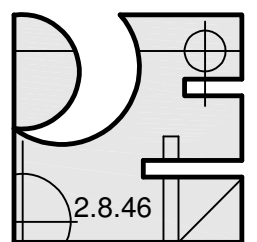




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GENERAL REQUIREMENTS:

A. SEE ALL DRAWINGS / SPECIFICATIONS FOR THIS PROJECT FOR SCOPE AND GENERAL CONDITIONS. (NOTE: CONTRACTOR RESPONSIBLE FOR COORDINATING WITH BASKIN BRAND'S STANDARDS FOR ANY REQUIREMENTS THAT MAY BE MORE STRINGENT THAN THESE SPECIFICATIONS)

B. CODE COMPLIANCE IS MANDATORY. NOTHING IN THESE DRAWINGS AND SPECIFICATIONS PERMITS WORK NOT CONFORMING TO THESE CODES. WHERE WORK IS SHOWN TO EXCEED MINIMUM CODE REQUIREMENTS, COMPLY WITH DRAWING AND SPECIFICATION.

C. PROVIDE ALL LABOR, MATERIALS, HANGERS, INSULATION, VALVES, ACCESS PANELS, EQUIPMENT, ETC. NECESSARY FOR COMPLETE AND OPERATIONAL SYSTEMS DESCRIBED IN THESE DRAWINGS SHOWN OR NOT SHOWN UNLESS INDICATED OR NOTED OTHERWISE. IT IS THE INTENT OF THESE DRAWINGS FOR A COMPLETE AND READY FOR OPERATION OF ALL HVAC AND PIPING SYSTEMS.

D. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND DO NOT SHOW ALL PIPING, OFFSETS, FITTINGS, AND ACCESSORIES THAT MAY BE REQUIRED. FOLLOW DRAWINGS AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHER TRADES WILL PERMIT, INVESTIGATE STRUCTURAL AND FINISH CONDITIONS AFFECTING THIS WORK AND ARRANGE WORK ACCORDINGLY, PROVIDING SUCH FITTING, VALVES, AND ACCESSORIES REQUIRED TO MEET THE CONDITIONS.

E. VISIT SITE AND INCLUDE ALLOWANCE IN BID FOR ALL COSTS RELATED TO THE ALL PIPING AND EQUIPMENT INSTALLATION.

F. DEMONSTRATE THE OPERATION OF ALL SYSTEMS FOR THE OWNER AT A TIME AS DIRECTED BY THE OWNER.

G. LAY OUT ALL WORK IN ADVANCE. DO NOT DEFACE WORK OF OTHER TRADES. INSTALL ALL SLEEVES AND BLOCK OUTS WATERPROOF AS REQUIRED. FIRE STOP ALL FLOOR AND RATED WALL PENETRATIONS.

H. FIELD CHECK ALL EXISTING CONDITIONS AND INCLUDE AN ALLOWANCE IN BID FOR ANY REMOVAL AND/OR RELOCATION OF EXISTING PIPING, EQUIPMENT, ETC. AS INDICATED ON THE PLANS OR AS REQUIRED TO COORDINATE AND ADAPT NEW AND EXISTING MECHANICAL SYSTEMS TO ALL OTHER WORK. EXISTING PIPING AND MATERIAL WHICH SHALL BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR, EXCEPT EQUIPMENT SO NOTED, WHICH SHALL BECOME THE PROPERTY OF THE OWNER.

I. THE CONTRACTOR SHALL MAINTAIN A MARK-UP SET OF DRAWINGS WHICH INDICATE VARIATIONS IN THE ACTUAL INSTALLATION FROM THE ORIGINAL DESIGN. TURN OVER DRAWINGS TO OWNER UPON PROJECT COMPLETION.

J. VERIFY THE ACTUAL ELECTRICAL SERVICE/VOLTAGE WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING ANY EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.

STANDARDS

A. ALL PIPING, DUCTWORK, GRILLES, AND MATERIALS, ETC. SHALL BE NEW, IN FIRST CLASS CONDITION, AND U.L. LISTED WHERE APPLICABLE.

B. COMPLY WITH ALL APPLICABLE LOCAL CITY CODES AND AMENDMENTS, COUNTY AND STATE ORDINANCES, COMPLY WITH CURRENT INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, AND NATIONAL FIRE PROTECTION ASSOCIATION IN EFFECT FOR THIS JURISDICTION.

C. PROCURE AND PAY FOR ALL PERMITS, CONTRACTOR LICENSES, AND LIABILITY INSURANCE, ETC. FURNISH CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM LOCAL INSPECTOR.

D. MATERIALS SHALL BE AS SPECIFIED, AND/OR NOTED ON THE CONTRACT DRAWING.

E. ALL MATERIALS AND EQUIPMENT LOCATED IN AIR PLENUMS SHALL BE RATED FOR PLENUM APPLICATION.

GUARANTEE A MECHANICAL AND PLUMBING CONTRACTORS SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR BEGINNING WITH THE DATE OF FINAL ACCEPTANCE BY THE OWNER. THE M.C. AND P.C. SHALL BE RESPONSIBLE DURING THE INSTALLATION, TESTING AND GUARANTEE PERIODS FOR ANY DAMAGE CAUSED BY HIM (OR HIS SUBCONTRACTORS) OR BY DEFECTS IN HIS (OR HIS SUBCONTRACTORS') WORK MATERIALS, OR EQUIPMENT INSTALLED OR FURNISHED UNDER THIS CONTRACT WHICH DEVELOPS DEFECTS, EXCEPT FOR NORMAL WEAR.

COORDINATION

A. PRIOR TO FABRICATION OR INSTALLATION OF ANY HVAC AND PLUMBING WORK PARTICIPATE IN COORDINATION PLANNING MEETINGS WITH ALL OTHER BUILDING UTILITIES SYSTEMS TRADES, UNDER THE DIRECTION OF THE GENERAL CONTRACTOR SO AS TO COMPLETELY ESTABLISH ROUTINGS, ELEVATIONS, SPACE REQUIREMENTS, AND COORDINATION OF LAYOUT AND SUSPENSION REQUIREMENTS IN RELATIONSHIP TO THE BUILDING STRUCTURE AND THE WORK OF ALL OTHER TRADES.

BASIC MATERIALS AND METHODS

GENERAL

A. THE WORK INCLUDED UNDER THIS HEADING CONSISTS OF FURNISHING MATERIAL, SUPPLIES, EQUIPMENT, TOOLS, TRANSPORTATION AND FACILITIES, AND PERFORMING ALL LABOR AND SERVICE FOR, AS REQUIRED IN CONNECTION WITH, OR PROPERLY INCIDENTAL TO, THE PLUMBING INSTALLATION, AS DESCRIBED IN THESE SECTIONS OF THE SPECIFICATIONS, SHOWN ON THE DRAWINGS, OR REASONABLY IMPLIED THEREFROM.

WORK INCLUDED

A. COMPLETE INSTALLATION OF NEW HVAC AND PLUMBING SYSTEM COMPONENTS AS SHOWN IN THE DRAWINGS AND DESCRIBED IN THESE SPECIFICATIONS. INSTALL GAS PIPING, REGULATORS, SHUT-OFFS TO GAS FIRED UNITS IN ACCORDANCE WITH 2015 IFGC AND (NFPA 54), LOCAL CODES, MANUFACTURER INSTALLATION INSTRUCTIONS, AS SHOWN IN THE DRAWINGS AND AS DESCRIBED IN THESE SPECIFICATIONS IF APPLICABLE.

B. PROVIDE MECHANICAL IDENTIFICATION FOR ALL NEW EQUIPMENT AND PIPING. IDENTIFICATION SHALL BE BY SET OR BRADY AND CONSIST OF THE FOLLOWING:

1. BRASS VALVE TAGS WITH STAMPED LETTERS SHALL BE PROVIDED FOR ALL VALVES. SECURE TO THE VALVE WITH CHROME PLATED BALL CHAINS.

2. IDENTIFY ALL PIPING AND EQUIPMENT WITH PAINTED STENCILS, PLASTIC PIPE MARKERS OR PLASTIC TAPE MARKERS. MARKERS SHALL INDICATE TYPE INCLUDING SUPPLY OR RETURN AND DIRECTION OF FLOW.

