SECTION 13 : INSTALLATION DETAILS

FIGURE 1  PRE-FORMED PIPE INSULATION MULTIPLE LAYER CONSTRUCTION
FIGURE 2  FLEXIBLE CLOSED CELL PIPE COVERING
FIGURE 3  FIELD AND FACTORY APPLIED NON-METAL JACKETING
FIGURE 4  FIELD APPLIED METAL JACKET
FIGURE 5  STANDARD AND SPLIT RING HANGERS
FIGURE 6  CLEVIS HANGER HIGH DENSITY INSERTS
FIGURE 7  PIPE SHOE ON ROLLER SUPPORT
FIGURE 8  TRACED PIPING
FIGURE 9  INSULATION SUPPORT RINGS / EXPANSION-CONTRACTION JOINTS
FIGURE 10  PRE-FORMED ELBOW INSULATION
FIGURE 11  MITRED INSULATION ELBOW OVER-SIZED APPLICATION
FIGURE 12  PVC / GLASS FIBRE ELBOW INSULATION SYSTEM
FIGURE 13  FIELD OR FACTORY FABRICATED VALVE INSULATION
FIGURE 14  PVC / GLASS FIBRE VALVE INSULATION
FIGURE 15  IN-LINE FLANGE INSULATION BUILT-UP AND BEVELED
FIGURE 16  PVC / GLASS FIBRE COUPLING OR IN-LINE FLANGE INSULATION SYSTEM
FIGURE 17  FLEXIBLE DUCT INSULATION ON RECTANGULAR DUCTS INDOORS
FIGURE 18  RIGID DUCT INSULATION ON RECTANGULAR EXPOSED DUCTS OUTDOORS
FIGURE 19  HIGH TEMPERATURE BLOCK OR BOARD INSULATION
FIGURE 20  VESSEL BOTTOM HEAD, LEG, SKIRT INSULATION AND SECUREMENT
FIGURE 21  PIPE AND TUBE EXCHANGERS - ENCASED
FIGURE 22  LARGE DIAMETER VERTICAL VESSELS BLOCK AND BLANKET INSULATION
FIGURE 23  LARGE DIAMETER HORIZONTAL VESSELS INSULATION SUPPORT AND SECUREMENT
FIGURE 24  FLEXIBLE CLOSED CELL SHEETS
FIGURE 25  EXTREME TEMPERATURE VESSELS BLOCK INSULATION
FIGURE 26  SMALL DIAMETER VESSELS / EXHAUST PIPE COVERING
FIGURE 27  FIELD APPLIED LINING
FIGURE 28  CURVED SURFACES RIGID BOARD INSULATION
FIGURE 29  NOZZLES AND INSULATION MANWAYS
FIGURE 30  BLOCKS AND PRE-FORMED PIPE INSULATION AROUND BREECHINGS AND EXHAUST DUCTS
FIGURE 31  HEAD INSULATION, SECUREMENT AND COVER FABRICATION
FIGURE 32  PIPING
FIGURE 33  FITTINGS
FIGURE 34  FLEXIBLE INSULATION BLANKETS
FIGURE 35  REMOVABLE AND REUSABLE INSULATION
FIGURE 36  REMOVABLE INSULATED METAL EQUIPMENT COVERS
FIGURE 37  REMOVABLE AND REUSABLE INSULATION
FIGURE 38  ELASTOMETRIC REMOVABLE COVERS
FIGURE 39  TYPICAL FIRE STOP COMPONENTS FOR FLOOR EXPANSION JOINT
FIGURE 40  TYPICAL FIRE STOP COMPONENTS FOR FLOOR EXPLANSION JOINT
FIGURE 41  TYPICAL FIRE STOP FOR WALL PENETRATIONS
FIGURE 42  TYPICAL FIRE STOP FOR WALL PENETRATIONS
FIGURE 43  TYPICAL FIRE STOP FOR WALL PENETRATIONS
FIGURE 44  TYPICAL FIRE STOP FOR WALL PENETRATIONS
FIGURE 45  TYPICAL FIRE STOP FOR WALL PENETRATIONS
FIGURE 46  TYPICAL FIRE STOP FOR DEFLECTION OF METAL STUD WALLS
FIGURE 47  TYPICAL FIRE STOP COMPONENTS FOR THE TOP OF THE MASONRY WALL
PRE-FORMED PIPE INSULATION
MULTIPLE LAYER CONSTRUCTION

