FULLERTON COLLEGE
FULLERTON, CALIFORNIA

BUILDING 1200

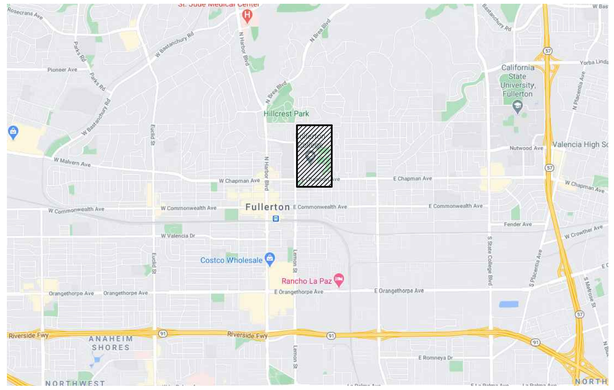
DOMESTIC WATER HEATER REPLACEMENT

Issue for Bid
August 30, 2021

MEPT
P2S Inc.
Long Beach, CA
562.497.2999

VICINITY MAP

LEGEND
PROJECT LOCATION



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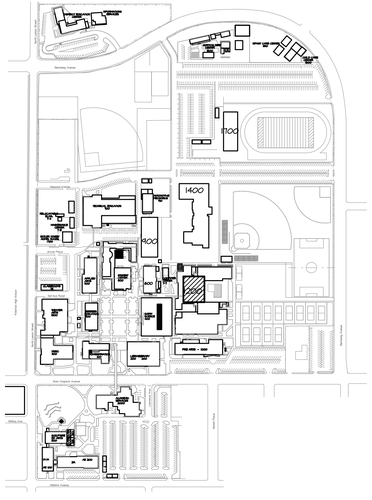
NOT TO SCALE

SITE MAP

LEGEND
PROJECT LOCATION



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SHEET INDEX

ABBREVIATIONS:

CODES/INSTITUTIONS/ASSOCIATIONS

ACI	AMERICAN CONCRETE INSTITUTE
AF&PA	(NDS) AMERICAN FOREST & PAPER ASSOCIATION (NDS)
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
APA-EWA	APA-ENGINEERED WOOD ASSOCIATION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
CBC	CALIFORNIA BUILDING CODE
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
DSA	DIVISION OF THE STATE ARCHITECT
IBC	INTERNATIONAL BUILDING CODE
NDS	NATIONAL DESIGN SPECIFICATIONS
OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
SDI	STEEL DECK INSTITUTE
SJI	STEEL JOIST INSTITUTE
SSMA	STEEL STUD MANUFACTURERS ASSOCIATION

SYMBOLS

#	POUND, NUMBER, QUANTITY
@	AT
<	LESS THAN
>	GREATER THAN
±	PLUS OR MINUS
°	DEGREE
Ø	DIAMETER

ABBREVIATIONS

ADDL	ADDITIONAL
ADJ	ADJACENT
ALT	ALTERNATE
APPROX	APPROXIMATE, APPROXIMATELY
ARCH	ARCHITECT, ARCHITECTURAL
BM	BEAM
BOT	BOTTOM
BTWN	BETWEEN
CL	CENTERLINE
CLR	CLEAR, CLEARANCE
COL	COLUMN
CONC	CONCRETE
CONN	CONNECT, CONNECTION
CONT	CONTINUOUS
DBL	DOUBLE
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
(E)	EXISTING
EA	EACH
EMBED	EMBED, EMBEDDED, EMBEDMENT
EQ	EQUAL
EQUIP	EQUIPMENT
EXP	EXPANSION
EXT	EXTERIOR
GA	GAUGE
GALV	GALVANIZE
HEX	HEXAGONAL
HORIZ	HORIZONTAL
INFO	INFORMATION
IOR	INSPECTOR OF RECORD
K	KIPS (1000#)
KB-TZ	HILTI KWIK BOLT TZ (ANCHOR)
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOCS	LOCATIONS
LONG	LONGITUDINAL
LTWT	LIGHT-WEIGHT
LWT	LIGHT-WEIGHT
MANUF	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
MHP	MHP STRUCTURAL ENGINEERS
MID	MIDDLE
MIN	MINIMUM
(N)	NEW
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
NWT	NORMAL-WEIGHT
OC	ON CENTER
OP	OPERATING
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
REINF	REINFORCING
REQD	REQUIRE, REQUIRED
SCHED	SCHEDULE
SEOR	STRUCTURAL ENGINEER OF RECORD
SIM	SIMILAR
SMS	SHEET METAL SCREW
SQ	SQUARE
SS	STAINLESS STEEL
STAGG	STAGGER
STRUC	STRUCTURAL
SYM	SYMMETRICAL
T&B	TOP & BOTTOM
THK	THICK, THICKNESS
THRU	THROUGH
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
WP	WORK POINT
WT	WEIGHT

STRUCTURAL STEEL SHAPES

Cx	STANDARD CHANNEL
Lx	ANGLE
MCx	MISCELLANEOUS CHANNEL
Wx	W SHAPES

GENERAL STRUCTURAL NOTES:

DESIGN CRITERIA:
CODE OF RECORD: 2019 EDITION, CALIFORNIA BUILDING CODE

DESIGN LOADS:
BASIC WIND SPEED ____ 102 MPH (3-SECOND GUST)
WIND EXPOSURE CATEGORY ____ B
ANALYSIS PROCEDURE ____ SEISMIC DESIGN FOR NONSTRUCTURAL COMPONENTS (ASCE 7-16, CHAPTER 13)

RISK CATEGORY ____ III
SEISMIC SITE CLASS ____ D
SEISMIC DESIGN CATEGORY ____ D
SPECTRAL RESPONSE ACCELERATIONS ____ S_S = 1.624g, S_{DS} = 1.3g
SEISMIC IMPORTANCE FACTOR, I_p ____ 1.0

TANKS, WATER HEATERS:
COMPONENT AMPLIFICATION FACTOR ____ a_P = 1.0
COMPONENT RESPONSE MODIFICATION FACTOR ____ R_P = 2.5
OVERSTRENGTH FACTOR ____ Ω_0 = 2.0

HATCH DESIGN LOADS: LIVE LOAD = 300 PSF, DEAD LOAD = 20 PSF

1. GENERAL NOTES AND TYPICAL DETAILS SHALL APPLY TO ALL PARTS OF THE JOB, EXCEPT WHERE THEY MAY DIFFER WITH DETAILS AND NOTES ON OTHER SHEETS, IN WHICH CASE THE DETAILS AND NOTES ON OTHER SHEETS SHALL GOVERN. DETAIL MARKS WITH "SIM" NOTED INDICATES THAT DETAIL CONTAINS MODIFIED INFORMATION APPLICABLE TO THE CONDITION REFERENCED.
2. SEE MECHANICAL, ELECTRICAL OR PLUMBING (MEP) DRAWINGS FOR DETAILS (EXCEPT AS SHOWN) AND FOR DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS. WHERE DIMENSIONS DIFFER BETWEEN PLANS, NOTIFY SEOR AND AWAIT DIRECTION PRIOR TO PROCEEDING WITH WORK.
3. OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE SEOR PRIOR TO PROCEEDING WITH ANY WORK INVOLVED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT AND THE SEOR AND SHALL BE RESOLVED PRIOR TO PROCEEDING WITH THE WORK.
5. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST CURRENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE SEOR SO THAT THE PROPER REVISION MAY BE MADE. MODIFICATIONS OF CONSTRUCTION DETAILS SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE SEOR.
6. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OR SEQUENCE OF CONSTRUCTION, UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, INCLUDING BUT NOT LIMITED TO BRACING, SHORING AND LAYDOWN OF CONSTRUCTION MATERIALS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY CONSTRUCTION LOADING, INCLUDING LOADING FROM EQUIPMENT SUCH AS SKIP LOADERS, SCISSOR LIFTS, ETC., ON ALL PORTIONS OF THE STRUCTURE, WHETHER ELEVATED OR ON-GRADE. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE PATH-OF-TRAVEL FOR MOVING PERMANENT EQUIPMENT TO ITS FINAL LOCATION; INCLUDING THE EFFECTS OF TEMPORARY LOADING AS THE EQUIPMENT IS INSTALLED. THE CONTRACTOR MAY USE THE "DESIGN LOADS" INFORMATION PROVIDED ABOVE WHEN CONSIDERING TEMPORARY CONSTRUCTION LOADING CONDITIONS.
8. ASTM DESIGNATIONS AND ALL STANDARDS REFER TO THE LATEST AMENDMENTS.
9. WHEN THE ALLOWANCE FOR SUBSTITUTION OF A SPECIFIED MATERIAL OR PRODUCT DESIGNATION IS IMPLIED ON THE DESIGN DRAWINGS BY THE USE OF THE WORDS "OR APPROVED EQUAL", APPROVAL SHALL BE OBTAINED FROM THE SEOR AND THE GOVERNING AGENCY PRIOR TO FABRICATION OR INSTALLATION OF THE SUBSTITUTED MATERIAL OR PRODUCT.
10. DIMENSIONS SHALL GOVERN OVER SCALES SHOWN ON DRAWINGS.
11. THE OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS WHO SHALL PROVIDE SPECIAL INSPECTIONS DURING CONSTRUCTION WHEN SO SPECIFIED ON THE CONTRACT DRAWINGS AND SPECIFICATIONS FOR CERTAIN TYPES OF WORK. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE HIS COMPETENCE, TO THE SATISFACTION OF THE GOVERNING AGENCY, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE DESIGN DRAWINGS AND SPECIFICATIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE SEOR AND TO THE GOVERNING AGENCY. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE SEOR AND TO THE GOVERNING AGENCY. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF HIS KNOWLEDGE, IN CONFORMANCE WITH THE DESIGN DRAWINGS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISION OF THE CODE AND OTHER APPLICABLE REGULATIONS IDENTIFIED ON THE PLANS OR IN THE PROJECT SPECIFICATIONS.
12. UNLESS SPECIFICALLY SHOWN ON THESE PLANS, NO STRUCTURAL MEMBER (BEAM, COLUMN, SHEARWALL, GRADE BEAM, ETC.) SHALL BE CUT, DRILLED OR NOTCHED WITHOUT PRIOR AUTHORIZATION FROM THE SEOR AND THE GOVERNING AGENCY.
13. DIMENSIONS OF EQUIPMENT ANCHOR/ MOUNTING LOCATIONS SHOWN ON PLANS AND/OR DETAILS ARE TO BE COORDINATED WITH ACTUAL EQUIPMENT TO BE INSTALLED. CONTRACTOR TO VERIFY THE EXACT SIZE AND LOCATION OF ALL EQUIPMENT ANCHOR/ MOUNTING HOLES PRIOR TO INSTALLATION. WHERE ACTUAL EQUIPMENT DIMENSIONS DO NOT FALL WITHIN THE MINIMUM OR MAXIMUM DIMENSIONS PROVIDED ON PLANS AND/OR DETAILS, NOTIFY SEOR AND AWAIT DIRECTION PRIOR TO PROCEEDING WITH WORK.

CONCRETE:

1. ALL CONCRETE WORK SHALL CONFORM TO THE STANDARDS OF THE AMERICAN CONCRETE INSTITUTE (ACI), "ACI MANUAL OF CONCRETE PRACTICE" CURRENT EDITION, "SPECIFICATIONS FOR STRUCTURAL CONCRETE" (ACI 301), AND BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318).
2. WHEN SPECIFIED FOR USE, NORMAL WEIGHT (NWT) CONCRETE SHALL HAVE A DRY UNIT WEIGHT OF 150 ± 3 PCF. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33.
3. CEMENT SHALL CONFORM TO PORTLAND CEMENT ASTM C-150 (TYPE II) UNLESS NOTED OTHERWISE. WHEN USED IN THE CONCRETE MIX, FLY ASH SHALL CONFORM TO ASTM C618 CLASS F OR N.
4. MIXING WATER SHALL CONFORM TO ASTM C1602.
5. ADMIXTURES SHALL CONFORM TO THE FOLLOWING:
   A. WATER REDUCTION AND SETTING TIME MODIFICATION: ____ ASTM C494
   B. PRODUCING FLOWING CONCRETE: ____ ASTM C1017
   C. AIR ENTRAINMENT: ____ ASTM C260
   D. INHIBITING CHLORIDE-INDUCED CORROSION: ____ ASTM C1582
6. ALL NON-SHRINK GROUT SHALL CONFORM TO ASTM C1107/C1107M AND SHALL BE PRE-MIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT AND WATER-REDUCING AND PLASTICIZING AGENTS.
   A. MINIMUM COMPRESSIVE STRENGTH AT 48 HOURS: ____ 2,000 PSI
   B. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: ____ 7,000 PSI
7. CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH (f'c) AT 28 DAYS AND SHALL MEET THE OTHER REQUIREMENTS INDICATED BELOW:
   A. CONCRETE FILL OVER METAL DECK: ____ 3,000 PSI, NWT, 1/2" AGGREGATE, 0.50 W/C
8. MAXIMUM SLUMP FOR CONCRETE MIXES SHALL BE 5" TYPICALLY AND 4" FOR ALL FLATWORK, WHETHER ON GRADE OR ELEVATED, EXCEPT WHEN A HIGH RANGE WATER REDUCING ADMIXTURE IS SPECIFIED FOR USE IN THE CONCRETE MIX DESIGN, SLUMP SHALL BE A MAXIMUM OF 9".
9. CONCRETE MIX PROPORTIONING SHALL BE IN ACCORDANCE WITH ARTICLE 4.2.3 OF ACI 301, AND BASED ON FIELD EXPERIENCE AND/OR TRIAL MIXTURES. STRENGTH TEST RECORDS USED FOR ESTABLISHING AND DOCUMENTING CONCRETE MIXTURE PROPORTIONS SHALL BE NO MORE THAN 24 MONTHS OLD. A CONCRETE MIX DESIGN SHALL BE PROVIDED FOR EACH TYPE AND COMPRESSIVE STRENGTH OF CONCRETE TO BE USED ON THE PROJECT. THE CONCRETE MIX DESIGN SHALL BE PREPARED UNDER THE DIRECTION OF A REGISTERED PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER AND TESTING SHALL BE BY AN APPROVED TESTING LABORATORY. ALL CONCRETE MIX DESIGNS SHALL BE STAMPED AND SIGNED BY THE REGISTERED PROFESSIONAL ENGINEER RESPONSIBLE FOR THE MIX PROPORTIONING AND SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD (SEOR) FOR REVIEW.
10. CONCRETE MIX DESIGN SHALL BE PREPARED BY AN APPROVED TESTING LAB AND A REGISTERED CIVIL ENGINEER AND SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD (SEOR) FOR REVIEW. CONCRETE MIX DESIGN SUBMITTALS SHALL BE STAMPED AND SIGNED BY THE LICENSED ENGINEER RESPONSIBLE FOR THE MIX DESIGN.
11. WHEN USED, AIR ENTRAINMENT SHALL NOT BE MORE THAN 5%.
12. ALL FURNISHED CONCRETE MIX DESIGNS SHALL REFLECT PROVEN CONCRETE SHRINKAGE CHARACTERISTICS OF 0.0004 IN/IN (0.04%) FINAL SHRINKAGE STRAIN OR LESS AT ALL SLABS (INCLUDING TOPPING SLABS WHERE THEY OCCUR), AND 0.0006 IN/IN (0.06%) FINAL SHRINKAGE STRAIN OR LESS AT OTHER CONCRETE ELEMENTS, AS DETERMINED IN ACCORDANCE WITH ASTM C157.
13. CONCRETE SHALL BE CONVEYED TO FINAL LOCATION BY METHODS THAT PREVENT SEGREGATION OR LOSS OF CONSTITUENTS AND ENSURE THE REQUIRED CONCRETE QUALITY.
14. WATER SHALL NOT BE ADDED TO CONCRETE AT THE SITE.
15. ALL CONSTRUCTION JOINTS SHALL BE ROUGHENED TO 1/4" AMPLITUDE, THOROUGHLY CLEANED AND ALL LAITANCE SHALL BE REMOVED. ALL JOINTS SHALL BE THOROUGHLY DAMPENED, BUT WITHOUT STANDING WATER, IMMEDIATELY BEFORE PLACING NEW CONCRETE.
16. PRIOR TO PLACING CONCRETE, ALL EMBEDDED ITEMS, INCLUDING REINFORCING STEEL, SHALL BE WELL SECURED IN POSITION. CONCRETE SHALL NOT BE POURED UNTIL ALL FORMS AND REINFORCING HAVE BEEN INSPECTED, ALL PREPARATIONS FOR THE PLACEMENT HAVE BEEN COMPLETED, AND THE PREPARATIONS HAVE BEEN REVIEWED BY THE PROJECT INSPECTOR.
17. ONLY ONE GRADE OF CONCRETE SHALL BE ALLOWED AT THE JOB SITE AT ANY ONE TIME.
18. CONCRETE TO BE PLACED DURING COLD WEATHER SHALL COMPLY WITH ACI 306R, "GUIDE TO COLD WEATHER CONCRETING" AND ACI 306.1, "STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING".
19. CONCRETE TO BE PLACED DURING HOT WEATHER SHALL COMPLY WITH ACI 305R, "GUIDE TO HOT WEATHER CONCRETING" AND ACI 305.1, "STANDARD SPECIFICATION FOR HOT WEATHER CONCRETING".
20. CONCRETE SHALL BE MAINTAINED IN A CONTINUOUSLY MOIST CONDITION ABOVE 50F FOR A MINIMUM OF SEVEN (7) DAYS AFTER PLACEMENT. THE 7-DAY REQUIREMENT MAY BE REDUCED TO 3 DAYS FOR HIGH-EARLY-STRENGTH CONCRETE. ALTERNATE ACCELERATED CURING METHODS MAY BE APPROVED BY THE SEOR IF SATISFACTORY PERFORMANCE CAN BE ASSURED.
21. NO CONSTRUCTION LOADS SHALL BE SUPPORTED ON ANY PART OF THE STRUCTURE UNDER CONSTRUCTION EXCEPT WHEN THE CONTRACTOR'S ANALYSIS, PROCEDURES AND SCHEDULE INDICATE THAT THE SUBJECT PART OF THE STRUCTURE HAS SUFFICIENT STRENGTH AND STIFFNESS TO SUPPORT ITS WEIGHT AND LOAD PLACED THEREON WITHOUT ADVERSE EFFECT. AT A MINIMUM,
22. ALL CONCRETE SHALL BE TESTED AND INSPECTED AS REQUIRED PER THE SPECIAL INSPECTION SECTION OF THESE GENERAL NOTES.

REINFORCING STEEL:

1. DETAILING FABRICATION AND PLACING OF WELDED WIRE REINFORCING SHALL CONFORM TO THE STANDARDS AND RECOMMENDATIONS CONTAINED WITHIN THE WRI "MANUAL OF STANDARD PRACTICE - STRUCTURAL WELDED WIRE REINFORCEMENT".
2. STEEL WELDED WIRE REINFORCING (WWR) AND TIE WIRE USED TO SECURE REBAR AND WWR SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS, UNO:
   A. WELD WIRE REINFORCING: ____ ASTM A-1064
   B. TIE WIRE: ____ ASTM A-82
3. PRIOR TO PLACING CONCRETE; WWR AND OTHER EMBEDDED ITEMS SHALL BE WELL-SECURED IN POSITION AND SHALL BE CLEAN OF RUST, GREASE OR OTHER MATERIAL LIKELY TO IMPAIR BOND.

STRUCTURAL AND MISCELLANEOUS STEEL:

1. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS (AISC 360).
2. ALL WELDING SHALL COMPLY WITH AWS SPECIFICATION D1.1/D1.1M. WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED FOR THE TYPE OF WELDING TO BE PERFORMED.
3. WELDING PROCEDURE SPECIFICATIONS (WPS) SHALL BE SUBMITTED FOR REVIEW FOR EACH WELD TYPE, WELDING PROCESS, WELDING ELECTRODE CLASSIFICATION AND/OR BASE MATERIAL (WHERE ASTM GRADE OR ALLOY VARIES) SHOWN ON THE DRAWINGS IN CONFORMANCE WITH AWS D1.1/D1.1M, D1.4/D1.4M. EACH WPS SHALL BE RECORDED ON FORMS RECOMMENDED BY THE APPLICABLE AWS STANDARD AND SHALL BE REVIEWED BY AN AWS SCWI CERTIFIED INSPECTOR AND SUBMITTED TO THE SEOR AND, IF THE PROJECT IS GOVERNED BY DSA OR OSHPD, THE INSPECTOR OF RECORD (IOR) FOR REVIEW. IF A WELD ASSEMBLY NOTED ON PLANS DOES NOT FALL WITHIN THE PREQUALIFIED CRITERIA, CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A WELDING PROCEDURE QUALIFICATION RECORD FOR THE SPECIFIED WELD AS PART OF THE WPS SUBMITTAL.
4. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO THE FOLLOWING SPECIFICATION (UNLESS NOTED OTHERWISE):
   A. WIDE FLANGE SECTIONS (W,WT) ____ ASTM A-992 ____ FY=50KSI
   B. ANGLES AND PLATES ____ ASTM A-36 ____ FY=36KSI
   C. HSS TUBE (SQ,RECTANG) ____ ASTM A-500, GR C ____ FY=50KSI
5. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED FREE OF RUST, LOOSE MILL SCALE, AND OIL.
6. ALL STEEL EXPOSED TO MOISTURE OR WEATHER SHALL BE HOT-DIPPED GALVANIZED, UNLESS NOTED OTHERWISE. GALVANIZING SHALL BE IN CONFORMANCE WITH ASTM A123 AND A153. REPAIR GALVANIZING AFTER WELDING SHALL BE IN ACCORDANCE WITH ASTM A780.
7. WHERE CARBON STEEL IS IN CONTACT WITH STAINLESS STEEL OR WHERE EITHER CARBON OR STAINLESS STEEL IS IN CONTACT WITH ALUMINUM, PHENOLIC SHIM OR BREAK SHALL BE INSTALLED TO SEPARATE DISSIMILAR METALS.
8. BOLTS, THREADED RODS, AND WASHERS SHALL CONFORM TO THE FOLLOWING, UNO:
   A. MACHINE BOLTS ____ ASTM A-307
   B. THREADED RODS, UNO ____ ASTM A-36
   C. WASHERS ____ ASTM F-436
9. UNLESS NOTED OTHERWISE, BOLTS SHALL BE INSTALLED "SNUG TIGHT". THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES OF THE JOINT ARE IN FIRM CONTACT.
10. ALL STRUCTURAL STEEL WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES.
11. WHERE LENGTH OF WELD IS NOT INDICATED, WELD SHALL BE FULL LENGTH OF JOINT.
12. SEE CONCRETE GENERAL NOTES FOR NON-SHRINK GROUT REQUIREMENTS.
13. SEE SPECIAL INSPECTION AND TESTING NOTES FOR INSPECTION AND TESTING REQUIREMENTS.

METAL DECK:

1. METAL DECK SHALL BE GALVANIZED STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A-653 SS GR 33 (MIN) AND ZINC COATED PER ASTM A-653 G90.
2. METAL DECK SHALL BE VERCO MANUFACTURING, INC. TYPES (OR APPROVED EQUAL) AND SHALL CONFORM TO IAPMO UES ER-0218.
3. IF OTHER THAN VERCO DECK IS FURNISHED, THE CONTRACTOR SHALL ESTABLISH THAT THE MANUFACTURER'S VERTICAL LOAD AND SHEAR STRENGTH DATA CONFORMS TO THE DESIGN LOADS AND SECTION PROPERTIES ESTABLISHED IN THESE DRAWINGS, AND THE CONTRACTOR SHALL SUBMIT AN ICC REPORT TO THE SEOR FOR APPROVAL PRIOR TO FABRICATION.
4. WELDING SHALL BE PERFORMED BY CERTIFIED LIGHT GAUGE WELDERS.
5. LIGHT GAUGE WELDING OF METAL DECK SHALL BE DONE BY ELECTRIC ARC PROCESS WITH E70XX ELECTRODES.
6. METAL DECK AND ERECTION SHALL CONFORM TO STEEL DECK INSTITUTE (SDI) GUIDELINES AND ASTM SPECIFICATIONS.
7. SEE SPECIAL INSPECTIONS AND TESTING NOTES FOR ADDITIONAL INSPECTION AND TESTING REQUIREMENTS.

