SYMBOL LEGEND

SYMBOL	DESCRIPTION
VALVES, METERS, AND GAUGES	
	SHUT OFF VALVE
	GATE VALVE
	CHECK VALVE
	AUTO 2-WAY VALVE
	AUTO 3-WAY VALVE
	GLOBE VALVE
	BALL VALVE
	RELIEF VALVE
	CHAIN OPERATED GATE VALVE
	PRESSURE REDUCING VALVE
	BUTTERFLY VALVE
S	SOLENOID VALVE
	ANGLE VALVE
	VENTURI
	BALANCING OR PLUG COCK
	FLOW SETTER
	EXPANSION VALVE (REFRIG.)
	GAS COCK
MAV	MANUAL AIR VENT
	STRAINER
	GAUGE COCK
	FLEXIBLE CONNECTION
	PRESSURE GAUGE
	THERMOMETER
	VICTUALIC COUPLING
	REDUCER CONCENTRIC
	REDUCER ECCENTRIC
	REFRIGERANT SITE GLASS
	REFRIGERANT STRAINER
	REFRIGERANT FILTER DRIER
	90 DEG ELBOW UP
	90 DEG ELBOW DOWN
	90 DEG TEE UP
	90 DEG TEE DOWN
	UNION
	CAPPED PIPE
	ANCHOR
	FLOAT AND THERMOSTATIC TRAP
HVAC SYMBOLS	
T	THERMOSTAT
S	TEMPERATURE SENSOR
H	HUMIDISTAT

SYMBOL LEGEND

SYMBOL	DESCRIPTION
DUCT WORK	

SINGLE LINE	DOUBLE LINE	DESCRIPTION
		RECTANGULAR SUPPLY DUCT UP
		RECTANGULAR SUPPLY DUCT DOWN
		RECTANGULAR RETURN DUCT UP
		RECTANGULAR RETURN DUCT DOWN
		RECTANGULAR EXHAUST DUCT UP
		RECTANGULAR EXHAUST DUCT DOWN
		ROUND DUCT UP
		ROUND DUCT DOWN
		ACCOUSTICALLY LINED RECTANGULAR DUCT
		90° RECTANGULAR ELBOW WITH TURNING VANES
		90° RADIUS ELBOW R=1.5
		DUCT SIZE OR SHAPE TRANSITION
		OPPOSED BLADE BALANCING DAMPER (O.B.D.) IN RECT DUCT
		BUTTERFLY BALANCING DAMPER IN ROUND DUCTS
		COMBINATION TEE
		SPLITTER DAMPER
		SQUARE OR RECTANGULAR CEILING DIFFUSER
		ROUND CEILING DIFFUSER
		SIDEWALL REGISTER SUPPLY OR RETURN
		ROUND FLEXIBLE DUCT
		RETURN GRILLE
		EXHAUST GRILLE
		FIRE SMOKE DAMPER
		FIRE DAMPER
SD	SD	SMOKE DAMPER
FC	FC	FLEXIBLE CONNECTION
		FLEXIBLE CONNECTION
		DUCT TO BE REMOVED

PIPING LEGEND

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

HPS	HIGH PRESSURE STEAM
MPS	MEDIUM PRESSURE STEAM
LPS	LOW PRESSURE STEAM
HPC	HIGH PRESSURE CONDENSATE RETURN
MPC	MEDIUM PRESSURE CONDENSATE RETURN
LPC	LOW PRESSURE CONDENSATE RETURN
PC	PUMP DISCHARGE
TWS	TEMPERED WATER SUPPLY
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HHWR	HEATING HOT WATER RETURN
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUPPLY
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
D	DRAIN LINE
HG	HOT GAS BYPASS
GS	GLYCOL SUPPLY
GR	GLYCOL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE; NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

SYMBOL LEGEND

SYMBOL	DESCRIPTION
REFERENCE LINES AND SYMBOLS	
# / SHEET	DETAIL INDICATOR: # INDICATES DETAIL NUMBER, SHEET INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
# / SHEET	ELEVATION OR SECTION INDICATOR, EXTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
# / SHEET	ELEVATION OR SECTION INDICATOR, INTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
100	SPACE NUMBER
1	KEYNOTE INDICATOR
	REVISION INDICATOR
	EQUIPMENT INDICATOR
	PLUMBING FIXTURE INDICATOR
TYPE / CFM / SIZE	DIFFUSER/GRILLE INDICATOR
TYPE / SIZE	DIFFUSER/GRILLE INDICATOR
	BREAK, STRAIGHT
	BREAK, ROUND
MATCH LINE SEE XX/X-XXX	MATCHLINE INDICATOR
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE
	NEW CONNECTION TO EXISTING
	POINT OF DEMOLITION

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

(E)	EXISTING
(F)	FUTURE
AD	ACCESS DOOR
AIR COND	AIR CONDITION(-ING,-ED)
APD	AIR PRESSURE DROP
BD	BALANCING DAMPER
BHP	BRAKE HORSE POWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	COOLING
COMP	COMPONENT
COND	CONDENS(-ER, -ING, -ATION)
CV	CONTROL VALVE
DB	DRY BULB TEMPERATURE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRC
DIA	DIAMETER
DISCH	DISCHARGE
DP	DEPTH OR DEEP
EA	EXHAUST AIR
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
EG	ETHYLENE GLYCOL
ELEC	ELECTRIC
ELEV	ELEVATION
ENT	ENTERING
EVAP	EVAPORAT(-E, -ING, -ED, -OR)
EWT	ENTERING WATER TEMPERATURE
EXT	EXTERNAL
FC	FLEXIBLE CONNECT(-OR, -ION)
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE SMOKE DAMPER
GAL	GALLON(S)
GE	GREASE EXHAUST
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HG	MERCURY
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTG	HEATING
HZ	HERTZ (FREQUENCY)
ID	INSIDE DIAMETER
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LG	LENGTH
LH	LATENT HEAT
LRA	LOCKED ROTOR AMPS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTUR(-ER, -ED)
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OZ	OUNCE
PD	PRESSURE DROP OR DIFFERENCE
PG	PROPOLENE GLYCOL
PH	PHASE
PPM	PARTS PER MILLION
PRESS	PRESSURE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
R	THERMAL RESISTANCE
RA	RETURN AIR
RECIRC	RECIRCULATE
REFR	REFRIGERATION
REQD	REQUIRED
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCW	SOFT COLD WATER
SF	SAFETY FACTOR
SH	SENSIBLE HEAT
SP	STATIC PRESSURE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
STD	STANDARD
SW	SOIL, WASTE
TA(R)	TRANSFER AIR (RETURN)
TA(S)	TRANSFER AIR (SUPPLY)
TD	TEMP. DROP OR DIFF.
TEMP	TEMPERATURE
THERM	THERMAL
TOT	TOTAL
TSTAT	THERMOSTAT
V	VOLT
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY TEMPERATURE
VEL	VELOCITY
VENT	VENT, VENTILATION
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
WB	WET BULB TEMP
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
WT	WEIGHT
WTR	WATER

MECHANICAL GENERAL NOTES

1. THE MECHANICAL DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT & EXTENT OF THE MECHANICAL SYSTEM. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THESE DRAWINGS DO NOT SHOW ALL OFFSETS, BENDS OR ELBOWS NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. CONTRACTOR SHALL MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE & OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT.

   MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.

2. THE DRAWINGS & SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER & SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE & NOT THE OTHER BEING FURNISHED & INSTALLED AS THOUGH SHOWN & CALLED OUT IN BOTH.

3. THE ENTIRE MECHANICAL INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODES, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, & ALL OTHER APPLICABLE CITY, COUNTY, STATE, & FEDERAL CODES & REGULATIONS IN EFFECT.

4. THE ENTIRE MECHANICAL INSTALLATION SHALL CONFORM TO ANY CODES, RULES, REGULATIONS & REQUIREMENTS OF THE BUILDING OWNER.

5. PRIOR TO FABRICATION & INSTALLATION OF ANY MECHANICAL COMPONENT THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL WORK WITH ALL OTHER BUILDING TRADES, INCLUDING BUILDING TRADES HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.

6. THE SPACE ABOVE ALL CEILINGS IS LIMITED. CAREFUL COORDINATION IS REQUIRED WITH ALL TRADES BEFORE ANY PIPE, DUCT, OR EQUIPMENT IS ORDERED & OR INSTALLED. ANY CONFLICTS &/OR CHANGES FOUND DURING INSTALLATION THAT RESULTS FROM THE LACK OF COORDINATION BY THE CONTRACTORS DURING THE SHOP DRAWING PROCESS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

7. ALL MECHANICAL INFORMATION IS NOT SHOWN ON THE MECHANICAL DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENT.

8. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW & USE, WHERE APPROPRIATE, ALL THE MECHANICAL DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

9. THE STRUCTURE SHOWN ON ALL DETAILS MAY OR MAY NOT PERTAIN TO A PORTION OR ANY PORTION OF THE BUILDING. COORDINATE ALL MOUNTING REQUIREMENTS WITH ARCHITECTURAL & STRUCTURAL DRAWINGS.

10. ANY PART OF THE MECHANICAL INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

11. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS & GRILLES.

12. CONTRACTOR SHALL OPERATE THE SYSTEM & DEMONSTRATE ALL ASPECTS OF THE SYSTEM TO THE ENGINEER &/OR OWNER TO PROVE ALL SYSTEMS ARE OPERATIONAL.

13. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A SET OF AS-BUILT REDLINED RECORD DRAINING AT THE PROJECT SITE. ALL CHANGES IN LAYOUT, ROUTING, EQUIPMENT, COMPONENTS, & ACCESSORIES SHALL BE RECORDED. THESE REDLINED DRAWINGS SHALL BE GIVEN TO THE ARCHITECT/ENGINEER AFTER THE FINAL INSPECTION IN ACCORDANCE WITH SPECIFICATIONS.

GENERAL EQUIPMENT NOTES

1. ALL CAPACITIES ARE AT JOB SITE CONDITIONS & ARE MINIMUM CAPACITY.
2. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED TO CONFORM WITH LOCAL SEISMIC REQUIREMENTS & THE REQUIREMENTS OF THESE CONSTRUCTION DOCUMENTS.
3. VERIFY ALL REQUIRED SERVICE CONNECTIONS, INCLUDING ELECTRICAL CHARACTERISTICS FOR ALL EQUIPMENT PRIOR TO ORDERING EQUIPMENT.
4. ALL EQUIPMENT SHALL BE INDEPENDENTLY SUPPORTED FROM STRUCTURAL MEMBERS.
5. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
6. ALL SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER.
7. AIR INLETS & OUTLETS SHALL BE OF THE SAME MANUFACTURER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HVAC EQUIPMENT CHECK-IN, SAFEKEEPING, & DAMAGE.

MECHANICAL SHEET INDEX

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project:

LAS COLONIAS AMPHITHEATER - ADDITION

Grand Junction, CO

CITY OF Grand Junction COLORADO

project#: 19.0270
date: February 10, 2020

revisions :

title:

MECHANICAL COVER SHEET

sheet:

ME001

PERMIT SET

FIRE SPRINKLER NOTES

1. THE AUTOMATIC FIRE SPRINKLER SYSTEM SHALL BE MODIFIED IN ACCORDANCE WITH NFPA 13 AND THE APPLICABLE REQUIREMENTS OF THE LOCAL BUILDING OFFICIAL.
2. A FIRE SPRINKLER FLANS SHALL BE PREPARED BY A LICENSED FIRE SPRINKLER COMPANY AND SUBMITTED TO THE ARCHITECT, DESIGN ENGINEER, LOCAL FIRE MARSHALL AND BUILDING OFFICIAL FOR REVIEW AND APPLICABLE APPROVALS PRIOR TO BEGINNING ANY WORK.
3. THE CONTRACTOR SHALL CALL AND SCHEDULE INSPECTIONS FOR THE REVISIONS TO THE FIRE SPRINKLER SYSTEM IN A TIMELY MANNER WITH THE PROJECT SCHEDULE. INSPECTIONS SHALL BE SCHEDULED A MINIMUM OF 24 HOURS IN ADVANCE OF REQUIREMENTS.
4. UPON COMPLETION OF THE FIRE SPRINKLER SYSTEM, THE CONTRACTOR SHALL HYDROSTATICALLY TEST THE PIPING SYSTEM AT 200 PSIG FOR TWO (2) HOURS OR AS REQUIRED BY THE BUILDING OFFICIAL OR FIRE MARSHALL.
5. PROPERLY COMPLETED "SPRINKLER CONTRACTOR'S MATERIAL AND TEST CERTIFICATES" SHALL BE FURNISHED TO THE ARCHITECT, AND DESIGN ENGINEER.
6. SHUTDOWN OF THE EXISTING FIRE SPRINKLER SYSTEM, TO FACILITATE REMODELING OPERATIONS SHALL BE COORDINATED WITH THE OWNER,
7. SEE REFLECTED CEILING PLAN FOR EXACT LOCATION OF FIRE SPRINKLER HEADS
8. FIRE SPRINKLER HEADS SHALL BE LOCATED IN THE CENTER OF EACH CEILING TILE.

HVAC ENERGY CODE NOTES

1. THE MECHANICAL SYSTEMS ARE BASED ON CHAPTERS 1, 2, 3, 6 AND 6 OF THE 2012 INTERNATIONAL ENERGY CONSERVATION CODE PUBLISHED BY THE INTERNATIONAL CODE COUNCIL.
2. THE BUILDING HEATING AND COOLING LOADS ARE BASE ON TRANE "TRACE" PROGRAM WHICH MEETS THE REQUIREMENTS OF ASHARE STANDARD 183.
3. ALL MECHANICAL EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS SPECIFIED ON THE DRAWING OR THE MINIMUM EFFICIENCY REQUIREMENTS SPECIFIED IN THE ENERGY CONSERVATION CODE, WHICHEVER IS HIGHER.
4. ALL MECHANICAL DUCTWORK AND PLENUMS SHALL BE INSULATED IN ACCORDANCE WITH THE DUCT INSULATION TABLE SHOWN ON THE DRAWINGS OR THE REQUIREMENTS OF THE ENERGY CONSERVATION CODE, WHICHEVER IS HIGHER.
5. ALL LONGITUDINAL SEAMS AND TRANSVERSE JOINTS OF ALL MECHANICAL DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH THE THE ENERGY CODE AND SMACNA DUCT CONSTRUCTION REQUIREMENTS.
6. ALL HEATING AND AIR CONDITIONING EQUIPMENT WITH A CAPACITY OF 54,000 BTUH OR HIGHER SHALL BE PROVIDED WITH AN AIR SIDE ECONOMIZER.

EQUIPMENT SUPPORT NOTES

1. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SECURELY ATTACHED TO HOUSEKEEPING PAD.
2. ALL FLOOR MOUNTED EQUIPMENT WITH FAN(S) OR MOTOR(S) SHALL BE SUPPORTED BY VIBRATION ISOLATORS.
3. ALL SUSPENDED EQUIPMENT SHALL BE INDEPENDENTLY SUPPORTED FROM STRUCTURAL MEMBERS.
4. ALL SUSPENDED EQUIPMENT WITH FAN(S) OR MOTOR(S) SHALL BE PROVIDED WITH VIBRATION ISOLATORS BETWEEN THE EQUIPMENT AND THE STRUCTURAL MEMBERS.
5. EQUIPMENT SHALL NOT BE SUPPORTED FROM ROOF DECK
6. EQUIPMENT SUSPENDED MORE THAN 12" FROM STRUCTURE SHALL BE PROVIDED WITH SEISMIC BRACING

AIR FILTER INSTALLATION NOTES

1. INSTALL FILTERS WITH CLEARANCE FOR NORMAL SERVICE AND MAINTENANCE.
2. INSTALL FILTERS IN POSITION TO PREVENT PASSAGE OF UNFILTERED AIR.
3. DO NOT OPERATE FAN SYSTEMS WITHOUT FILTERS.
4. PROVIDE ONE SET OF FILTERS DURING CONSTRUCTION.
5. PROVIDE AN ADDITIONAL SET OF NEW FILTERS FOR TESTING, ADJUSTING AND BALANCING OF AIR SYSTEMS.
6. AFTER COMPLETING SYSTEM INSTALLATION AND TESTING, ADJUSTING, AND BALANCING OF AIR-HANDLING AND AIR-DISTRIBUTION SYSTEMS, CLEAN FILTER HOUSINGS AND INSTALL NEW FILTER MEDIA.

TEST ADJUST & BALANCE NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE COMPLETE TESTING ADJUSTING AND BALANCING FOR THIS PROJECT.
2. THE MECHANICAL SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED, INCLUDING SUPPLY AIR SYSTEM, RETURN AIR SYSTEM, EXHAUST AIR SYSTEM, OUTSIDE AIR SYSTEM AND ALL ASSOCIATED EQUIPMENT.
3. CONTRACTOR PERFORMING TESTING ADJUSTING AND BALANCING WORK SHALL BE EITHER AABC OR NEBB CERTIFIED.
4. TESTING ADJUSTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE NEBB OR AABC TEST PROCEDURES.
5. TESTING ADJUSTING AND BALANCING REPORT FORMS SHALL BE STANDARD FORMS FROM EITHER AABC OR NEBB.
6. CONTRACTOR SHALL VERIFY QUANTITIES AND LOCATIONS OF ALL BALANCING DEVICES. CONTRACTOR SHALL VERIFY THAT THESE BALANCING DEVICES ARE ACCESSIBLE AN APPROPRIATE FOR BALANCING AND FOR EFFICIENT SYSTEM AND EQUIPMENT OPERATION PRIOR TO COMMENCING WORK.
7. MECHANICAL (HVAC) EQUIPMENT SHALL BE ADJUSTED TO WITHIN ZERO TO PLUS 10 PERCENT OF SPECIFIED VALUES.
8. MECHANICAL AIR INLETS AND OUTLETS SHALL BE ADJUSTED TO WITHIN 10 PERCENT OF SPECIFIED VALUES.
9. WATER SYSTEMS SHALL BE ADJUSTED TO WITHIN 10 PERCENT OF SPECIFIED VALUES.
10. FINAL BALANCE REPORT SHALL INCLUDE THE FOLLOWING: TEST CONDITIONS FOR FANS, SYSTEM DIAGRAMS, AIR CONDITIONING UNIT TEST REPORTS, FAN TEST REPORTS, AIR TERMINAL DEVICE REPORTS.
11. AFTER THE FINAL BALANCING REPORT IS SUBMITTED TO THE DESIGN ENGINEER AND OWNER, CONTRACTOR SHALL REQUEST THAT A FINAL INSPECTION BE MADE BY THE DESIGN ENGINEER. DURING THE FINAL INSPECTION, DESIGN ENGINEER MAY RANDOMLY SELECT MEASUREMENTS DOCUMENTS IN THE FINAL REPORT TO BE RECHECK BY THE CONTRACTOR.
12. APPROXIMATELY 90 DAYS AFTER SUBMISSION OF THE FINAL BALANCING REPORT, CONTRACTOR SHALL PERFORM ADDITIONAL TESTING ADJUSTING AND BALANCING TO VERIFY THAT BALANCED CONDITIONS ARE BEING MAINTAINED THROUGHOUT EACH SYSTEM AND TO CORRECT UNUSUAL CONDITIONS.
13. ADDITIONAL TESTING ADJUSTING AND BALANCING SHALL BE MADE AS DIRECTED BY THE DESIGN ENGINEER TO CORRECT UNUSUAL CONDITIONS. ADDITIONAL TESTING WILL NOT EXCEED THREE (3) DAYS DURING THE FIRST SIX MONTHS OF OPERATION.
14. IF INITIAL TESTING ADJUSTING AND BALANCING PROCEDURES WERE NOT PERFORMED DURING NEAR-PEAK SUMMER AND WINTER CONDITIONS, PERFORM ADDITIONAL TESTING ADJUSTING AND BALANCING DURING NEAR PEAK SUMMER AND WINTER CONDITIONS.
15. ALL AIR SIDE MECHANICAL (HVAC) SYSTEMS SHALL BE TESTED AND ADJUSTED, AND BALANCED.
16. ALL WATER SIDE MECHANICAL (HVAC) AND PLUMBING PIPING SYSTEMS SHALL BE TESTED, ADJUSTED, AND BALANCED INCLUDING DOMESTIC HOT WATER CIRCULATING PUMPS.

OPER. & MAINT. MANUAL NOTES

1. SUBMIT OPERATIONS AND MAINTENANCE MANUALS IN A PDF ELECTRONIC FILE. ASSEMBLE EACH MANUAL INTO A COMPOSITE ELECTRONICALLY INDEXED FILE. SUBMIT ON DIGITAL MEDIA ACCEPTABLE TO ARCHITECT. NAME EACH INDEXED DOCUMENT FILE IN COMPOSITE ELECTRONIC INDEX WITH APPLICABLE ITEM NAME. INCLUDE A COMPLETE ELECTRONICALLY LINKED OPERATION AND MAINTENANCE DIRECTORY. ENABLE INSERTED REVIEWER COMMENTS ON DRAFT SUBMITTALS.
2. ADDITIONALLY, PROVIDE THREE PAPER COPIES. INCLUDE A COMPLETE OPERATION AND MAINTENANCE DIRECTORY. ENCLOSE TITLE PAGES AND DIRECTORIES IN CLEAR PLASTIC SLEEVES. ARCHITECT WILL RETURN TWO COPIES.
3. SUBMIT EACH MANUAL IN FINAL FORM PRIOR TO REQUESTING INSPECTION FOR SUBSTANTIAL COMPLETION AND AT LEAST 15 DAYS BEFORE COMMENCING DEMONSTRATION AND TRAINING. ARCHITECT WILL RETURN COPY WITH COMMENTS. CORRECT OR REVISE EACH MANUAL TO COMPLY WITH ARCHITECT'S COMMENTS. SUBMIT COPIES OF EACH CORRECTED MANUAL WITHIN 15 DAYS OF RECEIPT OF ARCHITECT'S COMMENTS AND PRIOR TO COMMENCING DEMONSTRATION AND TRAINING.
4. OPERATION MANUALS CONTENT: INCLUDE OPERATION DATA REQUIRED IN INDIVIDUAL SPECIFICATION SECTIONS AND THE FOLLOWING INFORMATION:
   a. SYSTEM, SUBSYSTEM, AND EQUIPMENT DESCRIPTIONS. (USE DESIGNATIONS FOR SYSTEMS AND EQUIPMENT INDICATED ON CONTRACT DOCUMENTS);
   b. PERFORMANCE AND DESIGN CRITERIA IF CONTRACTOR IS DELEGATED DESIGN RESPONSIBILITY; OPERATING STANDARDS;
   c. OPERATING PROCEDURES;
   d. OPERATING LOGS;
   e. WIRING DIAGRAMS;
   f. CONTROL DIAGRAMS;
   g. PIPED SYSTEM DIAGRAMS;
   h. PRECAUTIONS AGAINST IMPROPER USE;
   i. LICENSE REQUIREMENTS INCLUDING INSPECTION AND RENEWAL DATES.
5. OPERATION MANUALS DESCRIPTIONS: INCLUDE THE FOLLOWING:
   a. PRODUCT NAME AND MODEL NUMBER. (USE DESIGNATIONS FOR PRODUCTS INDICATED ON CONTRACT DOCUMENTS);
   b. MANUFACTURER'S NAME;
   c. EQUIPMENT IDENTIFICATION WITH SERIAL NUMBER OF EACH COMPONENT;
   d. EQUIPMENT FUNCTION;
   e. OPERATING CHARACTERISTICS;
   f. LIMITING CONDITIONS;
   g. PERFORMANCE CURVES;
   h. ENGINEERING DATA AND TESTS;
   i. COMPLETE NOMENCLATURE AND NUMBER OF REPLACEMENT PARTS.
   j. WARRANTY
6. OPERATING PROCEDURES: INCLUDE THE FOLLOWING, AS APPLICABLE:
   a. STARTUP PROCEDURES;
   b. EQUIPMENT OR SYSTEM BREAK-IN PROCEDURES;
   c. ROUTINE AND NORMAL OPERATING INSTRUCTIONS;
   d. REGULATION AND CONTROL PROCEDURES;
   e. INSTRUCTIONS ON STOPPING;
   f. NORMAL SHUTDOWN INSTRUCTIONS;
   g. SEASONAL AND WEEKEND OPERATING INSTRUCTIONS;
   h. REQUIRED SEQUENCES FOR ELECTRIC OR ELECTRONIC SYSTEMS;
   i. SPECIAL OPERATING INSTRUCTIONS AND PROCEDURES;
   j. SYSTEMS AND EQUIPMENT CONTROLS:
   i. DESCRIBE THE SEQUENCE OF OPERATION, AND DIAGRAM CONTROLS AS INSTALLED;
      ii. PIPED SYSTEMS:
      iii. DIAGRAM PIPING AS INSTALLED, AND IDENTIFY COLOR-CODING WHERE REQUIRED FOR IDENTIFICATION.
7. PRODUCT MAINTENANCE MANUALS CONTENT:
   a. ORGANIZE MANUAL INTO A SEPARATE SECTION FOR EACH PRODUCT, MATERIAL, AND FINISH.
   b. INCLUDE SOURCE INFORMATION, PRODUCT INFORMATION, MAINTENANCE PROCEDURES, REPAIR MATERIALS AND SOURCES, AND WARRANTIES AND BONDS,

HVAC SUBMITTAL NOTES

1. SUBMITTAL SHALL BE SUBMITTED BY 9/01/2015.
2. MECHANICAL SUBMITTALS SHALL BE SUBMITTED AS A COMPLETE ELECTRONIC PACKAGE ASSEMBLED BY SPECIFICATION DIVISIONS.
3. ASSEMBLE COMPLETE ELECTRONIC SUBMITTAL PACKAGE INTO A SINGLE INDEXED FILE INCORPORATING SUBMITTAL REQUIREMENTS OF A SINGLE SPECIFICATION SECTION AND TRANSMITTAL FORM WITH LINKS ENABLING NAVIGATION TO EACH ITEM:
   a. LITERATURE SHALL INCLUDE REFERENCE TO EQUIPMENT CALLOUT AND SPECIFICATION SECTION;
   b. FILE NAME SHALL USE PROJECT IDENTIFIER AND SPECIFICATION SECTION NUMBER FOLLOWED BY A DECIMAL POINT AND THEN A SEQUENTIAL NUMBER (E.G., LNHS-061000.01).
   c. RE-SUBMITTALS SHALL INCLUDE AN ALPHABETIC SUFFIX AFTER ANOTHER DECIMAL POINT (E.G., LNHS-061000.01.A);
   d. PROVIDE MANUFACTURER'S CATALOG DATA SHEETS FOR EACH MANUFACTURED ITEM LISTED ON THE DRAWINGS AND SPECIFICATIONS;
4. INCLUDE MANUFACTURER'S CATALOG DATA OF EACH MANUFACTURED ITEM AND ENOUGH INFORMATION TO SHOW COMPLIANCE WITH CONTRACT DOCUMENT REQUIREMENTS;
   a. LITERATURE SHALL SHOW CAPACITIES AND SIZE OF EQUIPMENT USED AND BE MARKED INDICATING EACH SPECIFIC ITEM WITH APPLICABLE DATA UNDERLINED;
   b. INCLUDE NAME, ADDRESS, AND PHONE NUMBER OF EACH SUPPLIER;
   c. DEVIATIONS AND ADDITIONAL INFORMATION:
      i. ON AN ATTACHED SEPARATE SHEET, PREPARED ON CONTRACTOR'S LETTERHEAD, RECORD RELEVANT INFORMATION, REQUESTS FOR DATA, REVISIONS OTHER THAN THOSE REQUESTED BY ENGINEER CONTRACT DOCUMENTS,INCLUDING MINOR VARIATIONS AND LIMITATIONS.
      ii. INCLUDE SAME IDENTIFICATION INFORMATION AS RELATED SUBMITTAL.
5. COLLECT PRODUCT DATA INFORMATION INTO A SINGLE SUBMITTAL FOR EACH ELEMENT OF CONSTRUCTION AND TYPE OF PRODUCT OR EQUIPMENT.
   a. IF INFORMATION MUST BE SPECIALLY PREPARED FOR SUBMITTAL BECAUSE STANDARD PUBLISHED DATA ARE NOT SUITABLE FOR USE, SUBMIT AS SHOP DRAWINGS, NOT AS PRODUCT DATA.
   b. MARK EACH COPY OF EACH SUBMITTAL TO SHOW WHICH PRODUCTS AND OPTIONS ARE APPLICABLE.
6. INCLUDE THE FOLLOWING PRODUCT INFORMATION, AS APPLICABLE:
   a. MANUFACTURER'S CATALOG CUTS;
   b. MANUFACTURER'S PRODUCT SPECIFICATIONS;
   c. STANDARD COLOR CHARTS;
   d. STATEMENT OF COMPLIANCE WITH SPECIFIED REFERENCED STANDARDS;
   e. TESTING BY RECOGNIZED TESTING AGENCY;
   f. APPLICATION OF TESTING AGENCY LABELS AND SEALS;
   g. NOTATION OF COORDINATION REQUIREMENTS;
   h. AVAILABILITY AND DELIVERY TIME INFORMATION;
7. INCLUDE THE FOLLOWING EQUIPMENT INFORMATION:
   a. WIRING DIAGRAMS SHOWING FACTORY-INSTALLED WIRING;
   b. PRINTED PERFORMANCE CURVES;
   c. OPERATIONAL RANGE DIAGRAMS;
   d. CLEARANCES REQUIRED TO OTHER CONSTRUCTION, IF NOT INDICATED ON ACCOMPANYING SHOP DRAWINGS.
8. PREPARE PROJECT-SPECIFIC SHOP DRAWINGS, DRAWN ACCURATELY TO SCALE.
   a. DO NOT BASE SHOP DRAWINGS ON REPRODUCTIONS OF THE CONTRACT DOCUMENTS OR STANDARD PRINTED DATA.
   b. FULLY ILLUSTRATE REQUIREMENTS IN THE CONTRACT DOCUMENTS.
   c. INCLUDE THE FOLLOWING INFORMATION, AS APPLICABLE:
      i. IDENTIFICATION OF PRODUCTS;
      ii. SCHEDULES;
      iii. COMPLIANCE WITH SPECIFIED STANDARDS;
      iv. NOTATION OF COORDINATION REQUIREMENTS;
      v. NOTATION OF DIMENSIONS ESTABLISHED BY FIELD MEASUREMENT;
      vi. RELATIONSHIP AND ATTACHMENT TO ADJOINING CONSTRUCTION CLEARLY INDICATED;
      vii. SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER IF SPECIFIED.
9. ALLOW TIME FOR SUBMITTAL REVIEW, INCLUDING TIME FOR RE-SUBMITTALS. TIME FOR REVIEW SHALL COMMENCE ON ENGINEERS RECEIPT OF SUBMITTAL. NO EXTENSION OF THE CONTRACT TIME WILL BE AUTHORIZED BECAUSE OF FAILURE TO TRANSMIT SUBMITTALS ENOUGH IN ADVANCE OF THE WORK TO PERMIT PROCESSING, INCLUDING RE-SUBMITTALS.
   a. ALLOW 10 DAYS FOR INITIAL REVIEW OF MECHANICAL SUBMITTAL.
   b. ALLOW 10 DAYS FOR REVIEW OF EACH RE-SUBMITTAL.
10. PROVIDE DEVIATIONS AND ADDITIONAL INFORMATION ON AN ATTACHED SEPARATE SHEET, PREPARED ON CONTRACTOR'S LETTERHEAD, RECORD RELEVANT INFORMATION, REQUESTS FOR DATA, REVISIONS OTHER THAN THOSE REQUESTED BY DESIGN ENGINEER ON PREVIOUS SUBMITTALS, AND DEVIATIONS FROM REQUIREMENTS IN THE CONTRACT DOCUMENTS, INCLUDING MINOR VARIATIONS AND LIMITATIONS. INCLUDE SAME IDENTIFICATION INFORMATION AS RELATED SUBMITTAL.