1 PRE-FORMED PIPE INSULATION (AS SPECIFIED)
2 INSULATION WITH STAGGERED JOINTS
3 INSULATION FASTENING
4 FINISH JACKET
5 JACKET FASTENING
FLEXIBLE CLOSED CELL
PIPE COVERING
FIELD AND FACTORY-APPLIED NON-METAL JACKETING

1. PRE-FORMED PIPE INSULATION
2. VAPOUR BARRIER ADHESIVE (NOT REQUIRED WITH SELF-SEAL LAP)
3. STAPLES COATED WITH VAPOUR BARRIER COATING (NOT REQUIRED WITH SELF-SEAL LAP)
4. INSULATION FASTENING (NOT REQUIRED WITH FACTORY APPLIED JACKET)
5. BUTT STRIP SECURED WITH VAPOUR BARRIER ADHESIVE OR SELF SEAL
FIELD-APPLIED METAL JACKET

1 PRE-FORMED PIPE INSULATION
2 INSULATION FASTENING
3 JACKET OVERLAPPED (POSITION TO SHED WATER)
4 JACKET FASTENING OR
5 JACKET FASTENING
STANDARD AND SPLIT RING HANGERS

A
STANDARD RING HANGER

B
SPLIT RING HANGER

1 PRE-FORMED PIPE INSULATION
2 INSULATION FACTORY JACKET
3 BUTT STRIP
4 INSULATION NEATLY UT TO ACCOMMODATE HANGER
5 INSULATION ON HANGER ROD
CLEVIS HANGER
HIGH DENSITY INSERTS

1 PRE-FORMED PIPE INSULATION
2 HIGH DENSITY INSULATION
   (EXTEND 50mm BEYOND ENDS OF SHIELD)
3 FACTORY APPLIED VAPOUR BARRIER
4 FINFISH JACKET (METAL SHOWN)
5 METAL SHIELD (SUPPLIED BY OTHERS)
PIPE SHOE
ON ROLLER SUPPORT

1  PRE-FORMED PIPE INSULATION
2  INSULATION FASTENING IF NOT FACTORY JACKET
3  FINISH JACKET (METAL SHOWN)
4  PIPE SHOE SUPPLIED AND INSTALLED BY OTHERS
5  INSULATION IN PIPE SHOE CAVITY
TRACED PIPING

1 TUBING TRACER (BY OTHERS)
2 PRE-FORMED PIPE INSULATION (FACTORY JACKET)
3 HEAT TRANSFER COMPOUND (OPTIONAL)
4 HEAT TRANSFER COMPOUND CHANNEL (OPTIONAL)
5 BANDING SECURING CHANNEL TO PIPE
6 MULTIPLE TUBING TRACER (BY OTHERS)
7 ELECTRIC CABLE OR TAPE TRACER (BY OTHERS)
INSULATION SUPPORT RINGS / EXPANSION - CONTRACTION JOINTS

1. PRE-FORMED PIPE INSULATION - SINGLE LAYER
2. FACTORY JACKET
3. SLEEVE OR FACTORY JACKET MATERIAL
4. BANDING TO SECURE SLEEVE
5. COLLAR OF FLEXIBLE INSULATION
6. PRE-FORMED PIPE INSULATION DOUBLE LAYER
7. INSULATION SUPPORT RING (BY OTHERS)
8. COLLAR OF FLEXIBLE INSULATION BELOW SUPPORT RINGS
PRE-FORMED ELBOW INSULATION

1 PRE-FORMED PIPE INSULATION (SHOWN WITH METAL JACKET)
2 PRE-FORMED FITTING COVER
3 BANDING OR SCREWS TO SECURE FITTING COVER
MITRED INSULATION ELBOW
OVERSIZE APPLICATION

1 PRE-FORMED PIPE INSULATION
2 MITRED SEGMENTS OF PIPE INSULATION
3 FINISH JACKET
4 WIRE OR BANDING
5 FITTING COVER
   (METAL CORE TYPE SHOWN)
6 FASTENING (SCREWS OR POP RIVETS)
FIGURE 12

1 PRE-FORMED PIPE INSULATION WITH FACTORY JACKET
2 COLLAR OF OVER-SIZED PIPE INSULATION
3 FLEXIBLE INSULATION INSERT
4 PVC FITTING COVER SECURED WITH SERRATED FASTENERS
5 VAPOUR BARRIER END CAP
6 PVC FITTING COVER
7 VAPOUR BARRIER TAPE OR ADHESIVE
FIELD OR FACTORY -FABRICATED VALVE INSULATION