POST-INSTALLED ANCHORS:

1. POST INSTALLED ANCHOR NOTES IN THIS SECTION SHALL APPLY TO ALL ANCHORS (INCLUDING THREADED ROD OR REINFORCING BARS) INSTALLED INTO HARDENED CONCRETE OR MASONRY.
2. INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S INSTRUCTIONS AND THE APPLICABLE EVALUATION REPORT AND SHALL BE INSTALLED BY PERSONNEL TRAINED TO INSTALL THE TYPE OF POST-INSTALLED ANCHOR BEING INSTALLED.
3. LOCATE EXISTING REINFORCING BY NON-DESTRUCTIVE METHODS PRIOR TO DRILLING. EXISTING REINFORCING SHALL NOT BE CUT OR DAMAGED.
4. HOLES FOR INSTALLATION OF THE POST-INSTALLED ANCHOR SHALL BE DRILLED USING A DRILL THAT HAS A CARBIDE-TIPPED BIT THAT COMPLIES WITH ANSI B212.15. A REBAR CUTTING DRILL BIT IS NOT ALLOWED.
5. CONTRACTOR SHALL USE APPROPRIATE EQUIPMENT AND METHODS AS REQUIRED TO PROVIDE DRILLED HOLES FOR POST-INSTALLED ANCHORS IN ACCORDANCE WITH APPLICABLE STANDARDS, MANUFACTURER'S RECOMMENDATIONS, AND QUALIFYING (ICC) TEST REPORTS. CARE SHALL BE TAKEN TO PREVENT OVERSIZING, OVALING, AND/OR BLOW-OUT THROUGH THE BACK FACE OF THE DRILLED MEMBER. IF OVERSIZING, OVALING, AND/OR BLOW-OUT OCCURS, THE EMPLOYED EQUIPMENT AND METHODS SHALL BE DISCONTINUED.
6. HOLES SHALL BE CLEANED OF DUST AND DEBRIS, USING A WIRE BRUSH AND COMPRESSED AIR OR MANUFACTURER'S BLOW-OUT BULB (AS PER MANUFACTURER'S RECOMMENDATIONS) AS REQUIRED TO REMOVE PARTICULATE DEBRIS AND TO ACHIEVE A RELATIVELY DUST-FREE SURFACE.
7. OIL, SCALE, AND RUST SHALL BE REMOVED FROM THE POST-INSTALLED ANCHOR AND HOLES SHALL BE DRY, PRIOR TO INSTALLATION.
8. POST-INSTALLED EMBEDMENT DEPTHS NOTED ON THE PLANS OR DETAILS ARE NOMINAL (I.E. MEASURED FROM FACE OF CONCRETE OR MASONRY TO EMBEDDED TIP OF ANCHOR/REBAR). FOR CORRESPONDING HOLE DEPTH, REFER TO APPLICABLE EVALUATION REPORT.
9. APPROVED EXPANSION ANCHORS AND EVALUATION REPORTS ARE AS FOLLOWS:
   - HILTI KWIK BOLT-TZ2 ANCHORS ____ ESR-4266
   - DEWALT POWER-STUD+ SD2 ____ ESR-2502
   - SIMPSON STRONG-TIE STRONG-BOLT 2 WEDGE ANCHOR ____ ESR-3037
10. WHERE APPLICABLE, EXPANSION ANCHORS SHALL BE INSTALLED WITH THE MINIMUM TORQUE, USING A CALIBRATED TORQUE WRENCH. WEDGE OR SLEEVE TYPE ANCHORS MUST ATTAIN THE SPECIFIED TORQUE WITHIN ONE HALF TURN OF THE NUT, EXCEPT 3/8" DIAMETER WEDGE OR SLEEVE TYPE ANCHORS MUST ATTAIN SPECIFIED TORQUE WITHIN ONE QUARTER TURN OF THE NUT.
11. INSTALLATION TORQUES FOR EXPANSION ANCHORS SHALL BE AS NOTED BELOW:

EXPANSION ANCHOR MAXIMUM INSTALLATION TORQUE LOADS IN CONCRETE (FT-LB)			
NOMINAL ANCHOR DIAMETER	HILTI KWIK BOLT TZ2	DEWALT POWER STUD+ SD2, SD4, OR SD6	SIMPSON STRONG BOLT 2
3/8"	30	20	30
1/2"	50	40	60
5/8"	40	60	90
3/4"	110	110	150

12. SEE SPECIAL INSPECTION AND TESTING NOTES FOR INSPECTION REQUIREMENTS.

SPECIAL INSPECTIONS:

1. THE OWNER, OR THE OWNER'S AUTHORIZED AGENT (OTHER THAN THE CONTRACTOR AS APPLICABLE) SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS, INCLUDING AS APPLICABLE AN INSPECTOR OF RECORD (IOR), WHO SHALL PROVIDE SPECIAL INSPECTIONS DURING CONSTRUCTION FOR CERTAIN TYPES OF WORK WHEN SO SPECIFIED IN THE CONTRACT DOCUMENTS AND PROJECT SPECIFICATIONS. WHERE AN IOR IS REQUIRED BY THE GOVERNING AGENCY, THE IOR MAY PERFORM SPECIAL INSPECTIONS IF THAT PERSON IS QUALIFIED PER THE GOVERNING AGENCY'S STANDARDS FOR THE SPECIAL INSPECTION REQUIRED. WHERE AN IOR IS NOT REQUIRED, THESE SPECIAL INSPECTIONS SHALL BE IN ADDITION TO AND COMPLEMENTARY WITH THE INSPECTIONS PROVIDED BY THE GOVERNING AGENCY.
2. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON FROM AN APPROVED AGENCY CONFORMING TO ASTM C1077 WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE ARCHITECT, STRUCTURAL ENGINEER OF RECORD AND THE GOVERNING AGENCY, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
3. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE DESIGN DRAWINGS, SPECIFICATIONS AND APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE AND OTHER APPLICABLE REGULATIONS IDENTIFIED WITHIN THE CONSTRUCTION DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE GENERAL CONTRACTOR FOR CORRECTION AND THEN, IF UNCORRECTED, TO THE ATTENTION OF THE ARCHITECT, STRUCTURAL ENGINEER OF RECORD AND THE GOVERNING AGENCY. IT SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE SPECIAL INSPECTOR AND SCHEDULE THE SPECIAL INSPECTIONS WITH ADEQUATE TIME TO ADDRESS ANY AND ALL POTENTIAL DISCREPANCIES PRIOR TO PROCEEDING WITH SUBSEQUENT WORK THAT COVERS OR OTHERWISE MAKES INACCESSIBLE ANY WORK IDENTIFIED AS DEVIATING FROM THE PROJECT REQUIREMENTS.
4. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR INSPECTION REPORTS TO THE ARCHITECT, STRUCTURAL ENGINEER OF RECORD AND THE GOVERNING AGENCY IDENTIFYING THE WORK INSPECTED AND ANY UNCORRECTED DISCREPANCIES FROM THE CONSTRUCTION DOCUMENTS. AT THE CONCLUSION OF THE PROJECT OR THE SPECIAL INSPECTORS ASSIGNED SCOPE OF WORK, THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF HIS OR HER KNOWLEDGE, COMPLETED IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS (INCLUDING APPROVED RFI'S, ADDENDUMS, ETC.) AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE AND OTHER APPLICABLE REGULATIONS IDENTIFIED WITHIN THE CONSTRUCTION DOCUMENTS.
5. UNLESS NOTED OTHERWISE, SPECIAL INSPECTIONS INDICATED BELOW SHALL BE PROVIDED IN EITHER A CONTINUOUS OR PERIODIC CAPACITY, AS DEFINED BELOW, AS REQUIRED BY THE INDIVIDUAL CODE OR REFERENCED STANDARD.
6. CONTINUOUS - SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.
7. PERIODIC - SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED. FOR STRUCTURAL STEEL, PERIODIC INSPECTION IS FURTHER DEFINED SUCH THAT ITEMS ARE OBSERVED ON A RANDOM BASIS.
8. FOR STRUCTURAL STEEL WELDING AND BOLTING, SPECIAL INPECTION SHALL BE PROVIDED IN EITHER AN OBSERVE OR PERFORM CAPACITY AS DEFINED BELOW:
   - OBSERVE (O) - INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS
   - PERFORM (P) - INSPECTOR SHALL OBSERVE OR PERFORM SPECIFIED TASK FOR EACH WELDED OR BOLTED JOINT OR MEMBER
9. QUALITY CONTROL (QC) INSPECTION TASKS SHALL BE PERFORMED BY THE FABRICATOR'S OR ERECTOR'S QC INSPECTOR (QCI) AS INDICATED. QUALITY ASSURANCE (QA) INSPECTION TASKS SHALL BE PERFORMED BY THE QA INSPECTOR (QAI) AS INDICATED. WHEN A TASK IS INDICATED TO BE PERFORMED BY BOTH THE QAI AND QCI, COORDINATION IS PERMITTED SO THAT THE INSPECTION FUNCTIONS ARE PERFORMED BY ONLY ONE PARTY. WHEN THE QAI RELIES ON THE QCI, THE APPROVAL OF THE SEOR AND AGENCY HAVING JURISDICTION IS REQUIRED.
10. THE FOLLOWING CONSTRUCTION ELEMENTS AND MATERIALS SHALL BE INSPECTED AND EVALUATED BY A SPECIAL INSPECTOR IN ACCORDANCE WITH THE NOTED CBC SECTIONS AND REFERENCED STANDARDS, WHERE ELEMENTS AND MATERIALS ARE PRESENT ON THE PROJECT. SEE GENERAL NOTES FOR EACH MATERIAL FOR ADDITIONAL REQUIREMENTS, IN ADDITION TO TABLES AND NOTES BELOW:

CONCRETE SPECIAL INSPECTION TABLE:

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION PER CBC TABLE 1705.3

VERIFICATION AND INSPECTION	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED	REFERENCE FOR CRITERIA	
			MISC. STANDARDS	CBC
1. INSPECT REINFORCEMENT AND VERIFY PLACEMENT	---	X	ACI 318: CH. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4
2. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS (SEE NOTE 1 BELOW).		X	ACI 318: CH 17.8.2.4	---
3. VERIFY USE OF REQUIRED DESIGN MIX	---	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
4. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS (SEE NOTE 2 BELOW), PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	---	ASTM C 172 ASTM C 31 ACI 318: CH 26.4.5, 26.12	1908.10
5. INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	---	ACI 318: CH 26.4.5	1908.6, 1908.7, 1910.8
6. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	---	X	ACI 318: CH 5.11-5.13	1908.9
7. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	---	X	ACI 318: CH 26.10.1(B)	---

CONCRETE SPECIAL INSPECTION NOTES:
1. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION ARE INCLUDED IN THE RESEARCH REPORT FOR EACH POST-INSTALLED ANCHOR ISSUED BY AN APPROVED SOURCE. THESE SPECIAL INSPECTION REQUIREMENTS SHOULD BE FOLLOWED. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, CONTACT STRUCTURAL ENGINEER FOR SPECIAL INSPECTION REQUIREMENTS PRIOR TO PROCEEDING WITH THE WORK. PROJECT SPECIFIC SPECIAL INSPECTION MEASURES SHALL BE APPROVED BY THE GOVERNING AGENCY PRIOR TO THE COMMENCEMENT OF THE WORK.
2. A STRENGTH TEST SHALL BE THE AVERAGE OF, AT A MINIMUM, TWO 6x12 CYLINDERS OR THREE 4x8 CYLINDERS MADE FROM THE SAME SAMPLE OF CONCRETE. A TESTING LABORATORY SHALL MAKE AND TEST ONE SAMPLE SET FOR EACH 150 CUBIC YARDS OF CONCRETE BUT NOT LESS THAN ONE SAMPLE SET FOR EACH 5,000 SQFT OF SURFACE AREA FOR SLABS OR WALLS. IF TOTAL VOLUME OF CONCRETE IS SUCH THAT FREQUENCY OF TESTING WOULD PRODUCE FEWER THAN 5 STRENGTH TESTS FOR A GIVEN CONCRETE MIXTURE, THEN STRENGTH TEST SPECIMENS SHALL BE MADE FROM AT LEAST 5 RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN 5 BATCHES ARE USED.

STEEL SPECIAL INSPECTION TABLES:

INSPECTION TASKS PRIOR TO WELDING PER AISC 360 TABLE N5.4-1

INSPECTION TASKS PRIOR TO WELDING	QC	QA
1. WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	O
2. WELDING PROCEDURE SPECIFICATION (WPS) AVAILABLE	P	P
3. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P
4. MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
5. WELDER IDENTIFICATION SYSTEM [a]	O	O
6. FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) • JOINT PREPARATIONS • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION) • BACKING TYPE AND FIT (IF APPLICABLE)	O	O
7. FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY) • JOINT PREPARATIONS • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	P	O
8. CONFIGURATION AND FINISH OF ACCESS HOLES	O	O
9. FIT-UP OF FILLET WELDS • DIMENSIONS (ALIGNMENT, GAPS AT ROOT) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	O	O
10. CHECK WELDING EQUIPMENT	O	---
[a] THE FABRICATOR OR ERECTOR, AS APPLICABLE SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW STRESS TYPE.		

INSPECTION TASKS DURING WELDING PER AISC 360 TABLE N5.4-2

INSPECTION TASKS DURING WELDING	QC	QA
1. CONTROL AND HANDLING OF WELDING CONSUMABLES a) PACKAGING b) EXPOSURE CONTROL	O	O
2. NO WELDING OVER CRACKED TACK WELDS	O	O
3. ENVIRONMENTAL CONDITIONS a) WIND SPEED WITHIN LIMITS b) PRECIPITATION AND TEMPERATURE	O	O
4. WPS FOLLOWED a) SETTINGS ON WELDING EQUIPMENT b) TRAVEL SPEED c) SELECTED WELDING MATERIALS d) SHIELDING GAS TYPE/FLOW RATE e) PREHEAT APPLIED f) INTERPASS TEMPERATURE MAINTAINED (MIN./MAX/) g) PROPER POSITION (F, V, H, OH)	O	O
5. WELDING TECHNIQUES a) INTERPASS AND FINAL CLEANING b) EACH PASS WITHIN PROFILE LIMITATIONS c) EACH PASS MEETS QUALITY REQUIREMENTS	O	O
6. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	P	P

INSPECTION TASKS AFTER WELDING PER AISC 360 TABLE N5.4-3

INSPECTION TASKS AFTER WELDING	QC	QA
1. WELDS CLEANED	O	O
2. SIZE, LENGTH AND LOCATION OF WELDS	P	P
3. WELDS MEET VISUAL ACCEPTANCE CRITERIA a) CRACK PROHIBITION b) WELD/BASE-METAL FUSION c) CRATER CROSS-SECTION d) WELD PROFILES e) WELD SIZE f) UNDERCUT g) POROSITY	P	P
4. ARC STRIKES	P	P
5. K-AREA [a]	P	P
6. WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES [b]	P	P
7. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P
8. REPAIR ACTIVITIES	P	P
9. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P
10. NO PROHIBITED WELDS HAVE BEEN ADDED WITH THE APPROVAL OF THE EOR	O	O
[a] WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3" (75mm) OF THE WELD. [b] AFTER ROLLED HEAVY SHAPES (SEE SECTION A3.1c) AND BUILT-UP HEAVY SHAPES (SEE SECTION A3.1d) ARE WELDED VISUALLY INSPECT THE WELD ACCESS HOLE FOR CRACKS.		

INSPECTION OF COLD-FORMED STEEL DECK PRIOR TO DECK PLACEMENT PER SDI QA/QC TABLE 1.1

TASK	CONTINUOUS	PERIODIC
A. VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL DECK ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS	---	---
B. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES	---	---

INSPECTION OF COLD-FORMED STEEL DECK AFTER DECK PLACEMENT PER SDI QA/QC TABLE 1.2

TASK	CONTINUOUS	PERIODIC
A. VERIFY COMPLIANCE OF DECK AND ALL DECK ACCESSORIES INSTALLATION WITH CONSTRUCTION DOCUMENTS	---	---
B. VERIFY DECK MATERIALS ARE REPRESENTED BY THE MILL CERTIFICATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS	---	---
C. DOCUMENT ACCEPTANCE OR REJECTION OF INSTALLATION OF DECK AND DECK ACCESSORIES	---	---

INSPECTION OF COLD-FORMED STEEL DECK PRIOR TO WELDING PER SDI QA/QC TABLE 1.3

TASK	CONTINUOUS	PERIODIC
A. WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE	---	X
B. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	---	X
C. MATERIAL IDENTIFICATION (TYPE/GRADE)	---	X
D. CHECK WELDING EQUIPMENT	---	X

INSPECTION OF COLD-FORMED STEEL DECK DURING WELDING PER SDI QA/QC TABLE 1.4

TASK	CONTINUOUS	PERIODIC
A. USE OF QUALITY WELDERS	---	X
B. CONTROL AND HANDLING OF WELDING CONSUMABLES	---	X
C. MATERIAL IDENTIFICATION (TYPE/GRADE)	---	X
D. CHECK WELDING EQUIPMENT	---	X

INSPECTION OF COLD-FORMED STEEL DECK AFTER WELDING PER SDI QA/QC TABLE 1.5

TASK	CONTINUOUS	PERIODIC
A. VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND PERIMETER WELDS.	---	---
B. WELDS MEET VISUAL ACCEPTANCE CRITERIA	---	---
C. VERIFY REPAIR ACTIVITIES	---	---
D. DOCUMENT ACCEPTANCE OR REJECTION OF WELDS	---	----

INSPECTION OF COLD-FORMED STEEL DECK PRIOR TO MECHANICAL FASTENING PER SDI QA/QC TABLE 1.6

TASK	CONTINUOUS	PERIODIC
A. MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS	---	X
B. PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATION	---	X
C. PROPER STORAGE FOR MECHANICAL FASTENERS	---	X

INSPECTION OF COLD-FORMED STEEL DECK DURING MECHANICAL FASTENING PER SDI QA/QC TABLE 1.7

TASK	CONTINUOUS	PERIODIC
A. FASTENERS ARE POSITIONED AS REQUIRED	---	X
B. FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS	---	X

INSPECTION OF COLD-FORMED STEEL DECK AFTER MECHANICAL FASTENING PER SDI QA/QC TABLE 1.8

TASK	CONTINUOUS	PERIODIC
A. CHECK SPACING, TYPE, AND INSTALLATION OF SUPPORT FASTENERS	---	---
B. CHECK SPACING, TYPE, AND INSTALLATION OF SIDELAP FASTENERS	---	---
C. CHECK SPACING, TYPE, AND INSTALLATION OF PERIMETER FASTENERS	---	---
D. VERIFY REPAIR ACTIVITIES	---	---
E. DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICAL FASTENERS	---	---

STEEL SPECIAL INSPECTION AND TESTING NOTES:
1. THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.
2. SHOP WELDING WHERE DONE IN THE SHOP OF A LICENSED STEEL FABRICATOR REGISTERED WITH AND APPROVED BY THE GOVERNING AGENCY MAY BE EXEMPT FROM SPECIAL INSPECTION.
3. INSPECTION OF WELDS SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.1/D1.1M.
4. WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3" (75mm) OF THE WELD.
5. CJP GROOVE WELDS SHALL BE ULTRASONICALLY TESTED (UT) IN MATERIALS 5/16 INCH AND THICKER.

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Project Title

BUILDING 1200
HEAT EXCHANGER
REPLACEMENT

FULLERTON COLLEGE

321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

REGISTERED PROFESSIONAL ENGINEER
TERRY FERNANDEZ
No.3256
Exp. 03-31-23
STRUCTURAL
STATE OF CALIFORNIA
8/30/2021

Revisions
Number Description Date

Designed	GC
Drawn	SMA
Checked	KBR
Approved	-
Date	08/30/2021
Submittal	Issue for Bid
Scale	None

