

MATERIAL AND APPLICATION SPECIFICATIONS

FOR

**WEATHER-BARRIERS, VAPOR-BARRIERS,
FINISH COATINGS, INSTALLATION ADHESIVES AND
FIRE PROTECTIVE COATINGS**

USED WITH

THERMAL INSULATION SYSTEMS

AUGUST 1971

VIMASCO COATINGS CORPORATION

P. O. BOX 516

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August, 1971

SECTION 1
MATERIALS SPECIFICATIONS
WEATHER-BARRIERS, VAPOR-BARRIERS, INSULATING MASTICS,
COATINGS AND ACCESSORIES

- 1.1. SCOPE: These specifications provide the material specifications for weather-barrier mastics, vapor-barrier mastics, insulating mastics, sealers, anti-abrasive coatings, coatings and accessories used with, or for, thermal insulations.
- 1.1.1. These specifications state the use for which the material is intended, the general description of the material, and the characteristics of the material which make it suitable for the intended use.
- 1.1.2. These specifications shall be used for the procurement of materials.
- 1.1.3. The installation procedure for various installation services are provided in the APPLICATION SPECIFICATIONS.
- 1.1.4. The individual material specifications are given individual number designations for easy reference in the INSTALLATION SPECIFICATIONS. Specified material shall have the properties as given in its individual number designation.

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Flexibility	Bend 180° over ½" mandrel in 10 seconds at 25 F without cracking
Hardness	75 (approximately) Shore Duro-meter, Type A gauge
Impact Resistance	Excellent
Puncture Resistance	Excellent
Resistance to:	
Acids	Good for mild acids
Weak Alkalis	Excellent
Strong Alkalis	Poor
Asphalts	Excellent
Salts	Excellent
Solvents	Good
Temperature Limits, Maximum	200 F continuous 250 F intermittent
Tensile Strength	115 psi at 70 F
Weather Resistance	Excellent
Water Vapor Permeance	Not less than 1.0 perm (in accordance with ASTM E-96)

- 1.2.1.6. Polyvinyl-Acetate emulsion weather-barrier of these properties shall be WC-1, regular or spray grade, of color specified, as manufactured by Vimasco Coatings Corp.

Flammability	ASTM E-162-67 Radiant Panel Index shall be less than 5
Flexibility	Bend 180° over ½" mandrel in 10 seconds at 25 F without cracking
Hardness	75 (approximately) Shore Duro- meter Type A Guage
Impact Resistance	Excellent
Puncture Resistance	Excellent
Resistance to:	
Acids	Good for mild acids
Alkalis	Excellent
Asphalts	Excellent
Salts	Excellent
Solvents	Good
Temperature Limit, Maximum	200 F continuous 250 F intermittent
Weather Resistance	Excellent
Water Vapor Permeance	Not less than 1.0 perm (in accordance with ASTM E-96)

- 1.2.2.6. Fire Retardant Polyvinyl-Acetate Weather-Barrier Mastic of these properties shall be WC-1 FR, Regular or Spray Grade, color as specified, as manufactured by Vimasco Coatings Corp.

Flammability	ASTM E-162-67 Radiant panel flame spread index shall be less than 15
Flexibility	Bend 180° over 1/2" mandrel at 5 F without cracking
Hardness	23.6, approximate) by Shore Duro-meter, Type A Gauge
Impact Resistance	Excellent
Puncture Resistance	Excellent
Resistance to:	
Acids	Good for mild acids
Alkalis	Excellent
Asphalts	Excellent
Salts	Excellent
Solvents	Good
Temperature Limits, Maximum	200 F continuous 250 F intermittent
Tensile Strength	100 psi at 70 F
Water Vapor Permeance	Not less than 1.0 perm (in accordance with ASTM E-96)
Weather Resistance	Excellent

6. Acrylic polymer weather-barrier mastic of these properties shall be AC-7 Regular or Spray Grade, color as specified, as manufactured by Vimasco Coatings Corp.

SECTION 1 MATERIAL SPECIFICATION

- 1.3.1. POLYVINYL ACETATE EMULSION LAGGING ADHESIVE AND COATING #136
- 1.3.1.1. Intended Use: To adhere canvas, brattice cloth or asbestos cloth to thermal insulation and as an overcoat to seal cloth and present a pleasing finished surface. Shall be suitable where fire resistant and low flame spread surfacing materials are required.
- 1.3.1.2. General Description: Shall be a brushing consistency of polyvinyl-acetate with selected fillers and required fire resistive compounds. Shall be suitable for application by brush or spray.
- 1.3.1.3. Application Limits: Shall be suitable for application at ambient air temperatures down to 40 F.
- 1.3.1.4. Color: Shall be white, but suitable for tinting with universal type colorants.
- 1.3.1.5. Polyvinyl-Acetate Emulsion Lagging Adhesive and Coating shall have the following properties:
- 1.3.1.5.1. Properties, Wet—shall be:
- | | |
|-----------------------------|--|
| Flammability _____ | Nonflammable |
| Freeze-Thaw Stability _____ | Must be protected from freezing |
| Odor _____ | Mild |
| pH _____ | 7.2 to 7.5 |
| Storage Stability _____ | Two years at temperature above freezing. |
| Total Solids Content _____ | 53 ± 2% by weight |
| Total Solids Content _____ | 38% ± 2% by volume |
| Viscosity _____ | Brushing . . . 100 ± 10 KU |
| Weight per Gallon _____ | 11.0 lbs. ± 0.2 lbs. |
- 1.3.1.5.2. Properties, Application, shall be:
- | | |
|--|---|
| Adhesion to Substrate _____ | Excellent |
| Application, Ambient Temperature _____ | Must be above 40 F |
| Coverage as adhesive _____ | 30 to 60 sq. feet per gallon |
| As sizing coat _____ | 36 sq. feet per gallon |
| Drying Time _____ | to touch—2 hours, through—12 hours |
| Solvent (while still wet) _____ | Water shall be used to clean up drips and splatter of coating while it is still wet |
- 1.3.1.5.3. Properties, After Drying, shall be:
- | | |
|----------------------------------|---|
| Abrasion Resistance _____ | Excellent |
| Adhesion to Substrate _____ | Excellent |
| Flammability _____ | Shall meet requirements of Interim Federal Standard No. 00136 (Com-NBS) Class 1 |
| Mildew Resistance _____ | Good |
| Resistance to: | |
| Alkalis _____ | Good |
| Asphalts _____ | Good |
| Acids _____ | Good |
| Salts _____ | Good |
| Solvents _____ | Good |
| Temperature Limit, Maximum _____ | 200 F |
- 1.3.1.6. Lagging Adhesive of these properties shall be Vimasco-Lag #136 as manufactured by Vimasco Coatings Corp.

SECTION 1
MATERIAL SPECIFICATION

1.4.1. COLD BOND ADHESIVE AND SEALER #750

1.4.1.1. Intended Use: For use as a cold bond adhesive and vapor barrier to bond and seal joints of low temperature insulation. Seal laps of metal jacketing.

1.4.1.2. General Description: Shall be trowel consistency mastic having good initial adhesion and low water transmission rate when dried. Shall be suitable for application to foamed organic and rigid mineral wool fiber insulations.

1.4.1.3. Application Limits: Shall be suitable for application at ambient air temperatures down to 20 F.

1.4.1.4. Color: Shall be off white.

1.4.1.5. Cold Storage Adhesive and Sealer shall have the following properties:

1.4.1.5.1. Properties, Wet, shall be:

Flammability	Flash point shall not be lower than than 120 F
Freeze-Thaw Stability	Not affected by Low Atmospheric Temperatures
Odor	Mild
Storage Stability	2 years
Total Solids Content	93 $\pm$ 2% by weight 36 $\pm$ 2% by volume
Viscosity	Soft paste mastic
Weight per Gallon	12.3 lbs. $\pm$ 0.2 lbs.

1.4.1.5.2. Properties, Application, shall be:

Adhesion	Excellent
Bonding Time	Good initial bond
Build	1/16" to 1/8" thickness on vertical surface will not slip or sag
Coverage	50 to 75 sq. ft. per gallon as an adhesive 15 to 20 sq. ft. per gallon for use as vapor-barrier
Solvent	Most aliphatic organic solvents

1.4.1.5.3. Properties, After Drying, shall be:

Adhesion to Substrate	Excellent
Flammability	Slow burning
Flexibility	Good
Puncture Resistance	Good
Impact Resistance	Excellent
Resistance to:	
Alkalies	Good
Acids	Good
Salts	Good

Temperature Limits:

Maximum 200 F

Minimum -50 F

Water Vapor Transmission

1/16" film thickness Not to exceed 0.6 perms
(in accordance of ASTM E-96)

1.4.1.6. Cold Bond Vapor-Barrier Adhesive and Sealer of these properties shall be Vimasco #750 as manufactured by Vimasco Coatings Corp.

SECTION 1
MATERIAL SPECIFICATION

1.4.3. HIGH TEMPERATURE SEALER

- 1.4.3.1. Intended Use: To be used as a fillet around hot projections through insulation.
- 1.4.3.2. General Description: Shall be silicone base high temperature sealer. Paste consistency.
- 1.4.3.3. Application Limits: Shall be suitable for application at all ordinary ambient air temperatures.
- 1.4.3.4. Color: Depends on manufacturer.
- 1.4.3.5. High temperature shall have properties in accordance with the material specifications of approved manufacturer.
- 1.4.3.6. High temperature sealer shall be as manufactured by Dow Chemical Co., or General Electric Co., or approved equal.

SECTION 1 MATERIAL SPECIFICATION

1.6.1. VINYL RESIN ANTI-ABRASIVE COATING #500

1.6.1.1. Intended Use: A vinyl chloride based material for coating the face of cellular block insulation and/or bore of cellular pipe insulation, next to substrate, to minimize fracturing and powdering out of cellular insulation due to vibration and movement due to expansion and contraction.

1.6.1.2. General Description: Shall be a vinyl resin coating suitable for application to the insulation by brush, or spray. The coating shall remain very elastic at very low sub-zero temperatures.

1.6.1.3. Application Limits: Material shall be suitable for application at atmospheric temperatures down to 20 F. It shall be allowed to dry on the surface of the cellular glass for a minimum of 10 minutes before insulation is applied to pipe or vessel. Requires good ventilation during drying.

Special Note: This coating shall not be used on insulation which is to be used to insulate austenitic stainless steel surfaces.

1.6.1.4. Color: Shall be flat brown—dries to straw tan.

1.6.1.5. Vinyl Resin Anti-abrasive Coating shall have the following properties:

1.6.1.5.1. Properties, Wet, shall be:

Flammability _____	Flash point shall not be less than 40 F
Storage Stability _____	2 years
Toxicity _____	Requires ventilation
Viscosity, Brush Grade _____	Light paste, (95-100 KU)
Weight per Gallon—Brush Grade _____	8.1 lbs. $\pm$ 0.2 lbs.

1.6.1.5.2. Properties, Application, shall be:

Adhesion to Surface _____	Excellent
Coverage _____	275 to 300 sq. ft./ gallon
To obtain coating thickness of _____	2 to 3 mills
Drying Time _____	10 minutes, to touch
Solvent _____	Vicarlon 500-T thinner

1.6.1.5.2. Properties, After Drying, shall be:

Abrasion Resistance _____	Excellent
Adhesion to Cellular Glass _____	Excellent
Flammability _____	Self extinguishing
Resistance to:	
Acids _____	Good
Alkalis _____	Good
Solvents _____	Depends on nature of solvent
Temperature Limits, Maximum _____	Stable for 6 hours at 300 F
Minimum _____	-150 F
Toxicity _____	Non-toxic

1.6.1.6. Anti-abrasion coating of these properties shall be #500 as manufactured by Vimasco Coatings Corp.

SECTION 1
MATERIAL SPECIFICATION

1.7.2. DUCT AND LAP RUBBER BASE ADHESIVE (WHITE COLOR) #731

1.7.2.1. Intended Use: To bond laps of vapor-barriers, and adhere films, foils and laminates to insulation. It also shall be suitable to adhere fibrous glass insulation to steel, galvanized steel, and aluminum air conditioning ducts.

1.7.2.2. General Description: Shall be a rapid setting, rubber based adhesive suitable for application by brush or spray.

1.7.2.3. Application Limits: Shall be suitable for application at atmospheric temperatures down to 40 F. Shall be applied in areas of good ventilation and not near open flame.

1.7.2.4. Color: Shall be white.

1.7.2.5. Rubber Lap and Insulation Adhesive (Rapid Setting) shall have the following properties:

1.7.2.5.1. Properties, Wet, shall be:

Flammability	Flash point shall not be less than 10 F
Odor	Strong
Storage Stability	2 years
Total Solids Content	34 $\pm$ 2% by weight
Total Solids Content	21 $\pm$ 2% by volume
Toxicity	Requires good ventilation Prolonged breathing of fumes, or contact with skin should be avoided.
Viscosity	Brushing, (75 $\pm$ 5 KU)
Weight per Gallon	6.8 lbs. $\pm$ 0.2 lbs.

1.7.2.5.2. Properties, Application, shall be:

Adhesion to surfaces	Excellent
Coverage, Attaching Insulation	50 to 75 sq. ft./gallon
Coverage, Sealing Laps	60 to 80 sq. ft./gallon
Drying Time, Attaching Insulation	0 to 15 minutes
Drying Time, Sealing Laps	0 to 15 minutes
Solvent	Hexane

1.7.2.5.3. Properties, After Drying, shall be:

Adhesion	Excellent
Flammability	Meet Federal Interim Specification 00136B
Flexibility	Excellent
Resistance to:	
Acids	Good
Alkalis	Good
Salts	Good
Solvents	Fair
Temperature Limits, Maximum	225 F
Temperature Limits, Minimum	5 F
Toxicity	Non-toxic

1.7.2.6. Duct and Lap Rubber Base Adhesive, of these properties, shall be #731 Duct and Lap Adhesive as manufactured by Vimasco Coatings Corp.

SECTION 1.
MATERIAL SPECIFICATION

1.3.1. VAPOR-BARRIER INSULATION COATING #740

1.3.1.1. Intended Use: To vapor-seal rigid insulation on surfaces operating below ambient air temperature. Not recommended for outside exposure.

1.3.1.2. General Description: Shall be a heavy build mastic of soft smooth consistency. Shall be suitable for application by palming, brushing or spraying.

1.3.1.3. Application Limits: Shall be suitable for application at ambient temperatures down to 20 F and not lower than 15 F for following 24 hours.

1.3.1.4. Color: Shall be White.

1.3.1.5. Vapor-barrier coating shall have the following properties:

1.3.1.5.1. Properties, wet, shall be:

Flammability	Flash point shall be not lower than 90 F
Odor	Mild solvent odor
Storage Stability	2 years
Total Solids	67 $\pm$ 2% by weight
Total Solids	44 $\pm$ 2% by volume
Toxicity	Requires good ventilation
Viscosity	Soft paste consistency
Weight per Gallon	10.7 lbs. $\pm$ 0.2 lbs.

1.3.1.5.2. Properties, Application, shall be:

Adhesion to Substrate	Excellent
Build	1/16 inch thickness on vertical surface shall not slip, slide or sag
Coverage	25 sq. ft./gallon or 4 gallons per 100 sq. ft.
Shall obtain a	1/16 inch wet thickness 1/32 inch dry thickness (approx.)
Curing Time	Shall be approximately 2 hours to touch, 24 hours throughout
Solvent	Mineral spirits
Precaution	Use with adequate ventilation, keep away from heat, sparks and open flame.
Substrate	To be applied to clean and dry surfaces for good adhesion. Is suitable for application to cellular glass, rigid glass fiber, rigid urethane foam, and some grades of polystyrene foam. (Some styrene foams are subject to solvent attack)

1.3.1.5.3. Properties, After Drying shall be:

Abrasion Resistance	Good
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SECTION 1 MATERIAL SPECIFICATION

1.9.1. POLYVINYL-ACETATE, CORK FILLED, INSULATION MASTIC WC-1 TYPE C

1.9.1.1. Intended Use: To be used as insulation to retard condensation on the surface of equipment, tanks, or piping that operate at a temperature below the dew point of the ambient air.

1.9.1.2. General Description: Shall be a polyvinyl-acetate emulsion resin with granulated cork, asbestos fibers and selected fillers to provide a heavy build mastic. After application and drying, the mastic shall be water resistant and have a relatively low thermal conductivity. Shall be suitable for application by trowel or spray.

1.9.1.3. Application Limits: Surface to which it is applied must be dry. Surface temperature should be above dew point of ambient air until mastic has dried. Shall be suitable for application at atmospheric temperature down to 40 F.

1.9.1.4. Color: Shall be as specified from standard available colors.

1.9.1.5. Polyvinyl-Acetate, Cork Filled Insulating Mastic shall have the following properties:

1.9.1.5.1. Properties, Wet, shall be:

Alkalinity, pH	5.6 to 7.5
Flammability	Nonflammable
Freeze-Thaw Stability	Suitable to withstand temperatures down to 25 F for short period
Odor	Mild
Storage Stability	2 years
Total Solids Content	61% $\pm$ 2% by weight
Total Solids Content	65% $\pm$ 2% by volume
Toxicity	Non-toxic
Viscosity	Heavy paste
Weight per Gallon	8.0 lbs. $\pm$ 0.2 lbs.

1.9.1.5.2. Properties, Application, shall be:

Adhesion to Dry Surfaces	Excellent
Build, Wet	1/4" on vertical surface will not slip, slide or sag
Coverage, to obtain 1/8" dried	10 1/2 to 12 gal. per 100 sq. ft.
Coverage, to obtain 1/4" dried	21 to 24 gal. per 100 sq. ft.
Curing Time	To touch—1 hour Through, depending on thickness, 12 to 24 hours
Shrinkage, Volume	25% to 35% by volume
Solvent (while still wet)	Water, (as material has excellent adhesion after it has dried, it is difficult to remove from tools or equipment. Therefore tools, spray guns, and pumps should be cleaned immediately after use.

1.9.1.5.3. Properties, After Drying, shall be:

Abrasion Resistance	Excellent
Adhesion to Substrate	Excellent

SECTION 1
MATERIAL SPECIFICATION

1.10.1. HIGH TEMPERATURE INSULATION ADHESIVE #760

1.10.1.1. Intended Use: To bond calcium silicate, rigid asbestos-fibers, asbestos felts, and board to themselves and to nonporous surfaces. Of particular use for bonding cut high temperature insulation pieces together to form fabricated insulation, fittings and valve covers.

1.10.1.2. General Description: A sodium silicate base with selected fillers to produce a brush or trowel consistency adhesive.

1.10.1.3. Color: Shall be gray.

1.10.1.4. High Temperature Fabrication Adhesive shall have the following properties:

1.10.1.4.1. Properties, Wet, shall be:

Flammability	Nonflammable
Odor	Mild
Freeze-Thaw	Shall not be allowed to freeze
Total Solids Content, Brush Grade	52 $\pm$ 2% by weight
Total Solids Content, Trowel Grade	55 $\pm$ 2% by weight
Viscosity, Brush Grade	Soft paste
Viscosity, Trowel Grade	Thick paste
Toxicity	Non-toxic
Weight per Gallon, Brush Grade	11.1 lbs. $\pm$ 0.2 lbs.
Weight per Gallon, Trowel Grade	9.6 lbs. $\pm$ 0.2 lbs.
Storage Stability	2 years

1.10.1.4.2. Properties, Application, shall be:

Adhesion to Substrate	Excellent
Bonding Time, Brush Grade	0 to 10 minutes
Bonding Time, Trowel Grade	0 to 20 minutes
Coverage, Brush Grade	50 to 75 sq. ft./gallon
Coverage, Trowel Grade	25 to 50 sq. ft./gallon
Drying Time in Joints	Approximately 2 hours
Solvent	Water

1.10.1.4.3. Properties, After Drying, shall be:

Flexibility	Brittle
Adhesion	Excellent
Flammability	Non-combustible
Temperature Limit, Max.	1000 F
Toxicity	Non-toxic

1.10.1.5. High Temperature Fabrication Cement shall be #760 Hi Temperature Insulation Adhesive. (Brush or Trowel Grade as specified) as manufactured by Vimasco Coatings Corp.