1  PRE-FORMED PIPE INSULATION WITH METAL JACKET
2  COLLAR OF PIPE INSULATION SIZED TO CLEAR FLANGES
3  COLLAR OF PIPE INSULATION SIZED TO CLEAR VALVE BODY
4  COLLAR OF PIPE INSULATION SIZED TO COVER BONNET (OPTIONAL)
5  COVER OF RIGID INSULATION OF BONNET INSLATED
6  INSULATION ADHESIVE AT JOINTS
7  FLEXIBLE INSULATION FILL (OPTIONAL)
8  CAULKING ON OUTDOOR INSTALLATIONS
9  METAL JACKET MATERIAL COVER
PCV / GLASS FIBRE VALVE INSULATION

1 PRE-FORMED PIPE INSULATION
2 OVER-SIZED PIPE INSULATION COLLAR
3 FLEXIBLE INSULATION INSERT
4 PVC COVER (SEAM SECURED WITH SERRATED TACKS, ADHESIVE OR TAPE)
5 END COVER
6 CAULKING TO SEAL
IN-LINE FLANGE INSULATION
BUILT-UP AND BEVELLED

1. PRE-FORMED PIPE INSULATION WITH FACTORY JACKET
2. PRE-FORMED PIPE INSULATION WITH METAL JACKET
3. COLLAR OF OVER-SIZED PIPE INSULATION
4. SLEEVE OF OVER-SIZED PIPE INSULATION
5. FLEXIBLE INSULATION (OPTIONAL)
6. FABRICATED COVER
7. CAULKING
8. PIPE INSULATION (BEVELLED)
9. BARRIER COATING INDOORS / WEATHER COATING OUTDOORS
PVC/GLASS FIBRE COUPLING OR IN-LINE FLANGE INSULATION SYSTEM

1 PRE-FORMED PIPE INSULATION
2 VAPOUR BARRIER TAPE ON JOINTS
3 FLEXIBLE INSULATION
4 PVC FITTING COVER
FLEXIBLE DUCT INSULATION
ON RECTANGULAR DUCTS INDOORS

1 FLEXIBLE DUCT INSULATION WITH VAPOUR BARRIER
2 JOINTS LAPPED AND STAPLED; SEAL WITH VAPOUR BARRIER
   ADHESIVE OR VAPOUR BARRIER TAPE
3 MECHANICAL FASTENERS
4 VAPOUR BARRIER TAPE ON BREAKS & PENETRATIONS OF
   VAPOUR BARRIER

2* & 4* VAPOUR BARRIER TAPE OR SEAL NOT REQUIRED ON HOT DUCTS
RIGID DUCT INSULATION ON RECTANGULAR EXPOSED DUCTS INDOORS

1 RIGID DUCT INSULATION
2 MECHANICAL FASTENERS
3 VAPOUR BARRIER TAPE ON JOINTS, BREAKS AND PENETRATIONS
4 CANVAS FINISH JACKET APPLIED WITH LAGGING ADHESIVE
5 METAL CORNER BEAD
BREECHINGS, FLUES AND KITCHEN EXHAUST DUCTS

1 RIGID BLOCK INSULATION (JOINTS STAGGERED)
2 METAL MESH OVER STIFFENERS (BY OTHERS)
3 STIFFENER OR FLANGED CONNECTION
4 MECHANICAL FASTENERS OR BANDING TO SECURE INSULATION
5 METAL JACKET FINISH
6 RIGID BOARD INSULATION
7 METAL CORNER BEAD
8 REINFORCED MESH EMBEDDED IN INSULATING CEMENT AND CANVAS FINISH JACKET APPLIED WITH LAGGING ADHESIVE
VESSELS BOTTOM HEAD, LEG, SKIRT INSULATION AND SECUREMENT

1 VESSELS INSULATION AND JACKET
2 FIREPROOFING (BY OTHERS, IF REQUIRED)
3 MECHANICAL FASTENERS
4 TIE WIRES
5 REINFORCING WIRE MESH & INSULATING CEMENT
6 INSULATION SUPPORT RING (BY OTHERS)
PIPE AND TUBE EXCHANGERS - ENCASED

1 PIPE INSULATION SECURED WITH BANDING
2 BLOCK INSULATION SECURED WITH BANDING
3 FINISH JACKET (METAL SHOWN SECURED WITH BANDING)
4 SHEET METAL SCREWS
5 BEVEL INSULATION AND FINISH WITH COATING
6 BLOCK INSULATION AND FINISH WITH COATING
LARGE DIAMETER
VERTICAL VESSELS
BLOCK AND BLANKET INSULATION