3. ALL IDENTIFICATION SHALL CONFORM WITH 12 INTERNATIONAL CODES AND ANSI A13.1.

MECHANICAL INSULATION

A. MANUFACTURERS: OWENS-CORNING, P.P.G., JOHNS-MANVILLE, C.S.G. CO., ARMSTRONG, OR EQUAL.

B. PLUMBING PIPING TO BE INSULATED IN ACCORDANCE WITH 2015 IECC AND IFC AND AS FOLLOWS, (BRANCH LINES TO FIXTURE CONNECTIONS DO NOT REQUIRE INSULATION):

1. DOMESTIC COLD WATER LOCATED IN COLD AREAS.

2. DOMESTIC HOT WATER WITHIN THE FIRST 10' OF WATER HEATER OR IN COLD AREAS.

3. DOMESTIC HOT CIRCULATING WATER

4. ROOF DRAIN BOULDS

5. HORIZONTAL ROOF DRAIN PIPING INSULATION SHALL BE SNAP-ON TYPE, FIBERGLASS PIPE INSULATION, 1-INCH THICK, WITH WHITE SELF-SEALING FLAME RETARDANT VAPOR BARRIER JACKET. ALL VALVES AND FITTINGS SHALL BE INSULATED.

6. ALL CONDENSATE PIPING LOCATED IN COLD AREAS OR WHERE CONDENSATION CAN OCCUR.

C. ALL INSULATION SHALL MEET ALL CODE REQUIREMENTS AND FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM E-84, NATIONAL FIRE PROTECTION ASSOCIATION 225 AND U.L. T23, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50 RATINGS, PER 2015 IECC, IMC 4 IFC.

D. PROVIDE RIGID INSERTS AT ALL INSULATED HANGER LOCATIONS 2 1/2" AND LARGER. PROVIDE 180 DEGREE GALVANIZED STEEL SADDLES.

E. DUCTWORK SHALL BE INSULATED IN ACCORDANCE WITH 2015 IECC AND ASTM STANDARDS FOR COMMERCIAL AND INDUSTRIAL APPLICATIONS.

F. OPERATING TEMPERATURES OF 250°F AND DENSITY OF 15lb/FT3.

G. RETURN AIR DUCTS 1' LINER FOR SOUND ATTENUATION. INSULATE 0.4 DUCTS FROM EXTERIOR OPENING TO EQUIPMENT CONNECTION, EXHAUST AIR DUCTS WITH-IN 10 FEET OF EXTERIOR OPENING WITH MINIMUM R-6 INSULATION. SUPPLY AIR NONE REQUIRED FOR THIS PROJECT LOCATED WITH-IN BUILDING ENVELOPE. INSULATION SHALL HAVE 75 DENSITY FOIL-BACKED INSULATION WITH FIRE/SMOKE RATING OF 25-90, WHEN LOCATED IN RA PLENUM

PLUMBING GENERAL

A. THE WORK INCLUDED UNDER THIS HEADING CONSISTS OF FURNISHING MATERIALS, SUPPLIES, EQUIPMENT, TOOLS, TRANSPORTATION AND FACILITIES, AND PERFORMING ALL LABOR AND SERVICES FOR, AS REQUIRED IN CONNECTION WITH, OR PROPERLY INCIDENTAL TO, THE PLUMBING WORK, AS DESCRIBED IN THESE SECTIONS OF THE SPECIFICATIONS, SHOWN ON THE DRAWINGS, OR REASONABLY IMPLIED THEREFROM.

C. PROVIDE ALL REQUIRED INDIRECT DRAINS WITH A 1-1/2 INCH AIR GAP OR AS REQUIRED BY 2015 IFC.

D. COMPLETE INSTALLATIONS OF NEW PIPING, SUPPORTS, HANGERS, REGULATORS AND VALVES TO MAKE ALL SYSTEMS OPERATIONAL TO THE EXTENT INDICATED. INSTALL PER 2015 IFC AND IBC.

E. INSTALL WORK IN ACCORDANCE WITH STATE CODES AND INSTALLATION STANDARDS.

F. ALL PIPING PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE SEALED TO MAINTAIN ASSEMBLY RATING.

G. CONDUCT TESTS IN PRESENCE OF LOCAL CODE OFFICIAL AND CORRECT LEAKS OR DEFECTIVE WORK. CONDUCT AIR TESTS ON ROUGH PLUMBING IN COMPLIANCE WITH STATE PLUMBING CODES.

PIPE MATERIAL

A. SANITARY SEWER VENT PIPING BELOW GRADE AND/OR ABOVE GRADE, POLYVINYL CHLORIDE (PVC) MATERIAL ASTM D2665, FITTINGS PVC ASTM D2665, JOINTS ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT, CAST IRON PIPE SPECIFIED C151 301, HUB-LESS (AS REQUIRED BY CODE) FITTINGS CAST-IRON C151 301, JOINTS C151 310 NEOPRENE GASKET AND STAINLESS STEEL CLAMP AND SHIELD ASSEMBLIES.

B. BELOW GRADE DOMESTIC COLD POLYETHYLENE ASTM D2239, FE3408, SDRT, 200 PSI, NSF APPROVED HIGH DENSITY PIPE, FITTINGS ASTM D2603, JOINTS MECHANICAL WITH STAINLESS STEEL CLAMP, OR ASTM B88 TYPE K COPPER CROSS LINKED POLYETHYLENE (PEX) WATER DISTRIBUTION ASTM F876, FITTING NO UNDERGROUND FITTINGS ALLOWED WHEN TRANSITIONING TO ABOVE GROUND PIPING MATERIAL, APPROVED FITTING FOR SYSTEM, FITTING ASTM F1801 METAL. INSERT USING COPPER CRIMPING RING. ABOVE GRADE DOMESTIC COLD AND HOT WATER PIPING WITHIN THE BUILDING, COPPER WATER TUBE ASTM B88, TYPE 'L', HARD DRAWN, JOINTS SOLDER, LEAD FREE, 95-5 TIN-ANTIMONY, OR TIN AND SILVER, WITH MELTING RANGE 430 TO 835 DEGREES F. JOINTS PRESSED USING A CRIMPING TOOL APPROVED BY MANUFACTURERS AND LOCAL AUTHORITIES HAVING JURISDICTION. AND ANY OTHER APPROVED MATERIALS BY LOCAL AUTHORITY HAVING JURISDICTION AND IN 2015 IFC.

C. DOMESTIC WATER METER TO BE THE TYPE AND SIZE AS REQUIRED BY THE CITY WATER DEPARTMENT, AND SHALL BE FURNISHED BY THE OWNER AND INSTALLED BY THE PLUMBING CONTRACTOR. WATER METER SHALL BE INSTALLED ACCORDING TO THE CITY WATER DEPARTMENT STANDARDS, INCLUDING A REMOTE READER MOUNTED ON THE BUILDING EXTERIOR WALL.

D. INSTALL NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.

E. INSTALL PIPING TO MAINTAIN HEADROOM WITHOUT INTERFERING WITH USE OF SPACE OR TAKING MORE SPACE THAN NECESSARY, GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.

F. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.

G. PROVIDE ACCESS WHERE VALVES AND FITTINGS ARE NOT ACCESSIBLE.

H. SLEEVE PIPES PASSING THROUGH PARTITIONS, WALL AND FLOORS.

I. INSTALL UNIONS DOWNSTREAM OF VALVES AND AT EQUIPMENT OR APPARATUS CONNECTION, INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, INSTALL BALL VALVES FOR SHUT-OFF AND TO ISOLATE EQUIPMENT, PART OF SYSTEMS, OR VERTICAL RISERS. INSTALL BUTTERFLY VALVES FOR THROTTLING, BYPASS, OR MANUAL FLOW CONTROL SERVICES. PIPE RELIEF FROM VALVES, BACK-FLOW PREVENTERS AND DRAINS TO NEAREST FLOOR DRAIN.

J. ALL INDIVIDUAL FIXTURES SHALL HAVE WATER SUPPLY SHUT-OFF VALVES.

K. DOMESTIC WATER STERILIZATION SHALL BE CONDUCTED AND CERTIFIED AS REQUIRED BY THE STATE DEPARTMENT OF PUBLIC HEALTH. CLEAN AND DISINFECT SYSTEM PRIOR TO OPERATION IN ACCORDANCE WITH LOCAL JURISDICTION STANDARDS.

CLEANOUTS

A. PROVIDE CLEANOUTS WHERE SHOWN ON THE DRAWINGS AND AT ALL BENDS OF 90 DEGREES OR MORE, AND SHALL BE SPACED AT NOT OVER 75-FEET APART IN ANY LINEAL RUN OF PIPING. ALL SHALL BE ACCESSIBLE; IF NOT, THEY SHALL BE EXTENDED TO THE FLOOR ABOVE AND PROVIDED WITH CHROME WALL OR FLOOR COVER.

