINUOUS OPERATION UNDER THE FOLLOWING CONDITIONS, UNLESS OTHERWISE INDICATED:
1. AMBIENT TEMPERATURE: NOT LESS THAN MINUS 22 DEG F AND NOT EXCEEDING 104 DEG F
2. ALTITUDE: NOT EXCEEDING 8000 FEET.
B. SEISMIC PERFORMANCE: TO WITHSTAND THE EFFECTS OF EARTHQUAKE MOTIONS AT THE LOCATION OF INSTALLATION AND AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
C. ENCLOSURES: LISTED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.
1. INDOOR DRY AND CLEAN LOCATIONS: NEMA 250, TYPE 1.
2. OUTDOOR LOCATIONS: NEMA 250, TYPE 3R.
3. KITCHEN OR WASH-DOWN AREAS: NEMA 250, TYPE 4X, STAINLESS STEEL.
4. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250, TYPE 4.
5. INDOOR LOCATIONS SUBJECT TO DUST, FALING DIRT, AND DRIPPING NONCORROSIVE LIQUIDS: NEMA 250, TYPE 12.

1.4 SWITCHBOARDS

- A. COMPLY WITH NEMA PB 2 AND UL 891.
B. FRONT-CONNECTED, FRONT-ACCESSIBLE REAR-ALIGNED SWITCHBOARDS: PANEL MOUNTED MAIN AND BRANCH DEVICES AND BARRIERS BETWEEN ADJACENT SECTIONS. BUS TRANSITIONS TO BE MATCHED AND ALIGNED WITH BASIC SWITCHBOARD; INSULATION AND ISOLATION FOR MAIN BUS OF MAIN SECTION AND MAIN AND VERTICAL BUSES OF FEEDER SECTIONS.
1. INDOOR ENCLOSURES: TYPE 1 WITH FACTORY-APPLIED FINISH IN MANUFACTURER'S STANDARD GRAY FINISH OVER A RUST-INHIBITING PRIMER ON TREATED METAL SURFACE.
2. OUTDOOR ENCLOSURES: TYPE 3R WITH FACTORY-APPLIED FINISH IN MANUFACTURER'S STANDARD COLOR; UNDERSURFACES TREATED WITH CORROSION-RESISTANT UNDERCOATING.

ELECTRICAL SPECIFICATIONS CONTINUED

- D. BUSES AND CONNECTIONS: HARD-DRAWN COPPER OF 98 PERCENT CONDUCTIVITY OR TIN-PLATED ALUMINUM WITH UNIFORM CAPACITY FOR ENTIRE LENGTH OF SWITCHBOARD'S MAIN AND DISTRIBUTION SECTIONS. PROVIDE FOR FUTURE EXTENSION FROM ONE END.
 - 1. NEUTRAL BUSES: 100 PERCENT OF THE AMPACITY OF PHASE BUSES UNLESS OTHERWISE INDICATED, EQUIPPED WITH MECHANICAL CONNECTORS FOR OUTGOING CIRCUIT NEUTRAL CABLES. BRACE BUS EXTENSIONS FOR BUSWAY FEEDER NEUTRAL BUS.
 - 2. GROUND BUS: 1/4-BY 2-INCH HARD-DRAWN COPPER OF 98 PERCENT CONDUCTIVITY, EQUIPPED WITH MECHANICAL CONNECTORS FOR FEEDER AND BRANCH-CIRCUIT GROUND CONDUCTORS.
 - 3. LOAD TERMINALS: INSULATED, RIGIDLY BRACED, RUNBACK BUS EXTENSIONS, OF SAME MATERIAL AS THROUGH BUSES, EQUIPPED WITH MECHANICAL CONNECTORS FOR OUTGOING CIRCUIT CONDUCTORS.
- E. FUTURE DEVICES: PROVIDE FULL VERTICAL BUS AND EQUIP WITH ALL NECESSARY MOUNTING HARDWARE.

1.5 PANELBOARDS

- A. COMPLY WITH NEMA PB 1 AND UL 67.
- B. POWER DISTRIBUTION AND LIGHTING APPLIANCE PANELBOARDS: PANELS AND TRIM SHALL BE STEEL WITH GALVANIZED STEEL BACKBOX. FACTORY FINISHED IMMEDIATELY AFTER CLEANING AND PRETREATING WITH MANUFACTURER'S STANDARD TWO-COAT, BAKED-ON FINISH CONSISTING OF PRIME COAT AND THERMOSETTING TOPCOAT. SURFACE-MOUNTED FRONTS SHALL MATCH BOX DIMENSIONS; FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX.
- C. PHASE, NEUTRAL, AND GROUND BUSES: HARD-DRAWN COPPER, 98 PERCENT CONDUCTIVITY OR TIN-PLATED ALUMINUM WITH 100 PERCENT NEUTRAL BUS.
 - 1. EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUNDING CONDUCTORS; BONDED TO BOX.
 - 2. ISOLATED GROUND BUS: WHERE INDICATED FOR BRANCH-CIRCUIT ISOLATED GROUND CONDUCTORS; INSULATED FROM BOX.
- D. CONDUCTOR CONNECTIONS: MECHANICAL LUGS OF SAME MATERIAL AS BUSSING AND SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES SHOWN ON DRAWINGS. PROVIDE ADDITIONAL LUGS WHERE INDICATED AS FOLLOWS: FEED-THROUGH LUGS: LOCATE AT OPPOSITE END OF BUS FROM INCOMING LUGS OR MAIN DEVICE. SUBTIED (DOUBLE) LUGS: LOCATE AT SAME END OF BUS AS INCOMING LUGS OR MAIN DEVICE.
- E. SERVICE EQUIPMENT LABEL: NRTL LABELED FOR USE AS SERVICE EQUIPMENT FOR PANELBOARDS OR LOAD CENTERS WITH ONE OR MORE MAIN SERVICE DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES.
- F. FUTURE DEVICES: MOUNTING BRACKETS, BUS CONNECTIONS, FILLER PLATES, AND NECESSARY APPURTENANCES REQUIRED FOR FUTURE INSTALLATION OF DEVICES.
- G. SHORT-CIRCUIT CURRENT RATING: FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS OR SERIES RATED IN COMBINATION WITH UPSTREAM DEVICES AND TESTED PER UL 489. PROVIDE SERIES COMBINATION MARKING AS REQUIRED BY THE NEC WHERE USED.
- H. DOORS: CONCEALED HINGES; SECURED WITH FLUSH LATCH WITH TUMBLER LOCK; KEYS ALIKE.
- I. DIRECTORY CARD: INSIDE PANELBOARD DOOR, MOUNTED IN METAL FRAME WITH TRANSPARENT PROTECTIVE COVER.

1.6 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. MOLDED-CASE CIRCUIT BREAKER (MCCB): COMPLY WITH UL 489, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS. PROVIDE BREAKERS IN STANDARD FRAME SIZES, TRIP RATINGS AND NUMBER OF POLES AS REQUIRED WITH MECHANICAL LUGS SUITABLE FOR QUANTITY, SIZE AND MATERIAL OF CONDUCTORS SPECIFIED. MULTI-POLE UNITS ENCLOSED IN A SINGLE HOUSING OR FACTORY ASSEMBLED TO OPERATE AS A SINGLE UNIT.
 - 1. THERMAL-MAGNETIC CIRCUIT BREAKERS: REVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS, AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 A AND LARGER.
 - 2. ADJUSTABLE INSTANTANEOUS-TRIP CIRCUIT BREAKERS: MAGNETIC TRIP ELEMENT WITH FRONT-MOUNTED, FIELD-ADJUSTABLE TRIP SETTING.
 - 3. ELECTRONIC TRIP CIRCUIT BREAKERS WITH RMS SENSING: FIELD-REPLACEABLE RATING PLUG OR FIELD-REPLACEABLE ELECTRONIC TRIP; AND FIELD-ADJUSTABLE SETTINGS FOR INSTANTANEOUS TRIP, LONG- AND SHORT-TIME PICKUP LEVELS, LONG- AND SHORT-TIME TIME ADJUSTMENTS, GROUND-FAULT PICKUP LEVEL, TIME DELAY, AND IT RESPONSE.
 - 4. ARC-FAULT CIRCUIT INTERRUPTING (AFCI): COMPLY WITH UL-1699 AND IEEE 1584.
 - 5. GROUND-FAULT CIRCUIT INTERRUPTING (GFCI): CLASS B GROUND-FAULT PROTECTION (5-MA TRIP).
 - 6. GROUND-FAULT EQUIPMENT PROTECTION (GFEF): CLASS B GROUND-FAULT PROTECTION (30-MA TRIP).
 - 7. SHUNT TRIP (ST): COIL ENERGIZED FROM SEPARATE CIRCUIT; SET TO TRIP AT 75 PERCENT OF RATED VOLTAGE.
 - 8. REMOTELY CONTROLLED MOTORIZED BREAKER (RCMB): MOTOR DRIVE TO OPEN AND CLOSE CONTACTS WHEN THE BREAKER IS IN THE "ON" POSITION CONTROLLED BY INTEGRAL MICROPROCESSOR.
 - 9. APPLICATION LISTING: APPROPRIATE FOR APPLICATION.
 - a. TYPE SMD FOR SWITCHING LIGHTING LOADS.
 - b. TYPE HACR FOR HEATING, AIR CONDITIONING AND REFRIGERATION CIRCUITS.
 - 10. ACCESSORIES: PROVIDE LOCK ON (LO) HANDLE, CLAMP DEVICES OR PADLOCK PROVISIONS FOR LOCKOUT WHERE REQUIRED.
- B. BOLTED-PRESSURE CONTACT SWITCH OPERATING MECHANISM USES ROTARY-MECHANICAL-BOLTING ACTION TO PRODUCE AND MAINTAIN HIGH CLAMPING PRESSURE ON THE SWITCH BLADE AFTER IT ENGAGES THE STATIONARY CONTACTS.
 - 1. UTILIZED FOR MAIN SWITCH GREATER THAN 800A ONLY.
 - 2. MAIN-CURRENT INTERRUPTING CAPABILITY: MINIMUM OF 12 TIMES THE SWITCH CURRENT RATING.
 - 3. OPERATING MECHANISM: MANUAL HANDLE OPERATION TO CLOSE SWITCH; STORES ENERGY IN MECHANISM FOR OPENING AND CLOSING.
 - 4. SERVICE-RATED SWITCHES: LABELED FOR USE AS SERVICE EQUIPMENT.
 - 5. GROUND-FAULT RELAY: COMPLY WITH UL 1063; SELF-POWERED TYPE WITH MECHANICAL GROUND-FAULT INDICATOR, TEST FUNCTION, TRIPPING RELAY WITH INTERNAL MEMORY, AND THREE-PHASE CURRENT TRANSFORMER/SENSOR.
- C. FUSIBLE SWITCH: NEMA KS 1, HEAVY DUTY TYPE WITH CLIPS OR BOLT PADS TO ACCOMMODATE SPECIFIED FUSES. LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.
- D. NONREVERSIBLE SWITCH: NEMA KS 1, HEAVY DUTY TYPE LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.
- E. FUSES: COMPLY WITH NEMA FU 1; COORDINATE FUSE RATINGS WITH UTILIZATION EQUIPMENT NAMEPLATE LIMITATIONS OF MAXIMUM FUSE SIZE.
- F. MOTOR STARTERS: PROVIDE FULL VOLTAGE MAGNETIC STARTERS FOR SINGLE MOTORS LESS THAN 10 HP AND REDUCED VOLTAGE STARTERS FOR MOTORS 10 HP AND LARGER UNLESS OTHERWISE INDICATED. PROVIDE WITH AUXILIARY CONTROL COMPONENTS AS REQUIRED. INCLUDE ONE OVERLOAD RELAY PER PHASE, SIZED FOR 115 PERCENT OF FULL LOAD MOTOR CURRENT. VERIFY ALL STARTER SIZES AND OVERLOAD PROTECTION WITH MECHANICAL CONTRACTOR.

1.9 INSTALLATION

- A. INSTALL SWITCHBOARDS, FLOOR-MOUNTED PANELBOARDS AND TRANSFORMERS LARGER THAN 75 KVA ON CONCRETE BASE, 4-INCH NOMINAL THICKNESS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- B. MOUNT PANELBOARD CABINETS PLUMB AND RIGID WITHOUT DISTORTION OF BOX. MOUNT RECESSED PANELBOARDS WITH FRONTS UNIFORMLY FLUSH WITH WALL FINISH AND MATING WITH BACK BOX.
- C. INSTALL OVERCURRENT PROTECTIVE DEVICES, TRANSIENT VOLTAGE SUPPRESSION DEVICES, AND OTHER ACCESSORIES NOT ALREADY FACTORY INSTALLED AND SET FIELD-ADJUSTABLE SWITCHES AND CIRCUIT-BREAKER TRIP RANGES.
- D. INSTALL FUSES IN FUSIBLE DEVICES. ARRANGE FUSES SO RATING INFORMATION IS READABLE WITHOUT REMOVING FUSE.
- E. INSTALL FILLER PLATES IN UNUSED SPACES.
- F. STUB FOUR 1-INCH EMPTY CONDUITS FROM PANELBOARD INTO ACCESSIBLE CEILING SPACE OR SPACE DESIGNATED TO BE CEILING SPACE IN THE FUTURE.

- G. ARRANGE CONDUCTORS IN OUTTERS INTO GROUPS AND BUNDLE AND WRAP WITH WIRE TIES.
- H. ADJUST MOVING PARTS AND OPERABLE COMPONENTS TO FUNCTION SMOOTHLY, AND LUBRICATE AS RECOMMENDED BY MANUFACTURER.

SECTION 262726 - WIRING DEVICES

1.1 MANUFACTURERS

- A. OBTAIN EACH TYPE OF WIRING DEVICE AND ASSOCIATED WALL PLATE THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER.

1.2 RECEPTACLES

- A. COMPLY WITH NEMA WD 1, NEMA WD 6 AND UL 498.
- B. DUPLEX RECEPTACLES, 120 V, 20A COMMERCIAL GRADE, 5-20R.
 - 1. GFCI RECEPTACLES: COMPLY WITH UL 943, CLASS A FEED-THROUGH TYPE WITH INDICATOR LIGHT THAT IS ILLUMINATED WHEN DEVICE IS TRIPPED.
 - 2. ISOLATED-GROUND RECEPTACLES: EQUIPMENT GROUNDING CONTACTS SHALL BE CONNECTED ONLY TO THE GREEN GROUNDING SCREW TERMINAL OF THE DEVICE AND WITH INHERENT ELECTRICAL ISOLATION FROM MOUNTING STRAP. ISOLATION SHALL BE INTEGRAL TO RECEPTACLE CONSTRUCTION AND NOT DEPENDENT ON REMOVABLE PARTS.
- C. PENDANT CORD-CONNECTOR DEVICES: MATCHING, LOCKING-TYPE PLUG AND RECEPTACLE BODY CONNECTOR, VOLTAGE AND CURRENT RATING AS REQUIRED, HEAVY-DUTY GRADE.
 - 1. BODY: NYLON WITH SCREW-OPEN CABLE-GRIPPING JAWS AND PROVISION FOR ATTACHING EXTERNAL CABLE GRIP.
 - 2. PLUG: NYLON BODY AND INTEGRAL CABLE-CLAMPING JAWS. MATCH CORD AND RECEPTACLE TYPE FOR CONNECTION.
- D. CORD AND PLUG SETS: MATCH VOLTAGE AND CURRENT RATINGS AND NUMBER OF CONDUCTORS TO REQUIREMENTS OF EQUIPMENT BEING CONNECTED.
 - 1. CORD: RUBBER-INSULATED, STRANDED-COPPER CONDUCTORS, WITH TYPE SOW-A JACKET, WITH GREEN-INSULATED GROUNDING CONDUCTOR AND EQUIPMENT-RATING AMPACITY FOR CIRCUIT.
 - 2. PLUG: NYLON BODY AND INTEGRAL CABLE-CLAMPING JAWS. MATCH CORD AND RECEPTACLE TYPE FOR CONNECTION.

1.3 SNAP SWITCHES

- A. COMPLY WITH NEMA WD 1 AND UL 20.
- B. SWITCHES, 120/277 V, 20 A COMMERCIAL GRADE (SINGLE POLE, TWO POLE, THREE WAY, FOUR WAY):
 - 1. PILOT LIGHT SWITCHES: NEON-LIGHTED HANDLE, ILLUMINATED WHEN SWITCH IS "ON."
 - 2. LIGHTED SWITCHES: NEON-LIGHTED HANDLE, ILLUMINATED WHEN SWITCH IS "OFF."
 - 3. KEY-OPERATED SWITCHES: FACTORY-SUPPLIED KEY IN LEV OF SWITCH HANDLE.
 - 4. MOTOR-RATED SWITCHES: 1 HP AT 120 V; 2 HP AT 277V.

1.4 FINISHES

- A. WIRING DEVICES CONNECTED TO NORMAL POWER SYSTEM: Ivory, UNLESS OTHERWISE INDICATED OR REQUIRED BY NFPA 70 OR DEVICE LISTING.
- B. ISOLATED-GROUND RECEPTACLES: ORANGE, WITH GREEN TRIANGLE.

1.5 WALL PLATES

- A. SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES.
 - 1. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH.
 - 2. MATERIAL FOR FINISHED SPACES: 0.035-INCH THICK, SATIN-FINISHED STAINLESS STEEL.
 - 3. MATERIAL FOR UNFINISHED SPACES: GALVANIZED STEEL.
- B. LAMP OR NET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH 3R WEATHER-RESISTANT, GASKETED, THERMOPLASTIC ENCLOSURE, LISTED AND LABELED FOR USE IN "WET LOCATIONS." THE WEATHERPROOF INTEGRITY OF THE ENCLOSURE SHALL NOT BE AFFECTED WHEN THE RECEPTACLE IS IN USE (ATTACHMENT PLUG CAP INSERTED).

