

GENERAL MECHANICAL CONDITIONS

The Tenant shall furnish selected mechanical equipment, accessories and controls as scheduled and as specified. The mechanical subcontractor(s) shall be responsible for delivery coordination, receiving, storage, setting, start-up and installing all tenant furnished equipment as well as the one year parts and labor warranties from the date of store opening.

A. SCOPE

1. Provide all labor, materials and equipment necessary to properly install, calibrate, air conditioning systems where shown on Drawings and as scheduled.
2. Provide equipment as specified together with all necessary ducts, grilles, registers, controls, piping, fan voltages, fans, control wiring, dampers, valves, equipment supports, flashing at equipment, and pipe insulation unless otherwise noted.
3. Related work by others:
 - a. Fanring except as herein specified.
 - b. Line voltages wiring and controls.
 - c. Electrical supply connection to equipment.

- B. All work shall conform to all Federal, state and local codes and any landlord requirements as specified in the executed Lease Agreement. Mechanical Contractor shall verify and coordinate scope of work with Dolor Tree and landlord.
- C. The Contractor shall examine the premises and verify the existing conditions under which he will be obligated to operate in performing his part of the work or that will in any manner affect the work under contract. No additional compensation shall be provided for conditions found during the execution of contract work. The Contractor shall cooperate with the all other trades so that the installation of all equipment may be properly coordinated. Contractor shall bring to the attention of the Contractor and any designers between field conditions and design documents.
- D. All equipment furnished shall fit the space available, with connections, etc., in the required locations and with adequate space for proper operation and adequate access to the field behind the drawings and the specifications. The Contractor shall promptly notify the Construction Manager whose decision shall be final. No allowance will be made subsequently in this connection to behalf of the Contractor after award of the contract.

- E. All mechanical equipment shall conform with the requirements of the State Mechanical Code, the State Building Code, the State Energy Code, NFPA 40A, 46,101 and all applicable local codes and ordinances.
- F. Drawings for mechanical work are diagrammatic, showing the general location, type, layout and equipment required. The drawings shall not be scaled for exact measurements. Refer to manufacturer's standard installation drawings for equipment connections and installation requirements as required. Furnish and install ductwork, connections, accessories, offsets and materials necessary to facilitate the systems functioning as indicated by the design and the equipment indicated. Contractor shall obtain all necessary permits and pay any associated fees.

- G. The Contractor shall install all piping, ductwork, fixtures and equipment as required to conform the structure, avoid obstructions, preserve ceiling heights and headroom and make all equipment requiring maintenance or repair accessible.
- H. The Contractor shall install mechanical systems as shown, noted and specified. Equipment may not be substituted unless written approval by the Architect, Engineer, or Tenant's Representative is obtained. Any unauthorized changes shall be removed contractor's expense if deemed necessary by Architect, Engineer, or Tenant's Representative. Contractor shall be responsible for any required changes to related work caused by the substitution of any items of materials or equipment at no additional cost to the tenant.

ROOFTOP AIR CONDITIONING UNITS (RACKS) REFINISHED EQUIPMENT

- A. Contractor shall coordinate the delivery, receiving, storage, rigging, hoisting, installation and start-up of rooftop finished roof top heating and cooling units, including all accessories as scheduled and as indicated on the drawings.
- B. Rooftop units shall be finished complete with casing, refrigeration system, heating section, filters, automatic controls, fans, motors and drives, as scheduled on drawings.
- C. Temperature controls:
 1. Rooftop units shall be finished with factory installed controls.
 2. Rooftop units shall be finished with Dolor Tree standard HVAC control factory installed and identified.

GRILLES, REGISTERS, AND DIFFUSERS

- A. The Contractor shall provide grilles, registers, and diffusers where indicated and as scheduled on the drawings.
- B. Grilles, registers, and diffusers shall be provided with opposed blade volume dampers.
- C. Grilles, registers, and diffusers shall be provided with frame types to match the surface into which they will be installed.
- D. Grilles, registers, and diffusers shall be provided with factory applied white finish.

EXHAUST FANS

- A. The Contractor shall provide exhaust fans where indicated and as scheduled on the drawings.
- B. The Contractor shall provide exhaust fans where indicated and as scheduled on the drawings.
- C. Inline exhaust fans shall be finished with vibration isolating hangers and all related hardware.
- D. All exhaust fans shall be finished with back draft dampers, insect screen, motor and drive, and options and accessories as scheduled on drawings.