B. CLEANOUTS SHALL BE INSTALLED PER 2015 IFC AND LOCAL CODES.

C. MANUFACTURERS: JOSAM, ZURN, JAY R SMITH, WADE, OR EQUAL.

A. GAS PIPING, STEEL PIPE ASTM A53/A53M SCHEDULE 40 BLACK (PROTECT PIPING IN ACCORDANCE WITH CHAPTER 3 4 4 09 IFGC WHEN USED IN OUTDOOR LOCATIONS AND THROUGH WALLS); FITTINGS ASME B16.3, MALLEABLE IRON, OR ASTM A234/A234, FORGED STEEL WELDING TYPE, JOINTS THREADED FOR PIPE 2" INCHES AND SMALLER, WELDED FOR PIPE 2-1/2 INCH AND LARGER. ALL WELDING SHALL BE BY A CERTIFIED PIPELINE WELDER, INACCESSIBLE LOCATION OR PLENUMS; ALL SIZES, SCHEDULE 40 BLACK SEAMLESS STEEL PIPE, BEVELED ENDS, WITH SOCKET WELD FITTINGS SAME THICKNESS AS PIPE AND WELDED JOINTS. ALL WELDING SHALL BE BY A CERTIFIED PIPELINE WELDER. ALL UNDER GROUND GAS PIPING, TUBING AND FITTINGS SHALL BE POLYETHYLENE PLASTIC PIPE CONFORMING TO ASTM D 2915 PIPE SHALL BE MARKED 'GAS' AND 'ASTM D 2915'. LP (UNDILUTED LIQUEFIED PETROLEUM) GAS SYSTEMS USING POLYETHYLENE SHALL BE IN ACCORDANCE WITH 09 IFGC AND NFPA 58. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH 2015 IFGC CHAPTER 4, ASTM, NFPA 54, AND LOCAL CODE REQUIREMENTS.

VALVES

B. BALL VALVES: BRONZE BODY, FULL PORT STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, BLOWOUT PROOF STEM, LEVER HANDLE AND THREADED ENDS. NIBCO T-585 OR EQUAL.

C. GAS COCKS 2-INCH AND SMALLER: 150 PSI WOG BRONZE BODY, STRAIGHTWAY PATTERN, SQUARE HEAD, THREADED ENDS.

D. GAS COCKS 2-1/2" INCH AND LARGER: M55 9P-78; 175 PSI, LUBRICATED PLUG TYPE, SEMI-STEEL BODY, SINGLE GLAND, WRENCH OPERATED, FLANGED ENDS.

E. GAS LINE PRESSURE REGULATORS: SINGLE STAGE, STEEL JACKETED, CORROSION RESISTANT GAS PRESSURE REGULATORS WITH ATMOSPHERIC VENT OR LISTED LIMITING ORIFICE, ELEVATION COMPENSATOR WITH THREADED ENDS FOR 2-INCH AND SMALLER, FLANGED ENDS FOR 2-1/2" INCH AND LARGER FOR INLET AND OUTLET GAS PRESSURES, SPECIFIC GRAVITY, AND VOLUME FLOW INDICATED.

AIR DISTRIBUTION

A. FURNISH AND INSTALL DUCTWORK AND SHEET METAL ACCESSORIES AS SHOWN AND SPECIFIED HEREIN.

B. COMPLY WITH APPLICABLE NFPA AND SMACNA STANDARDS, ASHRAE HANDBOOK, UL 181, AND 2015 IMC 4 IECC.

C. IN ADDITION TO ALL ITEMS SCHEDULED ON THE DRAWINGS, FURNISH SUBMITTALS ON ALL ITEMS SPECIFIED HERE-IN.

D. DUCTWORK MATERIALS 1 GAUGE AS PRESCRIBED BY CODE. 2. FLAT SHEETS ASTM A572, 3. ROUND FABRICATION PIPE LOCK LONGITUDINAL SEAMS WITH BEADED CRIMP TRANSVERSE JOINTS SECURED WITH SHEET METAL SCREWS. FITTINGS ADJUSTABLE 4-SEGMENT ELBOWS, MANUFACTURED CONICAL TEE FITTINGS AND TABS (SADDLE TABS NOT PERMITTED), MANUFACTURED REGISTER BOOTS AND STACK HEADS.

E. FLEX DUCT ACCEPTABLE MANUFACTURER FLEXMASTER CLASSIFICATION NFPA 90A CLASS 1 UL 181 LABELED. LOW PRESSURE FLEXMASTER TYPE 5-INSULATED, FACTORY FABRICATED ASSEMBLY CONSISTING OF ZINC-COATED SPRING STEEL HELIX, SEAMLESS INNER LINER WRAPPED WITH A NOMINAL 1" THICK ONE-POUND DENSITY FIBERGLASS INSULATION ALL ASSEMBLED IN A VAPOR BARRIER JACKET, RATED FOR PRESSURES TO 43' W.G.

F. SPIN-INS WITH BALANCING DAMPERS.

G. DUCTWORK SPECIALTIES TURNING 1. TURNING VANES CONSTRUCTION DOUBLE-THICKNESS AIR FOIL NONADJUSTABLE. 2. BALANCING DAMPERS CONSTRUCTION RIGID BEARINGS AND LOCKING QUADRANTS, WHERE USED IN CONJUNCTION WITH DUCT-MOUNTED COILS PROVIDE OPPOSED-BLADE TYPE WITH MAX 2" WIDE BLADES. 3. FLEX CONNECTION EQUAL TO VENTFABRICS VENTGLAS. 4. TEST HOLE LOW VELOCITY DUCTWORK DRILLED HOLE WITH FRICTION-FIT PLASTIC CAP ON METAL DUCT. 5. DUCT SEALANT COMPLIES WITH 2015 IECC.

H. GRILLES, REGISTERS, AND DIFFUSERS ACCEPTABLE MANUFACTURERS: NAILOR, CARNES, TITUS, TUTTLE & BAILEY, AND METAL AIRE.

I. LOW VELOCITY DUCTWORK. 1. ALL DUCTWORK IS CLASSIFIED AS LOW VELOCITY UNLESS INDICATED OTHERWISE. 2. FABRICATION IN ACCORDANCE WITH SMACNA AND ASHRAE STANDARDS FOR VELOCITY DUCTWORK. 3. MANUFACTURED DUCT CONNECTION SYSTEM MAY BE UTILIZED FOR TRANSVERSE JOINTS IN RECTANGULAR GALVANIZED STEEL DUCTWORK PROVIDE IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. 4. MATERIALS EXPOSED GALVANIZED STEEL CONCEALED GALVANIZED STEEL, FLEX LOW PRESSURE TYPE PLENUM RATED PER 2015 IMC.

J. DUCTWORK FABRICATION AND INSTALLATION. 1. FABRICATE AND INSTALL TO MEET JOB CONDITIONS FROM DIMENSIONS TAKEN FROM JOBSITE AND SHOP DRAWINGS. TRANSITION AS REQUIRED TO AVOID INTERFERENCES, MAINTAIN REQUIRED CROSS-SECTIONAL AREA. 2. FABRICATE AND INSTALL SO NO UNDUE NOISE OR VIBRATION RESULTS. 3. DO NOT PROVIDE HOLES IN THE DUCT SYSTEMS FOR THE INSTALLATION OF HANGERS, CONDUIT, PIPES, ETC. 4. DUCT DIMENSIONS ON DRAWINGS ARE CLEAR INSIDE DIMENSION, INCREASE SHEET METAL DIMENSIONS TO ACCOMMODATE LINER. 5. LOCATE ALL DUCTWORK CONCEALED UNLESS INDICATED OTHERWISE.

K. ELBOWS. 1. CURVED CENTER LINE RADIUS EQUAL TO 1-1/2 TIMES THE DUCT WIDTH. 2. SQUARE FITTED WITH TURNING VANES WHEN DUCT SIZE INTO THE ELBOW IS THE SAME AS DUCT SIZE OUT. FITTED WITH FIXED EXTRACTOR WHEN DUCT SIZE INTO THE ELBOW IS DIFFERENT FORM DUCT SIZE OUT.

L. TAKE-OFFS. 1. 45° TAKE-OFF WHERE OTHER MEANS OF CONTROL ARE NOT INDICATED OR USED, AND IN DUCTWORK BEHIND SIDEWALL SUPPLY REGISTERS.

