

PART 1 - GENERAL

1.1 REFERENCES

- .1 ASTM International Inc.
 - .1 ASTM A 53/A 53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 105/A 105M-05, Standard Specification for Carbon Steel Forgings, for Piping Applications.
- .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.

1.2 ACTION AND
INFORMATIONAL
SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature and datasheets for fixtures, and include product characteristics, performance criteria, physical size, finish and limitations.
 - .1 Manufacturer, model number, line contents, pressure and temperature rating.
 - .2 Movement handled, axial, lateral, angular and the amounts of each.
 - .3 Nominal size and dimensions including details of construction and assembly.
- .3 Sustainable Design Submittals:
 - .1 LEED Submittals: in accordance with Section 01 35 21 - LEED Requirements.

1.3 CLOSEOUT
SUBMITTALS

- .1 Provide maintenance and operation data in accordance with Section 01 78 00 - Closeout Submittals.
 - .1 Data to include:
 - .1 Servicing requirements, including special requirements, stuffing box
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1.3 CLOSEOUT SUBMITTALS (Cont'd)	.1 (Cont'd) .1 Data to include: (Cont'd) .1 (Cont'd) packing, lubrication and recommended procedures.
1.4 DELIVERY, STORAGE AND HANDLING	.1 Deliver, store and handle in accordance with Section 01 61 00 - Common Product Requirements. .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address. .3 Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
<u>PART 2 - PRODUCTS</u>	
2.1 SUSTAINABLE REQUIREMENTS	.1 Materials and products in accordance with Section 01 35 21 LEED Requirements.
2.2 SLIP TYPE EXPANSION JOINTS	.1 Application: for axial pipe movement. .2 Repacking: under full line pressure. .3 Body and packing housings: Class 150, 1MPa carbon steel pipe to ASTM A 53/A 53M, Grade B. Wall thickness to match pipe with ends for welding. .4 Slip or traverse sleeves: carbon steel pipe to ASTM A 53/A 53M, Grade B, hard chrome plated. .5 Anchor base: construction steel, welded to body.

2.2 SLIP TYPE
EXPANSION JOINTS
(Cont'd)

- .6 Guides (internal and external): embody into packing housing with concentric alignment of slip or traverse sleeve with packing housing.
- .7 Extension limit stop: stainless steel, to prevent over-extension with accessible and removable pins.
- .8 Packing rings: 6 minimum, PTFE or graphite impregnated non-asbestos.
- .9 Thermal plastic packing: PTFE or graphite impregnated non-asbestos slug supplied loose.
- .10 Lubricating fittings: pet cocks with grease nipple.
- .11 Plunger body and plunger:
 - .1 Plunger body: heavy wall carbon steel welded to body.
 - .2 Plunger: carbon steel with hex head for use with socket wrench.
- .12 Lubricant: to manufacturer's recommendations.
- .13 Lubricant gun: complete with hose assembly.
- .14 Drip connection: 20 MPa forged steel to ASTM A 105/A 105M. Include half coupling with drain plug.

2.3 GROOVED END
EXPANSION JOINTS

- .1 Packless, Gasketed, Slip, Expansion Joints:
 - .1 2413 kPa maximum working pressure.
 - .2 Steel pipe fitting consisting of telescoping body and slip-pipe sections.
 - .3 PTFE modified polyphenylene sulfide coated slide section.
 - .4 Suitable for axial end movement to 75 mm.
- .2 Expansion joint consisting of series of grooved end pipe nipples joined in tandem with flexible couplings. Total joint movement dependent on number of couplings and nipples used.

2.4 FLEXIBLE
CONNECTION

- .1 Application: to suit motion.
- .2 Minimum length in accordance with manufacturer's recommendations to suit offset.
- .3 Inner hose: stainless steel corrugated.
- .4 Braided wire mesh stainless steel outer jacket.
- .5 Diameter and type of end connection: as indicated.
- .6 Operating conditions:
 - .1 Working pressure: 1034 kPa.
 - .2 To match system requirements.
- .7 Three flexible grooved couplings placed in close proximity to vibration source for vibration attenuation and stress relief.

2.5 ANCHORS AND
GUIDES

- .1 Anchors:
 - .1 Provide as indicated.
 - .2 Concrete: to Section 03 30 00 - Cast-in-Place Concrete.
 - .3 Reinforcement: to Section 03 20 00 - Concrete Reinforcing.
- .2 Alignment guides:
 - .1 By conduit manufacturer.
 - .2 To accommodate specified thickness of insulation.
 - .3 Vapour barriers, jackets to remain uninterrupted.

PART 3 - EXECUTION

- 3.1 APPLICATION .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.
- 3.2 INSTALLATION .1 Install expansion joints with cold setting. Make record of cold settings.
- .2 Install expansion joints and flexible connections in accordance with manufacturer's instructions.
- .3 Install pipe anchors and guides as indicated. Anchors to withstand 150% of axial thrust.
- 3.3 PERFORMANCE VERIFICATION .1 In accordance with Section 23 08 01 - Performance Verification: Mechanical Piping Systems.
- 3.4 CLEANING .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.