

PLUMBING GENERAL NOTES

- A. FIRESTOP ALL MECHANICAL PENETRATIONS THROUGH FIRE-RATED FLOOR AND WALL ASSEMBLIES. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND TYPE OF RATINGS.
B. WATER HAMMER ARRESTORS SHALL BE PROVIDED TO EACH WASHROOM AND FIXTURE GROUP. ALL PIPING SHALL BE INSULATED PER THE SPECIFICATION.
C. THE LOCATION AND ROUTING OF PIPES SHALL BE THE INTENT OF THE DESIGN. THE CONTRACTOR SHALL ALLOW FOR THE POSSIBILITY OF INTERFERENCES AND SHALL RESOLVE WITH OTHER TRADES ON SITE. ANY CHANGES TO THE DESIGN INTENT REQUIRE APPROVAL BY THE ENGINEER.
E. ALL NEW CORING FOR PLUMBING SERVICES SHALL BE DONE BY MECHANICAL CONTRACTOR. COORDINATE WITH ALL OTHER TRADES.
F. SANITARY PIPING THROUGH CONCRETE BEAMS SHALL BE THROUGH CAST-IN-PLACE STEEL SLEEVES. REFER TO STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR LOCATIONS. COORDINATE WITH GENERAL CONTRACTOR.
G. EACH WASHROOM FIXTURE GROUP SHALL HAVE A SINGLE SHUT OFF VALVE. VALVES SHALL BE FULLY ACCESSIBLE. REFER TO ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION OF PLUMBING FIXTURES.
I. REFER TO STRUCTURAL DRAWINGS FOR RESTRICTIONS FOR ALL NEW FLOOR AND WALL PENETRATION LOCATIONS AND SIZES.
J. THE CONTRACTOR SHALL SIZE AND COORDINATE PLUMBING VENTING WHERE NOT SHOWN ON THE DRAWINGS. REFER TO THE DRAWINGS FOR SPECIFIC LOCATIONS AND COORDINATION REQUIREMENTS. PATCH AND MAKE GOOD ALL AREAS DAMAGED BY DEMOLITION WORK TO MATCH EXISTING FINISHES. REFER TO SITE FOR FINISHES.
L. THE INTERRUPTION OF ANY SERVICES SHALL BE COORDINATED WITH THE BUILDING OWNER AND SHALL BE KEPT TO A MINIMUM.
M. ASBESTOS CONTAINING MATERIALS MAY BE PRESENT WITHIN WORK AREAS IN EXISTING BUILDINGS. COORDINATE ALL ABATEMENT REQUIREMENTS WITH THE BUILDING OWNER.

LINE TYPE LEGEND

Table with 2 columns: Line style and Description. Includes EXISTING (solid line), NEW CONSTRUCTION (dashed line), and DEMOLISHED (dotted line).

PLUMBING LINE TYPE

Table with 2 columns: Line style and Description. Includes DOMESTIC COLD WATER, DOMESTIC HOT WATER RECIRCULATION LINE, DOMESTIC HOT WATER, RAIN WATER LEADER, STORM SEWER, SANITARY WASTE ABOVE FLOOR OR GRADE, SANITARY WASTE BELOW FLOOR OR GRADE, SANITARY VENT, INDIRECT WASTE, PUMPED CONDENSATE, CONDENSATE LINE, NATURAL GAS, COMPRESSED AIR, and PROPANE.

PLUMBING SYMBOLS

Table with 2 columns: Symbol and Description. Includes FLOOR DRAIN, ROOF DRAIN, PIPE RISE, PIPE DROP, TRAP, CLEAN OUT, HOSE BIBB / WALL HYDRANT, UNION, FLANGE, SHUT-OFF VALVE, CHECK VALVE, PUMP, FIXTURE TAG, EQUIPMENT TAG, KEY NOTE, DEMOLITION NOTE, DRAWING HEADER, WATER METER, COMPRESSED AIR CONNECTION, and PRESSURE WASHER CONNECTION.