Sheet Title

Structural Notes and Abbreviations

Sheet Number

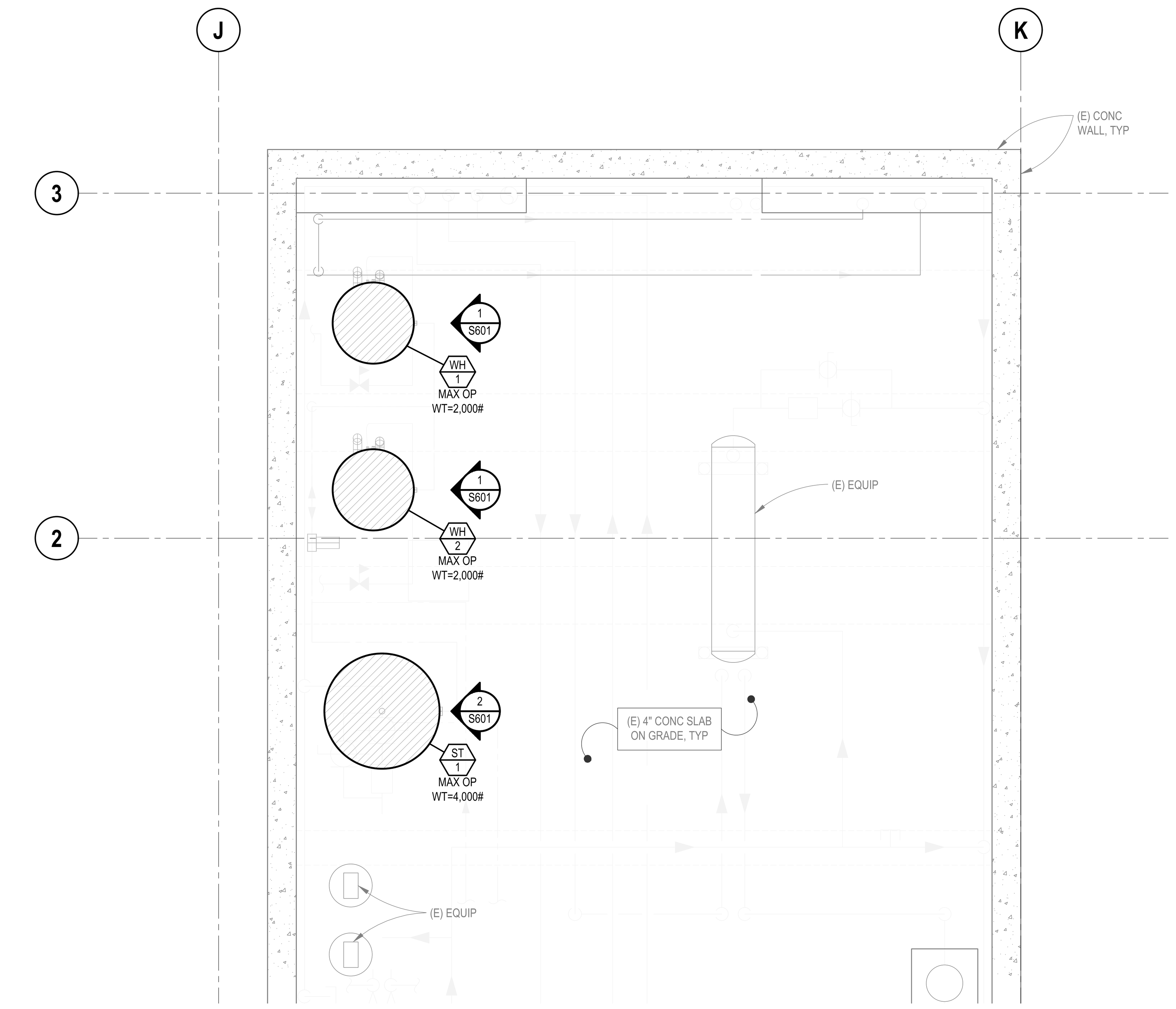
S100

P2S No. 0203

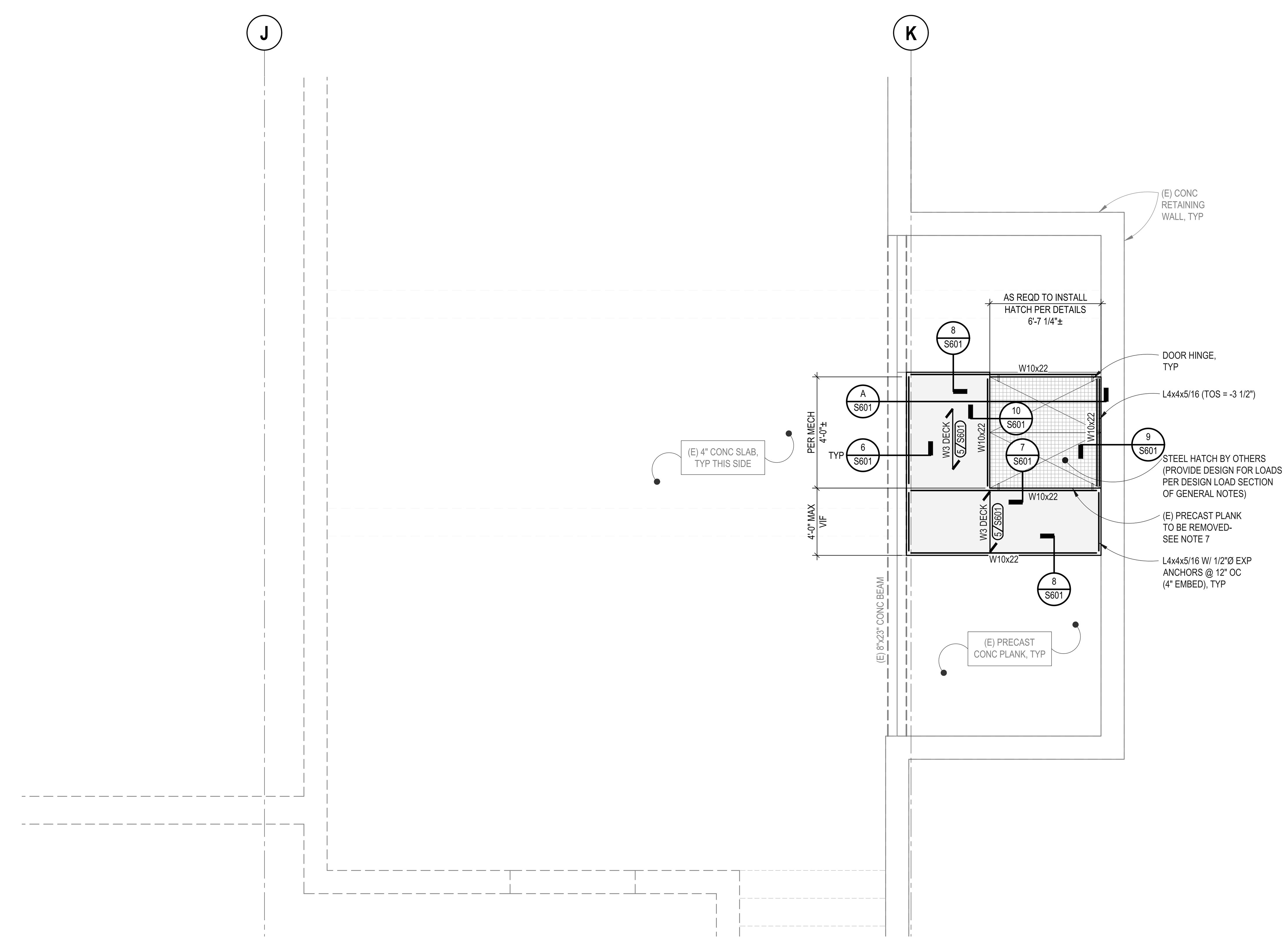
FILE PATH & NAME: H:\2021\210255\3_DRAWINGS\DWGS-00\21-0255-00_S100 (STRUCTURAL NOTES AND ABBREVIATIONS).DWG SHAWN ALVIRA
PLOT: Monday, August 30, 2021 11:04:24 AM

PLAN NOTES

1. SEE GENERAL NOTES SHEET FOR APPLICABLE NOTES AND ABBREVIATIONS.
2. EXISTING CONSTRUCTION IS SHOWN FADED AND IS LABELED AS EXISTING OR (E). NEW CONSTRUCTION IS SHOWN DARK AND IS SPECIFICALLY REFERENCED BY DETAILS AND NOTES.
3. EXISTING CONDITIONS ARE SHOWN TO THE BEST OF OUR KNOWLEDGE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACTUAL CONDITIONS. DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN ON THESE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING.
4. DIMENSIONS OF EQUIPMENT ANCHOR/ MOUNTING LOCATIONS SHOWN ON PLANS AND/OR DETAILS ARE TO BE COORDINATED WITH ACTUAL EQUIPMENT TO BE INSTALLED.
5. CONTRACTOR TO VERIFY THE EXACT SIZE AND LOCATION OF ALL EQUIPMENT ANCHOR/ MOUNTING HOLES PRIOR TO INSTALLATION. WHERE ACTUAL EQUIPMENT DIMENSIONS DO NOT FALL WITHIN THE MINIMUM OR MAXIMUM DIMENSIONS PROVIDED ON PLANS AND/OR DETAILS, NOTIFY SEOR AND AWAIT DIRECTION PRIOR TO PROCEEDING WITH WORK.
6. DO NOT CUT ANY NEW OPENINGS OR ENLARGE ANY EXISTING OPENINGS IN THE SPECIFIED BUILDING FLOOR (FOR DUCTS, PIPES, ETC.) UNLESS SPECIFICALLY SHOWN ON THESE STRUCTURAL DRAWINGS.
7. CAREFULLY REMOVE EXISTING PRECAST PLANK. DO NOT DAMAGE OTHER PRECAST PLANKS THAT ARE TO REMAIN.
8. TOP OF CONCRETE & HATCH = 0'-0". TOP OF STEEL Wx BEAMS = -7 1/2". TOP OF STEEL LEDGER Lx= -6" UNO.



PARTIAL BASEMENT FOUNDATION PLAN
SCALE: 3/8" = 1'-0"



PARTIAL FIRST FLOOR FRAMING PLAN
SCALE: 3/8" = 1'-0"

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Project Title

BUILDING 1200
HEAT EXCHANGER
REPLACEMENT

FULLERTON COLLEGE

321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

8/30/2021

Revisions

Number	Description	Date

Designed	GC
Drawn	SMA
Checked	KBR
Approved	-
Date	08/30/2021
Submittal	Issue for Bid
Scale	As Noted

Sheet Title

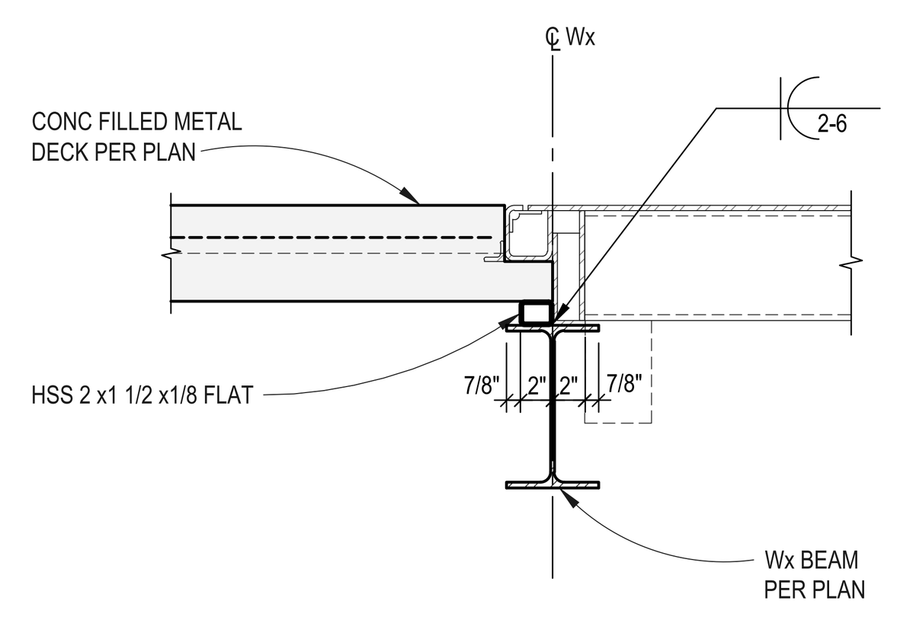
Partial Basement
Foundation and First Floor
Framing Plans

Sheet Number

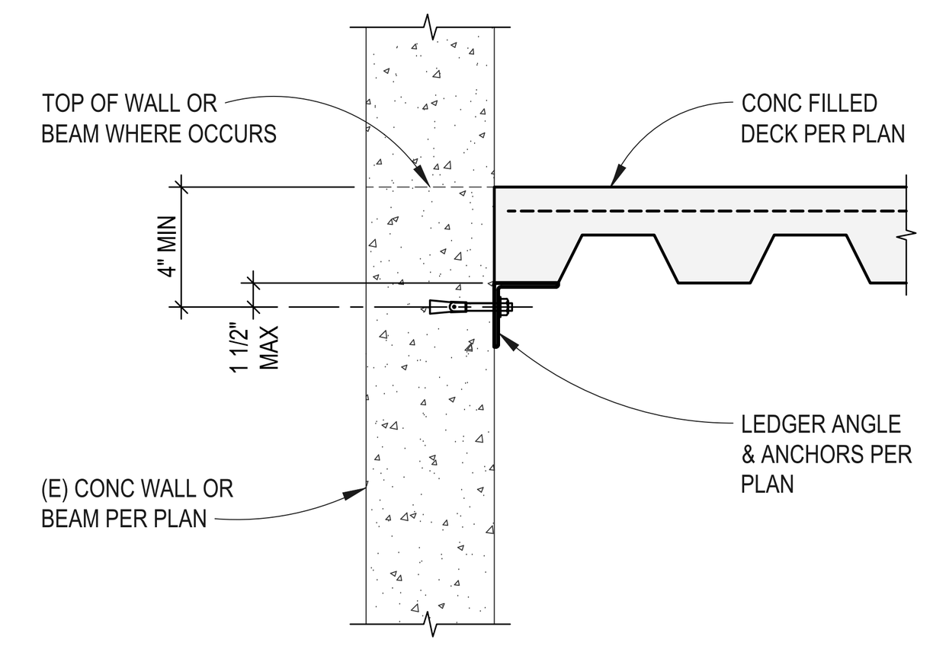
S200

P2S No. 0203

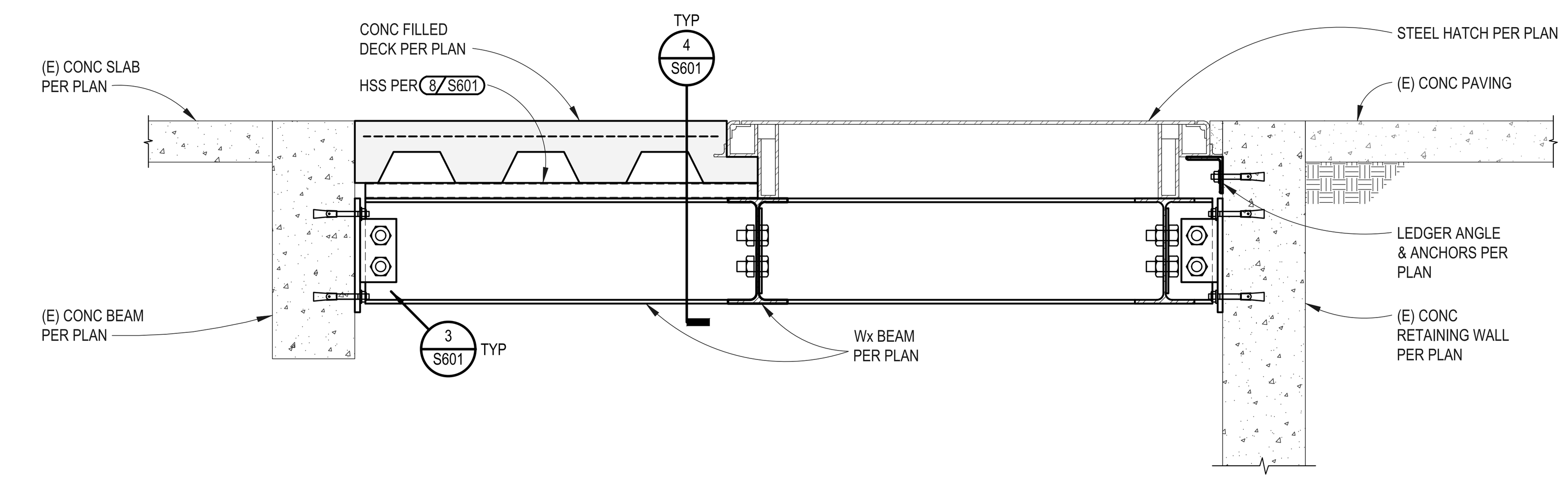
FILE PATH & NAME: H:\2021\210255\3_DRAWINGS\DWGS-00\21-0255-00_S200 (PARTIAL BASEMENT FOUNDATION AND FIRST FLOOR FRAMING PLANS).DWG SHAWN ALVIRA
PLOT: Monday, August 30, 2021 11:04:35 AM



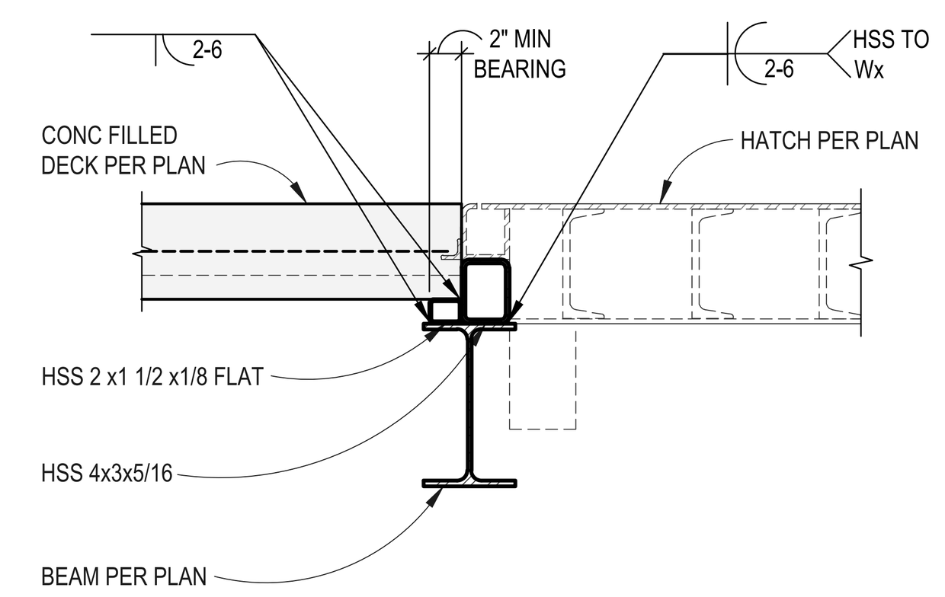
HATCH SUPPORT EDGE TO NEW DECK (10 / S601)
SCALE: 1" = 1'-0"



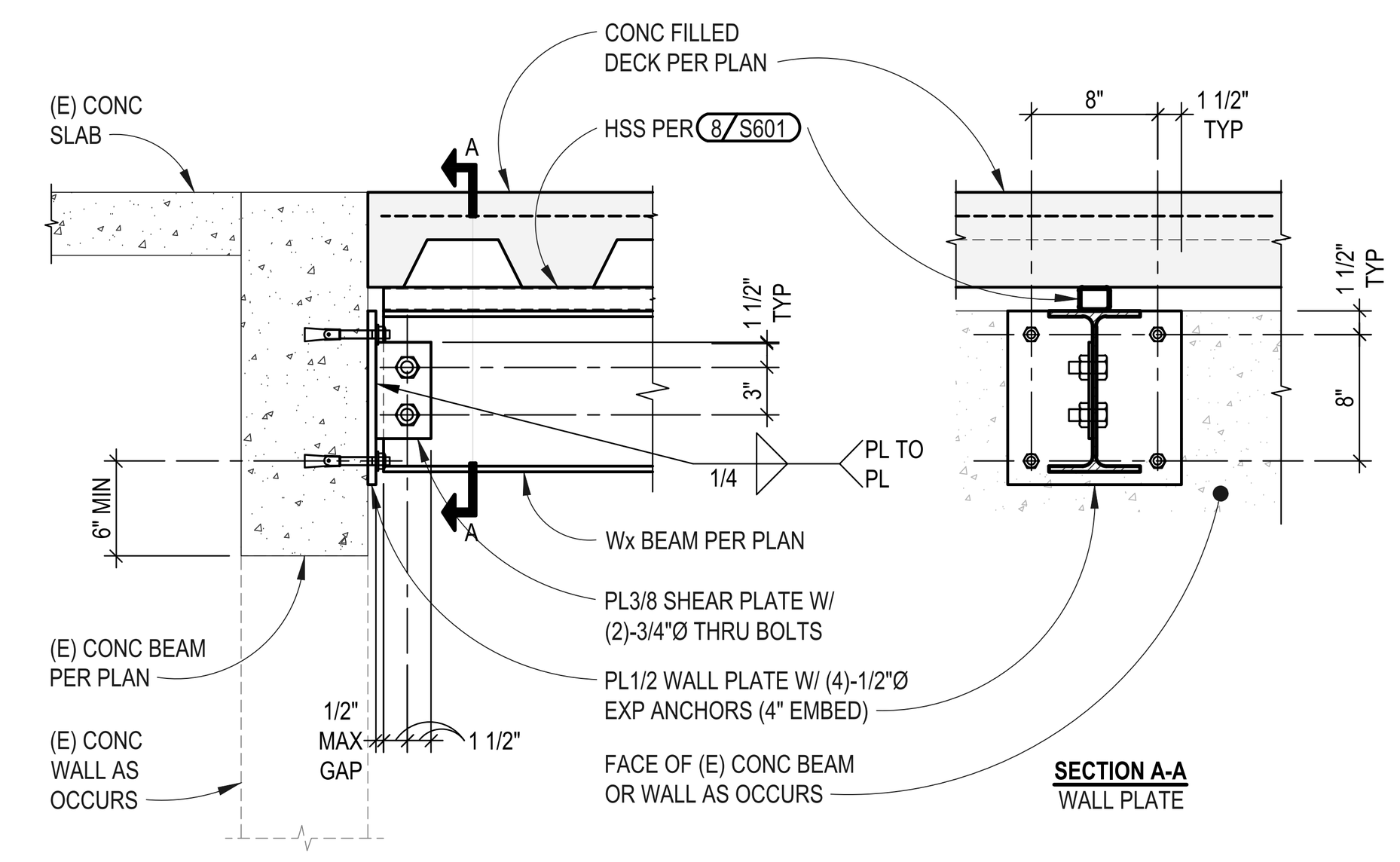
LEDGER TO CONCRETE WALL OR BEAM (6 / S601)
SCALE: 1" = 1'-0"



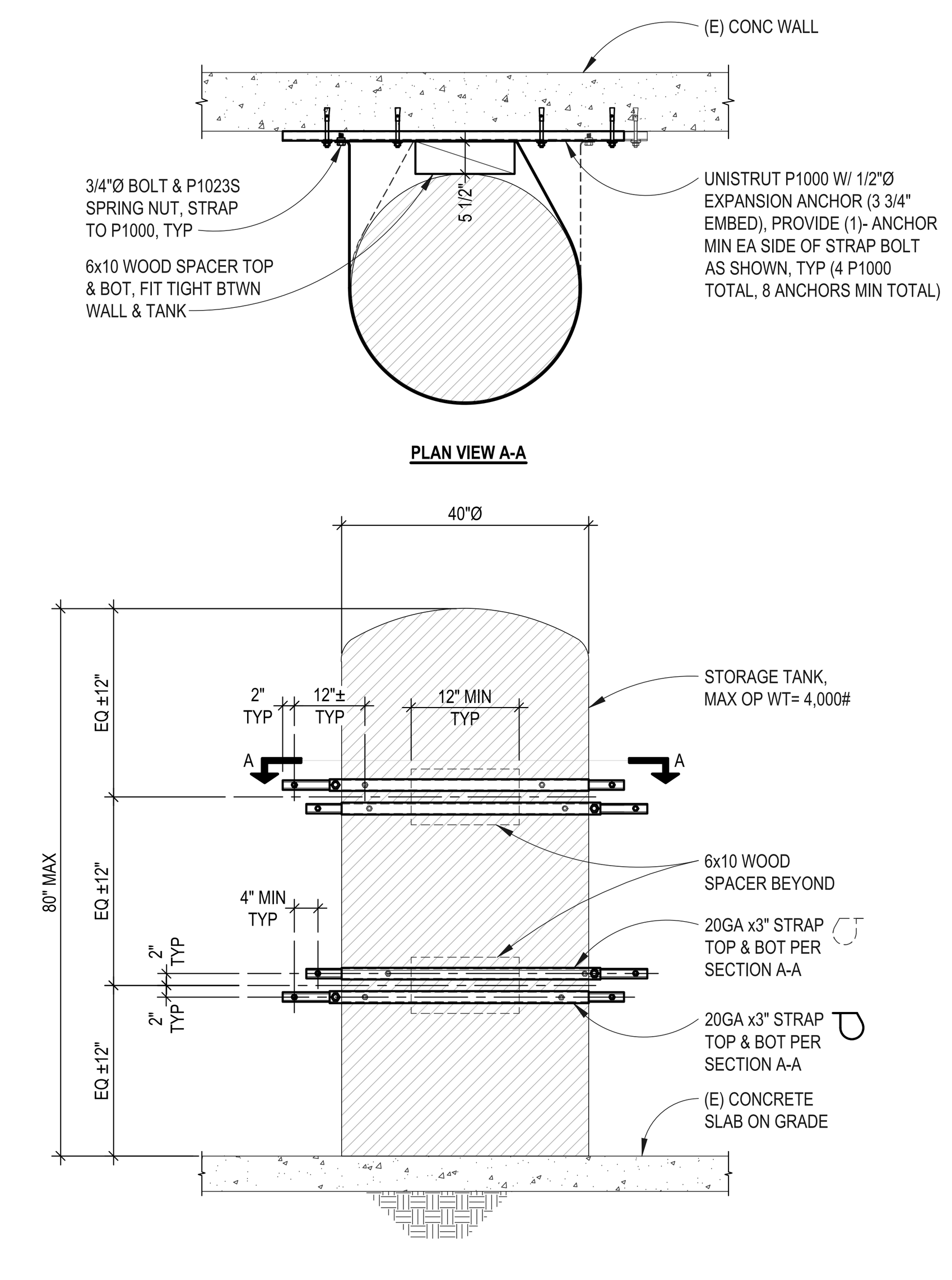
SECTION AT HATCH (A / S601)
SCALE: 1" = 1'-0"