FIELD VERIFICATION NOTES

1. DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACTOR TO INSPECT EXISTING FIELD CONDITIONS.
2. THIS CONTRACTOR SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS TO TO EXISTING CONDITIONS.
3. THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT.
4. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT AT THE CONTRACTOR'S COST.
5. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF ALL LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BID THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES.
6. THE CONTRACTOR SHALL ALERT THE ARCHITECT, ENGINEER AND OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

REFRIGERATION PIPING NOTES

1. THESE NOTES APPLY TO REFRIGERANT LINE SETS. SEE MECHANICAL SPECIFICATION FOR FIELD ASSEMBLED REFRIGERANT PIPING.
2. REFRIGERATION SYSTEM USES R-410A REFRIGERANT
3. REFRIGERATION PIPING SHALL BE TYPE L REFRIGERANT GRADE, ARC TYPE LINE SETS.
4. REFRIGERATION SUCTION AND REFRIGERANT PIPING SHALL BE INSULATED.
5. REFRIGERANT PIPING SHALL BE SUPPORTED FROM OVERHEAD STRUCTURE WITH PLASTIC COATED OR COPPER PLATED CLEVIS HANGERS
6. ENGINEERED STRUTS AND HANGER RODS ARE PERMITTED TO SUPPORT REFRIGERANT.
7. REFRIGERANT PIPING SHALL NOT COME IN CONTACT WITH HANGERS OR ENGINEERED STRUT. ISOLATE REFRIGERANT PIPING FROM HANGER WITH PIPE INSULATION OR ELASTOMERIC SLEEVE.
8. REFRIGERANT PIPING SHALL BE INSTALLED A MINIMUM OF 12" FROM ANY WATER PIPING OR DUCTWORK
9. LIQUID LINE FILTER-DRIVER SHALL BE INSTALLED AT INDOOR (EVAPORATOR) COIL.
10. REFRIGERANT TUBE AND INDOOR (EVAPORATOR) COIL SHALL BE EVACUATED TO 500 MICRONS.
11. THE REFRIGERANT PIPING SYSTEM SHALL HOLD A VACUUM OF 1000 MICRONS FOR 7 MINUTES.
12. REFRIGERATING COMPRESSOR SHALL NOT BE USES AS A VACUUM PUMP.
13. PROVIDE PROPER PROVISIONS FOR EXPANSION OR MOVEMENT OF ALL PIPING.
14. SERVICE VALVES AND LIQUID LINE FILTER-DRYER SHALL BE WRAPPED WITH A HEAT-SINKING MATERIAL DURING ALL BRAZING PROCESSES.

GENERAL EQUIPMENT NOTES

1. HEATING & AIR CONDITIONING EQUIPMENT IS SIZE IN ACCORDANCE WITH ASHRAE STANDARD 183.
2. ALL MECHANICAL EQUIPMENT SHALL BE LISTED, LABELED AND INSTALLED IN ACCORDANCE THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. AT LEAST ONE COPY OF THE INSTALLATION INSTRUCTIONS SHALL BE ON THE JOB SITE AT ALL TIMES.
3. ALL CAPACITIES ARE AT JOB SITE CONDITIONS AND ARE MINIMUM CAPACITY.
4. ALL AIR CONDITIONING EQUIPMENT SHALL BE AHRI CERTIFIED AND UL LISTED.
5. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED TO CONFORM TO LOCAL SEISMIC REQUIREMENTS AND THE REQUIREMENTS OF THESE CONSTRUCTION DOCUMENTS.
6. VERIFY ALL REQUIRED SERVICE CONNECTIONS, INCLUDING ELECTRICAL CHARACTERISTICS FOR ALL EQUIPMENT PRIOR TO ORDERING EQUIPMENT.
7. ALL SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER.
8. AIR SIMILAR INLETS AND OUTLETS SHALL BE OF THE SAME MANUFACTURER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HVAC EQUIPMENT CHECK-IN, SAFEKEEPING, AND DAMAGE.
10. ALL SYSTEM COMPONENTS, WHERE REQUIRED, SHALL BE CERTIFIED AND LISTED BY A THIRD PARTY.
11. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
12. PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL MECHANICAL EQUIPMENT SUPPORT FROM THE FLOOR OR GROUND. MINIMUM THICKNESS OF HOUSEKEEPING PAD SHALL BE 4". CONCRETE HOUSEKEEPING PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 6" ON EACH SIDE. COORDINATE EXACT LOCATION OF CONCRETE HOUSEKEEPING PAD WITH ALL TRADES.
13. CONDENSATE DRAIN FROM AIR CONDITIONING EQUIPMENT SHALL BE PIPED FULL SIZE OF EQUIPMENT OUTLET TO NEAREST DRAIN.

HVAC PROJECT SUBMIT. NOTES

1. MECHANICAL SUBMITTALS SHALL BE SUBMITTED AS A COMPLETE ELECTRONIC PACKAGE ASSEMBLED BY SPECIFICATION DIVISIONS.
2. PROVIDE EQUIPMENT SUBMITTAL INFORMATION FOR THE FOLLOWING EQUIPMENT
   A. FURNACE
   B. CONDENSING UNIT
   C. ROOF EXHAUST FANS
   D. CEILING EXHAUST FANS
   E. CEILING DIFFUSERS (CD)
   F. REGISTERS & GRILLES (CG, SR, WG)
   G. DAMPERS, & AIR DUCT ACCESSORIES
   H. DUCT TAKE-OFF
   I. VIBRATION ISOLATORS
   J. AIR FILTERS
3. PROVIDE MATERIAL SUBMITTAL INFORMATION FOR TH FOLLOWING MATERIAL:
   A. REFRIGERATION PIPING & VALVES
   B. HANGERS AND SUPPORTS
   C. DUCT INSULATION'
   D. DUCT LINER
   E. PIPE INSULATION
   F. EQUIPMENT IDENTIFICATION
   G. PIPE IDENTIFICATION
   H. BUILDING AUTOMATION SYSTEM
   I. FIRE SPRINKLER SYSTEM
   J. TESTING ADJUSTING AND BALANCING CONTRACTOR QUALIFICATIONS.

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project:

LAS COLONIAS AMPHITHEATER - ADDITION

Grand Junction, CO

CITY OF Grand Junction COLORADO

project#: 19.0270
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HVAC NOTES

sheet:

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EQUIPMENT LABELING

1. ALL MECHANICAL EQUIPMENT SHALL BE LABELED.
2. PROVIDE 1/16" THICK MULTIPLE LAYERED, MULTIPLE COLORED PLASTIC LABEL WITH MECHANICAL ENGRAVING.
3. LABEL SHALL HAVE BLACK BACKGROUND, 1/2" HIGH WHITE LETTERING.
4. MINIMUM SIZE OF LABEL SHALL BE 2-1/2" X 1"
5. LABEL SHALL BE SECURED TO EQUIPMENT WITH STAINLESS STEEL SELF-TAPPING SCREWS.
6. MINIMUM CONTENT OF LABEL SHALL INCLUDE DRAWING DESIGNATION (UNIQUE NUMBER), AND AREA SERVED,

SEISMIC DUCTWORK NOTES

1. THE TOP OF ALL DUCTWORK SHALL BE INSTALLED WITHIN 12-INCHES OR LESS FROM STRUCTURAL SUPPORT MEMBER. THE 12-INCHES SHALL BE MEASURED FROM THE TOP OF THE DUCT TO THE BOTTOM OF THE SUPPORT WHERE THE HANGER IS ATTACHED. DUCT HANGERS MUST BE ATTACHED WITHIN 2" OF THE TOP OF THE DUCT WITH A MINIMUM OF TWO #10 SHEET METAL SCREWS.
2. IF ANY HANGER IN THE RUN EXCEEDS THE 12 INCH LIMIT, SEISMIC BRACING IS REQUIRED FOR THE RUN.
3. ALL RECTANGULAR AND SQUARE DUCTS 6 SQUARE FEET OR LESS DO NOT REQUIRE SEISMIC BRACING.
4. ALL ROUND DUCTS LESS THAN 28 INCHES IN DIAMETER DO NOT REQUIRE SEISMIC BRACING.
5. DEVICES, WEIGHING 50 POUND OR GRATER, AND MOUNTED IN-LINE AND RIGIDLY ATTACHED TO THE DUCTWORK AT BOTH ENDS MUST BE SUPPORTED AMD BRACED INDEPENDENTLY FROM THE DUCTWORK IF THE UNIT WEIGHT IS 50 LBS. OR GREATER OR THE
6. DEVICES, WEIGHING BETWEEN 20 AND 49 LBS. SHALL BE SEPARATED FROM THE DUCT WITH A FLEXIBLE CONNECTOR.

HVAC PIPE HANGER NOTES

1. ALL PIPING SHALL BE SUPPORT WITH STEEL CLEVIS HANGERS (MSS TYPE 1).
2. PERFORATED METAL STRAPS OR PLASTIC STRAPPING (PLUMBER TAPE) SHALL NOT BE USED TO SUPPORT OR BRACE ANY PIPE.
3. PROVIDE PIPE HANGERS WITHIN 18-INCHES OF ALL CHANGES OF DIRECTION.
4. ALL STEEL CLEVIS HANGERS USED TO SUPPORT COPPER PIPING SHALL BE COPPER PLATED OR PLASTIC COATED
5. ALL STEEL CLEVIS HANGERS USED TO SUPPORT PLASTIC PIPING SHALL BE PLASTIC COATED.
6. PROVIDE ELASTOMERIC CUSHION (COOPER B-LINE B1999 "VIBRA CUSHION") BETWEEN COPPER PIPING AND GALVANIZED CHANNEL SUPPORT CLAMPS. PLASTIC PIPE WRAP TAPE IS NOT ACCEPTABLE.
7. PROVIDE ELASTOMERIC INSERT (COOPER B-LINE BVP "VIBRACLAMPS") BETWEEN PLASTIC PIPE AND GALVANIZED CHANNEL SUPPORT CLAMPS. PLASTIC PIPE WRAP TAPE IS NOT ACCEPTABLE.
8. PROVIDE SWAY BRACING FOR ALL PIPING 4" AND LARGER AT ALL CHANGES IN DIRECTION GREATER THAN 45-DEGREES.

DUCT SUPPORT NOTES

1. SUPPORT ALL METAL DUCTWORK FROM STRUCTURAL MEMBERS.
2. ALL DUCT SUPPORTS SHALL BE GALVANIZED STEEL.
3. DUCT SUPPORTS SHALL NOT BE ATTACHED TO ROOF DECK.
4. DUCT SUPPORTS SHALL NOT BE ATTACHED TO STRUCTURAL CROSS BRACING.
5. HANGER STRAPS AND HANGER ROD SIZES FOR RECTANGULAR DUCTWORK SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," TABLE 5-1 "RECTANGULAR DUCT HANGERS MINIMUM SIZE,"
6. HANGER STRAPS AND HANGER ROD SIZES FOR ROUND DUCTWORK SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," TABLE 5-2, "MINIMUM HANGER SIZES FOR ROUND DUCT."
7. SUSPEND ALL METAL DUCTWORK NOT EXCEEDING 30" LONGEST SIDE AT EVERY JOINT. DO NOT EXCEED 10'-0" HANGER SPACING. USE 1" X 18 GAGE GALVANIZED STRAPS (MINIMUM) ATTACHED TO BOTTOM AND SIDES OF DUCT
8. SUSPEND ALL METAL DUCTWORK EXCEEDING 30" LONGEST SIDE AT MAXIMUM 8'-0" SPACING USING ANGLES AND RODS.

DUCT CONSTRUCTION NOTES

1. DUCTWORK HAS BEEN DESIGNED AND SIZED IN ACCORDANCE WITH AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS (ASHRAE) HANDBOOK OF FUNDAMENTALS AND SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS HANDBOOK.
2. ALL RECTANGULAR AND ROUND DUCTWORK SHALL FABRICATED AND CONSTRUCTED TO COMPLY WITH THE SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA'S) "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE".
3. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL, EXCEPT WHERE INDICATED OTHERWISE.
4. ALL DUCTWORK SHALL BE A MINIMUM OF 26 GAUGE.
5. ALL RECTANGULAR AND ROUND DUCTWORK SHALL BE CONSTRUCTED TO THE FOLLOWING SHEET METAL DUCT STATIC PRESSURE CLASSIFICATION:
   a. SUPPLY AIR DUCT: 2" W.C.
   b. RETURN AIR DUCT: 2" W.C. (NEGATIVE)
   c. EXHAUST AIR DUCT: 2" W.C. (NEGATIVE)
   d. OUTSIDE AIR DUCT: 2" W.C.
6. DUCT SIZES SHALL BE VERIFIED FOR CLEARANCES AT THE JOB SITE PRIOR TO FABRICATION. DIMENSIONS MAY BE CHANGED TO ACCOMMODATE CONSTRUCTION CLEARANCES. FREE AREA OF DUCT SHALL BE MAINTAINED.
7. DUCT TRANSITIONS SHALL BE CONSTRUCTED WITH SLOPE OF 1/4.
8. FLEXIBLE DUCTWORK SHALL BE LIMITED TO A MAXIMUM OF 3'-0" TO AIR INLET OR AIR OUTLET.
9. FLEXIBLE CONNECTORS SHALL NOT BE USED.

HVAC PIPING NOTES

1. CAULK AROUND ALL PIPING THAT PASSES THROUGH FIRE RATED PARTITIONS WITH A NON-HARDENING CAULKING SIMILAR TO 3M "FIRE BARRIER".
2. PROVIDE PROPER PROVISIONS FOR EXPANSION OR MOVEMENT OF ALL PIPING.
3. PROVIDE LARGE ENOUGH PIPE SLEEVES THROUGH WALLS OR FLOORS TO ALLOW FOR ANTICIPATED DEFERENTIAL MOVEMENTS.
4. ALL PIPING SHALL BE INSTALLED IN A NEAT ARRANGEMENT PARALLEL TO BUILDING STRUCTURE.

SEISMIC EQUIP. SUPPORT NOTES

1. ALL EQUIPMENT SHALL BE INSTALLED WITH SEISMIC RESTRAINTS.

   EXEMPTIONS:
   a. FLOOR OR CURB-MOUNTED EQUIPMENT WEIGHING LESS THAN 400 LBS AND NOT RESILIENTLY MOUNTED, WHERE THE IMPORTANCE FACTOR, IP = 1.0 AND THERE IS NO POSSIBILITY OF CONSEQUENTIAL DAMAGE.
   b. EQUIPMENT WEIGHING LESS THAN 20 LBS AND DISTRIBUTION SYSTEMS WEIGHING LESS THAN 5 LBS/LINEAL FOOT, WITH AN IP = 1.0 AND WHERE FLEXIBLE CONNECTIONS EXIST BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING OR CONDUIT.
2. ALL HVAC EQUIPMENT WITH MOTORS, FANS, ETC. SHALL BE INSTALLATION WITH VIBRATION ISOLATORS BETWEEN THE EQUIPMENT AND THE BUILDING STRUCTURE.
3. ALL FLOOR MOUNTED EQUIPMENT SHALL BE INSTALLED A 4" HIGH CONCRETE HOUSEKEEPING PAD. VIBRATION ISOLATOR OR EQUIPMENT ATTACHMENT TO THE CONCRETE HOUSEKEEPING SHALL BE A MINIMUM OF 6-INCHES FROM THE EDGE OF THE HOUSEKEEPING PAD.
4. ALL COMPONENTS SHALL BE INSTALLED ON BLOCKS TO THE OPERATING HEIGHT OF THE ISOLATORS. AFTER THE ENTIRE INSTALLATION IS COMPLETE AND UNDER FULL LOAD INCLUDING WATER, THE ISOLATORS SHALL BE ADJUSTED SO THAT THE LOAD IS TRANSFERRED FROM THE BLOCKS TO THE ISOLATORS. REMOVE ALL DEBRIS FROM BENEATH THE EQUIPMENT AND VERIFY THAT THERE ARE NO SHORT CIRCUITS OF THE ISOLATION. THE EQUIPMENT SHALL BE FREE TO MOVE IN ALL DIRECTIONS, WITHIN THE LIMITS OF THE RESTRAINTS.
5. NO RIGID CONNECTIONS BETWEEN EQUIPMENT AND THE BUILDING STRUCTURE SHALL BE MADE THAT DEGRADES THE NOISE AND VIBRATION CONTROL SYSTEM.
6. OVERSTRESSING OF THE BUILDING STRUCTURE MUST NOT OCCUR DUE TO OVERHEAD SUPPORT OF EQUIPMENT.
7. SEISMIC CABLE RESTRAINTS SHALL BE INSTALLED SLIGHTLY SLACK TO AVOID SHORT CIRCUITING THE ISOLATED SUSPENDED EQUIPMENT OR PIPING.

SMOKE DETECTOR NOTES

1. SMOKE DETECTOR SHALL BE PHOTOELECTRIC TYPE AND SHALL BE EQUIVALENT TO "SYSTEM SENSOR" DH100ACDCLP.
2. SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN AIR DUCT OF ALL AIR HANDLING UNITS WITH CAPACITY GREATER THAN 2,000 CFM.
3. PROVIDE SMOKE DETECTORS WHERE MULTIPLE AIR-HANDLING SYSTEMS SHARE COMMON SUPPLY OR RETURN AIR DUCTS OR PLENUMS WITH A COMBINED DESIGN CAPACITY GREATER THAN 2,000 CFM.
4. THE SMOKE DETECTORS SHALL BE INSTALLED TO MONITOR THE ENTIRE AIRFLOW CONVEYED BY THE SYSTEM INCLUDING RETURN AIR AND EXHAUST.
5. PROVIDE ACCESS TO ALL SMOKE DETECTORS FOR INSPECTION.
6. SMOKE DETECTOR SHALL BE INTERLOCKED WITH SUPPLY FAN ELECTRICAL STARTER TO SHUT DOWN SUPPLY AIR FAN(S) ON SENSING SMOKE.
7. SMOKE DETECTOR SHALL BE INTERLOCKED WITH EXISTING FIRE ALARM SYSTEM.
8. THE ACTUATION OF A DUCT SMOKE DETECTOR SHALL ACTIVATE A VISIBLE AND AUDIBLE SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION.
9. IN ADDITIONAL TO INTERLOCKING THE SMOKE DETECTOR TO THE FIRE ALARM SYSTEM, THE SMOKE DETECTOR SHALL BE CONNECTED TO A MULTI-SIGNALING ANNUNCIATOR PANEL (SYSTEM SENSOR SSK 451).
10. MULTI-SIGNALING ANNUNCIATOR PANEL (SYSTEM SENSOR SSK 451) SHALL BE INSTALLED AS SHOWN ON DRAWING AND AS REQUIRED BY BUILDING OFFICIAL

DUCT SEALING NOTES

1. ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS ON ALL RECTANGULAR AND ROUND DUCTWORK SHALL BE SEAL TO SMACNA SEAL CLASS B.
2. APPROVED METHODS OF SEALING DUCTWORK INCLUDES TAPES, MASTICS, GASKETS OR OTHER APPROVED CLOSURE SYSTEMS.
3. TAPES AND MASTICS USED TO SEAL DUCTWORK MUST BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED " 181A-P FOR PRESSURE-SENSITIVE TAPE, "181A-M" FOR MASTIC OR "181A-H FOR HEAT-SENSITIVE TAPE.
4. TAPES AND MASTICS USED TO SEAL FLEXIBLE AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181B-FX" FOR PRESSURE SENSITIVE TAPE, OR 181B-M FOR MASTIC.
5. MECHANICAL FASTENERS USED WITH FLEXIBLE NON-METALLIC AIR DUCTS SHALL COMPLY WITH UL 181 AND SHALL BE MARKED "181B-".
6. TAPE ALONE CANNOT BE SUBSTITUTED FOR MECHANICAL FASTENERS
7. DO NOT USE GRAY DUCT TAPE, FOIL BACKED TAPE, OIL BASED CAULKING AND GLAZING COMPOUNDS TO SEAL METAL DUCTS.

RECT. DUCT CONSTR. NOTES

1. ALL TRANSVERSE JOINTS SHALL BE FABRICATED & INSTALLED ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-1, "RECTANGULAR DUCT/TRANSVERSE JOINTS,"."
2. ALL LONGITUDINAL SEAMS SHALL BE FABRICATED AND INSTALLED ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-2, "RECTANGULAR DUCT/LONGITUDINAL SEAMS,"
3. ALL ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER FITTINGS AND COMPONENTS SHALL BE FABRICATED AND INSTALLED ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," CHAPTER 4, "FITTINGS AND OTHER CONSTRUCTION,"
4. CROSS-BREAK ALL DUCT SURFACES 19" THROUGH 60". USE ANGLE REINFORCING FOR DUCTS SURFACES OVER 60".
5. PROVIDE SINGLE VANE TURNING VANES IN ALL ELBOWS AND CHANGES IN DIRECTION.

SEISMIC DESIGN REQUIREMENTS

1. THE SEISMIC REQUIREMENTS FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH CHAPTER 17 OF THE 2012 INTERNATIONAL BUILDING CODE (IBC) AND CHAPTER 13 OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) 7-10 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES".
2. 2012 INTERNATIONAL BUILDING CODE RISK CATEGORY = II
3. BUILDING SEISMIC IMPORTANCE FACTOR (I) = 1.0.
4. BUILDING SEISMIC DESIGN CATEGORY = D
5. 5% DAMPED DESIGN SPECTRAL RESPONSE ACCELERATION
   SDS = 0.95 g
   SD1 = 0.48 G
6. VRF SYSTEM COMPONENT IMPORTANCE FACTOR (I) = 1.0
7. ALL OTHER HVAC SYSTEM COMPONENT IMPORTANCE FACTOR = 1.0

SEISMIC PIPING NOTES

1. THE TOP OF ALL PIPING SHALL BE INSTALLED WITHIN 12-INCHES (OR LESS) FROM STRUCTURAL SUPPORT MEMBER. THE 12-INCHES SHALL BE MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE SUPPORT WHERE THE HANGER IS ATTACHED.
2. IF PIPING IS SUPPORT GREATER THAN 12-INCHES FROM THE SUPPORT MEMBER, ADDITIONAL SEISMIC SUPPORT IS REQUIRED. CONTRACTOR WILL BE REQUIRED TO ENGAGE A STRUCTURAL ENGINEER TO PROVIDE SEISMIC CALCULATIONS.
3. ALL PIPING LESS THAN 1-1/4 INCHES NOMINAL DIAMETER AND LOCATED IN BOILER, MECHANICAL EQUIPMENT AND REFRIGERATION MECHANICAL ROOMS DO NOT REQUIRE SEISMIC SUPPORTS.
4. ALL PIPING LESS THAN 2" INCHES NOMINAL DIAMETER DO NOT REQUIRE SEISMIC SUPPORTS.
5. THE LATERAL MOTION OF PIPING WILL NOT CAUSE DAMAGING IMPACT WITH SURROUNDING SYSTEMS (E.G. OTHER PIPE, DUCT, EQUIPMENT, SPRINKLER HEADS ETC.) OR CAUSE LOSS OF SYSTEM VERTICAL SUPPORT.

FLEXIBLE DUCT NOTES

1. FLEXIBLE DUCT SHALL NOT BE USED ON EXPOSED DUCTWORK.
2. FLEXIBLE DUCTWORK SHALL BE LIMITED TO A MAXIMUM OF 3'-0" FOR CONNECTION OF RIGID DUCTWORK TO AIR INLETS AND AIR OUTLETS.
3. FLEXIBLE AIR DUCTS SHALL BE LISTED AND LABELED AS UL 181 CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCTS.
4. FLEXIBLE CONNECTORS SHALL NOT BE USED.
5. FLEXIBLE AIR DUCTS SHALL BE INSTALLED FULLY EXTENDED.
6. DO NOT BEND FLEXIBLE AIR DUCTS ACROSS SHARP CORNERS OR INCIDENTAL CONTACT WITH METAL FIXTURES, PIPES, OR CONDUITS.
7. RADIUS AT CENTERLINE OF FLEXIBLE DUCT SHALL BE NOT LESS THAN ONE DUCT DIAMETER.
8. DO NOT INSTALL FLEXIBLE AIR DUCTS NEAR HOT EQUIPMENT (I.E. FURNACES, BOILERS, STEAM PIPES, ETC) THAT IS ABOVE THE RECOMMENDED FLEXIBLE DUCT USE TEMPERATURE.
9. DO NOT INSTALL FLEXIBLE AIR DUCT IN CONCRETE, BURIED BELOW GRADE OR IN CONTACT WITH THE GROUND.
10. ALL TAPES, MASTICS AND NON-METALLIC FASTENERS (PLASTIC CLAMPS) SHALL BE LISTED AND LABELED TO UL 181B.

ROUND DUCT CONSTR. NOTES

1. ALL TRANSVERSE JOINTS SHALL BE FABRICATED ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-1, "ROUND DUCT TRANSVERSE JOINTS,"
2. ALL LONGITUDINAL SEAMS SHALL BE FABRICATED AND INSTALLED ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-2, "ROUND DUCT LONGITUDINAL SEAMS,"
3. ALL ROUND TEES AND LATERALS SHALL BE FABRICATED AND INSTALLED ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-5, "90 DEGREE TEES AND LATERALS,"
4. ALL CONICAL TEES SHALL BE FABRICATED AND INSTALLED ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-6, "CONICAL TEES,"
5. FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT-SUPPORT INTERVALS, AND OTHER PROVISIONS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."