SECTION 1
MATERIAL SPECIFICATION

1.11.3. CANVAS

- 1.11.3.1. Intended Use: As reinforcing cloth to form a finish system when embedded in mastic.
- 1.11.3.2. Canvas for reinforcing mastic on equipment and vessels shall be 8 oz. canvas.
- 1.11.3.3. Canvas for reinforcing mastic on pipe shall be 6 oz. canvas.
- 1.11.3.4. Canvas for light weight indoor and concealed piping shall be 4 oz. canvas.

1.11.4. ASBESTOS FELT

- 1.11.4.1. Intended Use: As covering over insulation.
- 1.11.4.2. Fabric shall be soft flexible asbestos felt in roll form.
- 1.11.4.3. Thickness and weight per 100 sq. ft. shall be as required and supplied for individual installation.

1.11.5. WIRE NETTING

1.11.5.1.1. Monel Wire Netting

- 1.11.5.1.1. Intended Use: To reinforce weather-barrier mastic for outdoor and indoor installations where corrosive atmosphere is present.
- 1.11.5.1.2. Shall be 0.023" diameter wire woven to one inch hexagonal mesh. 48" wide.

1.11.5.2. GALVANIZED WIRE NETTING

- 1.11.5.2.1. Intended Use: To reinforce weather-barrier mastic finishes.
- 1.11.5.2.2. Shall be No. 18 wire woven to one inch hexagonal mesh, galvanized after weaving.

1.11.6. LACING WIRE

- 1.11.6.1. Intended Use: To secure insulation to surfaces and to lace wire netting together.
- 1.11.6.2. Shall be stainless steel wire, 0.0475 inch diameter (18 gauge) dead soft annealed 302, 304, or 430 stainless steel wire.

SECTION 1
MATERIAL SPECIFICATION

1.12.2. VINYL-CHLORIDE PAINT #10

1.12.2.1. Intended Use: To be used as a protective and decorative finish coating for both interior and exterior exposure. For coating wood, metal, concrete and weather-barriers, finishes and jackets covering thermal insulation. Aluminum and galvanized steel shall be primed with polyvinyl-acetate paint and ferrous metal shall be primed with Iron Oxide-Zinc Yellow Primer prior to application of the Vinyl-Chloride Coating. Also used with weather-barrier mastics in requirements calling for resistance to caustic.

1.12.2.2. General Description: Shall be solvent vinyl-chloride coating suitable for brush or spray. Fast drying. Dries to smooth semi-gloss finish. Shall be resistant to acids, alkalis, and salts.

1.12.2.3. Application Limits: Shall be suitable to be applied to surfaces not exceeding 150 F in temperature and shall be suitable for application at ambient air temperature down to 20 F.

1.12.2.4. Color: Shall be as specified. (16 std. colors + black, white, aluminum).

1.12.2.5. Properties: Vinyl-Chloride Solvent Paint shall have the following properties:

1.12.2.5.1. Properties, Wet, shall be:

Flammability	Flash point shall not be lower than 75 F
Total Solids	32 $\pm$ 2% by wgt.
Weight, lbs. per Gallon	8.1 lbs. $\pm$ 0.2 lbs./gal.
Odor	Strong odor (solvents)
Storage Stability	At least 3 years
Viscosity	75 $\pm$ 5 KU

1.12.2.5.2. Properties, Application, shall be:

Adhesion to Substrate	Good
Coverage	225 sq. ft. per gallon, 1 mil. thick
Drying Time	20 minutes to touch, 12 hours solvent free
Time Between Coats	Not less than 30 minutes
Solvent	MIBK
Toxicity	Use with adequate ventilation, avoid prolonged breathing of vapors and repeated contact with skin

1.12.2.5.3. Properties, after Drying, shall be:

Abrasion Resistance	Excellent
Adhesion to Substrate	Good
Contraction and Expansion with Substrate	Shall conform without cracking
Light Stability	Excellent
Resistance to:	
Acids	Not affected by most acids
Alkalis	Not affected by most alkalis
Hydrocarbons	Good for most
Temperature Limit, Max.	140 F (continuous)

SECTION 1
MATERIAL SPECIFICATION

1.12.3. HIGH TEMPERATURE ALUMINUM PAINT #811

1.12.3.1. Intended Use: To be used as paint over metal which operates at high temperature. Shall be suitable as a coating over steam lines, boiler casings, boiler drums, or other equipment operating at high temperatures.

1.12.3.2. General Description: Shall be a heat resistant formulated coating suitable for application by brush or spray.

1.12.3.3. Application Limits: Shall be suitable for application to surfaces not exceeding 100 F in temperature and shall be suitable for application at ambient air temperature down to 40 F.

1.12.3.4. Color: Shall be aluminum.

1.12.3.5. Properties: Heat resistant paint shall have the following properties:

1.12.3.5.1. Properties, Wet, shall be:

Flammability	Shall have a flash point not lower than 80 F
Odor	Strong
Solids Content	Not less than 30% by weight
Storage Stability	Minimum 2 years
Weight per Gallon	8.1 lbs. $\pm$ 0.2 lbs.
Viscosity	60 $\pm$ 5 KU

1.12.3.5.2. Properties, Application, shall be:

Adhesion to Substrate	Excellent
Coverage	550 to 650 sq. ft. per gallon to obtain 1 to 0.75 mil dry thickness
Drying Time	To touch 2 hours, through 6 hours
Solvent	Xylol
Time Between Coats	4 hours
Toxicity	Use with adequate ventilation. Avoid prolonged breathing and repeated contact with skin

1.12.3.5.3. Properties, after drying, shall be:

Abrasion Resistance	Excellent
Adhesion to Substrate	Excellent
Contraction and Expansion	Shall conform without cracking
Light Stability	Excellent
Resistance to:	
Acids	Good
Alkalis	Good
Hydrocarbons	Fair
Salts	Good
Temperature Limits, Max.	500 F continuous 600 F intermittent

1.12.3.6. Heat resistant paint of these properties shall be #811 Hi-Temperature Aluminum Paint as manufactured by Vimasco Corp.

SECTION 1
MATERIAL SPECIFICATION

- 1.13.2. POLYVINYL-ACETATE PRIMER-SEALER—P. O. F. #52-4
- 1.13.2.1. Intended Use: As a primer over galvanized steel, aluminum, asphaltic weather or vapor-barriers, new wood, and wallboard.
- 1.13.2.2. General Description: Shall be a polyvinyl-acetate base for priming materials and acting as a base for vinyl paints and coatings. It shall be suitable for a base material over which fire-retardant paint or coating will be applied. It shall not cause interference with the intumescent reaction necessary for the function of fire retardant paint or coating. It shall be suitable for application by brush or spray.
- 1.13.2.3. Application Limits: Shall be suitable for application at ambient air temperature down to 40 F.
- 1.13.2.4. Color: Shall be white.
- 1.13.2.4. Properties: Polyvinyl-Acetate Primer and Sealer shall have the following properties:
- 1.13.2.5.1. Properties, Wet, shall be:
- | | |
|-----------------------|---------------------------------|
| Flammability | nonflammable |
| Freeze-Thaw Stability | Should not be allowed to freeze |
| Odor | Mild |
| Storage Stability | 1 year |
| Viscosity | Brush, spray (78 to 82 KU) |
| Weight per Gallon | 10.4 lbs. $\pm$ 0.2 lbs. |
| Solids | 41 $\pm$ 2% |
- 1.13.2.5.2. Properties, application, shall be:
- | | |
|----------------------------------|--|
| Adhesion to Substrate | Good |
| Coverage | 275 sq. ft. per gallon to obtain 1 mil thickness |
| Drying Time | 20 minutes to touch, 1 hour to cure |
| Time Required Before Overcoating | 4 to 6 hours |
| Toxicity | Non-toxic |
| Solvent (while still wet) | Water |
- 1.13.2.5.3. Properties, after drying and in service:
- | | |
|-----------------------|---|
| Adhesion to Substrate | Good |
| Flexibility | Conforms without cracking |
| As Substrate Coating | Suitable base for polyvinyl acetate base paint, polyvinyl acetate cork filled mastics, fire retardant paint and coating |
- 1.13.2.5.4. Polyvinyl-acetate primer-sealer shall be P. O. F. #52-4 primer-sealer as manufactured by Vimasco Corp.

SECTION 1
MATERIAL SPECIFICATIONS

1.13.4. UNIVERSAL PRIMER #926

1.13.4.1. Intended Use: As a primer over varied number of surfaces including new clean steel, or previously painted surfaces. Specifically designed for an all purpose maintenance primer.

1.13.4.2. General Description: Shall be a vinyl-alkyd silica chromate high quality heavy duty corrosion resistant primer.

1.13.4.3. Application Limits: Shall be suitable for application by brush or spray at temperatures down to 40 F.

1.13.4.4. Color: Shall be light orange.

1.13.4.5. Properties: Universal primer shall have the following properties:

1.13.4.5.1. Properties, Wet, shall be:

Flammability _____ Flash point shall not be lower than
70 F

Storage Stability _____ 1 year

Viscosity _____ Brush or spray (70 to 80 KU)

Weight per Gallon _____ 10.9 lbs. $\pm$ 0.2 lbs.

1.13.4.5.2. Properties, Application, shall be:

Adhesion to Substrate _____ Excellent

Coverage _____ 400 to 500 sq. ft. per gallon

Drying Time _____ 20 to 30 minutes, touch 6 to 8 hours,
through

Solvent _____ #926-T Thinner

1.13.4.5.3. Properties, After Drying, shall be:

Adhesion to Substrate _____ Excellent

Construction and contraction _____ Must conform to substrate

As Substrate Base _____ Suitable for common paints, PVA,
and PVC overcoatings

1.13.4.5.4. Universal primer shall be #926 universal primer as manufactured by Vimasco Coatings Corp.

SECTION 1
MATERIAL SPECIFICATION

1.14.2. FIRE-RETARDANT (INTUMESCENT) COATING—P. O. F. #62-10

1.14.2.1. Intended Use: As a protective heavy build coating which when exposed to heat foams a multi-celled insulation which thermally insulates the substrate from the fire. This coating is to be applied in a thicker film than fire-retardant paint (P. O. F. 52-10), so as to provide greater protection (longer time) for the substrates to which it is applied.

1.14.2.2. General Description: An intumescent coating for use on metal surfaces and insulation weather-barriers. (Ferrous metals and flammable materials require a suitable primer prior to application of the fire-retardant coating.) Shall be suitable for application by brush or spray. Shall be suitable for indoor or outdoor application but must be overcoated with fire-retardant paint 52-10 topcoat when used outdoors. Shall be factory mutual approved.

1.14.2.3. Application Limits: Shall be suitable for application at ambient air temperature down to 40 F.

1.14.2.4. Color: Shall be white or light tints, as specified.

1.14.2.5. Fire retardant coating shall have the following properties:

1.14.2.5.1. Properties, Wet, shall be:

Flammability	Flash point shall be not less than 90 F
Fungus Resistance	Resistant to fungus growth
Odor	Non-offensive
Storage Stability	1 year
Total Solids	68 to 70%
Viscosity	95-100 KU
Weight per Gallon	10.9 lbs. $\pm$ 0.2 lbs.

1.14.2.5.2. Properties, Application, shall be:

Adhesion to Substrate	Excellent
Consistency	Suitable for brush or spray application
Coverage which will obtain a coating thickness of 14 mils	75 sq. ft./gal.
Drying Time	To touch 4 hours, through—48 hours
Solvent	Aromatic Solvent (62-10T)

1.14.2.5.3. Properties, After Drying, shall be:

Abrasion Resistance	Good
Adhesion	Excellent
Elongation	Will contract and expand with substrate
Temperature Limit of Substrate	340 F maximum

1.14.2.5.4. Properties to Withstand Fire, When Dry, shall be:

Flame Spread Index	Not over 25
Fuel Contribution Index	Not over 15
Smoke Density Index	Not over 10

1.14.2.6. Fire-retardant coating of these properties shall be P. O. F. #62-10 Fire Retardant Coating as manufactured by Vimasco Corp.

Light Stability Good
Temperature Limit of Substrate Surface 300 F

1.14.3.5.4. Properties to Withstand Fire After Drying, shall be:

When applied on Douglas Fir

Flame Spread Index Shall not be over 40

Fuel Contribution Index Shall not be over 15

Smoke Density Index Shall not be over 145

1.14.3.6. Fire retardant varnish of these properties shall be P. O. F. #52-7 Parts "A" and "B" as manufactured by Vimasco Corp.

SECTION 1
MATERIAL SPECIFICATION

- 1.15.1. AROMATIC AND KETONE SOLVENT—#49-T
- 1.15.1.1. Intended Use: As a solvent and thinner of vinyl coating and sealer (Vicarlon #49)
- 1.15.1.2. General Description: A 50-50 blend of Aromatic and Ketone Solvents. Shall be suitable to be used as a thinner and to clean equipment, brushes, and spillage.
- 1.15.1.3. Color: Slightly amber
- 1.15.1.4. Properties of Aromatic and Ketone Solvent shall be:
Density, lbs, per Gallon _____ Approximate 7.45 lbs.
Flammability, Liquid, Flash Point _____ Not lower than 60 F
Viscosity _____ Light liquid
Precautions _____ Keep away from sparks and open flame. Use with adequate ventilation. Avoid prolonged breathing of vapors and contact with skin
- 1.15.1.5. Aromatic and Ketone Solvent of these properties shall be Vicarlon #49-7 Thinner as manufactured by Vimasco Corp.

SECTION 1
MATERIAL SPECIFICATION

1.15.5. AROMATIC AND ESTER THINNER—P.O.F. #52-7-T

1.15.5.1. Intended Use: As a thinner for fire-retardant varnish (52-7 "A" "B").

1.15.5.2. General Description: An aromatic and ester solvent which is suitable for slight thinning of these varnishes without hindrance to their fire-retardant properties. Shall be the only type thinner used to clean brushes and spray equipment used to apply this fire-retardant varnish.

1.15.5.3. Thinning Limits: Quantity of thinner added to 52-7 "A" or "B" shall not exceed ½ pint to a gallon.

1.15.5.4. Color: Shall be clear.

1.15.5.5. Properties of Aromatic and Ester Thinner shall be:

Density, lbs. per gallon _____ 7.6 to 7.7 lbs.

Flammability, Liquid, Flash Point _____ Not be lower than 90 F

Viscosity _____ Light liquid.

Precautions _____ Keep away from heat, sparks and fire. Use with adequate ventilation. Avoid prolonged breathing of vapor and repeated contact with skin.

1.15.5.6. Aromatic and ester thinner of these properties shall be P. O. F. #52-7-T Thinner so manufactured by Vimasco Corp.

SECTION 1
MATERIAL SPECIFICATION

- 1.15.3. AROMATIC THINNER—P. O. F. #52-10-T
- 1.15.3.1 Intended Use: As a solvent and thinner of fire-retardant paints and coatings (P.O.F. #25-10 and P. O. F. 62-10).
- 1.15.3.2 General Description: An aromatic solvent which gives controlled drying, leveling and flow characteristics to the paint and coating which require thinning for spraying.
- 1.15.3.3 Thinning Limits: Quantity of thinner added to P. O. F. #52-10 should never exceed one pint to a gallon.
- 1.15.3.4 Color: Clear.
- 1.15.3.5 Properties of Aromatic Thinner shall be as follows:
- | | |
|-----------------------------------|--|
| Density, lbs. per gallon | 7.3 to 7.4 lbs. |
| Flammability, Liquid, Flash Point | Not be lower than 140 |
| Viscosity | Light liquid |
| Precautions | Keep away from heat, sparks and flame. Use with adequate ventilation. Avoid prolonged breathing of vapors and repeated contact with skin |
- 1.15.3.6 Aromatic Thinner of these properties shall be P. O. F. #52-10-T Thinner as manufactured by Vimasco Corp.

MASCO COATINGS CORP.
O. Box 516, Nitro, W. Va. 25143
August, 1971

SECTION 2
APPLICATION SPECIFICATIONS
WEATHER-BARRIER SYSTEMS, VAPOR-BARRIERS,
VAPOR-SEALERS, ADHESIVES, FIRE PROTECTION SYSTEMS
INDOOR FINISHES AND OVERCOATINGS

These specifications provide the application methods by which materials are used in a system to perform certain functions.

These functions are (1) To serve as weather-barrier, (2) To serve as vapor-barrier, (3) To serve as a decorative and protective finish, (4) To vapor-seal insulation, (5) To adhere insulation to a surface and to itself, (6) To serve as condensation control and (7) To provide fire protection.

The selection of materials, and method of application, depends upon the insulation materials used and service conditions. Because of these variables a number of application specifications are necessary for each function.

The following Application Specifications are presented to provide engineers and contractors specifications of Materials, or combination of materials, and their proper application to obtain the economical installation to fulfill specific requirements.

The following listing will serve as a guide for selection.

Sec. No.	Spec. No.	Function	Service Applied To	Temperature	Mastic, Coating or Adhesive	Page Sec., No.
2.	15.	Vapor-Barrier and Weather-Barrier	Rigid and Semi-Rigid Insulation on Equipment and Pipe	Moderate and Low	Vapor-Barrier Mastic and Polyvinyl-Acetate Emulsion Mastic	2-36
2.	16.	Vapor-Barrier and Weather-Barrier	Rigid and Semi-Rigid Insulation on Equipment and Pipe	Moderate and Low	Vapor-Barrier Mastic and Acrylic Emulsion Mastic ..	2-40
2.	17.	Vapor-Barrier and Finish	Rigid and Semi-Rigid Insulation on Equipment and Pipe	Moderate and Low	Vapor-Barrier and PVA Coating	2-43
2.	18.	Condensation Control	Equipment and Pipes	Below Ambient	PVA Cork Filled Mastic	2-45
2.	19.	Fire Protection	Equipment, Pipe or Structural Steel	High Moderate or Low	Fire Retardant Coating	2-47
2.	20.	Decorative Protective Over-Coating	Insulated Equipment and Pipe	High Moderate or Low	PVA Emulsion Paint (Flat Surface)	2-48
2.	21.	Decorative and Protective Over-Coating	Insulated Equipment and Pipe	High Moderate or Low	Vinyl-Chloride Paint (Semi-gloss) ..	2-49
2.	22.	Sealing and Vapor Barriers	Rigid and Semi rigid Insulation on Walls and Ceilings of Refrigerated Spaces	Low	Cold Bond Adhesive Vapor Barrier and Mastic	2-51

Figures 1 thru 28

2-F1 to 2-F28

- 2.1.3.2. Where insulating cement is used over insulation block, or segments, it shall completely cover the hexagonal wire netting reinforcement and shall be troweled to an even smooth surface.
- 2.1.3.3. Sharp outside corners of insulation shall be rounded off to a curvature of not less than one inch radius.
- 2.1.3.4. Metal protrusions through insulation shall be insulated completely, extending a minimum distance of four times the insulation thickness. This applies to metal which is hot and is required to provide surface temperatures within limits of weather-barrier mastic. Refer to Figure 2.
- 2.1.3.5. Insulation shall be installed so as to be properly sloped for water drainage.
- 2.1.3.6. Insulation surfaces shall be smooth, even, clean and dry.
- 2.1.4. **APPLICATION OF WEATHER-BARRIER**
- 2.1.4.1. Expansion joints, flush type or flange type, shall be constructed prior to application of adjacent mastic weather-barrier. Typical examples of these expansion joints are shown in Figure No. 1.
- 2.1.4.2. A heavy fillet of an approved heat resistant silicone sealer shall be applied around all hot metal projecting through the insulation. The insulation and the metal four inches back from this junction shall be coated and sealed, as shown in Figure No. 2.
- 2.1.4.3. Inside corners, where two planes of insulation join, shall be caulked with caulking and fillet compound to obtain a minimum one inch radius on all inside corners. This is shown in Figure No. 3.
- 2.1.4.4. Weather-barrier mastic of regular formulation shall not be applied when ambient air temperature is below 25 F. or when temperature is expected to be below 25 F. within the next 24 hours.
- 2.1.4.5. **SPRAY APPLICATION OF MASTIC TO LARGE SURFACES:**
 - (Spray application is not recommended for application on pipe insulation where the external diameter is less than 30 inches).
- 2.1.4.5.1. Prior to spray application, flanges, manholes, instruments, gauges, and other areas not insulated and not to be sprayed shall be covered to protect them from splatter, rebound and overspray.
- 2.1.4.5.2. Spray application shall be done with proper air or airless spray guns and equipment which are clean and properly adjusted to obtain a uniform diffused spray pattern.
- 2.1.4.5.3. **SPRAY APPLICATION OF MASTIC WITH EXTENSIBLE CLOTH REINFORCEMENT.**
- 2.1.4.5.3.1. Insulation surface shall be given a tack coat of mastic. While this coat of mastic is still wet the reinforcing cloth shall be applied and embedded into the mastic. Cloth shall be drawn taut and smooth. All cloth joints shall be overlapped a minimum of two inches. All inside and outside corners shall be overlapped so as to cover the corners with two layers of cloth. This application is shown in Figure No. 3.
- 2.1.4.5.3.2. Coating and reinforcing shall extend four inches onto metal which projects through the insulation. It shall also extend four inches beyond the termination of insulation on supports, skirts, etc. Typical application is shown in Figure No. 3.
- 2.1.4.5.3.3. After first coat has taken its set, a second coat shall be sprayed to such a thickness that when dry, the combined thickness of the first coat, the reinforcing cloth and the second coat measures 1/16 inch. Care shall be taken that second coat completely covers, fills, and seals voids in reinforcing cloth.
- 2.1.4.5.4. **SPRAY APPLICATION OF MASTIC WITH HEXAGONAL WIRE NETTING REINFORCEMENT.**
- 2.1.4.5.4.1. On large areas where wire netting is specified, one inch hexagonal wire netting shall be installed over the insulation surface. Galvanized wire netting shall be used in ordinary