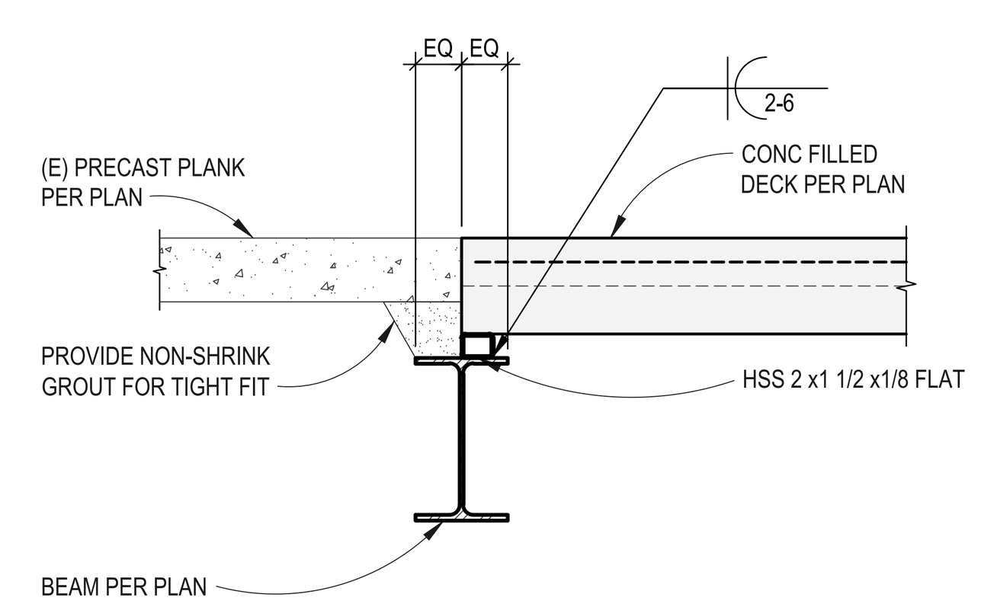
CONCRETE DECK AT HATCH (7 / S601)
SCALE: 1" = 1'-0"



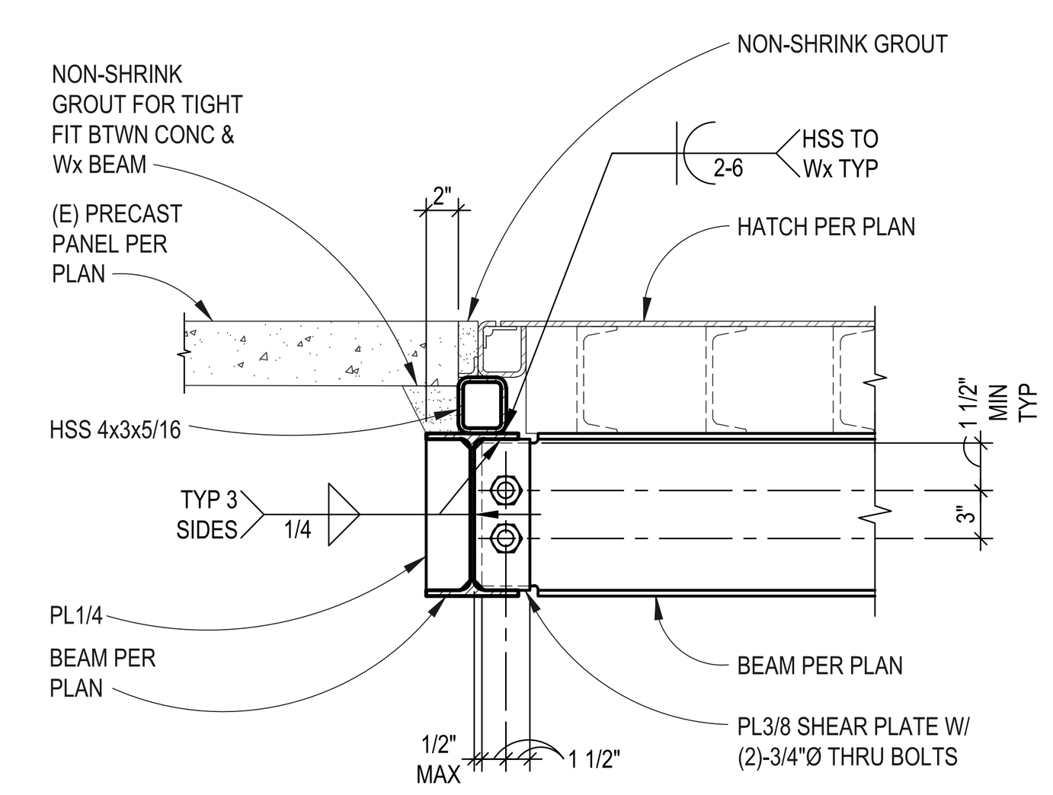
Wx BEAM TO
CONCRETE BEAM OR WALL CONNECTION (3 / S601)
SCALE: 1" = 1'-0"



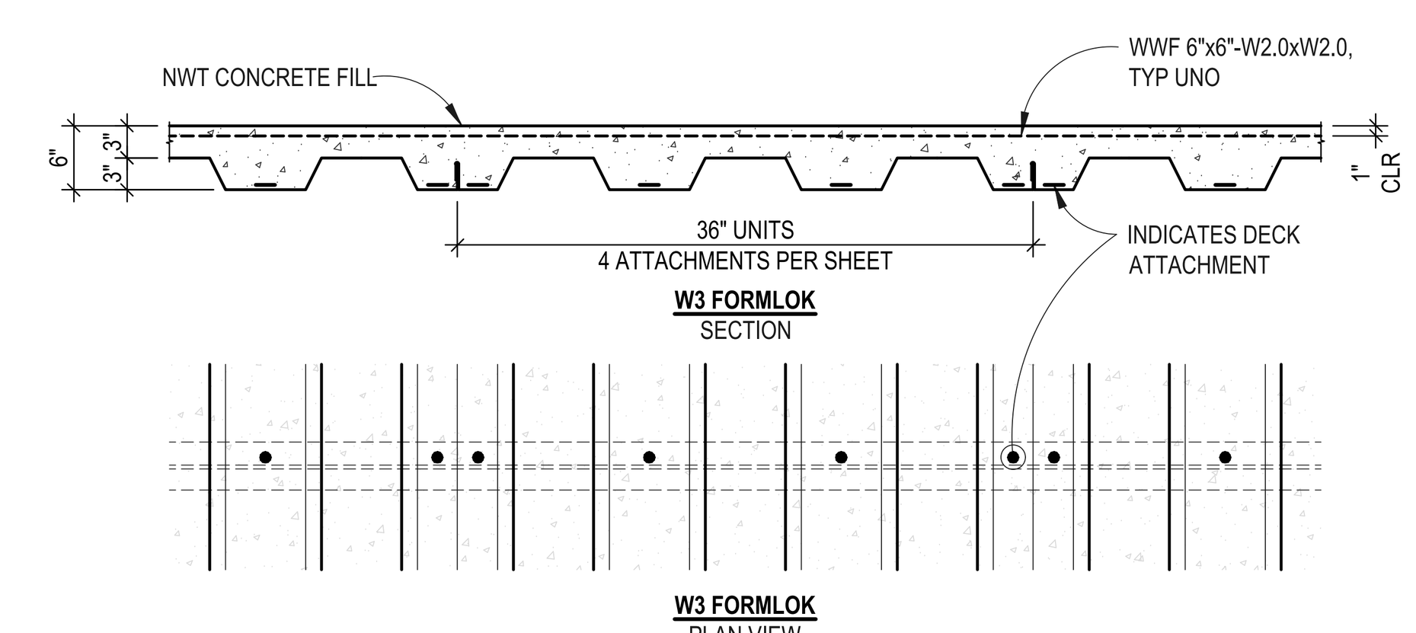
STORAGE TANK ANCHORAGE (1 / S601)
SCALE: NONE



CONCRETE DECK AT EXISTING PLANK (8 / S601)
SCALE: 1" = 1'-0"

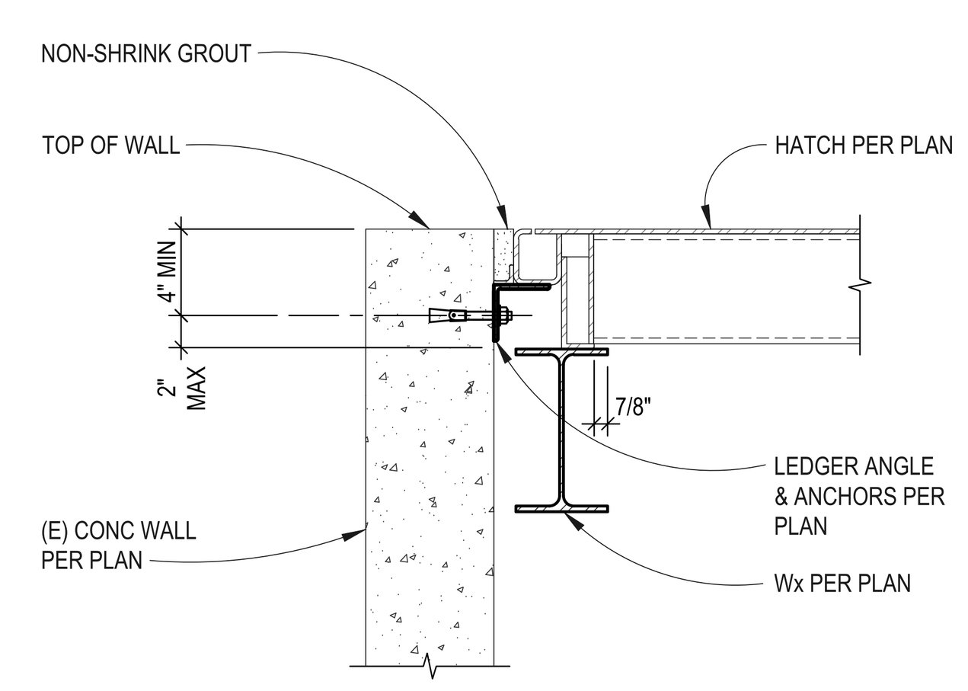


TYP BEAM TO BEAM CONNECTION (4 / S601)
SCALE: 1" = 1'-0"

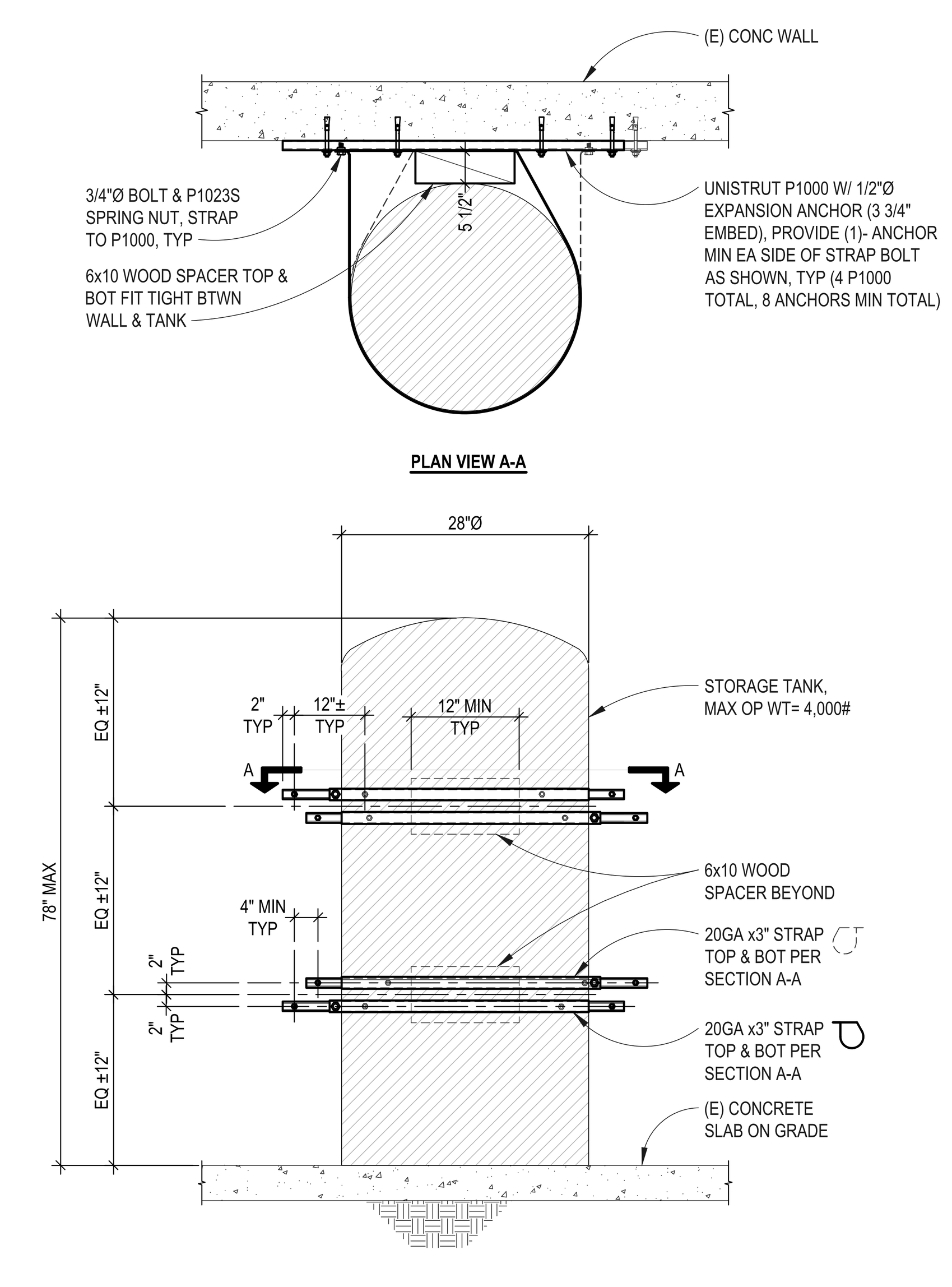


NOTES:
1. FLOOR DECKING AND FRAMING IS DESIGNED TO WITHSTAND CONSTRUCTION LOADS WITHOUT DECK SHORING.
2. DECK SHALL BE WELDED AT BEARING SUPPORTS WITH SPACING AS SHOWN.
3. DECK SHALL BE ATTACHED TO STEEL BEAMS WITH 3/4"Ø PUDDLE WELDS OR HILTI X-ENP-19 L15 SHOTPINS.
4. LIFTING OF REINFORCING PLACED ON DECK DURING CONCRETE PLACEMENT IS NOT ALLOWED. PROVIDE REINFORCING SUPPORTS AS REQUIRED SUCH AS CHAIRS OR SIMILAR.
5. CONCRETE SHALL BE PLACED OVER BEAMS AND GIRDERS FIRST RATHER THAN AT MID-SPANS OF DECK. DO NOT PILE THE CONCRETE HIGHER THAN THE FINISHED DEPTH OF SLAB.
6. UP TO AN AVERAGE OF AN ADDITIONAL 1/2" OF CONCRETE MORE THAN SHOWN MAY BE REQUIRED TO ACCOUNT FOR DECK DEFLECTION.
7. SEE METAL DECK GENERAL NOTES FOR DECK VENTING REQUIREMENTS.

TYPICAL FLOOR DECK SCHEDULE (5 / S601)
SCALE: NONE



LEDGER TO CONCRETE WALL AT HATCH (9 / S601)
SCALE: 1" = 1'-0"



WATER HEATER ANCHORAGE (2 / S601)
SCALE: NONE

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Project Title
BUILDING 1200
HEAT EXCHANGER
REPLACEMENT

FULLERTON COLLEGE
321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

REGISTERED PROFESSIONAL ENGINEER TERRY FERNANDEZ No. 3256 Exp. 03-31-23 STRUCTURAL STATE OF CALIFORNIA
8/30/2021

Revisions

Number	Description	Date

Designed	GC
Drawn	SMA
Checked	KBR
Approved	-
Date	08/30/2021
Submittal	Issue for Bid
Scale	As Noted

Sheet Title
Sections and Details

Sheet Number
S601

P2S No. 0203

FILE PATH & NAME: H:\2021\210255\3_DRAWINGS\DWGS-00\21-0255-00_S601 (SECTIONS AND DETAILS).DWG SHAWN ALVIRA
PLOT: Monday, August 30, 2021 11:04:42 AM

STORAGE TANK

MARK	MANUFACTURER MODEL NO.	LOCATION	TYPE	CAPACITY (GAL.)	TANK SIZE DIA. (IN)	TANK SIZE LENGTH (IN)	TANK SIZE HEIGHT (IN)	PRESSURE RATING (PSI)	OPER. WT. (LB.)	REMARKS
ST-1	LOCHINVAR RGA0318	BOILER ROOM	VERTICAL	318	40	N/A	80	150	4,000	ASME CONSTRUCTION. SECURE THRU FLOOR PER MANUFACTURER'S RECOMMENDATION.

PUMP

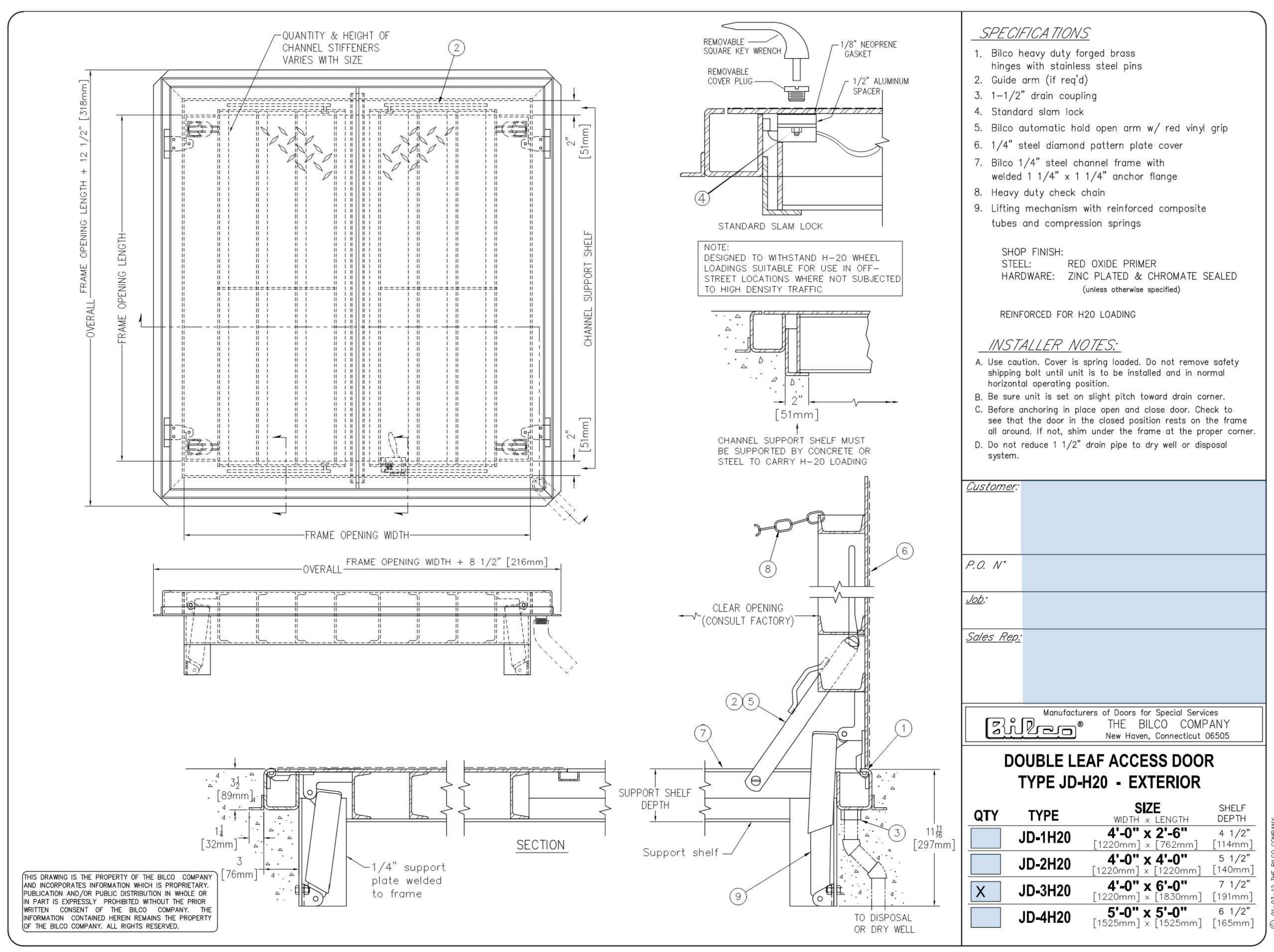
MARK	MANUFACTURER & MODEL	LOCATION	TYPE	SERVICE	DESIGN POINT FLOW GPM	DESIGN POINT HEAD FT H.D.	MOTOR HP	MOTOR V/PH/HZ	MOTOR RPM	OPER WT LBS	REMARKS
CP-1	GRUNDFOS MAGNA3 32-100F	BOILER ROOM	VERTICAL IN-LINE CENTRIFUGAL	DOMESTIC HOT WATER CIRCULATING PUMP	20	20	1/2	120/1/60	VARIES	20	CAST IRON HOUSING, STAINLESS STEEL IMPELLER COMPLETE WITH NECESSARY TRANSITION FITTINGS TO CONNECT TO PIPING SYSTEM. PROVIDE INTERLOCK W/ TANK TEMPERATURE SENSOR. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
CP-2	GRUNDFOS MAGNA3 32-60F	BOILER ROOM	VERTICAL IN-LINE CENTRIFUGAL	DOMESTIC HOT WATER RETURN CIRCULATING PUMP	15	20	1/2	115/1/60	VARIES	20	CAST IRON HOUSING, STAINLESS STEEL IMPELLER COMPLETE WITH NECESSARY TRANSITION FITTINGS TO CONNECT TO PIPING SYSTEM. PROVIDE INTERLOCK W/ TANK TEMPERATURE SENSOR. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

WATER HEATER

MARK	MANUFACTURER AND MODEL	LOCATION	TYPE	GAS INPUT (CFH)	STORAGE CAPACITY (GALLON)	RECOV. @ 80°F RISE (GPH.)	TANK SIZE DIA (IN)	TANK SIZE HGT. (IN)	ELECTRICAL DATA PUMP HP	ELECTRICAL DATA V	ELECTRICAL DATA PH	ELECTRICAL DATA HZ	FLUE DIA (IN)	OPER. WEIGHT (LBS)	REMARKS
WH-1	BRADFORD WHITE EF-100T-399E-5N(A)	BOILER ROOM	COMMERCIAL, GAS FIRED	399	100	570	28-1/4	77-1/8	--	120	1ø	60	3	2,000	COMBUSTION WILL BE PROVIDED BY A PRE-MIX, FAN ASSISTED. THE GAS TRAIN WILL MEET THE REQUIREMENTS OF UL AND FM. WATER HEATER WILL VENT THROUGH CPVC VENT PIPE SYSTEM. WATER HEATER WILL VENT TO THE ATMOSPHERE UNASSISTED FOR 300 EQUIVALENT FEET THROUGH FIVE INCH CPVC PIPE. WATER HEATER WILL SIMULTANEOUSLY ACCEPT DIRECT INLET COMBUSTION AIR THROUGH UP TO 300 EQUIVALENT FEET OF FIVE INCH DIAMETER PIPE. PROVIDE CONDENSATE NEUTRALIZER MODEL JM-10 BY JM MANUFACTURING AND SPILL TO FLOOR SINK WITH 1" AIRGAP. SPILL P&T RELIEF VALVE TO FLOOR SINK WITH 1" AIRGAP. SECURE WATER HEATER ON WALL WITH UNISTRUT SYSTEM AND ANCHOR ON CONCRETE WALL. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
WH-2	BRADFORD WHITE EF-100T-399E-5N(A)	BOILER ROOM	COMMERCIAL, GAS FIRED	399	100	570	28-1/4	77-1/8	--	120	1ø	60	3	2,000	

PIPING MATERIALS

	SERVICE	MATERIALS
1.	DOMESTIC WATER PIPING ABOVE GRADE:	TYPE "L" COPPER TUBING, HARD DRAWN CONFORMING TO ASTM B 88, WITH WROUGHT COPPER SOLDER SWEAT FITTINGS AND LEAD FREE-SOLDER JOINTS. INSULATE HOT WATER PIPING PER ITEM 2.
2.	INSULATION OF DOMESTIC HOT WATER:	GLASS FIBER PIPE INSULATION WITH FACTORY-APPLIED JACKET CONFORMING TO ASTM C547. 1-INCH THICK FOR PIPE SIZES 1" AND SMALLER. 1 1/2-INCH THICK FOR PIPE SIZES 1 1/4" INCHES AND LARGER. SEAL ALL JOINTS WITH FACTORY-APPLIED, SELF-SEAL LAP AND BUTT STRIPS. JOHNS MANVILLE MICRO-LOK 'HP' OR EQUAL.
3.	GAS PIPING:	SCHEDULE 40 BLACK STEEL PIPE CONFORMING TO ASTM A 53 WITH 150 PSIG MALLEABLE IRON THREADED FITTINGS. WELDED JOINTS FOR PIPE SIZES 2 1/2" AND LARGER OR WELDED FOR ALL SIZES THROUGHOUT WHEN USED FOR MEDIUM PRESSURE. OUTDOOR PIPING EXPOSED TO ATMOSPHERE SHALL BE GALVANIZED STEEL PIPE OR PAINTED WITH RUST INHIBITING PAINT.
4.	CONDENSATE DRAIN OR INDIRECT WASTE PIPING:	TYPE "L" COPPER TUBING, HARD DRAWN CONFORMING TO ASTM B 88, WITH WROUGHT COPPER SOLDER SWEAT FITTINGS AND LEAD-FREE SOLDER JOINTS. ALL CONDENSATE DRAIN PIPING WITHIN BUILDING SHALL BE INSULATED. ALL EXPOSED PIPING INCLUDING OVERFLOW CONDENSATE SHALL BE PAINTED TO MATH WALL AND/OR CEILING COLOR. COORDINATE COLOR WITH ARCHITECT. USE PVC PIPING WITH GLUED FITTINGS FOR HIGH EFFICIENCY WATER HEATER OR BOILER COMPLETE WITH ACID NEUTRALIZATION KIT.
5.	PIPE PROTECTION: PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS JOINING DISSIMILAR METALS. LEAD FREE BRASS UNIONS WITH 6-INCH LEAD FREE BRASS NIPPLE.	
6.	QUALITY ASSURANCE: THE PIPING SYSTEMS SHALL BE CONSTRUCTED FROM MATERIALS EXTRUDED AND MOLDED USING THE SAME COMPOUND MANUFACTURER.	
7.	QUALITY ASSURANCE: BOTH THE PIPE AND FITTINGS SHALL BE MANUFACTURED IN UNITED STATES OF AMERICA AND MEET OR EXCEED THE REQUIREMENTS SET FORTH BY THE AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM) AND ANSI/NSF STANDARDS 14 AND 61.	