1.6 INSTALLATION

- A. DEVICE INSTALLATION:
 - 1. REPLACE ALL DEVICES THAT HAVE BEEN IN TEMPORARY USE DURING CONSTRUCTION.
 - 2. CONNECT DEVICES TO BRANCH CIRCUITS USING PIGTAILS THAT ARE NOT LESS THAN 6 INCHES IN LENGTH, WHEN CONDUCTORS LARGER THAN NO. 12 AWG ARE INSTALLED ON 15- OR 20-A CIRCUITS, SPLICE NO. 12 AWG PIGTAILS FOR DEVICE CONNECTIONS.
 - 3. WHEN THERE IS A CHOICE, USE SIDE WIRING WITH BINDING-HEAD SCREW TERMINALS. WRAP SOLID CONDUCTOR TIGHTLY CLOUDBOX, 2/3 TO 3/4 OF THE WAY AROUND TERMINAL. SCREW TIGHTEN UNUSED TERMINAL SCREWS ON THE DEVICE.
 - 4. WHEN MOUNTING INTO METAL BOXES, REMOVE THE FIBER OR PLASTIC WASHERS USED TO HOLD DEVICE MOUNTING SCREWS IN YOKES, ALLOWING METAL-TO-METAL CONTACT.
- B. ARRANGEMENT OF DEVICES: INSTALL GROUND PIN OF VERTICALLY MOUNTED RECEPTACLES DOWN, AND ON HORIZONTALLY MOUNTED RECEPTACLES TO THE RIGHT; GROUP ADJACENT SWITCHES UNDER SINGLE, MULTIGANG WALL PLATES.

SECTION 265500 - LIGHT FIXTURES AND LIGHTING CONTROLS

1.1 SUBMITTALS

- A. PRODUCT DATA FOR EACH LIGHT FIXTURE TYPE AND CONTROL DEVICE INDICATED ON DRAWINGS AND IN SPECIFICATIONS.

1.2 LIGHT FIXTURES

- A. PROVIDE LIGHTING FIXTURES AS LISTED IN LIGHTING FIXTURE SCHEDULE ON DRAWINGS COMPLETE WITH LAMPS, BALLASTS, LAMP HOLDERS, LENSES, DIFFUSERS, REFLECTORS, WIRING, ETC.
- B. FIXTURES INSTALLED IN CEILING SHALL BE LISTED FOR USE IN THE APPLICATION INCLUDING, BUT NOT LIMITED TO, DIRECT CONTACT WITH INSULATION, PLENUM SPACES AND FIRE-RATED ASSEMBLIES. PROVIDE NECESSARY COMPONENTS AND ACCESSORIES AS REQUIRED.
- C. FIXTURES INSTALLED IN HET OR DAMP LOCATIONS SHALL BEAR THE UL LISTING "HET" OR "DAMP" LABEL.
- D. EXTERIOR FIXTURES SHALL HAVE BALLASTS AND LAMPS COMPATIBLE FOR OPERATION AT 0 DEGREES F.
- E. SITE LIGHTING POLES SHALL BE EQUIPPED WITH A SHEET METAL BASE COVER TO CONCEAL ALL ANCHOR BOLTS.
- F. THE FIXTURE SUPPLIER SHALL PROVIDE ALL NECESSARY HANGING OR MOUNTING HARDWARE FOR ALL FIXTURES AND SHALL BE RESPONSIBLE FOR VERIFYING ACCESSORIES AND OPTIONS REQUIRED FOR THE INSTALLATION CONDITIONS PRIOR TO ORDERING THE FIXTURE.

1.3 LAMPS

- A. PROVIDE LAMP(S) FOR EACH FIXTURE AS INDICATED IN LIGHTING FIXTURE SCHEDULE ON DRAWINGS. LAMP TYPE, SIZE, WATTAGE, AND MOUNTING ORIENTATION SHALL BE AS RECOMMENDED BY LAMP AND FIXTURE MANUFACTURERS. COORDINATE ALL REQUIREMENTS PRIOR TO LAMP INSTALLATION.

1.4 TIME SWITCHES

- A. ELECTRONIC TIME SWITCHES: SOLID-STATE PROGRAMMABLE ASTRONOMIC TIME UNITS WITH ALPHANUMERIC DISPLAY AND BATTERY BACKUP; COMPLY WITH UL 917.
- B. CONTACTS SHALL BE DPDT, RATED FOR 30-A INDUCTIVE OR RESISTIVE AT REQUIRED VOLTAGE.

1.5 OUTDOOR PHOTOELECTRIC SWITCHES

- A. DESCRIPTION: SOLID STATE, WITH DPST DRY CONTACTS RATED FOR 2000-VA TUNGSTEN OR 1800-VA INDUCTIVE, TO OPERATE CONNECTED LOAD, RELAY, CONTACTOR COILS, OR MICROPROCESSOR INPUT; COMPLYING WITH UL 773A.
 - 1. LIGHT-LEVEL MONITORING RANGE: 1.5 TO 10 FC, WITH AN ADJUSTMENT FOR TURN-ON AND TURN-OFF LEVELS WITHIN THAT RANGE, AND A DIRECTIONAL LENS IN FRONT OF PHOTOCELL TO PREVENT FIXED LIGHT SOURCES FROM CAUSING TURN-OFF.
 - 2. TIME DELAY: 15-SECOND MINIMUM, TO PREVENT FALSE OPERATION.
 - 3. MOUNTINGS: TWIST LOCK COMPLYING WITH IEEE C136.10, WITH BASE-AND-STEM MOUNTING OR STEM-AND-SWIVEL MOUNTING ACCESSORIES AS REQUIRED TO DIRECT SENSOR TO THE NORTH SKY EXPOSURE.

1.6 INDOOR OCCUPANCY SENSORS

- A. DESCRIPTION: WALL- OR CEILING-MOUNTING, SOLID-STATE UNITS TO TURN LIGHTS ON WHEN COVERED AREA IS OCCUPIED AND OFF WHEN UNOCCUPIED; WITH A TIME DELAY FOR TURNING LIGHTS OFF, ADJUSTABLE OVER A MINIMUM RANGE OF 1 TO 15 MINUTES.
 - 1. SENSORS SHALL HAVE BYPASS SWITCH FOR OVERRIDE IN CASE OF SENSOR FAILURE AND LED INDICATOR TO SHOW WHEN MOTION IS BEING DETECTED.
 - 2. CONTACTS SHALL BE RATED FOR 20-A BALLAST LOAD AT 120- AND 277-V AC, FOR 13-A TUNGSTEN AT 120-V AC, AND FOR 1 HP AT 120-V AC. CONTACTS MAY BE INTEGRAL TO SENSOR OR THROUGH A SEPARATE RELAY; POWER SUPPLY TO SENSOR SHALL BE 24-V DC, 150-MA, CLASS 2 POWER SOURCE AS DEFINED BY NFPA 70. COMPLY WITH UL 773A.
 - 3. AUTOMATIC LIGHT-LEVEL SENSOR: ADJUSTABLE FROM 2 TO 200 FC; KEEP LIGHTING OFF WHEN SELECTED LIGHTING LEVEL IS PRESENT.

- B. PASSIVE INFRARED (PIR) TYPE: DETECT OCCUPANCY BY SENSING A COMBINATION OF HEAT AND 6-INCH MINIMUM MOVEMENT OF ANY PORTION OF A HUMAN BODY THAT PRESENTS A TARGET OF NOT LESS THAN 36 SQ. IN.
- C. ULTRASONIC TYPE: DETECT OCCUPANCY BY SENSING A CHANGE IN PATTERN OF REFLECTED ULTRASONIC ENERGY IN AREA OF COVERAGE FOR A PERSON OF AVERAGE SIZE AND WEIGHT MOVING NOT LESS THAN 12 INCHES IN EITHER A HORIZONTAL OR A VERTICAL MANNER AT AN APPROXIMATE SPEED OF 12 INCHES/SEC.
- D. DUAL-TECHNOLOGY TYPE: DETECT OCCUPANCY BY USING A COMBINATION OF PIR AND ULTRASONIC DETECTION METHODS IN AREA OF COVERAGE. PARTICULAR TECHNOLOGY OR COMBINATION OF TECHNOLOGIES THAT CONTROLS ON-OFF FUNCTIONS SHALL BE SELECTABLE IN THE FIELD BY OPERATING CONTROLS ON UNIT WITH SEPARATE SENSITIVITY ADJUSTMENT FOR EACH TECHNOLOGY.
- E. PROVIDE SENSORS WITH COVERAGE SUITABLE FOR SIZE AND SHAPE OF CONTROLLED SPACE AT PRESCRIBED MOUNTING HEIGHT AND LOCATION.

1.7 LIGHTING CONTACTORS

- A. DESCRIPTION: ELECTRICALLY OPERATED AND ELECTRICALLY HELD, COMPLYING WITH NEMA CS 2 AND UL 508.
 - 1. CURRENT RATING FOR SWITCHING: LISTING OR RATING CONSISTENT WITH TYPE OF LOAD SERVED.
 - 2. FAULT CURRENT WITHSTAND RATING: EQUAL TO OR EXCEEDING THE AVAILABLE FAULT CURRENT AT THE POINT OF INSTALLATION.
- B. ENCLOSURE: COMPLY WITH NEMA 250.
- C. MOUNTING: MOUNT CONTACTORS WITH ELASTOMERIC ISOLATOR PADS UNLESS CONTACTORS ARE INSTALLED IN AN ENCLOSURE WITH FACTORY-INSTALLED VIBRATION ISOLATORS.

1.8 LIGHTING CONTROL SYSTEMS

- A. PROVIDE A LIGHTING CONTROL SYSTEM CONSISTING OF RELAY/CONTACTOR PANEL(S), CONTROL SWITCHES, OCCUPANCY SENSORS, PHOTOCELLS AND OTHER CONTROLLING DEVICES. THE DEVICES ARE CONNECTED BY LOW VOLTAGE AND LINE VOLTAGE WIRING. THE GENERAL OPERATION OF LIGHTING AND CONTROLLED LOADS SHALL INCLUDE:
 - 1. INTERIOR LIGHTING: MANUAL SWITCH AND OCCUPANCY SENSOR CONTROL ON/OFF WITH AUTOMATIC TIME SCHEDULED SHUT OFF.
 - 2. SCHEDULED ON/OFF LOADS: TIME ON, TIME OFF BY AUTOMATIC TIME SCHEDULE WITH AFTER HOUR OVERRIDE CAPABILITY AND SHUTOFF.
 - 3. EXTERIOR LIGHTING: PHOTOCELL OR ASTRONOMIC ON/TIME OFF, TIME ON/PHOTOCELL OR ASTRONOMIC OFF.
 - 4. EXTERIOR SECURITY LIGHTING: PHOTOCELL OR ASTRONOMIC ON, PHOTOCELL OR ASTRONOMIC OFF.
- B. PROVIDE LIGHTING CONTROL PANELS IN THE LOCATIONS AND CAPACITIES AS INDICATED ON THE PLANS AND SCHEDULES. EACH PANEL SHALL BE OF MODULAR CONSTRUCTION AND CONSIST OF THE FOLLOWING COMPONENTS:
 - 1. ENCLOSURE SHALL BE NEMA 1, NEMA 3R, OR NEMA 4, SIZED TO ACCEPT THE REQUIRED NUMBER OF RELAYS. COVERS SHALL BE CONTIGUOUS FOR SURFACE OR FLUSH WALL MOUNTING OF THE PANEL AS INDICATED ON THE PLANS. THE PANEL COVER SHALL HAVE A HINGED AND LOCKABLE DOOR WITH RESTRICTED ACCESS TO LINE VOLTAGE SECTION OF THE PANEL.
 - 2. INTERIOR ASSEMBLY SHALL BE SUPPLIED AS A FACTORY ASSEMBLED COMPONENT SPECIFICALLY DESIGNED AND LISTED FOR FIELD INSTALLATION. THE INTERIOR CONSTRUCTION SHALL PROVIDE TOTAL ISOLATION OF LINE VOLTAGE (CLASS 1) WIRING FROM LOW VOLTAGE (CLASS 2) WIRING WITHIN THE ASSEMBLED PANEL.
 - 3. RELAYS SHALL BE LATCHING TYPE WITH MODULAR PLUG-IN DESIGN WITH THE FOLLOWING RATINGS:
 - a. 30 AMP BALLAST AT 277V.
 - b. 20 AMP TUNGSTEN AT 120V.
 - c. 1.5 HP MOTOR AT 120V.
 - d. 10,000 AMP SHORT CIRCUIT CURRENT AT 120V.
 - e. 14,000 AMP SHORT CIRCUIT CURRENT AT 277V.

1.9 INSTALLATION

- A. FIXTURES ARE LOCATED FOR SYMMETRICAL PATTERNS AND TO SUIT STRUCTURAL CONDITIONS. MAJOR CHANGES IN LOCATION OF OUTLETS SHALL BE APPROVED BY THE ARCHITECT. CONSULT FINISH SCHEDULE AND ARCHITECTURAL DRAWINGS FOR CEILING AND WALL CONSTRUCTION AND FINISH.
- B. FIELD LOCATE LIGHT FIXTURES TO AVOID CONFLICTS WITH MECHANICAL AND OTHER EQUIPMENT. DO NOT LOCATE LIGHT FIXTURES NEAR HEAT SOURCES THAT EXCEED MANUFACTURER WARRANTED TEMPERATURE LEVELS.
- C. COORDINATE LAYOUT AND INSTALLATION OF CEILING-MOUNTED DEVICES WITH OTHER CONSTRUCTION THAT PENETRATES CEILING OR IS SUPPORTED BY THEM, INCLUDING LIGHT FIXTURES, HVAC EQUIPMENT, SMOKE DETECTORS, FIRE-SUPPRESSION SYSTEM, AND PARTITION ASSEMBLIES.
- D. RECESSED FIXTURES IN LAY IN TYPE CEILING GRID SYSTEMS SHALL BE SUPPORTED INDEPENDENT OF THE CEILING GRID SYSTEM. FIXTURES SHALL HAVE A GALVANIZED #12 WIRE ATTACHED TO THE BUILDING STRUCTURE. PROVIDE TWO (2) WIRES MINIMUM FOR INDIVIDUAL FIXTURES ATTACHED TO OPPOSITE CORNERS OF THE FIXTURE. THE FIXTURES SHALL ALSO HAVE "EARTHQUAKE" CLIPS INSTALLED AT ALL FOUR (4) CORNERS OF THE FIXTURE THAT POSITIVELY ATTACH THE FIXTURE TO THE SUSPENSION SYSTEM. EACH ATTACHMENT DEVICE SHALL HAVE THE CAPACITY OF SUPPORTING 100 PERCENT OF THE FIXTURE WEIGHT IN ANY DIRECTION. EACH FIXTURE SHALL BE WIRED WITH A 72" PIECE OF FLEXIBLE CONDUIT CONNECTED TO A BLANK COVERED JUNCTION BOX LOCATED IN THE ACCESSIBLE CEILING SPACE WITHIN 36" OF THE FIXTURE CONNECTION POINT.
- E. PENDANT FIXTURES IN SUSPENDED LAY-IN GRID CEILING SHALL BE SUPPORTED INDEPENDENT OF THE CEILING GRID AND OUTLET BOX. SUPPORT SHALL CONSIST OF NO. 9 SUPPORT WIRE OR 1/4" THREADED ROD ATTACHED TO THE BUILDING STRUCTURE. UTILIZE MANUFACTURER'S STANDARD HARDWARE FOR ATTACHMENT TO FIXTURE.
- F. SUPPORT SURFACE AND PENDANT MOUNT FIXTURES IN EXCESS OF 50 LBS. INDEPENDENTLY OF OUTLET BOX. ATTACH TO ROOF, FLOOR, OR CEILING ABOVE USING LAG SCREWS, LAG BOLTS, THREADED ROD, TOGGLE BOLTS, OR CNCH ANCHORS TO SUPPORT FIXTURE PLUS 100 LBS. AT EACH SUPPORT.
- G. FIXTURES AND LAMPS SHALL BE LEFT CLEAN AT THE TIME OF ACCEPTANCE OF THE WORK AND EVERY ITEM SHALL BE IN PROPER OPERATION, IF FIXTURES ARE DIRTY AT COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL CLEAN THEM AT NO ADDITIONAL COST TO THE OWNER.
- H. DO NOT INSTALL FIXTURE LENS ENCLOSURES OR LOUVERS IN FIXTURES UNTIL GENERAL CONSTRUCTION WORK IS COMPLETE, INCLUDING PAINTING.
- I. INSTALL AND AIM SENSORS IN LOCATIONS TO ACHIEVE NOT LESS THAN 90 PERCENT COVERAGE OF AREAS INDICATED. DO NOT EXCEED COVERAGE LIMITS SPECIFIED IN MANUFACTURER'S WRITTEN INSTRUCTIONS.
- J. AFTER INSTALLATION AND ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, VERIFY OPERATION OF EACH DEVICE, AND TEST FOR COMPLIANCE WITH REQUIREMENTS AND ADJUST AS NECESSARY FOR PROPER OPERATION.