SECTION 2
APPLICATION SPECIFICATION NO. 2
WEATHER-BARRIER INSTALLATION SPECIFICATIONS
MODERATE AND HIGH TEMPERATURE EQUIPMENT AND PIPING
(Service Temperature Above Ambient Air Temperature)
INSULATED WITH RIGID INSULATION
ACRYLIC EMULSION WEATHER-BARRIER MASTIC
AC-7

- 2.2.1. **SCOPE:** These specifications provide the list of essential materials and installation procedure for the application of weather-barrier of insulation on equipment and piping, located outdoors operating above ambient air temperature.
- 2.2.1.1. The weather-barrier described in this specification is suitable for application on calcium silicate, asbestos fiber, expanded silica, cellular glass, diatomaceous earth, fibrous glass, mineral wool and expanded organic foam insulations.
- 2.2.2. **WEATHER-BARRIER MASTIC AND ACCESSORIES REQUIRED**
- 2.2.2.1. Weather-barrier and accessories listed shall be of type and have properties as given in designated section of the MATERIALS SPECIFICATION.
- 2.2.2.1.1. Weather-barrier for troweling or palming shall be acrylic polymer emulsion type mastic as specified in MATERIAL SPECIFICATION, Section 1.2.3. (AC-7 Regular Grade).
- 2.2.2.1.2. Weather-barrier for spray application shall be acrylic emulsion type mastic as specified in MATERIAL SPECIFICATION Section 1.2.3. (AC-7 Spray Grade).
- 2.2.2.1.3. Caulking and fillet compound shall be emulsion resin, cork filled type as specified in MATERIAL SPECIFICATION Section 1.5.1. (#703-C).
- 2.2.2.1.4. Reinforcing cloth shall be of resin fiber, extensible reinforcing cloth as specified in MATERIAL SPECIFICATION Section 1.11.1. (#894).
- 2.2.2.1.5. Wire netting, where required, shall be as specified in MATERIALS SPECIFICATION Section 1.11.5.
- 2.2.2.1.6. Heat resistant sealer shall be as specified in MATERIALS SPECIFICATIONS Section 1.4.3.
- 2.2.3. **APPLICATION OF EQUIPMENT AND PIPING INSULATION**
- The following is given to provide the essentials of insulation application as related to the proper function of the weather-barrier system. The type of insulation, its required thickness and details of its installation are beyond the scope of this specification.
- 2.2.3.1. Insulation on equipment and piping shall be supported and secured in such a manner that the insulation joints are drawn tight and flush. If at all possible, the insulation shall be installed so that the movement of the equipment, or pipe, due to expansion is not transmitted to the insulation except at the insulation expansion joints.
- 2.2.3.2. Where insulating cement is used over insulation block or segments it shall completely cover the hexagonal wire netting reinforcement and be troweled to an even smooth surface.
- 2.2.3.3. Sharp outside corners of insulation shall be rounded off, to a curvature of not less than one inch radius.
- 2.2.3.4. Metal protrusions through insulation shall be insulated completely, extending a minimum distance of four times the insulation thickness. This applies to metal which is hot and is required to provide surface temperatures within limits of weather-barrier mastic. Refer to Figure 2.
- 2.2.3.5. Insulation shall be installed to be properly sloped for water drainage.
- 2.2.3.6. Insulation surfaces shall be smooth, even, clean and relatively dry.

and laced together with 22 gauge stainless steel wire. The mastic shall be sprayed on surface to full thickness in one coat, in such manner as to completely cover the cloth. (Pressure of spray will force mastic around and back of cloth wire.

Note: The pattern of reinforcing cloth or netting wire will show on the outer surface regardless of the thickness of the mastic.

- 2.2.4.5.5. Drip, splatter, or rebound mastic on floors or other areas not insulated must be cleaned up with water before mastic sets.
- 2.2.4.6. TROWELED OF PALMED APPLICATION
- 2.2.4.6.1. On flat, double curved, large cylindrical, and irregular insulation surfaces a tack coat shall be troweled or palmed onto the insulation. While this coat of mastic is still wet, the reinforcing cloth shall be applied and embedded into the mastic. All cloth joints shall be overlapped a minimum of two inches.
- 2.2.4.6.2. On straight piping the cloth may be installed by using just sufficient mastic to bond the cloth end to the pipe insulation, then it shall be spiral wrapped around the cylindrical pipe insulation. Termination end of roll shall be adhered with mastic to the insulation. The beginning of next roll shall overlap end of first and be adhered with mastic. Cloth application shall then be continued over the insulated straight pipe. All cloth joints shall be overlapped a minimum of two inches.
- 2.2.4.6.3. All fitting and valve insulation covers shall be given a tack coat of mastic, and then the reinforcing cloth shall be applied as called for in 2.2.4.5.1.
- 2.2.4.6.4. All inside and outside corners, where two planes of insulation meet, shall be overlapped so as to be covered with two layers of cloth, as shown in Figure No. 3.
- 2.2.4.6.5. Coating and reinforcing cloth shall extend out four inches onto metal which projects through the insulation. It shall also extend four inches beyond the termination of insulation on supports, skirts, etc. Typical application shown in Figure No. 3.
- 2.2.4.6.6. After first coat of mastic, used to bond spiral wrapped cloth, has taken its set, a final coat of weather-barrier mastic shall be troweled or palmed over the entire reinforcing cloth surface. This mastic shall be pressed so it penetrates the weave of the cloth so as to obtain a good bond with the first coat (or the insulation) surface. Care shall be taken that this coat completely covers, fills, and seals voids in reinforcing cloth. After mastic has dried, the combined thickness of mastic and cloth should measure not less than 1/16 inch.
Note: The pattern of the reinforcing cloth or netting will show on the outer surface, regardless of the thickness of the mastic.
- 2.2.4.6.7. Where a smooth finish is desired, the final coat shall be "water brushed" before it takes its set. Care shall be taken that just a sufficient amount of water is used to smooth the surface without diluting the body of the mastic.
- 2.2.4.6.8. Spills, drips or splatter of mastic on floors or other areas not insulated shall be cleaned up with water before mastic sets.

required to provide surface temperature within limits of weather-barrier mastic. Refer to Figure 2.

2.3.3.4. Sharp outside corners of insulation shall be rounded off to a curvature of not less than one inch radius.

2.3.3.5. Insulation surfaces shall be smooth, even, clean and dry.

2.3.4. APPLICATION OF COATING FINISH

2.3.4.1. Expansion joints, flush type or flange type, shall be constructed prior to application of adjacent mastic finish. Typical examples of these expansion joints are shown in Figure No. 1.

2.3.4.2. A heavy fillet of insulating-finishing cement tapered to hot surface shall be applied around all hot metal projecting through the insulation. This cement shall be applied and allowed to dry prior to application of mastic finish. This is shown in Figure No. 4.

2.3.4.3. Inside corners, where two planes of insulation join, shall be caulked with caulking and fillet compound to obtain a minimum one inch radius on all inside corners. This is shown in Figure No. 3.

2.3.4.4. Finish mastic shall not be applied when ambient air temperature is below 40 F or when temperature might be lower than 32 F in the following 24 hours.

2.3.4.5. SPRAY APPLICATION OF COATING FINISH TO LARGE SURFACES:

(Spray application is not to be used for application of finish mastic to piping insulation).

2.3.4.5.1. Prior to spray application, flanges, manholes, instruments, gauges, floors, ceiling and walls shall be covered or shielded to protect them from splatter, rebound, and overspray.

2.3.4.5.2. Spray application shall be done with proper air or airless spray guns and equipment which are clean and properly adjusted to obtain a uniformly diffused spray pattern.

2.3.4.5.3. Insulation surface shall be given a tack coat. While this coat is still wet the cloth shall be applied and embedded into the coating. Cloth shall be drawn taut and smooth. All joints shall be overlapped a minimum of two inches.

2.3.4.5.4. After first coat has taken its set, a second coat shall be applied to completely cover the cloth. Where a smooth finish is desired the surface shall be water brushed before it sets, using just sufficient quantity of water to smooth the surface without softening the body of the coating.

2.3.4.5.5. Drip, splatter, or rebound coating on surfaces not to be finished with the mastic shall be cleaned up with water before the mastic sets.

2.3.4.6. PALMED OR BRUSHED ON APPLICATION:

2.3.4.6.1. A tack coat shall be palmed or brushed onto the insulation surface. While this coat is still wet the cloth shall be applied and embedded into the coating. Joints of cloth shall be overlapped a minimum of two inches with lap of top cloth securely bonded to cloth beneath with the finish coating.

2.3.4.6.2. After the tack coat has taken its set, a second coat shall be applied to completely cover the cloth.

2.3.4.6.3. Where an exceptionally smooth finish is desired, the final coat shall be "water brushed" before it takes its final set. Care shall be taken that just sufficient amount of water is used to smooth the surface without diluting the body of the coating.

2.3.4.6.4. Spills, drips, or splatter of coating on surfaces not to be finished shall be cleaned up with water before the coating sets.

- 2.4.3.3. Metal protrusions through insulation shall be insulated completely, extending a minimum distance of four times the insulation thickness. This applies to metal which is hot and is required to provide surface temperatures within limits of the weather-barrier coating. Refer to Figure 4.
- 2.4.3.4. Insulation surfaces shall be smooth, even, clean and dry.
- 2.4.4. **APPLICATION AND FINISH OF CLOTH OVER INSULATION**
- 2.4.4.1. Expansion joints, flush type or flanged fitting type, shall be constructed prior to application of cloth. Typical examples of these expansion joints are shown in Figure No. 1.
- 2.4.4.2. Inside corners where planes of insulation join shall be caulked with caulking and fillet compound or insulating-finishing cement to obtain a minimum one inch radius or all inside corners. This is shown in Figure No. 3.
- 2.4.4.3. Application of cloth by adhesive or application of sizing coat shall not be done when ambient temperature is less than 40 F.
- 2.4.4.5. **SPRAY APPLICATION OF ADHESIVE-COATING FOR CLOTH ATTACHMENT AND FINISH.**
- 2.4.4.5.1. Prior to spray application, flanges, manholes, instruments, gauges, floors, ceiling and walls should be covered or shielded to protect them from splatter, rebound and overspray
- 2.4.4.5.2. Spray application shall be done with air or airless spray guns and equipment which are clean and properly adjusted to obtain a uniformly diffused spray pattern. Adhesive-coatings specified in MATERIAL SPECIFICATION, Sections 1.3.1. (#136) and 1.3.2. (#713) are suitable for spray application. The proper one of these, as specified, shall be used.
- 2.4.4.5.3. Insulation shall be given a tack coat of adhesive-coating. While this coat is still wet the specified cloth shall be embedded into the adhesive. Cloth shall be drawn taut and smooth. All joints shall be lapped a minimum of one inch.
- 2.4.4.5.4. Adhesive coating shall be applied between the layers of cloth at laps to obtain a tight lap bond.
- 2.4.4.5.5. Flammable cloths shall be cut back at least two inches from all hot projections. Adhesive-coating shall be applied over insulation up to the hot projection.
- 2.4.4.5.6. After tack coat of adhesive-coating has taken its set a finish coat shall be spray applied over the cloth.
- 2.4.4.5.7. Drip, splatter, or rebound adhesive-coating on surfaces not to be finished shall be cleaned up with water before the material sets.
- 2.4.4.6. **BRUSH APPLICATION OF ADHESIVE-COATING FOR ATTACHMENT AND FINISH OF CLOTH.**
- 2.4.4.6.1. Adhesive-coating as called for in MATERIAL SPECIFICATION, Sections 1.3.1. (#136) or 1.3.2. (#713), whichever is specified shall be used.
- 2.4.4.6.2. On concealed piping sufficient area of insulation shall be covered with adhesive-coating to hold cloth in position. Cloth shall be applied and drawn taut and smooth. All joints shall be lapped a minimum of one inch. Adhesive shall be applied between layers of cloth at laps to obtain a tight lap bond.
- 2.4.4.6.3. On exposed piping and equipment entire insulated area shall be given a tack coat of adhesive-coating. While this coat is still wet the specified cloth shall be embedded into this adhesive. Cloth shall be drawn taut and smooth. All joints shall be lapped a minimum of one inch. Adhesive-coating shall be applied between the layers of cloth at laps to obtain a tight lap bond.
- 2.4.4.6.4. Flammable cloths shall be cut back at least two inches from all hot projections. Adhesive-coating shall be applied over the insulation up to the hot projection.

SECTION 2
APPLICATION SPECIFICATION NO. 5
DUCT LINING—FLEXIBLE INSULATION INSTALLATION
AIR CONDITIONING AND HEATING DUCTS
THERMAL AND ACOUSTICAL INSULATION LININGS
RUBBER INSULATION ADHESIVE
DUCT AND LAP ADHESIVE—CLEAR AMBER
VIMASCO #730

- 2.5.1. SCOPE: These specifications provide the list of essential materials and accessories required to install "flexible" fibrous glass insulation to the interior surfaces of air conditioning and heating ducts.
- 2.5.1.1. The adhesive -coating called for in this specification shall be suitable for securing flexible fibrous glass to the interior of air conditioning and heating ducts. After drying, the adhesive shall have a flame spread index of less than 25, and be in accordance with Interim Federal Standard 00136b so as to meet with federal, state and local codes.
- 2.5.2. RUBBER INSULATION ADHESIVE AND ACCESSORIES REQUIRED.
- 2.5.2.1. The rubber insulation adhesive shall fulfill installation requirements and have sufficient "open time" so that large areas of insulation can be installed before the adhesive takes its set. Adhesive shall have the properties as specified in MATERIAL SPECIFICATIONS, Section 1.7.1. (#730).
- 2.5.1.1. Where required, due to high air velocity in the duct, insulation shall be additionally secured to the metal by grip nails or welding pins and pin clips.
- 2.5.3. INSTALLATION OF INSULATION LINING.
- 2.5.3.1. Installation depends upon velocity of air in duct.
- 2.5.3.2. Insulation selected shall be suitable for the velocity of air in duct; however, selection of the insulation, its density, and its thickness, are beyond the scope of this specification.
- 2.5.3.3. APPLICATION OF INSULATION FOR DUCTS WITH AIR FLOW VELOCITIES UP TO 1500 FM.
- 2.5.3.3.1. Apply adhesive by spray or brush in equally spaced stripes so as to cover at least 50% of the metal surface, at a rate of 200 sq. ft. per gallon. While adhesive is still wet, insulation shall be pressed firmly to the metal surface.
- 2.5.3.3.2. When width of duct exceeds 12" and the height exceeds 24" additional securement of grip nails, or welding pins and fasteners shall be installed at center line of sides and top on 16" centers. When the width or height exceeds 32" these securements shall be on 16" centers, staggered.
- 2.5.3.4. APPLICATION OF INSULATION FOR DUCTS WITH AIR FLOW VELOCITIES 1500 to 4000 FM.
- 2.5.3.4.1. Application shall be same as for 2.5.3.3. except that a heavy coat of adhesive shall be applied from the leading edge of each panel of insulation back 6" to obtain complete bond of the insulation.
- 2.5.3.5. APPLICATION OF INSULATION FOR DUCTS WITH AIR FLOW VELOCITIES 4000 to 6000 FM.
- 2.5.3.5.1. Apply adhesive by spray or brush over 100% of the metal surface, at a rate of 200 sq. ft. per gallon. While adhesive is still wet, insulation shall be pressed firmly to metal surface.
- 2.5.3.5.2. Securements of grip nails or welding pins and fasteners shall be installed on a maximum of 16" centers staggered as per 2.5.3.3.2.
- 2.5.3.5.3. All edges of flexible insulation shall be given a heavy coat of adhesive.
- 2.5.3.5.4. Typical installation is shown in Figure No. 5.

- 2.6.3.4.3. Coated side of insulation shall face the air flow.
- 2.6.3.4.4. Insulation joints and edges shall be caulked and coated with the fire resistive adhesive.
- 2.6.3.5. Where required to reduce friction loss and to increase the attenuation of low-frequency fan noise the entire exposed surface of the insulation shall be given a brush coat of fire-retardant polyvinyl-acetate emulsion lagging adhesive as specified in MATERIAL SPECIFICATIONS, Section 1.3.1. (#136)
- 2.6.3.6. Typical application is shown in Figure No. 6.

2.7.4.6. Typical installation is shown in Figure No. 7.

2.7.5. **OVERCOATING:**

2.7.5.1. Where exposed to view, and painted color surface is required, the jacket shall be painted with two coats of polyvinyl-acetate emulsion paint as specified in MATERIAL SPECIFICATIONS, Section 1.12.1. (Liquid Vinyl PVA).

2.7.5.2. Application of paint shall be as specified in APPLICATION SPECIFICATION No. 21.

2.7.6. **WEATHER PROTECTION:**

2.7.6.1. Insulated duct, exposed to weather, shall have a mastic weather-barrier installed over the insulation, or the jacketed insulation, in accordance with APPLICATION SPECIFICATIONS No's. 1 or 2.

- 2.8.4.4. Fitted insulation shall be pressed firmly into the wet adhesive and temporarily held in position until adhesive has taken its set.
- 2.8.4.6. Where pins are required for securement the speed nuts shall be pressed to depress insulation sufficiently, that pin can be cut 1/16 inch below insulation surface. This depression shall be filled with fire-resistant caulking mastic flush with adjacent surface. Caulking shall be as specified in MATERIAL SPECIFICATION 1.5.1.
- 2.8.4.7. All cracks or slightly open joints shall be caulked with fire-resistive caulking mastic. (Same as above).
- 2.8.4.8. Over each caulked mechanical fastener a 4 inch by 4 inch square patch of tape shall be sealed and bonded with adhesive to the surrounding jacket surface.
- 2.8.5. **APPLICATION OF VAPOR-BARRIER JACKET OR OUTER COVERING:**
- 2.8.5.1. Vapor-barrier jacket shall be installed over all insulation installed on ducts which operate below ambient temperature.
- 2.8.5.1.1. Vapor-barrier lap flanges shall be sealed and bonded to adjacent jacket with adhesive applied by brush at a rate of approximately 80 sq. ft. per gallon.
- 2.8.5.1.2. Where jacket lap flanges are not supplied on insulation to cover joints and at joints of fitted pieces, the jacket shall be coated slightly more than two inches on both sides of the butt joint with adhesive. The four inch wide joint tape shall be pressed firmly into the adhesive to obtain bond and sealing of the insulation jacket.
- 2.8.5.1.3. Typical installation is shown in Figure No's 8 and 9.
- 2.8.5.2. Outer coating or covering on ducts operating above ambient air temperature shall be as selected in accordance with location and installation requirements.
- 2.8.5.2.1. Ducts operating above ambient air temperature, concealed from view and not subjected to mechanical abuses require no covering.
- 2.8.5.2.2. Where specified, ducts operating above ambient air temperature shall be jacketed as called for installed in accordance of 2.8.5.1. of this specification.
- 2.8.5.2.3. Where exposed to view, and so specified, ducts shall be covered with Vinyl-Acetate Lagging Adhesive and Coating and Cloth as specified in APPLICATION SPECIFICATIONS NO. 4.
- 2.8.6. **OVERCOATING**
- 2.8.6.1. Where ducts are exposed to view and painted surface is required, the jacket or sized cloth shall be painted with two coats of polyvinyl-acetate emulsion paint as specified in MATERIAL SPECIFICATIONS, Section 1.12.1. (Liquid Vinyl PVA).
- 2.8.6.2. Application of paint shall be as specified in APPLICATION SPECIFICATIONS NO. 21.
- 2.8.7. **WEATHER PROTECTION:**
- 2.8.7.1. Insulated duct, exposed to weather, shall have a mastic weather-barrier installed over the insulation, or the jacketed insulation, in accordance with APPLICATION SPECIFICATIONS NO'S. 1 or 2.

