

**PLUMBING AND DRAINAGE****Part 1 General****1.1 RELATED SECTIONS**

- .1 Section 06 10 53 – Miscellaneous Rough Carpentry.
- .2 Section 07 52 00 - Modified Bituminous Membrane Roofing.
- .3 Section 07 92 00 – Joint Sealants.

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
- .2 American Water Works Association (AWWA).
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS 2015)
  - .1 Safety Data Sheets (SDS).

**1.3 SUBMITTAL / APPROVAL**

- .1 Do not commence work until satisfactory installation of related work has been completed and approved.
- .2 Inspect work and advise Departmental Representative of conditions that would adversely affect the work of this trade.
- .3 Commencement of work is proof that the Contractor has accepted surfaces as satisfactory for intended operations and accepted responsibility for appearance and performance of completed work.
- .4 Defective work resulting from work on unsatisfactory surfaces will be considered the responsibility of those performing the work of this Section.
- .5 Repair damage and inferior work caused by the work of this Contract with materials and finish to match the original to Departmental Representative's approval.
- .6 Submit to the Departmental Representative a list of materials intended for use before they are ordered.
- .7 Provide samples of material without additional cost, to the Departmental Representative for review as requested.

**1.4 QUALITY ASSURANCE**

- .1 All drain installations, including insert type drains, shall be completed by plumbing subtrades licensed to undertake plumbing work in Ontario.
- .2 Equipment and materials must be new and free of imperfections.

**PLUMBING AND DRAINAGE****Part 2 Products****2.1 MATERIALS**

- .1 All standards, regulations and specifications listed herein are considered to be the latest available edition.
- .2 Compatibility between materials is essential. Use only materials that are known to be compatible when incorporated in a completed assembly.
- .3 Cast iron roof drains, at existing or new drain locations: Cast iron body, under deck clamp and sump receiver to suit roof construction, flashing clamp ring with bearing pan, and cast iron dome.
  - .1 Drain connector:
    - .1 Mechanical connection using double clamp to drain body and rainwater leader.
- .4 Provide control flow weir at all drains unless otherwise indicated. Weir to be supplied by drain manufacturer.
- .5 Mechanical joints for drain pipe: Neoprene or butyl rubber gasket with stainless steel clamp type joint.
- .6 Insulation for underside of drain: 2-component, 1 kg density polyurethane foam as detailed.
- .7 Insulation covering:
  - .1 Cover pipe insulation with canvas membrane wrap and paint.
  - .2 Where exposed, use preformed PVC.

**Part 3 Execution****3.1 PREPARATION**

- .1 Inspect surfaces and ensure that:
  - .1 Roof deck is level or sloped to provide proper and complete drainage from the roofing system in conformity to design intent.
  - .2 Existing pipe hangers are in adequate condition to independently support distribution pipes, prior to disconnection of any drains at roof level.
  - .3 Roof drains are set at a level to allow for positive drainage and are connected or capped.
  - .4 Plumbing is accessible and work can be completed as specified. Notify Departmental Representative of any adverse conditions.
  - .5 Existing roof drains are open and functioning properly.
  - .6 For costing and practical purposes, location of new drains and plumbing are approximate and should be considered accurate within 3 m. Advise Departmental Representative of variances and adjust locations as

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required to facilitate installation without additional cost, to the Departmental Representative's approval.

- .2 Contractor shall advise Departmental Representative in the event that the existing system or materials do not meet current code requirements.
- .3 Unless indicated otherwise, the plumbing sub-trade shall be responsible for the removal and reinstatement of furniture, plants and interior equipment, excluding computers, monitors, copiers and the like.
- .4 Contractor to provide interior protection to all areas where plumbing work is being completed. Provide sufficient dust and debris protection for the temporary removal of ceiling tiles and include for any supplemental clean up to return interiors to pre-construction conditions.
- .5 Remove all ceiling panels and plaster finish to provide access to the work. Re-install and make good all existing finishes to match original materials and conditions. Repainting of surfaces shall include all ceiling all wall areas up to a break in plane, unless otherwise indicated on drawings.
- .6 Remove and discard all existing drains and plumbing not designated for re-use. Notify Departmental Representative of any hazardous materials encountered.
- .7 In poured concrete decks, scan roof deck for presence of reinforcing steel or cast-in conduits, prior to coring.

**3.2 INSTALLATION AT EXISTING DRAIN LOCATIONS**

- .1 Increase openings in structures to facilitate plumbing as required.
- .2 Join pipe by means of rubber gaskets or mechanical couplings.
- .3 Fill voids around drain opening on concrete or lightweight concrete decks with quick dry concrete grout flush with top and bottom of deck.
- .4 Where area is inaccessible to install couplings, advise and request Departmental Representative to obtain a ruling on acceptability. Where directed by Departmental Representative, install anti-backflow seals to match pipe size and secure in place.
- .5 Extend insulation from pipes to drain hub. Cover with pipe wrapping and finish to general standards. If blanket insulation is used, ensure that all insulation fits tight to drain hub. Seal overlaps, edges and joints with reinforced vapour proof tape suitable to permanently hold insulation in place. Alternatively, in conformance with drawings, protect hubs with spray foam insulation, minimum thickness 38 mm unless otherwise specified or shown. Provide metal protection pan over deck as detailed.
- .6 If the existing pipe is not insulated, install insulation covering on horizontal and vertical sections of drainage pipes, minimum 3 m from drain. Ensure all seams are tight fitting, overlap and sealed to design intent.

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- .7 Install PVC covering over insulated piping where plumbing is exposed on the interior of the building.
- .8 All ceilings to be restored to original condition. Suspended ceilings to be restored to original condition and painted to match existing colour and finish. If paint colour cannot be matched, entire wall or ceiling area to be painted to blend into existing room to Departmental Representative's approval.
- .9 Restore all existing surfaces affected by work of this trade to match existing material and finish.
- .10 Ensure each roof is provided with operational drainage at the end of each work day.

**3.3 PLUMBING VENT MODIFICATIONS**

- .1 Cut down or extend existing soil stacks to a minimum height of 300 mm above finished roof surface. Extensions to match existing material and connections to be made with mechanical joint couplings.

**3.4 PIPING TEST**

- .1 Perform water tests before restoring interior ceilings and finishes.
- .2 Install plumbing line plugs below the level of connection and water test new plumbing installation. Correct all leaks.
- .3 Make leaks watertight while systems are still under test. If this is impossible, remove and refit defective parts. Caulking of threaded joints will not be permitted.
- .4 After leaks have been repaired, repeat tests as often as necessary to obtain approval and to ensure watertightness of each system.
- .5 Correct level of drains or pipes, if roof or pipes hold water.

**3.5 FINISH**

- .1 Reset existing ceiling finishes removed to execute work of this Contract.
- .2 Restore and repair all existing surfaces affected by the work to match existing materials and finish.
- .3 Re-paint entire ceiling or walls where it is required to make patching work un-disguisable with existing surfaces.

**END OF SECTION**