DUCTWORK

- A. All ductwork shall be constructed of galvanized steel sheet metal in accordance with the SMACNA HVAC Construction Standards for metal and flexible ductwork.
- B. All elbows shall have proper radii or flanges. A duct profile forming wares as required by SMACNA duct construction manual.
- C. All duct connections to equipment shall be located (F/C) flexible connections.
- D. Flex duct: Provide factory assembled Class I air duct (UL 181) with fiberglass insulation and reinforced outer protective cover/vapor barrier. Flex duct shall meet NFPA 40A with flame spread under 25, smoke developed under 50, and shall be rated for 1" H₂O pressure and 0 to 250 degree Fahrenheit. Maximum length shall be 5'-0" Minimum center line bend radius shall be 1 1/2' duct diameters.
- E. All new supply and return ductwork shall be installed with external duct wrap or with stop reinforced kraft facing. All insulation shall meet NFPA 40A flame spread under 25 and smoke developed under 50. Thickness, density and R-value shall be per code. Insulation shall be fastened to ductwork per manufacturer's instructions and SMACNA standards. Round branch ductwork shall be insulated with 1" thick fiberglass sleeve with foil jacket and all joints and terminations sealed with foil duct tape.

EJECTION

- A. All ductwork transitions shall be (FOT) Field on Top unless otherwise specified on plan. All duct dimensions listed are inner or stream dimensions.
- B. All ductwork shall be rolled above the suspended ceiling space unless otherwise noted on the plans. All ductwork shall be suspended according to the latest edition of the SMACNA HVAC Duct Construction Standards for metal and flexible ductwork.
- C. All outside air intakes shall be a minimum of 10'-0" away from exhaust discharge openings and plumbing vent stacks.
- D. Provide UL approved fire dampers for all penetrations through fire rated walls, partitions, ceilings and floors. Install fire dampers as per manufacturer's directions and as per UL guidelines.
- E. Provide round spin-in fittings with volume damper for every inlet and outlet attachment to the main trunk duct. Whether shown on the plans or not. Provide additional volume dampers at all secondary branch takeoffs from ductwork mains and as indicated on plans.

- F. The contractor shall normally all materials and quantities all measurements for the year quantities on all air conditioning compressors.
- G. Supply return and positive pressure exhaust ductwork shall be sealed in accordance with SMACNA Seal Class C.
- H. Core-shell or semi-rigid existing walls, roof, etc. as required for piping or ductwork and fire-stop opening around pipe or ductwork. Verify location of structural beams, joists, etc. before drilling or cutting. Notify architect of any discrepancies.
- I. Whenever foundation walls, outside walls, roofs, etc. are cut for installation of systems, they shall be patched to match existing construction and sealed weather tight. Work shall be performed by craftsmen skilled in their respective trades.

- J. Provide 3 sets of pleated disposable filters. One set to be used until completion of construction phase. Install one set of completion of construction phase and deliver one set to tenant and label each set of filters to denote their respective HVAC units.
- K. Submit two Operation and Maintenance Manuals bound in 8-1/2" x 11" page binders, titled "Operation And Maintenance Manual" Standard binder contents with page dividers by system and equipment. Include all shop drawings and manufacturer's literature. These documents shall be a requirement for final payment.

GENERAL PLUMBING CONDITIONS

A. SCOPE

1. Provide all labor, materials, tools and equipment necessary to complete the work including installation of plumbing piping and fixtures. All work shall be in accordance with a workmanlike manner in accordance with the drawings and specifications.
2. Provide excavation and back fill of all trenches for piping.
3. Provide all backing supports and corners for fixtures.
4. Provide all cutting and patching of the construction work, rough finish and trim, which may be required for the installation or equipment. All patching shall match all surrounding work.
5. Contractor shall make all plumbing and piping connections to equipment specified to be furnished by others. Coordinate other sections of the building for proper installation and to air conditioning and heating equipment.
6. Contractor shall provide sufficient approved water hammer arrestors (Model SHOCK STOP" or equivalent) to prevent water hammer.
7. Contractor shall thoroughly clean all fixtures, equipment and piping after installation.
8. Contractor shall provide approved access doors in framed holes for all valves, traps which must be located in inaccessible locations.
9. Contractor shall provide cutout data for all sinks and lavatories to all other related trades.
10. Contractor shall obtain and pay for all required permits, inspections and certificates in connection with the his work and make all arrangements with utility companies for service and connections and pay all fees, charges permits and meter charges.