- 2.9.3.1. Insulation shall be supported, secured and installed in such manner that it provides a firm and smooth base for the application of the mastic and its reinforcement.
- 2.9.3.2. Insulation over ribs or projections shall be rounded off over outside corners and installed with a minimum 1" radius on inside corners. This installation is shown in Figure No. 18.
- 2.9.4. **APPLICATION OF WEATHER-BARRIER.**
- 2.9.4.1. A heavy fillet of heat resistant silicone sealer shall be applied around all hot metal projecting through the insulation. The insulation and the metal four inches back from this junction shall be coated and sealed as shown in Figure No. 19.
- 2.9.4.2. Weather-barrier polyvinyl-acetate emulsion mastic shall not be applied when ambient air temperature is below 25 F or expected to be below 25 F within the next 24 hours. Mastic must not be applied on sprayed insulation until the insulation has taken its set and is essentially dry.
- 2.9.4.3. **SPRAY APPLICATION OF MASTIC.**
- 2.9.4.3.1. Prior to application, flanges, manholes, instruments, gauges, and other areas not insulated and not to be sprayed shall be covered to protect them from splatter, rebound and overspray.
- 2.9.4.3.2. Spray application shall be done with proper air or airless spray guns and equipment which are clean and properly adjusted.
- 2.9.4.3.3. **SPRAY APPLICATION OF MASTIC WITH EXTENSIBLE CLOTH REINFORCEMENT.**
- 2.9.4.3.3.1. Insulation surface shall be given a tack coat of mastic. While this coat of mastic is still wet the reinforcing cloth shall be embedded into the mastic. Cloth shall be drawn taut and smooth. All cloth joints shall be overlapped a minimum of two inches. All inside and outside corners shall be overlapped so as to cover the corners with two layers of cloth. This application is shown in Figure No. 3.
- 2.9.4.3.3.2. Coating and reinforcement shall extend four inches onto metal which projects through insulation. It shall also extend four inches beyond the termination of insulation on supports, skirts, etc. Typical application is shown in Figure No. 3.
- 2.9.4.3.3.3. After first coat has taken its set, a second coat shall be sprayed to such a thickness that when dry, the combined thickness of the first coat, the reinforcing cloth, and the second coat measures 1/16 inch. Care must be taken that the second coat completely covers, fills, and seals voids in reinforcing cloth.
- 2.9.4.3.4. **SPRAY APPLICATION OF MASTIC WITH HEXAGONAL WIRE NETTING REINFORCEMENT.**
- 2.9.4.3.4.1. Hexagonal wire netting shall be used only where it is possible to draw it taut and flush to the insulation surface.
- 2.9.4.3.4.2. Galvanized wire netting shall be used in ordinary atmospheres, whereas monel wire netting shall be used in areas of extreme corrosion.
- 2.9.4.3.4.3. The netting shall be drawn taut and flush to the surface. Where necessary it shall be secured to pins with speed clips as shown in Figure No. 16. After clips have been applied, pin is cut off below the insulation surface. The depression shall be pointed up with the fibrous insulation. Installation is as shown in Figures No. 16 and 17.
- 2.9.4.3.4.4. Hexagonal wire netting shall be installed to fit tightly over outside and tightly into inside corners, as shown in Figure No. 18.
- 2.9.4.3.4.5. The mastic shall be sprayed onto the surface to the full thickness in one coat, in such manner as to completely cover the netting and so that dried thickness is not less than 1/16 inch. (Pressure of spray will force mastic around and back of netting wire.)

SECTION 2
APPLICATION SPECIFICATION NO. 10
WEATHER-BARRIER INSTALLATION SPECIFICATIONS
HIGH TEMPERATURE EQUIPMENT
INSULATED WITH SPRAYED ASBESTOS OR MINERAL FIBER
ACRYLIC EMULSION WEATHER-BARRIER MASTIC
AC-7

- 2.10.1. **SCOPE:** These specifications provide the list of essential materials and installation procedures for the application of weather-barrier over insulation on equipment, located indoors or outdoors, operating above ambient air temperature.
- 2.10.1.1. The weather-barrier described in this specification is suitable for application over asbestos or mineral fiber insulation which has been sprayed on the substrate surface and then consolidated and compressed to required density and thickness.
- 2.10.2. **WEATHER-BARRIER MASTIC AND ACCESSORIES REQUIRED.**
- 2.10.2.1. Weather-barrier and accessories listed shall be of type, and have properties, as given in designated section of the MATERIALS SPECIFICATION.
- 2.10.2.1.1. Weather-barrier shall be acrylic emulsion type mastic for troweling or 'palming' (Trowel Grade) suitable for installation at atmospheric temperature down to 20 F, as specified in MATERIALS SPECIFICATION, Section 1.2.4. (AC-7).
- 2.10.2.2. Hexagonal wire mesh, where used in corrosive atmospheres shall be stainless steel or monel as specified in MATERIALS SPECIFICATION, Section 1.11.5.1. In ordinary services, shall be galvanized steel as specified in MATERIALS SPECIFICATION, Section 1.11.5.2.
- 2.10.2.3. Lacing wire shall be as specified in MATERIALS SPECIFICATION, Section 1.11.6.
- 2.10.2.4. Reinforcing cloth shall be extensible open weave cloth as specified in MATERIALS SPECIFICATION, Section 1.11.1. (#894)
- 2.10.3. **APPLICATION OF INSULATION.**
- The following is given to provide the essentials of insulation as related to the proper function of the finish system. The type of sprayed insulation, its required thickness, and other details of its installation are beyond the scope of this specification.
- 2.10.3.1. Insulation shall be supported, secured and installed in such manner that it provides a firm and smooth base for the application of the mastic and its reinforcing.
- 2.10.3.2. Insulation over ribs or projections shall be rounded off over outside corners and installed with a minimum 1" radius on inside corners. This installation is shown in Figure No. 18.
- 2.10.4. **APPLICATION OF WEATHER-BARRIER.**
- 2.10.4.1. A heavy fillet of heat-resistant silicone sealer shall be applied around all hot metal projecting through the insulation. The insulation and the metal four inches back from this junction shall be coated and sealed as shown in Figure No. 19.
- 2.10.4.2. Weather-barrier acrylic emulsion mastic shall not be applied when ambient air temperature is below 20 F or expected to be below 20 F within the next 24 hours. Mastic must not be applied to sprayed insulation until the insulation has taken its set and is essentially dry.
- 2.10.4.3. **TROWEL OR PALM APPLICATION OF MASTIC.**
- 2.10.4.3.1. Insulation surface shall be given a tack coat of mastic by trowel or palm. While this coat of mastic is still wet the reinforcing cloth shall be embedded into the mastic. All cloth joints

SECTION 2
APPLICATION SPECIFICATION NO. 11
SEALING AND WEATHER-BARRIER INSTALLATION SPECIFICATIONS
LOW TEMPERATURE EQUIPMENT AND PIPING
INSULATED WITH CELLULAR GLASS
POLYVINYL-ACETATE EMULSION WEATHER-BARRIER MASTIC
WC-1, WC-1FR

- 2.11.1. SCOPE: These specifications provide the list of essential sealers, anti-abrasive coatings, caulking and weather-barriers and installation procedure for their application with the insulation on equipment and piping, located outdoors, operating at temperatures down to minus 400 F.
- 2.11.2. WEATHER-BARRIER MASTIC AND ACCESSORIES REQUIRED:
- 2.11.2.1. The polyvinyl-acetate heavy build weather-barrier mastic shall fulfill the application, atmospheric and service requirements. Weather-barrier and accessories listed shall be of the type, and have the properties, as given in the designated section of the MATERIALS SPECIFICATION.
- 2.11.2.2.1. Weather-barrier mastic shall be one of the following polyvinyl-acetate emulsion types:
- 2.11.2.2.1.1. Polyvinyl-acetate emulsion type mastic for application by troweling or palming suitable for installation at atmospheric temperature down to 25 F, as specified in MATERIAL SPECIFICATION, Section 1.2.1. (WC-1 Regular Grade).
- 2.11.2.2.1.2. Polyvinyl-acetate emulsion type mastic for application by spraying (Spray Grade) suitable for installation at atmospheric temperature down to 35 F, as specified in MATERIAL SPECIFICATION, Section 1.2.1. (WC-1 Spray Grade).
- 2.11.2.2.1.3. Polyvinyl-acetate emulsion type mastic for application by troweling or palming, suitable for installation at atmospheric temperature down to 40 F. Shall be suitable for very hazardous service where surface flame spread must be kept to a minimum, as specified in MATERIAL SPECIFICATION, Section 1.2.2. (WC-1 FR Regular Grade).
- 2.11.2.2.1.4. Polyvinyl acetate emulsion type mastic for application by spraying, suitable for installation at atmospheric temperature down to 40 F. Shall be suitable for very hazardous service where flame spread must be kept to a minimum, as specified in MATERIALS SPECIFICATION, Section 1.2.2. (WC-1 FR Spray Grade).
- 2.11.2.3. Caulking and fillet compound shall be emulsion resin, cork filled, type as specified in MATERIALS SPECIFICATION, Section 1.5.1. (#703-C).
- 2.11.2.4. Low temperature butt joint sealer shall be one of the following:
- 2.11.2.4.1. For application where weather-barrier mastic is colored black or dark gray, the low temperature butt sealer shall be vinyl-asphalt mastic as specified in MATERIALS SECTION, Section 1.4.2. (#49).
- 2.11.2.4.2. For application where no bleeding of sealer can be tolerated, low temperature sealer shall be cold bond sealer as specified in MATERIALS SPECIFICATION, Section 1.4.1. (#750).
- 2.11.2.5. The anti-abrasive coating shall be one of the following depending upon metal of equipment or pipe on which insulation system is being installed.
- 2.11.2.5.1. If metal of equipment or pipe is steel, aluminum, monel or copper, the anti-abrasive coating shall be a vinyl-chloride base solvent coating as specified in MATERIALS SPECIFICATION, Section 1.6.1. (#500).

- 2.11.6.2. Inside corners, where two planes of insulation join, shall be caulked with caulking and fillet compound to obtain a minimum one-inch radius on all inside corners. This is shown in Figure No. 3.
- 2.11.6.3. Weather-barrier mastic shall not be applied when ambient air temperature is lower than the recommended minimum installation temperature. Proper grade—trowel or spray—shall be used as required by application method.
- 2.11.6.4. **SPRAY APPLICATION OF HEAVY BUILD WEATHER-BARRIER MASTIC TO LARGE SURFACES:**
- (Spray application is not recommended for application of weather-barrier to surfaces less than 30" in diameter.)
- 2.11.6.4.1. Prior to spray application, instruments, gauges and other areas not insulated and not to be sprayed, shall be covered to protect them from splatter, rebound and overspray.
- 2.11.6.4.2. Spray application of spray grade mastic shall be done with proper air, or airless, spray guns and equipment which are clean and properly adjusted to obtain a uniformly diffused spray pattern.
- 2.11.6.4.3. Cellular glass outer surface shall be given a tack coat of weather-barrier mastic. While this coat is still wet the reinforcing cloth shall be applied and embedded into this mastic. Cloth shall be drawn taut and smooth. All cloth joints shall be overlapped a minimum of two inches. All inside and outside corners, where two planes of insulation meet, shall be overlapped so as to cover the corners with two layers of cloth. This application is shown in Figure No. 3.
- 2.11.6.4.4. Coating and reinforcement shall extend four inches onto metal which projects through the insulation. It shall extend four inches beyond the termination of insulation on supports, skirts, etc. Typical application is shown in Figure No. 3.
- 2.11.6.4.5. After first coat has taken its set, a second coat shall be spray applied to such a thickness that when dry the combined thickness of first coat, reinforcing cloth and second coat measures 1/16 inch. Care shall be taken that second coat completely covers, fills and seals voids in the reinforcing cloth. Note: The weave pattern of the "extensible" cloth is such that it will show on the surface, regardless of thickness of second coat.
- 2.11.6.4.6. Drip, splatter, or rebound mastic on floors and other areas not insulated shall be cleaned up with water before mastic sets.
- 2.11.6.5. **TROWELED OR PALMED APPLICATION OF WEATHER-BARRIER MASTIC:**
- 2.11.6.5.1. On flat, double curved, large cylindrical and irregular surfaces a tack coat of mastic shall be palmed or troweled onto the outer surface of cellular glass insulation. While this coat of mastic is still wet the reinforcing cloth shall be applied and embedded into the mastic. Cloth shall be drawn taut and smooth. All inside and outside corners, where two planes of insulation meet shall be overlapped so as to cover the corners with two layers of cloth. This application is shown in Figure No. 3.
- 2.11.6.5.2. On straight pipe insulation the cloth may be installed by using just sufficient mastic to bond the cloth end to the pipe insulation and then spiral wrapping the cloth around the pipe insulation. Termination of the roll of cloth shall be mastic adhered to the insulation. The beginning of the next roll shall overlap the end of the first and be adhered with mastic. Cloth application shall then be continued over the straight pipe insulation. All cloth joints shall be overlapped a minimum of two inches.
- 2.11.6.5.3. All fitting and valve insulation covers shall be given a tack coat of mastic and the cloth shall be applied as called for in 2.11.6.5.1.

SECTION 2
APPLICATION SPECIFICATION NO. 12
SEALING AND WEATHER-BARRIER INSTALLATION SPECIFICATIONS
LOW TEMPERATURE EQUIPMENT AND PIPING
INSULATED WITH CELLULAR GLASS
ACRYLIC HEAVY BUILD WEATHER BARRIER MASTIC
VIMASCO AC-7

- 2.12.1. **SCOPE:** These specifications provide the list of essential sealers, anti-abrasive coatings, caulking and weather-barrier and installation procedure for their application with the insulation on equipment and piping, located outdoors, operating at temperatures down to minus 400 F.
- 2.12.2. **WEATHER-BARRIER MASTIC AND ACCESSORIES REQUIRED:**
- 2.12.2.1. Weather-barrier and accessories listed shall be of the type, and have properties, as given in designated section of the MATERIALS SPECIFICATION.
- 2.12.2.2.1. Weather-barrier shall be acrylic polymer emulsion type mastic as required by application.
- 2.12.2.2.1.1. Acrylic polymer emulsion type mastic suitable for application by troweling or palming (AC-7 Regular Grade), suitable for installation at atmospheric temperature down to 30 F. As specified in MATERIALS SPECIFICATION, Section 1.2.3.
- 2.12.2.2.1.2. Acrylic polymer emulsion type mastic suitable for application by spray (AC-7 Spray Grade) shall be as specified in Section 1.2.3.
- 2.12.2.3. Caulking and fillet compound shall be emulsion resin, cork filled type, as specified in MATERIALS SPECIFICATION, Section 1.5.1. (#703-C)
- 2.12.2.4. Anti-abrasive coating shall be one of the following depending upon metal of equipment or pipe on which the insulation system is being installed.
- 2.12.2.4.1. If metal of equipment or pipe is steel, aluminum, monel, or copper the anti-abrasive coating shall be vinyl-base anti-abrasive coating as specified in MATERIALS SPECIFICATION, Section 1.6.1. (#500).
- 2.12.2.4.2. If metal of equipment or pipe is stainless steel the anti-abrasive coating shall be a product designed for this purpose.
- 2.12.2.5. Low temperature joint sealer shall be one of the following:
- 2.12.2.5.1. For brush application and where weather-barrier mastic is colored black or dark gray, the low temperature sealer shall be vinyl-asphalt sealer as specified in MATERIALS SPECIFICATION, Section 1.4.2. (#49).
- 2.12.2.5.2. For trowel application, and where no bleeding of sealer can be tolerated, low temperature sealer shall be cold bond sealer as specified in MATERIALS SPECIFICATION, Section 1.4.1. (#750)
- 2.12.2.6. Reinforcing cloth shall be of resin fiber, extensible reinforcing cloth as specified in MATERIALS SPECIFICATION, Section 1.11.1.
- 2.12.3. **APPLICATION OF EQUIPMENT AND PIPING INSULATION:**
- The following is given to provide the essentials of insulation application as related to the proper function of the vapor-seal and weather-barrier system. The required thickness of cellular glass, details for its support, number of layers and method of its securement are beyond the scope of this specification.
- 2.12.3.1. The insulation should be supported and secured so that all joints are drawn tight and flush. If at all possible, the cellular glass shall be installed so that movement of the vessel, or pipe, due to contraction is not transmitted to the insulation, except at insulation contraction joints.

2.12.6.4.3. SPRAY APPLICATION OF MASTIC WITH EXTENSIBLE CLOTH REINFORCEMENT.

- 2.12.6.4.3.1. Insulation surface shall be given a tack coat of mastic. While this coat of mastic is still wet the reinforcing cloth shall be applied and embedded into the mastic. Cloth shall be drawn taut and smooth. All cloth joints shall be overlapped a minimum of two inches. All inside and outside corners shall be overlapped so as to cover the corners with two layers of cloth. This application is shown in Figure No. 3.
- 2.12.6.4.3.2. Coating and reinforcing shall extend four inches onto metal which projects through the insulation. It shall also extend four inches beyond the termination on supports, etc. Typical application is shown in Figure No. 3.
- 2.12.6.4.3.3. After first coat has taken its set, a second coat shall be sprayed to such a thickness that when dry, the combined thickness of the first coat, the reinforcing cloth and the second coat measures 1/16 inch. Care must be taken that second coat completely covers fills, and seals voids in reinforcing cloth.

2.12.6.5. TROWELED OR PALMED APPLICATION OF WEATHER-BARRIER MASTIC.

- 2.12.6.5.1. On flat, double curved, large cylindrical and irregular insulated surfaces a tack coat of mastic shall be palmed or troweled, onto the cellular glass insulation. While this coat of mastic is still wet, the reinforcing cloth shall be applied and embedded into the wet mastic. All cloth joints shall be overlapped a minimum of two inches.
- 2.12.6.5.2. On straight pipe insulation the cloth may be installed by using just sufficient mastic to bond the cloth and to the pipe insulation and by then spiral-wrapping the cloth around the pipe insulation. Termination end of the roll of cloth shall be mastic adhered to the insulation. The beginning of the next roll shall overlap the end of the first and be adhered with Mastic. Cloth application shall then be continued over the straight pipe insulation. All cloth joints shall be overlapped a minimum of two inches.
- 2.12.6.5.3. All fitting and valve insulation covers shall be given a tack coat of mastic followed by reinforcing cloth installed as called for in 2.12.6.5.1.
- 2.12.6.5.4. All inside and outside corners shall be overlapped so as to be covered with two layers of cloth as shown in Figure No. 3.
- 2.12.6.5.5. Coating and reinforcing cloth shall extend out four inches onto metal which projects through the insulation. It shall also extend four inches beyond the termination of insulation on supports, legs, skirts, etc. Typical application is shown in Figure No. 3.
- 2.12.6.5.6. After the first coat, or mastic used to bond spiral-wrapped cloth, has taken its set a final coat of weather-barrier mastic shall be troweled or palmed over the entire reinforcing cloth surface. This mastic shall be pressed so that it penetrates the weave of the cloth to obtain a good bond with the first coat (or the cellular glass insulation) surface. Care shall be taken that this coat completely covers, fills, and seals voids in the reinforcing cloth.
- 2.12.6.5.7. After the mastic has dried, the combined thickness of mastic and cloth shall measure not less than 1/16 inch.
- Note: The weave pattern of the "extensible" reinforcing cloth is such that it will show on the outer surface, regardless of thickness of final coat.
- 2.12.6.5.8. Where a smooth finish is desired, the final coat may be "water brushed" before it takes its set. Care shall be taken that just sufficient amount of water is used to smooth the surface without diluting the body of the mastic.
- 2.12.6.5.9. Spills, drips, or splatter of mastic on floors, or other areas not insulated, shall be cleaned up with water before mastic sets.