1 DOUBLE DOOR FLOOR HATCH
NO SCALE

LEGEND

SYMBOL	DESCRIPTION
	NOTE CALLOUT
	DETAIL CALLOUT - NUMBER ON TOP DENOTES DETAIL NUMBER - NUMBER ON BOTTOM DENOTES SHEET DETAIL IS SHOWN
	PLUMBING FIXTURE CALLOUT, SEE PLUMBING PLANS FOR EXACT LOCATION AND REQUIREMENTS
	EQUIPMENT CALLOUT, SEE PLUMBING PLANS FOR EXACT LOCATION AND REQUIREMENTS
	SECTION CALLOUT
	POINT OF CONNECTION
	POINT OF DISCONNECTION
4" CHWR	NEW PIPE (SIZE-SERVICE)
	EXISTING PIPE/EQUIPMENT
	DEMOLISHED PIPE/EQUIPMENT
	SANITARY VENT
	DOMESTIC / INDUSTRIAL HOT WATER RETURN
	DOMESTIC / INDUSTRIAL HOT WATER SUPPLY
	DOMESTIC / INDUSTRIAL COLD WATER
	VALVE AT DROP
	VALVE AT RISE
	ELBOW DOWN
	PIPE TEE UP & DOWN OR ELBOW UP
	PIPE TEE DOWN
	PIPE TEE UP
S	SOLENOID VALVE
	GATE VALVE
	BALL VALVE
	BALANCING VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE, SWING
	PLUG VALVE
	STRAINER, Y-TYPE
FM	FLOW METER
	BACKFLOW PREVENTER
	HOSE BIBB
	THERMOMETER WITH SOV
	PRESSURE GAUGE WITH SHUTOFF COCK
	FLOOR DRAIN
	FLOOR SINK, 1/2 GRATE
	AREA DRAIN / INDUSTRIAL RECEPTOR
	SHUT-OFF VALVE IN YARDBOX
	FLOOR CLEANOUT
	CLEANOUT TO GRADE
	WALL CLEANOUT
	WATER HAMMER ARRESTOR
	TRAP PRIMER

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
@	AT
A/C	ABOVE CEILING
ABV	ABOVE
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFSR	AUTOMATIC FIRE SPRINKLER RISER
B/F	BELOW FLOOR
B/G	BELOW GRADE
BEL	BELOW
BFP	BACKFLOW PREVENTER
BTM	BOTTOM
BV	BALL VALVE
CI	CAST IRON
CIP	CAST IRON PIPE
CLG	CEILING
COTG	CLEAN-OUT TO GRADE
CU	CUBIC
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DN	DOWN
DS	DOWNSPOUT
DWG	DRAWING(S)
EQUIP	EQUIPMENT
EWC	ELECTRICAL WATER COOLER
EXIST / (E)	EXISTING
F/A	FROM ABOVE
F/B	FROM BELOW
FCO	FLOOR CLEAN-OUT
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FM	FORCE MAIN
FS	FLOOR SINK
FT	FEET
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
H&CW	HOT AND COLD WATER
H/L	HIGH LEVEL
HDR	HEADER
IN	INCHES
L or LAV	LAVATORY
MAX	MAXIMUM
MIN	MINIMUM
MTD	MOUNTED
NTS	NOT TO SCALE
OS & Y	OPEN SCREW AND YOKE
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
PSI	POUNDS PER SQUARE INCH
RD	ROOF DRAIN
RI & C	ROUGH-IN AND CONNECT
SOV	SHUT-OFF VALVE
SQ	SQUARE
SS	SERVICE SINK
T/A	TO ABOVE
T/B	TO BELOW
TP	TRAP PRIMER
TYP	TYPICAL
U	URINAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
VTR	VENT THRU ROOF
W/	WITH
WC	WATER CLOSET
WCO	WALL CLEAN-OUT
WH	WATER HEATER
WHA	WATER HAMMER ARRESTOR

PIPE SYSTEM ABBREVIATIONS

ABBREVIATION	DESCRIPTION
CD	CONDENSATE DRAIN
CW	DOMESTIC COLD WATER
G	LOW PRESSURE NATURAL GAS
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
ICW	INDUSTRIAL COLD WATER
IHW	INDUSTRIAL HOT WATER
IHWR	INDUSTRIAL HOT WATER RETURN
IW	INDIRECT WASTE
MPG	MEDIUM PRESSURE GAS
OD	OVERFLOW DRAIN
S	SANITARY
SCW	SOFT DOMESTIC COLD WATER
SD	STORM DRAIN
V	VENT
W	WASTE

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2019 EDITIONS OF THE CALIFORNIA BUILDING, MECHANICAL, PLUMBING, AND OTHER APPLICABLE FEDERAL, STATE, OR LOCAL CODES AS ADOPTED AND ENFORCED BY THE LOCAL JURISDICTION. IN CASE THE PLANS SHOW MORE STRINGENT REQUIREMENTS, THE PLANS SHALL GOVERN THE DESIGN, YET NOTHING ON THE DESIGN DOCUMENTS SHALL BE INTERPRETED AS AUTHORITY TO VIOLATE CODE(S) OR REGULATION(S).
2. SUBMISSION OF BID IN CONNECTION WITH THIS WORK SHALL IMPLY THAT THE BIDDER HAS EXAMINED THE JOB SITE UNDER WHICH THE CONTRACTOR WILL BE OBLIGATED TO OPERATE UNDER THIS CONTRACT. NO EXTRA CHARGE WILL BE ALLOWED FOR FAILURE OF ANY BIDDER TO EXAMINE THE SITE PRIOR TO BID.
3. WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
4. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON DESIGN PLANS / SPECIFICATIONS WITH CODE REQUIREMENTS, THE MORE STRINGENT STANDARD SHALL PREVAIL.
5. CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES PRIOR TO FABRICATION, PURCHASE AND/OR INSTALLATION OF ALL WORK.
6. CONTRACTOR SHALL FURNISH LABOR, MATERIALS, EQUIPMENT, AND TRANSPORTATION AS REQUIRED TO PROPERLY INSTALL ALL PLUMBING SYSTEMS OR RELATED COMPONENTS AS INDICATED ON PLANS AND SPECIFIED HEREIN.
7. CONTRACTOR SHALL DOCUMENT AND RELAY ANY MAJOR DEVIATIONS FROM THE DESIGN DOCUMENTS, AND ATTAIN APPROVAL FROM THE MECHANICAL ENGINEER BEFORE PROCEEDING. AS-BUILT COPIES SHALL BE PROVIDED INDICATING ALL CHANGES / DEVIATIONS MADE DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE COMPLETED AS-BUILT DRAWINGS IN THE LATEST VERSION OF AUTOCAD OR REVIT.
8. NO PIPING, EQUIPMENT, ETC. SHALL BE REMOVED, DISCONNECTED OR SHUT DOWN WITHOUT PRIOR REVIEW WITH THE FACILITY TO CONFIRM THAT AREAS TO REMAIN IN OPERATION WILL NOT BE AFFECTED. IF ANY AREAS NOT WITHIN THE SCOPE OF WORK ARE AFFECTED BY ANY SHUTDOWN, REMOVAL OR DISCONNECTION, SUFFICIENT ADVANCE NOTICE MUST BE GIVEN TO THE FACILITY INDICATING WHICH AREAS WILL BE AFFECTED, WHEN THE PROPOSED SHUTDOWN WILL OCCUR, AND FOR HOW LONG A PERIOD OF TIME.
9. THE ARRANGEMENT OF EQUIPMENT AND PIPING SHOWN ON THE DRAWINGS IS BASED UPON INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN AND IS NOT INTENDED TO SHOW EXACT DIMENSIONS PECULIAR TO A SPECIFIC MANUFACTURER. THE DRAWINGS ARE, IN PART, DIAGRAMMATIC AND SOME FEATURES OF THE ILLUSTRATED EQUIPMENT INSTALLATION MAY REQUIRE REVISION TO MEET ACTUAL EQUIPMENT INSTALLATION REQUIREMENTS. STRUCTURAL SUPPORTS, FOUNDATIONS, CONNECTED PIPING, VALVES, PIPE SUPPORTS AND ELECTRICAL CONDUIT SPECIFIED MAY HAVE TO BE ALTERED OR ADDITIONAL ITEMS REQUIRED TO ACCOMMODATE THE EQUIPMENT PROVIDED. NO ADDITIONAL PAYMENT WILL BE MADE FOR SUCH REVISIONS, ALTERATIONS AND / OR ADDITIONS.
10. ALL VALVES, TRAP PRIMERS, OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED BEHIND AN ACCESS PANEL.
11. ALL CONNECTIONS TO EXISTING SERVICES SHALL BE MADE SUCH THAT INTERRUPTION TIME WILL BE AS SHORT AS POSSIBLE. THE CONTRACTOR SHALL GIVE THE OWNER'S REPRESENTATIVE SUFFICIENT NOTICE OF SUCH INTERRUPTION AND THE ACTUAL SHUT DOWN TIME SHALL BE AT A TIME DESIGNATED BY THE OWNER'S REPRESENTATIVE.
12. ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS LINE SIZE UNLESS OTHERWISE INDICATED ON DRAWINGS.
13. UNIONS SHALL BE PROVIDED AND INSTALLED AFTER EACH SCREW-TYPE VALVE AND PRIOR TO EQUIPMENT CONNECTIONS.
14. ALL INDIRECT WASTE SHALL SLOPE AT 1% UNLESS OTHERWISE INDICATED.
15. BEFORE FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL EQUIPMENT AND FIXTURES. EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED IN FIELD.
16. VERIFY WITH ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL FLOOR DRAINS, AND FLOOR SINKS.
17. UNLESS SPECIFIED ON STRUCTURAL DRAWINGS, ANY ALTERATION OR MODIFICATIONS TO STRUCTURAL ELEMENTS BY CUTTING, DRILLING, BORING, BRACING, WELDING ETC. SHALL HAVE WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO START WORK.

SHEET INDEX

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Consultant

Project Title

BUILDING 1200 HEAT EXCHANGER REPLACEMENT

FULLERTON COLLEGE

321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

08/30/2021

Revisions

Number	Description	Date
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Designed	Jimmy P.
Drawn	Jimmy P.
Checked	Rolando D.
Approved	Rolando D.
Date	08/30/2021
Submittal	Issue for Bid
Scale	NONE

Sheet Title

GENERAL NOTES, ABBREVIATIONS, LEGEND, AND SHEET INDEX.

Sheet Number

P001

P2S No. 0203

FILE PATH & NAME: R:\J21-0203\PLUMBING\J21-0203_P001.DWG JIMMY PERAZA
PLOT: Monday, August 30, 2021 9:55:10 AM

PART 1 - GENERAL

1.01 WORK INCLUDED

A. FURNISH ALL LABOR, MATERIALS, SERVICES, TESTING, TRANSPORTATION AND EQUIPMENT NECESSARY FOR THE COMPLETION OF ALL PLUMBING, PIPING AS INDICATED ON DRAWINGS AND SPECIFIED HEREIN. WORK MATERIALS AND EQUIPMENT NOT INDICATED OR SPECIFIED WHICH IS NECESSARY FOR THE COMPLETE AND PROPER OPERATION OF THE WORK OF THIS SECTION IN ACCORDANCE WITH THE TRUE INTENT AND MEANING OF THE CONTRACT DOCUMENTS SHALL BE PROVIDED AND INCORPORATED AT NO ADDITIONAL COST TO THE OWNER.

1.02 QUALITY ASSURANCE

A. CODE REQUIREMENTS: ALL WORK COVERED BY THIS SECTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE FOLLOWING REGULATIONS:

1. 2019 CALIFORNIA PLUMBING CODE.
2. 2019 CALIFORNIA ELECTRICAL CODE.
3. 2019 CALIFORNIA FIRE CODE.
4. 2019 CALIFORNIA MECHANICAL CODE.
5. NATIONAL FIRE PROTECTION ASSOCIATION.
6. ANY OTHER LEGALLY CONSTITUTED BODY HAVING JURISDICTION THEREOF.

B. NOTHING IN THE SPECIFICATIONS OR DRAWINGS SHALL BE CONSTRUED TO PERMIT DEVIATION FROM THE REQUIREMENTS OF GOVERNING CODES UNLESS APPROVAL FOR SAID DEVIATION HAS BEEN OBTAINED FROM THE LEGALLY CONSTITUTED AUTHORITIES HAVING JURISDICTION AND FROM THE OWNER'S REPRESENTATIVE.

1.03 DRAWINGS

A. BECAUSE OF THE SMALL SCALE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE CONDITIONS SURROUNDING INSTALLATION THEIR WORK. PROVIDE NECESSARY PIPING, FITTINGS, VALVES, TRAPS, AND OTHER DEVICES REQUIRED FOR COMPLETE INSTALLATION.

B. THE GENERAL ARRANGEMENT INDICATED ON THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. COORDINATE WITH THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS PRIOR TO INSTALLATION OF PIPING FIXTURES AND EQUIPMENT TO VERIFY ADEQUATE SPACE AVAILABLE FOR INSTALLATION OF THE WORK SHOWN. IN THE EVENT A FIELD CONDITION ARISES WHICH MAKES IT IMPOSSIBLE TO INSTALL THE WORK AS INDICATED, SUBMIT, IN WRITING, THE PROPOSED DEPARTURES TO THE PROJECT ENGINEER FOR ACCEPTANCE AND NOTICE TO PROCEED.

C. SPECIAL NOTE: SHOULD THE CONTRACTOR MAKE CHANGES IN THE INSTALLATION DIFFERING FROM WHAT IS INDICATED ON THE CONTRACT DRAWINGS AND NOT NECESSITATED DUE TO FIELD CONDITIONS AS INDICATED HEREIN ABOVE, THE CONTRACTOR SHALL BE REQUIRED TO RE-INSTALL THE WORK TO COMPLY WITH WHAT HAS BEEN INDICATED ON THE CONTRACT DRAWINGS. SHOULD IT BE IMPOSSIBLE TO RE-INSTALL THE WORK AND THE INSTALLATION IS IN ACCORDANCE WITH ALL GOVERNING AUTHORITIES, THE PROJECT ENGINEER MAY PERMIT THE INSTALLATION TO REMAIN. HOWEVER, ALL COSTS INCURRED TO REVISE THE CONTRACT DRAWINGS BY THE ENGINEER FOR RESUBMITTAL TO THE BUILDING DEPARTMENT INDICATING THE AS-INSTALLED CONDITION SHALL BECOME THE RESPONSIBILITY OF THE CONTRACTOR.

D. IN CASE OF DIFFERENCE BETWEEN SPECIFICATIONS AND DRAWINGS, THE CONTRACTOR SHALL DETERMINE COST EFFECTIVE ALTERNATE AND AFTER AWARD OF CONTRACT, SHALL SECURE DIRECTION FROM THE PROJECT ENGINEER.

1.04 PERMITS, INSPECTIONS AND LICENSES

A. ALL PERMITS, INSPECTIONS AND LICENSES REQUIRED BY THE LEGALLY CONSTITUTED AUTHORITIES FOR INSTALLATION OF THE WORK ACCORDING TO THE PLANS AND SPECIFICATIONS SHALL BE OBTAINED AND PAID AS A PART OF THE WORK OF THIS SECTION.

1.05 EXAMINATION OF PREMISES

A. BEFORE BIDDING ON THIS WORK, CONTRACTORS SHALL MAKE A CAREFUL EXAMINATION OF THE PREMISES AND SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OF THE CONTRACT. BY THE ACT OF SUBMITTING A PROPOSAL FOR THE WORK INCLUDED IN THIS CONTRACT, THE CONTRACTOR SHALL BE DEEMED TO HAVE MADE SUCH STUDY AND EXAMINATION, AND IS FAMILIAR WITH AND ACCEPTS ALL CONDITIONS OF THE SITE.

1.06 PROTECTION

A. ALL WORK, EQUIPMENT AND MATERIALS SHALL BE PROTECTED AT ALL TIMES. CONTRACTOR SHALL CORRECT ALL DAMAGE CAUSED EITHER DIRECTLY OR INDIRECTLY BY THEIR WORKMEN. CONTRACTOR SHALL ALSO PROTECT THEIR WORK FROM DAMAGE. CONTRACTOR SHALL CLOSE ALL PIPE OPENINGS WITH CAPS OR PLUGS DURING INSTALLATION. CONTRACTOR SHALL EQUIPMENT AND MATERIALS AGAINST DIRT, WATER, CHEMICAL AND MECHANICAL INJURY. UPON COMPLETION, ALL WORK SHALL BE THOROUGHLY CLEANED AND DELIVERED IN A NEW CONDITION.

B. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO EQUIPMENT AND MATERIALS UNTIL THEY HAVE RECEIVED WRITTEN NOTICE OF ACCEPTANCE FROM PROJECT ENGINEER.

1.07 SUBMITTAL DATA

A. FURNISH ALL SUBMITTALS AT ONE TIME, PRIOR TO ANY INSTALLATION, WITHIN THE TIME NOTED BELOW, ELECTRONIC COPIES OF VALID SUBMITTAL DATA ON ALL FIXTURES, MATERIAL, EQUIPMENT AND DEVICES. EACH SUBMITTED ITEM SHALL BE INDEXED AND REFERENCED TO CONTRACT DOCUMENTS AND TO PUT IDENTIFICATION NUMBERS ON FIXTURES AND EQUIPMENT SCHEDULES.

B. MANUFACTURERS SUBMITTAL LITERATURE AND SHOP DRAWINGS ARE REQUIRED ON ALL ITEMS TO ENSURE THE LATEST AND MOST COMPLETE MANUFACTURER'S DATA IS AVAILABLE FOR REVIEW. REQUIREMENTS OF THE SUBMITTALS AND ENGINEER'S SUBMITTAL NOTES ARE A PART OF THE WORK OF THIS DIVISION EXCEPT THAT ENGINEER'S NOTES MAY NOT BE USED AS A MEANS OF INCREASING THE SCOPE OF WORK OF THIS DIVISION.

C. SUBMITTALS WILL BE CHECKED FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT BUT THE REVIEW DOES NOT GUARANTEE QUANTITIES SHOWN AND DOES NOT SUPERSEDE REQUIREMENTS OF THIS DIVISION TO PROPERLY INSTALL WORK.

D. A LIST OF NAMES IS NOT A VALID SUBMITTAL. TO BE VALID, ALL SUBMITTALS MUST:

1. BE SENT ELECTRONICALLY TO THE PROJECT ENGINEER WITHIN THIRTY-FIVE (35) DAYS OF AWARD OF THE CONTRACT. CORRECTIONS OR CHANGES IN SUBMITTALS RETURNED AS INADEQUATE OR INCOMPLETE SHALL BE ACCOMPLISHED WITHIN THIS TIME LIMIT.
2. INCLUDE ALL PERTINENT CONSTRUCTION, INSTALLATION, PERFORMANCE AND TECHNICAL DATA.
3. HAVE ALL COPIES MARKED TO INDICATE CLEARLY THE INDIVIDUAL ITEMS BEING SUBMITTED.
4. HAVE EACH ITEM CROSS-REFERENCED TO THE CORRESPONDING SPECIFIED ITEM AND BE MARKED TO SHOW HOW DIFFERENCES WILL BE ACCOMMODATED.
5. CONTAIN CALCULATIONS AND OTHER DETAILED DATA JUSTIFYING HOW THE ITEM WAS SELECTED FOR PROPOSAL. DATA MUST BE COMPLETED ENOUGH TO PERMIT DETAILED COMPARISON OF EVERY SIGNIFICANT CHARACTERISTIC FOR WHICH THE SPECIFIED ITEM WAS ANALYZED DURING DESIGN.
6. INCLUDE, FOR EVERY ITEM WHICH DIFFERS IN SIZE, CONFIGURATION, CONNECTIONS, SERVICE, ACCESSIBILITY OR ANY OTHER SIGNIFICANT WAY, A DRAWING TO THE SAME (OR LARGER) SCALE AS TO THE PERTINENT PORTIONS OF THE CONTRACT DRAWINGS. IN THIS DRAWING SHOW A COMPLETE LAYOUT OF THE SYSTEM EXCEPT THAT WHICH IS IDENTICAL TO THE CONTRACT DRAWINGS, UNLESS THE UNCHANGED PORTIONS MUST BE SHOWN TO INDICATE SUCH THINGS AS CLEARANCES. THIS DRAWING, TOGETHER WITH THE CONTRACT DESIGN DRAWINGS MUST SHOW THE COMPLETE SYSTEM AS REVISED TO ACCOMMODATE THE PROPOSED ALTERNATE.