M. HANGERS AND SUPPORTS. 1. HORIZONTAL DUCTS PROVIDE HANGERS OF TYPE AND SPACING AS RECOMMENDED BY SMACNA. 2. VERTICAL DUCTS THROUGH FLOORS PROVIDE GALVANIZED STEEL ANGLE ON AT LEAST TWO SIDES OF THE DUCT, FASTEN SECURELY TO DUCT AND FLOOR.

N. BALANCING DAMPERS. 1. PROVIDE FOR PROPER ADJUSTMENT AND CONTROL OF AIR DISTRIBUTION. MARK DAMPER ROD TO INDICATE THE RELATIVE POSITION OF THE DAMPER BLADES WITH RESPECT TO THE ROD.

O. FLEX DUCT. 1. USE LENGTHS AS NECESSARY TO MAKE CONNECTION WITHOUT FINCHING OR KINKING. SUSPEND HORIZONTAL RUNS WITH 3/4" WIDE FLAT STEEL BAND AT 36" O.C. MAKE END CONNECTIONS WITH STEEL DRAW BANDS. MAXIMUM LENGTH SHALL NOT EXCEED SIX FEET.

P. FLEX CONNECTIONS PROVIDE AT INLET AND OUTLET TO ALL FANS.

Q. TEST HOLES. 1. PROVIDE ON BRANCH AND MAIN DUCT TO PROVIDE OPENINGS THROUGH DUCT WALLS FOR THE INSERTION OF TEST EQUIPMENT. LOCATE TO ENABLE TRAVERSE READINGS PER CURRENT ASHRAE STANDARDS.

R. PAINTING WHERE INTERIOR OF DUCT IS VISIBLE THROUGH GRILLES, LOUVERS, ETC, PAINT VISIBLE INSIDE PORTION OF DUCT WITH FLAT BLACK PAINT.

S. PROVIDE TEST AND BALANCE BY LICENSED CONTRACTOR, INDICATE DATA ON AABC MN-1 NATIONAL STANDARDS FORMS (OR EQUAL) FOR TOTAL SYSTEM BALANCE. PROVIDE REPORT TO OWNER AND INSPECTOR AT TIME OF HEATING FINAL.

FIRE PROTECTION DESCRIPTION OF WORK:

A. THE WORK OF THIS SECTION INCLUDES ENGINEERING BY THE FIRE PROTECTION CONTRACTOR. THE SELECTED CONTRACTOR SHALL ACT AS ENGINEER OF RECORD FOR ALL FIRE PROTECTION WORK.

B. HYDRAULIC CALCULATIONS AND DRAWINGS SUBMITTED TO THE ARCHITECT / OWNER SHALL HAVE THE SIGNED STAMP OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO AND FAMILIAR WITH THIS TYPE OF INSTALLATION AND CERTIFYING THAT THE FIRE SPRINKLER SYSTEM HAS BEEN HYDRAULICALLY CALCULATED IN COMPLIANCE WITH NFPA AND GOVERNING CODES.

C. FIRE SPRINKLER PIPING DESIGN DRAWINGS SHALL SHOW ALL DUCTWORK, AIR DEVICES, LIGHTING AND ELECTRICAL PANELS.

D. THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE AS MANY SETS OF HYDRAULIC CALCULATIONS AS NECESSARY, PERFORMED AND SUBMITTED TO PROVE THAT THE MOST REMOTE AND DEMANDING AREAS ARE CALCULATED.

E. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR WATER FLOW DATA FROM THE APPROPRIATE WATER DEPARTMENT. A COPY OF THE WATER LOW TEST DATA FROM THE WATER DEPARTMENT SHALL ACCOMPANY THE HYDRAULIC CALCULATIONS BEFORE HYDRAULICALLY CALCULATING EQUIPMENT FIRE SPRINKLER SYSTEM.

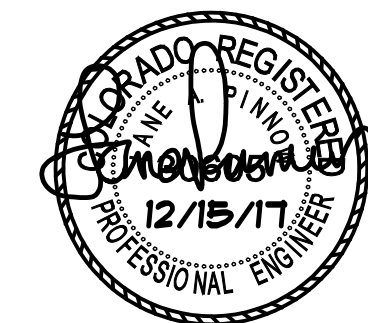
GUARANTEE PERIOD:

A. GUARANTEE: THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF 2 YEARS BEGINNING WITH THE DATE OF FINAL ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE DURING THE DESIGN, INSTALLATION, TESTING, AND GUARANTEE PERIODS FOR ANY DAMAGE CAUSED BY HIM (OR HIS SUBCONTRACTORS) OR BY DEFECTS IN HIS (OR HIS SUBCONTRACTORS') WORK, MATERIALS, OR EQUIPMENT.

B. EMERGENCY SERVICE: DURING THE INSTALLATION AND WARRANTY PRIOR, THE CONTRACTOR SHALL PROVIDE EMERGENCY REPAIR SERVICE FOR THE SPRINKLER SYSTEM WITHIN FOUR HOURS OF A REQUEST BY THE OWNER FOR SUCH SERVICES. THIS SERVICE SHALL BE PROVIDED ON A 24 HOUR PER DAY, SEVEN DAYS PER WEEK BASIS.

WATER DAMAGE:

A. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE WORK OF OTHERS TO BUILDING AND PROPERTY / MATERIALS OF OTHERS CAUSED BY LEAKS IN AUTOMATIC SPRINKLER EQUIPMENT, UNPLUGGED OR DISCONNECTED PIPES OR FITTING, AND SHALL PAY FOR NECESSARY REPLACEMENT OR REPAIR OF WORK OR ITEMS SO DAMAGED DURING THE INSTALLATION AND TESTING PERIODS OF THE AUTOMATIC SPRINKLER WORK.



MECHANICAL & PLUMBING SPECIFICATION

SCALE: NTS

MECHANICAL & PLUMBING SPECIFICATION PLAN NEW SHELL BUILDING ADDITION FOR: INDEX DEVELOPMENT MANAGEMENT, LLC 908 WEST HIGHWAY 50 PUEBLO, COLORADO

PROJECT NO. P17-045

DATE DECEMBER 15, 2017

DRAWN BY BCB

CHECKED BCB

APPROVED LAP

REVISED

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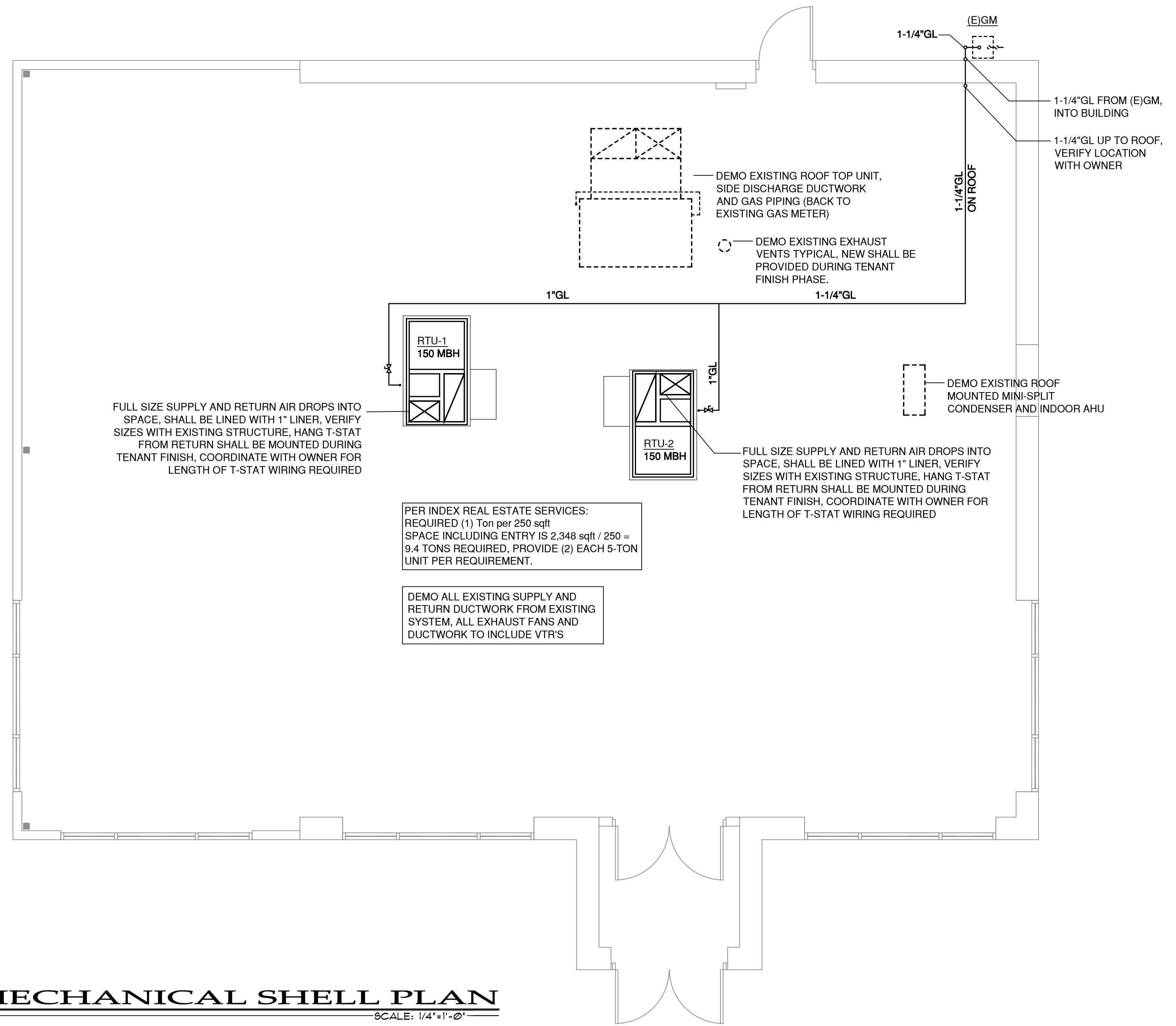
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ROOF TOP UNIT SCHEDULE