SECTION 2
APPLICATION SPECIFICATION NO. 14
WEATHER-BARRIER INSTALLATION SPECIFICATIONS
MODERATE TEMPERATURE EQUIPMENT
INSULATED WITH SPRAYED URETHANE RIGID FOAM
ACRYLIC EMULSION WEATHER-BARRIER MASTIC
AC-7

- 2.14.1. SCOPE: These specifications provide the essentials and installation procedures for application of weather-barrier over sprayed urethane insulation installed on equipment located outdoors or indoors. Limited to equipment whose operating temperature is above ambient air temperature.
- 2.14.1.1. The weather-barrier in this specification is suitable for application over urethane which has been sprayed on a substrate surface, foamed, and allowed to cure to its final set prior to installation of the weather-barrier mastic.
- 2.14.2. WEATHER-BARRIER MASTIC AND ACCESSORIES REQUIRED:
- 2.14.2.1. The acrylic emulsion weather-barrier mastic used shall be that which fulfills the application atmospheric and service requirements. Weather-barrier mastic and accessories listed shall be of type and have properties, as given in designated section of the MATERIALS SECTION.
- 2.14.2.1.1. Weather-barrier mastic shall be acrylic emulsion type mastic for application by spray, suitable for installation at atmospheric temperature down to 40 F. As specified in MATERIALS SPECIFICATION SECTION 1.2.3. (AC-7 Spray Grade).
- 2.14.3. APPLICATION OF SPRAYED FOAM INSULATION:
- The following is given to provide the essentials as related to proper function of the Weather Barrier system. The formulation of the urethane, the thickness required and details of application and beyond the scope of this specification.
- 2.14.3.1. Insulation shall have good adhesion to substrate surface.
- 2.14.3.2. The surface of the foamed urethane shall be generally smooth and free of depressions and cavities. High projection of rigid urethane foam shall be leveled to provide even surface.
- 2.14.3.3. The urethane foam must have had time to complete its reaction. However, it must be coated before solar radiation starts decomposition of the surface.
- 2.14.4. APPLICATION OF WEATHER-BARRIER:
- 2.14.4.1. Spray application of mastic weather-barrier shall be done with airless spray guns and equipment which are clean and properly adjusted to obtain a uniformly diffused spray pattern.
- 2.14.4.2. Insulation shall be protected from elements of weather until weather-barrier is installed.
- 2.14.4.3. Spray application of weather-barrier mastic shall be done in two coats. Care shall be taken that each coat of mastic is flowed evenly over the surface. The second coat of mastic shall not be applied until first coat has taken its set. The combined thickness of the two coats shall be approximately 1/16 inch when dry. Typical application is shown in Figure No. 21.
- 2.14.4.4. Weather-barrier mastic shall extend three inches over bare metal which projects beyond the insulation. Typical application is shown in Figure No. 21.
- 2.14.4.5. Spills, drips, splatter of mastic on floors, or areas not insulated, must be cleaned up with water before mastic sets.

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2.15.3. APPLICATION OF INSULATION ON EQUIPMENT AND PIPING:

The following is given to provide the essentials of application of insulations, which require vapor-barriers on low temperature service, as related to the proper function of the vapor-barrier and weather-barrier systems. The type of insulation, its required thickness and details of its installation are beyond the scope of this specification.

- 2.15.3.1.** The insulation shall be supported and secured so that after installation all joints are tight and flush.

2.15.4. APPLICATION OF VAPOR-SEALERS AND VAPOR-BARRIERS:

- 2.15.4.1.** The butt edges of the insulation shall be coated with cold bond adhesive and sealer in sufficient quantity to fill all voids and provide a vapor barrier down to and sealed to metal. The coated butt edge surfaces shall be placed tightly together to obtain a tightly sealed joint. This provides a laterally compartmentalized vapor seal so that if outer vapor-barrier is punctured the moisture migration is restricted to a small area of the insulation. Need for this vapor sealing is illustrated in Figure No. 22.

- 2.15.4.2.** The outer surface of each layer of insulation shall be covered, by palming, brushing or spraying, with vapor-barrier coating to an approximate wet thickness of 1/16 inch, so as to obtain a minimum thickness of 1/32 inch when material has dried and cured. At termination of block and pipe insulation, at flanges, fittings, or other projections, vapor-barrier should extend down over ends and onto metal to complete the vapor-seal. Ends of block insulation and pipe insulation shall be so sealed before fitting insulation is installed. This is illustrated in Figure No. 23.

- 2.15.4.3.** Pipe insulation, or segmental insulation furnished with factory-attached vapor-barrier jacket shall be installed in similar manner as stated in 2.15.4.1. with end and edge joints tightly butted and vapor-sealed with cold bond vapor-barrier adhesive and sealer. The jacket lap flanges of attached jacket shall be sealed and bonded to jacket over which it extends with lap adhesive. Adhesive shall be applied to the surfaces to be bonded, by brush, at a rate of 80 sq. ft. per gallon. Care shall be taken to obtain tight 100% bond and seal. Where jacket is not supplied with lap flanges to cover joints, the butt jackets shall be coated slightly more than two inches on both sides of the joint with lap adhesive. A strip of same jacketing material, 4" wide, shall be pressed firmly into the wet adhesive to obtain bond and sealing of the vapor-barrier jacket. These installations are illustrated in Figure No. 24. Butt ends and edges extending beyond jacket shall be sealed with vapor-barrier coating applied approximately 1/16 inch thick.

- 2.15.4.4.** Fittings, and all insulation without attached vapor-barrier jacket, shall be covered by palming, brushing or spraying, with vapor-barrier coating to an approximate wet thickness of 1/16 inch so as to obtain a minimum thickness of 1/32 inch when dry. Vapor-barrier coating shall extend over all previously installed adjacent vapor-barriers approximately two inches to obtain seal.

2.15.5. APPLICATION OF WEATHER-BARRIER:

- 2.15.5.1.** Weather-barrier shall not be installed until vapor-barrier coating has dried. However, it shall be installed as soon after vapor-barrier has taken its set as is practicable and as weather permits.

- 2.15.5.2.** Inside corners, where two planes of insulation join, shall be caulked with caulking and fillet compound to obtain a minimum one inch radius on all inside corners. This is shown in Figure No. 3.

- 2.15.5.3.** Weather-barrier mastic shall not be applied when ambient air temperature is lower than recommended minimum installation temperature. Proper grade—regular or spray—shall be used as required by application method.

- 2.15.5.5.8. After mastic has dried, the combined thickness of mastic and cloth shall measure not less than 1/16 inch.

Note: The weave pattern of reinforcing cloth will show on the outer surface, regardless of the thickness of the mastic.

- 2.15.5.5.9. Spills, drips or splatter of mastic on floors or other areas not insulated and not to be coated shall be cleaned up with water before mastic sets.

The coated butt end and edge surfaces shall be placed and secured tightly together to obtain a tightly sealed joint. This provides a laterally compartmentalized vapor seal so that if outer vapor-barrier is punctured the moisture migration is restricted to a small area of insulation. Need for this vapor sealing is illustrated in Figure No. 22.

- 2.16.4.2. The outer surface of each layer of insulation shall be completely covered, by palm-
ing, brushing, or spraying, with vapor-barrier coating to an approximate thickness of 1/16 inch, so as to
obtain a minimum thickness of 1/32 inch when material has dried and cured. At termination
of block and pipe insulation, at flanges, fittings, or other projections, vapor-barrier should extend
over ends and onto metal to complete the vapor seal. Ends of block and pipe insulation
shall be so sealed before fitting insulation is installed. This is illustrated in Figure
No. 23.
- 2.16.4.3. Pipe insulation, or segmental insulation, furnished with factory attached vapor-barrier jacket,
shall be installed with end and edge joints tightly butted and sealed with cold bond adhesive
and sealer as in 2.16.4.1. The jacket lap flanges of attached jacket shall be sealed and bonded
to jacket over which it extends with lap adhesive. Adhesive shall be applied to the surfaces to
be bonded by brush, at a rate of 80 sq. ft. per gallon. Care shall be taken to obtain tight
100% bond and seal. Where jacket is not supplied with lap flanges to cover joints, the butt
jackets shall be coated slightly more than two inches on both sides of the joint with lap
adhesive. A strip of the same vapor jacketing material, 4 inches wide shall be pressed into
the wet adhesive to obtain bond and sealing of the vapor-barrier jacket. These joints
are illustrated in Figure No. 24. Butt ends and edges extending beyond jacket shall be
sealed with vapor-barrier coating applied approximately 1/16 inch thick.
- 2.16.4.4. Fittings and all insulation without attached vapor-barrier jacket shall be covered by palm-
ing, brushing, or spraying with vapor-barrier coating to an approximate thickness of 1/16
inch, so as to obtain a minimum thickness of 1/32 inch when material has dried and cured.
Vapor-barrier coating shall extend over any previously installed vapor-barrier approxi-
mately two inches to obtain seal.

2.16.5. APPLICATION OF WEATHER-BARRIER:

- 2.16.5.1. Weather-barrier shall not be installed until vapor-barrier coating has dried. However, it
shall be installed as soon after vapor-barrier has taken its set as is practicable.
- 2.16.5.2. Inside corners, where two planes of insulation join shall be caulked with caulking and fillet
compound to obtain a minimum one-inch radius on all inside corners. This is shown in
Figure No. 3.
- 2.16.5.3. Weather-barrier mastic shall not be applied when ambient air temperature is lower than
recommended minimum installation temperature. Proper grade—regular or spray—shall be
used as required by application method.
- 2.16.5.4. **SPRAY APPLICATION OF WEATHER-BARRIER MASTIC TO LARGE SURFACES**

(Spray application is not recommended on insulation where external diameter is less than
30 inches)
- 2.16.5.4.1. Prior to spray application, instruments, gauges and other areas not to be insulated and not
to be coated, shall be covered to protect them from splatter, rebound and overspray.
- 2.16.5.4.2. Spray application of spray grade mastic shall be done with proper airless spray guns and
equipment which are clean and properly adjusted to obtain a uniformly diffused spray
pattern.
- 2.16.5.4.3. Over the surface of the vapor-barrier a tack coat of weather-barrier mastic shall be applied.
While this coat is still wet the reinforcing cloth shall be embedded into the mastic. The
cloth shall be drawn taut and smooth. All cloth joints shall be overlapped a minimum

SECTION 2
APPLICATION SPECIFICATION NO. 17
VAPOR-BARRIER AND FINISH INSTALLATION SPECIFICATION
INDOOR
LOW TEMPERATURE EQUIPMENT AND PIPING
(Operating Temperature Below Ambient Air Temperature)
VAPOR-BARRIER COATING #740

- 2.17.1. SCOPE: These specifications provide the list of essential materials and installation procedures for application of vapor-barriers over insulation on equipment and piping located indoors and operating below ambient air temperature.
- 2.17.1.1. The vapor-barrier described in this specification is suitable for application on rigid and semi-rigid mineral fiber and organic foam insulations. The mastic finish is suitable for application over sheet and vapor-barrier coatings.
- 2.17.2. VAPOR-BARRIER, COATING FINISH AND ACCESSORIES REQUIRED:
- 2.17.2.1. The vapor-barrier and coating finish described in this specification shall fulfill the application, atmospheric and service requirements. These and the accessories shall be of the type, and have properties, as given in the designated section of the MATERIALS SPECIFICATION.
- 2.17.2.2. Vapor-barrier coating shall be for application by palming, or brushing at atmospheric temperature down to 20 F, as specified in MATERIAL SPECIFICATION, Section 1.8.1. (#740).
- 2.17.2.3. Caulking and fillet compound shall be emulsion resin, cork filled type, as specified in MATERIALS SPECIFICATION, Section 1.5.1. (#703-C).
- 2.17.2.4. Lap adhesive and sealer, shall be rubber type as specified in MATERIALS SPECIFICATION, Section 1.7.1. (#730) or 1.7.3. (#733).
- 2.17.2.5. Cold bond adhesive and sealer, for service temperature down to -50 F shall be as specified in MATERIALS SPECIFICATION Section 1.4.1. (#750).
- 2.17.2.6. Reinforcing cloth shall be glass cloth as specified in MATERIALS SPECIFICATION, Section 1.11.2.
- 2.17.3. APPLICATION OF INSULATION ON EQUIPMENT AND PIPING:
- The following is given to provide the essentials of application of insulations, which require vapor-barriers for low temperature service, as related to the proper function of the vapor-barrier and weather-barrier systems. The type of insulation, its required thickness and details of installation are beyond the scope of this specification.
- 2.17.3.1. The insulation shall be supported and secured so that after installation all joints are taut and flush.
- 2.17.4. APPLICATION OF VAPOR-SEALERS AND VAPOR-BARRIERS:
- 2.17.4.1. The butt edges of the insulation shall be completely coated with cold bond adhesive and sealer in sufficient quantity to fill all voids and provide a vapor-barrier down to and sealed to the metal. The coated butt end and edge surfaces shall be placed and secured tightly together to obtain a tightly sealed joint. This provides a laterally compartmentalized vapor seal so that if the outer vapor-barrier is punctured the moisture migration is localized. Need for this vapor sealing is illustrated in Figure No. 22.

SECTION 2
APPLICATION SPECIFICATION NO. 18
CORK-FILLED MASTIC INSULATION APPLICATION SPECIFICATION
INDOOR OR OUTDOOR
CONTROL OF CONDENSATION ON EQUIPMENT AND PIPING
(Operating Temperature Below Ambient Air Temperature)
CORK-FILLED POLYVINYL ACETATE MASTIC
WC-1 TYPE C

- 2.18.1. SCOPE: This specification contains the list of essential materials and installation procedures for application of insulation for control of condensation on vessels and piping such as water tanks and piping operating below dew point temperature of ambient air. This specification is not recommended for insulation of refrigerated equipment and piping, and should not be used on substrate operating at temperatures below 35 F.
- 2.18.1.1. The insulation mastic described in these specifications shall be suitable for application to carbon steel, galvanized steel, stainless steel, copper or aluminum surfaces.
- 2.18.2. **INSULATING MASTIC AND PRIMERS REQUIRED:**
- 2.18.2.1. The cork-filled polyvinyl-acetate insulating mastic shall be suitable for application by troweling, palming or spraying. It shall be suitable for insulating surfaces operating at temperatures not lower than 35 F nor higher than 180 F, as specified in MATERIAL SPECIFICATION, Section 1.9.1. (WC-1 Type C).
- 2.18.2.2. Metal primer for carbon steel shall be iron oxide-zinc yellow as specified in MATERIAL SPECIFICATION, Section 1.13.1. (P. O. F. #52-8), or universal primers specified in MATERIAL SPECIFICATION, Section 1.13.4. (#926).
- 2.18.3. **PREPARATION OF SURFACE:**
- 2.18.3.1. The metal surface to be insulated shall be dry and clean. Any rust, mill scale, or dirt, shall be removed. Grease, loose paint or oil shall be wiped off with a volatile solvent, such as coal tar naphtha.
- 2.18.4. **PRIMING OF CARBON STEEL SURFACES:**
- 2.18.4.1. On previously painted steel, where the paint is in good condition, it is required only that the paint be clean prior to application of cork-filled mastic. However, if paint is glossy or slick it shall be coated with universal primer to obtain good adhesion of the cork filled mastic.
- 2.18.4.2. Where the existing paint needs repairs the entire surface shall be coated with the universal primer to a dry thickness of at least 1 mil.
- 2.18.5. **APPLICATION OF CORK-FILLED INSULATING MASTIC:**
- 2.18.5.1. The temperature of the surface to be insulated shall be a minimum of 10 F above dew point temperature, but should not be above 160 F. The surface to which the mastic is applied must remain above dew point temperature until the mastic has dried and cured. A minimum drying period of 24 hours shall be allowed for each 1/8 inch thickness of insulating mastic applied.
- 2.18.5.2. **SPRAY APPLICATION OF CORK-FILLED INSULATING MASTIC:**
(Spray application is not recommended on vessels or pipe insulation less than 30 inches in diameter).
- 2.18.5.2.1. Prior to spray application, instruments, gauges, floors, ceiling or walls shall be covered or shielded to protect them from splatter, rebound and overspray.

SECTION 2
APPLICATION SPECIFICATION NO. 19
FIRE RETARDANT COATING OF METAL, APPLICATION SPECIFICATION
INDOORS
FIRE PROTECTION OF EQUIPMENT, PIPE AND STRUCTURAL STEEL
FIRE RETARDANT COATING (62-10)

- 2.19.1. SCOPE: This specification contains the list of essential materials and application procedures for fire-retardant coating over metal equipment, pipe and structural steel, specifically for protection of steel against high temperature fire exposure lasting not more than 30 minutes.
- 2.19.1.1. Carbon steel, shall be primed with correct primer (Vimasco 52-8) before application of the fire-retardant coating.
- 2.19.1.2. Galvanized steel or aluminum shall be primed with an etching vinyl wash primer (Vimasco #806) before application of the fire retardant coating.
- 2.19.2. FIRE-PROTECTIVE COATING AND ACCESSORIES REQUIRED:
- 2.19.2.1. The fire-retardant coating shall be suitable for application by brush or spray at temperatures down to 40 F. It shall be as specified in MATERIAL SPECIFICATION, Section 1.14.2. (P. O. F. #62-10).
- 2.19.2.2. The fire-retardant topcoat paint shall be suitable to protect the fire-retardant coating from occasional washing without hindering its intumescent property. It shall be suitable for application by spray or brush at atmospheric temperatures down to 40 F. It shall have properties as specified in MATERIAL SPECIFICATION, Section 1.14.4. (P. O. F. #52-6).
- 2.19.2.3. The primer over metal shall be suitable to serve its function as a primer without hindering the intumescent property of the fire-retardant coating.
- 2.19.3. APPLICATION OF FIRE-RETARDANT COATING SYSTEM:
- 2.19.3.1. PREPARATION OF SURFACES:
- 2.19.3.1.1. All metal surfaces shall be clean, free of rust, mill scale, dirt, grease and oil. Carbon steel that has rusted or has mill scale shall be sand blasted to commercial finish.
- 2.19.3.1.2. Prior to spray application of primer and fire-retardant coating, instruments, gauges, equipment, floors, walls and ceilings not to be coated shall be covered to protect them from splatter, rebound and overspray.
- 2.19.3.1.3. Carbon steel or iron shall be covered with iron oxide-zinc yellow primer by spray or brush at a rate of 325 sq. ft. per gallon to obtain a minimum dry film thickness of 1 mil.
- 2.19.3.1.4. Galvanized steel and aluminum shall be coated with vinyl wash primer by brush or spray at a rate of 400 sq. ft. per gallon to obtain a minimum dry film thickness of 1 mil.
- 2.19.4. APPLICATION INDOORS SHALL BE DONE BY SPRAY OR BRUSH:
- 2.19.4.1. APPLICATION BY SPRAY SHALL BE AS FOLLOWS:
- 2.19.4.1.1. Spray application shall be done with proper air or airless spray guns and equipment which are clean and properly adjusted to obtain a uniformly diffused spray pattern.
- 2.19.4.1.2. The coating shall be applied to obtain a dry film thickness of not less than 10 mils.
- 2.19.4.1.3. Drip, splatter, rebound or overspray of coating shall be cleaned with suitable solvents (Aromatic #62-10T).
- 2.19.4.2. BRUSH APPLICATION SHALL BE AS FOLLOWS:
- 2.19.4.2.1. Brush application shall be done in multiple coats so as to obtain a total dry film thickness of not less than 10 Mils. Each coat shall be allowed 24 hours drying time before application of the next coat.
- 2.19.4.2.2. Drip or splatter of the coating shall be cleaned up with suitable solvent (Aromatic #62-10T).