1.08 UNINSPECTED WORK

A. CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF THEIR WORK TO BE COVERED UP BEFORE IT HAS BEEN DULY INSPECTED, TESTED AND APPROVED BY THE PROJECT ENGINEER OR ANY OTHER AUTHORIZED INSPECTORS HAVING LEGAL JURISDICTION. IF CONTRACTOR FAILS TO OBSERVE THE ABOVE, THEY SHALL UNCOVER THE WORK AND, AFTER IT HAS BEEN INSPECTED, TESTED AND APPROVED, RECOVER IT AT THEIR OWN EXPENSE.

1.09 SUBSTITUTIONS

A. THE CONTRACTOR ASSUMES FULL RESPONSIBILITY THAT ALTERNATE ITEMS AND PROCEDURES WILL MEET THE JOB REQUIREMENTS AND IS RESPONSIBLE FOR COST OF REDESIGN AND OF MODIFICATIONS TO THIS AND OTHER PARTS OF WORK CAUSED BY ALTERNATE ITEMS FURNISHED UNDER WORK IN THIS SECTION. IN VIEW OF THESE RESPONSIBILITIES, IT IS THE PURPOSE OF THESE SPECIFICATIONS TO ESTABLISH PROCEDURES WHICH ENSURE THAT THE CONTRACTOR HAS CONSIDERED ALL THE RAMIFICATIONS OF PROPOSED ALTERNATES BEFORE SUBMITTING THEM FOR REVIEW. SUBMITTALS WHICH DO NOT COMPLY WITH THE REQUIREMENTS OF THESE SPECIFICATIONS OR WHICH INDICATE PROPOSED ALTERNATES WERE SELECTED WITHOUT PROPER REGARD TO THE REQUIREMENTS OF THE JOB, WILL NOT BE APPROVED. NO MORE THAN ONE PROPOSED ALTERNATE WILL BE CONSIDERED FOR EACH ITEM.

B. ALTERNATE ITEMS INSTALLED WITHOUT ENGINEER'S APPROVAL WILL BE REPLACED WITH SPECIFIED ITEMS AT CONTRACTOR'S EXPENSE.

C. PROVIDE OR PERFORM TESTS REQUIRED BY ENGINEER FOR PURPOSE OF JUDGING ACCEPTABILITY OF PROPOSED SUBSTITUTIONS.

D. THIS CONTRACTOR IS RESPONSIBLE TO PROVIDE SUFFICIENT INFORMATION TO ALLOW THE ENGINEER TO ANALYZE ANY PROPOSED ALTERNATE. IF INADEQUATE INFORMATION IS PROVIDED, THE PROPOSAL WILL NOT BE APPROVED AND RESUBMITTAL WILL NOT BE ALLOWED.

E. THE PROJECT ENGINEER SHALL BE THE SOLE JUDGE AS TO THE QUALITY AND SUITABILITY OF PROPOSED ALTERNATE EQUIPMENT, FIXTURES OR MATERIALS AND DECISIONS OF THE PROJECT ENGINEER SHALL BE FINAL AND CONCLUSIVE.

1.10 RECORD DRAWINGS

A. CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE A COMPLETE "AS-BUILT" DRAWING SET WHICH SHALL SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS AND THE EXACT "AS-BUILT" LOCATIONS AND SIZES OF THE WORK PROVIDED UNDER THIS SECTION OF THE SPECIFICATIONS. THIS SET SHALL INCLUDE LOCATIONS, DIMENSIONS, DEPTH OF BURIED PIPING, CLEANOUTS, SHUT-OFF VALVES, SEWER INVERT LOCATIONS, PLUGGED WYES, TEES, ETC. ON COMPLETION OF THE WORK, THE CONTRACTOR SHALL INCORPORATE ALL AS-BUILT INFORMATION IN AUTOCAD FORMAT AND SHALL BE DELIVERED TO THE ARCHITECT.

1.11 GUARANTEES

A. CONTRACTOR SHALL GUARANTEE ALL PLUMBING AND PIPING SYSTEMS UNCONDITIONALLY FOR A PERIOD OF ONE (1) YEAR AFTER FINAL ACCEPTANCE. IF, DURING THIS PERIOD, ANY MATERIALS, EQUIPMENT, OR ANY PART OF THE SYSTEMS FAIL TO FUNCTION PROPERLY, THE CONTRACTOR SHALL MAKE GOOD THE DEFECTS PROMPTLY AND WITHOUT ANY EXPENSE TO THE OWNER.

B. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO ANY PART OF THE PREMISES CAUSED BY LEAKS IN PIPELINES OR EQUIPMENT FURNISHED AND INSTALLED UNDER THIS SECTION FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE OF HIS WORK.

C. ALL EQUIPMENT AND FIXTURES SHALL CARRY MANUFACTURER'S WARRANTY AGAINST DEFECTIVE PARTS OR POOR WORKMANSHIP AND SHALL NOT BE LESS THAN ONE (1) YEAR. SEE SPECIFIC EQUIPMENT SPECIFICATIONS FOR EXTENDED WARRANTY REQUIREMENTS.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT (SEE DRAWING SCHEDULES FOR ADDITIONAL INFORMATION)

A. GENERAL: ALL MATERIALS, AS SPECIFIED OR REQUIRED IN THE WORK, SHALL BE NEW, FREE FROM DEFECTS AND IMPERFECTIONS.

B. PIPE AND FITTINGS: (SEE PIPE SCHEDULE ON THE DRAWINGS)

C. VALVES:

1. GENERAL:

a. PIPING SYSTEMS SHALL BE SUPPLIED WITH VALVES ARRANGED SO AS TO GIVE COMPLETE AND REGULATING CONTROL OF PIPING SYSTEMS THROUGHOUT THE BUILDING, AND LOCATES SO ALL PARTS ARE EASILY ACCESSIBLE AND MAINTAINED.
b. VALVE DESIGN: RISING STEM OR OUTSIDE SCREW AND YOKE STEMS. NON-RISING STEM VALVES MAY BE USED WHERE SPACE CONDITIONS PREVENT FULL EXTENSION OF RISING STEMS.
c. SIZES: SAME SIZE AS UPSTREAM PIPE, UNLESS OTHERWISE INDICATED.
d. OPERATORS:
1) LEVER HANDLES ON QUARTER-TURN VALVES, THREE INCH AND SMALLER EXCEPT FOR PLUG VALVES. PROVIDE PLUG VALVES WITH SQUARE HEADS AND OPERATING WRENCH.
e. EXTENDED STEMS: WHERE INSULATION IS INDICATED OR SPECIFIED, PROVIDE EXTENDED STEMS ARRANGED TO RECEIVE INSULATION.
f. END CONNECTION: 2 INCHES AND UNDER SHALL BE THREADED, 2-1/2 INCHES AND LARGER SHALL BE FLANGED OR FULL LUG STYLE.

8. MANUFACTURER SHALL BE APOLLO, NIBCO OR APPROVED EQUAL.

9. PROVIDE CLASS 150 VALVES MEETING THE VALVE SPECIFICATIONS WHERE CLASS 125 VALVES ARE SPECIFIED BUT ARE NOT AVAILABLE.

10. BALL VALVES:

a. APOLLO 77 SERIES LEAD FREE BALL VALVES, 3 INCHES AND SMALLER: RATED FOR 150 PSI SATURATED STEAM PRESSURE, 600 PSI WOG PRESSURE; TWO OR THREE-PIECE CONSTRUCTION; WITH BRONZE BODY FULL PORT, WITH STAINLESS STEEL BALL AND STEM, "TEFLON" SEATS AND SEALS, SEPARATE ADJUSTABLE PACKING GLAND AND NUT, BLOWOUT-PROOF STEM AND VINYL COVERED STEEL HANDLE.

D. DIELECTRIC UNION ISOLATORS: WHERE INCOMPATIBLE MATERIALS COME IN CONTACT, ISOLATE FROM EACH OTHER WITH MATERIAL BEST SUITED FOR THE CHARACTERISTICS OF MATERIALS TO BE ISOLATED. DIELECTRIC UNION ISOLATOR FOR CONNECTION PIPING OR NON-COMPATIBLE MATERIALS SHALL BE OF STANDARD COMMERCIAL DESIGN WITH THREADED CONNECTIONS.

E. PIPE SUPPORTS: UNLESS OTHERWISE INDICATED ON THE DRAWINGS, SHALL BE AS FOLLOWS:

5. PROVIDE MISCELLANEOUS IRON WORK INCLUDING ANGLES, CHANNELS, ETC., REQUIRED TO APPROPRIATELY SUPPORT THE VARIOUS PIPING SYSTEMS. HANGER SPACING AND LOCATION SHALL CONFORM TO CALIFORNIA PLUMBING CODE REQUIREMENTS.

6. ALL HORIZONTAL RUNS OF PIPING WITHIN THE BUILDING, EXCEPT FOR COPPER WATER SUPPLY STUB-OUTS AT FIXTURES AND COPPER SUPPLY HEADERS WITHIN WALLS, TO BE SUPPORTED FROM THE STRUCTURAL FRAMING WITH STEEL RODS AND SPLIT RING HANGERS: B-LINE, GRINNELL COMPANY, TOLCO, OR APPROVED EQUAL. COPPER STUB-OUTS AND COPPER HEADERS WITHIN WALLS TO BE SUPPORTED FROM THE WALL FRAMING OR DWV WITH HOLDRITE PIPE HANGERS AND SUPPORTS AS SPECIFIED AT ITEM I.9., BELOW. STEEL RODS SHALL BE SECURED TO OVERHEAD FRAMING WITH SIDE BEAM CONNECTORS. WHERE NECESSARY, INSTALL ANGLE IRON BETWEEN FRAMING TO ACCOMMODATE HANGER RODS. WHERE SEVERAL PIPES ARE RUNNING TOGETHER, UNISTRUT, B-LINE, OR POWERSTRUT CHANNELS WITH CLAMPS MAY BE USED IN LIEU OF INDIVIDUAL PIPE HANGERS, AND SUPPORTED FROM STRUCTURE AS HEREIN SPECIFIED. SUBMIT TEST DATA FOR TYPE OF HANGER SUPPORTS TO BE PROVIDED. FOR SUPPORT CONDITIONS OTHER THAN SPECIFIED HEREIN, THE CONTRACTOR SHALL SUBMIT METHOD OF SUPPORT FOR APPROVAL PRIOR TO ANY INSTALLATION.

7. HORIZONTAL PIPING HANGERS AND SUPPORTS:

GENERAL: PROVIDE FACTORY FABRICATED HORIZONTAL HANGERS AND SUPPORTS COMPLYING WITH ONE OF THE FOLLOWING MSS TYPES LISTED TO SUIT HORIZONTAL PIPING SYSTEMS, IN ACCORDANCE WITH MSS SP-69, IAPMO PS 42, AND MANUFACTURER'S PUBLISHED INFORMATION. SELECT SIZE OF HANGERS AND SUPPORTS TO EXACTLY FIT PIPE SIZE FOR BARE PIPING, AND TO EXACTLY FIT AROUND PIPING INSULATION WITH SADDLE OR SHIELD FOR INSULATED PIPING. PROVIDE COPPER-PLATED HANGERS AND SUPPORTS FOR COPPER-PIPING SYSTEMS.

1) ADJUSTABLE STEEL CLEVIS HANGERS: (MSS TYPE 1) B-LINE B 3100
2) ADJUSTABLE SWIVEL PIPE RINGS: (MSS TYPE 5) B-LINE B 3690
3) SPLIT RING: (MSS TYPE 11)
4) PIPE ALIGNMENT AND SUPPORT BRACKETS: (PER IAPMO PS 42) HOLDRITE PRODUCTS (SEE SECTION O.9.)

4. HANGER-ROD ATTACHMENTS:

a. GENERAL: PROVIDE FACTORY FABRICATED HANGER-ROD ATTACHMENTS B-LINE, TOLCO OR APPROVED EQUAL, SELECTED BY INSTALLER TO SUIT HORIZONTAL-PIPING HANGERS AND BUILDING ATTACHMENTS, IN ACCORDANCE WITH MSS SP-58 AND MANUFACTURER'S PUBLISHED PRODUCT INFORMATION. SELECT SIZE OF HANGER-ROD ATTACHMENT TO SUIT HANGER RODS. PROVIDE COPPER-PLATED HANGER-ROD ATTACHMENTS FOR COPPER-PIPING SYSTEMS.

b. SIDE BEAM EYE SOCKET, TOLCO FIG. #57 FOR ROD SIZES 3/8" DIA. AND TOLCO FIG. #25-30-251 FOR ROD SIZES 1/2" DIA.

5. BUILDING ATTACHMENTS:

a. GENERAL: PROVIDE FACTORY FABRICATED BUILDING ATTACHMENTS, SELECTED BY INSTALLER TO SUIT BUILDING STRUCTURAL FRAMING CONDITIONS, IN ACCORDANCE WITH MSS SP-69 AND MANUFACTURER'S PUBLISHED PRODUCT INFORMATION. SELECT SIZE OF BUILDING ATTACHMENTS TO SUIT HANGER RODS. PROVIDE COPPER-PLATED BUILDING ATTACHMENTS FOR COPPER-PIPING SYSTEMS.

6. HANGER RODS AND SPACING SHALL CONFORM TO CPC TABLE 3-2.

7. HANGERS AND SUPPORTS SHALL BE ADEQUATE TO MAINTAIN ALIGNMENT AND PREVENT SAGGING AND SHALL BE PLACED WITHIN 18 INCHES OF JOINT. SUPPORT SHALL BE PROVIDED AT EACH HORIZONTAL BRANCH CONNECTION.

9. PROVIDE LATERAL BRACING AS MANUFACTURED BY B-LINE OR APPROVED EQUAL FOR ALL PIPING TO PREVENT SWAYING OR MOVEMENT IN ACCORDANCE WITH SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF PIPING SYSTEMS". PIPING SMALLER THAN INDICATED IN THE GUIDELINES SHALL BE PROVIDED WITH BRACING AS SPECIFIED FOR THE SMALLEST SIZE INDICATED. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE PROPERLY BRACED AND WILL NOT MOVE DUE TO THE ACTION OF QUICK CLOSING OF VALVES.

10. MISCELLANEOUS SUPPORTS, WALL BRACKETS, ETC. PROVIDE WHERE REQUIRED IN ACCORDANCE WITH THE BEST STANDARD PRACTICES OF THE TRADE. SUBMIT SHOP DRAWINGS FOR ALL FABRICATED SUPPORTS.

11. ISOLATORS. ALL PIPING WHICH IS NOT ISOLATED FROM CONTACT WITH THE BUILDING BY ITS INSULATION, EXCEPT FOR COPPER WATER SUPPLY STUB-OUTS AT FIXTURES AND COPPER SUPPLY HEADERS WITHIN WALLS, SHALL BE INSTALLED WITH A MANUFACTURED TYPE ISOLATOR. ISOLATORS SHALL BE B-LINE VIBRA CLAMP AND CUSHION, SUPER STRUT, STONEMAN, "TRISOLATOR", OR APPROVED EQUAL. PIPING SHALL BE INSTALLED AND SUPPORTED IN A MANNER TO PROVIDE FOR EXPANSION WITHOUT STRAINS. GUIDES SHALL BE PROPERLY INSTALLED TO ENSURE THIS REQUIREMENT.

12. SHIELDS:

a. GENERAL: PROVIDE SHIELDS AT PIPING HANGERS AND SUPPORTS, FACTORY-FABRICATED, FOR ALL INSULATED PIPING AS MANUFACTURED BY PIPESHIELDS INCORPORATED OR APPROVED EQUAL. SIZE SHIELDS FOR EXACT FIT TO MATE WITH PIPE INSULATION.

b. PROTECTION SHIELDS: MSS TYPE 40; PROVIDE HIGH DENSITY INSERT OF SAME THICKNESS OF INSULATION OR EQUAL 100-PSI AVERAGE COMPRESSIVE STRENGTH, WATERPROOFED CALCIUM SILICATE, ENCASED WITH A SHEET METAL SHIELD. INSERT AND SHIELD SHALL COVER ENTIRE CIRCUMFERENCE OF THE PIPE AND SHALL BE OF LENGTH INDICATED BY MANUFACTURER FOR PIPE SIZE AND THICKNESS OF INSULATION.

13. INSULATIONS:

a. HOT WATER PIPE INSULATION: ALL HOT WATER SUPPLY AND RETURN PIPING SHALL BE INSULATED WITH "ASTM C547, CLASS I, "MANVILLE" "MICRO-LOCK" 850-APT, OWENS-CORNING FIBERGLASS CORP., ASJ/SL-11 OR APPROVED EQUAL, 1-1/2" THICK FOR SIZES UP TO 1-1/2" AND 2" THICK FOR SIZES 2" AND LARGER. INSULATED PIPING FOR OUTDOOR INSTALLATION SHALL BE COVERED WITH "CHILDERS" 0.016 INCH THICK ALUMINUM JACKET INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. INSULATION SHALL HAVE A FLAME SPREAD OF NOT MORE THAN 25 AND A SMOKE DENSITY NOT EXCEEDING 50 PER UMC SEC. 604.3.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

A. LOCATIONS AND ACCESSIBILITY: INSTALL EQUIPMENT FOR EASE OF MAINTENANCE AND REPAIR. IF CHANGES IN THE INDICATED LOCATIONS OR ARRANGEMENTS ARE MADE BY THE CONTRACTOR, THEY SHALL BE MADE WITHOUT ADDITIONAL CHARGES.

B. OPENINGS: FURNISH INFORMATION TO THE OTHER TRADES ON SIZE AND LOCATION OF OPENINGS WHICH ARE REQUIRED IN WALLS, SLABS, ROOF, FOR PIPING AND EQUIPMENT AT THE PROPER TIMES.

C. CLOSING-IN OF UNINSPECTED WORK: DO NOT ALLOW OR CAUSE ANY OF THE WORK TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN INSPECTED, TESTED, AND ACCEPTED BY THE ARCHITECT. ANY WORK ENCLOSED OR COVERED PRIOR TO SUCH INSPECTION AND TEST SHALL BE UNCOVERED AND, AFTER IT HAS BEEN INSPECTED, TESTED, AND APPROVED, MAKE ALL REPAIRS WITH SUCH MATERIALS AS MAY BE NECESSARY TO RESTORE ALL WORK, INCLUDING THAT OF OTHER TRADES, TO ITS ORIGINAL AND PROPER CONDITION.

D. PIPING INSTALLATION:

12. ALL PIPING SHALL BE CONCEALED IN FINISHED PORTION OF THE BUILDING EXCEPT WHERE OTHERWISE INDICATED OR DIRECTED AT THE TIME THE WORK IS DONE. ALL PIPING SHALL BE INSTALLED TO CLEAR ALL FRAMING MEMBERS AND BEAMS, EVEN IF DRAWINGS DO NOT INDICATE SAME. CONTRACTOR SHALL CONSTANTLY CHECK THE WORK OF OTHER TRADES SO AS TO PREVENT ANY INTERFERENCE WITH THE INSTALLATION OF THIS WORK.

13. UNIONS SHALL BE INSTALLED ON ONE SIDE OF ALL SCREWED SHUT-OFF VALVES, AT BOTH SIDES OF SCREWED AUTOMATIC VALVES AND ON ALL BY-PASSES, AT ALL EQUIPMENT CONNECTIONS AND ELSEWHERE AS INDICATED OR REQUIRED FOR EASE OF INSTALLATION AND DISMANTLING.

14. CONNECTIONS BETWEEN COPPER TUBING AND EQUIPMENT SHALL BE WITH MUELLER BRASS COMPANY, OR APPROVED EQUAL, BRASS STREAM LINE COPPER TO P.P.S. GROUND JOINT UNIONS.

E. PIPE JOINTS AND CONNECTIONS:

1. COPPER TUBING AND BRASS PIPE WITH THREADLESS FITTINGS:

a. SOLDER JOINTS FOR COPPER SHALL BE MADE WITH 95/5 LEAD FREE SOLDER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR THE SERVICE INTENDED.

b. USE THREADED ADAPTERS ON COPPER TUBING WHERE THREADED CONNECTIONS ARE REQUIRED.

F. FLOOR, WALL AND CEILING PLATES: WHERE PIPES PIERCE FINISHED SURFACES, C.P. BRASS SPLIT FLANGES WITH SET SCREW LOCK SHALL BE PROVIDED.

M. COMPLETION OF INSTALLATION:

1. CLEANING AND FLUSHING: CLEAN ALL EQUIPMENT AND MATERIALS THOROUGHLY. LEAVE SURFACE TO BE PAINTED SMOOTH AND CLEAN, READY FOR PAINTING.

2. CLEAN ALL PIPING, VALVES, TRAPS, WATER HEATERS, FIXTURES AND OTHER DEVICES THOROUGHLY AND FLUSH OR BLOW OUT UNTIL FREE OF SCALE, OIL SILT, SAND, SEDIMENT, PIPE DOPE AND FOREIGN MATTER OF ANY KIND.

3.02 TESTING

A. NO PIPING WORK SHALL BE CONCEALED OR COVERED UNTIL PIPING HAS BEEN TESTED, INSPECTED AND APPROVED BY THE INSPECTOR. ALL PIPING FOR PLUMBING SYSTEMS SHALL BE COMPLETELY INSTALLED AND TESTED AS REQUIRED BY THE CALIFORNIA PLUMBING CODE. TEST PRESSURES AND TIMES INDICATED ARE A MINIMUM ONLY. ALL TESTS SHALL BE AS REQUIRED BY THE GOVERNING AUTHORITY AS WELL.

SCHEDULE OF TEST PRESSURES:

SYSTEM TESTED	GAUGE	TEST	DURATION
WATER	100 POUNDS	WATER	4 HOURS
WASTE & VENT	PER CPC	(MIN. 10 FT OF HEAD)	

3.03 OPERATION INSTRUCTION

A. PRIOR TO OCCUPANCY OR PRIOR TO THE DATE OF FINAL INSPECTION, WHICHEVER MAY OCCUR FIRST, THE CONTRACTOR SHALL PREPARE TWO (2) SETS ELECTRONIC AND HARD COPIES OF TYPEWRITTEN INSTRUCTIONS FOR THE OPERATION OF ALL EQUIPMENT, VALVES, ETC., SPECIFIED AND FURNISHED AS A PART OF THE WORK UNDER THIS SECTION, AND SHALL ASSIGN A COMPETENT PERSON, THOROUGHLY FAMILIAR WITH THE JOB, TO DEMONSTRATE AND INSTRUCT A REPRESENTATIVE OF THE OWNER IN THE OPERATION OF THE EQUIPMENT. THE TIME OF SAID DEMONSTRATION AND INSTRUCTIONS SHALL BE ARRANGED WITH THE OWNER'S REPRESENTATIVE APPROXIMATELY ONE (1) WEEK IN ADVANCE. VERBAL INSTRUCTIONS SHALL INCLUDE SHUT-OFF LOCATION OF GAS AND WATER. THE CONTRACTOR SHALL ASSEMBLE ALL OPERATION AND MAINTENANCE DATA SUPPLIED BY THE MANUFACTURERS OF THE VARIOUS PIECES OF EQUIPMENT, ALL KEYS AND SPECIAL WRENCHES REQUIRED TO OPERATE AND SERVICE THE EQUIPMENT (INCLUDING KEYS FOR YARD BOXES, GAS STOPS AND FIXTURE STOPS), AND ALL EQUIPMENT WARRANTIES AND DELIVER SAME TO THE REPRESENTATIVE OF THE OWNER ON DATE OF SAID INSTRUCTIONS.

B.