FIRE PROTECTION GENERAL NOTES

- A. THE SPRINKLER CONTRACTOR SHALL INSTALL A COMPLETE SPRINKLER SYSTEM AS NOTED ON THE DRAWINGS AND SPECIFICATIONS.
B. THE SPRINKLER CONTRACTOR SHALL PREPARE ALL NECESSARY DETAILED DESIGN DRAWINGS AND/OR DOCUMENTS AND SUBMIT TO THE ENGINEER FOR REVIEW AND COORDINATION. ENSURE COMPLETE SPRINKLER COVERAGE IN COMPLIANCE WITH NFPA 13 & NFPA 14, AND RELATED APPLICABLE NFPA CODES. THIS SET OF CONTRACT DOCUMENTS INCLUDES PROJECT-SPECIFIC REQUIREMENTS NOTED IN THE DRAWINGS AND SPECIFICATIONS THAT MAY EXCEED MINIMUM REQUIREMENTS OF THE NFPA CODES. THESE ITEMS HAVE BEEN COORDINATED WITH THE ARCHITECT AND OWNER, AND SHALL BE INCLUDED IN THE CONTRACTOR'S WORK AND ON THE SPRINKLER CONTRACTOR'S DETAILED DRAWINGS.
D. THE INSTALLATION OF SPRINKLER SYSTEMS SHALL NOT COMMENCE UNTIL THE COMPLETE SHOP DRAWINGS AND SPECIFICATIONS HAVE BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION (A.H.J.).
E. THE SPRINKLER INSTALLATION SHALL COMPLY WITH THE APPLICABLE NFPA CODES AND REQUIREMENTS OF THE A.H.J. IF THERE IS A CONFLICT WITH THE PRECEDED INTENT OF THIS DRAWING SET AND THE REQUIREMENTS OF NFPA OR THE A.H.J., NOTIFY THE ENGINEER TO RESOLVE. NO INCREASES TO THE CONTRACT WILL BE PERMITTED FOR COMPLIANCE WITH MINIMUM CODE REQUIREMENTS.
F. IN AREAS WITH SUSPENDED TILE CEILINGS INSTALL SPRINKLER HEADS CENTERED ON THE TILES. ALLOW FOR ADDITIONAL FLOOR BALANCE DAMPERS FOR EACH EXHAUST, SUPPLY, AND RETURN GRILLE WHERE AN AIR UNDER DUCTS MORE THAN 1200mm (48") WIDE.
H. THE SPRINKLER CONTRACTOR SHALL CONFIRM ON SITE THE LOCATIONS OF EXISTING STRUCTURES, EQUIPMENT, AND SYSTEMS FOR INTERFERENCE AND COORDINATION PURPOSES. INCLUDE ALL OFFSETS, ADDITIONAL LOW-POINT DRAINS, ADDITIONAL HEADS AS REQUIRED, ROUTE BRANCH LINES AS REQUIRED.
I. GRADE ALL NEW PIPING TO ALLOW COMPLETE SYSTEM DRAINAGE. DRAINAGE SHALL BE ROUTED TO THE NEAREST SANITARY DRAIN OR SUMP PITS. IS NOT PERMITTED.
J. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF SPRINKLER RISERS ON SITE. COORDINATE LOCATION OF RISERS AND FIRE DEPARTMENT CONNECTION WITH THE ARCHITECT. THE SPRINKLER CONTRACTOR SHALL SCAN FOR REBAR AND CONDUIT AND PROVIDE RESULTS OF SCAN IN WRITING TO OWNER PRIOR TO CORING OR DRILLING IN ALL CONCRETE WALLS OR FLOORS.
L. FIRESTOP ALL NEW AND EXISTING PENETRATIONS. THE SPRINKLER PIPING SYSTEMS SHALL BE SIZED BASED ON EXISTING FIRE PUMPS.
N. PROVIDE PROTECTIVE CAGES ON SPRINKLER HEADS LOCATED BELOW STAIRS.

FIRE PROTECTION LINE TYPE

Table with 2 columns: Line style and Description. Includes SPRINKLER LINE - DRY, SPRINKLER LINE - PRE-ACTION, SPRINKLER LINE - WET, FIRE DEPARTMENT CONNECTION LINE, and FIRE PROTECTION - SANITARY.