SECTION 2
APPLICATION SPECIFICATION NO. 21
FINISH OVERCOATING SPECIFICATION
SEMI-GLOSS SURFACE
INDOOR AND OUTDOOR
INSULATED EQUIPMENT AND PIPING
(Service Temperature Low, Medium and High)
VINYL-CHLORIDE COATING
(Vimasco #10)

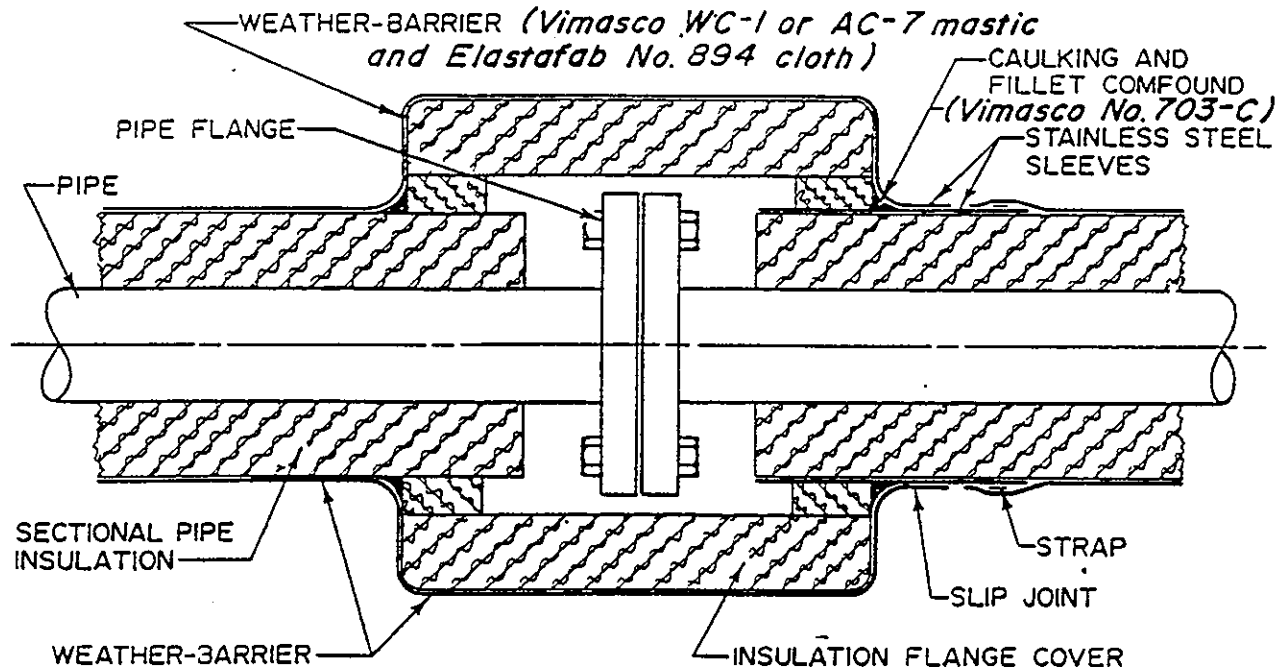
- 2.21.1. SCOPE: This specification provides the list of essential materials and installation procedures for the application of a decorative and protective finish over polyvinyl-acetate or acrylic weather-barrier mastics. This specification is recommended for use in caustic handling areas and under certain other extremely corrosive conditions.
- 2.21.1.1. The decorative and protective coating described in this specification shall be suitable for application on insulation polyvinyl-acetate or acrylic weather-barriers mastics. This coating shall be suitable for color coding. The dried paint shall provide a weather-resistant, corrosion-resistant, protective, semi-gloss, surface.
- 2.21.2. OVERCOATING AND ACCESSORIES REQUIRED:
- 2.21.2.1. The overcoating and accessories described in this specification shall fulfill the application, atmospheric and service requirements.
- 2.21.2.1.1. The vinyl-chloride coating shall be suitable for application by spray or brush at ambient air temperatures down to 40 F. It shall have properties as called for in MATERIALS SPECIFICATION, Section 1.12.2. (#10).
- 2.21.2.1.2. The thinner and solvent for the vinyl-chloride coating shall be MIBK type.
- 2.21.3. APPLICATION OF VINYL-CHLORIDE COATING:
- 2.21.3.1. PREPARATION OF SURFACES:
- 2.21.3.1.1. All surfaces on which the primers or vinyl-chloride coating is to be applied shall be clean, free of dirt, grease or oil. Where required, the surfaces shall be cleaned with proper solvent. The surface temperature must be above dew point when coating is applied.
- 2.21.3.1.2. Polyvinyl-acetate and/or acrylic mastic weather-barriers need no primers before application of vinyl-chloride coating.
- 2.21.3.1.3. All weather-barriers shall be patched to obtain continuous unbroken surfaces before application of vinyl-chloride coating.
- 2.21.3.1.4. Insulation and weather-barriers must be completely dry before vinyl-chloride coating is applied. Small amounts of trapped moisture will cause blisters and bubbles when moisture tries to escape outward.
- 2.21.3.2. SPRAY APPLICATION:
- 2.21.3.2.1. Prior to spray application, instruments, gauges, equipment, floors, ceilings, walls, and other areas not to be coated shall be covered to protect them from splatter, rebound and overspray.
- 2.21.3.2.2. Spray application shall be done with proper air or airless spray guns and equipment, properly adjusted to obtain a uniformly diffused spray pattern. Shall be applied in two coats.
- 2.21.3.2.3. The vinyl-chloride coating shall be applied at a rate of approximately 225 sq. ft. per gallon to obtain approximately 1.25 mil dry film thickness.

SECTION 2
APPLICATION SPECIFICATION NO. 22

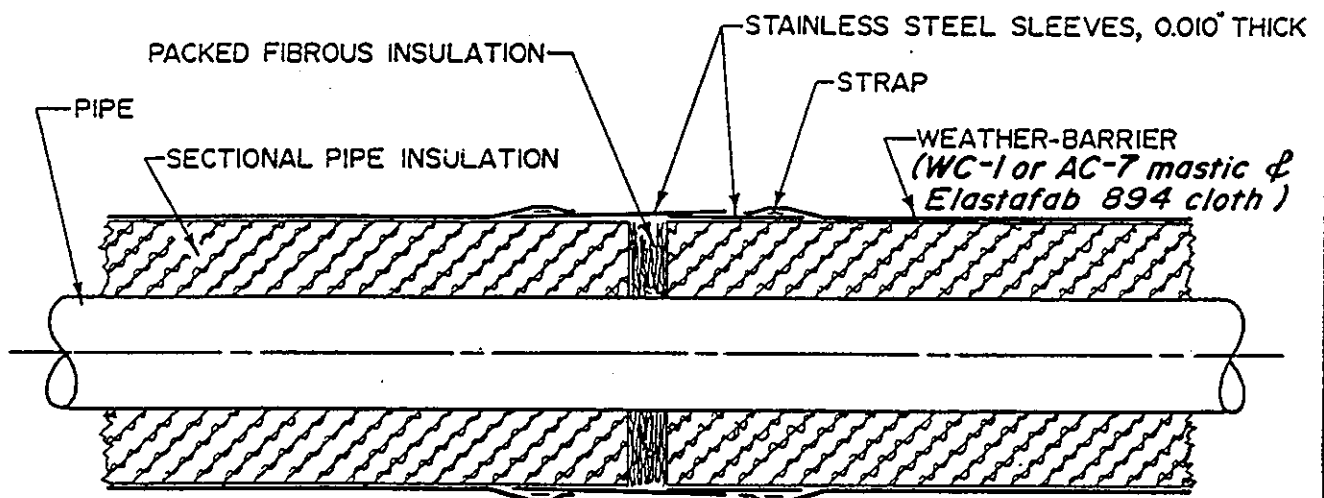
SEALING AND VAPOR-BARRIER INSTALLATION SPECIFICATIONS
WALLS & CEILINGS OF REFRIGERATED SPACES
INSULATED WITH RIGID AND SEMI-RIGID INSULATION
VAPOR-BARRIER COATING #740
COLD BOND ADHESIVE AND SEALER #750

- 2.22.1 SCOPE: These specifications shall provide the list of essential materials and installation procedures for application of vapor-barriers and the sealing of insulation forming low temperature space enclosures.
- 2.22.1.1 These specifications are restricted to the application of insulation materials which have a water vapor transmission rate of 0.02 or greater. These specifications are also restricted to installations located inside of a building or enclosure.
- 2.22.1.2 The vapor-barrier coating and cold bond adhesive and sealer described in this specification shall be for application on rigid and semi-rigid mineral fiber and organic foam insulations.*
- 2.22.2 VAPOR-BARRIER COATING AND SEALERS REQUIRED:
- 2.22.2.1 The vapor-barrier, sealer and adhesive described in these Specifications shall fulfill the application, atmospheric, temperature and service requirements. These shall be of the type and have the properties as given in the designated section of the MATERIALS SPECIFICATION.
- 2.22.2.2 Vapor-barrier coating shall be for application by palming, brushing or spraying, suitable for installation at atmospheric temperature down to 20 F, as specified in MATERIAL SPECIFICATION, Section 1.8.1. (#740).
- 2.22.2.3 Cold bond adhesive and sealer shall be suitable for service temperature down to—50 F as specified in MATERIALS SPECIFICATION, Section 1.4.1 (#750).
- 2.22.2.4 Interior finish, or plaster, shall be suitable for service temperature of refrigerated space and shall have a vapor transmission of not less than 5.0 perms. (Note: Selection of this interior lining depends upon so many factors and requirements that an individual material can not be recommended in these specifications).
- 2.22.3 APPLICATION OF INSULATION
- 2.22.3.1 The insulation is most frequently installed inside, or as part of, a building. Thus, normal forces acting on and contained within the building structure shall be considered and provided for in the installation of the insulation. The mechanical design of insulation and the thickness requirements are beyond the scope of these Specifications.
- 2.22.3.1 Control of water vapor is of paramount importance for efficient operation of insulated refrigerated spaces. A vapor-barrier shall be installed on exterior (warm) side of the thermal barrier to prevent excessive amounts of water from entering. This shall be a continuous unbroken vapor barrier. The interior (cold) side of the thermal barrier shall be constructed and of materials to offer little vapor resistance so that any moisture can continue into the refrigerated space. This is shown in Figure No. 27.
- 2.22.4 APPLICATION OF VAPOR-SEALERS AND VAPOR-BARRIERS.
- 2.22.4.1 WHERE INSULATION IS INSTALLED AGAINST EXISTING WALLS OR CEILINGS
The wall or ceiling shall be coated with 1/8 inch uniform thick layer of Cold Bond Adhesive and Sealer (#750). The insulation shall be thoroughly embedded in the Cold Bond Adhesive

*NOTE: The solvents of these coatings may attack some plastic foams. It is recommended to test the insulation with the coating before usage.



FLANGED FITTING COVER EXPANSION JOINT

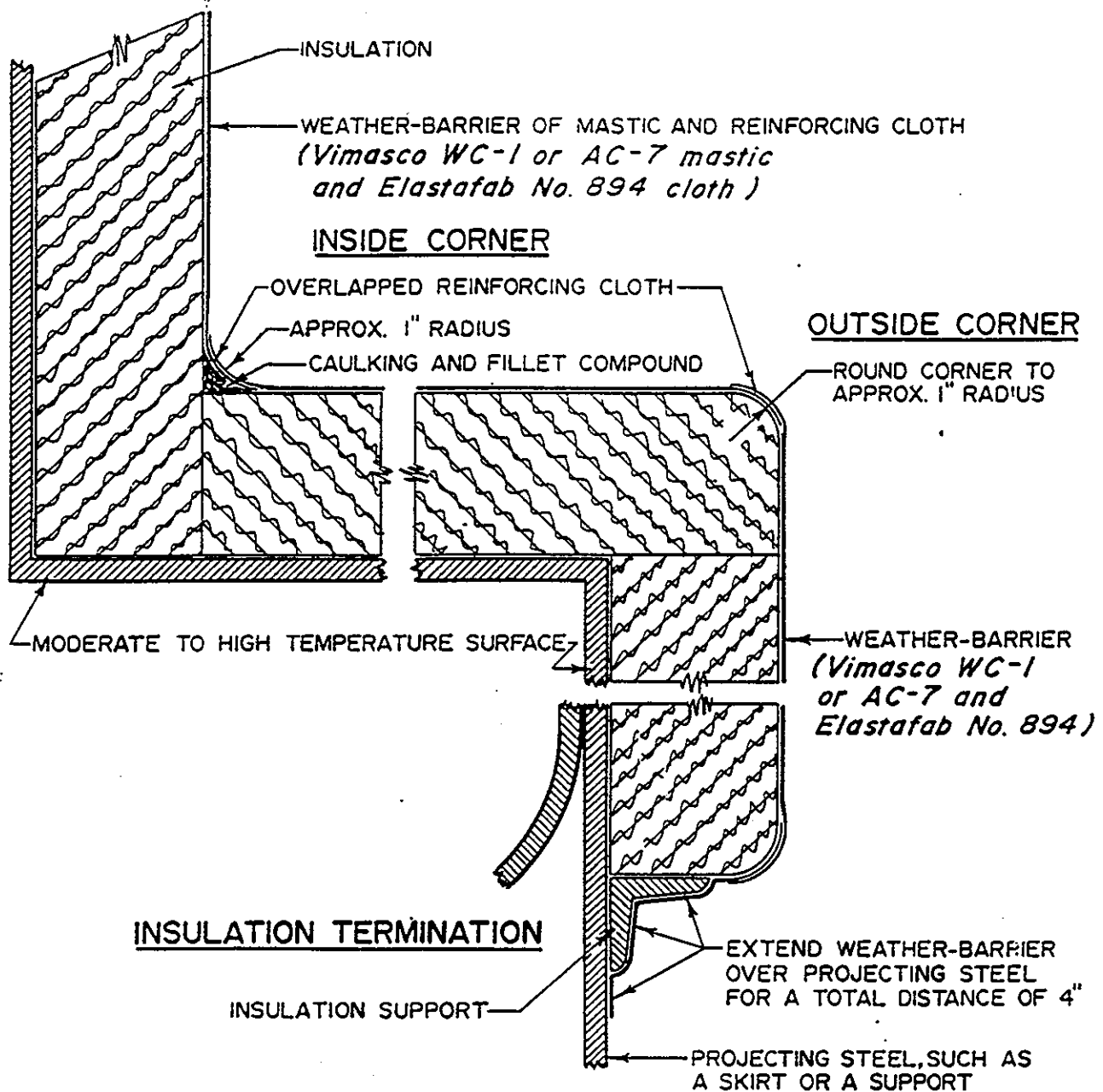


FLUSH EXPANSION JOINT

NOTE: INSULATION AND WEATHER-BARRIER SYSTEM SHOWN IN SECTION

INSULATION AND WEATHER-BARRIER EXPANSION JOINTS —MODERATE AND HIGH TEMPERATURE SERVICE—

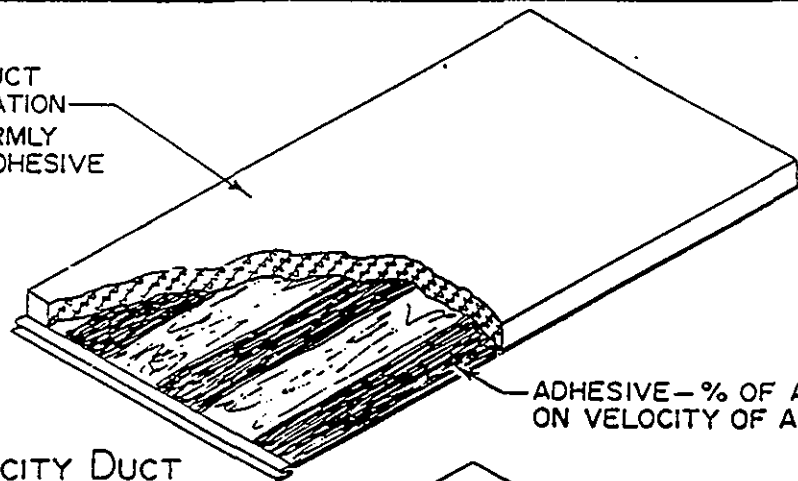
Figure No.1



APPLICATION OF CAULKING MASTIC- AND WEATHER-BARRIER
TO INSIDE AND OUTSIDE CORNERS AND TERMINATIONS
—MODERATE AND HIGH TEMPERATURE SERVICE—