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project:

LAS COLONIAS AMPHITHEATER - ADDITION

Grand Junction, CO

CITY OF Grand Junction COLORADO

project#: 19.0270
date: February 10, 2020

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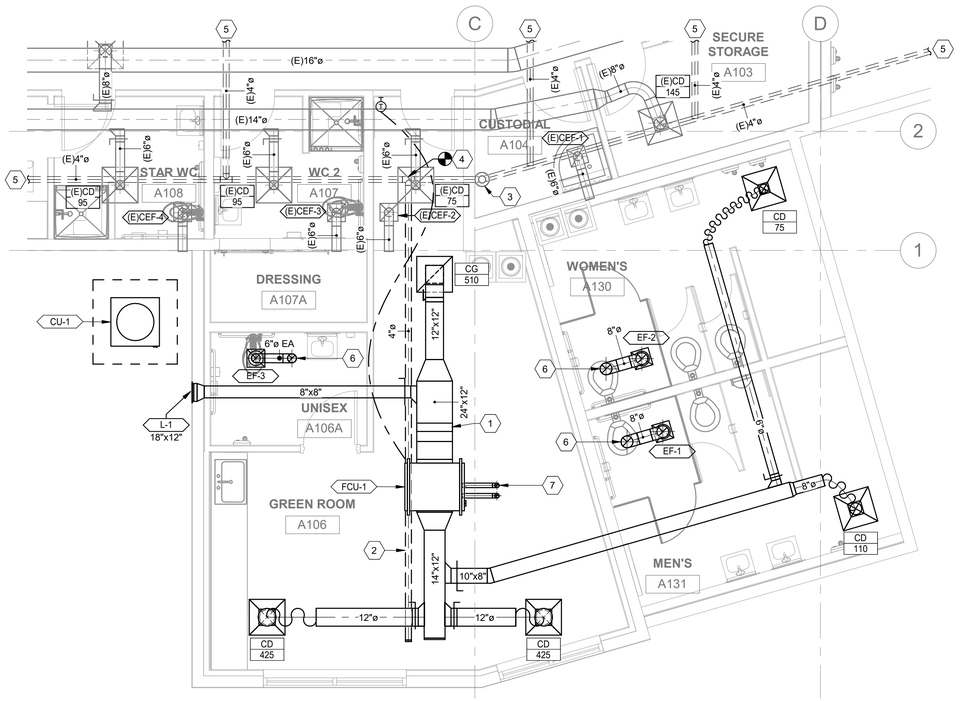
HVAC NOTES

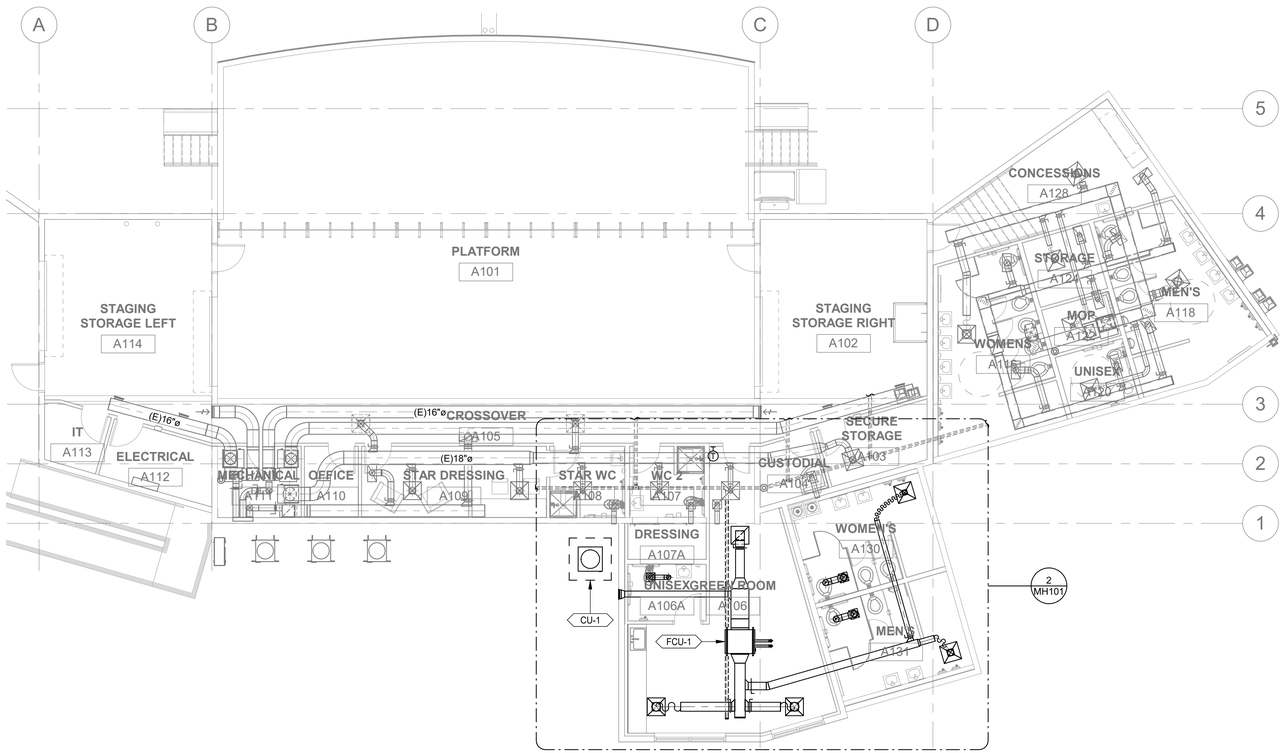
sheet:

ME003

PERMIT SET



2 ENLARGED MECHANICAL PLAN
1/4" = 1'-0"



1 STAGE LEVEL MECHANICAL PLAN
1/8" = 1'-0"

SHEET KEYNOTES

1 CONTRACTOR TO PROVIDE ACCESS PANEL AND MERV 8 FILTER.

2 CORRUGATED PERFORATED PVC PIPE BELOW FLOOR.

3 EXISTING RADON EXHAUST FAN.

4 EXTEND NEW PERFORATED PIPING TO EXISTING PIPING MAIN. FIELD VERIFY CONNECTION LOCATION.

5 EXISTING PERFORATED PIPING UNDERSLAB CONTINUES THROUGH BUILDING.

6 EXTEND RESTROOM EXHAUST DUCT THROUGH ROOF. PATCH AND SEAL ROOF PER ROOF MANUFACTURER'S WARRANTY REQUIREMENTS.

7 EXTEND FURNACE COMBUSTION AIR AND VENT PIPING TO MANUFACTURER'S CONCENTRIC VENT KIT THROUGH ROOF. PATCH AND SEAL ROOF PENETRATION PER ROOF MANUFACTURER'S WARRANTY REQUIREMENTS.

RADON SYSTEM NOTES

1. RADON SYSTEM SHALL MEET ALL THE REQUIREMENTS OF COLORADO DEPARTMENT OF PUBLIC HEATH – URANIUM MILL TAILINGS MANAGEMENT PLAN (MAY 2015).
2. PROVIDE A 4" LAYER OF 1/2" TO 3/4" CLEAN WASHED GRAVEL UNDER THE FLOOR SLAB.
3. PROVIDE 10 MIL HDPE SHEETING ON TOP OF GRAVEL AND BELOW CONCRETE FLOR SLAB. SHEETING SHALL EXTEND UP THE FOUNDATION WALLS AND SEAL TO WALL.
4. ALL PENETRATIONS THROUGH PLASTIC SHEETING SHALL BE SEALED WITH APPROVE TAPE.
5. UNDERFLOOR PIPING SHALL BE 4" CORRUGATED PERFORATED ADS PIPE. PERFORATED PIPE SHALL HAVE A MINIMUM OF TEN (10) 3/4" DIAMETER PERFORATIONS PER FOOT.
6. VENT PIPE SHALL BE SCHEDULE 40 DWV PVC PIPE.
7. ALL PENETRATIONS THROUGH FLOOR SHALL BE SEALED WITH POLYURETHANE CAULKING.
8. ALL COLD JOINTS IN CONCRETE FLOOR SHALL BE SEALED WITH POLYURETHANE CAULKING.
9. ALL SAWED CUT CONTROL JOINTS SHALL BE SEALED WITH POLYURETHANE CAULKING.
10. EXTEND VENT PIPE A MINIMUM OF 12" ABOVE ROOF. PROVIDE 1/2" BIRD SCREEN OVER OPENING OF PIPE.
11. RADON VENTILATION FAN SHALL BE LOCATE NEAR ROOF.
12. ALL EXPOSED PIPING SHALL BE PROPERLY APPROVED LABELED AS A RADON SYSTEM.
13. INSTALL A RADON U-TUBE MANOMETER ON VERTICAL EXPOSED VENT PIPE.
14. BUILDING SHALL BE RADON TESTED PRIOR TO OCCUPANCY.

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MH101

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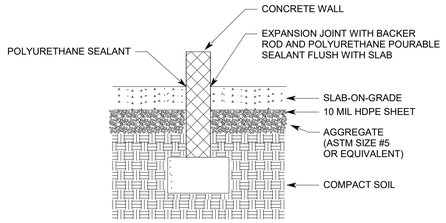
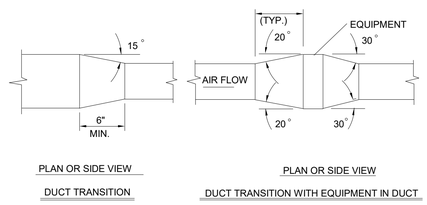
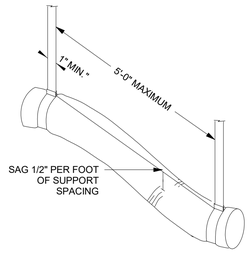


16 RADON HDPE DETAIL
SCALE: 1/8" = 1'-0"

NOTE: UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

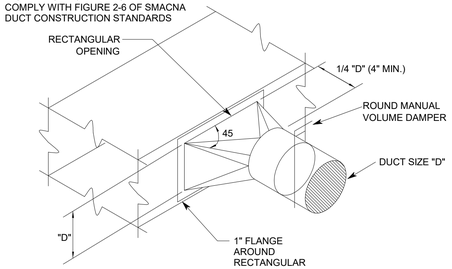


12 DUCT TRANSITIONS
SCALE: NTS

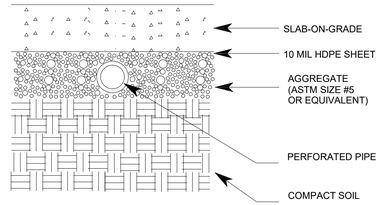


8 FLEX DUCT SUPPORT
SCALE: NTS

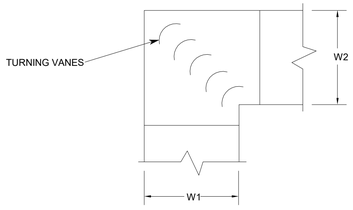
NOTE:
HIGH EFFICIENCY TAKE-OFF SHALL COMPLY WITH FIGURE 2-6 OF SMACNA DUCT CONSTRUCTION STANDARDS



4 HIGH EFFICIENCY TAKE-OFF
SCALE: NTS

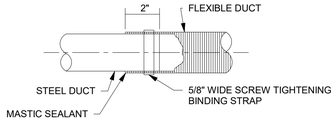


15 RADON PIPING
SCALE: NTS



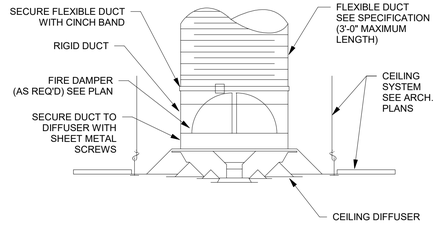
NOTES:
1. ALL TURNING VANES SHALL BE SINGLE VANE TYPE REGARDLESS OF DIMENSION.
2. ALL SINGLE VANES SHALL HAVE A 2 INCH RADIUS, 1 INCH MAXIMUM SPACE BETWEEN VANES.

11 SQUARE ELBOW
SCALE: NTS

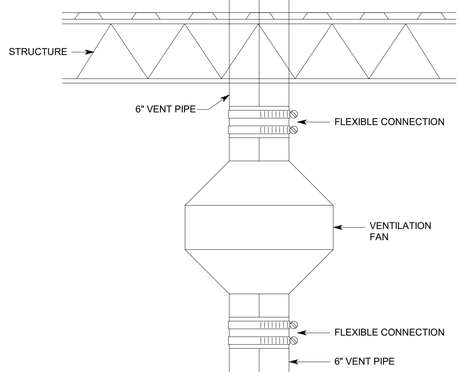


7 FLEX DUCT CONNECTION
SCALE: NTS

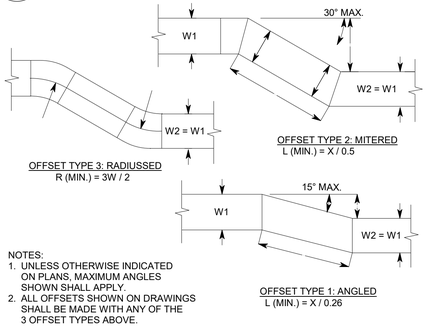
NOTE:
CEILING INLETS AND OUTLETS SHALL BE INDEPENDENTLY SUPPORTED.



3 CEILING DIFFUSER(LAY-IN)
SCALE: NTS

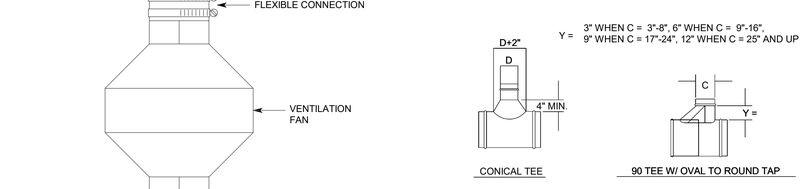


14 RADON VENTILATION FAN
SCALE: NTS

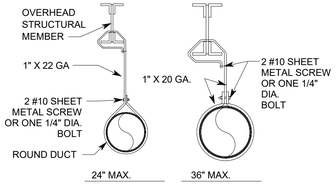


NOTES:
1. UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL BE APPLY.
2. ALL OFFSETS SHOWN ON DRAWINGS SHALL BE MADE WITH ANY OF THE 3 OFFSET TYPES ABOVE.

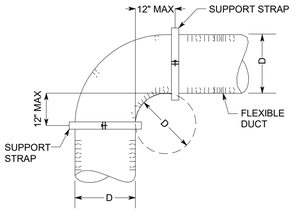
13 DUCT OFFSETS
SCALE: NTS



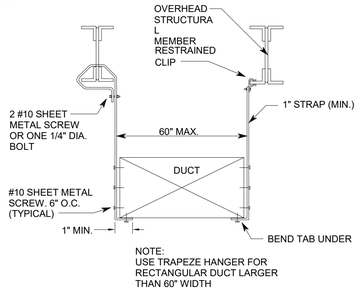
10 ROUND BRANCH FITTINGS
SCALE: NTS



9 DUCT HANGER - ROUND
SCALE: NTS



6 FLEX DUCT RADIUS
SCALE: NTS

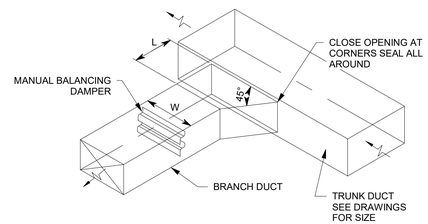


NOTE:
USE TRAPEZE HANGER FOR RECTANGULAR DUCT LARGER THAN 60" WIDTH

5 DUCT HANGER - RECT.
SCALE: NTS

NOTE:
L=1/4 W (6" MIN.)

NOTE: PROVIDE REMOTE OPERATOR FOR INACCESSIBLE DAMPERS.



1 BRANCH DUCT TAKE-OFF
SCALE: NTS

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sheet:

ME501

PERMIT SET

FAN COIL & AC UNIT SCHEDULE

SYMBOL	AREA SERVED	MANUFACTURER	MODEL NO.	BLOWER SECTION			CAPACITY		ELECTRICAL				SEER	DIMENSIONS (INCHES)	NOTES
				ARRANGEMENT	SUPPLY AIRFLOW (CFM)	E.S.P.	TOTAL COOLING (BTUH)	TOTAL HEATING (BTUH)	MOTOR (HP)	V/PH/ HZ	MCA	MOCP			
FCU-1	GREEN ROOM	TRANE	TUH1B040-SUB-1E	HORIZONTAL	1050	0.5	--	58,000	0.5	115/1/60	7.9	15	--	36X19X31	(1-8)
CU-1	GREEN ROOM	TRANE	4TWR4018G1000A	CURB MOUNT	N/A	N/A	60,000	--	0.125	208/3/60	12	20	15	33X32X30	(1-8)

ACCEPTABLE MANUFACTURERS	NOTES
STULTZ LEIBERT TRANE	(1) COOLING CAPACITY BASED UPON 72°F DB & 30% RH INDOOR & 95°F OUTDOOR DB (2) PROVIDE SINGLE SOURCE POWER OPTION (3) ESTABLISH CONTROL CONNECTION TO BMS TO MONITOR: STATUS, ALARM, ENABLE/DISABLE (4) PROVIDE REPLACEMENT MERV 8 FILTER AND REPLACEMENT FAN BELT WITH UNIT (5) REMOTE PROGRAMMABLE THERMOSTAT (6) ROUTE PRE-CHARGED REFRIGERANT PIPING FROM INDOOR TO OUTDOOR UNIT. PROVIDE UV RESISTIVE JACKET FOR EXPOSED PIPING INSULATION. (7) CUSTOM FILTER BANK (8) MOUNT CONDENSING UNIT ON 6" CONCRETE PAD. ATTACHED WITH NEOPRENE VIBRATION ISOLATORS.

DUCT INSULATION REQUIREMENTS

DUCT SYSTEM	DUCT LOCATION	INSULATION MATERIAL	MINIMUM THERMAL RESISTANCE (°R")	FIELD APPLIED JACKET	VAPOR RETARDER REQ'D
SUPPLY AIR	BUILDING INTERIOR, CONCEALED	MINERAL-FIBER BLANKET	6.0	NONE	NO
	BUILDING INTERIOR, EXPOSED, OUTSIDE CONDITIONED SPACE	MINERAL-FIBER BLANKET	6.0	NONE	NO
	BUILDING EXTERIOR (OUTSIDE BUILDING INSULATION)	MINERAL-FIBER BLANKET	12.0	ALUMINUM	NO
RETURN AIR	BUILDING INTERIOR, CONCEALED	MINERAL-FIBER BLANKET	6.0	NONE	NO
	BUILDING INTERIOR, EXPOSED, OUTSIDE CONDITIONED SPACE	MINERAL-FIBER BLANKET	6.0	NONE	NO
	BUILDING EXTERIOR (OUTSIDE BUILDING INSULATION)	MINERAL-FIBER BLANKET	8.0	ALUMINUM	NO
EXHAUST AIR	ALL	NONE	---	---	---
OUTSIDE AIR	BUILDING INTERIOR, CONCEALED OR EXPOSED	MINERAL-FIBER BLANKET	8.0	NONE	NO

NOTES

(1) ALL DUCT INSUL ATION SHALL HAVE ALL SERVICE JACKET MANUFACTURED FROM KRAFT PAPER, REINFORCED SCRIM, ALUMI NUM FOIL OR VINYL FILM.
(2) DUCT INSULATION SHALL BE MECHANICAL FASTENED TO DUCTS WIDER THAN 24" AND SHALL BE AFFIXED TO BOTTOM OF DUCT WITH WELDED METAL PINS AND 2" WAHSERS AT 18" MAXIMUM SPACING.
(3) DUCT LINER, WHERE SHOWN ON DRAWINGS, SHALL BE A MINIMUM OF 1" THICK AND SHALL HAVE A MINIMUM "R" VALUE OF 6.0.
(4) DUCT LINER SHALL NOT BE SUBSTITUTED FOR DUCT LINER UNLESS THE MINIMUM "R" VALUE OF THE DUCT LINER IS INCREASED TO A MINIMUM OF 6.0.
(5) DUCT DIMENSIONS SHOWN ON THE DRAWINGS ARE NET FREE AREA. WHERE DUCT LINER IS SHOWN, INCREASE METAL DUCT SIZE TO ALLOW FOR THICKNESS OF DUCT LINER.
(6) TOTAL LENGTH OF FLEXIBLE DUCT RUN SHALL NOT EXCEE D 3'-0". EXTEND SHEET METAL DUCT TO WITHIN 3'-0" OF THE AIR INLET OR AIR OUTLET DEVICE.
(7) OFFSET OF FLEXIBLE DUCT SHALL NOT EXCEED ONE-HALF (1/2) OF THE DUCT DIAMETER.
(8) ALL DUCT CHANGES IN DIRECTION SHALL BE MADE WITH RIGID ELBOWS OR OTHER RIGID METAL FITTINGS.
(9) INDOOR DUCT INSULATION AND RELATED MATERIALS SHALL HAVE A FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS WHEN TESTED TO ASTM E 84.
(10) OUTDOOR DUCT INSULATION AND RELATED MATERIALS SHALL HAVE A FLAME-SPREAD INDEX OF 75 OR LESS, AND SMOKE-DEVELOPED INDEX OF 150 OR LESS WHEN TESTED TO ASTM 84.
(11) ALL DUCT COVERINGS AND LININGS SHALL NOT FLAME, GLOW, SMOLDER OR SMOKE WHEN TESTED IN ACCORDANCE WITH ASTM C 411.
(12) ALL MATERIALS USED AS INTERNAL INSULATION AND EXPOSED TO THE AIR STREAM IN DUCTS SHALL BE SHOWN TO BE DURABLE WHEN TESTED IN ACCORDANCE WITH UL 181.

CEILING DIFFUSER, REGISTER & GRILLE SCHEDULE

SYMBOL	DESCRIPTION	SIZES		ACCEPTABLE MANUFACTURERS
		NOMINAL SIZE (NECK SIZE)	AIR FLOW (CFM)	
CD	CEILING DIFFUSER: REMOVABLE PERFORATED FACEPLATE, 24" X 24" PANEL SIZE, 4-WAY PATTERN, ROUND NECK, ALUMINUM CONSTRUCTION NC-35 MAXIMUM, TESTED IN ACCORDANCE WITH ADC TEST 1062, OPTIONS & ACCESSORIES: BAKED ENAMEL WHITE FINISH. PROVIDE CEILING MOUNT TO MATCH CEILING TYPE.	6" DIA. 8" DIA. 10" DIA. 12" DIA. 14: DIA.	120 200 400 700 1000	KRUEGER 13SD TITUS PRICE
CG	CEILING GRILLE: REMOVABLE PERFORATED FACEPLATE, ALUMINUM, 24" X 24" PANEL SIZE, NC-35 MAXIMUM, TESTED IN ACCORDANCE WITH ADC TEST 1062, ROUND NECK OR SQUARE NECK, SEE DRAWINGS FOR NECK SIZE. OPTIONS & ACCESSORIES: BAKED ENAMEL WHITE FINISH. PROVIDE CEILING MOUNT TO MATCH CEILING TYPE.	6" DIA. (6" X 6") 8" DIA. (8" X 8") 10" DIA. (10" X 10") 12" DIA. (12" X 12") 14: DIA. (14" X 14") 22" X 22"	120 200 420 700 1000 2000	KRUEGER 13SD TITUS PRICE

LOUVER SCHEDULE

SYMBOL	MANUFACTURER	MODEL NO.	OVERALL SIZE (IN.) L x H	TYPE	MINIMUM FREE AREA (FT^2)	CFM	ACCESSORIES AND REMARKS
L-1	RUSKIN	ELFD6375	18 x 12	DRAINABLE	0.58	210	(1)(2)(3)

NOTES:

(1) EXTRUDED ALUMINUM CONSTRUCTION
(2) GRAVITY BACKDRAFT DAMPER
(3) COLOR BY ARCHITECT. PROVIDE FINISH SAMPLE FOR REVIEW

EXHAUST FAN SCHEDULE

SYMBOL	AREA SERVED	MANUFACTURER	MODEL NO.	CONFIG.	AIR FLOW (CFM)	STATIC PRESSURE (INCHES W.G.)	FAN SPEED (RPM)	MOTOR				MAXIMUM NOISE LEVEL (SONES)	WEIGHT (LBS)	OPTIONS AND ACCESSORIES	CONTROLS	NOTES / COMMENTS
								WATTS	VOLTS	PHASE	HERTZ					
EF-1	RESTROOM	LOREN COOK	GC-168	CEILING	150	0.35000	1160	46.1	120	1	60	3.50000	12	(1)	(11)	(101)
EF-2	RESTROOM	LOREN COOK	GC-168	CEILING	150	0.35000	1160	46.1	120	1	60	3.50000	12	(1)	(11)	(101)
EF-3	RESTROOM	LOREN COOK	GC-128	CEILING	50	0.25000	1160	23.0	120	1	60	3.50000	12	(1)	(11)	(101)

ACCEPTABLE MANUFACTURERS	OPTIONS & ACCESSORIES	CONTROLS	NOTES & COMMENTS
LOREN COOK, TWIN CITY, PENN VENTILATOR, GREENHECK	(1) GRAVITY BACKDRAFT DAMPER.	(11) OPERATE DURING OCCUPIED MODE, PROVIDE TIMER.	(101) ALL CAPACITIES AT JOB SITE ELEVATION

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MECHANICAL SCHEDULES

sheet:

ME601

PERMIT SET

MISC. SYMBOL LEGEND

SYMBOL	DESCRIPTION
# / SHEET	DETAIL INDICATOR: # INDICATES DETAIL NUMBER, SHEET INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
# / SHEET	ELEVATION OR SECTION INDICATOR, EXTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
100	ROOM OR SPACE NUMBER.
1	KEYNOTE INDICATOR.
	REVISION INDICATOR.
CU-1	EQUIPMENT INDICATOR.
P-	PLUMBING FIXTURE INDICATOR.
TYPE / CFM / SIZE	DIFFUSER/GRILLE INDICATOR.
TYPE / SIZE	DIFFUSER/GRILLE INDICATOR.
	BREAK, STRAIGHT
	BREAK, ROUND.
	MATCH LINE INDICATOR
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE.
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.
	NEW CONNECTION POINT TO EXISTING

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION
C.B.	CATCH BASIN
M.H.	MANHOLE
W.H.	WALL HYDRANT
H.B.	HOSE BIBB
	CLEANOUT TO GRADE
	FLOOR CLEANOUT
	WALL CLEANOUT
	1/2 GRATE
	3/4 GRATE
	FULL GRATE

PLUMBING PIPING LEGEND

SYMBOL	DESCRIPTION
	SANITARY SEWER (SS)
	GREASE WASTE (GW)
	VENT (V)
AV	ACID VENT
AW	ACID WASTE
	DOMESTIC COLD WATER (DCW)
	DOMESTIC HOT WATER (DHW)
	DOMESTIC HOT WATER RECIRC (DHWR)
180	180°F HOT WATER
180R	180° HOT WATER RETURN
160	160° HOT WATER
160R	160° HOT WATER RETURN
RW	RAINWATER
SRW	SECONDARY RAINWATER
SD	STORM DRAIN
VTR	VENT THRU ROOF
	NON POTABLE WATER
(E)	EXISTING PIPE
(E)	EXISTING PIPE TO BE REMOVED
IW	IRRIGATION WATER
SS	SANITARY SEWER
LPS	LOW PRESSURE STEAM
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HHWR	HEATING HOT WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
GS	GLYCOL SUPPLY
GR	GLYCOL RETURN
G	GAS
FP	FIRE PROTECTION
LPG	PROPANE
VAC	VACUUM
CA	COMPRESSED AIR
MA	MEDICAL AIR
O	OXYGEN
NO	NITROUS OXIDE
N	NITROGEN
CO2	CARBON DIOXIDE
EVAC	EVACUATION

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	VALVES, METERS, AND GAUGES
	SHUT OFF VALVE
	GATE VALVE
	CHECK VALVE
	AUTO 2-WAY VALVE
	AUTO 3-WAY VALVE
	GLOBE VALVE
	BALL VALVE
	RELIEF VALVE
	CHAIN OPERATED GATE VALVE
	PRESSURE REDUCING VALVE
	BUTTERFLY VALVE
	SOLENOID VALVE
	ANGLE VALVE
	VENTURI
	BALANCING OR PLUG COCK
	FLOW SETTER
	EXPANSION VALVE (REFRIG.)
	GAS COCK
MAV	MANUAL AIR VENT
	STRAINER
	GAUGE COCK
	FLEXIBLE CONNECTION
	PRESSURE GAUGE
	THERMOMETER
	VICTUALIC COUPLING
	REDUCER CONCENTRIC
	REDUCER ECCENTRIC
	REFRIGERANT SITE GLASS
	REFRIGERANT STRAINER
	REFRIGERANT FILTER DRIER
	90 DEG ELBOW UP
	90 DEG ELBOW DOWN
	90 DEG TEE UP
	90 DEG TEE DOWN
	UNION
	CAPPED PIPE
	ANCHOR
	FLOAT AND THERMOSTATIC TRAP

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

(E)	EXISTING
(F)	FUTURE
AD	ACCESS DOOR
AIR COND	AIR CONDITION(-ING,-ED)
APD	AIR PRESSURE DROP
BD	BALANCING DAMPER
BHP	BRAKE HORSE POWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	COOLING
COMP	COMPONENT
COND	CONDENS(-ER, -ING, -ATION)
CV	CONTROL VALVE
DB	DRY BULB TEMPERATURE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRC
DIA	DIAMETER
DISCH	DISCHARGE
DP	DEPTH OR DEEP
EA	EXHAUST AIR
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
EG	ETHYLENE GLYCOL
ELEC	ELECTRIC
ELEV	ELEVATION
ENT	ENTERING
EVAP	EVAPORAT(-E, -ING, -ED, -OR)
EWT	ENTERING WATER TEMPERATURE
EXT	EXTERNAL
FC	FLEXIBLE CONNECT(-OR, -ION)
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE SMOKE DAMPER
GAL	GALLON(S)
GE	GREASE EXHAUST
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HG	MERCURY
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTG	HEATING
HZ	HERTZ (FREQUENCY)
ID	INSIDE DIAMETER
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LG	LENGTH
LH	LATENT HEAT
LRA	LOCKED ROTOR AMPS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTUR(-ER, -ED)
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OZ	OUNCE
PD	PRESSURE DROP OR DIFFERENCE
PG	PROPOLENE GLYCOL
PH	PHASE
PPM	PARTS PER MILLION
PRESS	PRESSURE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
R	THERMAL RESISTANCE
RA	RETURN AIR
RECIRC	RECIRCULATE
REFR	REFRIGERATION
REQD	REQUIRED
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCW	SOFT COLD WATER
SF	SAFETY FACTOR
SH	SENSIBLE HEAT
SP	STATIC PRESSURE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
STD	STANDARD
SW	SOIL, WASTE
TA(R)	TRANSFER AIR (RETURN)
TA(S)	TRANSFER AIR (SUPPLY)
TD	TEMP. DROP OR DIFF.
TEMP	TEMPERATURE
THERM	THERMAL
TOT	TOTAL
TSTAT	THERMOSTAT
V	VOLT
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY TEMPERATURE
VEL	VELOCITY
VENT	VENT, VENTILATION
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
WB	WET BULB TEMP
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
WT	WEIGHT
WTR	WATER

PLUMBING GENERAL NOTES

1 THE PLUMBING DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT AND EXTENT OF THE PLUMBING SYSTEM. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THESE DRAWINGS DO NOT SHOW ALL OFFSETS, BENDS OR ELBOWS NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. CONTRACTOR SHALL MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.