MATERIALS

A. DRAIN, WASTE AND VENT

1. Service weight, cast iron bell and spigot pipe and fittings. No lead solder. All pipe and fittings may be used above grade when permitted by local code.
2. Schedule 40 galvanized steel pipe and bonded malleable iron screw fittings.
3. Schedule 40 and 80 PVC or ABS piping with DWV pattern fittings may be used where allowed by local code. Foam core PVC piping will not be approved.

B. HOT AND COLD WATER

1. Above grade.
 - a. Type "L" copper tubing, hard temper, cold drawn with wrought copper lead free sweat fittings. Connections to fixtures and equipment shall be made with 85% red brass IPS size pipe or compression angle stops. Provide dielectric unions where connecting piping of dissimilar materials.
 2. Below grade.
 - a. Type "K" copper tubing, hard or soft temper, with wrought copper lead free sweat fittings. Note: No fittings shall be permitted below grade inside building.

C. AIR CONDITIONING CONDENSATE

1. Type "L" copper tubing, hard temper, cold drawn with wrought copper lead free sweat fittings.

D. NATURAL GAS PIPING

1. Schedule 40, ASTM A20, black iron pipe with 50 to black malleable threaded or socket welded fittings.

EJECTION

A. GENERAL REQUIREMENTS

1. Contractor shall examine the premises and submit a report of existing conditions under which he will be obligated to operate in performing his part of the work under the contract. The contractor shall coordinate with other trades so that the installation of all equipment may be properly coordinated.
2. All equipment furnished shall fit the space available, with connections, etc. in the required locations and with adequate space for operation and service.
3. All piping, except fixture supplies, shall be connected, cut, extended, to exact measurements based on the building and worked carefully in the direction of all piping shall be made with fittings. Changes in pipe size shall be made with reducing fittings.
4. No water or drain lines shall be permitted over electrical or telecommunication panels or in telecommunication rooms.
5. Provide protective metal cover plates over studs and joists where pipes penetrate close to edge of stud or joist.
6. Provide chrome plated seat/threads where pipes pass through floors, walls and ceilings in finished spaces.
7. All piping shall be installed with adequate provision for expansion and contraction using sliding joints, pipe clamps, anchors and expansion joints. Fittings shall be so spaced that they will not interfere with sliding of pipe on supports.
8. All openings in the roof shall be flashed waterproof for the instruction of the Landlord's roofing contractor to maintain roof watertight.

G. TESTING

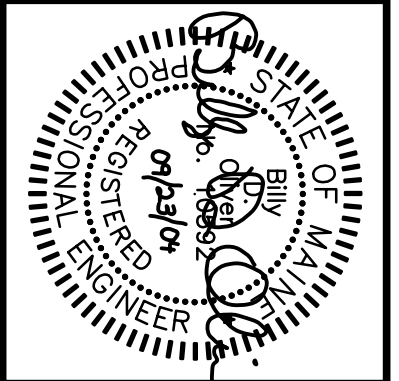
1. Drain, waste and vent lines shall pass inspection under head of water by system with water to top of highest vent stack.
2. Water lines shall pass inspection of four (4) hours under 50 psi pressure. Before any use of system is made for domestic purposes, it shall be sterilized by slowly filling with water to which a sterilizing agent has been added. The sterilizing agent shall be chlorine as determined by residual chlorine test, at extremities of the line. After lines have been filled for a period of three hours, tests for residual chlorine shall show not less than 50 ppm. of residual chlorine after three (3) hours. The lines shall be flushed until all traces of chemical are removed.
3. Gas lines shall stand a pressure of 15 psi for a period of 15 minutes without perceptible drop.
4. All testing shall be performed by contractor at his own expense.

H. GUARANTEE

1. All materials furnished and installed under this contract shall be new and free from all defects in materials and workmanship and shall be guaranteed for a period of one (1) year from the date of acceptance of the Tenant.

date	4/23/04	mark	_____	description	_____
project	604804	revisions	_____		
designed	TAL	by	_____		
drawn	TAL	date	_____		
checked	BDO				

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project
DOLLAR TREE
UNION STATION PLAZA DEAL #3013
drawing SPECIFICATIONS

sheet
MP-3
of