TAG	MANUFACTURER	MODEL NUMBER	CFM	O.A. SETTING	O.A. CFM	E.S.P.	N.T.	INPUT CMBH	INPUT HMBH	VOLT / PHASE	MCA	MOCP	APPOX WEIGHT LBS	REMARKS
RTU-1&2	CARRIER	48TCFA06A2A5	2,000	10%	200	0.8	5	60	150	208 / 3Ø	26.2	40	789	1,2,3,4,5
<p>1. ROOF TOP UNIT, BELT-DRIVING, COOLING 13-SEER, 10.75 EER, R-410A REFRIGERANT, 81.0% AFUE, NATURAL GAS HIGH ALTITUDE, PROVIDE LOW AMBIENT CONTROL, 14" ROOF CURB, HAIL GUARDS, ECONOMIZER WITH BAROMETRIC RELIEF DAMPER, DIFFERENTIAL ENTHALPY CONTROL AND SENSORS, SET TO PROVIDE 15% O.A. TO SPACE FOR SHELL OPERATION, DIGITAL 7-DAY SET-BACK THERMOSTAT, SMOKE SHUT-DOWNS ON RETURN DROP, UNITS SHALL BE EQUIPPED FOR FUTURE CO2 SENSOR CONNECTION (DEMAND CONTROL VENTILATION), FLUE DEFLECTOR, TRAPPED CONDENSATE DRAIN.</p> <p>2. VERIFY WITH OWNER IF FUTURE TENANT REQUIRES UNITS NEED TO BE EQUIPPED FOR FUTURE DDC CONTROLS.</p> <p>3. VERIFY WITH OWNER IF FUTURE TENANT REQUIRES UNITS TO HAVE HUMIDITY CONTROLS.</p> <p>4. VERIFY WITH E.C. / E.E. FOR PROVIDING CONVENIENCE OUTLETS, SCHEDULED UNITS ARE NOT EQUIPPED WITH CONVENIENCE OUTLETS.</p> <p>5. FIELD VERIFY ALL EXISTING AND NEW LOCATIONS DURING BIDDING AND PRIOR TO FABRICATION AND ORDERING.</p>														

MECHANICAL GENERAL NOTES

- CONFORM TO ALL FEDERAL, STATE, AND LOCAL CODES.
- COMPLY WITH APPLICABLE HEALTH AND SAFETY REGULATIONS.
- INSTALLATION SHALL COMPLY WITH CURRENT LOCAL CODES, 15 IMC, IECC, IPC, IBC, IFG, 8MACNA, AND NFPA STANDARDS.
- CALL FOR INSPECTIONS AS REQUIRED.
- PROVIDE FLEXIBLE CONNECTIONS AT AIR HANDLERS DUCT CONNECTIONS, SUPPLY AND RETURN.
- PROVIDE MANUFACTURED TURNING VANES AT ALL 90° RECTANGULAR ELBOWS IN SUPPLY AND RETURN DUCTS.
- ALL SUPPLY AIR BRANCH TAKE-OFFS OR DIFFUSERS TO HAVE MANUAL VOLUME DAMPERS THAT ARE ACCESSIBLE, WHERE SUCH TAKE-OFFS OCCUR ABOVE HARD LID CEILINGS PROVIDE VOLUME DAMPER AT GRILLE OR ACCESS IN CEILING.
- ALL DUCT HANGERS TO COMPLY WITH 15 IMC.
- SUPPLY AIR AND RETURN AIR DUCTS SHALL BE CONSTRUCTED OF METAL AS SET FORTH IN 15 IMC AND LOCAL CODES. ROUND OR SPIRAL PIPE MAY BE USED IN LIEU OF RECTANGULAR DUCT PROVIDED PIPE SIZING IS SUCH THAT THE SYSTEM CAPACITY IS NOT IMPAIRED AND IT MEETS 15 IMC AND LOCAL CODE REQUIREMENTS (NO FIBROUS DUCT ALLOWED). COORDINATE WORK WITH G.C. AND OTHER TRADES TO MAXIMIZE CEILING HEIGHT AND AVOID CONFLICTS.
- ALL JOINTS OF DUCTWORK TO BE SEALED WITH DUCT SEALER.
- THERMOSTAT CAPABILITIES SHALL BE IN ACCORDANCE WITH 2015 IECC REQUIREMENTS (PROGRAMMABLE DIGITAL SET-BACK).
- CONTRACTOR TO CONFIRM VOLTAGES AND PHASES OF EQUIPMENT PRIOR TO ORDERING AND INSTALLATION. CONTROL WIRING BY THIS CONTRACTOR (LOW VOLTAGE ONLY); POWER WIRING BY ELECTRICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL COORDINATE REQUIRED CONNECTIONS TO GENERAL CONTRACTOR.
- EXHAUST FANS TO HAVE BACK DRAFT DAMPERS, 1/4" MESH AND SHALL MAINTAIN 10" CLEARANCE FROM ANY BUILDING INTAKES.
- LABEL ALL UNITS AS TO AREA SERVED. PROVIDE 110 VOLT OUTLET WITHIN 25' OF UNIT WHERE UNITS ARE LOCATED OUTSIDE. ROOF ACCESS TO BE PROVIDED WHEN UNITS ARE LOCATED ON ROOF PER SECTION 306.5 15 IMC. GUARDS IF REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 304.10 15 IMC.
- MESH SCREEN ON LOUVERS NOT TO EXCEED 1/4" MESH.
- DEVIATIONS FROM THE HVAC PLANS ARE THE RESPONSIBILITY OF THE HVAC CONTRACTOR & WILL NOT RESULT IN ADDITIONAL COSTS TO THE OWNER UNLESS WRITTEN CHANGE ORDERS ARE APPROVED BY OWNER. THIS CONTRACTOR TO BE RESPONSIBLE FOR PROPER FIT AND OTHER ASPECTS RELATED TO THE SUBSTITUTION.
- A COMPLETE HVAC SYSTEM IS INTENDED FOR THIS PROJECT. ANY DISCREPANCIES AND OMISSIONS NOTED SHOULD BE BROUGHT TO THE ARCHITECT / ENGINEER'S ATTENTION DURING THE BIDDING PROCESS FOR CLARIFICATION.
- PROVIDE OWNER WITH A WRITTEN WARRANTY COVERING MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF THE PROJECT. PROVIDE OWNER WITH OPERATION AND MAINTENANCE MANUALS AND SYSTEM SCHEMATICS DURING SCHEDULED TRAINING / TURN OVER STAGE.
- FIELD VERIFY ALL CONDITIONS AND LOCATIONS PRIOR TO CONSTRUCTION.
- ALL SUPPLY AND RETURN DUCTWORK SHALL BE LINED WITH MINIMUM 1" LINER FOR SOUND ATTENUATION. INSULATE EXHAUST AND MAKE-UP AIR DUCTWORK WITH MINIMUM R-6 INSULATION TO EXTERIOR CONNECTION. ALL DUCTWORK NOT LOCATED WITHIN BUILDING INSULATION OR R.A. PLENUMS SHALL BE INSULATED IN ACCORDANCE WITH LOCAL CODE, 15 IMC & IECC REQUIREMENTS. (ALL DUCTWORK SHOWN ARE MINIMUM INTERIOR DIMENSIONS.)
- OUTSIDE AIR (O.A.) REQUIREMENTS TO BE IN ACCORDANCE WITH 15 IMC CHAPTER 4 AND TABLE 403.3.
- THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT SHOW ALL TRANSITIONS, OFFSETS, ECT. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND PROVIDE ALL NECESSARY FITTINGS TO COMPLETE THE INTENT OF THE DRAWINGS. CONTRACTOR MAY LOCATED MECHANICAL EQUIPMENT DIFFERENTLY THAN SHOWN ON DRAWINGS DUE TO CONFLICTS, AS LONG AS FUNCTION IS NOT AFFECTED.
- ALL ROOF AND WALL PENETRATIONS SHALL HAVE WALL SLEEVES / ROOF JACKS, VENT CAPS, WEATHER PROTECTION, AND BE SEALED BY A LICENSED ROOF CONTRACTOR.
- IF MATERIALS ARE EXPOSED WITHIN PLENUMS THEY SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84 AS PER 15 IMC.
- EQUIPMENT AND APPLIANCES INSTALLED AT GRADE LEVEL SHALL BE SUPPORTED ON A LEVEL CONCRETE SLAB OR OTHER APPROVED MATERIAL EXTENDING A MINIMUM 3 INCHES ABOVE ADJOINING GRADE OR SHALL BE SUSPENDED A MINIMUM OF 3 INCHES ABOVE ADJOINING GRADE.
- CONTRACTOR SHALL FIELD VERIFY ALL EQUIPMENT AND DUCT LOCATIONS AND CONDITIONS PRIOR TO FABRICATION, ORDERING AND CONSTRUCTION.
- IF REQUIRED REPLACE ANY AIR FILTERS PRIOR TO TURNING SYSTEM OPERATIONS OVER TO OWNER.
- CONTRACTOR RESPONSIBLE FOR COORDINATING AND VERIFYING ALL COLORS WITH OWNER AND ARCHITECT PRIOR TO PROCUREMENT.
- MECHANICAL CONTRACTOR (M.C.) SHALL PROVIDE AND INSTALL SMOKE DETECTOR SHUT-DOWNS ON ALL AIR HANDLING EQUIPMENT IN ACCESS OF 2,000 CFM, OR AS PER LOCAL CODE, 15 IMC & IECC REQUIREMENTS. M.C. MAY NOT EXCLUDE FROM SCOPE OF WORK AND MUST COORDINATE WITH GENERAL AND ELECTRICAL CONTRACTOR TO ENSURE CONNECTION TO FIRE CONTROL SYSTEM IF REQUIRED.