Figure No. 3

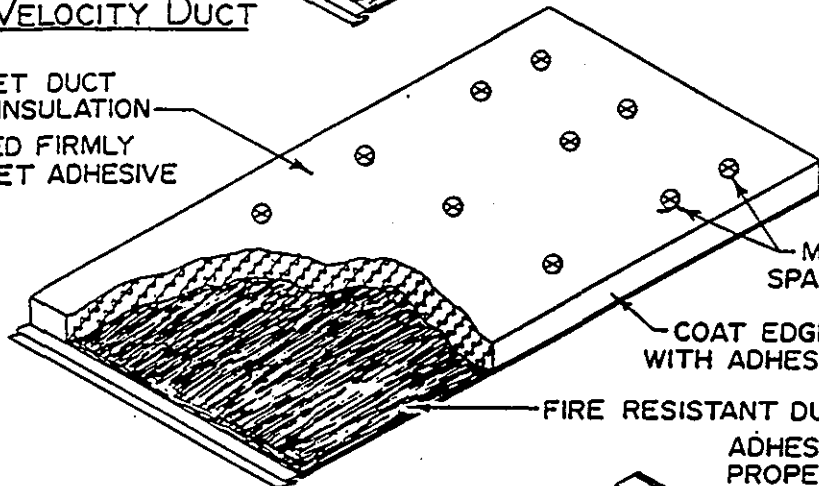
BLANKET DUCT
LINER INSULATION
PRESSED FIRMLY
INTO WET ADHESIVE



ADHESIVE—% OF AREA DEPENDING
ON VELOCITY OF AIR FLOW

Low Velocity Duct

BLANKET DUCT
LINER INSULATION
PRESSED FIRMLY
INTO WET ADHESIVE



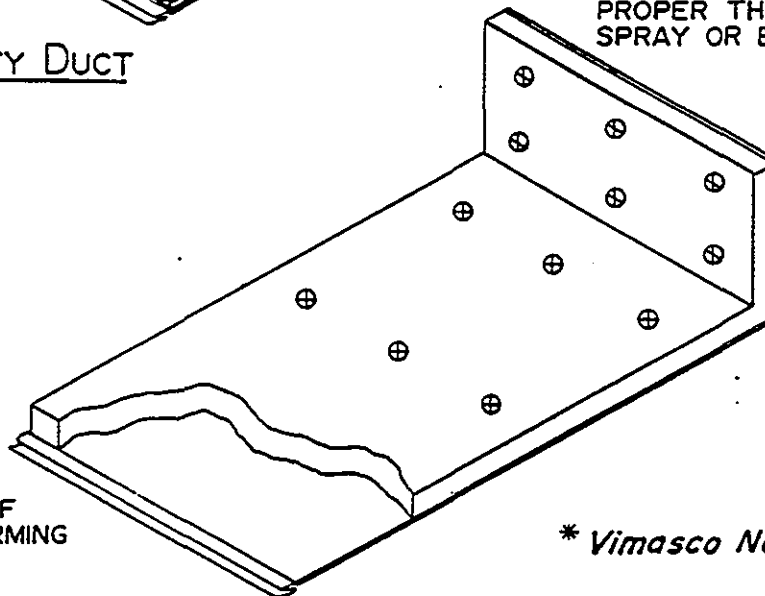
MECHANICAL FASTENERS
SPACED AS SPECIFIED

COAT EDGES OF INSULATION
WITH ADHESIVE

FIRE RESISTANT DUCT ADHESIVE *
ADHESIVE APPLIED TO
PROPER THICKNESS BY
SPRAY OR BRUSH

High Velocity Duct

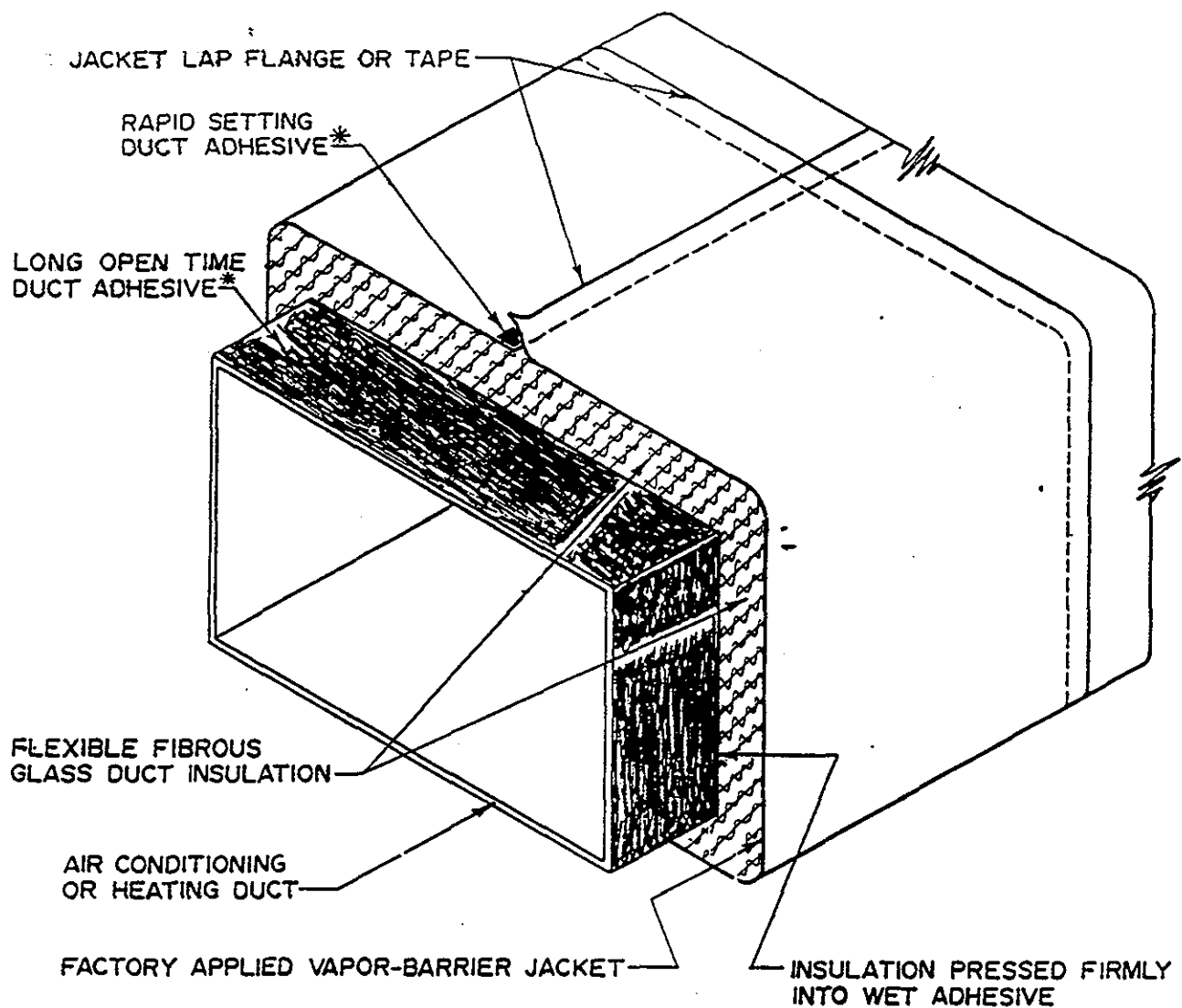
HALF SECTION OF
DUCT AFTER FORMING



* *Vimasco No. 730 or 733*

APPLICATION OF ADHESIVE TO SECURE FLEXIBLE INSULATION TO INTERIOR OF DUCT

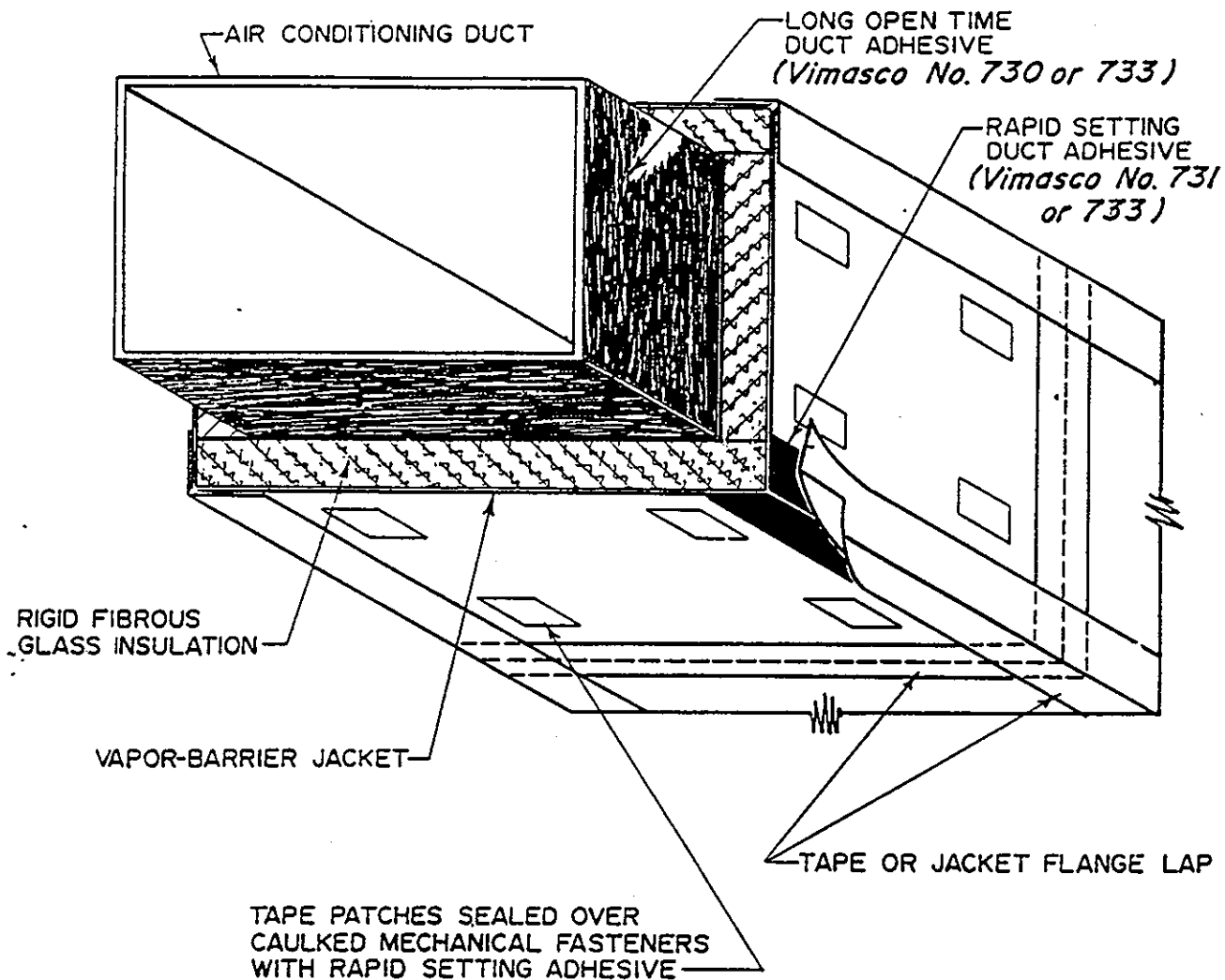
Figure No. 5



* *Vimasco No. 730 or 733*

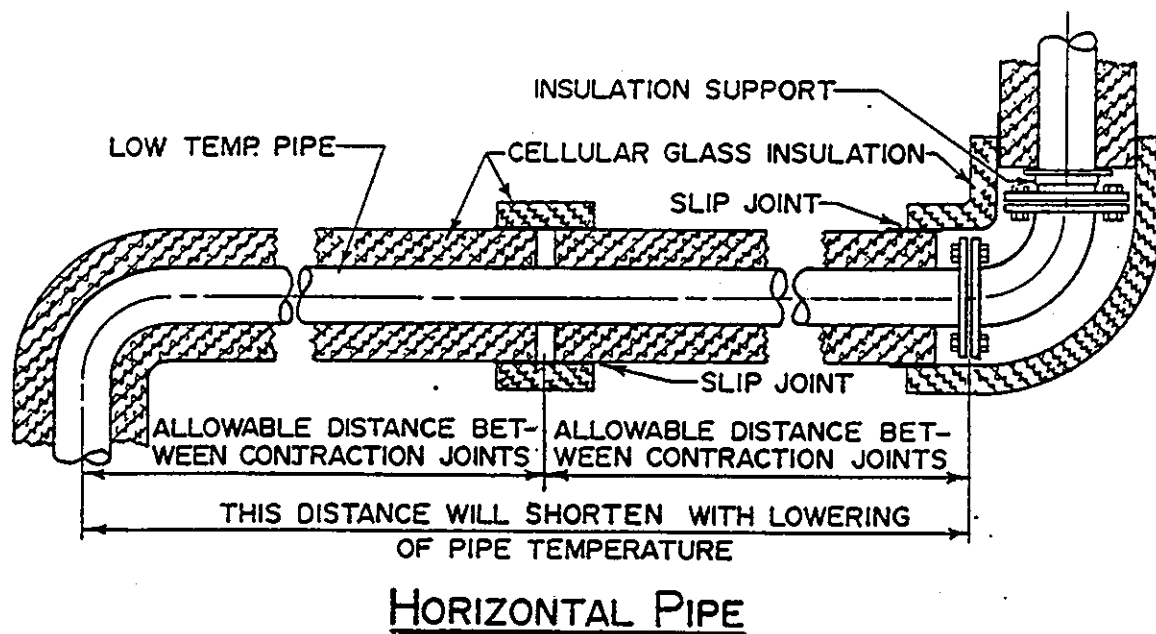
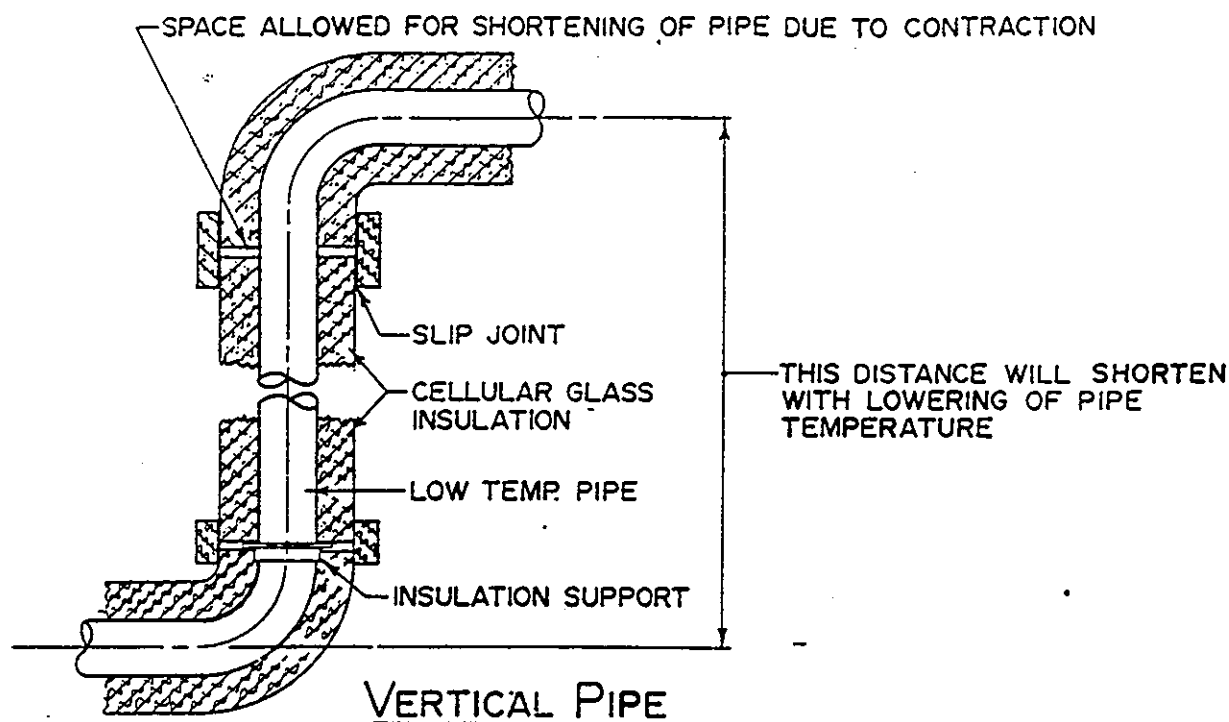
APPLICATION OF ADHESIVE TO SECURE FLEXIBLE FIBROUS GLASS DUCT INSULATION TO EXTERIOR OF DUCT

Figure No. 7



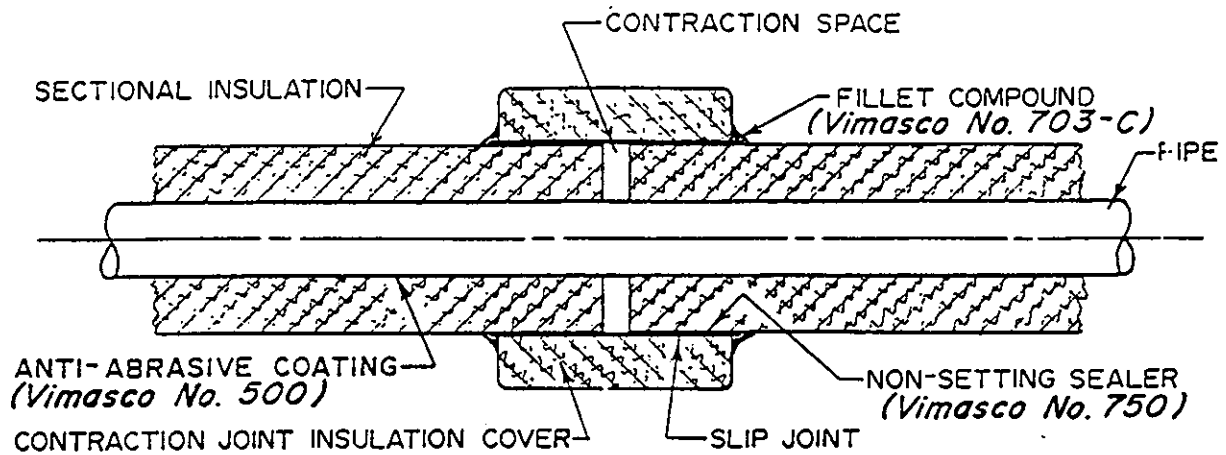
SEALING AND BONDING OF VAPOR-BARRIER JACKET OVER RIGID FIBROUS GLASS INSULATION ON EXTERIOR OF DUCT

Figure No. 9

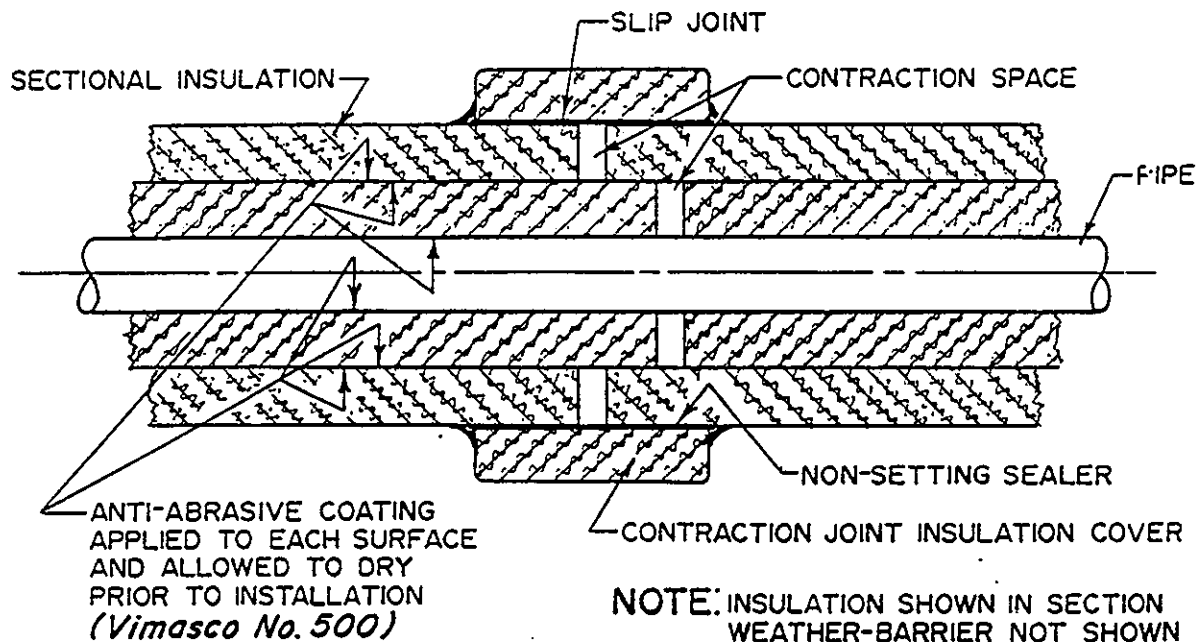


RELATIVE MOVEMENT OF LOW TEMPERATURE
PIPE AND INSULATION ILLUSTRATING THE NEED
FOR CONTRACTION JOINTS AND ANTI-ABRASIVE COATING