SPRINKLER SYMBOLS

Table with 2 columns: Symbol and Description. Includes UPRIGHT SPRINKLER, PENDENT SPRINKLER, SPRINKLER WITH GUARD, SIDEWALL SPRINKLER, SIDEWALL SPRINKLER CONCEALED, PENDENT SPRINKLER - CONCEALED HEAD, INSTITUTIONAL TAMPER RESISTANT SPRINKLER HEAD, FLOW DETECTOR / SWITCH, PRESSURE DETECTOR / SWITCH, VALVE SUPERVISORY SWITCH, VALVE WITH VALVE SUPERVISORY SWITCH, CHECK VALVE, BACKFLOW PREVENTER - DOUBLE CHECK TYPE, RISER, VALVES (GENERAL), SITE GLASS, OS&Y VALVE (RISING STEM), SINGLE FIRE DEPARTMENT CONNECTION, ALARM CHECK VALVE, FIRE PROTECTION NOSE VALVE, PRESSURE GAUGE, TYPE ABC FIRE EXTINGUISHER, LIGHT HAZARD, ORDINARY HAZARD (GROUP 1), ORDINARY HAZARD (GROUP 2), EXTRA HAZARD (GROUP 1), EXTRA HAZARD (GROUP 2), DRY SPRINKLER SYSTEM *, PRE-ACTION SPRINKLER SYSTEM *

* REFER TO SPRINKLER COVERAGE SCHEDULE FOR HAZARD LEVEL

HVAC GENERAL NOTES

- A. FIRESTOP ALL MECHANICAL PENETRATIONS THROUGH FIRE-RATED FLOOR AND WALL ASSEMBLIES. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND TYPE OF RATINGS.
B. DUCT TRANSITIONS MAY NOT BE SHOWN IN DETAIL ON PLAN. REFER TO DETAILS SHEETS AND SMACNA - HVAC DUCT CONSTRUCTION STANDARDS FOR REQUIRED DUCT TRANSITIONS AND FITTINGS. ALL DUCT TAPS TO BRANCH DUCTS SHALL HAVE 45 DEGREE ENTRY FITTINGS.
C. INSTALL FIRE DAMPERS ON ALL DUCTS PENETRATING FIRE RATED WALL ASSEMBLIES. COMPLETE WITH HEIGHT AND DISTANCE FROM DOOR WITH ARCHITECT.
E. DUCT INSULATION MATERIALS SHALL MEET SMOKE AND FLAME SPREAD REQUIREMENTS FOR PLENUM INSULATION.
F. DUCT INSULATION SHALL FOLLOW THE SCHEDULES IN THE SPECIFICATION AS A MINIMUM REQUIREMENT. THESE REQUIREMENTS SHALL APPLY REGARDLESS OF WHETHER OR NOT DUCT INSULATION IS SHOWN ON THE DRAWINGS.
G. WHERE DUCT INSULATION IS SHOWN ON THE DRAWINGS (EITHER WITH THE HATCHING CONVENTION OR BY MEANS OF A KEY NOTE) AND EXCEEDS THE REQUIREMENTS OF THE SCHEDULES IN THE SPECIFICATION, THE ADDITIONAL INSULATION REQUIREMENTS SHALL BE MET.
H. INSTALL ALL FLOOR-MOUNTED EQUIPMENT ON MINIMUM 100MM (4") THICK CONCRETE HOUSE KEEPING PADS.
I. PROVIDE MANUAL BALANCE DAMPERS FOR EACH EXHAUST, SUPPLY, AND RETURN GRILLE WHERE AN AIR UNDER DUCTS MORE THAN 1200mm (48") WIDE.
K. INSTALL ALL BALANCE DAMPERS AS FAR AWAY FROM GRILLES OR DIFFUSERS SERVED AS PRACTICALLY POSSIBLE.
L. INSTALL ALL BALANCE DAMPERS IN AN EASILY ACCESSIBLE LOCATION.
M. REFER TO CONTROLS SCHEMATICS FOR REQUIREMENTS FOR SENSORS, ACTUATORS AND OTHER CONTROL'S COMPONENTS.
N. CONTRACTOR SHALL SCAN FOR REBAR AND CONDUIT AND PROVIDE RESULTS OF SCAN IN WRITING TO OWNER PRIOR TO CORING OR DRILLING IN ANY CONCRETE WALL OR FLOOR.
O. HIGH-LEVEL EXHAUST FANS SHALL BE HUNG FROM STRUCTURE COMPLETE WITH SPRING VIBRATION ISOLATION AND DUCT FLEX CONNECTIONS.
P. ALL OPENINGS BETWEEN FIRE RATED FLOOR ASSEMBLIES AND FIRE RATED WALLS, PARTITIONS ETC. SHALL BE FIRE STOPPED. COORDINATE WITH ARCHITECTURAL.
Q. ALL THERMOSTATS LOCATED IN PUBLIC SPACES TO BE PROTECTED WITH A TRANSPARENT, LOCKABLE COVER.