MECHANICAL SHELL PLAN

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

LEGEND & ABBV.

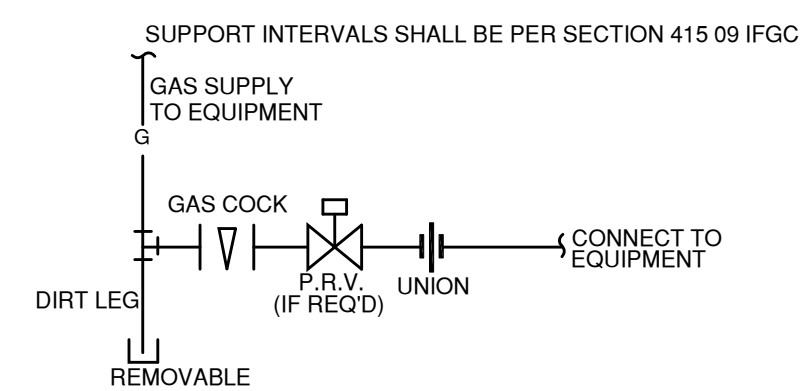
SUPPLY GRILLE	SWITCH
RETURN GRILLE	THERMOSTAT
EXHAUST GRILLE	F-1 UNIT SERVED
WALL / TRANSFER GRILLE	E.A. - EXHAUST AIR
CABINET CEILING MOUNTED EXHAUST FAN	T.A. - TRANSFER AIR
FLEXIBLE DUCT	S.A. - SUPPLY AIR
RIGID SUPPLY & RETURN DUCTWORK	R.A. - RETURN AIR
EXISTING SUPPLY & RETURN DUCTWORK	VTR - VENT THROUGH ROOF
TURNING VANES	CFM - CUBIC FOOT MINUTE
SG-1 - 10"Ø — GRILLE TAG / NECK SIZE	UCD - UNDER CUT-DOOR
200 CFM — SET AIR FLOW	BDD - BACK DRAFT DAMPER
--"x--" SUPPLY / RETURN SQUARE DUCT ID SIZE	
Ø" SUPPLY / RETURN ROUND DUCT ID SIZE	

GAS PIPING LEGEND & NOTES

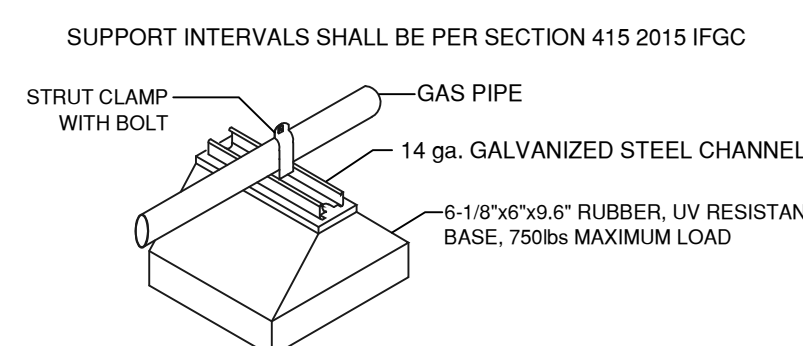
GL - SCHEDULE 40 METALLIC PIPE REGULAR PRESSURE
⌘ SHUT-OFF VALVE
FIELD VERIFY ALL LOCATIONS, CONDITIONS, SIZES PRIOR TO CONSTRUCTION. CONTRACTOR MAY RELOCATE DUE TO CONFLICTS THAT MAY ARISE IN FIELD AS LONG AS SIZE AND FUNCTION IS NOT AFFECTED.
FIELD VERIFY ALL LOCATIONS AND CONDITIONS. ALL GAS PIPING SHALL BE INSTALLED PER 2015 IFGC, LOCAL CODE REQUIREMENTS. SEE 2015 IFGC SECTION 404 FOR ALL PIPING SYSTEM INSTALLATION.
THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND DO NOT SHOW ALL REQUIRED PIPING. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND PROVIDE ALL NECESSARY MATERIALS TO COMPLETE THE INTENT OF THE DRAWINGS. CONTRACTOR MAY LOCATE PIPING DIFFERENTLY THAN SHOWN ON DRAWINGS DUE TO CONFLICTS, AS LONG AS SIZE AND FUNCTION IS NOT AFFECTED. IF ISOMETRICS ARE SHOWN ONLY FOR CLARITY REFER TO DRAWINGS FOR LOCATIONS, SIZING AND ROUTING.