2 THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.

3 THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODES, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, STATE, AND FEDERAL CODES AND REGULATIONS IN EFFECT.

4 THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO ANY CODES, RULES, REGULATIONS AND REQUIREMENTS OF THE BUILDING OWNER.

5 PRIOR TO FABRICATION AND INSTALLATION OF ANY PLUMBING COMPONENT THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL PLUMBING WORK WITH ALL OTHER BUILDING TRADES, INCLUDING BUILDING TRADES HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.

6 ALL PLUMBING INFORMATION IS NOT SHOWN ON THE PLUMBING DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS.

7 . THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW AND USE, WHERE APPROPRIATE, ALL THE PLUMBING DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE PLUMBING SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

8 ANY PART OF THE PLUMBING INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

9 PROVIDE PROPER PROVISIONS FOR EXPANSION, CONTRACTION, OR MOVEMENT OF ALL PIPING.

10 PROVIDE LARGE ENOUGH PIPE SLEEVES THROUGH WALL OR FLOOR TO ALLOW FOR ANTICIPATED DIFFERENTIAL MOVEMENT.

11 ALL PIPING SHALL BE SUPPORT WITH CLEVIS HANGERS (MSS TYPE 1). PERFORATED METAL STRAPS OR PLASTIC STRAPPING (PLUMBER TAPE) SHALL NOT BE USED TO SUPPORT OR BRACE ANY PIPE.

12 PROVIDE PIPE HANGERS WITHIN 18-INCHES OF ALL CHANGES OF DIRECTION.

13 PROVIDE SWAY BRACING FOR ALL PIPING 4" AND LARGER AT ALL CHANGES IN DIRECTION GREATER THAN 45-DEGREES.

14 ALL STEEL CLEVIS HANGERS USED TO SUPPORT COPPER PIPING SHALL BE COPPER OR PLASTIC COATED.

15 COPPER PIPING SHALL NOT COME IN CONTACT WITH FIRE TREATED LUMBER. PROVIDE ½" THICK SLIP-ON CLOSED CELL INSULATION WHERE COPPER PIPING IS ADJACENT TO FIRE TREATED LUMBER. CLOSED CELL INSULATION SHALL EXTEND A MINIMUM OF 1-1/2" PAST LUMBER.

16 ALL EXPOSED PIPING SHALL BE INSTALLED IN A NEATLY ARRANGED MANNER PARALLEL TO THE BUILDING STRUCTURE.

17 ALL EXPOSED DOMESTIC WATER PIPE IN OCCUPIED SPACES SHALL BE POLISHED CHROME PLATED.

18 ALL EXPOSED DRAINAGE PIPING IN OCCUPIED SPACES INCLUDING TRAPS UNDER SINKS SHALL BE POLISHED CHROME PLATED.

19 DRAWINGS SHOW GENERAL ARRANGEMENT OF THE DRAIN WASTE AND VENT SYSTEM WITH THE REQUIRED CLEANOUTS. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL CLEANOUTS AS REQUIRED BY THE PLUMBING CODE.

20 ALL SANITARY DRAINAGE SYSTEM PIPING 3" AND LARGER SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/8" PER FOOT.

21 ALL SANITARY DRAINAGE SYSTEM PIPING SMALLER THAN 3" SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/4" PER FOOT.

22 SLOPE VENT SYSTEM TOWARDS DRAINAGE SYSTEM.

23 SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER.

24 ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE JOB SITE ELEVATION.

25 FIXTURE AND EQUIPMENT MODEL NUMBERS SHOWN IN PLUMBING FIXTURE SCHEDULE AND PLUMBING EQUIPMENT SCHEDULE ARE SHOWN TO ESTABLISH THE TYPE OF PRODUCT THAT SHALL BE USED. THE SELECTED PRODUCT SHALL MEET THE SCHEDULED PERFORMANCE DATA SHOWN ON THE SCHEDULE EVEN IF A DIFFERENT MODEL IS SUPPLIED THAT IS DIFFERENT THAN THAT SCHEDULED.

26 ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE ALL NECESSARY FITTINGS, TRANSITIONS, VALVES AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.

27 SEE "PLUMBING FIXTURE SCHEDULE" FOR INDIVIDUAL TRAPS, WASTE, VENT, AND DOMESTIC WATER PIPING FOR INDIVIDUAL FIXTURES.

28 ALL PLUMBING EQUIPMENT SHALL BE LISTED AND LABELED BY AN APPROVED TESTING AGENCY.

29 FIXTURES, EQUIPMENT AND PIPING INSTALLATION SHALL MEET NSF STANDARDS.

PLUMBING SHEET INDEX

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sheet:
PE001

PERMIT SET

TEST ADJUST & BALANCE NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE COMPLETE TESTING ADJUSTING AND BALANCING FOR THIS PROJECT.
2. THE MECHANICAL SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED, INCLUDING SUPPLY AIR SYSTEM, RETURN AIR SYSTEM, EXHAUST AIR SYSTEM, OUTSIDE AIR SYSTEM AND ALL ASSOCIATED EQUIPMENT.
3. CONTRACTOR PERFORMING TESTING ADJUSTING AND BALANCING WORK SHALL BE EITHER AABC OR NEBB CERTIFIED.
4. TESTING ADJUSTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE NEBB OR AABC TEST PROCEDURES.
5. TESTING ADJUSTING AND BALANCING REPORT FORMS SHALL BE STANDARD FORMS FROM EITHER AABC OR NEBB.
6. CONTRACTOR SHALL VERIFY QUANTITIES AND LOCATIONS OF ALL BALANCING DEVICES. CONTRACTOR SHALL VERIFY THAT THESE BALANCING DEVICES ARE ACCESSIBLE AN APPROPRIATE FOR BALANCING AND FOR EFFICIENT SYSTEM AND EQUIPMENT OPERATION PRIOR TO COMMENCING WORK.
7. MECHANICAL (HVAC) EQUIPMENT SHALL BE ADJUSTED TO WITHIN ZERO TO PLUS 10 PERCENT OF SPECIFIED VALUES.
8. MECHANICAL AIR INLETS AND OUTLETS SHALL BE ADJUSTED TO WITHIN 10 PERCENT OF SPECIFIED VALUES.
9. WATER SYSTEMS SHALL BE ADJUSTED TO WITHIN 10 PERCENT OF SPECIFIED VALUES.
10. FINAL BALANCE REPORT SHALL INCLUDE THE FOLLOWING: TEST CONDITIONS FOR FANS, SYSTEM DIAGRAMS, AIR CONDITIONING UNIT TEST REPORTS, FAN TEST REPORTS, AIR TERMINAL DEVICE REPORTS.
11. AFTER THE FINAL BALANCING REPORT IS SUBMITTED TO THE DESIGN ENGINEER AND OWNER, CONTRACTOR SHALL REQUEST THAT A FINAL INSPECTION BE MADE BY THE DESIGN ENGINEER. DURING THE FINAL INSPECTION, DESIGN ENGINEER MAY RANDOMLY SELECT MEASUREMENTS DOCUMENTS IN THE FINAL REPORT TO BE RECHECK BY THE CONTRACTOR.
12. APPROXIMATELY 90 DAYS AFTER SUBMISSION OF THE FINAL BALANCING REPORT, CONTRACTOR SHALL PERFORM ADDITIONAL TESTING ADJUSTING AND BALANCING TO VERIFY THAT BALANCED CONDITIONS ARE BEING MAINTAINED THROUGHOUT EACH SYSTEM AND TO CORRECT UNUSUAL CONDITIONS.
13. ADDITIONAL TESTING ADJUSTING AND BALANCING SHALL BE MADE AS DIRECTED BY THE DESIGN ENGINEER TO CORRECT UNUSUAL CONDITIONS. ADDITIONAL TESTING WILL NOT EXCEED THREE (3) DAYS DURING THE FIRST SIX MONTHS OF OPERATION.
14. IF INITIAL TESTING ADJUSTING AND BALANCING PROCEDURES WERE NOT PERFORMED DURING NEAR-PEAK SUMMER AND WINTER CONDITIONS, PERFORM ADDITIONAL TESTING ADJUSTING AND BALANCING DURING NEAR PEAK SUMMER AND WINTER CONDITIONS.
15. ALL AIR SIDE MECHANICAL (HVAC) SYSTEMS SHALL BE TESTED AND ADJUSTED, AND BALANCED.
16. ALL WATER SIDE MECHANICAL (HVAC) AND PLUMBING PIPING SYSTEMS SHALL BE TESTED, ADJUSTED, AND BALANCED INCLUDING DOMESTIC HOT WATER CIRCULATING PUMPS.

OPER. & MAINT. MANUAL NOTES

1. SUBMIT OPERATIONS AND MAINTENANCE MANUALS IN A PDF ELECTRONIC FILE. ASSEMBLE EACH MANUAL INTO A COMPOSITE ELECTRONICALLY INDEXED FILE. SUBMIT ON DIGITAL MEDIA ACCEPTABLE TO ARCHITECT. NAME EACH INDEXED DOCUMENT FILE IN COMPOSITE ELECTRONIC INDEX WITH APPLICABLE ITEM NAME. INCLUDE A COMPLETE ELECTRONICALLY LINKED OPERATION AND MAINTENANCE DIRECTORY. ENABLE INSERTED REVIEWER COMMENTS ON DRAFT SUBMITTALS.
2. ADDITIONALLY, PROVIDE THREE PAPER COPIES. INCLUDE A COMPLETE OPERATION AND MAINTENANCE DIRECTORY. ENCLOSE TITLE PAGES AND DIRECTORIES IN CLEAR PLASTIC SLEEVES. ARCHITECT WILL RETURN TWO COPIES.
3. SUBMIT EACH MANUAL IN FINAL FORM PRIOR TO REQUESTING INSPECTION FOR SUBSTANTIAL COMPLETION AND AT LEAST 15 DAYS BEFORE COMMENCING DEMONSTRATION AND TRAINING. ARCHITECT WILL RETURN COPY WITH COMMENTS. CORRECT OR REVISE EACH MANUAL TO COMPLY WITH ARCHITECT'S COMMENTS. SUBMIT COPIES OF EACH CORRECTED MANUAL WITHIN 15 DAYS OF RECEIPT OF ARCHITECT'S COMMENTS AND PRIOR TO COMMENCING DEMONSTRATION AND TRAINING.
4. OPERATION MANUALS CONTENT: INCLUDE OPERATION DATA REQUIRED IN INDIVIDUAL SPECIFICATION SECTIONS AND THE FOLLOWING INFORMATION:
   a. SYSTEM, SUBSYSTEM, AND EQUIPMENT DESCRIPTIONS. (USE DESIGNATIONS FOR SYSTEMS AND EQUIPMENT INDICATED ON CONTRACT DOCUMENTS);
   b. PERFORMANCE AND DESIGN CRITERIA IF CONTRACTOR IS DELEGATED DESIGN RESPONSIBILITY; OPERATING STANDARDS;
   c. OPERATING PROCEDURES;
   d. OPERATING LOGS;
   e. WIRING DIAGRAMS;
   f. CONTROL DIAGRAMS;
   g. PIPED SYSTEM DIAGRAMS;
   h. PRECAUTIONS AGAINST IMPROPER USE;
   i. LICENSE REQUIREMENTS INCLUDING INSPECTION AND RENEWAL DATES.
5. OPERATION MANUALS DESCRIPTIONS: INCLUDE THE FOLLOWING:
   a. PRODUCT NAME AND MODEL NUMBER. (USE DESIGNATIONS FOR PRODUCTS INDICATED ON CONTRACT DOCUMENTS);
   b. MANUFACTURER'S NAME;
   c. EQUIPMENT IDENTIFICATION WITH SERIAL NUMBER OF EACH COMPONENT;
   d. EQUIPMENT FUNCTION;
   e. OPERATING CHARACTERISTICS;
   f. LIMITING CONDITIONS;
   g. PERFORMANCE CURVES;
   h. ENGINEERING DATA AND TESTS;
   i. COMPLETE NOMENCLATURE AND NUMBER OF REPLACEMENT PARTS.
   j. WARRANTY
6. OPERATING PROCEDURES: INCLUDE THE FOLLOWING, AS APPLICABLE:
   a. STARTUP PROCEDURES;
   b. EQUIPMENT OR SYSTEM BREAK-IN PROCEDURES;
   c. ROUTINE AND NORMAL OPERATING INSTRUCTIONS;
   d. REGULATION AND CONTROL PROCEDURES;
   e. INSTRUCTIONS ON STOPPING;
   f. NORMAL SHUTDOWN INSTRUCTIONS;
   g. SEASONAL AND WEEKEND OPERATING INSTRUCTIONS;
   h. REQUIRED SEQUENCES FOR ELECTRIC OR ELECTRONIC SYSTEMS;
   i. SPECIAL OPERATING INSTRUCTIONS AND PROCEDURES;
   j. SYSTEMS AND EQUIPMENT CONTROLS:
   i. DESCRIBE THE SEQUENCE OF OPERATION, AND DIAGRAM CONTROLS AS INSTALLED;
      ii. PIPED SYSTEMS:
      iii. DIAGRAM PIPING AS INSTALLED, AND IDENTIFY COLOR-CODING WHERE REQUIRED FOR IDENTIFICATION.
7. PRODUCT MAINTENANCE MANUALS CONTENT:
   a. ORGANIZE MANUAL INTO A SEPARATE SECTION FOR EACH PRODUCT, MATERIAL, AND FINISH.
   b. INCLUDE SOURCE INFORMATION, PRODUCT INFORMATION, MAINTENANCE PROCEDURES, REPAIR MATERIALS AND SOURCES, AND WARRANTIES AND BONDS,

DOMESTIC WATER NOTES

1. ALL EXPOSED DOMESTIC WATER PIPING IN OCCUPIED SPACES SHALL BE POLISHED CHROME PLATED.
2. PROVIDE ISOLATION VALVES IN DOMESTIC WATER PIPING TO EACH SET OF RESIDENT ROOMS.
3. INSTALL PIPING SO THAT VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND ALL OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
4. VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING PIPE SIZE TO MAKE CONNECTIONS TO EQUIPMENT.
5. VALVES SHALL BE INSTALLED SO THAT VALVES REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.
6. PROVIDE DOMESTIC WATER BOOSTER PUMP IF WATER PRESSURE FROM LOCAL UTILITY IN INADEQUATE TO SERVE BUILDING. BOOSTER PUMP SHALL BE INCLUDED IF REQUIRED.
7. PROVIDE MANIFOLD PIPING AT WATER HEATERS PER MANUFACTURER'S WRITTEN RECOMMENDATIONS. BALANCE WATER FLOW THROUGH WATER HEATERS AFTER INSTALLATION.
8. INSTALL DOMESTIC WATER PIPING ABOVE OR BEHIND WATER HEATERS TO ALLOW FOR WATER HEATER REMOVAL.

POTABLE WATER DISINFECTION

1. DOMESTIC COLD WATER AND DOMESTIC HOT WATER SYSTEMS (I.E. ALL POTABLE WATER) SHALL BE PURGED OF ALL DELETERIOUS MATTER AND DISINFECTED PRIOR TO UTILIZATION OF POTABLE WATER SYSTEM..
2. FOLLOW THE METHOD PRESCRIBED BY THE LOCAL HEALTH AUTHORITY OR WATER PURVEYOR HAVING JURISDICTIONS.
3. IN THE ABSENCE OF A PRESCRIBED METHOD, THE PROCEDURE DESCRIBED IN EITHER AWWA C651 OR AWWA C652 OR AS DESCRIBED BELOW SHALL BE FOLLOWED.
4. THESE PROCEDURES SHALL APPLY TO "ON-SITE" OR "IN-PLANT" FABRICATION OF A SYSTEM OR TO A MODULAR PORTION OF A SYSTEM.
5. FOLLOW EITHER METHOD 1 OR METHOD 2
6. DISINFECTION PROCEDURE (METHOD 1):
   a. THE PIPING SYSTEM, INCLUDING FIXTURES AND EQUIPMENT, SHALL BE FLUSHED WITH CLEAR, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT THE POINTS OF OUTLET.
   b. THE SYSTEM OR PARTS THEREOF SHALL BE FILLED WITH A WATER/CHLORINE SOLUTION CONTAINING NOT LESS THAN 50 PARTS PER MILLION OF CHLORINE, AND THE SYSTEM OR PART THEREOF SHALL BE VALVES OFF AND ALLOWED TO STAND FOR 24-HOURS;
7. DISINFECTION PROCEDURE (METHOD 2):
   a. THE SYSTEM OR PART THEREOF SHALL BE FILLED WITH A WATER/CHLORINE SOLUTION CONTAINING NOT LESS THAN 200 PARTS PER MILLION OF CHLORINE AND ALLOWED TO STAND FOR 3-HOURS
   b. FOLLOWING THE REQUIRED STANDING TIME, THE SYSTEM SHALL BE FLUSHED WITH CLEAN POTABLE WATER UNTIL THE CHLORINE IS PURGED FROM THE SYSTEM.
   c. THE PROCEDURE SHALL BE REPEATED WHERE SHOWN BY A BACTERIOLOGICAL EXAMINATION THAT CONTAMINATION REMAINS PRESENT IN THE SYSTEM.
   d. DURING THE DISINFECTION PROCEDURE, WARNING SIGNS SHALL BE PLACED AT BUILDING ENTRANCES, ROOM ENTRANCES AND WATER OUTLETS INDICATING THAT POTABLE WATER HAS A HIGH CONCENTRATION OF CHLORINE AND IS NOT SAFE TO DRINK OR USE.

PLUMBING PIPING NOTES

1. PROVIDE PROPER PROVISIONS FOR EXPANSION, CONTRACTION, OR MOVEMENT OF ALL PIPING.
2. INSTALL PIPING WITHOUT FORCING OR SPRINGING.
3. INSTALL PIPING TO CLEAR DOORS AND WINDOWS.
4. PROVIDE LARGE ENOUGH PIPE SLEEVES THROUGH WALL OR FLOOR TO ALLOW FOR ANTICIPATED DIFFERENTIAL MOVEMENT.
5. ALL EXPOSED PIPING SHALL BE INSTALLED IN A NEAT ARRANGED PARALLEL TO THE BUILDING TO BUILDING STRUCTURE.
6. COPPER PIPING SHALL NOT COME IN CONTACT WITH FIRE TREATED LUMBER. PROVIDE ½" THICK SLIP-ON CLOSED CELL INSULATION WHERE COPPER PIPING IS ADJACENT TO FIRE TREATED LUMBER. CLOSED CELL INSULATION SHALL EXTEND A MINIMUM OF 1-1/2" PAST LUMBER.
7. INSTALL EXTERIOR WATER PIPING, SEWER AND WASTE PIPING AND ROOF DRAINAGE BELOW FROST LEVEL (4'-0" MINIMUM). VERIFY EXACT LOCAL REQUIREMENTS WITH AND CIVIL ENGINEER AND SITE UTILITY DRAWINGS PRIOR TO INSTALLATION.

PLUMBING PIPE TESTING

1. DRAIN WASTE AND VENT SYSTEM:
   a. ALL SECTIONS OF THE DRAIN WASTE AND VENT SYSTEM SHALL BE PRESSURE TESTED WITH WATER AT A MINIMUM PRESSURE OF TEN (10) FEET OF HEAD
   b. ALL SECTIONS OF THE DRAIN WASTE AND VENT SYSTEM SHALL BE PRESSURE TESTED WITH WATER FOR A MINIMUM OF 15 MINUTES.
2. ROOF DRAINAGE SYSTEM:
   a. ALL SECTIONS OF ROOF DRAINAGE SYSTEM SHALL BE PRESSURE TESTED WITH WATER AT A MINIMUM PRESSURE OF TEN(10) FEET OF HEAD
   b. ALL SECTIONS OF THE ROOF DRAINAGE SYSTEM SHALL BE PRESSURE TESTED WITH WATER FOR A MINIMUM OF15 MINUTES.
3. DOMESTIC WATER SYSTEM:
   a. ALL SECTIONS OF THE DOMESTIC WATER SYSTEM SHALL BE PRESSURE TESTED WITH POTABLE WATER AT A MINIMUM PRESSURE AT 125 PSIG.
   b. ALL SECTIONS OF THE DOMESTIC WATER SYSTEM SHALL BE PRESSURE TESTED WITH POTABLE WATER FOR A MINIMUM OF 15 MINUTES.

PLUMBING GENERAL NOTES

1. THE PLUMBING DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT AND EXTENT OF THE PLUMBING SYSTEM. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THESE DRAWINGS DO NOT SHOW ALL OFFSETS, BENDS OR ELBOWS NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. CONTRACTOR SHALL MAKE SUCH MINOR ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT.
2. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.
3. THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND SHALL BE INTERPRETED AS IN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGHT SHOWN AND CALLOUT IN BOTH.
4. THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODES, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, STATE, AN FEDERAL CODES AN REGULATIONS IN EFFECT.
5. PRIOR TO FABRICATION AND INSTALLATION OF ANY PLUMBING COMPONENT THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL PLUMBING WORK WALL ALL OTHER BUILDING TRADES, INCLUDING BUILDING TRADES HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.
6. ALL PLUMBING INFORMATION IS NOT SHOWN ON THE PLUMBING DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENT.
7. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW AND USE, WHERE APPROPRIATE, ALL THE PLUMBING DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE PLUMBING SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW AND USE THE PIPING SCHEMATICS INCLUDED WITH THE DRAWINGS FOR PIPING CONNECTIONS TO ALL PLUMBING EQUIPMENT. THE PIPING SCHEMATICS SHOW DETAILED CONNECTIONS INCLUDING ALL NECESSARY VALVES, FITTINGS, GAUGES, ETC. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE PLUMBING SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
9. ANY PART OF THE PLUMBING INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACES BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

PIPE HANGER NOTES

1. ALL PIPING SHALL BE SUPPORT WITH STEEL CLEVIS HANGERS (MSS TYPE 1).
2. PERFORATED METAL STRAPS OR PLASTIC STRAPPING (PLUMBER TAPE) SHALL NOT BE USED TO SUPPORT OR BRACE ANY PIPE.
3. PROVIDE PIPE HANGERS WITHIN 18-INCHES OF ALL CHANGES OF DIRECTION.
4. ALL STEEL CLEVIS HANGERS USED TO SUPPORT COPPER PIPING SHALL BE COPPER PLATED OR PLASTIC COATED
5. ALL STEEL CLEVIS HANGERS USED TO SUPPORT PLASTIC PIPING SHALL BE PLASTIC COATED.
6. PROVIDE ELASTOMERIC CUSHION (COOPER B-LINE B1999 "VIBRA CUSHION") BETWEEN COPPER PIPING AND GALVANIZED CHANNEL SUPPORT CLAMPS. PLASTIC PIPE WRAP TAPE IS NOT ACCEPTABLE.
7. PROVIDE ELASTOMERIC INSERT (COOPER B-LINE BVP "VIBRACLAMPS") BETWEEN PLASTIC PIPE AND GALVANIZED CHANNEL SUPPORT CLAMPS. PLASTIC PIPE WRAP TAPE IS NOT ACCEPTABLE.
8. PROVIDE SWAY BRACING FOR ALL PIPING 4" AND LARGER AT ALL CHANGES IN DIRECTION GREATER THAN 45-DEGREES.

EQUIPMENT LABELING

1. ALL MECHANICAL EQUIPMENT SHALL BE LABELED.
2. PROVIDE 1/16" THICK MULTIPLE LAYERED, MULTIPLE COLORED PLASTIC LABEL WITH MECHANICAL ENGRAVING.
3. LABEL SHALL HAVE BLACK BACKGROUND, 1/2" HIGH WHITE LETTERING.
4. MINIMUM SIZE OF LABEL SHALL BE 2-1/2" X 1"
5. LABEL SHALL BE SECURED TO EQUIPMENT WITH STAINLESS STEEL SELF-TAPPING SCREWS.
6. MINIMUM CONTENT OF LABEL SHALL INCLUDE DRAWING DESIGNATION (UNIQUE NUMBER), AND AREA SERVED,

PLUMBING FIXTURE NOTES

1. SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER.
2. ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE JOB SITE ELEVATION.
3. FIXTURE AND EQUIPMENT MODEL NUMBERS SHOWN IN PLUMBING FIXTURE SCHEDULE AND PLUMBING EQUIPMENT SCHEDULE ARE SHOWN TO ESTABLISH THE TYPE OF PRODUCT THAT SHALL BE USED. THE SELECTED PRODUCT SHALL MEET THE SCHEDULED PERFORMANCE DATA SHOWN ON THE SCHEDULE EVEN IF A DIFFERENT MODEL IS SUPPLIED THAT IS DIFFERENT THAN THAT SCHEDULED.
4. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE ALL NECESSARY FITTINGS, TRANSITIONS, VALVES AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.
5. ALL MOTOR STARTING EQUIPMENT, NOT PROVIDES AS A PART OF THE PLUMBING EQUIPMENT, SHALL BE PROVIDE BY DIVISIONS 16.
6. SEE "PLUMBING FIXTURE SCHEDULE" FOR INDIVIDUAL TRAPS, WASTE, VENT, AND DOMESTIC WATER PIPING FOR INDIVIDUAL FIXTURES.
7. ALL PLUMBING EQUIPMENT SHALL BE LISTED AND LABELED BY AN APPROVED THIRD PARTY TESTING AGENCY.
8. FIXTURES, EQUIPMENT AND PIPING INSTALLATION SHALL MEET NSF STANDARDS.
9. PROVIDE WATER HAMMER ARRESTERS (WHA-A) AT ALL PIPING CONNECTIONS TO PLUMBING FIXTURES AND PLUMBING EQUIPMENT PROVIDED WITH QUICK CLOSING VALVE AND INSTALLATIONS WHICH RESULT IN EXCESS PIPE VIBRATION OR MOVEMENT.
10. ALL OWNER FURNISHED EQUIPMENT WITH DIRECT CONNECTION TO THE DOMESTIC WATER SYSTEM SHALL BE PROVIDED WITH AN APPROVED BACKFLOW DEVICE.
11. INSTALLATION AND FINAL CONNECTION OF ALL OWNER FURNISHED EQUIPMENT SHALL BE BY DIVISION 15.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED

INDICATED: REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OR OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS.
WHERE TERMS SUCH AS "INDICATED", "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE.
NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH A "DIRECTED", "REQUESTED", "AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", "PERMITTED" MEANS "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS AND REQUESTS, THE TERM "APPROVED" IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION DOCUMENTS.

FURNISHED" REFERS TO SUPPLY AND DELIVERY TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, AND INSTALLATION AND SIMILAR OPERATIONS.

INSTALL: REFERS TO OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL, UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING WORKING TO DIMENSION, FINISHING, CURING, PROTECTION, CLEANING AND SIMILAR OPERATIONS.