HVAC LEGEND

Table with 2 columns: Symbol and Description. Includes SUPPLY AIR/OUTSIDE AIR DUCT RISER, RETURN AIR/EXHAUST AIR DUCT RISER, MANUAL BALANCING DAMPER, FIRE DAMPER & ACCESS DOOR, SMOKE DAMPER & ACCESS DOOR, MOTORIZED DAMPER, BLADES PARALLEL W/ FLOOR UNLESS NOTED OTHERWISE, BACK DRAFT DAMPER, TURNING VANES, THERMAL INSULATION, ACOUSTIC INSULATION, FIRE WRAP, DIFFUSER TAG / GRILLE TAG, EQUIPMENT TAG, KEY NOTE, DEMOLITION NOTE, THERMOSTAT - LOW VOLTAGE, THERMOSTAT - LINE VOLTAGE, CARBON DIOXIDE SENSOR, HUMIDISTAT, PRESSURE SENSOR, TEMPERATURE SENSOR, CARBON MONOXIDE SENSOR, NITROGEN OXIDE SENSOR, DUCT SMOKE DETECTOR - BY DIV. 28, CARBON MONOXIDE SENSOR - BY DIV. 28

HYDRONIC GENERAL NOTES

- A. PIPING SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH ASME B31.9 CODE FOR BUILDING SERVICES PIPING.
B. INSTALL ALL HYDRONIC PIPING IN ACCORDANCE WITH THE SPECIFICATIONS.
C. COORDINATE PIPE RUNS IN THE BULKHEAD WITH OTHER TRADES TO AVOID CONFLICTS.
D. SUPPORT PIPING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE SPECIFICATIONS.
E. FIRESTOP ALL MECHANICAL PENETRATIONS THROUGH FIRE-RATED FLOOR AND WALL ASSEMBLIES. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND TYPE OF RATINGS.
F. ALL EXPOSED PIPING IN MECHANICAL ROOMS, CRAWLSPACES, AND OCCUPIED AREAS SHALL BE ENCLOSED WITH PVC JACKET.
G. REFER TO SCHEMATIC AND DETAILS FOR PIPING AND EQUIPMENT ARRANGEMENT.
H. WHEN USED IN RETURN/AIR PLENUMS, INSULATION MATERIALS FOR DOMESTIC, HYDRONIC, AND REFRIGERANT PIPING TO MEET SMOKE AND FLAME SPREAD REQUIREMENTS FOR PLENUM INSULATION. PROVIDE A MINIMUM OF TWO 90-DEGREE CHANGES IN DIRECTION AT EACH BRANCH CONNECTION TO ALLOW FOR PIPE MOVEMENT.
J. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR FIELD-FABRICATED EXPANSION LOOPS INCLUDING ANCHORS AND GUIDES.
K. LAYOUTS ARE SCHEMATIC AND ROUTING IS SHOWN TO CONVEY THE DESIGN INTENT. ADDITIONAL OFFSETS, STEAM TRAPS, AND ELBOWS SHALL BE INSTALLED AS REQUIRED TO ACCOMMODATE ALL EXISTING CONDITIONS.
L. INSTALL VALVES WITH THE STEMS VERTICAL. WHEN THIS IS NOT POSSIBLE, THEY MAY BE INSTALLED ROTATED BUT NEVER LESS THAN HORIZONTAL UNDER ANY CIRCUMSTANCE.
M. ARRANGE ISOLATION VALVES STAGGERED WHERE THEY ARE INSTALLED IN A COMMON LOCATION SO THEY ARE COMPLETELY AND CONVENIENTLY ACCESSIBLE.
N. INSTALL VALVES WITH ADEQUATE ROOM TO PERMIT REMOVAL OF THE BONNET, DISK, AND TRIM WITHOUT REMOVING THE VALVE FROM THE LINE.
O. ALL PIPE TAKE-OFFS SHOULD BE FROM THE TOP OF PIPE. WHERE THIS IS NOT POSSIBLE PROVIDE A TAKE-OFF AT A MINIMUM OF 45 DEGREE ABOVE HORIZONTAL.
P. INSTALLATION SHALL PROVIDE MINIMUM 200mm (8") OF CLEAR HEAD ROOM THROUGHOUT ALL MECHANICAL ROOMS.
Q. PATCH AND MAKE GOOD ALL AREAS DAMAGED BY DEMOLITION WORK TO MATCH EXISTING FINISHES. REFER TO SITE FOR FINISHES.
R. THE INTERRUPTION OF ANY SERVICES SHALL BE COORDINATED WITH THE BUILDING OWNER AND SHALL BE KEPT TO A MINIMUM.
S. ASBESTOS CONTAINING MATERIALS MAY BE PRESENT WITHIN WORK AREAS IN EXISTING BUILDINGS. COORDINATE ALL ABATEMENT REQUIREMENTS WITH THE BUILDING OWNER.
T. ALL OPENINGS BETWEEN FIRE RATED FLOOR ASSEMBLIES AND FIRE RATED WALLS PARTITIONS ETC. SHALL BE FIRE STOPPED. COORDINATE WITH ARCHITECTURAL.