3.05 PIPE AND EQUIPMENT IDENTIFICATION

A. EACH OPERATING AND SERVICE LINE SHUT-OFF VALVE SHALL BE IDENTIFIED BY A 19 GA. BRASS TAG WITH STAMPED, ENGRAVED TYPE OF SERVICE IDENTIFIED, COMPLETE WITH HOLE AND BRASS CHAIN MOUNTED ON VALVE STEM OR HANDLE. TAG SHALL BE A MINIMUM OF ONE AND ONE-HALF INCH (1-1/2") IN DIAMETER.

B. ACCESS PANEL MARKERS: PROVIDE MANUFACTURERS STANDARD 1/16 INCH THICK ENGRAVED PLASTIC LAMINATE MARKER, WITH ABBREVIATIONS AND NUMBERS CORRESPONDING TO CONCEALED VALVE.

C. ALL EQUIPMENT SHALL BE PROVIDED WITH NAME PLATE INDICATING ALL PERTINENT INFORMATION ON IT.

D. MANUFACTURER'S STANDARD PERMANENT, BRIGHT COLORED, CONTINUOUS PRINTED PLASTIC TAPE, INTENDED FOR DIRECT-BURIAL SERVICE, NOT LESS THAN 6 INCHES WIDE X 4 MILS THICK. PROVIDE MULTI-PLY TAPE CONSISTING OF SOLID ALUMINUM FOIL CORE INDICATING TYPE OF SERVICE OF BURIED PIPE BETWEEN TWO LAYERS OF PLASTIC TAPE.

3.06 STERILIZATION OF DOMESTIC WATER LINES

A. STERILIZE WATER LINES BY FILLING WITH A SOLUTION CONTAINING FIFTY (50) PARTS OF CHLORINE PER MILLION PARTS WATER AND HOLDING THE SOLUTION THEREIN FOR AT LEAST EIGHT (8) HOURS WITH A WATER HEAD OF AT LEAST FIVE FEET (5') ABOVE THE HIGHEST POINT IN THE SYSTEM. UNLESS OTHERWISE DIRECTED, THOROUGHLY FLUSH EACH LINE PRIOR TO STERILIZATION. INTRODUCTION OF STERILIZING SOLUTION OR MATERIALS INTO THE LINES SHALL BE SUCH AS TO PROVIDE THOROUGH AND UNIFORM DISTRIBUTION THROUGHOUT THE SYSTEM.

B. OPERATE ALL VALVES DURING THE RETENTION PERIOD. FOLLOWING RETENTION PERIOD, THE HEAVY CHLORINATED WATER SHALL BE FLUSHED FROM THE SYSTEM WITH CLEAN WATER.

C. CONTINUE FLUSHING UNTIL THE RESIDUAL CHLORINE AT THE END OF 24 HOURS IS AS REQUIRED BY AWWA
C651.

D. ALL WORK AND CERTIFICATION OF PERFORMANCE MUST BE DONE BY AN APPROVED LABORATORY UTILIZING QUALIFIED APPLICATIONS AND PERSONNEL.

END OF SECTION

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Project Title

BUILDING 1200 HEAT EXCHANGER REPLACEMENT

FULLERTON COLLEGE

321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA — MECHANICAL
08/30/2021

Revisions

Number	Description	Date
X	X	XX/XX/XX

Designed	Jimmy P.
Drawn	Jimmy P.
Checked	Rolando D.
Approved	Rolando D.
Date	08/30/2021
Submittal	Issue for Bid
Scale	NONE

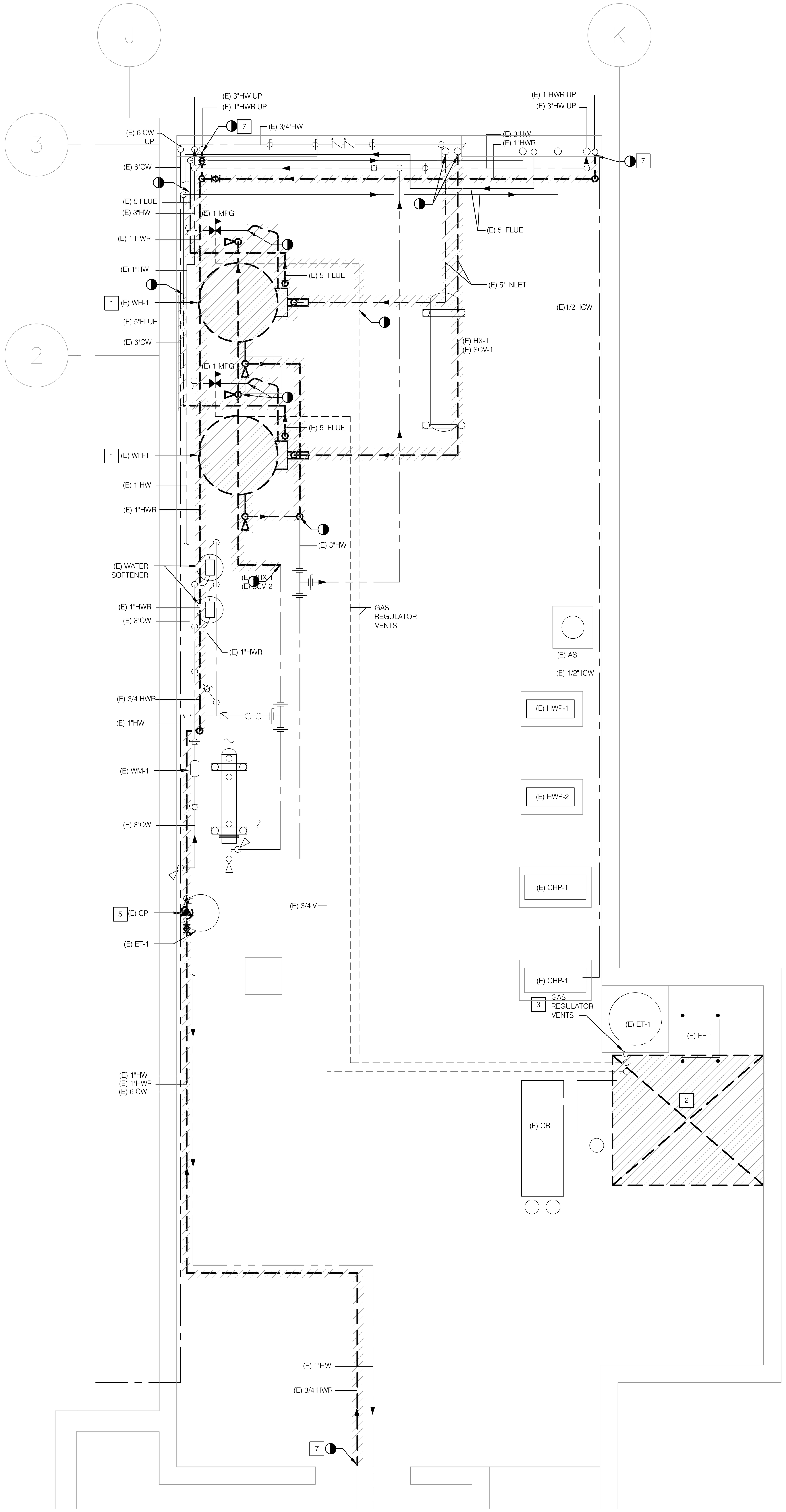
Sheet Title

SPECIFICATIONS

Sheet Number

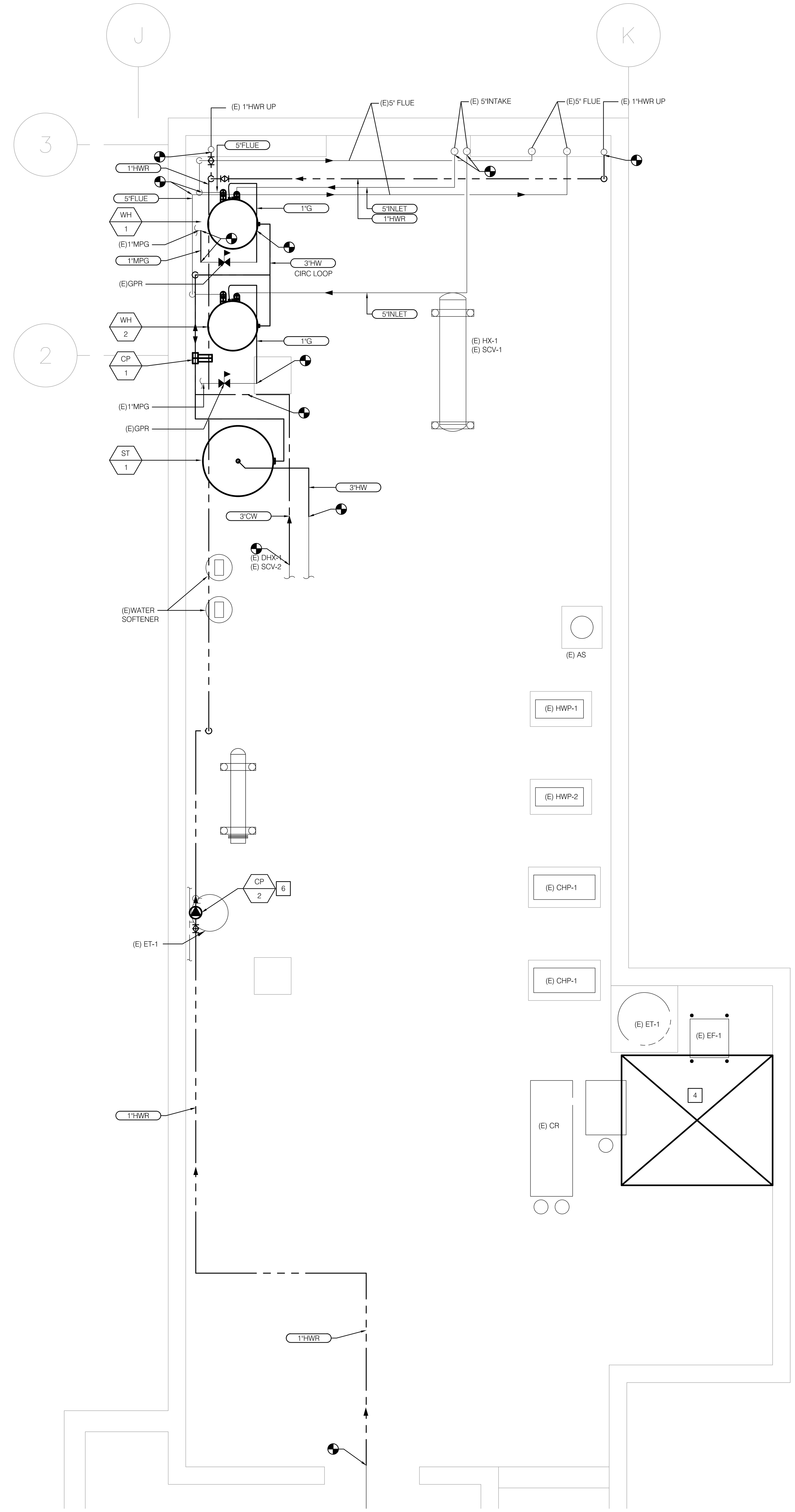
P002

P2S No. 0203



2 BASEMENT DEMOLITION PLAN - NORTH

3/8"=1'-0"



1 BASEMENT RENOVATION PLAN - NORTH

3/8"=1'-0"

NOTES

1. DISCONNECT AND REMOVE (E) WATER HEATER INCLUDING SERVICE PIPING (CW, HW, G, FLUE, DRAINS, ETC) UP TO POINT OF DISCONNECTIONS INDICATED.
2. REMOVE EXISTING CONCRETE HATCH AND DISPOSE AS REQUIRED.
3. EXISTING REGULATOR VENTS SHALL BE PROTECTED DURING REPLACEMENT OF THE HATCH. REMOVE AND RECONNECT AS REQUIRED TO FACILITATE INSTALLATION OF THE HATCH.
4. PROVIDE H20 RATED, STEEL 4'-0" X 6'-0" DOUBLE DOOR FLOOR HATCH. REFER TO 1/P001 AND B/S200 FOR DETAILS.
5. TO BE REMOVE AND REPLACE.
6. CONTRACTOR SHALL ALTER EXISTING PIPING SYSTEM AS NECESSARY TO ACCOMODATE THE NEW PUMP. SEE DETAIL 6/P401.
7. POD. CUT AND CAP.

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Checked	Rolando D.
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Sheet Title

BASEMENT DEMOLITION AND RENOVATION PLAN

Sheet Number

P200

P2S No. 0203

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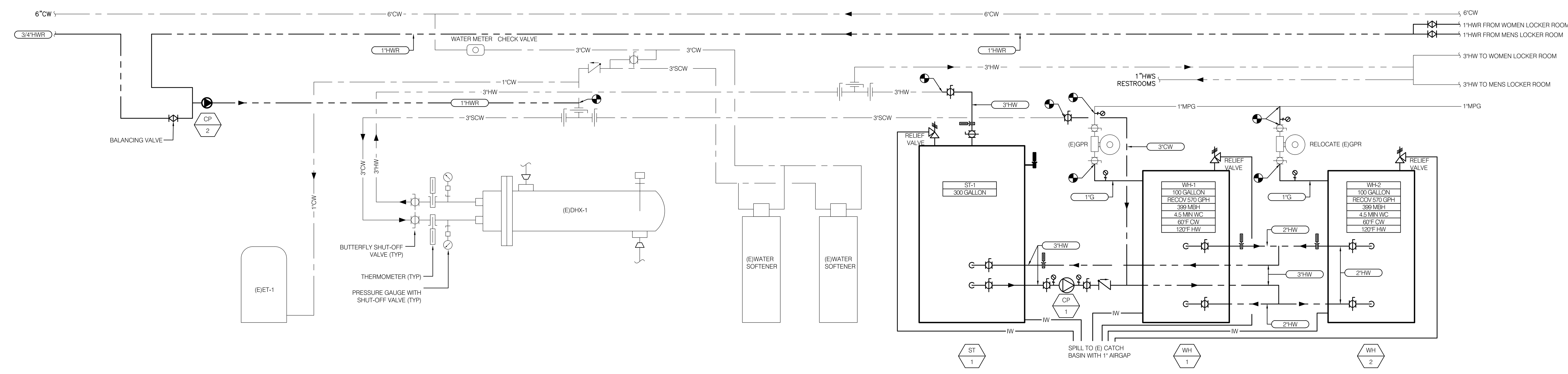

2 DOMESTIC HOT WATER SYSTEM DIAGRAM - RENOVATION

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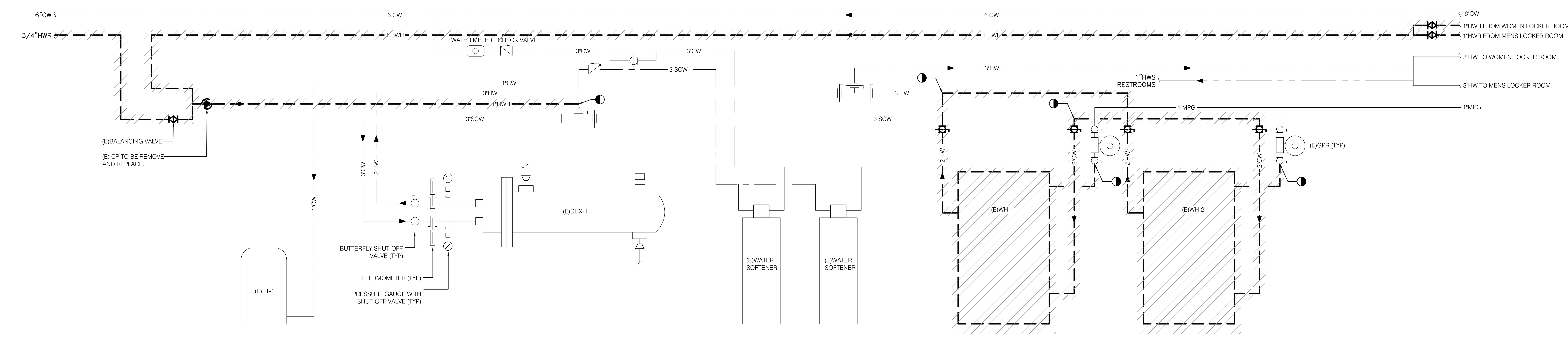

1 DOMESTIC HOT WATER SYSTEM DIAGRAM - DEMOLITION

NO SCALE

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Sheet Title

PIPING DIARGAMS

Sheet Number

P301

P2S No. 0203

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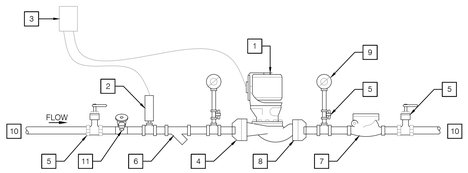
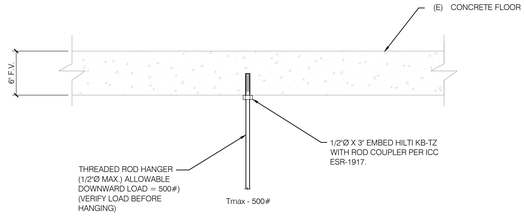


NOTES

1. IN-LINE CIRCULATING PUMP (SEE PUMP SCHEDULE)
2. AQUASTAT.
3. ELECTRICAL BOX.
4. REDUCING TEE (OR TEST PLUG FOR INSERTION OF GAUGE)
5. BALL VALVE.
6. STRAINER.
7. CHECK VALVE.
8. UNION.
9. DIAL TYPE PRESSURE GAUGE (0-100 PSIG).
10. FOR CONTINUATION AND SIZE, SEE FLOOR PLAN.
11. HOSE BIBB.

6 RECIRCULATING PUMP
NO SCALE



4 THREADED HANGER ROD AT CONCRETE FLOOR DECK
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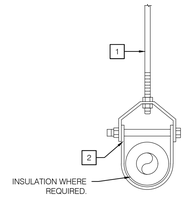
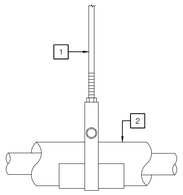
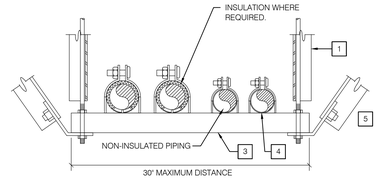
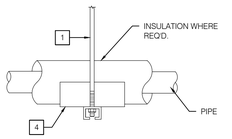


SINGLE PIPE HANGER



SINGLE PIPE HANGER





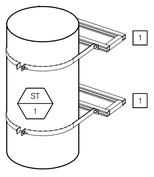
NOTES

1. 5/8"Ø HANGER ROD, WELDED TO 2"X2"X16 GAUGE VERTICAL ANGLE. ATTACH TO STRUCTURE ABOVE PER STRUCTURAL DRAWINGS.
2. PROVIDE A SECTION OF HIGH COMPRESSION STRENGTH INSULATION AT EACH HANGER POINT. INSULATION MAY BE HALF ROUND OR FULL ROUND & EXTENDED 2" BEYOND GALV. SHIELD EA. WAY.
3. MULTIPLE PIPES SUPPORTED ONTO UNISTRUT P1000 CHANNEL. PROVIDE INSULATED HOT WATER PIPING ON ROLLERS AND CHILLED WATER PIPING SECURED WITH PIPE CLAMPS. REFER TO SPECIFICATION FOR ADDITIONAL REQUIREMENTS FOR SUPPORTS AND FOR PIPING MATERIAL REQUIREMENTS.
4. PROVIDE PIPE SADDLE BETWEEN PIPE AND HANGER.
5. PROVIDE DIAGONAL BRACE FOR ALL PIPING. BRACE SHALL BE MINIMUM 3"x3"X 16 GAUGE DIAGONAL ANGLE, INSTALLED AT MAXIMUM 20'-0" ON CENTER OR WITHIN 2'-0" OF ELBOWS.

GENERAL NOTES

A. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL ANCHORAGE REQUIREMENTS.
B. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAMS.
C. PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.

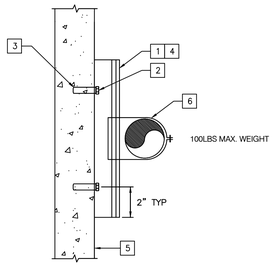
2 PIPE SUPPORT
NO SCALE



NOTES

1. SEE STRUCTURAL DETAIL 1 IN SHEET S601.

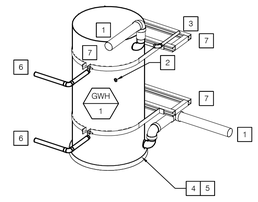
5 HOT WATER STORAGE TANK
NO SCALE



NOTES

1. P1000 UNISTRUT CHANNEL BY 12" LONG, SECURE TO EXISTING WALL.
2. (2) 1/2" HILTI KB TZ W/ 3-1/2" EMBED PER ICC ESR 1917, AT TOP AND BOTTOM OF STRUT FRAMING.
3. EMBED ANCHOR 3-1/2" DEEP.
4. PROVIDE SUPPORTS WITHIN 2'-0" OF TURNS AND EVERY 8'-0" ON CENTER.
5. EXISTING WALL
6. PIPE CLAMP

3 PIPE SUPPORT ON WALL
NO SCALE



NOTES

1. 3"PVC FLUE CONNECT TO EXISTING 5"FLUE.
2. P&T RELIEF VALVE WITH DRAIN, SPILL TO CATCH BASIN.
3. 1" G CONNECT TO EXISTING LOW PRESSURE GAS PIPING.
4. PROVDE 3/4" DRIP PAN DRAIN TO CATCH BASIN.
5. SMITTY PAN.
6. 2"HW
7. SEE STRUCTURAL DETAIL 2 IN SHEET S601.