PROVIDE: MEANS TO "FURNISH AND INSTALL COMPLETE AND READY FOR THE INTENDED USE".
INSTALLER: IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, SUB-SUBCONTRACTOR FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATIONS, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

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project:
LAS COLONIAS AMPHITHEATER - ADDITION
Grand Junction, CO
CITY OF Grand Junction COLORADO

project#: 19.0270
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PERMIT SET

PLUMBING SUBMITAL NOTES

1. PLUMBING SUBMITTALS SHALL BE SUBMITTED AS A COMPLETE ELECTRONIC PACKAGE ASSEMBLED BY SPECIFICATION DIVISIONS.

2. ASSEMBLE COMPLETE ELECTRONIC SUBMITTAL PACKAGE INTO A SINGLE INDEXED FILE INCORPORATING SUBMITTAL REQUIREMENTS OF A SINGLE SPECIFICATION SECTION AND TRANSMITTAL FORM WITH LINKS ENABLING NAVIGATION TO EACH ITEM: LITERATURE SHALL INCLUDE REFERENCE TO EQUIPMENT CALLOUT AND SPECIFICATION SECTION; FILE NAME SHALL USE PROJECT IDENTIFIER AND SPECIFICATION SECTION NUMBER FOLLOWED BY A DECIMAL POINT AND THEN A SEQUENTIAL NUMBER (E.G., LNHS-061000.01). RE-SUBMITTALS SHALL INCLUDE AN ALPHABETIC SUFFIX AFTER ANOTHER DECIMAL POINT (E.G., LNHS-061000.01.A); PROVIDE MANUFACTURER'S CATALOG DATA SHEETS FOR EACH MANUFACTURED ITEM LISTED ON THE DRAWINGS AND SPECIFICATIONS;

3. INCLUDE MANUFACTURER'S CATALOG DATA OF EACH MANUFACTURED ITEM AND ENOUGH INFORMATION TO SHOW COMPLIANCE WITH CONTRACT DOCUMENT REQUIREMENTS; LITERATURE SHALL SHOW CAPACITIES AND SIZE OF EQUIPMENT USED AND BE MARKED INDICATING EACH SPECIFIC ITEM WITH APPLICABLE DATA UNDERLINED; INCLUDE NAME, ADDRESS, AND PHONE NUMBER OF EACH SUPPLIER; DEVIATIONS AND ADDITIONAL INFORMATION: ON AN ATTACHED SEPARATE SHEET, PREPARED ON CONTRACTOR'S LETTERHEAD, RECORD RELEVANT INFORMATION, REQUESTS FOR DATA, REVISIONS OTHER THAN THOSE REQUESTED BY ENGINEER CONTRACT DOCUMENTS, INCLUDING MINOR ARIATIONS AND LIMITATIONS. INCLUDE SAME IDENTIFICATION INFORMATION AS RELATED SUBMITTAL.

3. COLLECT PRODUCT DATA INFORMATION INTO A SINGLE SUBMITTAL FOR EACH ELEMENT OF CONSTRUCTION AND TYPE OF PRODUCT OR EQUIPMENT. IF INFORMATION MUST BE SPECIALLY PREPARED FOR SUBMITTAL BECAUSE STANDARD PUBLISHED DATA ARE NOT SUITABLE FOR USE, SUBMIT AS SHOP DRAWINGS, NOT AS PRODUCT DATA. MARK EACH COPY OF EACH SUBMITTAL TO SHOW WHICH PRODUCTS AND OPTIONS ARE APPLICABLE.

4. INCLUDE THE FOLLOWING PRODUCT INFORMATION, AS APPLICABLE: MANUFACTURER'S CATALOG CUTS; MANUFACTURER'S PRODUCT SPECIFICATIONS; STANDARD COLOR CHARTS; STATEMENT OF COMPLIANCE WITH SPECIFIED REFERENCED STANDARDS; TESTING BY RECOGNIZED TESTING AGENCY; APPLICATION OF TESTING AGENCY LABELS AND SEALS; NOTATION OF COORDINATION REQUIREMENTS; AVAILABILITY AND DELIVERY TIME INFORMATION;

5. INCLUDE THE FOLLOWING EQUIPMENT INFORMATION: WIRING DIAGRAMS SHOWING FACTORY-INSTALLED WIRING; PRINTED PERFORMANCE CURVES; OPERATIONAL RANGE DIAGRAMS; CLEARANCES REQUIRED TO OTHER CONSTRUCTION, IF NOT INDICATED ON ACCOMPANYING SHOP DRAWINGS.

4. PREPARE PROJECT-SPECIFIC SHOP DRAWINGS, DRAWN ACCURATELY TO SCALE. DO NOT BASE SHOP DRAWINGS ON REPRODUCTIONS OF THE CONTRACT DOCUMENTS OR STANDARD PRINTED DATA. FULLY ILLUSTRATE REQUIREMENTS IN THE CONTRACT DOCUMENTS. INCLUDE THE FOLLOWING INFORMATION, AS APPLICABLE: IDENTIFICATION OF PRODUCTS; SCHEDULES; COMPLIANCE WITH SPECIFIED STANDARDS; NOTATION OF COORDINATION REQUIREMENTS; NOTATION OF DIMENSIONS ESTABLISHED BY FIELD MEASUREMENT; RELATIONSHIP AND ATTACHMENT TO ADJOINING CONSTRUCTION CLEARLY INDICATED; SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER IF SPECIFIED.

5. ALLOW TIME FOR SUBMITTAL REVIEW, INCLUDING TIME FOR RE-SUBMITTALS. TIME FOR REVIEW SHALL COMMENCE ON ENGINEERS RECEIPT OF SUBMITTAL. NO EXTENSION OF THE CONTRACT TIME WILL BE AUTHORIZED BECAUSE OF FAILURE TO TRANSMIT SUBMITTALS ENOUGH IN ADVANCE OF THE WORK TO PERMIT PROCESSING, INCLUDING RE-SUBMITTALS.
   a. ALLOW 15 DAYS FOR INITIAL REVIEW OF MECHANICAL SUBMITTAL.
   a. ALLOW 15 DAYS FOR REVIEW OF EACH RE-SUBMITTAL.

6. PROVIDE DEVIATIONS AND ADDITIONAL INFORMATION ON AN ATTACHED SEPARATE SHEET, PREPARED ON CONTRACTOR'S LETTERHEAD, RECORD RELEVANT INFORMATION, REQUESTS FOR DATA, REVISIONS OTHER THAN THOSE REQUESTED BY DESIGN ENGINEER ON PREVIOUS SUBMITTALS, AND DEVIATIONS FROM REQUIREMENTS IN THE CONTRACT DOCUMENTS, INCLUDING MINOR VARIATIONS AND LIMITATIONS. INCLUDE SAME IDENTIFICATION INFORMATION AS RELATED SUBMITTAL.

DRAIN WASTE & VENT NOTES

1. ALL EXPOSED DRAINAGE PIPING ON OCCUPIED SPACES INCLUDING TRAPS UNDER SINKS SHALL BE POLISHED CHROME PLATED.

2. DRAWINGS SHOW GENERAL ARRANGEMENT OF THE DRAIN WASTE AND VENT SYSTEM WITH THE REQUIRED CLEANOUTS. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL CLEANOUTS AS REQUIRED BY THE PLUMBING CODE.

3. INVERTS ELEVATION SHOWN ON THE PLUMBING DRAWINGS MAY BE REFERENCED FROM THE FINISHED FLOOR ELEVATION. COORDINATE ALL INVERTS WITH BOTH CIVIL AND ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION.

4. ALL VENTS THROUGH ROOF SHALL BE A MINIMUM OF 10 FEET FROM ANY AIR INTAKE.

5. SLOPE VENT SYSTEM TOWARDS DRAINAGE SYSTEM.

6. ALL SANITARY DRAINAGE AND GREASE WASTE SYSTEM 3" AND LARGER SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/8" PER FOOT.

7. ALL SANITARY DRAINAGE AND GREASE WASTE SYSTEM SMALLER THAN 3" SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/4" PER FOOT.

8. DRAINAGE PATTERN FITTINGS SHALL BE USED ON ALL VENT PIPING LOCATED BELOW THE FLOOR LEVEL RIM OF THE FIXTURES.

9. SEE 2012 INTERNATIONAL PLUMBING CODE TABLE 706.3 FOR ACCEPTABLE DRAINAGE PATTERN FITTINGS.

PLBG. PROJECT SUBMIT. NOTES

1. MECHANICAL SUBMITTALS SHALL BE SUBMITTED AS A COMPLETE ELECTRONIC PACKAGE ASSEMBLED BY SPECIFICATION DIVISIONS.

2. PROVIDE EQUIPMENT SUBMITTAL INFORMATION FOR THE FOLLOWING EQUIPMENT
   A. PLUMBING FIXTURES(PORCELAIN FIXTURE, FLUSH VALVES, WATER COOLERS, ETC))
   B. SINKS
   C. DRAINS
   D. MISC. VALVES
   E. WATER HEATERS, (WH)
   F. DOMESTIC EXPANSION TANKS (DET)
   G. DOMESTIC CIRCULATING PUMPS (DCP)
   H. WATER HAMMER ARRESTORS (WHA)

3. PROVIDE MATERIAL SUBMITTAL INFORMATION FOR TH FOLLOWING MATERIAL:
   A. PIPING MATERIAL
   B. PIPE INSULATION
   C. HANGER AND SUPPORTS
   D. VALVES
   E. PLUMBING SPECIALTIES (METERS, GAGES, ETC.)
   F. PIPE IDENTIFICATION
   G. EQUIPMENT IDENTIFICATION.

CONDENSATE DRAIN NOTES

1. DRAWINGS SHOW GENERAL ARRANGEMENT OF THE CONDENSATE DRAIN SYSTEM.

2. PROVIDE PIPING VENTS AT ALL TRAPPED CONNECTION TO INDIVIDUAL PIECES OF EQUIPMENT..

3. ALL CONDENSATE DRAINAGE PIPING SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/8" PER FOOT.

4. PROVIDE INDIRECT CONNECTION AT DISCHARGE END OF CONDENSATE DRAIN PIPE.

5. PROVIDE UL508 AUXILIARY WATER LEVEL DETECTION DEVICE FOR ALL EQUIPMENT REQUIRING CONDENSATE DRAIN CONNECTION. INTERLOCK WATER LEVEL DETECTION DEVICE WITH UNIT TO TURN OFF UNIT WHEN CONDENSATE IS DETECTED.

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project:

LAS COLONIAS AMPHITHEATER - ADDITION

Grand Junction, CO

CITY OF Grand Junction COLORADO

project#: 19.0270
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revisions:

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PLUMBING NOTES

sheet:

PE003

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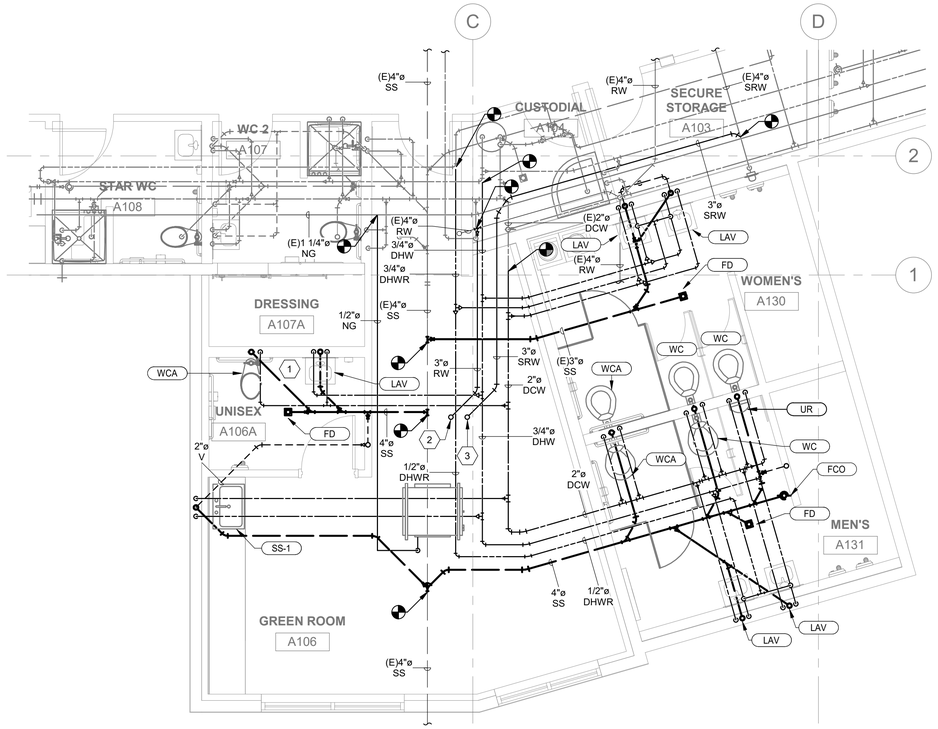
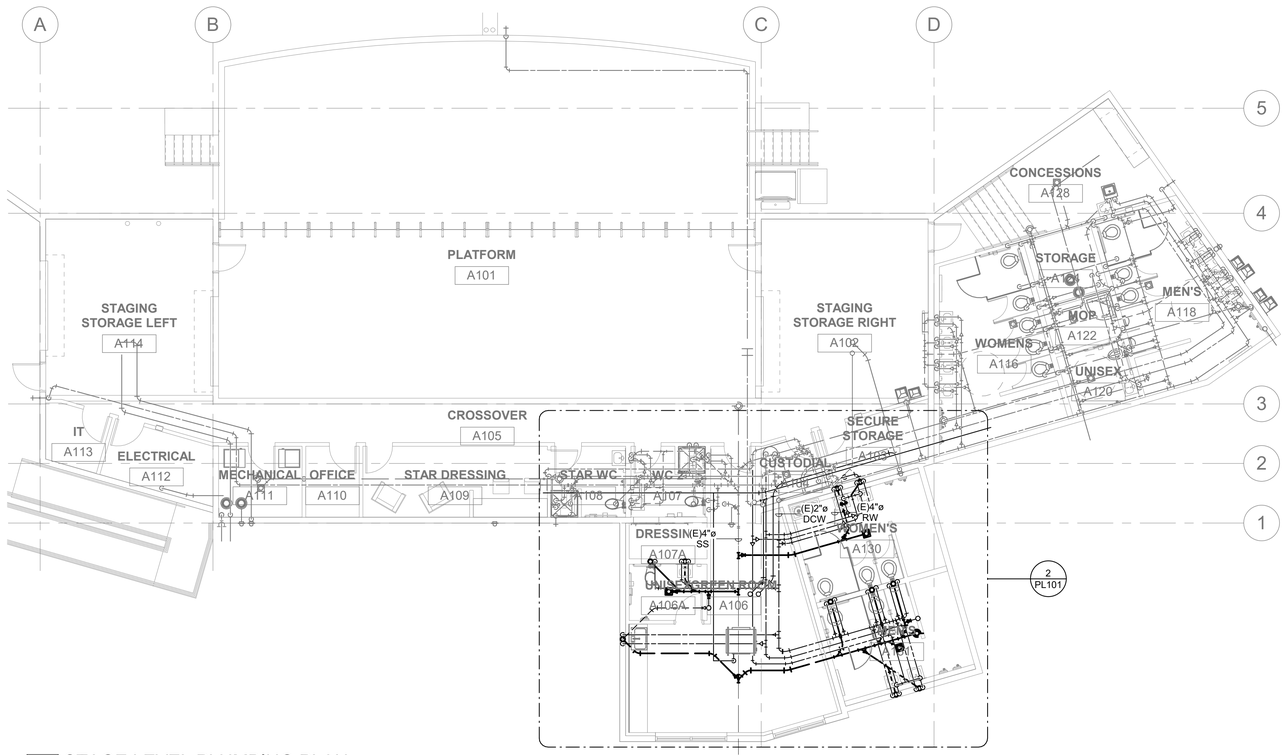


2 ENLARGED PLUMBING PLAN
1/4" = 1'-0"



1 STAGE LEVEL PLUMBING PLAN
1/8" = 1'-0"

SHEET KEYNOTES

1 BATHROOM GROUP SERVED BY WET VENT.

2 PRIMARY ROOF DRAIN PIPING UP TO PRIMARY ROOF DRAIN ON ROOF. BASIS OF DESIGN JR SMTIH 1010-AD-R-C. DRAINAGE COVERAGE: 950 SQFT: 20 GPM. EXISTING 4" LINE SERVES 2100 SQFT: 43.6 GPM, TOTAL: 63.6 GPM. MAXIMUM DRAINAGE CAPACITY ON A 4" LINE SLOPING AT 1/8" PER FT: 115 GPM.

3 SECONDARY ROOF DRAIN PIPING UP TO SECONDARY ROOF DRAIN ON ROOF. BASIS OF DESIGN JR SMTIH 1080-AD-R-C. DRAINAGE COVERAGE: 950 SQFT: 20 GPM. EXISTING 4" LINE SERVES 2100 SQFT: 43.6 GPM, TOTAL: 63.6 GPM. MAXIMUM DRAINAGE CAPACITY ON A 4" LINE SLOPING AT 1/8" PER FT: 115 GPM.

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PLUMBING PLANS

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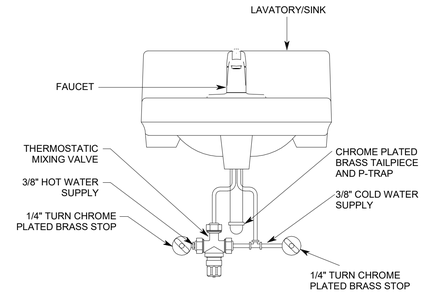
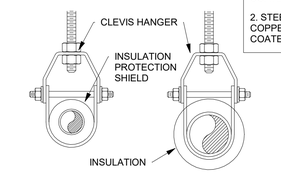


4 THERMOSTATIC MIX VALVE

SCALE: NTS

NOTES:
1. STEEL PIPE HANGERS FOR PLASTIC PIPE SHALL BE PLASTIC COATED.

2. STEEL PIPE HANGERS FOR COPPER PIPE SHALL BE PLASTIC COATED.

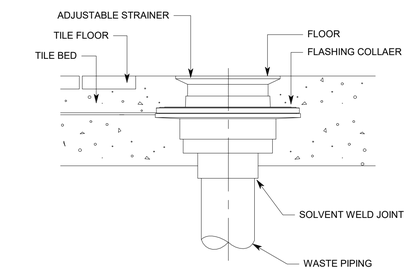


MSS SP-69
TYPE 1
PIPE TEMPERATURE
BELOW AMBIENT
INSULATED

MSS SP-69
TYPE 1
PIPE TEMPERATURE
ABOVE AMBIENT
INSULATED OR
UNINSULATED

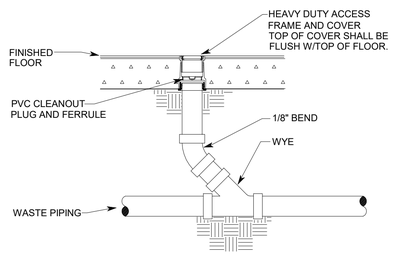
3 PIPE HANGER

SCALE: NTS



2 FLOOR DRAIN

SCALE: NTS



1 FLOOR CLEANOUT

SCALE: NTS

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PE501

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PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	TRAP	WASTE	VENT	DOMESTIC COLD WATER	DOMESTIC HOT WATER	DESCRIPTION	BASIS OF DESIGN MANUFACTURER AND MODEL	NOTES
WC	WATER CLOSET	INT.	3"	2"	1"	----	FLOOR MOUNTED, FLUSH VALVE, VITREOUS CHINA, ELONGATED, 1-1/2" TOP SPUD, 15" RIM HEIGHT, SIPHON JET, 2-1/8" MINIMUM TRAPWAY. DIAPHRAGM TYPE FLUSH VALVE, SENSOR ACTIVATED, DUAL FLUSH, 1.60/1.10 GALLONS PER FLUSH, POLISHED CHROME PLATED BRASS, BATTERY, COURTESY FLUSH OVERRIDE BUTTON, VACUUM BREAKER. OPEN FRONT SEAT, LESS SEAT, HEAVY DUTY PLASTIC, ELONGATED, STAINLESS STEEL HINGE POSTS..	AMERICAN STANDARD 2234.001 SLOAN 111-1.6/1.1 BEMIS 1955C	MINIMUM MaP RATING = 1,000
WC-A	WATER CLOSET (ACCESSIBLE ROOM)	INT.	3"	2"	1"	----	FLOOR MOUNTED, FLUSH VALVE, VITREOUS CHINA, ELONGATED, 1-1/2" TOP SPUD, 16-1/2" RIM HEIGHT, SIPHON JET, 2-1/8" MINIMUM TRAPWAY. DIAPHRAGM TYPE FLUSH VALVE, SENSOR ACTIVATED, DUAL FLUSH, 1.60/1.10 GALLONS PER FLUSH, POLISHED CHROME PLATED BRASS, BATTERY, COURTESY FLUSH OVERRIDE BUTTON, VACUUM BREAKER. OPEN FRONT SEAT, LESS SEAT, HEAVY DUTY PLASTIC, ELONGATED, STAINLESS STEEL HINGE POSTS..	AMERICAN STANDARD 3043.001 SLOAN 111-1.6/1.1 BEMIS 1955C	MINIMUM MaP RATING = 1,000 INSTALL FLUSH VALVE WITH HANDLE ON ACCESSIBLE SIDE OF WATER CLOSET
WC-A (L)	WATER CLOSET (ACCESSIBLE)	INT.	3"	2"	1/2"	----	FLOOR MOUNTED, TWO PIECE, VITREOUS CHINA, ELONGATED, SIPHON JET, 1.28 GAL PER FLUSH, 17" MINIMUM BOWL HEIGHT, LEFT HAND TRIP LEVER, COLOR WHITE. CLOSED FRONT SEAT, WITH COVER, ELONGATED, MOLDED PLASTIC. ANGLE BALL VALVE STOP, POLISHED CHROME PLATED LEAD FREE BRASS, HEAVY DUTY, 1/2" IPS x 3/8" O.D. COMPRESSION POLISHED CHROME PLATED COPPER TUBING SUPPLY, 3/8" O.D, FORMED NOSEPIECE WITH FLANGE, WATER WASHER OR GASKET, COMPRESSION SLEEVE, ASTM A112.18.6.	AMERICAN STANDARD 215AA.104 BEMIS 170 BRASSCRAFT KTCR19X C BRASSCRAFT 1-15 DL	MINIMUM MaP RATING = 1,000 LEFT HAND TRIP LEVER
WC-A (R)	WATER CLOSET (ACCESSIBLE)	INT.	3"	2"	1/2"	----	FLOOR MOUNTED, TWO PIECE, VITREOUS CHINA, ELONGATED, SIPHON JET, 1.28 GAL PER FLUSH, 17" MINIMUM BOWL HEIGHT, RIGHT HAND TRIP LEVER, COLOR WHITE. OPEN FRONT SEAT, LESS COVER, ELONGATED, STAINLESS STEEL HINGE POSTS, ANGLE BALL VALVE STOP, 1/2" IPS x 3/8" O.D. COMPRESSION, POLISHED CHROME PLATED HEAVY DUTY POLISHED CHROME PLATED COPPER TUBING SUPPLY, 3/8" O.D, FORMED NOSEPIECE WITH FLANGE, WATER WASHER OR GASKET, COMPRESSION SLEEVE, ASTM A112.18.6.	AMERICAN STANDARD 215BA.105 BEMIS 1955CT BRASSCRAFT KTCR19X C BRASSCRAFT 1-15 DL	MINIMUM MaP RATING = 1,000 RIGHT HAND TRIP LEVER
L-A	LAVATORY (ACCESSIBLE)	1-1/4"	1-1/2"	1-1/2"	1/2"	1/2"	WALL MOUNTED, 20" x 18", VITREOUS CHING, ADA ACCEPTABLE, FAUCET LEDGE, 4" CENTER FAUCET HOLES. SINGLE LEVER FAUCET, CHROME PLATED LEAD FREE BRASS, CERAMIC COMPONENTS, DECK PLATE. LAMINAR FLOW AERATOR, POLISHED CHROME PLATED LEAD FREE BRASS, 0.5 GPM. COMBINATION TEMPERATURE & PRESSURE MIXING VALVE, CHROME PLATED LEAD FREE BRASS. INTEGRAL CHECKS, ASSE 1070 LISTED, CHROME PLATED BRASS GRID DRAIN,CHROME PLATED BRASS TAILPIECE, OFFSET TAILPIECE WHITE POLYVINYL CHLORIDE (PVC) TRAP ANGLE BALL VALVE STOP, HEAVY DUTY, POLISHED CHROME PLATED LEAD FREE BRASS, 1/2" IPS x 3/8" O.D. COMPRESSION. POLISHED CHROME PLATED COPPER TUBING SUPPLY, 3/8" O.D, FORMED NOSEPIECE WITH FLANGE, WATER WASHER OR GASKET, COMPRESSION SLEEVE, ASTM A112.18.6. ENCLOSURE: RIGID POLYVINYL CHLORIDE ENCLOSURE, ADA ACCESSIBLE UL LISTED SUPPORT: CONCEALED ARM, FLOOR MOUNTED, NARROW WALL, TUBULAR STEEL VERTICAL SUPPORTS, STEEL FLOOR PLATES.	AMERICAN STANDARD 0355.012 SYMMONS SLS-2010 OMIN A-400-POWERS LFe480 MCQUIRE 155A DEARBORN 9701-1 BRASSCRAFT KTCR19XC BRASSCRAFT 1-15 C TRUEBRO "LAV SHIELD" 2018 J.R. SMITH 0710-Z	SET DISCHARGE WATER TEMPERATURE AT 110 F.
SH-A	SHOWER	----	----	----	1/2"	1/2"	FIXTURE: MIXING, SINGLE LEVER, PRESSURE BALANCING, BRASS BODY, HAND HELD SHOWER HEAD, 60" METAL HOSE, CHROME PLATED BRASS DIVERTER SPOUT, 30" SLIDE BAR, INLINE VACUUM BREAKER, ASSE 1016, 2.0 GPM FLOW RESTRICTOR.	SYMMONS BP-56-300-B30-V-X	SET DISCHARGE WATER TEMPERATURE AT 110 F.
MS-2	MOP SINK	3"	3"	2"	1/2"	1/2"	FLOOR MOUNTED, 0NE-PIECE, ENAMELED CAST IRON, CORNER MODEL, 28" x 28" REMOVABLE VINYL RIM GUARD POLISHED CHROME PLATED GRID DRAIN MANMUAL FAUCET, WALL MOUNTED, POLISHED CHROME PLATED LEAD-FREE BRASS, ATMOSPHERIC VACUUM BREAKER, INLET STOPS, 3/4" THREADED HOSE CONNECTION. LEVER HANDLE, LAMINAR AERATOR: LEAD-FREE BRASS, PRESSURE COMPENSATING, 2.0 GPM, 3/8" OFFSET INLET SUPPLY AIR WITH INTEGRAL CHECK 48" LONG RUBBER HOSE, THREADED CONNECTION.	AMERICAN STANDARD 7741.000 AMERICAN STANDARD 7745.811 AMERICAN STANDARD 7721.038 CHICAGO FAUCET 540-LD897SWXFABCP OMNI A-810-VR- 2.0-LF CHICAGO FAUCET GCJKABCP	
DF-2	DRINKING FOUNTAIN (EXTERIOR)	2"	2"	2"	1/2"	1/2"	BI-LEVEL WITH RECESSED BOTTLE FILLER, 18 GAUGE, 304 STAINLESS STEEL, STAINLESS STEEL BUBBLER, STAINLESS STEEL MOUNTING PLATE, STAINLESS STEEL BACK PANEL, FREEZE RESISTANT VALVE SYSTEM, INLET STRAINER, 17 GA. TUBULAR CHROME PLATED BRASS P-TRAP ANGLE BALL VALVE STOPS, /2" I.P.S. x 3/8" O.D COMPRESSION, POLISHED CHROME PLATED LEAD FREE BRASS, HEAVY PATTERN RIGID POLISHED CHROME PLATED COPPER TUBING SUPPLIES	MOST DEPENDABLE 10485 WMSS DEARBORN 9704 BRASSCRAFT KTCR19XC	BOTTLE FILLER INCLUDED LOCATE P-TRAP AT INTERIOR OF BUILDING.
EWC-2	ELECTRIC WATER COOLER (INTERIOR)	2"	2"	2"	1/2"	1/2"	BI-LEVEL, ELECTRIC, REFRIGERATED, , ARI 1010, FLEXI-GUARD BUBBLER, BOTTLE FILLING STATION, FILTERED WATER SYSTEM, STAINLESS STEEL CABINET. 8.0 GPH AT 80 F INLET WATER TEMPERATURE, 90 F AMBIENT AIR TEMPERATURE AND 50 F. CHILLED DRINKING WATER. SCHEDULE 40 PVC P-TRAP ANGLE BALL VALVE STOPS, 1/2" I.P.S. x 3/8" O.D COMPRESSION, POLISHED CHROME PLATED LEAD FREE BRASS, HEAVY PATTERN RIGID POLISHED CHROME PLATED COPPER TUBING SUPPLIES FLOOR MOUNTED FIXTURE SUPPORT, TUBULAR STEEL SUPPORTS, FLOOR PLATE, STEEL SUPPORT BRACKETS	ELKAY LZSTL8WSSK DEARBORN P9704 BRASSCRAFT KTCR19XC J.R. SMITH 0832	BOTTLE FILLER INCLUDED
HS-W	HAND SINK (ACCESSIBLE)	1-1/4"	1-1/2"	1-1/2"	1/2"	1/2"	WALL MOUNTED, 20" x 18", VITREOUS CHING, ADA ACCEPTABLE, FAUCET LEDGE, 4" CENTER FAUCET HOLES. SINGLE LEVER FAUCET, CHROME PLATED LEAD FREE BRASS, CERAMIC COMPONENTS, DECK PLATE. LAMINAR FLOW AERATOR, POLISHED CHROME PLATED LEAD FREE BRASS, 0.5 GPM. COMBINATION TEMPERATURE & PRESSURE MIXING VALVE, CHROME PLATED LEAD FREE BRASS. INTEGRAL CHECKS, ASSE 1070 LISTED, CHROME PLATED BRASS GRID DRAIN,CHROME PLATED BRASS TAILPIECE, OFFSET TAILPIECE TRAP: WHITE POLYVINYL CHLORIDE (PVC) ANGLE BALL VALVE STOP, HEAVY DUTY, POLISHED CHROME PLATED LEAD FREE BRASS, 1/2" IPS x 3/8" O.D. COMPRESSION. POLISHED CHROME PLATED COPPER TUBING SUPPLY, 3/8" O.D, FORMED NOSEPIECE WITH FLANGE, WATER WASHER OR GASKET, COMPRESSION SLEEVE, ASTM A112.18.6. ENCLOSURE: RIGID POLYVINYL CHLORIDE ENCLOSURE, ADA ACCESSIBLE UL LISTED SUPPORT: CONCEALED ARM, FLOOR MOUNTED, NARROW WALL, TUBULAR STEEL VERTICAL SUPPORTS, STEEL FLOOR PLATES.	AMERICAN STANDARD 0355.012 SYMMONS SLS-2010 OMIN A-400-POWERS LFe480 MCQUIRE 155A DEARBORN 9701-1 BRASSCRAFT KTCR19XC BRASSCRAFT P1-15 C TRUEBRO "LAV SHIELD" 2018 J.R. SMITH 0710-Z	SET DISCHARGE WATER TEMPERATURE AT 110 F.