1 SUPPORT RING FOR HEAD INSULATION
2 BLOCK OR BLANKET INSULATION
3 MECHANICAL FASTENERS OR
4 BANDING TO SECURE INSULATION
5 SUPPORT RING (BY OTHERS)
6 METAL JACKET
7 SHEET METAL SCREWS
8 BANDING
9 BLOCK INSULATION MITRED TO FIT
10 FABRICATED HEAD COVER
11 METAL FLASHING
12 BOTTOM HEAD INSULATION
13 VESSEL SKIRT
LARGE DIAMETER HORIZONTAL VESSELS
INSULATION SUPPORT AND SECUREMENT

1 RIGID INSULATION
2 BANDING SUPPORT BARS
3 BANDING
4 FINISH JACKET SECURED WITH BANDING OR SCREWS
5 HEAD COVER
1. Insulation adhesive (contact type)
2. Flexible closed cell insulation (cut to fit tightly)
3. Joints sealed with contact type adhesive
4. Legs & protrusions insulated (optional)
5. Protective coating where required
EXTREME TEMPERATURE VESSELS
BLOCK INSULATION

1  FLEXIBLE INSULATION
2  INSULATION - JOINTS STAGGERED
3  FINISH JACKET (METAL SHOWN)
4  BANDING
5  INSULATION ATTACHMENT FOR HEAD
6  FABRICATED HEAD COVER
7  CLOSED CELL INSULATION FOR FIRST 300mm
FIGURE 26

SMALL DIAMETER VESSELS / EXHAUST PIPE COVERING

1 INSULATION SUPPORT RING (BY OTHERS)
2 PIPE INSULATION SECURED WITH BANDS OR WIRE
3 RIGID INSULATION CUT TO FIT
4 FLEXIBLE INSULATION FILLER
5 FINISH JACKET (METAL SHOWN)
6 SHEET METAL SCREWS OR POP RIVETS
7 BANDING AS REQUIRED
8 BEVEL INSULATION FOR BOLT REMOVAL AND FINISH WITH COATING
FIELD APPLIED LINING

1. HOUSING OR SHAFT
2. RIGID DUCT LINER
3. ADHESIVE WHERE NECESSARY
4. MECHANICAL FASTENERS
5. JOINTS SEALED WITH INSULATION COATING EMBEDDED IN REINFORCING MEMBRANE
1. Insulation scored or bevelled to fit curvature
2. Mechanical fasteners
3. Banding
4. Cellular glass insulation on bottom 300mm
5. Metal jacket
6. Head flashing
7. Caulking
NOZZLES AND INSULATED MANWAYS

1 VESSEL INSULATION
2 METAL OR REINFORCING MEMBRANE BANDED TO NOZZLE
3 WEATHER BARRIER COATING OR CAULKING
4 METAL COVER LINED WITH RIGID INSULATION
5 METAL SEAM OR END CAP
6 MECHANICAL FASTENER AS REQUIRED
7 FLASHING
BLOCKS AND PRE-FORMED PIPE INSULATION AROUND BREECHINGS AND EXHAUST DUCTS

1. AIR SPACE MATERIAL (BY OTHERS)
2. RIGID BLOCK INSULATION
3. WIRE OR BANDING
4. METAL JACKET FINISH
HEAD INSULATION SECUREMENT AND COVER FABRICATION

A
FLOATING RING
HEAD INSULATION SECUREMENT

B
METAL HEAD INSULATION COVER

1 HEAD INSULATION
2 FLOATING RING
3 BANDING
4 SHELL INSULATION
5 HEAD INSULATION SUPPORT RING
6 METAL FINISH JACKET
7 FLEXIBLE INSULATION
8 SHEET METAL SCREWS
9 HIGH COMPRESSIVE STRENGTH RIGID INSULATION
10 REINFORCED MASTIC
11 CAULKING / FLASHING

THERMAL INSULATION ASSOCIATION OF CANADA
ASSOCIATION CANADIENNE DE L'ISOLATION THERMIQUE

FIGURE 31
PIPING (0°C THROUGH -40°C)

1 INSULATION INNER LAYER
2 INSULATION OUTER LAYER WITH JOINTS STAGGERED
3 LONGITUDINAL LAP ON VAPOUR BARRIER SEALED
4 BUTT JOINT VAPOUR BARRIER SEALED
5 BANDING, WIRE OR TAPE AS REQUIRED
FITTINGS (0°C THROUGH -40°C)