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ITD MAINTENANCE BLDG. IMPROVEMENTS
CALDWELL, IDAHO
15430 HIGHWAY 44

PROJECT DATE
22123.00 1/20/23

DRAWN CHECKED
JLB JLB

REVISED

SHEET TITLE

SHEET SPECIFICATIONS

SHEET

E02B

ORIGINAL SHEET SIZE
30" x 42"

COMcheck Software Version 4.1.5.5
Interior Lighting Compliance Certificate

Project Information
Energy Code: 2018 IECC
Project Title: ITD MAINTENANCE BLDG.
Project Type: Addition
Construction Site: 15430 Highway 44, Caldwell, ID
Owner/Agent: CSHQA, 200 W. Broad Street, Boise, ID 83702
Designer/Contractor: Jaydn Benart, CSHQA, 200 W. Broad Street, Boise, ID 83702

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts (B X C)
1-CORRIDOR 107 (Common Space Types:Corridor/Transition <8 ft wide)	546	0.56	300
2-CONFERENCE 102 (Common Space Types:Conference/Meeting/Multipurpose)	145	1.07	155
3-OFFICE 103 (Common Space Types:Office - Enclosed)	130	0.93	121
4-BREAK ROOM 104 (Common Space Types:Lounge/Breakroom)	321	0.62	199
5-RESTROOMS 105.107 (Common Space Types:Restrooms)	244	0.85	207
6-1.T. CLOSET 106 (Common Space Types:Storage <50 sq.ft.)	36	0.46	17
7-COPY ROOM 108 (Common Space Types:Copy/Print Room)	87	0.56	49
8-OPEN OFFICE 109 (Common Space Types:Office - Open Plan)	1396	0.81	1131
9-UNISEX 110, 111 (Common Space Types:Restrooms)	110	0.85	94
10-DECON ROOM 112 (Common Space Types:Restrooms)	43	0.85	37
11-SHOP SUPPLIES 113 (Common Space Types:Storage >=50 <-<1000 sq.ft.)	70	0.46	32
12-FIELD SUPPLIES STORAGE 114 (Common Space Types:Storage >=50 <-<1000 sq.ft.)	129	0.46	59
13-OFFICE STORAGE 115 (Common Space Types:Storage >=50 <-<1000 sq.ft.)	52	0.46	24
16-MECHANIC OFFICE 118 (Common Space Types:Office - Enclosed)	89	0.93	83
17-MECHANIC STORAGE 119 (Common Space Types:Storage >=50 <-<1000 sq.ft.)	153	0.46	70
15-SHOP AREA 116 (Common Space Types:Workshop)	10042	1.14	11448
14-JANITOR 117 (Common Space Types:Storage <50 sq.ft.)	35	0.46	16
18-WORK SPACE 201 (Common Space Types:Office - Open Plan)	242	0.81	196
19-BREAKROOM 202 (Common Space Types:Lounge/Breakroom)	716	0.62	444
20-LOCKERS 203 (Common Space Types:Locker Room)	118	0.48	57
21-FORHUMAN OFFICE 204 (Common Space Types:Office - Enclosed)	233	0.93	217
22-MECH 205 (Common Space Types:Electrical/Mechanical)	90	0.43	39
23-JANITOR 206 (Common Space Types:Storage <50 sq.ft.)	22	0.46	10
24-UNISEX 207 (Common Space Types:Restrooms)	58	0.85	49
Total Allowed Watts =			15113

Proposed Interior Lighting Power
Project Title: ITD MAINTENANCE BLDG. Report date: 01/23/23
Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\80 Elec\05_Calcs\22123 ComCheck.cck Page 1 of 11

Jaydn Benart - Designer
Signature: Jaydn Benart
Date: 01/23/23

Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps / Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-CORRIDOR 107 (Common Space Types:Corridor/Transition <8 ft wide) LED 1: 2S1: LED 2X2 FLAT PANEL: Other	1	9	31	279
2-CONFERENCE 102 (Common Space Types:Conference/Meeting/Multipurpose) LED 2: 2S1: LED 2X2 FLAT PANEL: Other	1	2	31	62
3-OFFICE 103 (Common Space Types:Office - Enclosed) LED 3: 2S1: LED 2X2 FLAT PANEL: Other	1	2	31	62
4-BREAK ROOM 104 (Common Space Types:Lounge/Breakroom) LED 4: 2S1: LED 2X2 FLAT PANEL: Other	1	6	31	186
5-RESTROOMS 105.107 (Common Space Types:Restrooms) LED 5: 2S1: LED 2X2 FLAT PANEL: Other	1	4	31	124
LED 6: V1: LED 3' VANITY: Other	1	2	26	52
6-1.T. CLOSET 106 (Common Space Types:Storage <50 sq.ft.) LED 7: 2S1: LED 2X2 FLAT PANEL: Other	1	1	31	31
7-COPY ROOM 108 (Common Space Types:Copy/Print Room) LED 8: 2P1: LED 2X2 FLAT PANEL: Other	1	1	31	31
8-OPEN OFFICE 109 (Common Space Types:Office - Open Plan) LED 9: 2P1: LED 2X2 TROFFER: Other	1	24	26	624
9-UNISEX 110, 111 (Common Space Types:Restrooms) LED 10: 2S1: LED 2X2 FLAT PANEL: Other	1	2	31	62
10-DECON ROOM 112 (Common Space Types:Restrooms) LED 11: LP1: LED 3' LINEAR: Other	1	1	33	33
11-SHOP SUPPLIES 113 (Common Space Types:Storage >=50 <-<1000 sq.ft.) LED 12: 2P1: LED 2X2 TROFFER: Other	1	1	26	26
12-FIELD SUPPLIES STORAGE 114 (Common Space Types:Storage >=50 <-<1000 sq.ft.) LED 13: 2P1: LED 2X2 TROFFER: Other	1	2	26	52
13-OFFICE STORAGE 115 (Common Space Types:Storage >=50 <-<1000 sq.ft.) LED 14: 2P1: LED 2X2 TROFFER: Other	1	1	26	26
16-MECHANIC OFFICE 118 (Common Space Types:Office - Enclosed) LED 15: 2P1: LED 2X2 TROFFER: Other	1	2	26	52
17-MECHANIC STORAGE 119 (Common Space Types:Storage >=50 <-<1000 sq.ft.) LED 16: LP1: LED 3' LINEAR: Other	1	2	33	67
15-SHOP AREA 116 (Common Space Types:Workshop) LED 17: HBI: LED HIGH BAY: Other	1	9	107	963
LED 18: HBI: EXISTING LED HIGH BAY: Other	1	25	107	2675
14-JANITOR 117 (Common Space Types:Storage <50 sq.ft.) LED 19: LP1: LED 3' LINEAR: Other	1	1	33	33
18-WORK SPACE 201 (Common Space Types:Office - Open Plan) LED 20: 2P1: LED 2X2 FLAT PANEL: Other	1	3	31	93
19-BREAKROOM 202 (Common Space Types:Lounge/Breakroom) LED 21: 2P1: LED 2X2 FLAT PANEL: Other	1	7	31	217
20-LOCKERS 203 (Common Space Types:Locker Room) LED 22: 2P1: LED 2X2 FLAT PANEL: Other	1	2	31	62
21-FORHUMAN OFFICE 204 (Common Space Types:Office - Enclosed) LED 23: 2P1: LED 2X2 FLAT PANEL: Other	1	4	31	124
22-MECH 205 (Common Space Types:Electrical/Mechanical) LED 24: LP1: LED 3' LINEAR: Other	1	2	33	67
23-JANITOR 206 (Common Space Types:Storage <50 sq.ft.) LED 25: LP1: LED 3' LINEAR: Other	1	1	33	33
24-UNISEX 207 (Common Space Types:Restrooms) LED 26: LP1: LED 3' LINEAR: Other	1	1	33	33
LED 27: V1: LED 3' VANITY: Other	1	1	26	26

Project Title: ITD MAINTENANCE BLDG. Report date: 01/23/23
Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\80 Elec\05_Calcs\22123 ComCheck.cck Page 2 of 11

COMcheck Software Version 4.1.5.5
Inspection Checklist
Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the COMcheck software
Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req. ID	Plan Review	Complies?	Comments/Assumptions
C103.2 (PR4)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C103.2 (PR8)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C406 (PR9)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:
1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: ITD MAINTENANCE BLDG. Report date: 01/23/23
Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\80 Elec\05_Calcs\22123 ComCheck.cck Page 5 of 11

Total Proposed Watts = 6096

Interior Lighting PASSES: Design 60% better than code

Interior Lighting Compliance Statement
Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Jaydn Benart - Designer
Signature: Jaydn Benart
Date: 01/23/23

Project Title: ITD MAINTENANCE BLDG. Report date: 01/23/23
Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\80 Elec\05_Calcs\22123 ComCheck.cck Page 3 of 11

COMcheck Software Version 4.1.5.5
Exterior Lighting Compliance Certificate

Project Information
Energy Code: 2018 IECC
Project Title: ITD MAINTENANCE BLDG.
Project Type: Addition
Exterior Lighting Zone: 3 (Other (LZ3))
Construction Site: 15430 Highway 44, Caldwell, ID
Owner/Agent: CSHQA, 200 W. Broad Street, Boise, ID 83702
Designer/Contractor: Jaydn Benart, CSHQA, 200 W. Broad Street, Boise, ID 83702

Allowed Exterior Lighting Power

A Area/Space Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
BACKDOOR CANOPY (Pedestrian and vehicular entrances and exits) 3 ft of door	1	21	Yes	63
ENTRY CANOPY (Entry canopy) 18 ft ²	1	0.4	Yes	7
OUTDOOR LOT (Outdoor sales area) 3986 ft ²	1	0.35	Yes	1395
Total Tradable Watts (a) =				1465
Total Allowed Watts =				1465
Total Allowed Supplemental Watts (b) =				500

(a) Wattage thresholds are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 500 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps / Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
BACKDOOR CANOPY (Pedestrian and vehicular entrances and exits 3 ft of door width): Tradable Wattage LED 1: L1: LED 4' VAPOR TIGHT LINEAR: Other	1	1	33	33
ENTRY CANOPY (Entry canopy 18 ft ²): Tradable Wattage LED 2: S1: LED SURFACE MOUNT 3986 ft ² : Other	1	1	17	17
OUTDOOR LOT (Outdoor sales area) 3986 ft ² : Tradable Wattage LED 3: W1: LED WALL PACK: Other	1	7	54	378
LED 4: W2: LED WALL PACK: Other	1	1	97	97
Total Tradable Proposed Watts =				525

Exterior Lighting PASSES: Design 73% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Project Title: ITD MAINTENANCE BLDG. Report date: 01/23/23
Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\80 Elec\05_Calcs\22123 ComCheck.cck Page 4 of 11

Section # & Req. ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2 (EL22)	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1 (EL18)	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounge/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sq.ft. that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1 (EL19)	Occupancy sensors control function in warehouses, the lighting in aislesways and open areas is controlled with occupancy sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1 (EL20)	Occupant sensor control function in open plan office areas. Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.2 (EL21)	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Project Title: ITD MAINTENANCE BLDG. Report date: 01/23/23
Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\80 Elec\05_Calcs\22123 ComCheck.cck Page 7 of 11

Section # & Req. ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3 (EL23)	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3.2 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight-responsive control function and section C405.2.3.2. Sidelit zones.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 (EL26)	Separate lighting control devices for specific uses installed per approved lighting plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 (EL27)	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.5 (EL28)	Manual controls required by the energy code are in a location with ready access to occupants and located where the controlled lights are visible, or identify the area served and their status.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.6 (EL30)	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.3 (EL6)	Exit signs do not exceed 5 watts per face.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.6 (EL26)	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.7 (EL27)	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.8.2 (EL28)	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.9 (EL29)	Total voltage drop across the combination of feeders and branch circuits <= 5%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:
1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: ITD MAINTENANCE BLDG. Report date: 01/23/23
Data filename: Q:\2022\22123_0_Idaho_Trans_Dept_Dist_3_Caldwell_ID\80 Elec\05_Calcs\22123 ComCheck.cck Page 8 of 11



ORIGINAL DOCUMENTS ARE HELD AT CSHQA, INC. OFFICE, 300 W BROAD STREET, BOISE, ID 83702

JASON L. BRUNSON, P.E.
200 BROAD STREET
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PHONE: 208-348-4635 • FAX: 208-343-8858
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PROJECT: 22123.00 DATE: 1/20/23
DRAWN: JLB CHECKED: JLB
REVISED:

ENERGY COMPLIANCE FORMS

SHEET TITLE: ENERGY COMPLIANCE FORMS

SHEET: E03A

ORIGINAL SHEET SIZE: 30" x 42"



ORIGINAL DOCUMENTS ARE HELD AT
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CSHQA

PROJECT DATE
 22/23/01 1/20/23
 DRAWN BY
 C.D.C/D.C/D
 R.L. JLB
 REVIEWED

SHEET TITLE
 ENERGY COMPLIANCE FORMS

SHEET
E03B
 ORIGINAL SHEET SIZE
 30" x 42"

Section # & ID	Final Inspection	Compliant?	Comments/Assumptions
CRS 2.3 (117)	Furnished O&M instructions for system and equipment representative. <input type="checkbox"/> Compliant <input checked="" type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Applicable		
CRS 4.1 (118)	Interior installed lamp and fixture lighting power is consistent with plans, demonstrating proposed watts are less than or equal to allowed. <input type="checkbox"/> Compliant <input checked="" type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Applicable		See the Exterior Lighting fixture schedule for values.
CRS 5.1 (119)	Exterior lighting power is consistent with plans, demonstrating proposed watts are less than or equal to allowed. <input type="checkbox"/> Compliant <input checked="" type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Applicable		See the Exterior Lighting fixture schedule for values.
CRS 11 (120)	Building operations and maintenance procedures will be provided to the manufacturer's instructions, procedures and means of illustrating systems are intended to be installed, maintained, and operated for the life of the system. <input type="checkbox"/> Compliant <input checked="" type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Applicable		
CRS 3.3 (121)	Electric power systems within 90 days of system acceptance. <input type="checkbox"/> Compliant <input checked="" type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Applicable		
CRS 3 (122)	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation. <input type="checkbox"/> Compliant <input checked="" type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Applicable		

Additional Comments/Assumptions:



ORIGINAL DOCUMENTS ARE HELD AT:
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PROJECT: 22123.00 DATE: 1/20/23
 DRAWN: R/L CHECKED: JLB
 REVISED:

SHEET TITLE:
 LIGHTING
 FIXTURE
 AND
 CONTROL
 SCHEDULE

SHEET:
E04

ORIGINAL SHEET SIZE:
 30" x 42"

FIXTURE	DESCRIPTION	MANUFACTURER & PART NUMBER	LOAD IN WATS	VOLTAGE	LAMP TYPE	MOUNTING
ZP1	LED 2X2 FLAT PANEL	LITHONIA NO. CPANL 2X2 AL01 58W 1A EMERGENCY BATTERY: IRLP CP10 HE S0 A (WHERE INDICATED)	31	WVOLT	3500K	SUSPENDED
ZR1	LED 2X2 TROFFER	LITHONIA NO. ZBLT 33L 40W WOLT E21 LP35 EMERGENCY BATTERY: EL14 (WHERE INDICATED)	26	WVOLT	3500K	RECESSED
ZS1	LED 2X2 FLAT PANEL	LITHONIA NO. CPANL 2X2 AL01 58W 1A EMERGENCY BATTERY: IRLP CP10 HE S0 A (WHERE INDICATED)	31	WVOLT	3500K	SURFACE MOUNT
HBI	LED HIGH BAY	LITHONIA NO. BEE 15LM WOLT 40K	107	WVOLT	4000K	SUSPENDED
LP1	LED 3" LINEAR	LITHONIA NO. SHLP 36W 40K 80CR DWA	33.4	WVOLT	4000K	SUSPENDED
LS1	LED 4" VAPOR TIGHT LINEAR	LITHONIA NO. VAP 4000LM FST NO WOLT G210 40K 80CR SURFACE MOUNT KIT EMERGENCY BATTERY: BSL722C (WHERE INDICATED)	33	WVOLT	4000K	SURFACE MOUNT
SR1	SURFACE MOUNTED ENTRY	LITHONIA NO. OLEPM 15 DOB	16.6	120	4000K	SURFACE
V1	LED 3" VANITY	LITHONIA NO. FAVSL 36W WOLT 30K 90CR BK	26	WVOLT	3000K	WALL MOUNT
EX1	EXIT SIGN	LITHONIA NO. LGM S W 3 R 120/277 EL N W6	0.06	120		WALL MOUNT
EX2	EMERGENCY LIGHT	LITHONIA NO. EL124C	20	120		WALL MOUNT
WP1	LED WALL PACK	LITHONIA NO. TW2 LED P4 40K WOLT DOBDD	54	WVOLT	4000K	WALL MOUNT
WP2	LED WALL PACK	LITHONIA NO. TW3 LED P3 40K WOLT DOBDD	97	WVOLT	4000K	WALL MOUNT
WP3	LED WALL PACK, EMERGENCY DISCHARGE	LITHONIA NO. WPX1 LED P2 40K WOLT E14WC DOBDD	97	WVOLT	4000K	WALL MOUNT

CONTRACTOR MAY PROVIDE FIXTURES EQUAL TO THOSE SPECIFIED. SUBSTITUTED FIXTURES MUST MATCH SPECIFIED FIXTURE IN PERFORMANCE (LUMENS AND MOUNTAGE), APPEARANCE, SIZE AND QUALITY.
 ALL FIXTURES SHALL BE SUBJECT TO REVIEW BY CHECKER AT TIME OF LIGHTING FIXTURE SUBMITTAL. CONTRACTOR SHALL PROVIDE FIXTURES INDICATED ON SCHEDULE FOR ANY FIXTURES DEEMED NOT EQUAL BY THE ENGINEER.
 A. VERIFY MATERIALS AND FINISHES WITH OWNER PRIOR TO ORDERING. VERIFY MOUNTING HEIGHTS WITH FINISHED DECK, JOIST HEIGHTS, CEILING HEIGHTS PRIOR TO ORDERING AND ALLOW 2 WEEKS FOR DELIVERY.
 B. LIGHTING REPRESENTATIVE TO CONFIRM / VERIFY ALL ACCESSORIES TO ENSURE THE CONTRACTOR HAS COMPLETE LIGHTING SYSTEMS.
 C. DOWN LIGHTS IN CEILING SPACES SHALL HAVE MOUNTING FRAMES WITH A LOWER HOUSING RING OR PROVISIONS TO ACCOMMODATE CEILINGS.
 D. COORDINATE LIGHT FIXTURES IN SETTING WITH FINISHING CONTRACTOR.
 E. LIGHTING REPRESENTATIVE AND ELECTRICAL CONTRACTOR TO VERIFY DIMMING SYSTEM, OCCUPANCY AND DAYLIGHT SENSOR COMPATIBILITY WITH LIGHT FIXTURE.