REFRIGERANT LINE TYPE

Table with 2 columns: Line style and Description. Includes REFRIGERANT HOT GAS, REFRIGERATION LIQUID, and REFRIGERATION SUCTION.

HYDRONIC SYMBOLS

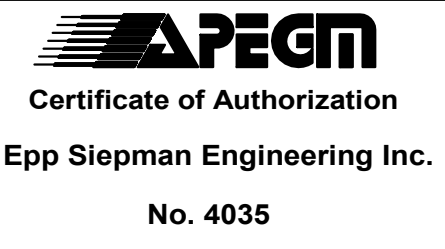
Table with 2 columns: Symbol and Description. Includes PIPE RISE, PIPE DROP, PUMP, SHUT-OFF VALVE, SHUT-OFF VALVE NORMALLY CLOSED, CONTROL VALVE, THREE WAY CONTROL VALVE, CHECK VALVE, AUTOMATIC FLOW CONTROL VALVE, HOSE END VALVE, PIPE ANCHOR, PIPE GUIDE, DIRECTION OF FLOW, MANUAL AIR VENT, EXPANSION JOINT, AUTOMATIC AIR VENT, VOLUME METER, MASS FLOW METER, RADIATION ELEMENT TAG, EQUIPMENT TAG, PRESSURE INDEPENDENT VALVE

HYDRONIC SYMBOLS

Table with 2 columns: Symbol and Description. Includes 3-WAY VALVE, AIR SEPARATOR, AQUASTAT, AUTO REFILL VALVE, BACK FLOW PREVENTER, BALL VALVE, BUTTERFLY VALVE, BY-PASS CHEMICAL FEEDER, CALIBRATED BALANCING VALVE, CONCENTRIC AND ECCENTRIC REDUCER, DOUBLE CHECK VALVE ASSEMBLY, F & T STEAM TRAP, FLANGE, FLEX CONNECTION, GATE VALVE, GATE VALVE HOSE-END ADAPTOR WITH CAP, GLOBE VALVE, HOSE BIB, IN-LINE FILTER, INSTRUMENT TEST WELL, LOW WATER CUT OFF, OS&Y VALVE, PLUG VALVE, PRESSURE GAUGE, PRESSURE REDUCING VALVE, PRESSURE RELIEF VALVE, PRESSURE SENSOR, REVERSE FLOW BACK FLOW PREVENTER, SHOCK ABSORBER, SIGHT GLASS, SOLENOID VALVE, SQUARE HEAD COCK, STEAM SEPARATOR, STRAINER, TEMP & PRESSURE RELIEF VALVE, THERMAL WELL, THERMOSTATIC MIXING VALVE, THERMOSTATIC STEAM TRAP, TRIPLE DUTY VALVE, UNION, VACUUM BREAKER, WATER METER, NATURAL GAS METER

MECHANICAL DRAWINGS

Table with 2 columns: Symbol and Description. Includes SYMBOLS & ABBREVIATIONS, MECHANICAL SYMBOLS, PLUMBING DRAWINGS, FIRE PROTECTION DRAWINGS, HYDRONIC DRAWINGS, and SCHEMATICS & RISER DIAGRAMS.



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Project
ST. JAMES CIVIC CENTRE

MECHANICAL SYMBOLS

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