EXISTING GAS METER (E)GM

EXISTING GAS METER, LESS THAN 2.0 PSI, SCHEDULE 40 METALLIC PIPE SEE TABLE 402.4(2) 15 IFGC (LESS THAN 2.0 PSI, REGULAR PRESSURE 7" TO 14" WC) TOTAL LOAD: 300 MBH TDL TO FURTHEST REGULATOR DOES NOT EXCEED 100' VERIFY WITH LOCAL UTILITIES FOR NEW LOAD ON METER, COORDINATE NEW METER AS REQUIRED, VERIFY LOCATION, SYSTEM PSI AND POC'S DURING BIDDING PRIOR TO ORDERING, FABRICATION AND CONSTRUCTION, REPORT ANY DISCREPANCIES TO G.C. / ENGINEER



GAS PIPING CONNECTION DETAIL
(NTS) INSTALL PER 2015 IFGC



DETAIL EXAMPLE ONLY OF ROOF MOUNTED RUBBER UV-RATED SUPPORT WITH GALVANIZED STEEL CHANNEL. CONTRACTOR MAY USE ANY SUPPORT THAT IS IN ACCORDANCE WITH 2015 IFGC & IMC

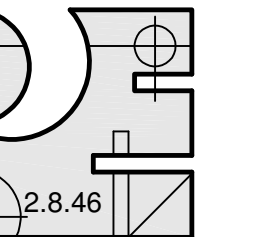
GAS PIPING SUPPORT DETAIL
(NTS) INSTALL PER 2015 IFGC & MANF. INSTRUCTIONS



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MECHANICAL SHELL PLAN
NEW SHELL BUILDING ADDITION FOR:
INDEX DEVELOPMENT
MANAGEMENT, LLC
908 WEST HIGHWAY 50
PUEBLO, COLORADO

PROJECT NO. FIT-245

DATE DECEMBER 15, 2017

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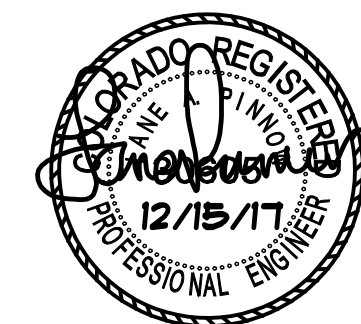
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SHEET

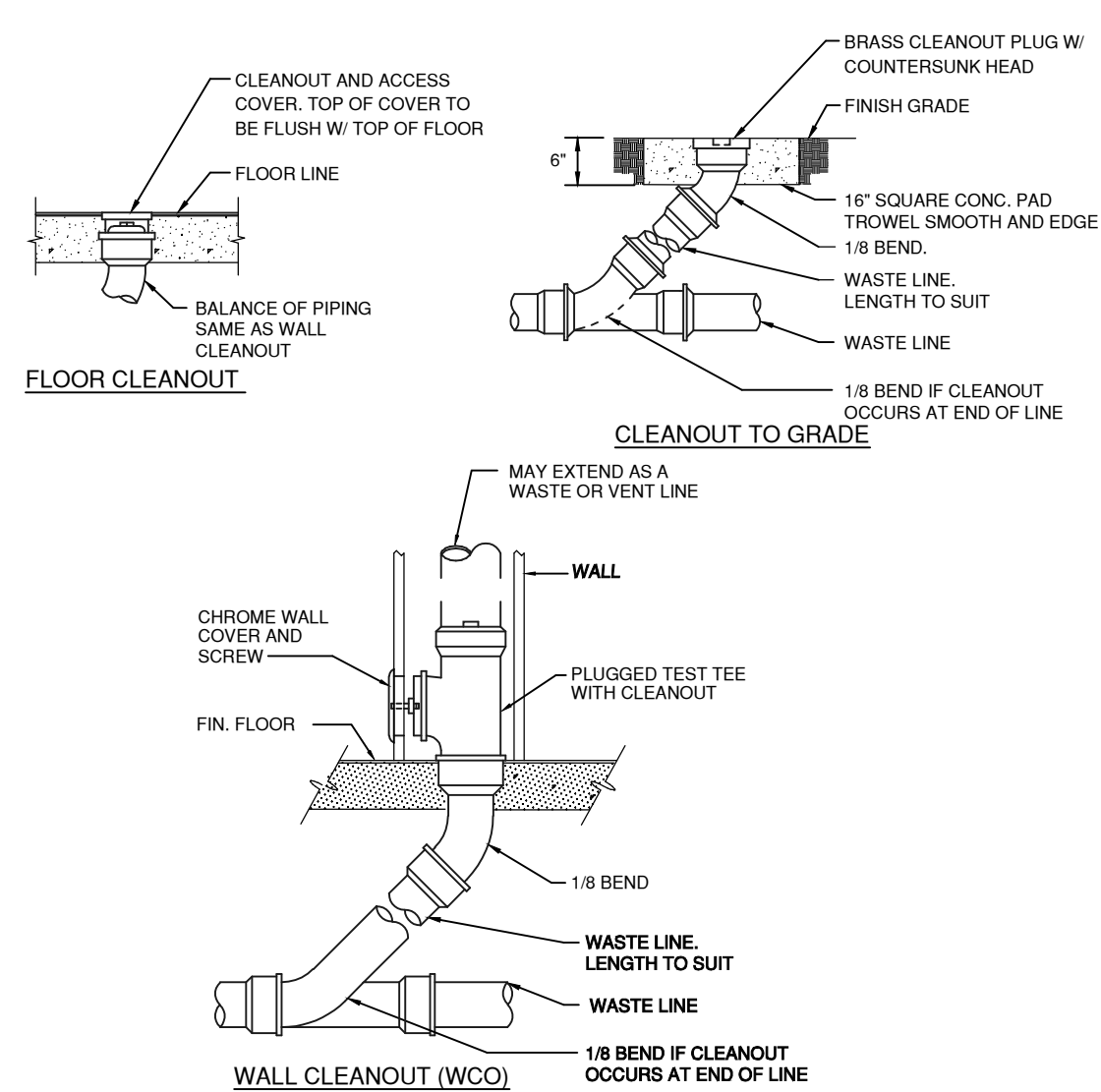
M-1

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



PLUMBING GENERAL NOTES

1. PROVIDE CLEAN OUTS IN WASTE PIPING PER 15 IPC AND LOCAL CODES.
2. ALL PLUMBING / PIPING SHALL CONFORM TO 2015 IPC, IRGC, IBC, IECC, CURRENT LOCAL AND WASTE/WATER CODES.
3. HOSE BIBBS / SILL COCKS MUST BE SELF DRAINING, FREEZE PROTECTED, AND FITTED WITH BACK FLOW PREVENTION DEVICE.
4. OPENINGS, CUTTING AND PATCHING AS REQUIRED SHALL BE ACCOMPLISHED BY OTHERS.
5. CONFIGURE PIPING IN SUCH A MANNER AS TO ALLOW EASE OF MAINTENANCE FOR ALL MECHANICAL EQUIPMENT. REFER TO MECHANICAL EQUIPMENT SHEETS.
6. FIELD VERIFY ALL CONDITIONS, LOCATIONS, FIXTURES, PIPING NEW/EXISTING PRIOR TO CONSTRUCTION.
7. FIRE PROTECT ALL PIPING PENETRATING FIRE RATED WALLS OR ASSEMBLIES. SEE SECTION 301.3 & 315 15 IPC AND SECTION 715 IBC.
8. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT SHOW ALL FITTINGS, OFFSETS, ECT. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND PROVIDE ALL NECESSARY FITTINGS TO COMPLETE THE INTENT OF THE DRAWINGS. CONTRACTOR MAY ROUTE PIPING DIFFERENTLY THAN SHOWN ON DRAWINGS DUE TO CONFLICTS, AS LONG AS FUNCTION AND SIZING IS NOT AFFECTED.
9. VERIFY REDUCED PRESSURE BACK FLOW PREVENTER AND PRESSURE REDUCING VALVE WITH METER SET IS EXISTING PROVIDE ANY MATERIALS TO BE IN ACCORDANCE WITH LOCAL UTILITIES.
10. INSULATE ALL PIPING IN ACCORDANCE WITH 15 IECC 4 IPC.
11. FIXTURE VENTS PER SECTION 909 15 IPC, TRAP ARM DISTANCES FROM VENT AS PER TABLE 909.1 15 IPC, VENT PIPES TERMINATION SHALL COMPLY TO SIZE AND LOCATION REQUIREMENTS OF SECTION 903 & 904 15 IPC AND LOCAL CODES. (MINIMUM 10' FROM OR 3' ABOVE INTAKES, EXTENDED TO TOP OF PARAPETS, OFFSET AS NECESSARY).
12. WASTE PIPING SHALL BE SCHEDULE 40 PVC, VENT AND ROOF DRAIN PIPING SHALL BE SCHEDULE 40 PVC (PROTECT WHEN LOCATED IN R.A. PLENUM OR RATED ASSEMBLY OR TRANSITION TO CAST-IRON, PER SECTION 301.6 15 IPC). UNDER GROUND WATER PIPING SHALL BE TYPE K COPPER OR HD POLYETHYLENE, ABOVE GROUND WATER PIPING SHALL BE TYPE L RIGID COPPER, IF LOCAL AUTHORITY ALLOWS CONTRACTOR MAY USE LISTED AND APPROVED PEK PIPING. GAS PIPING SHALL BE SCHEDULE 40 METALLIC. NOTE CONTRACTOR MAY USE APPROVED PIPING MATERIALS AS LISTED IN 15 IPC OR BY LOCAL BUILDING DEPARTMENT AMENDMENTS.
13. PLUMBING CONTRACTOR SHALL FIELD VERIFY ALL EXISTING LOCATIONS PRIOR TO PURCHASING MATERIALS AND CONSTRUCTION. CONTRACTOR MAY RELOCATE DUE TO CONFLICTS AS LONG AS SIZE AND FUNCTION IS NOT AFFECTED.
14. TRAP SEAL PRIMERS SHALL BE IN ACCORDANCE WITH 15 IPC SECTION 901.2 & 1002.4, LISTED TRAP PROTECTOR'S MAY BE USED IF LOCAL BUILDING DEPARTMENT ALLOWS THEIR USE.
15. IF MATERIALS ARE EXPOSED WITHIN PLENUMS THEY SHALL BE NON COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84, PER SECTION 301.6 15 IPC & 03 15 IPC.
16. ALL ROOF AND WALL PENETRATIONS SHALL HAVE WALL SLEEVES / ROOF JACKS, WEATHER PROTECTION, AND BE SEALED BY A LICENSED ROOFING CONTRACTOR.
17. COORDINATE WITH G.C. / OWNER FOR CONNECTION OF ANY OWNER PROVIDE PLUMBING FIXTURES OR EQUIPMENT.
18. NEW WORK, ALTERATIONS OR ADDITIONS TO PLUMBING SYSTEMS ARE SUBJECT TO FIELD INSPECTION.
19. PROVIDE BACKFLOW ASSEMBLIES PER 15 IPC
20. INDIRECT WASTE PIPING SHALL CONFORM TO CHAPTER 8 15 IPC
21. PROTECT ALL PIPES FROM FREEZING PER SECTION 303.6 15 IPC