1 LIGHT FIXTURE SCHEDULE
 SCALE: NONE

INTERIOR									
ROOM NUMBER	AREA DESCRIPTION	CONTROL TYPE				PROGRAMMING			
		MANUAL ON/OFF SWITCH	MANUAL DIMMER/ON/OFF SWITCH	OCCUPANCY SENSOR	TIMED CONTROL	BUSINESS HOURS		AFTER-BUSINESS HOURS	
						ON	AUTO OFF	ON (TYPICAL: SEE BUSINESS HOURS)	AUTO OFF (TYPICAL: SEE BUSINESS HOURS)
101	CORRIDOR		X	X	X	TIME CONTROL	CONTROL TRANSFERRED TO OCCUPANCY SENSORS AFTER BUSINESS HOURS.	OCCUPANCY SENSORS TO 50%	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
102	CONFERENCE		X	X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
103	OFFICE		X	X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
104	BREAKROOM		X	X	X	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	OCCUPANCY SENSORS TO 50%	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
105	WOMENS	X		X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
106	I.T. CLOSET	X				MANUAL	405.2.2 EXCEPTION 2		
107	MENS	X		X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
108	COPY		X	X	X	TIME CONTROL	CONTROL TRANSFERRED TO OCCUPANCY SENSORS AFTER BUSINESS HOURS.	OCCUPANCY SENSORS TO 50%	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
109	OPEN OFFICE		X	X	X	TIME CONTROL	CONTROL TRANSFERRED TO OCCUPANCY SENSORS AFTER BUSINESS HOURS.	OCCUPANCY SENSORS TO 50%	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
110	UNISEX	X		X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
111	UNISEX	X		X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
112	DECON ROOM	X				MANUAL	405.2.2 EXCEPTION 2		
113	SHOP SUPPLIES	X		X		MANUAL	OCCUPANCY SENSORS - 30 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
114	FIELD SUPPLIES STORAGE	X		X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
115	OFFICE STORAGE	X		X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
116	SHOP AREA	X				MANUAL	405.2.2 EXCEPTION 2		
117	JANITOR CLOSET	X		X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
118	MECHANIC OFFICE		X	X		MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY
119	MECHANIC STORAGE	X		X		OCCUPANCY SENSORS	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY	MANUAL	OCCUPANCY SENSORS - 20 MINUTES OF VACANCY

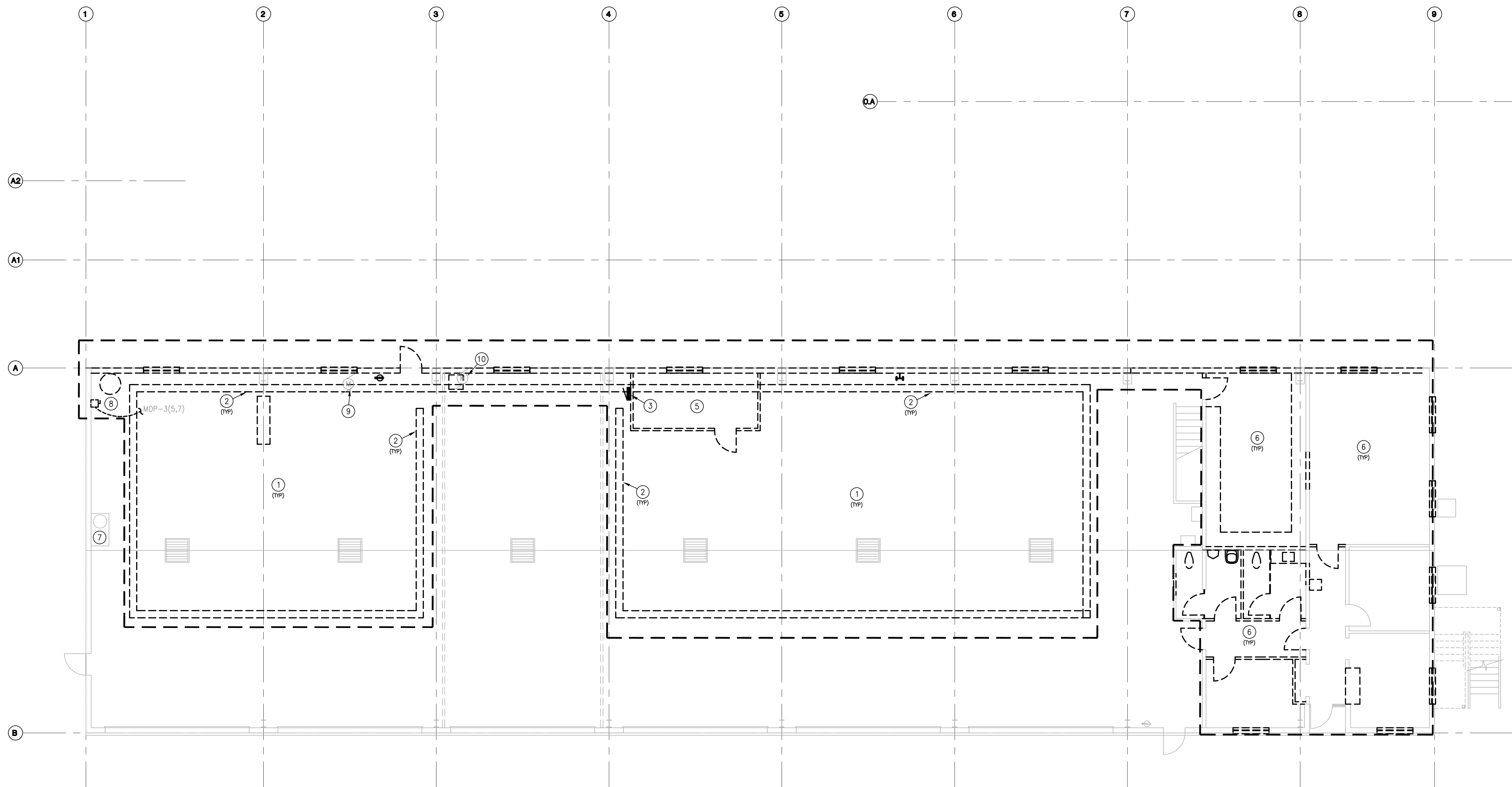
EXTERIOR							
FIXTURE ID	FIXTURE DESCRIPTION	CONTROL TYPE				NOTES	
		INTEGRATED PHOTOCELL	EXTERNAL PHOTOCELL	INTEGRATED AFTER-HOURS DIMMING	INTEGRATED OCCUPANCY SENSOR		TIME-SWITCH CONTROL
WP1, WP2	BUILDING MOUNTED AREA LIGHTS		X			X	ROUTE EXTERIOR LIGHTING CIRCUIT TO NEW LIGHTING CONTROL PANEL AND PHOTO CELL FOR CONTROL.
EXISTING	BUILDING MOUNTED AREA LIGHTS		X			X	INTEREPT AND EXTEND EXISTING EXTERIOR LIGHTING CIRCUIT TO NEW LIGHTING CONTROL PANEL CLOCK AND PHOTO CELL FOR CONTROL.
GENERAL NOTES:		1. REFER TO LIGHTING PLAN FOR OCCUPANCY SENSOR TYPE (CEILING OR WALL AND QUANTITY OF SWITCHES) 2. REFER TO LIGHTING PLANS FOR QUANTITY OF SWITCHES AND SENSORS. 3. EXTERIOR PHOTOCELL LOCATED ON ROOF. REFER TO LIGHTING PLAN.					

GENERAL NOTES:

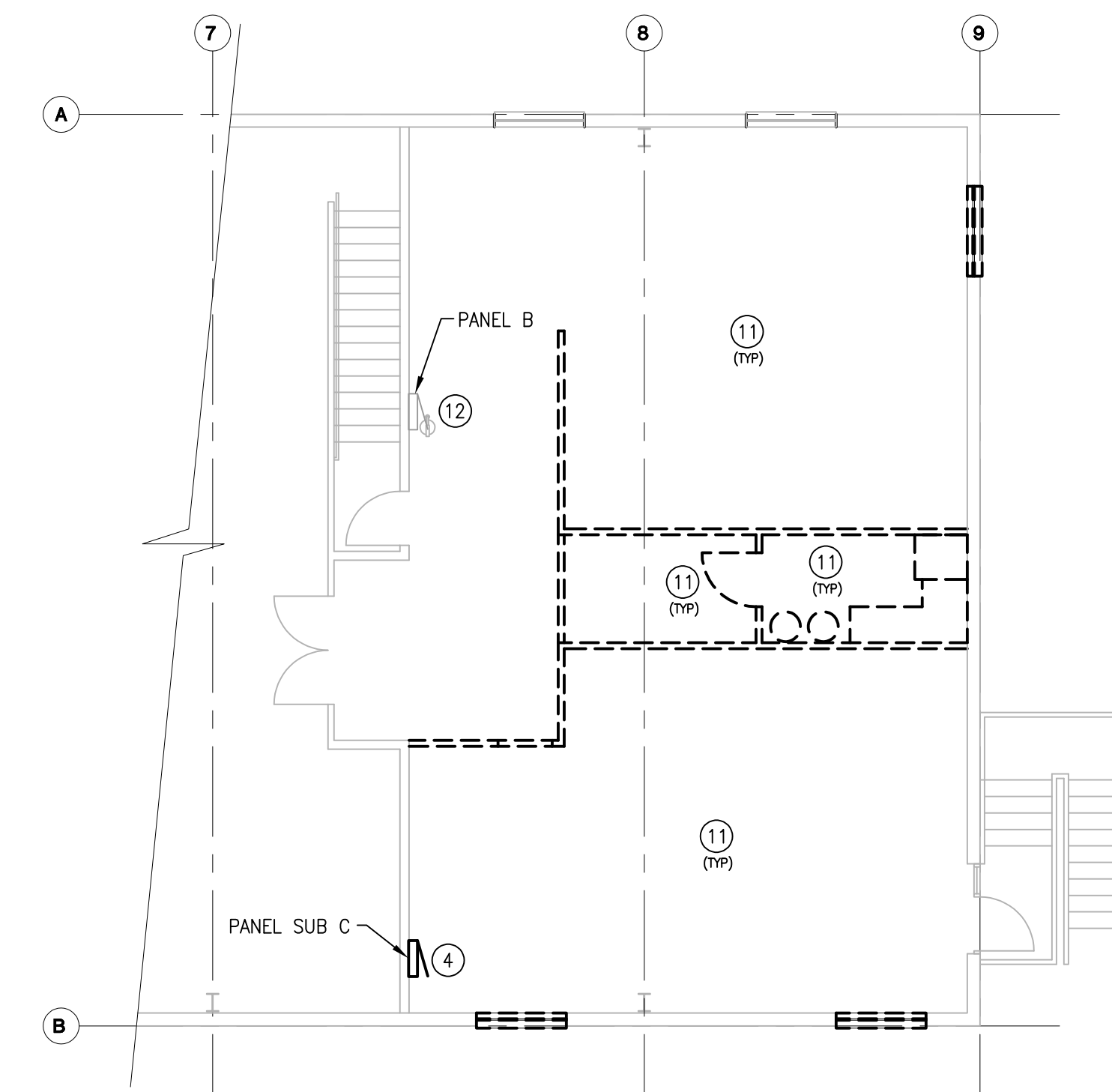
- A. ALL DEMOLITION OF ELECTRICAL SYSTEMS SHALL BE CLOSELY COORDINATED WITH THE CONTRACTORS PHASING OF THE PROJECT. VERIFY DEMOLITION OF ELECTRICAL WITH ALL TRADES PRIOR TO START OF DEMOLITION.
- B. PROTECT ALL EXISTING WORK FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGED MATERIALS, SYSTEMS, COMPONENTS, FINISHES AND THE LIKE, SHALL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR TO THE ACCEPTANCE OF THE OWNER.
- C. ALL CIRCUITS AND RELATED DEVICES THAT ARE TO REMAIN ARE TO STAY "ENERGIZED" IN THE DEMOLITION AND NEW CONSTRUCTION PHASES UNTIL THE COMPLETION OF THE WORK INDICATED ON THESE PLANS.
- D. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL ASSOCIATED WITH WALLS BEING REMOVED, AND IN ALL LOCATIONS WHERE JUNCTION BOXES WILL NOT REMAIN ACCESSIBLE AFTER INSTALLATION OF MILLWORK.
- E. CONTRACTOR SHALL DISPOSE OF THE REMOVED DEVICES. DISPOSAL OF DEVICES SHALL COMPLY WITH ALL APPROPRIATE CODES. REUSE EXISTING CONDUITS AND JUNCTION BOXES AS IS PRACTICAL.
- F. CONTRACTORS OPTION TO REUSE EXISTING JUNCTION BOX IN CORRECT LOCATION AT RECEPTACLES AND DEVICES IN WALLS NOT BEING REMOVED. EXISTING CONDUCTORS, DEVICES, AND COVERPLATES SHALL BE REPLACED WITH NEW.
- G. WHERE ELECTRICAL DEMOLITION IS DESIGNATED, ALL EXISTING CONDUCTORS SHALL BE REMOVED BACK TO SOURCE OR NEAREST JUNCTION BOX THAT IS TO REMAIN.
- H. THE CONTRACTOR SHALL PROVIDE UPDATED CIRCUIT PANEL DIRECTORIES FOR ALL PANELS THAT CONTAIN CIRCUITS IMPACTED BY THIS PROJECT.

Ⓢ SHEET NOTES:

- 1. EXISTING LIGHTING IN SHOP TO REMAIN. PROTECT DURING DEMOLITION AND CONSTRUCTION.
- 2. EXISTING RADIANT HEATING TO BE REMOVED. COORDINATE WITH MECHANICAL PRIOR TO BEGINNING WORK.
- 3. EXISTING SUB PANEL A TO BE REMOVED. IDENTIFY EXISTING CIRCUITS THAT ARE TO REMAIN ENERGIZED. BRANCH CIRCUIT TO BE INTERCEPTED AND EXTENDED TO NEW PANEL. SEE POWER PLAN.
- 4. EXISTING SUB PANEL TO BE REMOVED. FIELD COORDINATE BRANCH CIRCUITS AND REMOVE ALL CONDUIT AND CONDUCTOR.
- 5. REMOVE ALL ELECTRICAL IN TOOL/PARTS STORAGE AREA. COORDINATE WITH ARCHITECTURE FOR WALL BEING DEMOLISHED.
- 6. COORDINATE WITH ARCHITECTURE FOR WALL BEING DEMOLISHED IN OFFICE AREA. ALL CONDUIT AND CONDUCTORS TO BE REMOVED.
- 7. EXISTING HOTSY WASHING UNIT TO REMAIN. INTERCEPT EXISTING CIRCUIT AND EXTEND TO NEW PANEL. SEE POWER PLAN.
- 8. EXISTING AIR COMPRESSOR AND LOCAL DISCONNECT TO BE REMOVED AND RELOCATED. SEE POWER PLAN.
- 9. EXISTING OIL PUMP SYSTEM TO BE REMOVED AND RELOCATED. SEE POWER PLAN.
- 10. EXISTING VEHICLE EXHAUST SYSTEM TO BE REMOVED AND RELOCATED. SEE POWER PLAN.
- 11. REMOVE ALL ELECTRICAL DEVICES AND FIXTURES IN THIS AREA. COORDINATE WITH ARCHITECTURE FOR SCOPE OF DEMOLITION PRIOR TO BEGINNING WORK.
- 12. EXISTING PANEL TO REMAIN. PROTECT DURING DEMOLITION. FIELD VERIFY ANY EXISTING BRANCH CIRCUITS TO REMAIN.