1 MULTI-LAYER INSULATION; VAPOUR BARRIER ON OUTER LAYER
2 PREFORMED INSULATION COVER
3 BANDING, WIRE OR TAPE
4 VAPOUR BARRIER TAPE
5 LONGITUDINAL LAP ON VAPOUR BARRIER SEALED
6 PREFORMED FITTING COVER
FLEXIBLE INSULATION BLANKETS

1 SHAPE INSULATION BLANKET
2 QUILTER WASHER
3 LACING HOOKS AND WIRE
1 SEAMS STITCHED
2 QUILTING WASHERS
3 LACING HOOKS AND WIRE
REMOVABLE INSULATED METAL EQUIPMENT COVERS

1. METAL CASING LINED WITH INSULATION
2. SECTIONS OF THE FABRICATED COVER
3. SLIP JOINT OR LAP SEAM WITH SHEET METAL SCREWS, POP RIVETS OR STANDING SEAM
4. CUT-OUTS FOR PIPES OR SHAFTS
5. CAULKING WHERE REQUIRED
6. SHEET METAL SCREWS OR POP RIVETS
FIGURE 37
REMOVABLE AND REUSABLE INSULATION

1 FLEXIBLE CLOSED CELL INSULATION
2 METAL FRAME
3 REMOVABLE TOP - FORM FITTED
4 ADHESIVE
ELASTOMERIC REMOVABLE COVERS

1 PERMANENT INSULATION
2 COVERS FROM FLEXIBLE CLOSED CELL INSULATION
3 ADHESIVE
4 THICKNESS OF INSULATION FILLER EQUAL TO BOLT HEAD SIZE
TYPICAL FIRE STOP COMPONENTS FOR FLOOR EXPANSION JOINT

1. COMPRESSION SEAL
2. ULC APPROVED FIRE STOP SEALANT
3. COMPRESSABLE FIRE STOP (MINERAL WOOL)
TYPICAL FIRE STOP COMPONENTS
FOR FLOOR EXPANSION JOINT

1 ULC APPROVED FIRE STOP SEALANT
2 COMPRESSABLE FIRE STOP (MINERAL WOOL)
3 JOINT COVER (GALVANIZED STEEL)
TYPICAL FIRE STOP
FOR WALL PENETRATIONS

1 STEEL SLEEVE (OPTIONAL)
2 ULC APPROVED FIRE STOP SEALANT
3 COMPRESSIBLE FIRE STOP (MINERAL WOOL)
TYPICAL FIRE STOP FOR WALL PENETRATIONS

1  STEEL SLEEVE (OPTIONAL)
2  ULC APPROVED FIRE STOP SEALANT
3  COMPRESSIBLE FIRE STOP (MINERAL WOOL)
4  PIPE INSULATION (INSTALLED AFTER FIRE STOP)
TYPICAL FIRE STOP
FOR WALL PENETRATIONS

1 STEEL SLEEVE
2 ULC APPROVED FIRE STOP SEALANT
3 COMPRESSIBLE FIRE STOP (MINERAL WOOL)
TYPICAL FIRE STOP
FOR WALL PENETRATIONS

1 STEEL SLEEVE
2 ULC APPROVED FIRE STOP SEALANT
3 COMPRESSIBLE FIRE STOP (MINERAL WOOL)
4 PIPE INSULATION (INSTALLED AFTER FIRE STOP)
TYPICAL FIRE STOP
FOR WALL PENETRATIONS

1 STEEL SLEEVE (OPTIONAL)
2 ULC APPROVED FIRE STOP SEALANT
3 COMPRESSIBLE FIRE STOP (MINERAL WOOL)
4 PIPE INSULATION (INSTALLED AFTER FIRE STOP)
TYPICAL FIRE STOP FOR DEFLECTION OF METAL STUD WALLS

1  ULC APPROVED FIRE STOP SEALANT
2  COMPRESSIBLE FIRE STOP (MINERAL WOOL)
3  METAL CHANNEL SIZED TO SUIT ALLOWANCE FOR DEFLECTION & SIZE OF STUDS
4  GYPSUM BOARD FIXED TO STUD AND FREE TO SLIDE
5  TAPE BREAKER
TYPICAL FIRE STOP COMPONENTS FOR
THE TOP OF THE MASONRY WALL

1 ULC APPROVED FIRE STOP SEALANT
2 COMPRESSIBLE FIRE STOP (MINERAL WOOL)
3 AIR SPACE