PLUMBING FIXTURE SCHEDULE (DRAINS)

SYMBOL	FIXTURE	TRAP	WASTE	VENT	DOMESTIC COLD WATER	DOMESTIC HOT WATER	DESCRIPTION	BASIS OF DESIGN MANUFACTURER AND MODEL	NOTES
FD-T	FLOOR DRAIN	2"	2"	2"	---	---	LACQUER COATED CAST IRON BODY FLOOR DRAIN, FLASHING COLLAR, 5" ROUND NICKEL BRONZE ADJUSTABLE STRAINER 3.5" BARRIER TYPE TRAP PRIMER, ABS, NEOPRENE RUBBER DIAPHRAGM, ASSE STANDARD 1072-AF-GW DEEP SEAL P-TRAP	J. R. SMITH 2010-5A J.R. SMITH 5A SURESEAL SS 3509	INSTALL TRAP SEAL BEHIND STRAINER FACE
RD-4	ROOF DRAIN	----	3"	---	---	---	LACQUER COATED CAST IRON BODY,COMBINED FLASHING CLAMP AND GRAVEL STOP, SUMP RECEIVER, UNDERDECK CLAMP.	J. R. SMITH 1010-AD-R-C	3,760 SQ. FT. CAPACITY AT 2" PER HOUR RAINFALL AND 1/8" PER FOOT SLOPE.
SRD-4	SECONDARY ROOF DRAIN	---	3"	---	---	---	LACQUER COATED CAST IRON BODY,COMBINED FLASHING CLAMP AND GRAVEL STOP, 2" WATER DAM, SUMP RECEIVER, UNDERDECK CLAMP.	J. R. SMITH 1080-AD-R-C	3,760 SQ. FT. CAPACITY AT 2" PER HOUR RAINFALL AND 1/8" PER FOOT SLOPE.
DSN-4	DOWNSPOUT NOZZLE	---	3"	---	---	---	CAST BRONZE NOZZLE AND FLANGE	J.R. SMITH 1771	

PLUMBING FIXTURE SCHEDULE (CLEANOUTS)

SYMBOL	FIXTURE	TRAP	WASTE	VENT	DOMESTIC COLD WATER	DOMESTIC HOT WATER	DESCRIPTION	BASIS OF DESIGN MANUFACTURER AND MODEL	NOTES
FD-T	FLOOR DRAIN	2"	2"	2"	---	---	LACQUER COATED CAST IRON BODY FLOOR DRAIN, FLASHING COLLAR, 5" ROUND NICKEL BRONZE ADJUSTABLE STRAINER 3.5" BARRIER TYPE TRAP PRIMER, ABS, NEOPRENE RUBBER DIAPHRAGM, ASSE STANDARD 1072-AF-GW DEEP SEAL P-TRAP	J. R. SMITH 2010-5A J.R. SMITH 5A SURESEAL SS 3509	INSTALL TRAP SEAL BEHIND STRAINER FACE
CO	CLEANOUT	---	SAME AS PIPE	---	---	---	CAST IRON BLIND PLUG	CHARLOTTE PIPE NH-50	
FCO	FLOOR CLEANOUT	---	SAME AS PIPE	---	---	---	HEAVY DUTY NICKEL BRONZE TOP, BRASS PLUG	J. R. SMITH 4113S-NB	
COTG	CLEANOUT TO GRADE	---	SAME AS PIPE	---	---	---	HEAVY DUTY NICKEL BRONZE TOP, BRASS PLUG	J. R. SMITH 4113S-NB	
WCO	WALL CLEANOUT	---	SAME AS PIPE	---	---	---	ROUND FLAT STAINLESS STEEL WALL PLATE	J.R. SMITH 4532S	

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project:

LAS COLONIAS AMPHITHEATER - ADDITION

Grand Junction, CO

CITY OF Grand Junction COLORADO

project#: 19.0270
date: February 10, 2020

revisions :

title:

PLUMBING SCHEDULES

sheet:

PE601

PERMIT SET

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
LIGHTING (REFER TO FIXTURE SCHEDULE FOR SYMBOLS)	
(W-3)	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
(W-3)	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
EM	EMERGENCY.
NL	NIGHT LIGHT: DO NOT SWITCH.
	EGRESS DIRECTION ARROW (EXIT SIGNS).
	EXIT SIGN: SINGLE FACE; CEILING MOUNTED
	EXIT SIGN: SINGLE FACE; WALL MOUNTED
	EXIT SIGN: DOUBLE FACE; CEILING MOUNTED
	EXIT SIGN: DOUBLE FACE; WALL MOUNTED
LIGHTING CONTROL	
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, DIRECTIONAL.
	VACANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
	VACANCY SENSOR, DUAL TECHNOLOGY, WALL.
P	PHOTOCELL.
WIRING DEVICES	
	RECEPTACLE, DUPLEX: NEMA 5-20R.
A	RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5-20R.
C	RECEPTACLE, DUPLEX, CEILING: NEMA 5-20R.
DF	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, DRINKING FOUNTAIN: CONCEAL WATER COOLER RECEPTACLE BEHIND WATER COOLER. SEE MECHANICAL/PLUMBING SHOP DRAWINGS FOR INSTALLATION REQUIREMENTS.
W	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WET LABEL, "WEATHERPROOF IN USE": NEMA 5-20R.
WP	RECEPTACLE, DUPLEX, WEATHERPROOF: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
WP	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
	MULTI-OUTLET ASSEMBLY: NEMA 5-20R.
FB#	FLUSH FLOOR BOX. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
PT#	FLUSH FIRE RATED POKE THRU. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
	SWITCH, DIMMER.
X $	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED).
X $3	SWITCH, THREE-WAY ("x" INDICATES FIXTURES CONTROLLED).
X $4	SWITCH, FOUR-WAY ("x" INDICATES FIXTURES CONTROLLED).
$K	SWITCH, KEY OPERATED.
$T	SWITCH, TIMER OPERATED.
$WP	SWITCH, WEATHERPROOF.
	RECEPTACLE, SINGLE PLEX, WITH USB OUTLET

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
ELECTRICAL POWER AND DISTRIBUTION	
	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED.
	STARTER, COMBINATION WITH DISCONNECT SWITCH.
	STARTER OR MOTOR CONTROLLER.
	PUSHBUTTON.
	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
DP#__	DISTRIBUTION PANEL OR SWITCHBOARD.
LP	LIGHTING RELAY, CONTACTOR PANEL, OR DIMMING ENCLOSURE.
	LIGHTING CONTROL STATION.
$ST	SWITCH, TOGGLE MOTOR STARTER WITH OVERLOAD PROTECTION.
FIRE ALARM	
FSA	FIRE SYSTEM ANNUNCIATOR.
FCP	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.
FPS	FIRE ALARM NOTIFICATION POWER SUPPLY.
FTR	FIRE ALARM TRANSPONDER OR TRANSMITTER.
CM	CONTROL MODULE.
MM	MONITOR MODULE.
P	FIRE ALARM MANUAL PULL STATION.
R	SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCUIT OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.
	MAGNETIC DOOR HOLDER.
	DETECTOR, SMOKE.
E	DETECTOR, SMOKE, ELEVATOR RECALL DESIGNATION.
	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.
	DETECTOR, HEAT.
75	STROBE. SUBSCRIPT INDICATES CANDELA RATING.
WP	ALARM, HORN/SPEAKER, WEATHERPROOF.
	ALARM, HORN/STROBE, ONE ASSEMBLY.
75	ALARM, HORN/STROBE, ONE ASSEMBLY. SUBSCRIPT INDICATES CANDELA RATING.
	DETECTOR, FLOW SWITCH: FLOW SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
	DETECTOR, TAMPER SWITCH WITH VALVE: TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
SD	SMOKE DAMPER.
FSD	FIRE AND SMOKE DAMPER.
	BELL (GONG).
75	ALARM, HORN/STROBE, ONE ASSEMBLY, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, HORN, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
A5 E-501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
A5 E-201	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
A5 E-201	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
ROOM NAME 100	ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.
1	KEYNOTE INDICATOR.
1	REVISION INDICATOR.
CU-1	EQUIPMENT INDICATOR.
X-X XMDP	MECHANICAL EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. "XMDP" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING
	BREAK, ROUND
MATCH LINE SEE XX/X-XXX	MATCH LINE INDICATOR: CENTER, EXTRA WIDE LINE.
	NEW LINE: MEDIUM LINE.
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE
	PROPERTY LINE: DASHED, WIDE LINE.
WIRING METHODS	
	WIRING.
	WIRING TURNED UP OR TOWARDS OBSERVER.
	WIRING TURNED DOWN OR AWAY FROM OBSERVER.
A-1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
1 A-1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE. FOR BRANCH WIRING USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
	FLEXIBLE WIRING.
— X —	WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" = : CATV = CABLE TELEVISION; NC = NURSE CALL CCTV = CLOSED CIRCUIT TELEVISION; P = POWER RC = RIGID CONDUIT FA = FIRE ALARM; S = SOUND FO = FIBER OPTICS; T = TELEPHONE I = INTERCOM; TV = TELEVISION OTHERS AS NOTED IN OTHER SCHEDULES. RACEWAYS AND WIRING SHALL BE SIZED AS SHOWN AND/OR SPECIFIED.
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.
1	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER TO ONE-LINE DIAGRAM.
HC	ADA ACCESS PUSH PLATE
	JUNCTION BOX.
PB	PULL BOX.
	EARTH GROUND (ONE-LINE DIAGRAM).
C	JUNCTION BOX, CEILING.
	MECHANICAL EQUIPMENT CONNECTION. REFER TO EQUIPMENT SCHEDULE FOR REQUIREMENTS.
STRUCTURED CABLING	
	DATA CONNECTION: WIRELESS ACCESS POINT (WAP). REQUIRES (2) DATA DROPS PER DEVICE
W	TELEPHONE, WALL MOUNTED: WALL PHONE.
X	OUTLET, DATA COMMUNICATION ("X" INDICATES QUANTITY OF CABLES)
	OUTLET, BUILDING STANDARD COMBINATION TELEPHONE/ DATA COMMUNICATION.
	TWO-WAY EMERGENCY COMMUNICATION DEVICE PER IBC, WALL MOUNTED IN RECESSED BOX.
	TELEPHONE TERMINAL BOARD, FIRE TREATED PLYWOOD PAINTED.
	LAN RACK, FLOOR STANDING.

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE	IR	INFRARED
1PH	SINGLE-PHASE	J-BOX	JUNCTION BOX
1WAY	ONE-WAY	kV	KILOVOLT
2/C	TWO-CONDUCTOR	kVA	KILOVOLT AMPERE
2WAY	TWO-WAY	kVAR	KILOVOLT AMPERE REACTIVE
3/C	THREE-CONDUCTOR	kW	KILOWATT
3WAY	THREE-WAY	kWh	KILOWATT HOUR
4OUT	QUADRUPLE RECEPTACLE OUTLET	LED	LIGHT EMITTING DIODE
4PDT	FOUR-POLE DOUBLE THROW	LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
4PST	FOUR-POLE SINGLE THROW	LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
4W	FOUR-WIRE	LPS	LOW PRESSURE SODIUM
4WAY	FOUR-WAY	LRA	LOCKED ROTOR AMPS
A	ABOVE COUNTER	LTG	LIGHTING
AC	ARMORED CABLE	LV	LOW VOLTAGE
ADA	AMERICANS WITH DISABILITIES ACT	MATV	MASTER ANTENNA TELEVISION SYSTEM
ADJ	ADJACENT	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MC	METAL CLAD
AFG	ABOVE FINISHED GRADE	MCA	MINIMUM CIRCUIT AMPS
AIC	AMPERE INTERRUPTING CAPACITY	MCB	MAIN CIRCUIT BREAKER
ALUM	ALUMINUM	MCC	MOTOR CONTROL CENTER
AMP	AMPERE	MCP	MOTOR CIRCUIT PROTECTION
ANN	ANNUNCIATOR	MDP	MAIN DISTRIBUTION PANEL
AP	ACCESS POINT (WIRELESS DATA)	MG	MOTOR GENERATOR
AR	AS REQUIRED	MH	MANHOLE
ASC	AMPS SHORT CIRCUIT	MIN	MINIMUM
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUGS ONLY
AV	AUDIO VISUAL	MOCP	MAXIMUM OVERCURRENT PROTECTION
AWG	AMERICAN WIRE GAGE	NA	NOT APPLICABLE
BB	BUCK-BOOST TRANSFORMER	NC	NORMALLY CLOSED
XFMR		NEC	NATIONAL ELECTRICAL CODE
C	CEILING MOUNTED	NEMA	NATIOANL ELECTRICAL MANUFACTURERS ASSOCIATION
CATV	COMMUNITY ANTENNA TELEVISION	NFC	NATIONAL FIRE CODE
CB	CIRCUIT BREAKER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT	NIC	NOT IN CONTRACT
CCTV	CLOSED CIRCUIT TELEVISION	NL	NIGHT LIGHT
CF/CI	CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED	NO	NORMALLY OPEN
CF/OI	CONTRACTOR FURNISHED/ OWNER INSTALLED	NTS	NOT TO SCALE
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT	OC	ON CENTER
CKT	CIRCUIT	OCP	OVER CURRENT PROTECTION
CM	CONSTRUCTION MANAGER	OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
CND	CONDUIT	OF/OI	OWNER FURNISHED/ OWNER INSTALLED
CO	CONVENIENCE OUTLET	OFP	OBTAIN FROM PLANS
COR	CONTRACTING OFFICER'S REPRESENTATIVE	OH DR	OVERHEAD (COILING) DOOR
CP	CONTROL PANEL	OL	OVERLOAD
CT	CURRENT TRANSFORMER	PB	PUSHBUTTON
CTV	CABLE TELEVISION	PF	POWER FACTOR
CU	COPPER	PH	PHASE
dBA	UNIT OF SOUND LEVEL	PNL	PANEL
DPDT	DOUBLE POLE, DOUBLE THROW	PT	POTENTIAL TRANSFORMER
DS	DISCONNECT SWITCH	PTZ	PAN/TILT/ZOOM
EA	EACH	QTY	QUANTITY
EM	EMERGENCY	R	REMOVE
EMT	ELECTRICAL METALLIC TUBING	RCP	REFLECTED CEILING PLAN
ENT	ELECTRIC NONMETALLIC TUBING	RMC	RIGID METAL CONDUIT
EPO	EMERGENCY POWER OFF	RNC	RIGID NONMETAL CONDUIT
EQUIP	EQUIPMENT	RPM	REVOLUTIONS PER MINUTE
EX	EXISTING	RR	REMOVE AND RELOCATE
F	FURNITURE MOUNTED	S/S	START/STOP
FA	FIRE ALARM	SCA	SHORT CIRCUIT AMPS
FCP	FIRE ALARM CONTROL PANEL	SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
FLA	FULL LOAD AMPS	SF	SQUARE FOOT (FEET)
FMC	FLEXIBLE METAL CONDUIT	SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
FOB	FREIGHT ON BOARD	SPDT	SINGLE POLE, DOUBLE THROW
FVNR	FULL VOLTAGE NON-REVERSING	SPEC	SPECIFICATION
FVR	FULL VOLTAGE REVERSING	SPST	SINGLE POLE, SINGLE THROW
G	GROUND	ST	SINGLE THROW
GEN	GENERATOR	SWBD	SWITCHBOARD
GFCI	GROUND FAULT INTERRUPTER	SWGR	SWITCHGEAR
GFP	GROUND FAULT PROTECTION	TL	TWIST LOCK
HD	HEAVY DUTY	TP	TELEPHONE POLE
HID	HIGH INTENSITY DISCHARGE	TP	TWISTED PAIR
HOA	HAND-OFF-AUTOMATIC	TTB	TELEPHONE TERMINAL BOARD
HP	HORSE POWER	TV	TELEVISION
HPF	HIGH POWER FACTOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
HPS	HIGH PRESSURE SODIUM	TYP	TYPICAL
HV	HIGH VOLTAGE	UF	UNDERFLOOR
HZ	HERTZ	UGND	UNDERGROUND
I/O	INPUT/ OUTPUT	UPS	UNINTERRUPTIBLE POWER SUPPLY
IG	ISOLATED GROUND	V	VOLTS
IMC	INTERMEDIATE METAL CONDUIT	VA	VOLT AMPERE
IN/IS	INSULATED/ ISOLATED	VFC/VFD	VARIABLE FREQUENCY MOTOR CONTROLLER
		W/	WITH
		W/O	WITHOUT
		WP	WEATHERPROOF
		XFMR	TRANSFORMER

GENERAL ELECTRICAL NOTES

1. CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC. SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.

   A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.

   B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.

   C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE.THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.

3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.

4. SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT, BOUND, BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.

5. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

6. ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC.

ELECTRICAL SHEET INDEX

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project:
LAS COLONIAS AMPHITHEATER - ADDITION
Grand Junction, CO
CITY OF Grand Junction COLORADO

project#: 19.0270
date: February 10, 2020

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title:
SHEET INDEX, ABBREVIATIONS, AND NOTES

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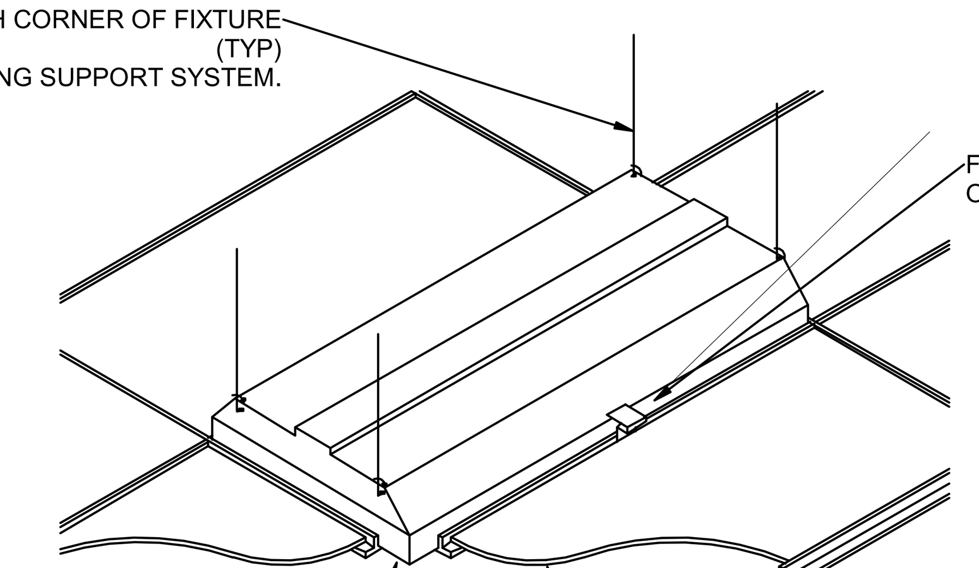
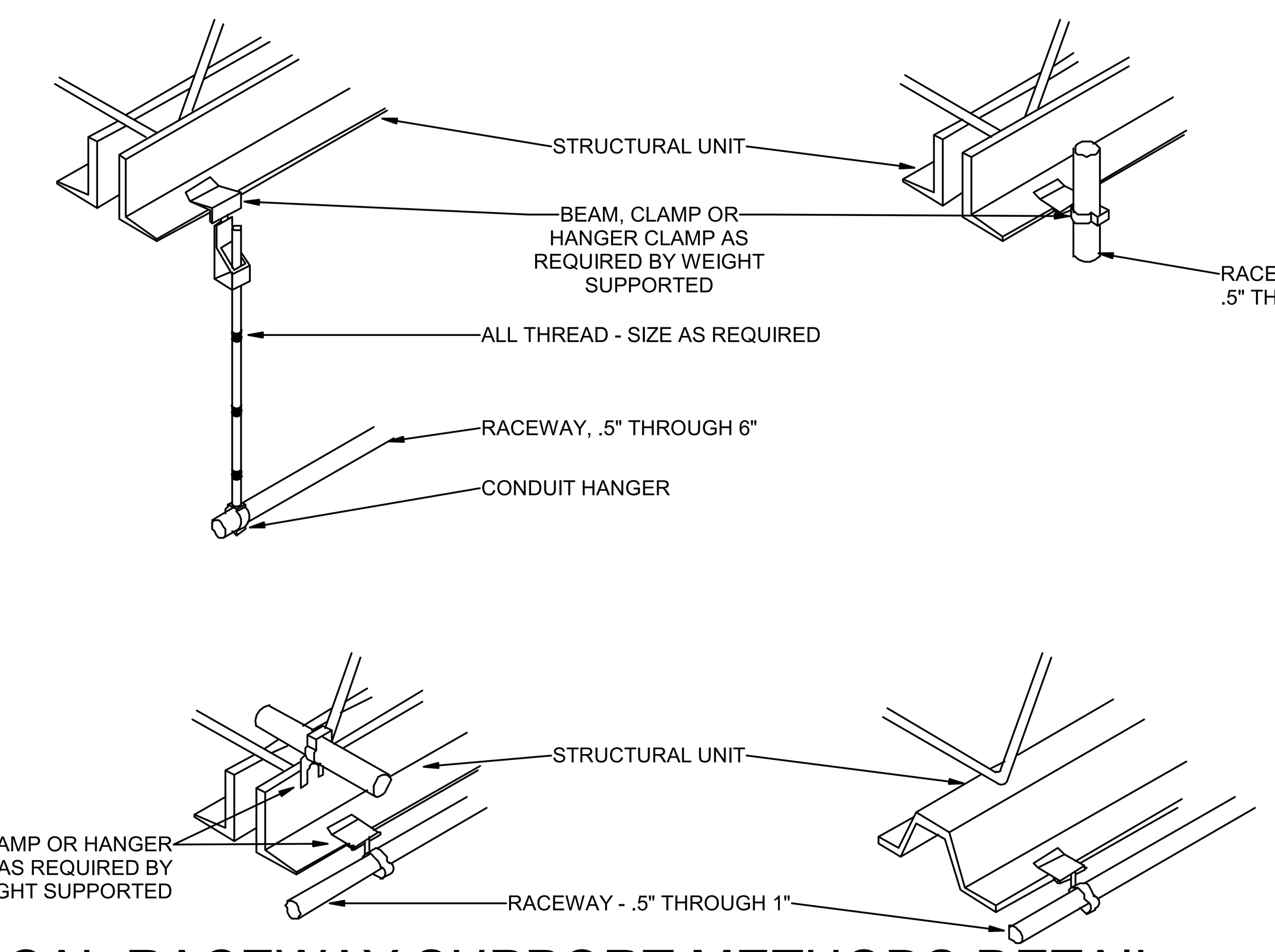


C3 RECESSED FIXTURE MOUNTING DETAIL

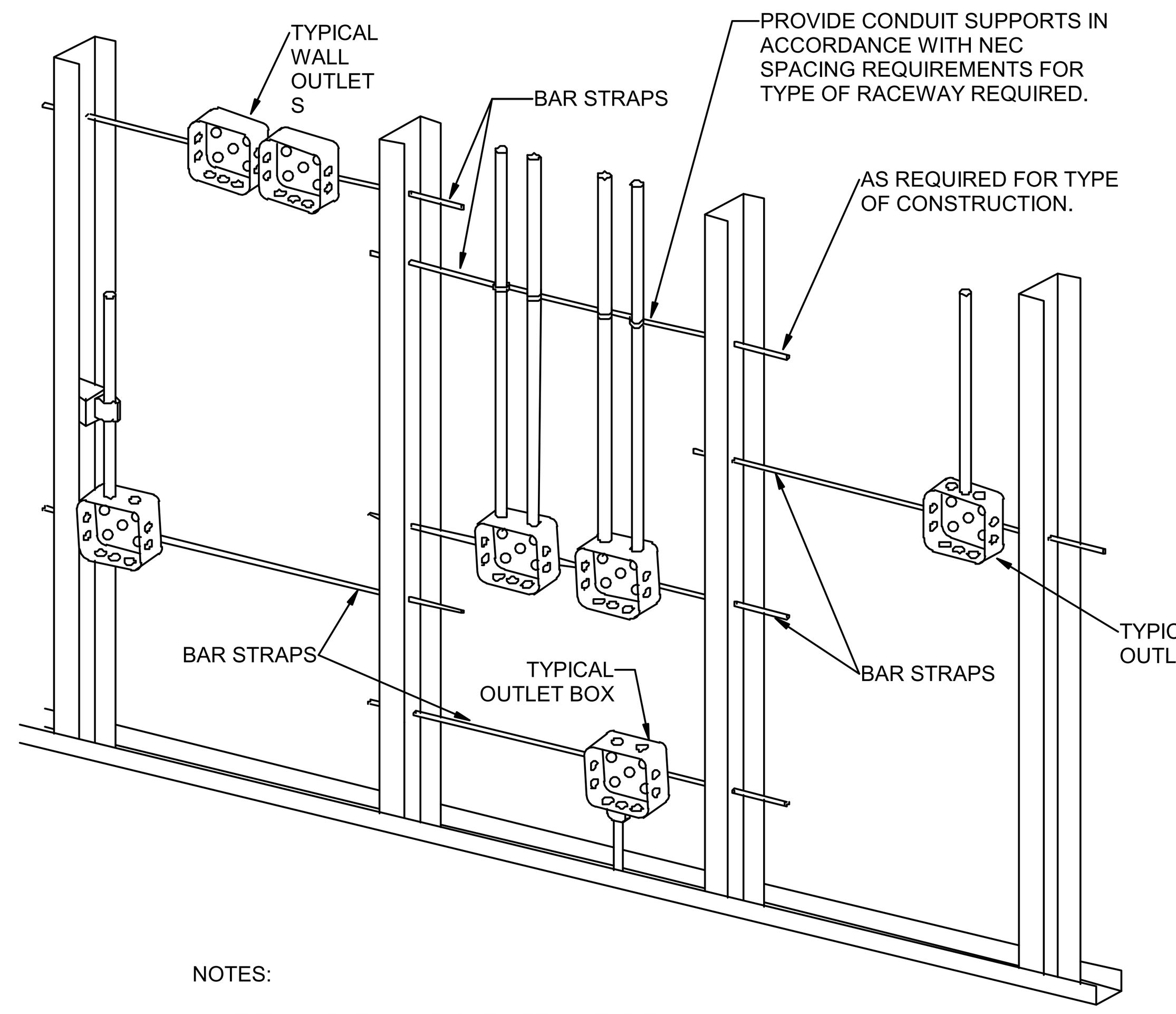
SCALE: 1/8" = 1'-0"

NOTE:
TIE WIRE SHALL NOT BE USED AS A COMPONENT OF ANY RACEWAY HANGER SYSTEM.