1 LIGHTING PLAN
SCALE 1/8" = 1'-0"



2 MEZZANINE LIGHTING PLAN
SCALE 1/8" = 1'-0"



ORIGINAL DOCUMENTS ARE HELD AT:
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CSHQA

PROJECT 22123.00 DATE 1/20/23

DRAWN RJL CHECKED JLB

REVISED

SHEET TITLE

ELECTRICAL DEMO PLAN

SHEET

E06

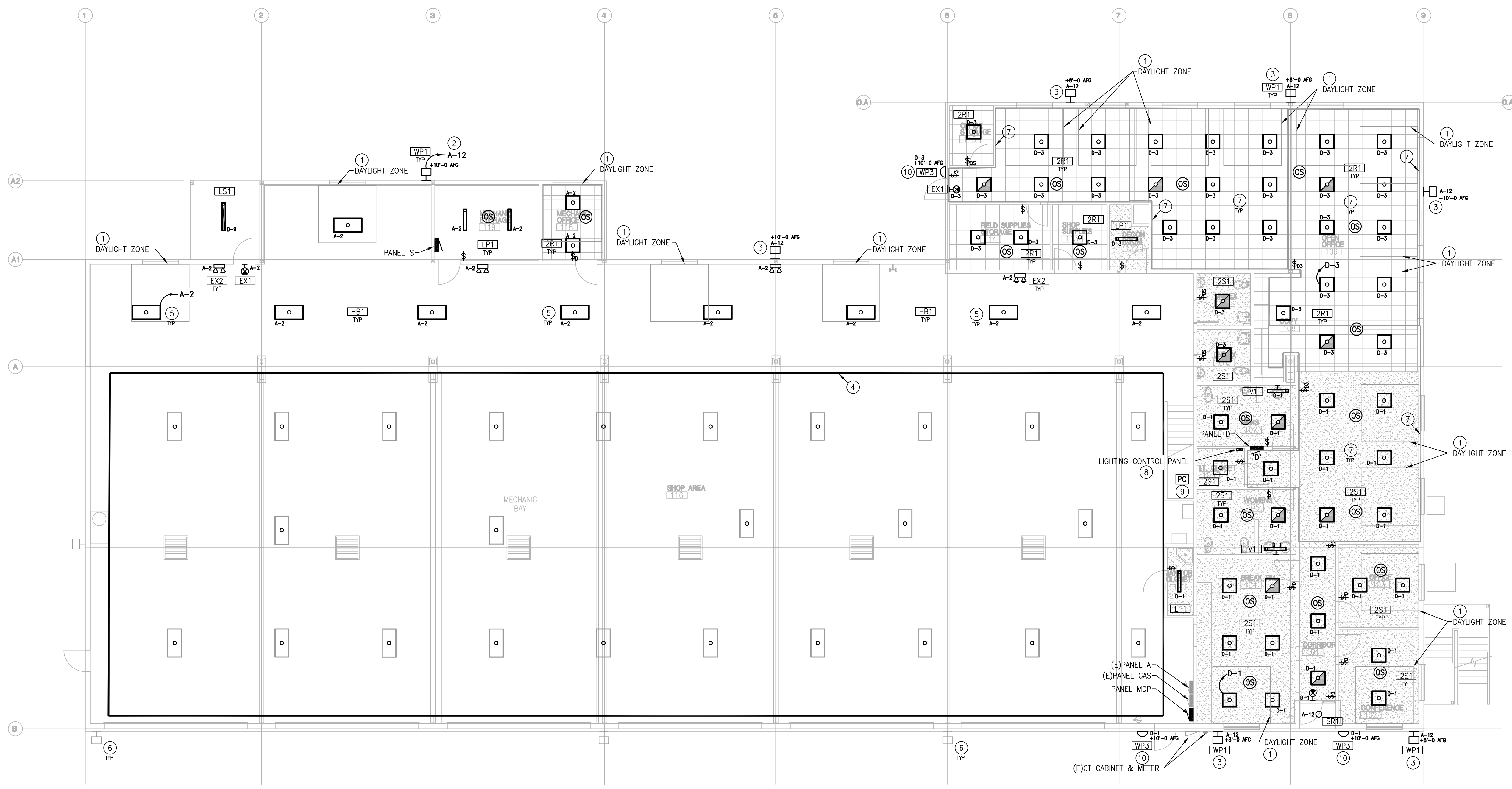
ORIGINAL SHEET SIZE 30" x 42"

GENERAL NOTES:

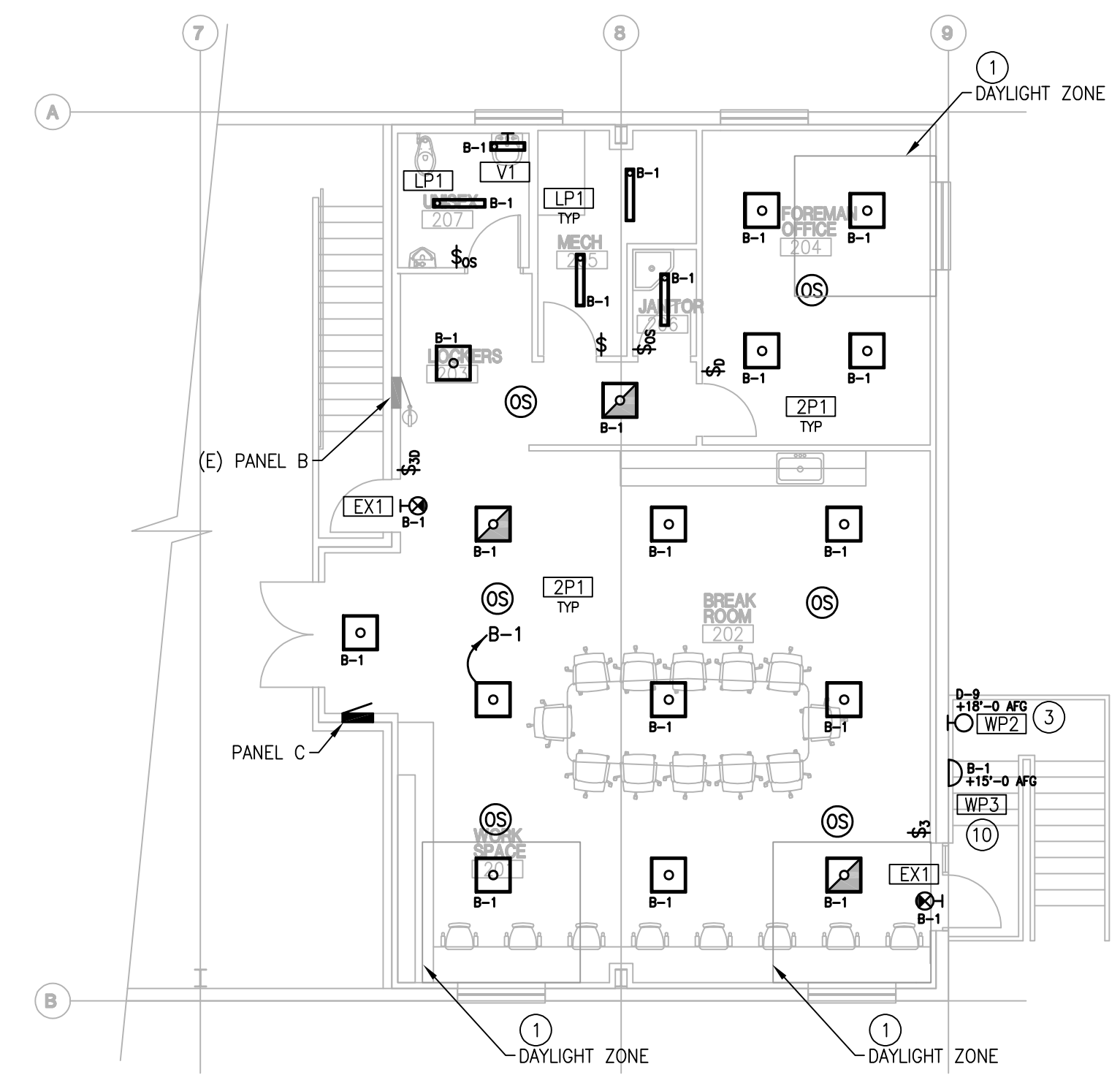
- A. ALL ELECTRICAL WORK SHALL BE CLOSELY COORDINATED WITH THE CONTRACTORS PHASING OF THE PROJECT. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES.
- B. MAKE ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.
- C. ROUTE ALL CONDUIT HOME RUNS TO PANELS OVERHEAD AND ABOVE ACCESSIBLE CEILINGS WHERE AVAILABLE.
- D. ALL LIGHT FIXTURES SHALL BE 120 VOLT, UNLESS OTHERWISE NOTED.
- E. SHADED FIXTURE SHALL HAVE EMERGENCY BALLAST CONNECTED TO CONTINUOUS POWER SUPPLY.
- F. ALL EXIT SIGNS AND THE EMERGENCY BATTERY OF EMERGENCY FIXTURES SHALL BE WIRED FOR CONTINUOUS OPERATION. CONNECT TO UNSWITCHED LIGHTING CIRCUIT.
- G. FURNISH AND INSTALL COMPATIBLE DIMMER SWITCH FOR CONTROL OF LIGHT FIXTURES AS INDICATED. COORDINATE WITH DIMMER SWITCH MANUFACTURER'S INSTALLATION REQUIREMENTS.
- H. ALL FINAL LOCATIONS AND ARRANGEMENTS OF CEILING LIGHTING FIXTURES SHALL BE COORDINATED WITH ALL OTHER TRADES.
- J. EACH SWITCH BOX SHALL HAVE A GROUND AND ASSOCIATED LIGHTING CIRCUIT NEUTRAL CONDUCTOR.
- K. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR FINAL LOCATION OF ALL CEILING MOUNTED ITEMS. REFER TO ARCHITECTURAL ELEVATIONS AND SECTIONS FOR MOUNTING HEIGHTS OF WALL OR COLUMN MOUNTED FIXTURES AND DEVICES.
- L. ALL CONDUITS WITH CIRCUIT CONDUCTORS SHALL HAVE A COPPER EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC 250.
- M. SEE SHEET E04 FOR LIGHTING FIXTURE SCHEDULE AND LIGHTING CONTROL SCHEDULE. SEE SHEET E01 FOR DEVICE AND SYMBOL SCHEDULE.
- N. ALL LIGHTING CIRCUIT HOMERUNS ARE TO BE 3/4" CONDUIT MINIMUM WITH BRANCH CIRCUIT #12 AND GROUNDING CONDUCTOR #12 UNLESS OTHERWISE NOTED.
- O. FURNISH AND INSTALL SAFETY WIRES AT ALL LIGHT FIXTURES INSTALLED IN A SUSPENDED CEILING.
- P. MOUNTING METHODS INDICATED AND REFERRED TO ARE MINIMUM CODE REQUIREMENTS. COMPLY WITH LOCAL CODES FOR ADDITIONAL SEISMIC RESTRAINTS.
- Q. COORDINATE HOMERUN CIRCUIT NUMBERS WITH PANEL SCHEDULES. RE: SHEET E01.

KEY NOTES:

- 1. DAYLIGHT ZONE CONTROL REQUIREMENTS: 2018 IECC: C405.2.3 AREA HAS LESS THAN 150 WATTS OF GENERAL LIGHTING. NO DAY-LIGHTING CONTROLS ARE REQUIRED.
- 2. ROUTE EXTERIOR LIGHTING CIRCUIT THROUGH NEW LIGHTING CONTROL PANEL.
- 3. COORDINATE EXTERIOR MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURE PRIOR TO ROUGH IN. COORDINATE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE ALL REQUIRED MOUNTING HARDWARE FOR A COMPLETE, INSTALLED SYSTEM CONNECT AS REQUIRED.
- 4. ADD ALTERNATE TO REPLACE EXISTING LIGHT FIXTURES ONE-FOR-ONE WITH NEW SPECIFIED HB1 FIXTURE.
- 5. INTERCEPT AND EXTEND EXISTING SHOP LIGHTING CONTROLS TO NEW LIGHT FIXTURES. FIELD COORDINATE PRIOR TO BEGINNING WORK. FURNISH AND INSTALL ADDITIONAL CONTACTORS AS REQUIRED.
- 6. INTERCEPT AND EXTEND EXISTING EXTERIOR LIGHT FIXTURE CIRCUIT AND ROUTE TO NEW LIGHTING CONTROL PANEL. FIELD VERIFY LOCATION AND QUANTITY OF EXISTING LIGHTS TO REMAIN.
- 7. COORDINATE WITH LIGHTING VENDOR TO PROVIDE OCCUPANCY SENSOR COVERAGE AS REQUIRED TO COMPLY WITH IECC 2018 OPEN OFFICE CONTROL REQUIREMENTS.
- 8. FURNISH AND INSTALL NEW LIGHTING CONTROL PANEL. COORDINATE WITH MANUFACTURER FOR CONNECTION AND MOUNTING REQUIREMENTS.
- 9. FURNISH AND INSTALL NEW EXTERIOR RATED PHOTOCELL FOR EXTERIOR LIGHTING CONTROLS. CONNECT TO NEW LIGHTING CONTROL PANEL. COORDINATE WITH MANUFACTURER FOR INSTALLATION REQUIREMENTS.
- 10. EMERGENCY DISCHARGE LIGHTING. LIGHT FIXTURE TO BE OFF WHILE NORMAL POWER IS AVAILABLE. LIGHT TO COME ON AT LOSS OF NORMAL POWER. COORDINATE MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH IN.



1 LIGHTING PLAN
SCALE 1/8" = 1'-0"



2 MEZZANINE LIGHTING PLAN
SCALE 1/8" = 1'-0"



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SHEET TITLE
LIGHTING PLANS

SHEET
E11

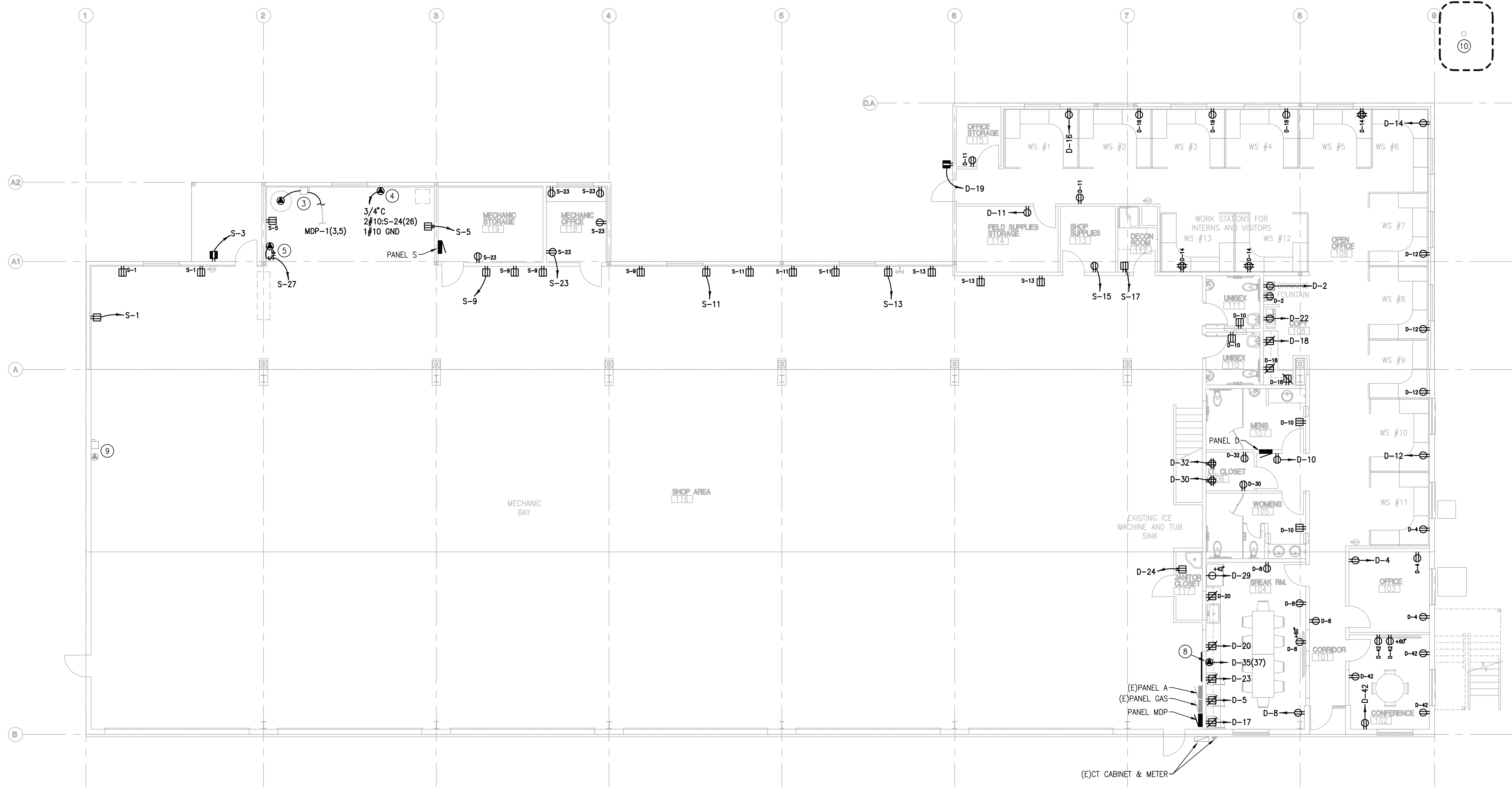
ORIGINAL SHEET SIZE
30" x 42"

GENERAL NOTES:

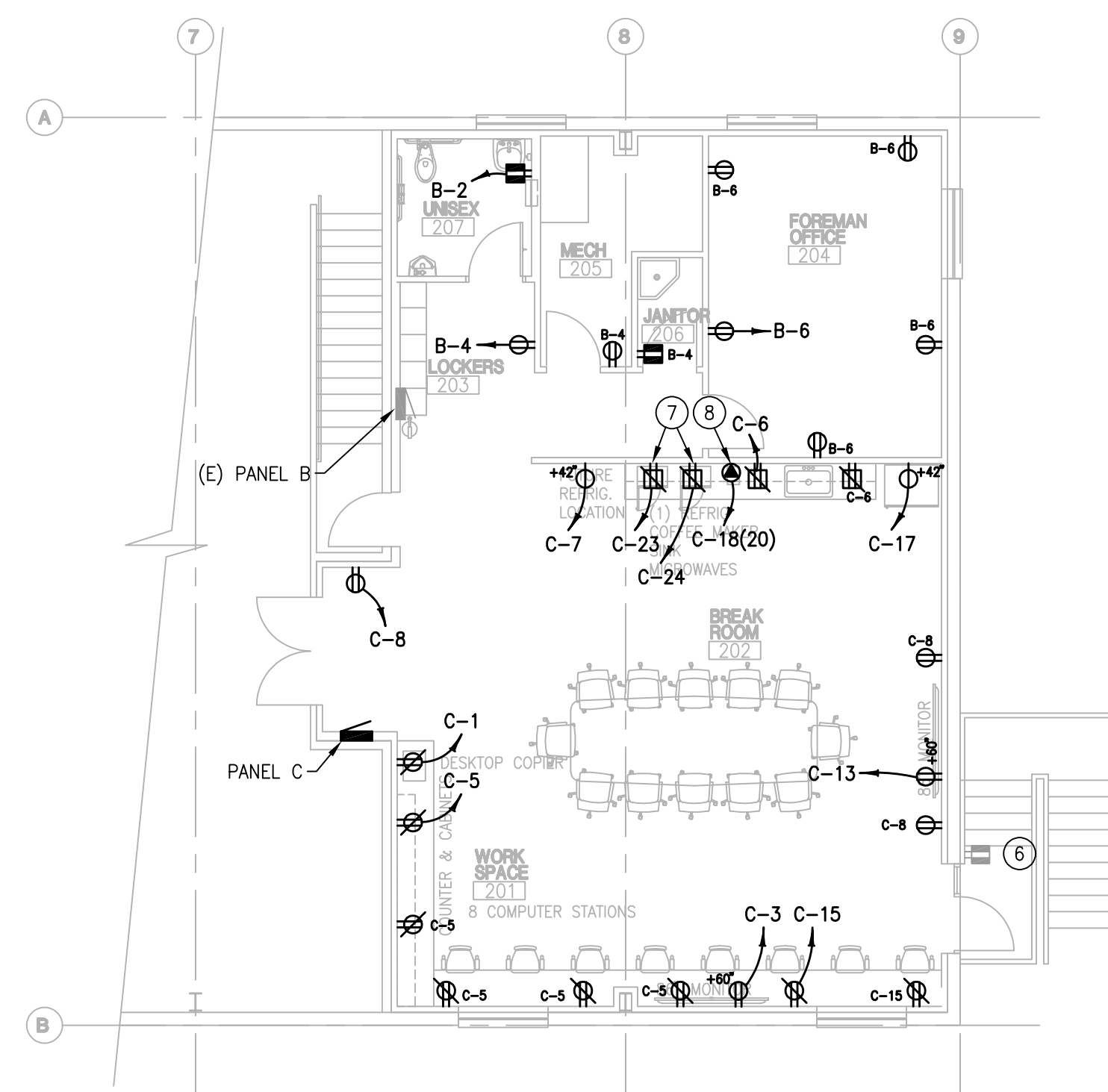
- A. ALL ELECTRICAL WORK SHALL BE CLOSELY COORDINATED WITH THE CONTRACTORS PHASING OF THE PROJECT. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES.
- B. MAKE ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.
- C. ROUTE ALL CONDUIT HOME RUNS TO PANELS OVERHEAD AND ABOVE ACCESSIBLE CEILING WHERE AVAILABLE.
- D. COORDINATE ELECTRICAL REQUIREMENTS FOR A COMPLETE AND OPERATIONAL SYSTEM WITH ARCHITECTURAL, DOOR HARDWARE, SCHEDULE AND SPECIFICATIONS, MECHANICAL AND PLUMBING CONTROL DRAWINGS, SPECIAL SYSTEM DRAWINGS, ARCHITECT, SYSTEM'S PROVIDER'S AND OWNERS AGENT. VERIFY ALL REQUIREMENTS PRIOR TO ROUGH-IN.
- E. THE CONTRACTOR SHALL PROVIDE UPDATED CIRCUIT PANEL DIRECTORIES FOR ALL PANELS THAT CONTAIN CIRCUITS IMPACTED BY THIS PROJECT.
- F. COORDINATE WITH OWNERS AGENT FOR FINAL LOCATIONS OF ALL RECEPTACLES AND SPECIAL CONNECTIONS FOR EQUIPMENT PRIOR TO ROUGH-IN. COORDINATE RECEPTACLE INSTALLATION WITH MILLWORK AND BACKSPASH INSTALLERS TO AVOID INTERFERENCES.
- G. ALL CONDUIT WITH CIRCUIT CONDUCTORS SHALL HAVE A COPPER EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC 250.
- H. ELECTRICAL DEVICES TO BE MOUNTED OVER COUNTER TO BE COORDINATED WITH BACK SPLASH. THE BOTTOM OF THE DEVICE COVERPLATE SHALL CLEAR THE TOP OF THE BACK SPLASH. COORDINATE THE MOUNTING HEIGHT WITH THE MILLWORK BEING INSTALLED.
- I. ALL SINGLE-PHASE RECEPTACLES RATED 125-VOLT, 50 AMPS OR LESS AND THREE-PHASE RECEPTACLES RATED 125-VOLT, 100 AMPS OR LESS INSTALLED IN KITCHEN, OUTDOOR AREAS, AND ALL OTHER AREAS REQUIRED BY CODE, SHALL HAVE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL. UTILIZE GFCI RATED RECEPTACLES OR GFCI BREAKERS IN PANELBOARDS.
- J. ALL RECEPTACLES IN SHOP AREAS TO BE MOUNTED AT 42" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.

KEY NOTES:

1. EXISTING PANEL TO BE REMOVED. SEE SINGLE LINE DIAGRAM ON SHEET E80.
2. EXISTING PANEL TO REMAIN. REMOVE AND RE-INSTALL WITH NEW WALL FURRING. COORDINATE WITH ARCHITECTURE PRIOR TO BEGINNING WORK.
3. EXISTING AIR COMPRESSOR. INTERCEPT AND EXTEND EXISTING FEEDER TO THIS LOCATION. RELOCATE EXISTING LOCAL DISCONNECT. RECONNECT ALL EQUIPMENT AS REQUIRED. MATCH EXISTING CONDUIT AND CONDUCTOR SIZE.
4. FURNISH AND INSTALL NEMA RATED 240V, 30 AMP OUTLET. COORDINATE WITH OWNERS PROJECT MANAGER FOR PIN CONFIGURATION TYPE.
5. EXISTING VEHICLE EXHAUST SYSTEM. COORDINATE NEW LOCATION AND CONNECT. FIELD VERIFY EXISTING POWER CONNECTION AND CONTROL REQUIREMENTS. COORDINATE WITH OWNER PROJECT MANAGER FOR LOCATIONS PRIOR TO ROUGH IN.
6. EXISTING EXTERIOR RECEPTACLE TO REMAIN.
7. OVER COUNTER MICROWAVE PROVIDED BY OTHERS. COORDINATE WITH OWNERS PROJECT MANAGER FOR EXACT LOCATION PRIOR TO ROUGH IN. COORDINATE WITH EQUIPMENT MANUFACTURERS CONNECTION REQUIREMENTS.
8. OVER COUNTER COFFEE MAKER PROVIDED BY OTHERS. COORDINATE WITH OWNERS PROJECT MANAGER FOR EXACT LOCATION. COORDINATE WITH EQUIPMENT MANUFACTURERS CONNECTION REQUIREMENTS.
9. EXISTING HOTSY TRUCK WASH UNIT TO REMAIN. PROTECT DURING CONSTRUCTION.
10. EXISTING IDAHO POWER DISTRIBUTION POLE. FIELD COORDINATE WITH IDAHO POWER TO VERIFY REQUIRED CLEARANCES ARE MAINTAINED WITH NEW BUILDING FOOT PRINT. COORDINATE BUILDING FOOT PRINT WITH ARCHITECT.



1 POWER PLAN
SCALE 1/8" = 1'-0"



2 MEZZANINE POWER PLAN
SCALE 1/8" = 1'-0"



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15430 HIGHWAY 44
CALDWELL, IDAHO

CSHOA

PROJECT	DATE
22123.00	1/20/23
DRAWN	CHECKED
RJL	JLB

REVISED

SHEET TITLE
POWER PLAN

SHEET
E21

ORIGINAL SHEET SIZE
30" x 42"

GENERAL NOTES:

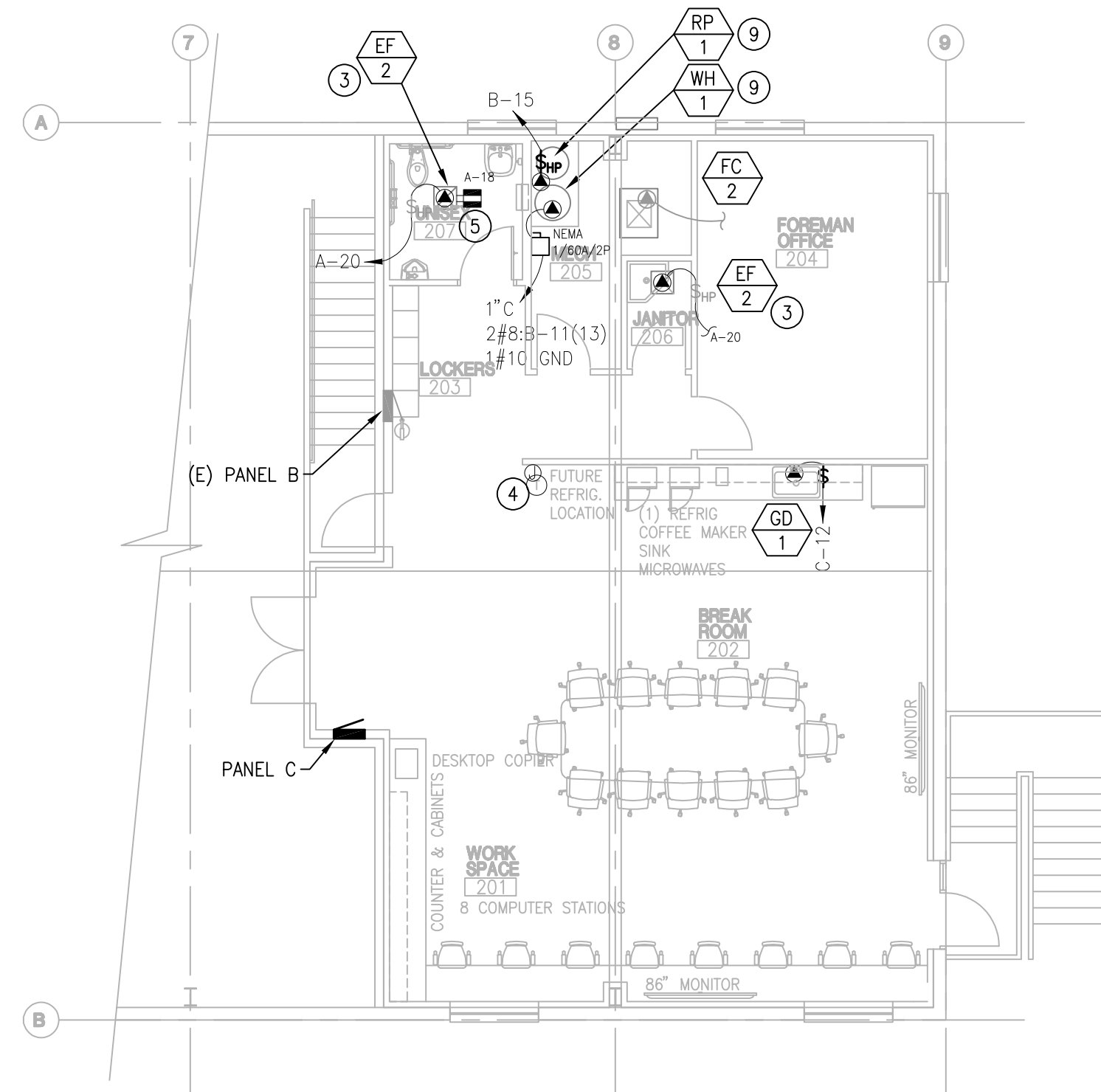
- A. ALL ELECTRICAL WORK SHALL BE CLOSELY COORDINATED WITH THE CONTRACTORS PHASING OF THE PROJECT. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES.
- B. MAKE ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.
- C. ROUTE ALL CONDUIT HOME RUNS TO PANELS OVERHEAD AND ABOVE ACCESSIBLE CEILINGS WHERE AVAILABLE.
- D. PROVIDE POWER RELAYS, LOW VOLTAGE TRANSFORMERS, CONDUITS AND JUNCTION BOXES FOR THE FOLLOWING SPECIAL SYSTEMS AS REQUIRED: BUILDING AUTOMATION AND MECHANICAL CONTROLS.
- E. COORDINATE WITH OWNERS AGENT FOR FINAL LOCATIONS OF ALL RECEPTACLES AND SPECIAL CONNECTIONS FOR EQUIPMENT PRIOR TO ROUGH-IN.
- F. ALL CONDUIT WITH CIRCUIT CONDUCTORS SHALL HAVE A COPPER EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC 250.
- G. COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE LOCAL DISCONNECTS FOR EQUIPMENT WHERE REQUIRED.
- H. VERIFY FINAL CONNECTION TO EQUIPMENT WITH MANUFACTURER. PROVIDE CONNECTORS, FLEX CONDUIT, JUNCTION BOXES AND RECEPTACLES AS REQUIRED.
- I. FURNISH AND INSTALL CONDUIT AND JUNCTION BOXES WITH PULL CORD FOR ALL PLUMBING AND MECHANICAL EQUIPMENT CONTROLS. MECHANICAL CONTRACTOR TO FURNISH AND INSTALL CONTROL WIRING AND MAKE ALL CONTROL CONNECTIONS.

KEY NOTES:

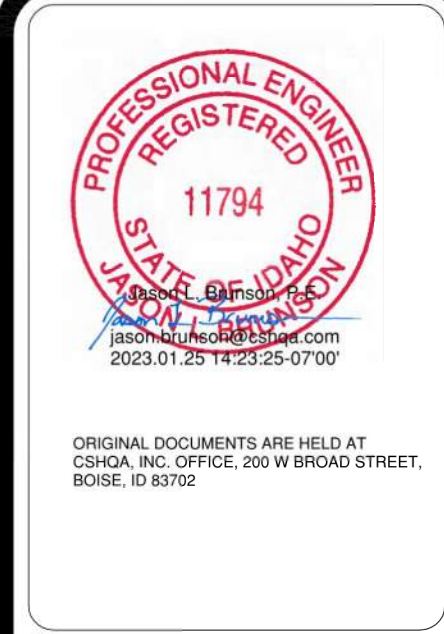
1. SHOP GAS FIRED UNIT HEATER. FURNISH AND INSTALL LOCAL DISCONNECT SWITCH. COORDINATE WITH EQUIPMENT MANUFACTURER FOR CONNECTION REQUIREMENTS. FURNISH AND INSTALL 1/2" CONDUIT WITH PULL CORD AND SINGLE GANG JUNCTION BOX FOR THERMOSTAT. COORDINATE WITH MECHANICAL CONTRACTOR FOR LOCATION.
2. WALL MOUNTED ELECTRIC HEATER. FURNISH AND INSTALL LOCAL DISCONNECT SWITCH. COORDINATE WITH EQUIPMENT MANUFACTURER FOR CONNECTION REQUIREMENTS. FURNISH AND INSTALL 1/2" CONDUIT WITH PULL CORD AND SINGLE GANG JUNCTION BOX FOR THERMOSTAT. COORDINATE WITH MECHANICAL CONTRACTOR FOR LOCATION PRIOR TO ROUGH IN.
3. EXHAUST FAN. COORDINATE WITH EQUIPMENT MANUFACTURER FOR CONNECTION REQUIREMENTS. LOCAL DISCONNECT PROVIDED BY OTHERS. INTERCONNECT CIRCUIT CONTROL WITH OCCUPANCY SENSOR FOR LIGHTING. FAN TO BE RUNNING WHILE LIGHT IS ON.
4. FURNISH AND INSTALL 1/2" CONDUIT AND PULL CORD FROM SINGLE GANG JUNCTION BOX TO ACCESSIBLE SPACE FOR THERMOSTAT. COORDINATE WITH MECHANICAL FOR LOCATION PRIOR TO ROUGH IN.
5. FURNISH AND INSTALL ROOFTOP CONVENIENCE OUTLET FOR EXHAUST FANS. COORDINATE WITH MECHANICAL CONTRACTOR FOR MOUNTING LOCATION.
6. FURNISH AND INSTALL LOCAL DISCONNECT FOR MECHANICAL EQUIPMENT. COORDINATE WITH EQUIPMENT MANUFACTURER FOR CONNECTION REQUIREMENTS.
7. FURNISH AND INSTALL 3/4" CONDUIT WITH PULL CORD FROM CONDENSING UNIT TO FAN COIL FOR CONTROL CONDUCTORS BY OTHERS.
8. FURNISH AND INSTALL 1" CONDUIT WITH PULL CORD FROM CONDENSING UNIT TO FAN COIL FOR SUB FEED POWER CONDUCTORS. COORDINATE WITH MECHANICAL FOR REQUIREMENTS.
9. FURNISH AND INSTALL LOCAL DISCONNECT FOR PLUMBING EQUIPMENT. COORDINATE WITH EQUIPMENT MANUFACTURER FOR CONNECTION REQUIREMENTS.
10. ELECTRIC TRAP PRIMER. COORDINATE WITH EQUIPMENT MANUFACTURER AND PLUMBING FOR CONNECTION REQUIREMENTS. CONNECT AS REQUIRED.
11. INSTA HOT WATER HEATER FOR EYE WASH STATION. COORDINATE WITH EQUIPMENT MANUFACTURER FOR DISCONNECT AND CONNECTION REQUIREMENTS. COORDINATE WITH PLUMBING FOR LOCATION PRIOR TO ROUGH IN.