1 WATER HEATER
NO SCALE

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Project Title

BUILDING 1200 HEAT EXCHANGER REPLACEMENT

FULLERTON COLLEGE

321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

REGISTERED PROFESSIONAL ENGINEER — MECHANICAL — STATE OF CALIFORNIA
08/30/2021

Revisions

Number	Description	Date
1	X	XX/XX/XX

Designed	Jimmy P.
Drawn	Jimmy P.
Checked	Rolando D.
Approved	Rolando D.
Date	08/30/2021
Submittal	Issue for Bid
Scale	NONE

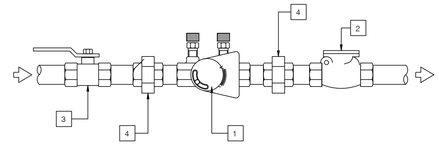
Sheet Title

DETAILS

Sheet Number

P401

P2S No. 0203



NOTES

1	CIRCUIT SOLVER BALANCING VALVE
2	CHECK VALVE.
3	BALL VALVE.
4	UNION.

1 BALANCING VALVE ASSEMBLY
NO SCALE

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Project Title

BUILDING 1200
HEAT EXCHANGER
REPLACEMENT

FULLERTON COLLEGE

321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

REGISTERED PROFESSIONAL ENGINEER
MECHANICAL
STATE OF CALIFORNIA
08/30/2021

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Scale	NONE

Sheet Title

DETAILS

Sheet Number

P402

P2S No. 0203

LEGEND

SYMBOL	DESCRIPTION
	NOTE CALLOUT
	DETAIL CALLOUT - NUMBER ON TOP DENOTES DETAIL NUMBER - NUMBER ON BOTTOM DENOTES SHEET DETAIL IS SHOWN
	MECHANICAL EQUIPMENT CALLOUT, SEE MECHANICAL PLANS FOR EXACT LOCATION AND REQUIREMENTS
	SECTION CALLOUT
	FEEDER CALLOUT
	EXISTING FEEDER CALLOUT
	NEW LINEWORK
	EXISTING LINEWORK
	DEMOLISHED LINEWORK
	CONDUIT CONCEALED IN WALL OR ABOVE CEILING
	CONDUIT EXPOSED
	CONDUIT CONCEALED UNDERGROUND OR BELOW FLOOR
	CONDUIT EMERGENCY
	MULTI-CHANNEL RACEWAY
	CONDUIT TURNED UP
	CONDUIT CAPPED
	BRANCH CIRCUIT HOMERUN TO PANELBOARD AND CIRCUITS AS INDICATED
	3/4" CONDUIT, TICK MARKS INDICATE QUANTITY OF #12 AWG WIRES (UNLESS NOTED OTHERWISE, NO MARKS INDICATES 2#12 & 1#12 GND WIRES) - SMALL MARK DENOTES HOT WIRE - LARGE MARK DENOTES NEUTRAL WIRE - DIAGONAL DENOTES GROUND WIRE
	GENERATOR
	SWITCH
	CIRCUIT BREAKER
	2-WAY SWITCH, TRANSFER SWITCH
	FUSE
	TRANSFORMER
	GROUND CONNECTION
	MOTOR - SINGLE PHASE FRACTIONAL OR INTEGRAL HORSEPOWER
	METER
	ELECTRONIC CIRCUIT MONITOR
	480V DRAWOUT BREAKER
	VARIABLE FREQUENCY DRIVE
	PANEL
	FUSED DISCONNECT SWITCH
	NON-FUSED DISCONNECT SWITCH
	COMBINATION STARTER/DISCONNECT SWITCH
	SWITCH MOTOR RATED
	SPLICE
	TERMINATION
	EXISTING TERMINATION
	MEDIUM VOLTAGE - AIR CIRCUIT BREAKER DRAWOUT BREAKER
	MEDIUM VOLTAGE FUSED DISCONNECT SWITCH
	MEDIUM VOLTAGE MODULAR SPLICE
	MEDIUM VOLTAGE EXISTING MODULAR SPLICE
	2X4 LIGHT FIXTURE - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	2X4 EMERGENCY LIGHT FIXTURE FED FROM GENERATOR/ INVERTER/ BATTERY BACKUP
	2X2 LIGHT FIXTURE - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	2X2 EMERGENCY LIGHT FIXTURE FED FROM GENERATOR/ INVERTER/ BATTERY BACKUP
	LINEAR LIGHT FIXTURE, DIMENSIONS PER PLANS - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	EMERGENCY LINEAR LIGHT FIXTURE, DIMENSIONS PER PLANS - LIGHT FIXTURE FED FROM GENERATOR/ INVERTER/ BATTERY BACKUP
	LINEAR PENDANT LIGHT FIXTURE, DIMENSIONS PER PLANS - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	TRACK LIGHTING - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	UNDERCABINET / COVE FIXTURE - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	LED STRIP LIGHT FIXTURE - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.

SYMBOL	DESCRIPTION
	DOWNLIGHT FIXTURE - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	EMERGENCY DOWNLIGHT FIXTURE FED FROM GENERATOR/ INVERTER/ BATTERY BACKUP
	PENDANT LUMINAIRE - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	WALLWASH LIGHT FIXTURE - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	WALL MOUNTED LIGHT FIXTURE - UPPER CASE LETTER INDICATES LIGHT FIXTURE CALLOUT. LOWER CASE LETTER INDICATES LIGHTING CONTROL ZONE.
	EMERGENCY WALL MOUNTED LIGHT FIXTURE FED FROM GENERATOR/ INVERTER/ BATTERY BACKUP
	BOLLARD LUMINAIRE
	POST TOP LUMINAIRE
	POLE MOUNTED LUMINAIRE, SINGLE HEAD
	POLE MOUNTED LUMINAIRE, DOUBLE HEAD
	POLE MOUNTED LUMINAIRE, TRIPLE HEAD
	POLE MOUNTED LUMINAIRE, QUAD HEAD
	IN GRADE LUMINAIRE
	PATHWAY LUMINAIRE
	LANDSCAPE FIXTURE
	EXIT LIGHT FIXTURE WITH DIRECTIONAL ARROWS AS INDICATED. SHADED SIDE DENOTES NUMBER OF FACES
	JUNCTION BOX
	PHOTOCELL FOR EXTERIOR APPLICATIONS
	DAYLIGHT SENSOR - CEILING MOUNTED
	RELAY
	EMERGENCY RELAY UL 924 COMPLIANT
	MOTION SENSOR - CEILING MOUNTED
	MOTION SENSOR - CORNER OR WALL MOUNTED
	MOTION SENSOR WITH AISLE/CORRIDOR LENS - CEILING MOUNTED
	COMBINATION MOTION AND DAYLIGHT SENSOR
	LIGHTING CONTROL NETWORK DEVICE
	DIGITAL TIMER SWITCH
	MOTION SENSOR SWITCH
	LOW VOLTAGE SWITCH
	DIMMER MASTER SWITCH
	DIGITAL DIMMING SWITCH
	GRAPHICAL TOUCH SCREEN - LIGHTING CONTROL STATION
	THERMOSTAT WITH A 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE
	MODULAR FURNITURE - BASE POWER WHIP FEED CONNECTION
	MODULAR FURNITURE - FLOOR BOX FEED CONNECTION
	MODULAR FURNITURE - POWER POLE FEED CONNECTION
	DUPLEX RECEPTACLE PROVIDED BY MODULAR FURNITURE
	LIGHTING CONTROL PANEL - SURFACE MOUNTED
	PANELBOARD - RECESSED MOUNTED
	PANELBOARD - SURFACE MOUNTED
	DISTRIBUTION PANEL/ BOARD
	SINGLE POLE SWITCH, DEVICE SHALL BE MOUNTED +48" MAX AND +36" MIN FROM THE CENTER OF DEVICE:
	SWITCH 3-WAY (48" AFF MAXIMUM)
	TIMER SWITCH (48" AFF MAXIMUM)
	DUAL SWITCH (48" AFF MAXIMUM)
	PUSHBUTTON SWITCH

RECESSED ON WALL — G=GFI, WP=WEATHERPROOF
SURFACE — G=GFI, WP=WEATHERPROOF
FLOOR OR CEILING — C=CEILING

- 20A, 125V DUPLEX RECEPTACLE MOUNTED +15" AFF, UNLESS OTHERWISE NOTED
- 20A, 125V QUAD RECEPTACLE MOUNTED +15" AFF, UNLESS OTHERWISE NOTED
- 20A, 125V DUPLEX RECEPTACLE RECEPTACLE ON DEDICATED CIRCUIT
- 20A, 125V CONTROLLED DUPLEX RECEPTACLE
- 20A, 125V QUAD RECEPTACLE (HALF) CONTROLLED RECEPTACLE
- SPECIAL RECEPTACLE REFER TO DRAWINGS FOR NEMA CONFIGURATION
- JUNCTION BOX

RECESSED POKE-THROUGH
RECESSED POKE-THROUGH - POWER/TEL/DATA
RECESSED FLOOR BOX - POWER/TEL/DATA

- 20A, 125V DUPLEX RECEPTACLE FIRE RATED TYPE
- 20A, 125V QUAD RECEPTACLE FIRE RATED TYPE

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
1/C	SINGLE CONDUCTOR
&	AND
@	AT
A OR AMP	AMPERES
ABV	ABOVE
A.C.	ASPHALT CONCRETE
AF	AMPERE FUSE RATING
AFC	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECT; ARCHITECTURAL
AS	AMPERE SWITCH RATING
ASCC	AVAILABLE SHORT CIRCUIT CURRENT
ATC	AIR TERMINAL CHAMBER
ATO	AUTOMATIC THROW-OVER (SWITCH)
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BAT	BATTERY
BEL	BELOW
BKBD	BACKBOARD
BKR	BREAKER
BLDG	BUILDING
B.S.	BARE STRANDED
C	CONDUIT
CB	CIRCUIT BREAKER
CC	CONSTANT CURRENT
CEC	CALIFORNIA ELECTRICAL CODE
CF	CUBIC FEET
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
C.O.	CONDUIT ONLY WITH PULL WIRE
COL	COLUMN
CP	COMMUNICATION PROCESSOR
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CSFD	COMBINATION SMOKE FIRE DAMPER
CT	CURRENT TRANSFORMER
CW	COLD WATER
CU	COPPER
DIAG	DIAGRAM
DIST.	DISTANCE
DL	DAMP LOCATION LISTING
DM	DIGITAL METER
DMM	DIGITAL METER MODULE
DP	DISTRIBUTION PANEL
DIST.	DISTANCE
DWG	DRAWING
DWP	DEPARTMENT OF WATER & POWER
EA	EACH
ECM	ELECTRONIC CIRCUIT MONITOR
ELEC.	ELECTRICAL
EM	EMERGENCY
EMH	ELECTRICAL MANHOLE
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
EPR	ETHYLENE PROPYLENE RUBBER
EQUIP	EQUIPMENT
ER	EXISTING TO BE REMOVED
ERR	EXISTING TO BE RELOCATED AND - RECONNECTED
EXIST/(E)	EXISTING
EXP	EXPLOSION PROOF
FA	FIRE ALARM
FFE	FINISHED FLOOR ELEVATION
FIN.	FINISH
FIP.	FIELD INTERFACE PANEL
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLR	FLOOR
FLUOR	FLUORESCENT
FT	FEET
FACP	FIRE ALARM CONTROL PANEL
FATC	FIRE ALARM TERMINAL CABINET
FMC	FLEXIBLE METAL CONDUIT
FO	FIBER OBTIC
FTG	FOOTING
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
GG	GREEN GROUND
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HT	HEIGHT
HTR	HEATER
HZ	HERTZ
ICON	INTEGRATED COMMUNICATIONS OPTICAL - NETWORK
IE	INVERT ELEVATION
IED	INTELLIGENT ELECTRONIC DEVICES
IMC	INTERMEDIATE METAL CONDUIT
ISC	SHORT CIRCUIT CURRENT
INCAND	INCANDESCENT
J, JB, J-BOX	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT-AMPERES

ABBREVIATION	DESCRIPTION
KW	KILOWATT
LF	LINEAR FEET
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LGST	LARGEST
LIS	LOAD INTERRUPTER SWITCH
LOC.	LOCATION
LOTO	LOCK-OUT & TAG-OUT
LSI	LONG TERM, SHORT TERM, INSTANTANEOUS
LSIG	LONG TERM, SHORT TERM, INSTANTANEOUS GROUNDING
LTG	LIGHTING
LV	LOW VOLTAGE
M	METER
MAX	MAXIMUM
MCA	MAXIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFGR, MFR	MANUFACTURER
MH	MANHOLE
MI.	MECHANICAL INTERLOCK
MRCT	MULTI-RATIO CURRENT TRANSFORMER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
MTTB	MAIN TELEPHONE TERMINAL BOARD
MV	MEDIUM VOLTAGE
N	NORTH
NAC	NOTIFICATION APPLIANCE CIRCUIT
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT- 24HRS ON
NO.	NUMBER
OC	ON CENTER
OCPD	OVERCURRENT PROTECTIVE DEVICE
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRICAL
OFC	OIL FUSED CUTOUT
OH	OVERHEAD
OL	OIL LEVER SWITCH
P	POLE
PAC	PROGRAMMABLE AUTOMATION CONTROLLER
PB	PULL BOX
PC	PHOTOCELL
PCB	POLYCHLORINATED BIPHENYL
PDS	PRESSURE DIFFERENTIAL SWITCH
PF	POWER FACTOR
PH OR Ø	PHASE
PILC	PAPER INSULATED, LEAD COVER
PIV	POST INDICATING VALVE
PL	PLATE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
POC	POINT OF CONNECTION
PREF.	PREFERRED
PRI.	PRIMARY
PVC	POLY-VINYL CHLORIDE
PWR	POWER
REC/RECEPT	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
RMC	RIGID METAL CONDUIT
RPBP	REDUCED PRESSURE BACK FLOW PREVENTER
RM	ROOM
RTAC	REAL TIME AUTOMATION CONTROLLER
SCCR	SHORT CIRCUIT CURRENT RATING
SCE	SOUTHERN CALIFORNIA EDISON
SF	SQUARE FEET
SHT	SHEET
SIG.	SIGNAL
SP	SPARE
SPECS	SPECIFICATIONS
ST	STREET
STD	STANDARD
STP	SHIELDED TWISTED PAIR
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SWST	SWITCHING STATION
TB	TERMINAL BLOCK
TEL./TELE	TELEPHONE
TMH	TELEPHONE MANHOLE
T.O.D.	TOP OF DUCTBANK
T.O.M.	TOP OF MANHOLE
TPS	TWISTED SHIELDED PAIR
TRANSF,XFMR	TRANSFORMER
TS	TAMPER SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT-AMPERES
VB	VIBRATION SWITCH
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
W/	WITH
W/O	WITHOUT
WCR	WITHSTAND CLOSE-ON RATING
WP	WEATHERPROOF
Z	IMPEDANCE

IN THE EVENT ABBREVIATIONS NOT MENTIONED HEREIN ARE USED, REFERENCE WILL BE MADE TO ANSI Y1.1, MILITARY STANDARD ABBREVIATIONS, AND OTHER STANDARD INDUSTRY CONVENTIONS.

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE AND ALL OTHER APPLICABLE FEDERAL AND STATE. WHERE THE CONSTRUCTION DOCUMENTS INDICATE MORE RESTRICTIVE REQUIREMENTS, THE CONSTRUCTION DOCUMENTS SHALL GOVERN BUT THE CONSTRUCTION DOCUMENTS SHALL NOT BE INTERPRETED AS AUTHORITY TO VIOLATE ANY CODE OR REGULATION.

2. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE UNDERWRITERS' LABEL (UL) AND SHALL BE INSTALLED IN THE MANNER FOR WHICH THEY ARE DESIGNED AND APPROVED.

3. THE CONTRACTOR SHALL NOT BORE, NOTCH OR IN ANY WAY CUT INTO ANY STRUCTURAL MEMBER WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT OR STRUCTURAL ENGINEER.

4. MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT ANCHORAGE NOTES:

   ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCES AND DISPLACEMENT REQUIREMENTS.

   A. ALL PERMANENT EQUIPMENT AND COMPONENTS.

   B. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.

   C. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

   THE ATTACHMENT OF THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENT SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

   A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS THE COMPONENT.

   B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

   FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD AND THE STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

5. PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTES:

   PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN LATEST SECTIONS OF CBC AND ASCE.

   THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL BE DETAILED ON THE APPROVED DRAWINGS OR THEY SHALL COMPLY WITH ONE OF THE OSHPD PRE-APPROVALS (OPM #) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.

   COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.

   THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

SHEET INDEX

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Project Title

BUILDING 1200 HEAT EXCHANGER REPLACEMENT

FULLERTON COLLEGE

FULLERTON COLLEGE FULLERTON 1913 CALIFORNIA

321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

REGISTERED PROFESSIONAL ENGINEER MOHAMMAD WASIF No. E22296 ELECTRICAL STATE OF CALIFORNIA
08/30/2021

Revisions

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Submittal	Issue for Bid
Scale	None

Sheet Title

General Notes, Legend, Abbreviations And Sheet Index

Sheet Number

E001

P2S No. 0203

GENERAL NOTES

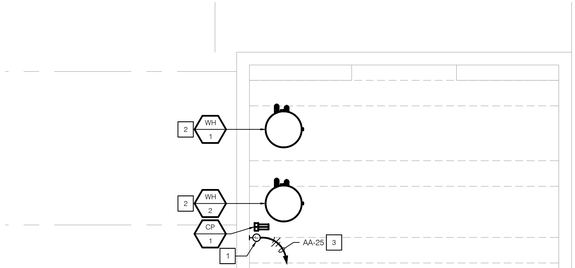
1. FIELD VERIFY CIRCUITS. DESIGNATIONS ARE BASED ON FIELD SURVEY AND RECORD DRAWINGS.
2. ROUTE FEEDERS PARALLEL TO EXISTING RACEWAYS AND STRUCTURES.
3. PROTECT AND MAINTAIN FEEDERS AND DEVICES TO REMAIN DURING CONSTRUCTION.
4. INCLUDE PATCHING AND RE-FINISHING OF SURFACES WHERE AFFECTED.
5. PROVIDE FIRESTOPPING FOR FIRE-RATED PENETRATIONS
6. SET SPARE BREAKERS TO 'OFF' POSITION

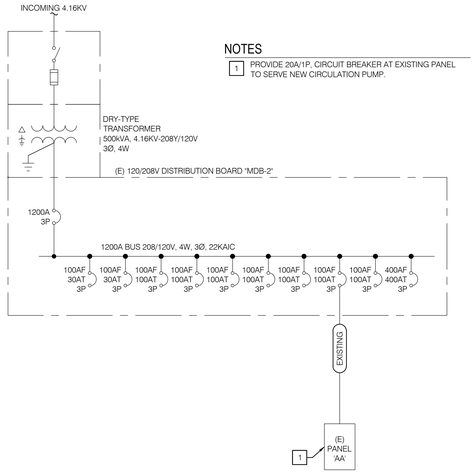
NOTES

1 PROVIDE 20A, 120V, CONNECTION TO J-BOX FOR CIRCULATION PUMP CP-1.

2 REUSE EXISTING FEEDER AND CONDUIT TO SERVE NEW WATER HEATERS.

3 PROVIDE 2#12 & 1#12 GND WIRE IN 3/4" PVC COATED RGS CONDUIT TO TERMINATE AT PANEL AA.





NOTES

1 PROVIDE 20A/1P, CIRCUIT BREAKER AT EXISTING PANEL TO SERVE NEW CIRCULATION PUMP.

3 SINGLE LINE DIAGRAM

NO SCALE

PANEL: AA — EXISTING PANEL

LOCATION : MULTI-PURPOSE
FLOOR : GROUND
MOUNTING : SURFACE

VOLTAGE/PHASE : 208Y/120V, 3Ø, 4W
BUS AMPS : 200A
MAIN BREAKER : MLO

FED FROM : SWITCBOARD MDB-2
MINIMUM BUS BRACING : 10KAIC

LOADS	SEE NOTE	*	OUTLETS LTG	OUTLETS REC	OUTLETS MISC	VOLT-AMPS A	VOLT-AMPS B	VOLT-AMPS C	CKT	BKR/ POLE	A	B	C	BKR/ POLE	CKT	VOLT-AMPS A	VOLT-AMPS B	VOLT-AMPS C	OUTLETS LTG	OUTLETS REC	OUTLETS MISC	*	SEE NOTE	LOADS
(E) CONDENSATE TANK PUMP 1						900			1	15/3	*	-		20/1	2	1,500								(E)EXISTING CIRCUIT
----							900		3	-		-	*	20/1	4		0							(E)SPARE
----								900	5	-		-	*	20/1	6			0						(E)SPARE
(E)EXISTING CIRCUIT						1,500			7	20/1	*	-		20/1	8	1,500								(E)EXISTING CIRCUIT
(E) INVERTER AA							1,500		9	20/1	-	*		20/1	10		1,500							(E)EXISTING CIRCUIT
(E)EXISTING CIRCUIT								1,500	11	20/1	-	*		20/1	12			600						(E)PUMP
(E) CONDENSATE TANK PUMP 2						2,520			13	30/3	*	-		20/2	14	900								(E)SUMP PUMP
----							2,520		15	-		-	*	-	16		900							----
----								2,520	17	-		-	*	20/2	18			900						(E)SUMP PUMP
(E)SPARE						0			19	50/3	*	-		-	20	900								----
----							0		21	-		-	*		22									(E)SPACE
----								0	23			-	*		24									(E)SPACE
CP-1	1					1,176			25	20/1	*	-			26									(E)SPACE
(E) WH-1							180		27	20/1	-	*	-	40/2	28			2,960						(E)SUB_TC-1,2
(E) WH-2								180	29	20/1	-	-	*	-	30			2,960						----

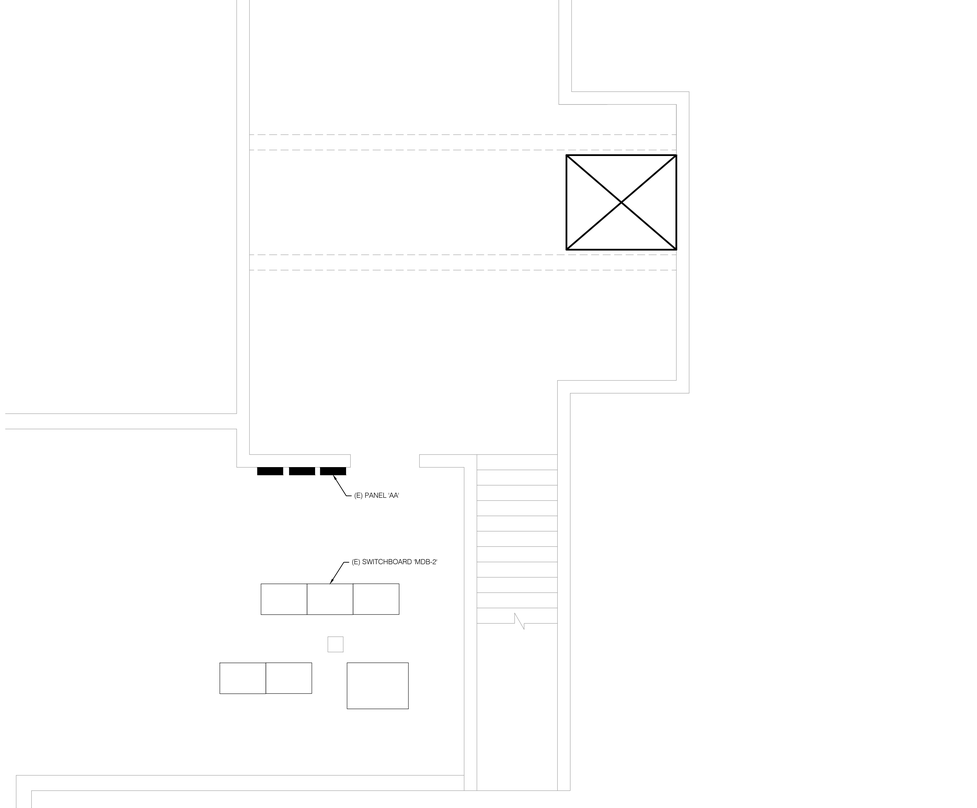
TOTAL ØA = 10,896 VOLT-AMPS
TOTAL ØB = 10,460 VOLT-AMPS
TOTAL ØC = 9,560 VOLT-AMPS
LCL = 0 VOLT-AMPS

TOTAL PANEL = 30,916 VA @ 208V, 3Ø = **86 AMPS**

NOTES:
** "L" DENOTES LONG CONTINUOUS LOAD*
1. New Load

2 PANEL "AA" SCHEDULE

NO SCALE



1 BASEMENT POWER PLAN

1/4"=1'-0"

N

P2S ENG

Long Beach | Los Angeles
San Diego | San Jose

p2sinc.com

Consultant

Project Title

BUILDING 1200 HEAT EXCHANGER REPLACEMENT

FULLERTON COLLEGE

321 EAST CHAPMAN AVENUE
FULLERTON, CA. 92832-2095

REGISTERED PROFESSIONAL ENGINEER — MUHAMMAD WASIF — ELECTRICAL — STATE OF CALIFORNIA
08/30/2021

Revisions

Number	Description	Date
1	X	XX/XX/XX

Designed	B. Tram
Drawn	B. Tram
Checked	M. Wasif
Approved	M. Wasif
Date	08/30/2021
Submittal	Issue for Bid
Scale	1/4"=1'-0"

Sheet Title

Building 1200
Basement Power Plan

Sheet Number

E200

P2S No. 0203

FILE PATH & NAME: P:\21-0203\ELECTRICAL\21-0203-A_E200.DWG JIMMY PEPAOA
PLOT: Monday, August 30, 2021 9:56:14 AM