B3 TYPICAL RACEWAY SUPPORT METHODS DETAIL

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

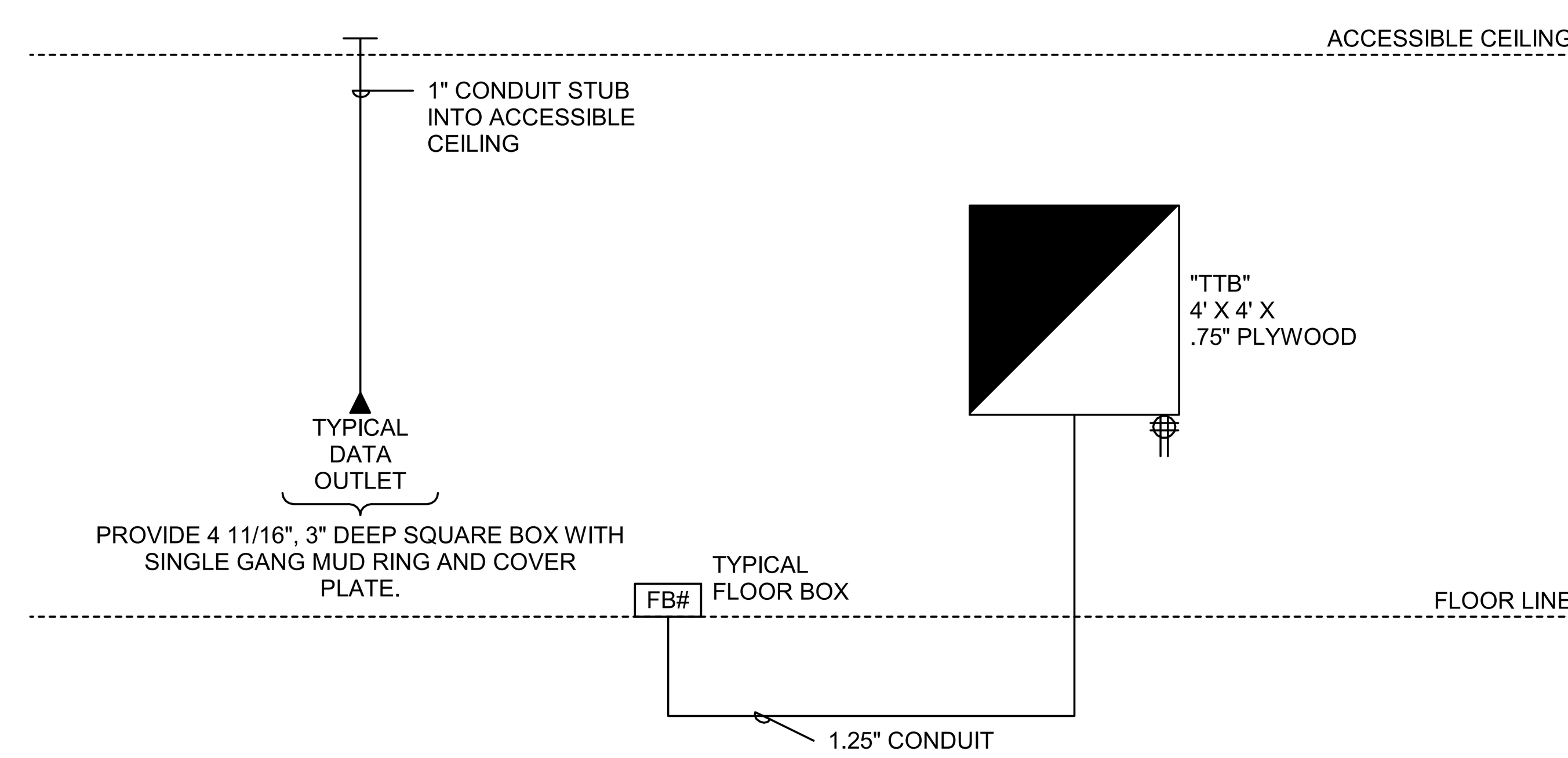


NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH IBC 714.3.2 EXCEPTION 1, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE IN A RATED FIRE SEPARATION WALL MUST BE SEPARATED BY A MINIMUN OF 24" HORIZONTAL DISTANCE.
5. IN NON-RATED WALLS, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY 16" FOR SOUND ATTENUATION.

A1 TYPICAL ROUGH-IN REQUIREMENTS DETAIL

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



A3 VOICE/DATA RISER DIAGRAM

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

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CITY OF Grand Junction COLORADO

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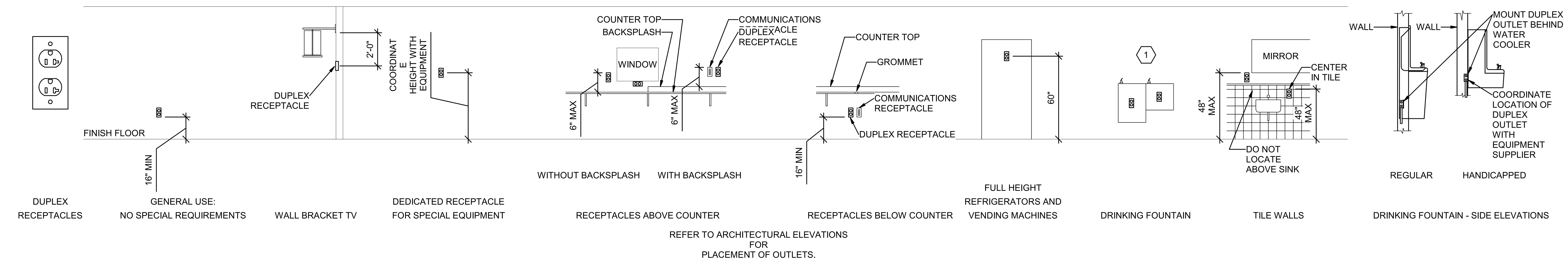
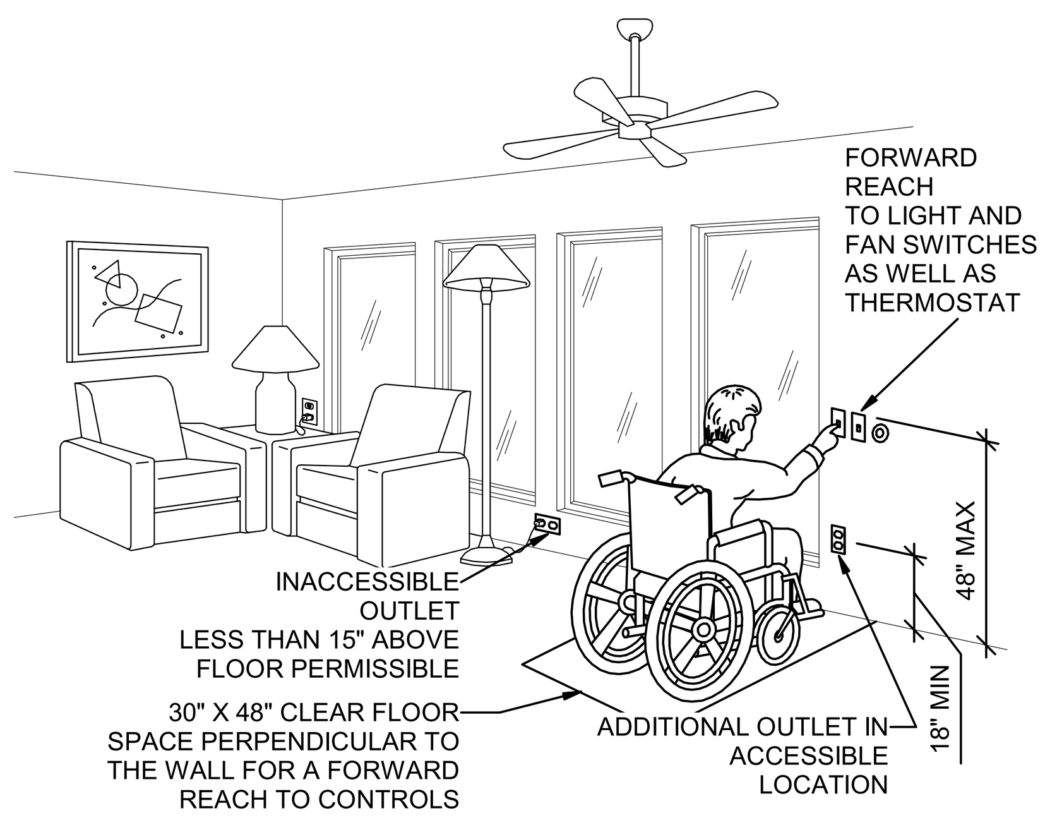
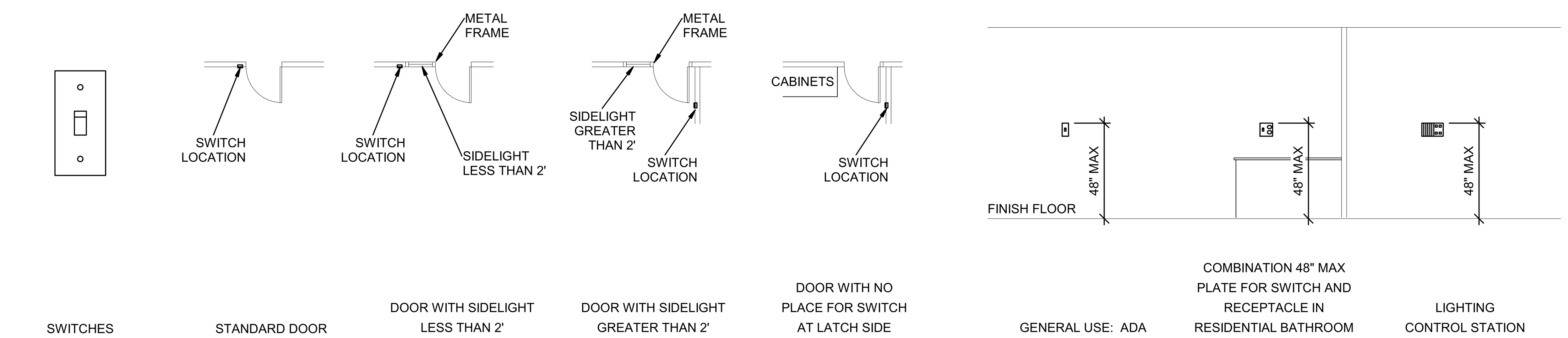


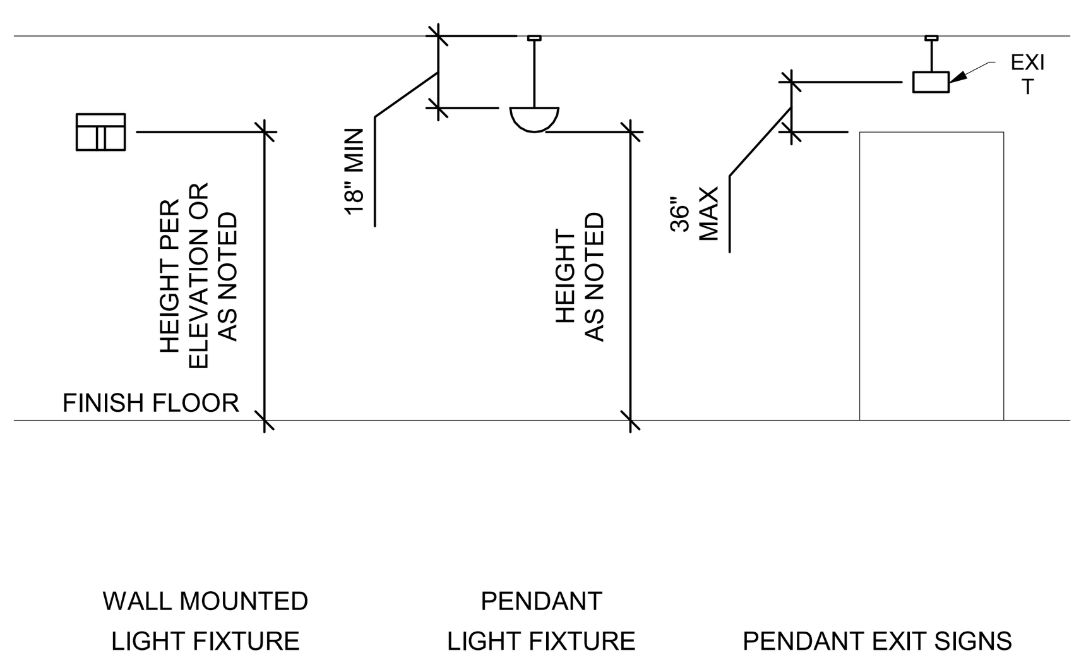
D1 RECEPTACLE MOUNTING DETAILS
SCALE: NTS



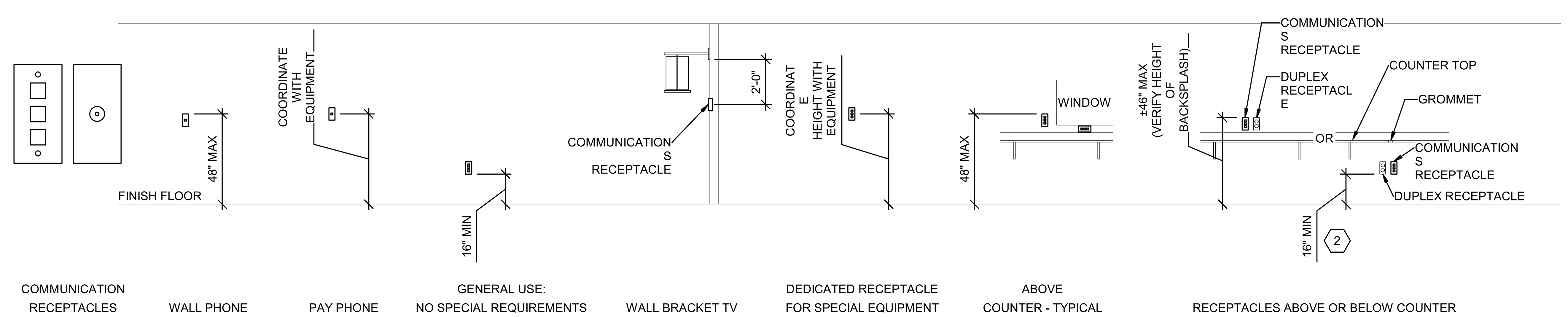
C2 ADA DETAIL
SCALE: NTS



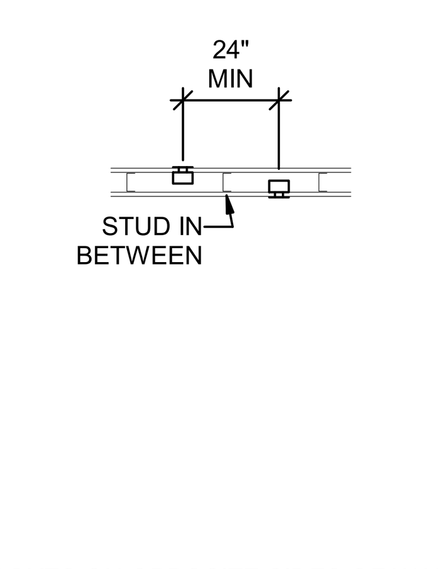
C1 SWITCH MOUNTING DETAILS
SCALE: NTS



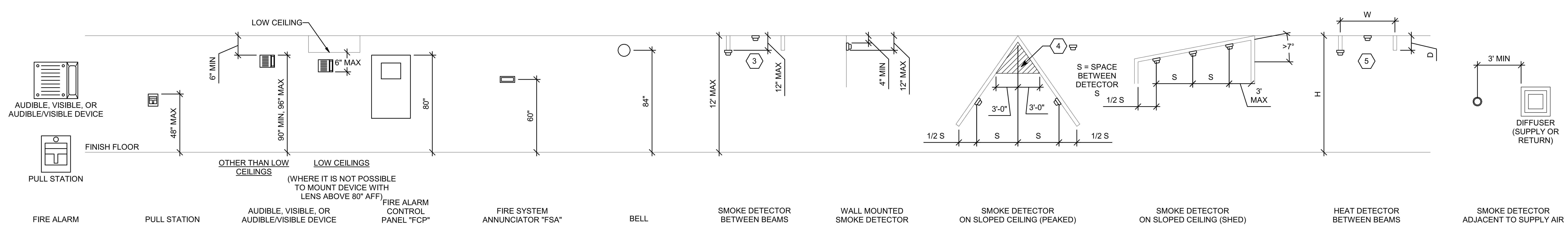
B3 LIGHTING MOUNTING DETAILS
SCALE: NTS



B2 COMMUNICATIONS MOUNTING DETAILS
SCALE: NTS



B1 BOX MOUNTING DETAILS
SCALE: NTS



A1 FIRE ALARM MOUNTING DETAILS
SCALE: NTS

GENERAL SHEET NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:
   1 - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).
   2 - EQUIPMENT SHOP DRAWINGS.
   3 - FIELD INSTRUCTIONS.
2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.
3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.
4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.
5. SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.
6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
8. LOCATE WIREING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.
9. WHERE DEVICES ARE LOCATED IN CLOSE PROXIMITY OF THE SAME VERTICAL PLANE, ALIGN DEVICES VERTICALLY PER THE TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL, UNLESS OTHERWISE INDICATED.

SHEET KEYNOTES

1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
3. LOCATE AT BOTTOM OF BEAMS (OR JOISTS) OR AT CEILING. (REDUCE SPACING BY .5 PERPENDICULAR TO BEAM OR JOIST DIRECTION.) FOR OTHER CONDITIONS, REFER TO NFPA 72.
4. LOCATE DETECTOR ANYWHERE IN SHADED AREA BUT NOT IN TOP 4" OF PEAK.
5. LOCATE AT BOTTOM OF BEAMS IF D/H < .1 OR W/H < .4; OTHERWISE, LOCATE IN BEAM POCKET. FOR D > 4 REDUCE SPACING .33 PERPENDICULAR TO BEAMS.

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LAS COLONIAS AMPHITHEATER - ADDITION
Grand Junction, CO
CITY OF Grand Junction COLORADO

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TYPICAL MOUNTING HEIGHT DETAILS

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GENERAL SHEET NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:

   1 - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).

   2 - EQUIPMENT SHOP DRAWINGS.

   3 - FIELD INSTRUCTIONS.

2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.
3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.
4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.
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6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
8. LOCATE WIREING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.
9. WHERE DEVICES ARE LOCATED IN CLOSE PROXIMITY OF THE SAME VERTICAL PLANE, ALIGN DEVICES VERTICALLY PER THE TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL, UNLESS OTHERWISE INDICATED.

⬡ SHEET KEYNOTES

1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
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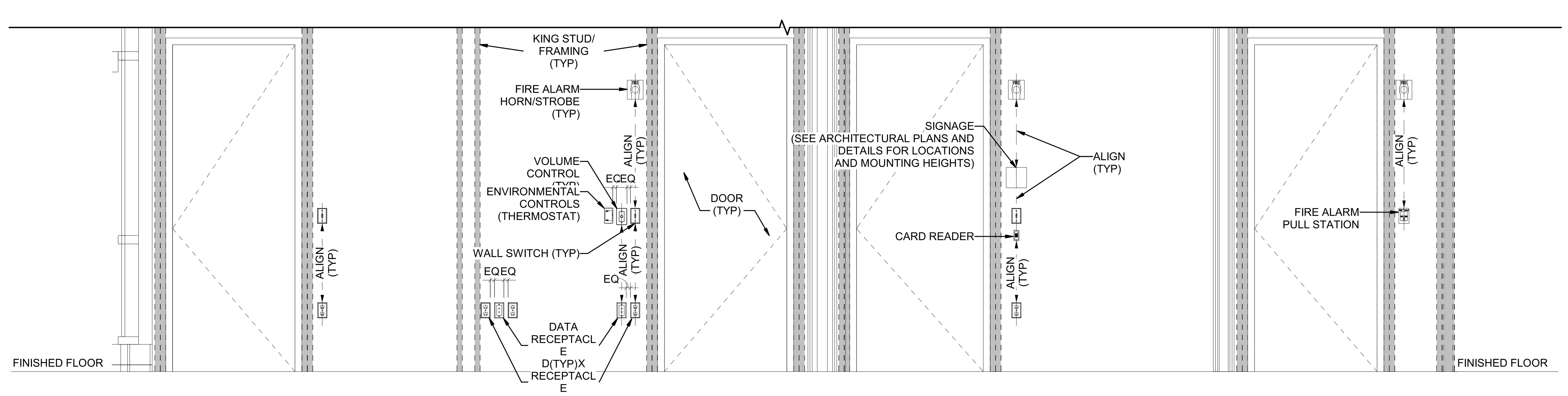

A2 TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL

SCALE: NTS

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES, OR IMPLEMENTATION

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Grand Junction, CO

City of Grand Junction COLORADO

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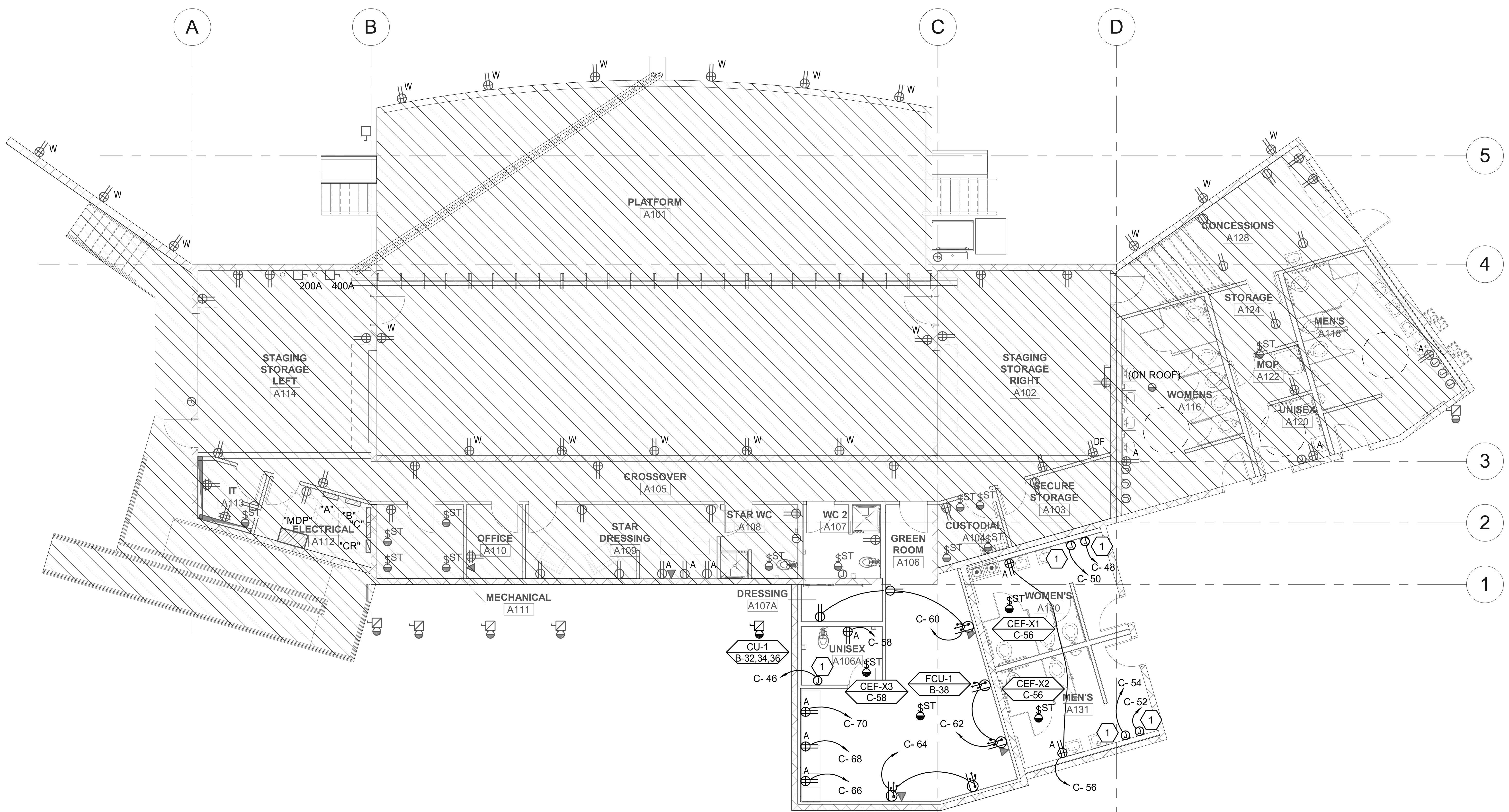
STAGE LEVEL POWER PLAN



1 STAGE LEVEL POWER PLAN
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1 PROVIDE ELECTRICAL CONNECTIONS TO ELECTRIC HAND DRYERS. CIRCUIT WITH 2#10, #10G IN 0.75" CND. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH THE INSTALLERS PRIOR TO ROUGH-IN.

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STAGE LEVEL POWER PLAN

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EQUIPMENT SCHEDULE

xxxxxxxx

EQUIPMENT SCHEDULE KEY
E - DIVISION 26
Q - FURNISHED WITH EQUIPMENT
* - COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER
** - AUTOMATIC CONTROL WIRING BY DIVISION 23

			LOAD DATA								OVERCURRENT PROTECTION			DISCONNECT			STARTER									
MARK	QTY	ITEM DESCRIPTION	HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	SIZES	SELECTOR SWITCH	PILOT LAMP	NORMALLY OPEN CONTACT	NORMALLY CLOSED CONTACT	PHASE FAILURE RELAY	NOTES	MARK
CEF-X1	1	CEILING EXHAUST FAN	1/6	-	-	1	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	C	E	TOGGLE SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		CEF-X1
CEF-X2	1	CEILING EXHAUST FAN	1/6	-	-	1	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	C	E	TOGGLE SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		CEF-X2
CEF-X3	1	CEILING EXHAUST FAN	1/6	-	-	1	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	C	E	TOGGLE SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		CEF-X3
CU-1	1	CONDENSING UNIT	-	-	12	12	208	3	60	3 #10, #10 GR 0.75" CND	E	30/3 CB	B	E	30A/3P FRS-20	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		CU-1
FCU-1	1	FAN COIL UNIT	-	-	-	7.9	120	1	60	2 #12, #12 GR 0.75" CND	E	15/1 CB	B	E	TOGGLE SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		FCU-1

PANEL: "A"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE	ELECTRICAL A112	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.9	CO STAGE LEFT A114	0.9	0.5					CO: OUTSIDE STAGE LEFT	0.5	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.7	CO STAGE RIGHT A102			0.7	0.5			CO STAGE A101	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.9	CO Room A102, A105, A114					0.9	0.7	CO STAGE A101	0.7	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO STAGE RIGHT A102	0.7	0.5					CO: OUTSIDE STAGE FRONT LEFT	0.5	0.0	0.0	1	20	8
9	20	1	0.0	0.1	0.9	CO Room A104, A103, A110, A111			1.0	0.5			CO: OUTSIDE STAGE FRONT RIGHT	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.7	CO STAR DRESSING A109					0.7	0.5	CO: OUTSIDE STAGE RIGHT	0.5	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.2	CO STAR DRESSING A109	0.2	0.3					PWR: OH DOOR	0.0	1.0	0.0	3	20	14
15	20	1	0.0	0.0	0.2	CO STAR DRESSING A109			0.2	0.3			--	--	--	--	--	--	16
17	20	1	0.0	0.0	0.2	CO STAR DRESSING A109					0.2	0.3	--	--	--	--	--	--	18
19	20	1	0.0	0.1	0.2	CO STAR WC A108	0.3	1.5					PWR: HAND DRYER	0.0	1.5	0.0	1	30	20
21	20	1	0.0	0.1	0.2	CO Room A106, A107			0.3	1.5			PWR: HAND DRYER	0.0	1.5	0.0	1	30	22
23	20	1	0.0	0.0	0.2	CO: IT A113					0.2	0.2	PWR: HAND DRYER	0.0	0.2	0.0	1	30	24
25	20	1	0.0	0.0	0.4	CO IT A113	0.4	0.2					PWR: HAND DRYER	0.0	0.2	0.0	1	30	26
27	20	1	0.0	0.0	0.4	CO IT A113			0.4	0.2			PWR: HAND DRYER	0.0	0.2	0.0	1	30	28
29	20	1	0.0	0.0	0.2	CO ELECTRICAL A112					0.2	0.2	PWR: HAND DRYER	0.0	0.2	0.0	1	30	30
31	20	1	0.0	0.0	0.4	CO Room A118	0.4	0.2					PWR: HAND DRYER	0.0	0.2	0.0	1	30	32
33	20	1	0.0	0.0	0.4	CO ROOM A120, A122			0.4	0.2			PWR: HAND DRYER	0.0	0.2	0.0	1	30	34
35	20	1	0.0	0.0	0.9	PWR: STRG/CONCESSIONS A128					0.9	0.2	PWR: HAND DRYER	0.0	0.2	0.0	1	30	36
37	20	1	0.0	0.0	0.2	PWR: CONCESSIONS A128	0.2	6.7					PWR: ADA LIFT	0.0	20.0	0.0	3	100	38
39	20	1	0.0	0.0	0.2	PWR: CONCESSIONS A128			0.2	6.7			--	--	--	--	--	--	40
41	20	1	--	--	--	SPARE					0.0	6.7	--	--	--	--	--	--	42