1 MECHANICAL POWER PLAN
SCALE 1/8" = 1'-0"



2 MEZZANINE MECHANICAL POWER PLAN
SCALE 1/8" = 1'-0"



ORIGINAL DOCUMENTS ARE HELD AT:
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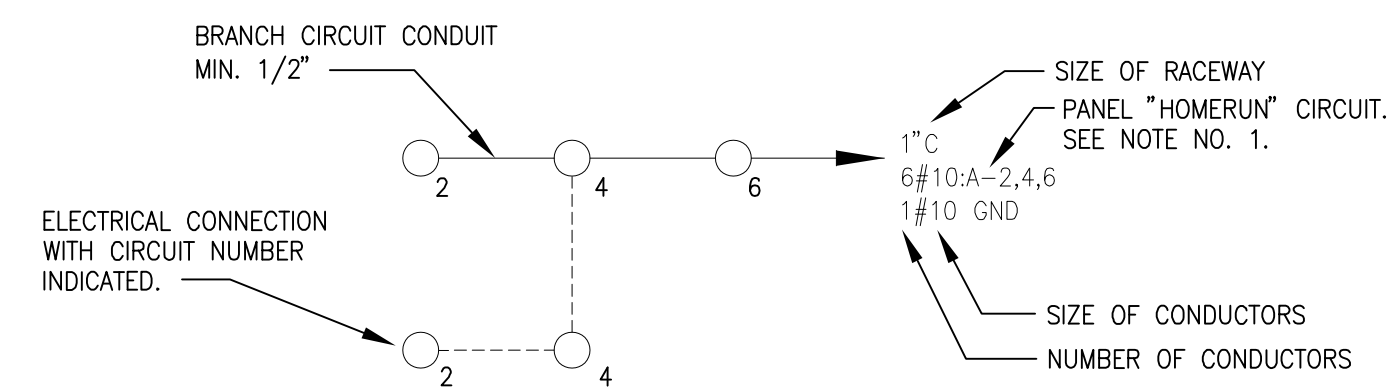
CSHOA

PROJECT	DATE
22123.00	1/20/23
DRAWN	CHECKED
RJL	JLB
REVISED	

SHEET TITLE
MECHANICAL POWER PLAN

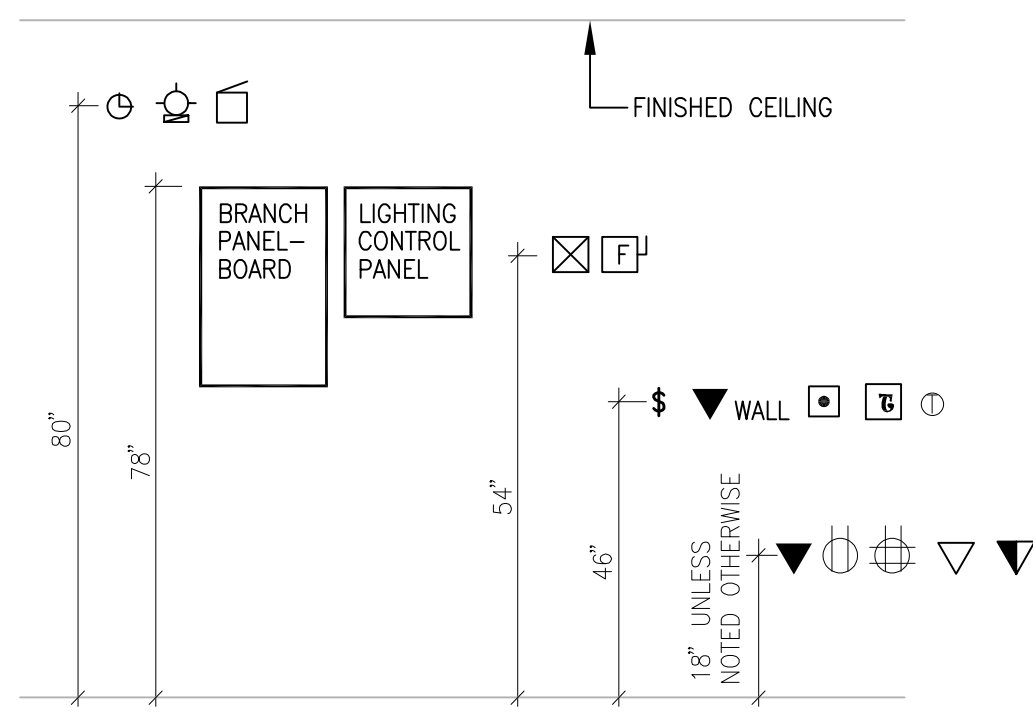
SHEET
E31

ORIGINAL SHEET SIZE
30" x 42"



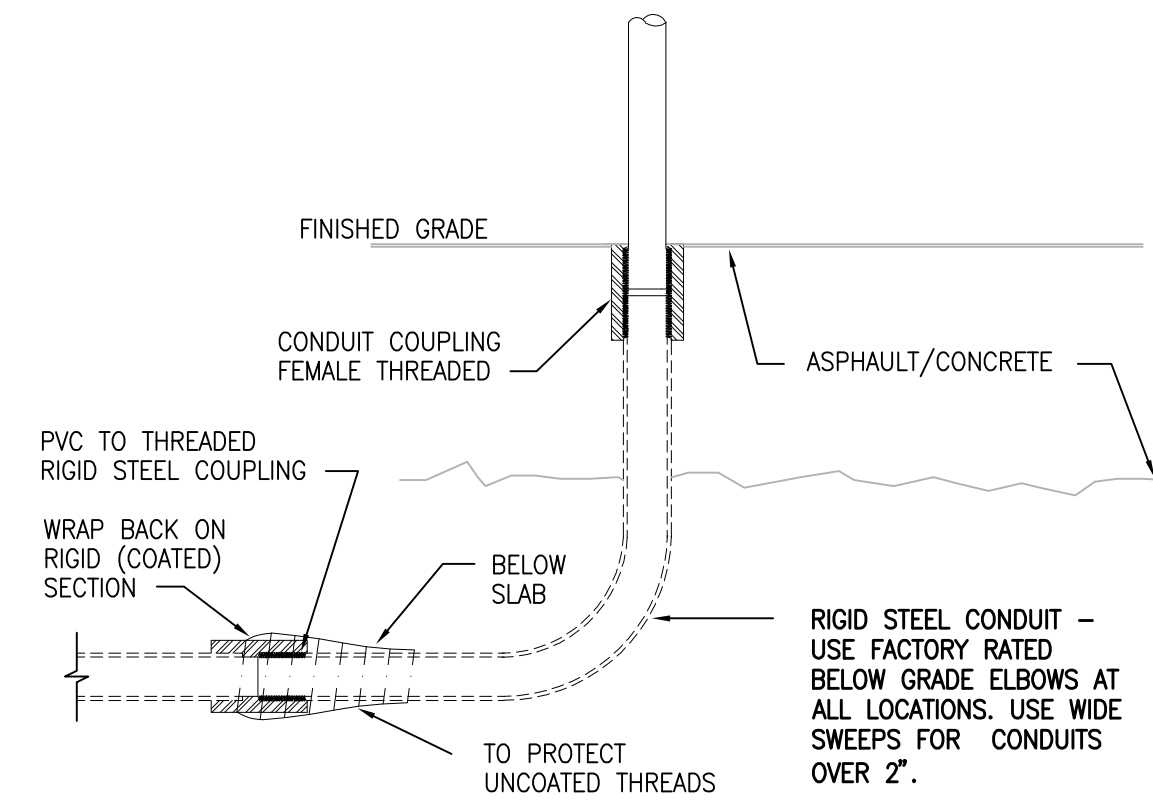
- NOTES:
- 1 ALL HOMERUNS ARE TO BE 3/4" CONDUIT MINIMUM WITH BRANCH CIRCUIT AND GROUNDING CONDUCTOR #12 UNLESS NOTED OTHERWISE.
 - 2 A GROUND CONDUCTOR, SIZED PER NEC, SHALL BE INCLUDED IN ALL CONDUIT RUNS.
 - 3 DASHED LINES INDICATE UNDERSLAB OR UNDERGROUND CONDUIT (SCHEDULE 40 PVC, 1" MIN.)
 - 4 ALL CIRCUITS SHALL HAVE AN INDEPENDENT NEUTRAL CONDUCTOR. NO EDISON STYLE SHARED NEUTRAL CONDUCTORS ARE ALLOWED.
 - 5 ALL ISOLATED GROUND CIRCUITS SHALL HAVE AN ISOLATED GROUND CONDUCTOR, CONNECTED TO ISOLATED GROUND SYSTEM, IN ADDITION TO AN EQUIPMENT GROUND.

1 CIRCUITING SYMBOLS
SCALE: NONE

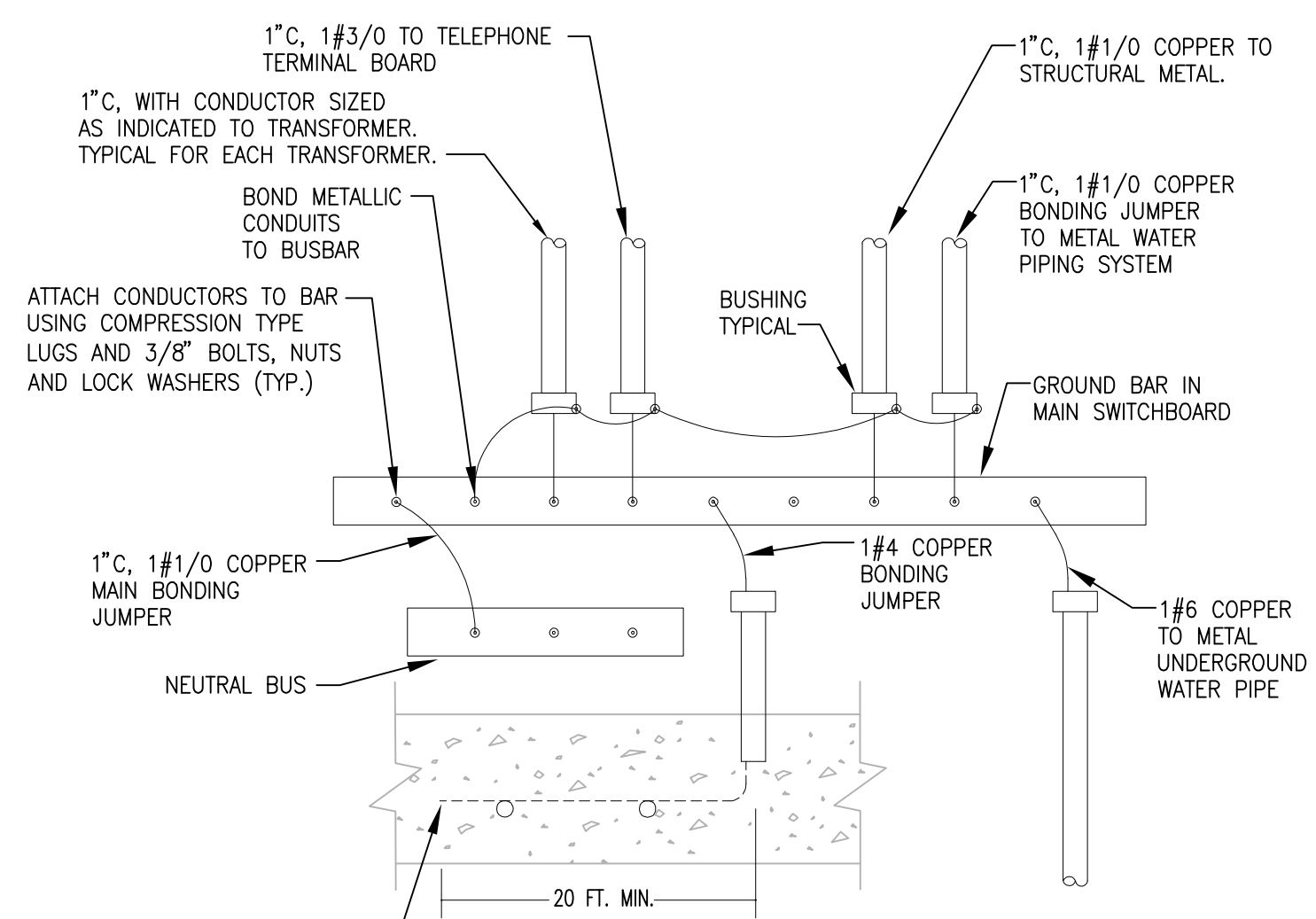


1. MOUNTING HEIGHTS OF ALL ELECTRICAL EQUIPMENT SHALL CONFORM TO ADA REQUIREMENTS.

2 STANDARD MOUNTING HEIGHTS
SCALE: NONE



3 BELOW GRADE CONDUIT DETAIL
SCALE: NONE



4 GROUNDING DETAIL
SCALE: NONE

CONCRETE ENCASED ELECTRODE PER 250.52(A)(3).
1) ONE OR MORE BARE OR ZINC GALVANIZED STEEL REINFORCING BARS OR RODS NOT LESS THAN 1/2" IN DIAMETER, INSTALLED IN ONE CONTINUOUS LENGTH OR
2) ONE BARE COPPER CONDUCTOR NOT SMALLER THAN #4 AWG.



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15430 HIGHWAY 44

CSH&A

PROJECT 22123.00	DATE 1/20/23
DRAWN RJL	CHECKED JLB

REVISED

SHEET TITLE
**ELECTRICAL
DETAILS**

SHEET
E70

ORIGINAL SHEET SIZE
30" x 42"

PANEL 'E' (MSB)																																																													
240/120-VOLT, 3-PHASE, 4-WIRE																																																													
300-AMP BUS W/ 300-AMP MCS																																																													
A.I.C. RATING: 10000																																																													
MOUNTING: SURFACE																																																													
NOTES: EXISTING COMMERCIAL BOLT-ON CIRCUIT BREAKER PANELBOARD.																																																													
CKT NO	LOAD DESCRIPTION	REF NO	BRKR TYPE	LOAD AMPS	BREAKER P / AMP	PHASE AMPS			LOAD AMPS	BRKR TYPE	REF NO	LOAD DESCRIPTION	CKT NO																																																
						A	B	C																																																					
1	AIR COMPRESSOR			3	20	0.0			100	2		PANEL 'E'	2																																																
3	**			**	**	0.0			**	*			4																																																
5	**			**	**	0.0			50	2		SUB PANEL 'N'	6																																																
7	WATER HEATER			2	30	0.0			**	*			8																																																
9	**			**	**	0.0			60	2		SUB PANEL 'E'	10																																																
11	ELECTRIC FURNACE AH-1			2	100	0.0			**	*			12																																																
13	**			**	**	0.0			50	2		MELTING OUTLET	14																																																
15	HEAT PUMP CO-1			3	40	0.0			**	*			16																																																
17	**			**	**	0.0			50	2			18																																																
19	**			**	**	0.0			**	*			20																																																
21	SUB PANEL 'C'			2	60	0.0			0.0			BUSSED SPACE	22																																																
23	**			**	**	0.0			0.0			BUSSED SPACE	24																																																
25	BUSSED SPACE					0.0						BUSSED SPACE	26																																																
27	BUSSED SPACE					0.0						BUSSED SPACE	28																																																
29	BUSSED SPACE					0.0						BUSSED SPACE	30																																																
PROJECT #22123 Panel Schedules				TOTAL LOAD:		0	0	0				01/25/23																																																	
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						A	B	C																																																					
1	LTS - SHOP			1	20	0.0			20	1		LTS - OFFICE	2																																																
3	**			**	**	0.0			20	1		LTS - OFFICE	4																																																
5	LTS - SHOP			1	20	0.0			20	1		LTS - OFFICE	6																																																
7	LTS - SHOP			1	20	0.0			20	1		LTS - OFFICE	8																																																
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11	LTS - SHOP			1	20	0.0			20	1		LTS - MEZZANINE	12																																																
13	LTS - SHOP			1	20	0.0			20	1		LTS - EXTERIOR	14																																																
15	LTS - SHOP			1	20	0.0			20	1		EXHAUST FANS	16																																																
17	REC - SHOP			1	20	0.0			20	1		REC. FANS	18																																																
19	REC - SHOP			1	20	0.0			20	1		REC - OFFICE	20																																																
21	REC - SHOP			1	20	0.0			20	1		REC - OFFICE/BREAKROOM	22																																																
23	REC - SHOP			1	20	0.0			20	1		REC - OFFICE/BATH ROOM	24																																																
25	REC - SHOP			1	20	0.0			20	1		REC - OFFICE	26																																																
27	REC - SHOP			1	20	0.0			20	1		REC - MEZZANINE /LOW PANEL	28																																																
29	CO-BAY-ING FANS			1	20	0.0			20	1		WELDER ROOM	30																																																
31	GENERATOR PANEL			2	70	0.0			20	1		OVERHEAD DOOR	32																																																
33	**			**	**	0.0			20	1		OVERHEAD DOOR	34																																																
35	WAST WATER MONITOR			1	20	0.0			20	1		OVERHEAD DOOR	36																																																
37	BUSSED SPACE					0.0			20	1		OVERHEAD DOOR	38																																																
39	BUSSED SPACE					0.0			20	1		OVERHEAD DOOR	40																																																
41	ICE MACHINE			1	20	0.0			20	1		OVERHEAD DOOR	42																																																
43	UNKNOWN			1	20	0.0			20	1		UNKNOWN	44																																																
45	UNKNOWN			1	20	0.0			20	1		UNKNOWN	46																																																
47	UNKNOWN			1	20	0.0			20	1		UNKNOWN	48																																																
49	UNKNOWN			1	20	0.0			20	1		UNKNOWN	50																																																
51	BUSSED SPACE					0.0			20	1		BUSSED SPACE	52																																																
53	BUSSED SPACE					0.0			20	1		BUSSED SPACE	54																																																
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						A	B	C																																																					
1	LIGHTS			1	20	0.0			20	1		RECEPTACLES	2																																																
3	AIR HANDLER			2	60	0.0			20	1		RECEPTACLES	4																																																
5	**			**	**	0.0			20	1		RECEPTACLES	6																																																
7	CONDENSER			2	30	0.0			20	1		LTS - REC - OUTSIDE DESK	8																																																
9	**			**	**	0.0			20	1		REC - BREAK ROOM FLUORESC	10																																																
11	BUSSED SPACE					0.0			20	1		REC - BREAK ROOM FLUORESC	12																																																
13	BUSSED SPACE					0.0			20	1		REC - SERVER ROOM	14																																																
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						A	B	C																																																					
1	RECEPTACLE			1	20	0.0			20	1		FRONT OFFICE/DESK HEATS	2																																																
3	REC - SOUTH (FAN)			1	20	0.0			20	1		REC - NORTH	4																																																
5	REC - WEST			1	20	0.0			20	1		LIGHTS	6																																																
7	REC - SOUTH DOWNSTAIRS			1	20	0.0			20	1		UNKNOWN	8																																																
9	**			**	**	0.0			20	1		UNKNOWN	10																																																
11	**			**	**	0.0			20	1		UNKNOWN	12																																																
PROJECT #22123 Panel Schedules				TOTAL LOAD:		0	0	0				01/25/23																																																	
<table border="0"> <tr> <td>ACTUAL KVA</td> <td>DEMAND FACTOR</td> <td>DEMAND KVA</td> <td></td> </tr> <tr> <td>0.0</td> <td>125%</td> <td>0.0</td> <td>Excludes track and show window lighting.</td> </tr> <tr> <td>TRACK LIGHTING: 0.0</td> <td>N/A</td> <td>0.0</td> <td>Track length: 0 ft</td> </tr> <tr> <td>SHOW WINDOWS: 0.0</td> <td>N/A</td> <td>0.0</td> <td>Show window length: 0 ft</td> </tr> <tr> <td>RECEPTACLE LOAD: 0.0</td> <td>100%</td> <td>0.0</td> <td>100% of the first 10 kVA, plus 50% over 10 kVA.</td> </tr> <tr> <td>KITCHEN EQUIPMENT LOAD: 0.0</td> <td>100%</td> <td>0.0</td> <td>Based on 0 pieces of equipment.</td> </tr> <tr> <td>HEATING (CONCIDENTAL) LOAD: 0.0</td> <td>100%</td> <td>0.0</td> <td>Includes space heat in excess of cooling and other electric heat.</td> </tr> <tr> <td>HEATING OR OTHER NON-CONCIDENTAL LOAD: 0.0</td> <td>0%</td> <td>0.0</td> <td></td> </tr> <tr> <td>WELDER LOAD: 0.0</td> <td>0%</td> <td>0.0</td> <td></td> </tr> <tr> <td>MOTORS AND OTHER NON-CONTINUOUS OR MISCELLANEOUS LOAD: 0.0</td> <td>100%</td> <td>0.0</td> <td>All other loads excluding maximum motor load.</td> </tr> <tr> <td>LARGEST MOTOR LOAD: 0.0</td> <td>125%</td> <td>0.0</td> <td></td> </tr> <tr> <td>TOTALS:</td> <td>0.0</td> <td>0%</td> <td>MINIMUM FEEDER: 0-AMPS</td> </tr> </table>														ACTUAL KVA	DEMAND FACTOR	DEMAND KVA		0.0	125%	0.0	Excludes track and show window lighting.	TRACK LIGHTING: 0.0	N/A	0.0	Track length: 0 ft	SHOW WINDOWS: 0.0	N/A	0.0	Show window length: 0 ft	RECEPTACLE LOAD: 0.0	100%	0.0	100% of the first 10 kVA, plus 50% over 10 kVA.	KITCHEN EQUIPMENT LOAD: 0.0	100%	0.0	Based on 0 pieces of equipment.	HEATING (CONCIDENTAL) LOAD: 0.0	100%	0.0	Includes space heat in excess of cooling and other electric heat.	HEATING OR OTHER NON-CONCIDENTAL LOAD: 0.0	0%	0.0		WELDER LOAD: 0.0	0%	0.0		MOTORS AND OTHER NON-CONTINUOUS OR MISCELLANEOUS LOAD: 0.0	100%	0.0	All other loads excluding maximum motor load.	LARGEST MOTOR LOAD: 0.0	125%	0.0		TOTALS:	0.0	0%	MINIMUM FEEDER: 0-AMPS
ACTUAL KVA	DEMAND FACTOR	DEMAND KVA																																																											
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TOTALS:	0.0	0%	MINIMUM FEEDER: 0-AMPS																																																										