CLEAN OUT DETAILS
(NTS) INSTALL PER 15 IPC VERIFY LOCATION

LEGEND & NOTES

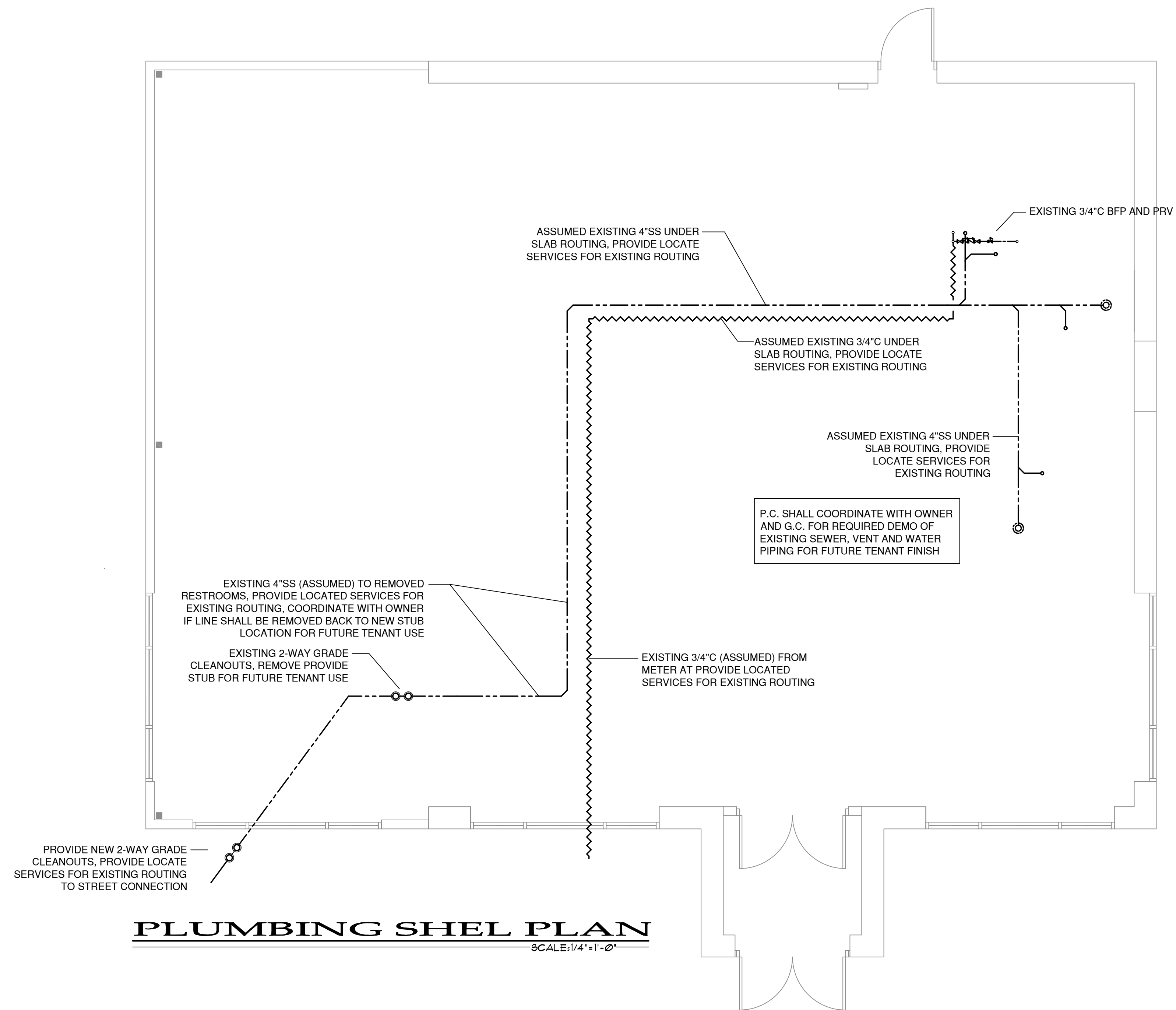
----- SANITARY SEWER (SS)	← WALL CLEANOUT
----- VENT (V)	⊙ FLOOR/GRADE CLEANOUT
----- COLD WATER (C)	----- FILTERED COLD WATER (FCW)
----- HOT WATER (H)	
----- HOT WATER RECIRC (HWR)	
----- GREASE SEWER (GS)	
----- STORM DRAINAGE (SD)	
~~~~~ UNDER SLAB WATER COPPER OR HD POLYETHYLENE PIPING	

TRAP ARMS HORIZONTAL DISTANCES PER TABLE 909.1 15 I.P.C.  
PROVIDE GRADE, FLOOR, WALL, END OF LINE CLEANOUTS PER 15 I.P.C.  
NO 1/2"x1/2" WATER TEES ALLOWED.

FIELD VERIFY ALL LOCATIONS, CONDITIONS, SIZES PRIOR TO CONSTRUCTION. CONTRACTOR MAY RELOCATE DUE TO CONFLICTS THAT MAY ARISE IN FIELD AS LONG AS SIZE AND FUNCTION IS NOT AFFECTED.

SELECTED CONTRACTOR SHALL FIELD VERIFY WITH ACTUAL SITE CONNECTION POINTS ALL LOCATIONS ARE ASSUMED. CONTRACTOR SHALL COORDINATE EXISTING WATER CONNECTIONS AND PROVIDE LOCATE SERVICES TO ENSURE ROUTING AS SHOWN. COORDINATE WITH OWNER FOR ABOVE STATED LOCATE SERVICES AND FINAL EQUIPMENT LOCATIONS DURING BIDDING, PRIOR TO FABRICATION, ORDERING, AND CONSTRUCTION.

THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND DO NOT SHOW ALL REQUIRED PIPING. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND PROVIDE ALL NECESSARY MATERIALS TO COMPLETE THE INTENT OF THE DRAWINGS. CONTRACTOR MAY LOCATE PIPING DIFFERENTLY THAN SHOWN ON DRAWINGS DUE TO CONFLICTS, AS LONG AS SIZE AND FUNCTION IS NOT AFFECTED. IF ISOMETRICS ARE SHOWN THEY ARE ONLY FOR CLARITY REFER TO DRAWINGS FOR LOCATIONS, SIZING AND ROUTING.



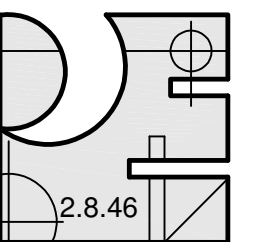
**PLUMBING SHELL PLAN**  
SCALE: 1/4"=1'-0"



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DESIGN GROUP**

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PLUMBING SHELL PLAN  
**NEW SHELL BUILDING ADDITION FOR:  
INDEX DEVELOPMENT  
MANAGEMENT, LLC  
908 WEST HIGHWAY 50  
PUEBLO, COLORADO**

PROJECT NO. P17-045

DATE DECEMBER 15, 2017

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12/15/17

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P-1

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