TOTALS: CONNECTED kVA PER PHASE **13** **13** **12** — CONNECTED TOTAL kVA = **38**
CONNECTED AMPS PER PHASE **109** **110** **99** — AVERAGE CONNECTED AMPS PER PHASE = **105**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **37**
RECEPTACLES: **12.2 kVA @ 91% = 11.1 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **102**
ALL OTHER LOADS @ 100% : **25.7 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "B"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE	ELECTRICAL A112	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.5	0.0	PWR: F-1	0.5	1.0					LTG: CORRIDOR	0.0	0.0	1.0	1	20	2
3	20	1	0.0	0.5	0.0	PWR: F-2			0.5	1.2			LTG: ELEC/MECH	0.0	0.0	1.2	1	20	4
5	20	1	0.0	0.5	0.0	PWR: F-3					0.5	1.0	LTG: ROOMS A106, A106A, A107A	0.0	0.0	1.0	1	20	6
7	50	2	0.0	3.6	0.0	PWR: CU-1	1.8	0.9					LTG: RESTROOMS	0.0	0.0	0.9	1	20	8
9	--	--	--	--	--	--			1.8	0.3			LTG: EXTERIOR	0.0	0.0	0.3	1	20	10
11	50	2	0.0	4.6	0.0	PWR: CU-2					2.3	0.5	LTG: STAGE HOUSE LIGHTS	0.0	0.0	0.5	1	20	12
13	--	--	--	--	--	--	2.3	0.0					SPARE	--	--	--	1	20	14
15	50	2	0.0	3.6	0.0	PWR: CU-3			1.8	0.0			SPARE	--	--	--	1	20	16
17	--	--	--	--	--	--					1.8	0.0	SPARE	--	--	--	1	20	18
19	50	2	0.0	4.6	0.0	PWR: CU-4	2.3	0.0					SPARE	--	--	--	1	20	20
21	--	--	--	--	--	--			2.3	0.0			SPARE	--	--	--	1	20	22
23	20	1	0.0	0.5	0.0	PWR: F-4					0.5	0.0	SPARE	--	--	--	1	20	24
25	20	3	0.0	1.8	0.0	PWR: ERV-1	0.6	0.0					SPARE	--	--	--	1	20	26
27	--	--	--	--	--	--			0.6	0.0			SPARE	--	--	--	1	20	28
29	--	--	--	--	--	--					0.6	0.0	SPARE	--	--	--	1	20	30
31	20	1	0.0	0.4	0.0	PWR: EF-1	0.4	1.4					PWR: CU-1	0.0	4.3	0.0	3	30	32
33	20	1	0.0	0.4	0.0	PWR: EF-2			0.4	1.4			--	--	--	--	--	--	34
35	30	2	0.0	3.1	0.0	PWR: AC-1a					1.6	1.4	--	--	--	--	--	--	36
37	--	--	--	--	--	--	1.6	1.0					PWR: FCU-1	0.0	1.0	0.0	1	15	38
39	20	2	0.0	0.7	0.0	PWR: AC-1b			0.3	0.1			PWR: WH-1	0.0	0.1	0.0	1	20	40
41	--	--	--	--	--	--					0.3	0.1	PWR: DCP-1	0.0	0.1	0.0	1	20	42

TOTALS: CONNECTED kVA PER PHASE **14** **11** **10** — CONNECTED TOTAL kVA = **35**
CONNECTED AMPS PER PHASE **114** **89** **87** — AVERAGE CONNECTED AMPS PER PHASE = **97**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **4.8 kVA @ 125% = 6.1 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **37**
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **103**
ALL OTHER LOADS @ 100% : **31.2 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "C"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE	ELECTRICAL A112	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING:

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.4					CR1	0.0	0.0	0.8	2	20	2
3	--	--	--	--	--	--			0.1	0.4			--	--	--	--	--	--	4
5	--	--	--	--	--	--					0.1	0.4	CR2	0.0	0.0	0.8	2	20	6
7	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.4					--	--	--	--	--	--	8
9	--	--	--	--	--	--			0.1	0.2			CR3	0.0	0.0	0.4	2	20	10
11	--	--	--	--	--	--					0.1	0.2	--	--	--	--	--	--	12
13	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.6					CR4	0.0	0.0	1.2	2	20	14
15	--	--	--	--	--	--			0.1	0.6			--	--	--	--	--	--	16
17	--	--	--	--	--	--					0.1	0.0	SPARE	--	--	--	1	20	18
19	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.0					SPARE	--	--	--	1	20	20
21	--	--	--	--	--	--			0.1	0.3			CR6	0.0	0.0	0.6	2	20	22
23	--	--	--	--	--	--					0.1	0.3	--	--	--	--	--	--	24
25	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.5					CR7	0.0	0.0	1.0	2	20	26
27	--	--	--	--	--	--			0.1	0.5			--	--	--	--	--	--	28
29	--	--	--	--	--	--					0.1	0.9	CR8	0.0	0.0	1.8	2	20	30
31	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.9					--	--	--	--	--	--	32
33	--	--	--	--	--	--			0.1	0.9			CR9	0.0	0.0	1.8	2	20	34
35	--	--	--	--	--	--					0.1	0.9	--	--	--	--	--	--	36
37	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	1.2					CR10	0.0	0.0	2.4	2	20	38
39	--	--	--	--	--	--			0.1	1.2			--	--	--	--	--	--	40
41	--	--	--	--	--	--					0.1	1.2	CR11	0.0	0.0	2.4	2	20	42
43	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	1.2					--	--	--	--	--	--	44
45	--	--	--	--	--	--			0.1	1.5			PWR: HAND DRYER	0.0	1.5	0.0	1	20	46
47	--	--	--	--	--	--					0.1	1.5	PWR: HAND DRYER	0.0	1.5	0.0	1	20	48
49	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	1.5					PWR: HAND DRYER	0.0	1.5	0.0	1	20	50
51	--	--	--	--	--	--			0.1	1.5			PWR: HAND DRYER	0.0	1.5	0.0	1	20	52
53	--	--	--	--	--	--					0.1	1.5	PWR: HAND DRYER	0.0	1.5	0.0	1	20	54
55	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.6					CO: ROOM A130, A131	0.4	0.2	0.0	1	20	56
57	--	--	--	--	--	--			0.1	0.3			CO: UNISEX A106A	0.2	0.1	0.0	1	20	58
59	--	--	--	--	--	--					0.1	0.5	CO: GREEN ROOM A106	0.5	0.0	0.0	1	20	60
61	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.2					CO: GREEN ROOM A106	0.2	0.0	0.0	1	20	62
63	--	--	--	--	--	--			0.1	0.2			CO: GREEN ROOM A106	0.2	0.0	0.0	1	20	64
65	--	--	--	--	--	--					0.1	0.2	CO: GREEN ROOM A106	0.2	0.0	0.0	1	20	66
67	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.2					CO: GREEN ROOM A106	0.2	0.0	0.0	1	20	68
69	--	--	--	--	--	--			0.1	0.2			CO: GREEN ROOM A106	0.2	0.0	0.0	1	20	70
71	--	--	--	--	--	--					0.1	0.0	SPARE	--	--	--	1	20	72
73	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.0					SPARE	--	--	--	1	20	74
75	--	--	--	--	--	--			0.1	0.0			SPARE	--	--	--	1	20	76
77	--	--	--	--	--	--					0.1	0.0	SPARE	--	--	--	1	20	78
79	40	3	0.0	0.2	0.0	PWR: OUTDOOR...	0.1	0.1					PWR: OUTDOOR...	0.0	0.2	0.0	3	40	80
81	--	--	--	--	--	--			0.1	0.1			--	--	--	--	--	--	82
83	--	--	--	--	--	--					0.1	0.1	--	--	--	--	--	--	84

TOTALS: CONNECTED kVA PER PHASE **9** **9** **8** — CONNECTED TOTAL kVA = **26**
CONNECTED AMPS PER PHASE **72** **72** **70** — AVERAGE CONNECTED AMPS PER PHASE = **71**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **13.2 kVA @ 125% = 16.5 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **29**
RECEPTACLES: **1.9 kVA @ 100% = 1.9 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **80**
ALL OTHER LOADS @ 100% : **10.6 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

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COLORADO REGISTERED PROFESSIONAL ENGINEER
DAVID E. WESEMANN
32705
2/10/2020

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project:
LAS COLONIAS AMPHITHEATER - ADDITION
Grand Junction, CO

CITY OF Grand Junction COLORADO

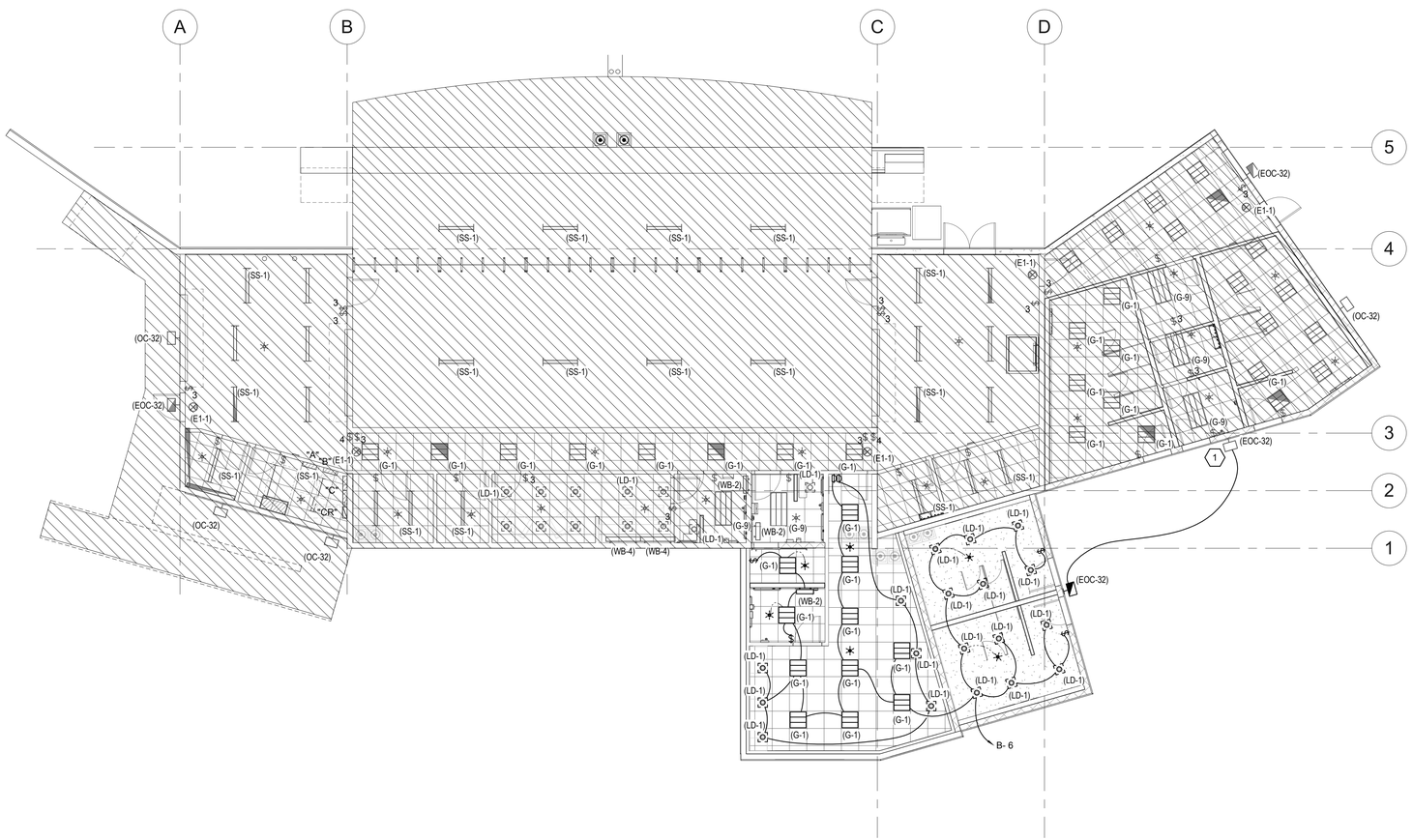
project#: 19.0270
date: February 10, 2020

revisions:

title:
ELECTRICAL SCHEDULES

sheet:
EP601

PERMIT SET



A1 STAGE LEVEL LIGHTING PLAN

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

GENERAL SHEET NOTES

SHEET KEYNOTES

1 CONNECT TO EXISTING EXTERIOR LIGHTING CIRCUIT.

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STAGE LEVEL LIGHTING PLAN

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INTERIOR LIGHTING FIXTURE SCHEDULE

ABBREVIATIONS

LUMINAIRE OPTIONS

ARHR - AIR RETURN AND HEAT REJECTION
DL - DAMP LOCATION
EQC - EARTHQUAKE CLIPS
F - FUSING
HLD - HINGED AND LATCHED DOOR
HS - HOUSE SIDE SHIELD
PS - PHOTOCELL SWITCH
QRS - QUARTZ RESTRIKE
ST - STATIC
WG - WIRE GUARD
WL - WET LOCATION

MOUNTING

B - BASE
C - CEILING
F - FLANGE
G - GRID
P - PENDANT
PL - POLE
R - RECESSED
S - SURFACE
W - WALL

EMERGENCY

NE - NORMAL AND EMERGENCY CONNECTIONS
EB - EMERGENCY BATTERY PACK
ET - EMERGENCY TRANSFER DEVICE

BALLAST

IS - INSTANT START
RS - RAPID START
PS - PROGRAM START, PARALLEL LAMP OPERATION
PSMH - PULSE START METAL HALLIDE (CWA OR ELECTRONIC)
PPLF - PROVIDE POWER LINE FILTER
LVTM - LOW VOLTAGE TRANSFORMER (MAGNETIC)
LVTE - LOW VOLTAGE TRANSFORMER (ELECTRONIC)

DIMMING BALLAST

D2 - 2 WIRE DIMMER
D3 - 3 WIRE DIMMER
D4 - 4 WIRE DIMMER
DD - DIGITAL DIMMER
SDP - STEP DIMMER BALLAST

BALLAST NOTATION

ANSI WATTS = Maximum Wattage at Connected Voltage
BB-#L: BB = Ballast Type, #L = Number of Lamps
Example: PS-2L = (2) Lamp, Program Start Ballast

FINISH

MW - MATTE WHITE
BL - BLACK
SL - SILVER
GL - GOLD
CL - CLEAR
PW - PAINTED WHITE
EA - EXTRUDED ALUMINUM
S - STEEL
GS - GALVANIZED STEEL
C - CAST
CBA - COLOR BY ARCHITECT
SCBA - STANDARD COLOR BY ARCHITECT
CCA - CUSTOM COLOR BY ARCHITECT
FS 209D - MEETS FEDERAL STANDARD 209D
TP - THERMALLY PROTECTED
FL - FLUSH
R - REGRESS
M - MITERED

LENS

#A - ACRYLIC #THICK
#OA - ACRYLIC #THICK (OPAL)
GC - GLASS (CLEAR)
GO - GLASS (OPAL)
GF - GLASS (FROSTED)
SGL - SOFT GLOW LENS
HPL - HIGH PERFORMANCE LENS
DO - DROP OPAL
CGL - CONVEX GLASS LENS
S - SATIN LENS

OPTICS

PRF - PERFORATED DIFFUSER
DT - DETENTION
BC - BLACK CONE
BB - BLACK BAFFLE
WB - WHITE BAFFLE
VGL - VERTICAL GRAIN LOUVERS
PPL - LOUVERS IN PLASTIC PROTECTOR
WW - WALL WASH
ESL - ELECTROSTATIC SHIELDED LENS

REFLECTOR

OP - NONE/OPEN
SP - SPECULAR
SS - SEMI-SPECULAR
D - DIFFUSE (WHITE ENAMEL)
SC - SPECULAR (COLORED)
PR - PRISMATIC
FDR - FULL DEPTH REFLECTOR
DS - DIFFUSE (SEMI SPECULAR) SILVER
LI - LOW IRIDESCENT
IR - IRIDESCENT
SL - SILVER
GL - GOLD
CA - CLEAR ALZAK

CIE CLASSIFICATIONS

DIR - DIRECT LIGHTING
SD - SEMIDIRECT LIGHTING
GEN - GENERAL DIFFUSE
SI - SEMI-INDIRECT LIGHTING
IND - INDIRECT LIGHTING
ADJ - ADJUSTABLE

NOTES

1. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.
2. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES.

1. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
2. COMPLY WITH THE "INTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS.
3. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS.
4. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED.

LIGHTING FIXTURE SCHEDULE - INTERIOR

	LUMINAIRE							LAMP				BALLAST						FINISH			OPTICS						MANUFACTURER (CATALOG SERIES)						
		NOMINAL SIZE											CONNECTED																			
ID	TYPE	LENGTH	WIDTH	MAX DEPTH	DIAMETER/ APERTURE	MOUNTING	OPTIONS	TYPE	LAMP COLOR	QUANTITY	LAMP LUMENS	CONFIGURATION	VOLTAGE	VOLTS	WATTS	BALLAST FACTOR	HARMONICS (THD)	OPTIONS	HOUSING	TRIM	OTHER	CIE TYPE	FINISH	DIFFUSER	REFLECTOR	LUMINAIRE LUMENS	OPTIONS	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	OPTION 6
(G-1)	2' X 2' LED INDIRECT LAY-IN TROFFER, 4000 LUMENS, 4000K. PROVIDE FLANGE KIT FOR FIXTURES INSTALLED IN HARD LID CEILINGS.	24"	24"	6"	-	CRG	EQC,HLD,ST	LED	4000K	1	4000	LED DRIVER	120/277	120	35	0.00	-									4000		LITHONIA (2ALL2-40L-EZ1-LP84)	METALUX (22CZ-LD4-39-UNV-L840-CD1-U/EQ-CLIP-U)	LUMENWERX (VEGR22-MTO-HLO-LED-80-4200-40-277-1-TBX-SCBA)	H.E. WILLIAMS (AT1-22-L40/840-D-DRV-UNV)		
(LD-1)	LED DOWNLIGHT, 6" OPEN.	15"	15"	12"	6"	C,R	ST	LED	3500K	1	1500	LED DRIVER (0-10V DIMMING)	120V	120	25	1.00										1500		PORTFOLIIO (LD6A15DE010 ERM6A15840 6LM1LI-HB26)	VANTAGE	PRESCOLITE	BRUCK	GOTHAM	OMEGA
(WB-2)	DECORATIVE WALL MOUNT VANITY LIGHT	2'						LED	3000K	1	1400	LED DRIVER	120V	120	20	1.00										1400		ALW (TRPSMBINT-2'-LOW-0/10V-SCBA-UNV)					

EXTERIOR LIGHTING FIXTURE SCHEDULE

ABBREVIATIONS

LUMINAIRE

ARHR - AIR RETURN AND HEAT REJECTION
DL - DAMP LOCATION
EQC - EARTHQUAKE CLIPS
F - FUSING
HLD - HINGED AND LATCHED DOOR
HS - HOUSE SIDE SHIELD
PS - PHOTOCELL SWITCH
QRS - QUARTZ RESTRIKE
ST - STATIC
WG - WIRE GUARD
WL - WET LOCATION

EMERGENCY

NE - NORMAL AND EMERGENCY CONNECTIONS
EB - EMERGENCY BATTERY PACK
ET - EMERGENCY TRANSFER DEVICE

BALLAST

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RS - RAPID START
PS - PROGRAM START, PARALLEL LAMP OPERATION
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DIMMING BALLAST

D2 - 2 WIRE DIMMER
D3 - 3 WIRE DIMMER
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FINISH

MW - MATTE WHITE
BL - BLACK
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CBA - COLOR BY ARCHITECT
SCBA - STANDARD COLOR BY ARCHITECT
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FS 209D - MEETS FEDERAL STANDARD 209D
TP - THERMALLY PROTECTED
FL - FLUSH
R - REGRESS
M - MITERED

LENS

#A - ACRYLIC #THICK
#OA - ACRYLIC #THICK (OPAL)
GC - GLASS (CLEAR)
GO - GLASS (OPAL)
GF - GLASS (FROSTED)
SGL - SOFT GLOW LENS
HPL - HIGH PERFORMANCE LENS
DO - DROP OPAL
CGL - CONVEX GLASS LENS
S - SATIN LENS

REFLECTOR AND DISTRIBUTION

I - TYPE I
II - TYPE II
III - TYPE III
IV - TYPE IV
V - TYPE V
VSQ - TYPE V SQUARE
SA - SPUN ALLUMINUM
SR - SEGMENTED REFLECTOR
BW# - NEMA BEAM WIDTH 1 THRU 7

CUTOFF CLASSIFICATION

FC - FULL CUTOFF
CO - CUTTOFF
SC - SEMI CUTOFF
NC - NONCUTOFF

MOUNTING

B - BASE
C - CEILING
F - FLANGE
G - GRID
P - PENDANT
PL - POLE
R - RECESSED
S - SURFACE
W - WALL

CONFIGURATION

BA - BANNER ARMS
BH - BULL HORN
DL - 2 "L" SHAPE
DS - 2 @ 180
PT - INLINE POST TOP
Q - QUAD
SH - SHEPHERDS HOOK
SL - SINGLE
T - 3 "T" SHAPE

POLE

RS - ROUND STRAIGHT
RT - ROUND TAPERED
SS - SQUARE STRAIGHT
ST - SQUARE TAPERED

NOTES

1. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.
2. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES.

1. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
2. COMPLY WITH THE "EXTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS.
3. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS.
4. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED.

	LUMINAIRE									LAMP					BALLAST						FINISH			DIFFUSER				REFLECTOR			MOUNTING						MANUFACTURER (CATALOG SERIES)			
		BUG RATING			SIZE (NOMINAL)																																				
ID	TYPE	BACK	UP	GLARE	LENGTH	WIDTH	DEPTH	DIAMETER / APERTURE	OPTIONS	COLOR	TYPE	INITIAL LUMENS @ 1.0BF	QUANTITY	LUMENAIRE LUMENS	INPUT VOLTS	ANSI WATTS	BALLAST FACTOR	HARMONICS	OPTIONS	HOUSING	TRIM	OTHER	TYPE	FINISH	CONFIGURATION	OPTIONS	DISTRIBUTION TYPE	FINISH	EFFICIENCY	TYPE	CONFIGURATION	POLE BASE HEIGHT	POLE HEIGHT	WIND RATING	OPTIONS	OPTION 1	OPTION_2	OPTION 3	ALLOWANCE
(EOC-32)	EXTERIOR EGRESS WALL PACK, WITH REMOTE BATTERY PACK.				11"	9"	7"			4000K		4400	1	4400	120	41	1.00												0			0' - 0"	0' - 0"			EATON (XTORSA-PC1-CBP-REMOTE BATTERY)			

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consultant:

project:

LAS COLONIAS AMPHITHEATER - ADDITION

Grand Junction, CO

CITY OF Grand Junction COLORADO

project#: 19.0270
date: February 10, 2020

revisions :

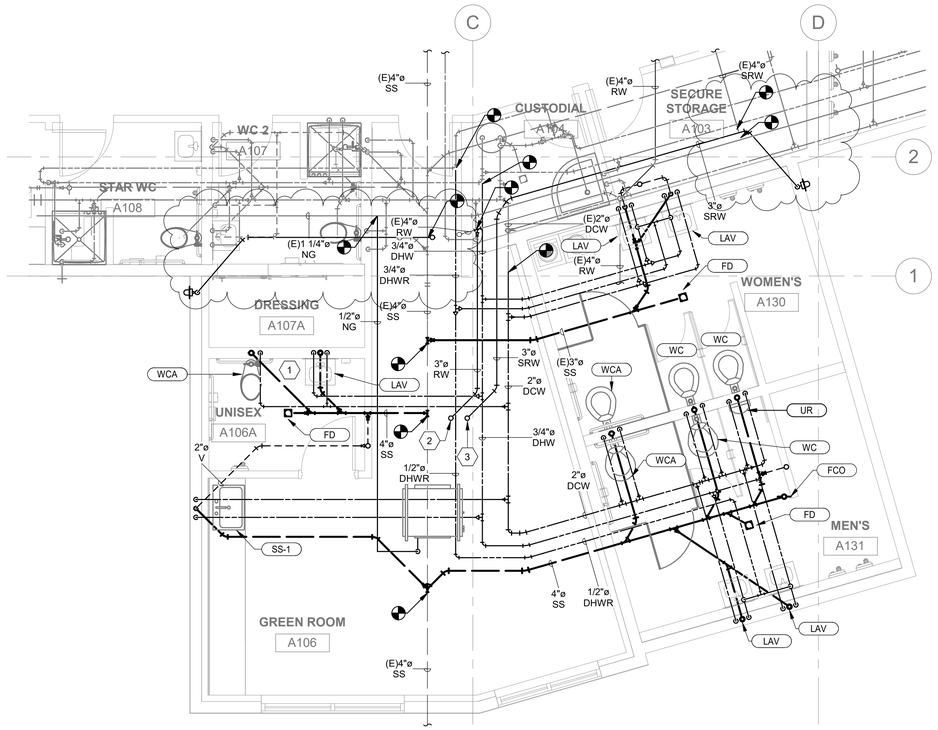
title:

LIGHTING FIXTURE SCHEDULES

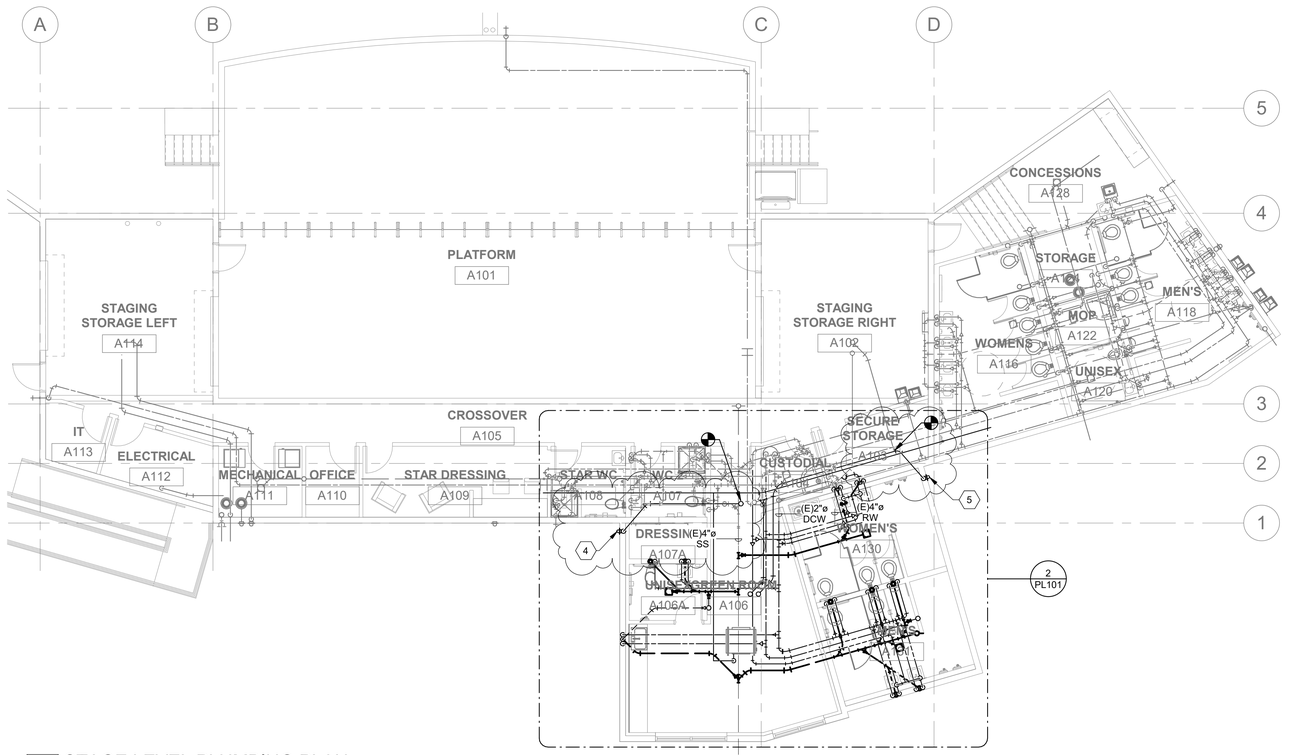
sheet:

EL601

PERMIT SET



2 ENLARGED PLUMBING PLAN
1/4" = 1'-0"



1 STAGE LEVEL PLUMBING PLAN
1/8" = 1'-0"

SHEET KEYNOTES

1 BATHROOM GROUP SERVED BY WET VENT.

2 PRIMARY ROOF DRAIN PIPING UP TO PRIMARY ROOF DRAIN ON ROOF. BASIS OF DESIGN JR SMTIH 1010-AD-R-C. DRAINAGE COVERAGE: 950 SQFT: 20 GPM. EXISTING 4" LINE SERVES 2100 SQFT: 43.6 GPM, TOTAL: 63.6 GPM. MAXIMUM DRAINAGE CAPACITY ON A 4" LINE SLOPING AT 1/8" PER FT: 115 GPM.

3 SECONDARY ROOF DRAIN PIPING UP TO SECONDARY ROOF DRAIN ON ROOF. BASIS OF DESIGN JR SMTIH 1080-AD-R-C. DRAINAGE COVERAGE: 950 SQFT: 20 GPM. EXISTING 4" LINE SERVES 2100 SQFT: 43.6 GPM, TOTAL: 63.6 GPM. MAXIMUM DRAINAGE CAPACITY ON A 4" LINE SLOPING AT 1/8" PER FT: 115 GPM.

4 RELOCATE EXISTING SECONDARY ROOF DRAIN SPOUT AND ASSOCIATED PIPING TO LOCATION INDICATED (APPROXIMATELY 14'). CONTRACTOR TO VERIFY EXACT LOCATIONS AND ROUTING IN FIELD.

5 RELOCATE EXISTING SECONDARY ROOF DRAIN SPOUT AND ASSOCIATED PIPING TO LOCATION INDICATED (APPROXIMATELY 6'). CONTRACTOR TO VERIFY EXACT LOCATIONS AND ROUTING IN FIELD.

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02.10.20
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