PANEL 'E' (SUB-D)													
240/120-VOLT, 3-PHASE, 4-WIRE													
100-AMP MLD													
A.I.C. RATING: 10000													
MOUNTING: SURFACE													
NOTES: EXISTING COMMERCIAL BOLT-ON CIRCUIT BREAKER PANELBOARD.													
CKT NO	LOAD DESCRIPTION	REF NO	BRKR TYPE	LOAD AMPS	BREAKER P / AMP	PHASE AMPS			LOAD AMPS	BRKR TYPE	REF NO	LOAD DESCRIPTION	CKT NO
						A	B	C					
1	GENERATOR MAIN			2	20	0.0			20	1		MAN	2
3	**			**	**	0.0			**	*		**	4
5	GAS PUMP			2	20	0.0			20	2		DIESEL PUMP	6
7	**			**	**	0.0			**	*		**	8
9	OVERHEAD DOOR, 3RD DOOR			1	20	0.0			20	1		GAS SYSTEM	10
11	PANEL SURGE PROTECTOR												

PANEL 'WOP'		A.I.C. RATING: 10000		NOTES: NEW COMMERCIAL BOLT-ON CIRCUIT BREAKER PANELBOARD.																						
208Y/120-VOLT, 3-PHASE, 4-WIRE		MOUNTING: SURFACE																								
CKT NO	LOAD DESCRIPTION	REF NO	BKRR TYPE	LOAD AMPS	BREAKER P AMP	PHASE AMPS	A	B	C	BREAKER AMP P	LOAD AMPS	BKRR TYPE	REF NO	LOAD DESCRIPTION	CKT NO											
1	AIR COMPRESSOR			16.0	3	16.0				56.0						2	WELDING OUTLET									
3	**			16.0	**	**				56.0					4	**										
5	**			16.0	**	**				56.0				6	**											
7	SHOP EYEWASH STATION INSTA-HOT			52.0	3	70	81.0			45.0	45	2	HACR	HP-3	8	HEAT PUMP HP-3										
9	**			52.0	**	**				56.0	15	2	HACR	FC-3	10	FAN COIL FC-3										
11	**			52.0	**	**				56.0	15	2	HACR	**	12	**										
13	SPPARE			1	20	0.0									14	BUSSES SPACE										
15	SPPARE			1	20	0.0				17.0	30	2	HACR	HP1,FC1	16	HEAT PUMP HP-1, FAN COIL FC-1										
17	SPPARE			1	20	0.0				17.0	**	**	**	**	18	**										
19	PANEL 'S'			44.0	3	100	44.0								20	BUSSED SPACE										
21	**			22.0	**	**				58.0	45	2	HACR	HP2,FC2	22	HEAT PUMP HP-2, FAN COIL FC-2										
23	**			58.0	**	**				94.0	**	**	**	**	24	**										
25	PANEL 'O'			47.0	3	100	47.0								26	BUSSED SPACE										
27	**			35.0	**	**				39.0	15	2	4.0		28	FAN COIL FC-4										
29	**			85.0	**	**				89.0	**	**	**	**	30	**										
31	PANEL 'C'			23.0	3	100	23.0								32	BUSSED SPACE										
33	**			10.0	**	**				39.0	45	2	29.0		34	HEAT PUMP HP-4										
35	**			58.0	**	**				88.0	**	**	**	**	36	**										
37	(E) PANEL 'Y'			42.0	2	60	132.0				200	2	90.0		38	(E) PANEL 'Y'										
39	**			40.0	**	**				119.0	**	**	**	**	40	**										
41	BUSSED SPACE									0.0					42	BUSSED SPACE										
<p>ACTUAL DEMAND FACTOR KVA 125% KVA</p> <p>LIGHTING AND OTHER CONTINUOUS LOAD: 0.0 N/A 0.0 Excludes track and show window lighting.</p> <p>TRACK LIGHTING: 0.0 N/A 0.0 Track length: 0 ft</p> <p>SHOW WINDOWS: 0.0 N/A 0.0 Show window length: 0 ft</p> <p>RECEPTACLE LOAD: 36.4 100% 23.2 100% of the first 10 kVA, plus 50% over 10 kVA.</p> <p>KITCHEN EQUIPMENT LOAD: 11.9 100% 8.5 100% of the first 10 kVA, plus 50% over 10 kVA.</p> <p>HEATING (CONCIDENTAL) LOAD: 5.4 100% 5.4 Includes space heat in excess of cooling and other electric heat.</p> <p>HEATING OR OTHER NON-CONCIDENTAL LOAD: 0.0 0% 0.0</p> <p>WELDER LOAD: 0.0 0% 0.0</p> <p>MOTORS AND OTHER NON-CONTINUOUS OR MISCELLANEOUS LOAD: 81.3 100% 61.3 All other loads excluding maximum motor load.</p> <p>LARGEST MOTOR LOAD: 5.8 125% 7.2</p> <p>TOTALS: 134.3 91% 121.8 MINIMUM FEEDER: 338-AMPS</p>																										

PANEL 'C'		A.I.C. RATING: 10000		NOTES: NEW COMMERCIAL BOLT-ON CIRCUIT BREAKER PANELBOARD.																						
208Y/120-VOLT, 3-PHASE, 4-WIRE		MOUNTING: SURFACE																								
CKT NO	LOAD DESCRIPTION	REF NO	BKRR TYPE	LOAD AMPS	BREAKER P AMP	PHASE AMPS	A	B	C	BREAKER AMP P	LOAD AMPS	BKRR TYPE	REF NO	LOAD DESCRIPTION	CKT NO											
1	REC - COPY MACHINE			4.0	1	4.0				4.0					2	SPPARE										
3	REC - MONITOR WORK ROOM			5.0	1	20				5.0					4	SPPARE										
5	REC - MEZZANINE WORK SPACE			7.5	1	20				10.5	20	1	3.0		6	REC - OVER COUNTER CONVENIENCE										
7	REC - REFRIGERATOR FUTURE	GFCI		1.5	1	20	6.0			20	1	4.5			8	REC - CONVENIENCE OUTLET										
9	SPPARE			1	20	0.0				20	1				10	SPPARE										
11	SPPARE			1	20	0.0				6.9	20	1	6.9	GFCI	12	SINK GARABAGE DISPOSAL										
13	REC - WORK ROOM MONITOR			5.0	1	20	5.0			20	1				14	SPPARE										
15	REC - MEZZANINE WORK SPACE			3.0	1	20	3.0			20	1				16	SPPARE										
17	REC - REFRIGERATOR			8.0	1	20	20.0	2	12.0	20	1				18	COFFEE MAKER										
19	SPPARE			1	20	12.0				**	**	**	**	**	20	**										
21	SPPARE			1	20	0.0				20	1				22	SPPARE										
23	REC - MICROWAVE BRK RM			8.3	1	20	16.6			8.3	20	1	8.3		24	REC - MICROWAVE BRK RM										
25	SPPARE			1	20	0.0				20	1				26	SPPARE										
27	SPPARE			1	20	0.0				20	1				28	SPPARE										
29	SPPARE			1	20	0.0				20	1				30	SPPARE										
<p>ACTUAL DEMAND FACTOR KVA 125% KVA</p> <p>LIGHTING AND OTHER CONTINUOUS LOAD: 0.0 N/A 0.0 Excludes track and show window lighting.</p> <p>TRACK LIGHTING: 0.0 N/A 0.0 Track length: 0 ft</p> <p>SHOW WINDOWS: 0.0 N/A 0.0 Show window length: 0 ft</p> <p>RECEPTACLE LOAD: 4.0 100% 4.0 100% of the first 10 kVA, plus 50% over 10 kVA.</p> <p>KITCHEN EQUIPMENT LOAD: 5.4 100% 4.4 Based on 4 pieces of equipment.</p> <p>HEATING (CONCIDENTAL) LOAD: 0.0 100% 0.0 Includes space heat in excess of cooling and other electric heat.</p> <p>HEATING OR OTHER NON-CONCIDENTAL LOAD: 0.0 0% 0.0</p> <p>WELDER LOAD: 0.0 0% 0.0</p> <p>MOTORS AND OTHER NON-CONTINUOUS OR MISCELLANEOUS LOAD: 61.3 100% 61.3 All other loads excluding maximum motor load.</p> <p>LARGEST MOTOR LOAD: 0.8 125% 1.0</p> <p>TOTALS: 10.3 91% 9.4 MINIMUM FEEDER: 26-AMPS</p>																										

PANEL 'S'		A.I.C. RATING: 10000		NOTES: NEW PANELBOARD																						
208Y/120-VOLT, 3-PHASE, 4-WIRE		MOUNTING: SURFACE																								
CKT NO	LOAD DESCRIPTION	REF NO	BKRR TYPE	LOAD AMPS	BREAKER P AMP	PHASE AMPS	A	B	C	BREAKER AMP P	LOAD AMPS	BKRR TYPE	REF NO	LOAD DESCRIPTION	CKT NO											
1	REC - SHOP NORTH WEST			6.0	1	20	6.0			20	1				2	SPPARE										
3	REC - SHOP EXTERIOR NORTH WEST			1.5	1	20				1.5					4	SPPARE										
5	REC - SHOP NORTH WEST			3.0	1	20				10.8	15	1	7.8	UH-1.2	6	SHOP UNIT HEATER #1,2										
7	SPPARE			1	20	7.8				15	1	7.8	UH-3,4	8	SHOP UNIT HEATER #3,4											
9	REC - SHOP NORTH			6.0	1	20				9.9	15	1	3.9	UH-5	10	SHOP UNIT HEATER #5										
11	REC - SHOP NORTH			6.0	1	20				6.0	20	1			12	SPPARE										
13	REC - SHOP EAST			6.0	1	20	6.0			20	1				14	SPPARE										
15	REC - SHOP SUPPLY ROOM			1.5	1	20				1.5					16	SPPARE										
17	REC - DECONTAMINATION ROOM			1.5	1	20				9.9	20	1	8.4	EH-1	18	MECH STORAGE ELECTRIC HEATER										
19	SPPARE			1	20	0.0				20	1				20	SPPARE										
21	SPPARE			1	20	0.0				20	1				22	SPPARE										
23	REC - SHOP STORAGE, MECH OFFICE			7.5	1	20				31.5	30	2	24.0		24	REC - SHOP STORAGE, MECH OFFICE										
25	SPPARE			1	20	24.0				**	**	**	**	**	26	**										
27	VEHICLE EXHAUST FAN			9.5	1	20				9.5					28	SPPARE										
29	SPPARE			1	20	0.0				20	1				30	SPPARE										
31	SPPARE			1	20	0.0				20	1				32	SPPARE										
33	SPPARE			1	20	0.0				20	1				34	SPPARE										
35	SPPARE			1	20	0.0				20	1				36	SPPARE										
37	SPPARE			1	20	0.0				20	1				38	SPPARE										
39	SPPARE			1	20	0.0				20	1				40	SPPARE										
41	SPPARE			1	20	0.0				20	1				42	SPPARE										
<p>ACTUAL DEMAND FACTOR KVA 102% KVA</p> <p>LIGHTING AND OTHER CONTINUOUS LOAD: 0.0 125% 0.0 Excludes track and show window lighting.</p> <p>TRACK LIGHTING: 0.0 N/A 0.0 Track length: 0 ft</p> <p>SHOW WINDOWS: 0.0 N/A 0.0 Show window length: 0 ft</p> <p>RECEPTACLE LOAD: 9.7 100% 9.7 100% of the first 10 kVA, plus 50% over 10 kVA.</p> <p>KITCHEN EQUIPMENT LOAD: 0.0 100% 0.0 Based on 0 pieces of equipment.</p> <p>HEATING (CONCIDENTAL) LOAD: 3.3 100% 3.3 Includes space heat in excess of cooling and other electric heat.</p> <p>HEATING OR OTHER NON-CONCIDENTAL LOAD: 0.0 0% 0.0</p> <p>WELDER LOAD: 0.0 0% 0.0</p> <p>MOTORS AND OTHER NON-CONTINUOUS OR MISCELLANEOUS LOAD: 0.0 100% 0.0 All other loads excluding maximum motor load.</p> <p>LARGEST MOTOR LOAD: 1.1 125% 1.4</p> <p>TOTALS: 14.2 102% 14.4 MINIMUM FEEDER: 40-AMPS</p>																										

PANEL 'Y'		A.I.C. RATING: 10000		NOTES: EXISTING PANELBOARD																						
240/120-VOLT, 1-PHASE, 3-WIRE		MOUNTING: SURFACE																								
CKT NO	LOAD DESCRIPTION	REF NO	BKRR TYPE	LOAD AMPS	BREAKER P AMP	PHASE AMPS	L1	L2	L3	BREAKER AMP P	LOAD AMPS	BKRR TYPE	REF NO	LOAD DESCRIPTION	CKT NO											
1	LTS - SHOP			1.5	1	9.0				9.0					2	LTS - SHOP										
3	LTS - SHOP			1.5	1	9.0				7.5	15	1	7.5	UH-8.9	4	SHOP UNIT HEATER #8,9										
5	LTS - SHOP			1.5	1	9.0				7.5	15	1	7.5	UH-6,7	6	SHOP UNIT HEATER #6,7										
7	LTS - SHOP			1.5	1	9.0				8.4	20	1	8.4	EH-2	8	ELECTRIC HEATER EH-2										
9	LTS - SHOP			1.5	1	9.0				8.4	20	1	8.4	UH-3	10	ELECTRIC HEATER EH-3										
11	LTS - SHOP			1.5	1	9.0				5.4	20	1	5.4	UH-4	12	LTS - EXTERIOR										
13	LTS - SHOP			1.5	1	9.0				16.0	20	1	16.0		14	LTS - EXTERIOR										
15	LTS - SHOP			1.5	1	9.0				1.5	20	1	1.5	EF-1	16	EXHAUST FAN EF-1										
17	REC - SHOP			1	20	9.0				9.0	20	1			18	REC - ROOFTOP CONVENIENCE										
19	REC - SHOP			1	20	1.0				1.0	20	1	1.0	EF-2	20	EXHAUST FAN EF-2										
21	REC - SHOP			1	20	1.0				1.0	20	1	1.0	TP-1,2	22	DRAIN TRAP PRIMER										
23	REC - SHOP			1	20	0.0				0.0	20	1			24	SPPARE										
25	REC - SHOP			1	20	0.0				0.0	20	1			26	SPPARE										
27	REC - SHOP			1	20	0.0				0.0	20	1			28	SPPARE										
29	SPPARE			1	20	0.0				0.0	20	1			30	WELDER ROOM										
31	GENERATOR PANEL			25.0	2	70				32.2	20	1	7.2		32	OVERHEAD DOOR										
33	**			25.0	**	**				32.2	20	1	7.2		34	OVERHEAD DOOR										
35	MISCE WATER MONITOR			10.0	1	20				17.2	20	1	7.2		36	OVERHEAD DOOR										
37	BUSSED SPACE			1	20	0.0				7.2	20	1	7.2		38	OVERHEAD DOOR										
39	BUSSED SPACE			1	20	0.0				7.2	20	1	7.2		40	OVERHEAD DOOR										
41	ICE MACHINE			10.0	1	20				17.2	20	1	7.2		42	OVERHEAD DOOR										
43	UNKNOWN																									