Figure No. 11



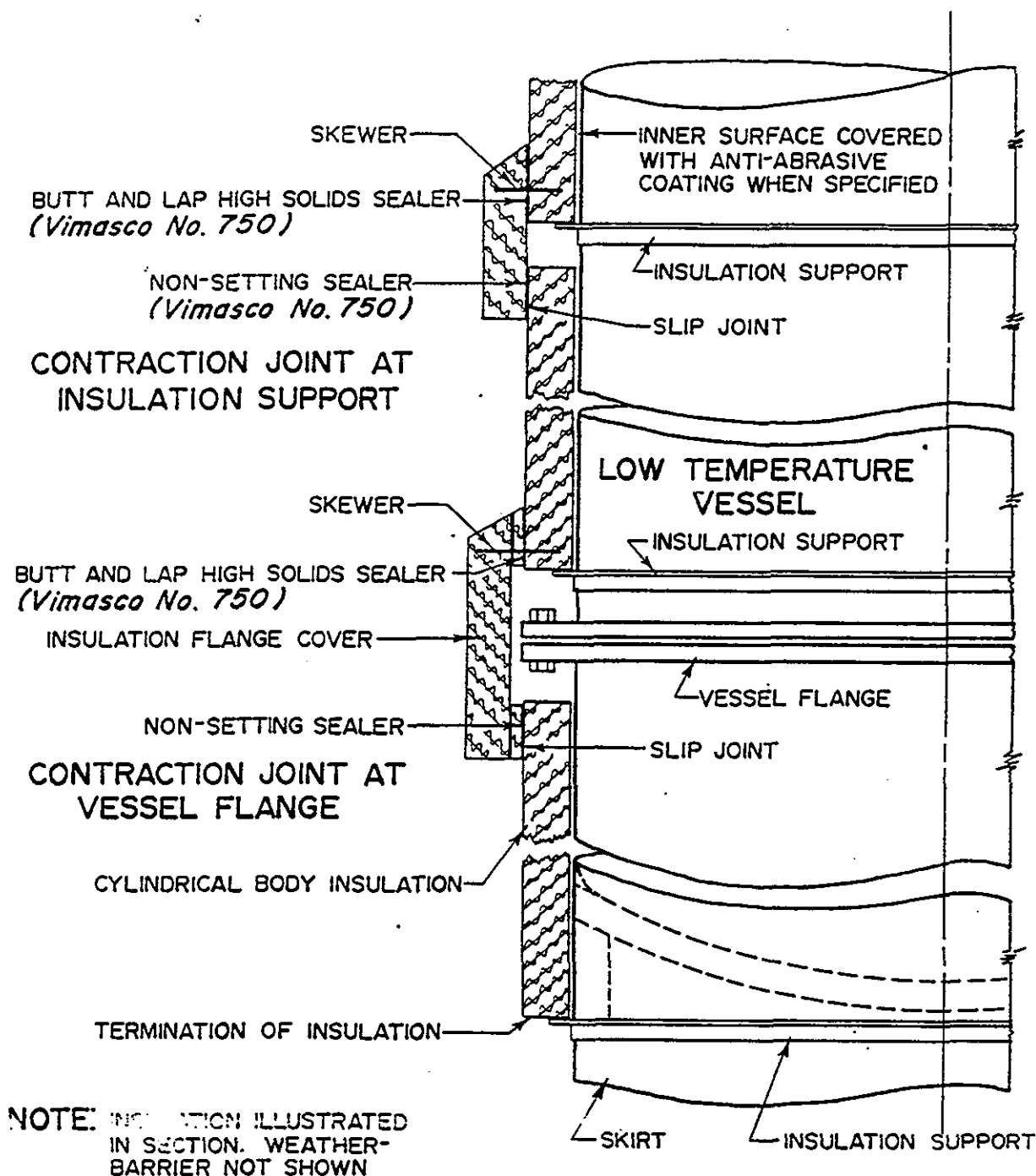
CONTRACTION JOINT SINGLE LAYER PIPE INSULATION



CONTRACTION JOINT MULTIPLE LAYER PIPE INSULATION

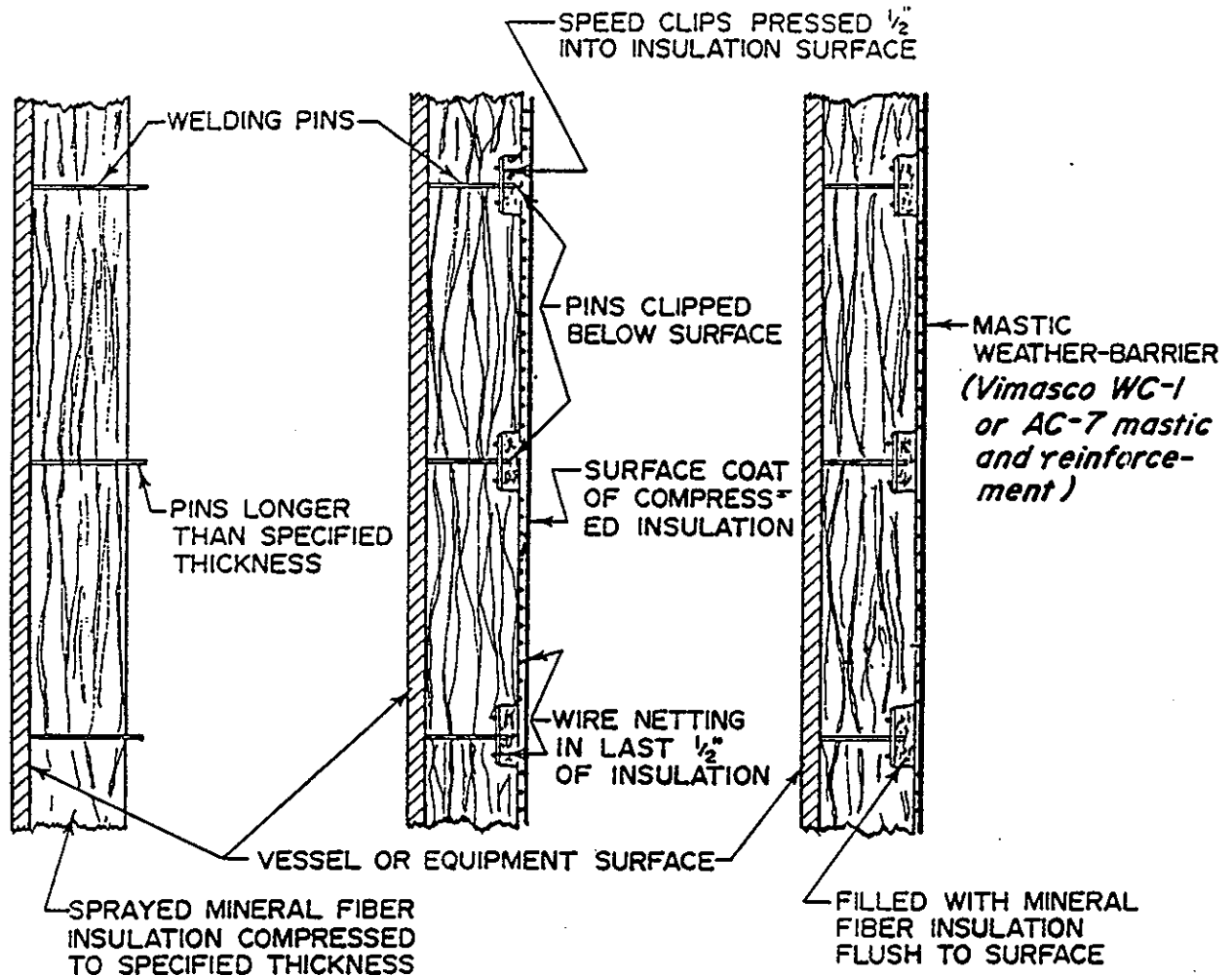
CONSTRUCTION OF LOW TEMPERATURE PIPE INSULATION CONTRACTION JOINTS

Figure No. 13



CONSTRUCTION OF LOW TEMPERATURE VESSEL INSULATION CONTRACTION JOINTS

Figure No. 15

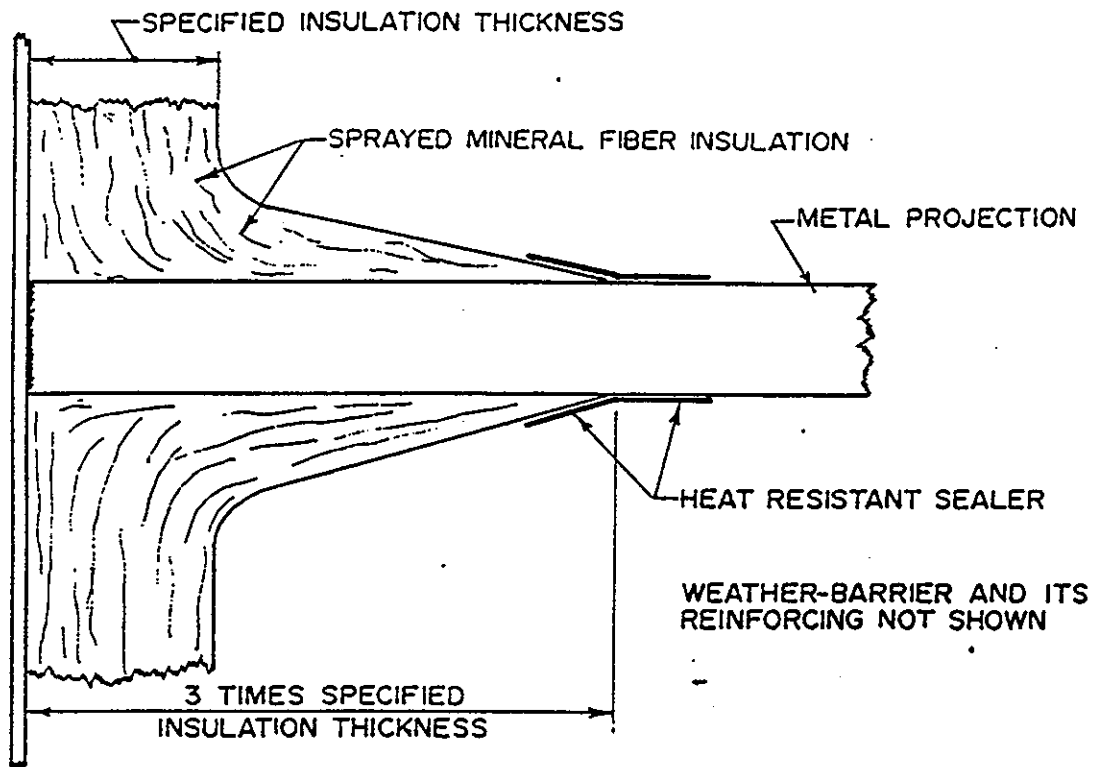


APPLICATION OF
SPRAYED INSULATION

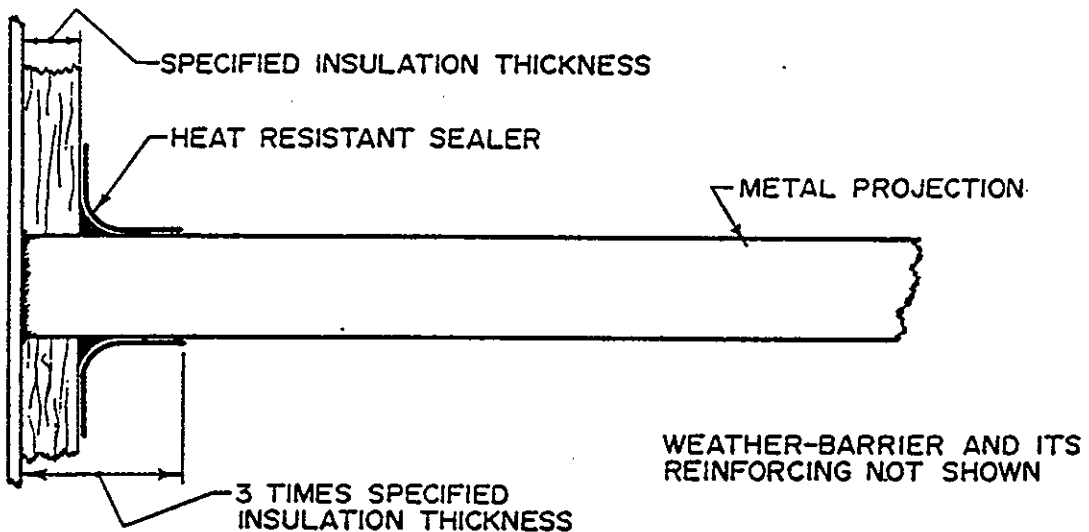
APPLICATION OF
WIRE NETTING

APPLICATION OF
MASTIC WEATHER-BARRIER

APPLICATION DETAILS FOR INSTALLATION OF WIRE NETTING REINFORCING FOR INSULATION AND WEATHER-BARRIER Figure No. 17



VERY HOT PROJECTION



MODERATE TEMPERATURE PROJECTION

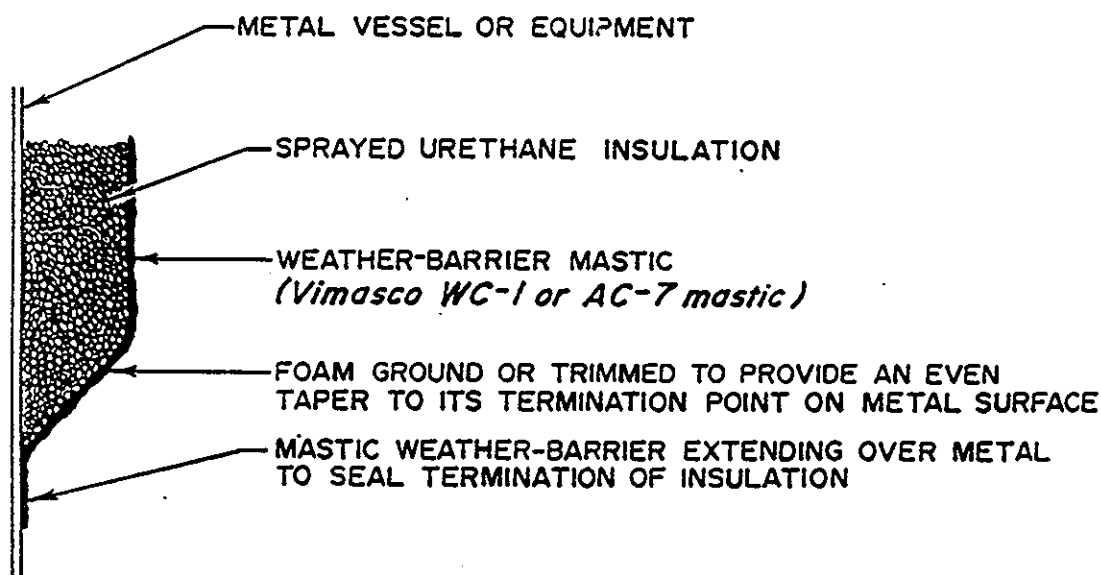
APPLICATION OF SPRAYED FIBER INSULATION AND HEAT RESISTANT SEALER TO HOT PROJECTIONS THROUGH INSULATION

Figure No. 19

MASTIC WEATHER-BARRIER MUST BE SPRAYED TO FLOW INTO
IRREGULAR SURFACE OF FOAM INSULATION
(Vimasco WC-1 or AC-7 mastic)



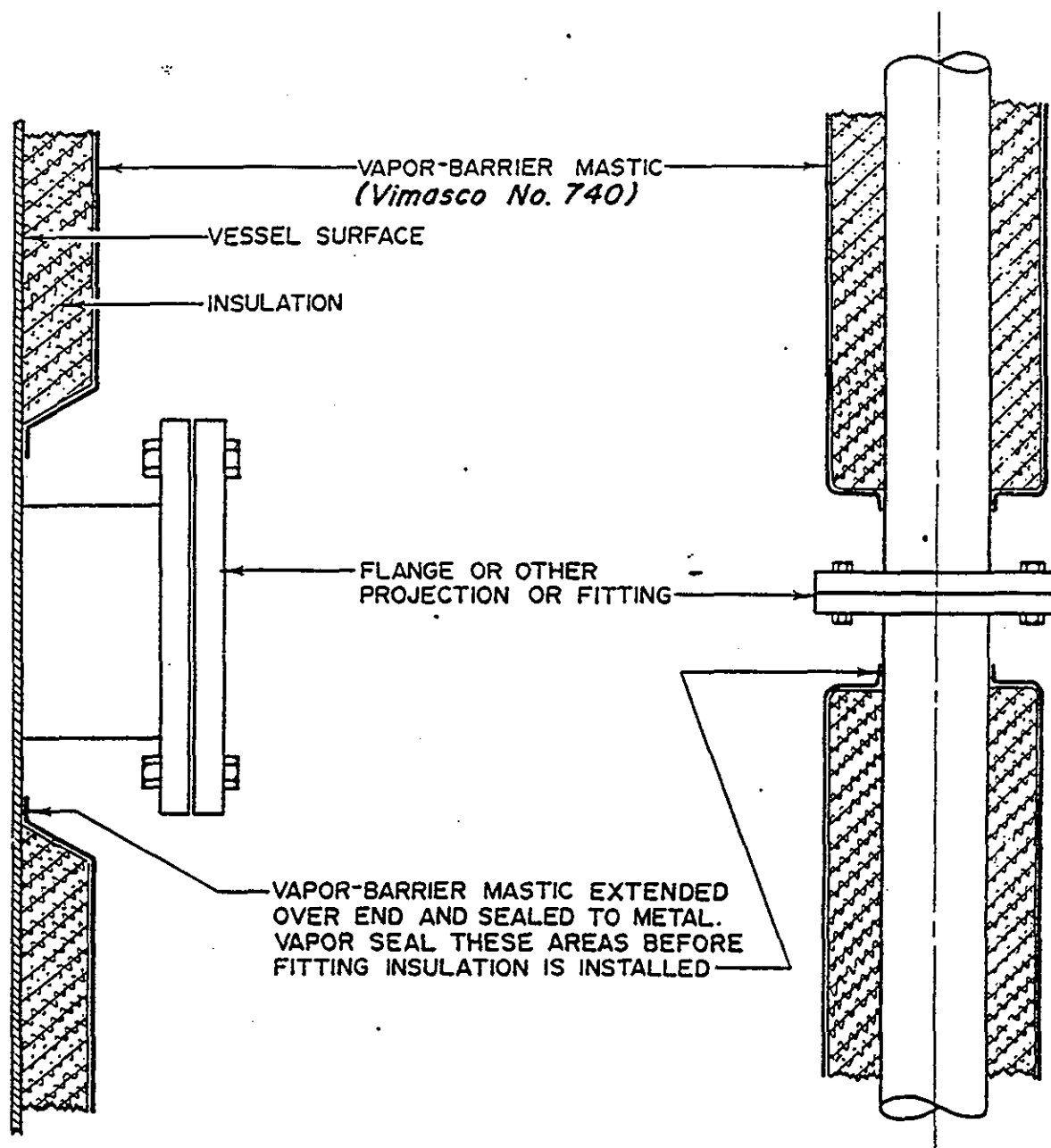
ENLARGED SECTION OF
SPRAYED URETHANE FOAM AND MASTIC WEATHER-BARRIER



MASTIC SEAL AT TERMINATION OF LINE
OF SPRAYED INSULATION

APPLICATION OF WEATHER-BARRIER MASTIC
TO SPRAYED URETHANE INSULATION

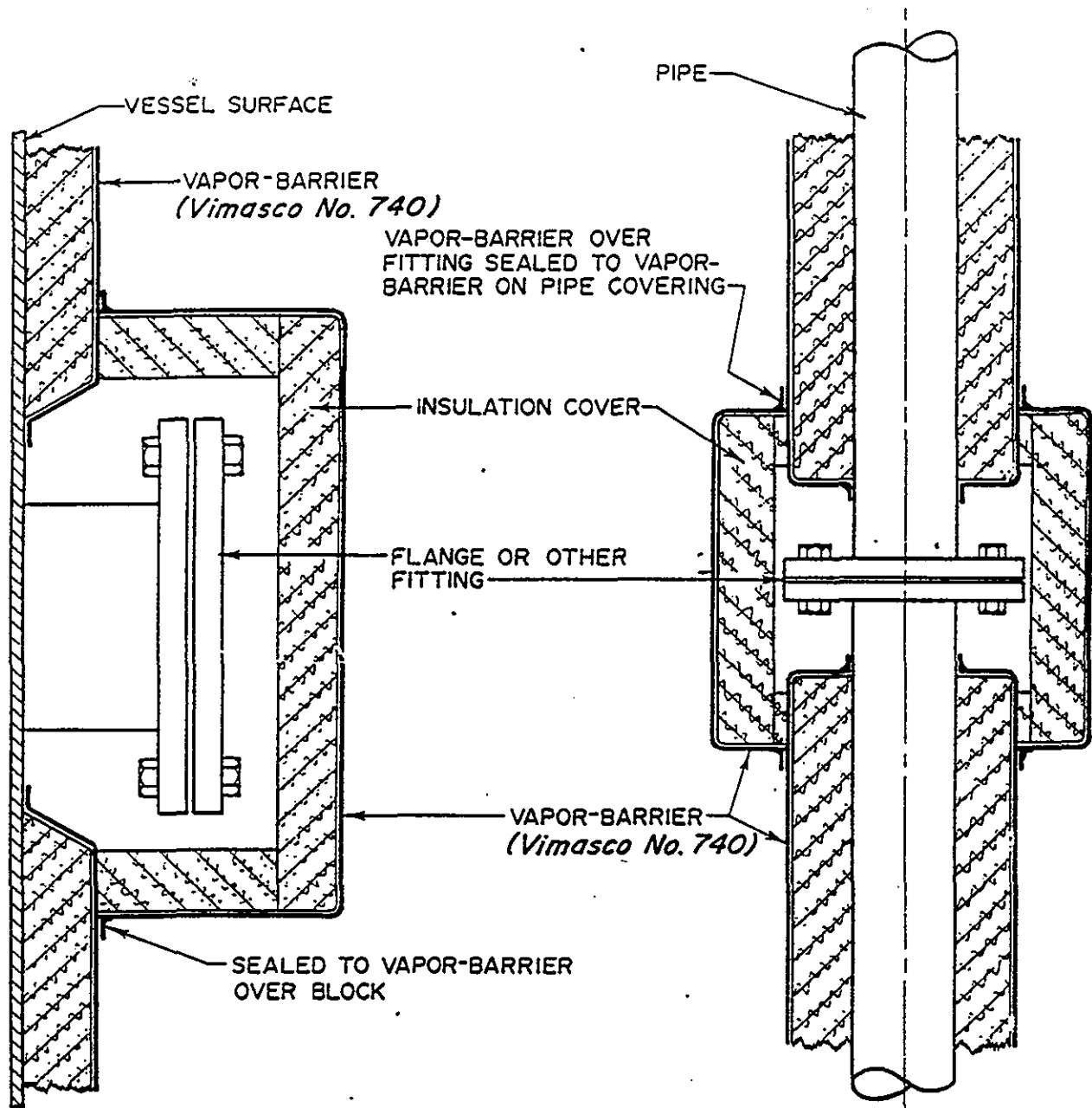
Figure No. 21



NOTE: INSULATION SHOWN IN SECTION
(If outdoors, overcoat vapor-barrier with
Vimasco WC-1 or AC-7 mastic reinforced
with Elastafab No. 894 cloth)

VAPOR SEALING OF INSULATION PRIOR TO INSTALLATION OF INSULATION FITTING COVERS

Figure No. 23



NOTE: INSULATION SHOWN IN SECTION
(If outdoors, overcoat vapor-barrier with
Vimasco WC-1 or AC-7 mastic reinforced
with Elastafab No. 894 cloth)

APPLICATION OF VAPOR SEALING OF INSULATION COVERS TO EQUIPMENT BODY AND PIPE COVERING INSULATION

Figure No. 25

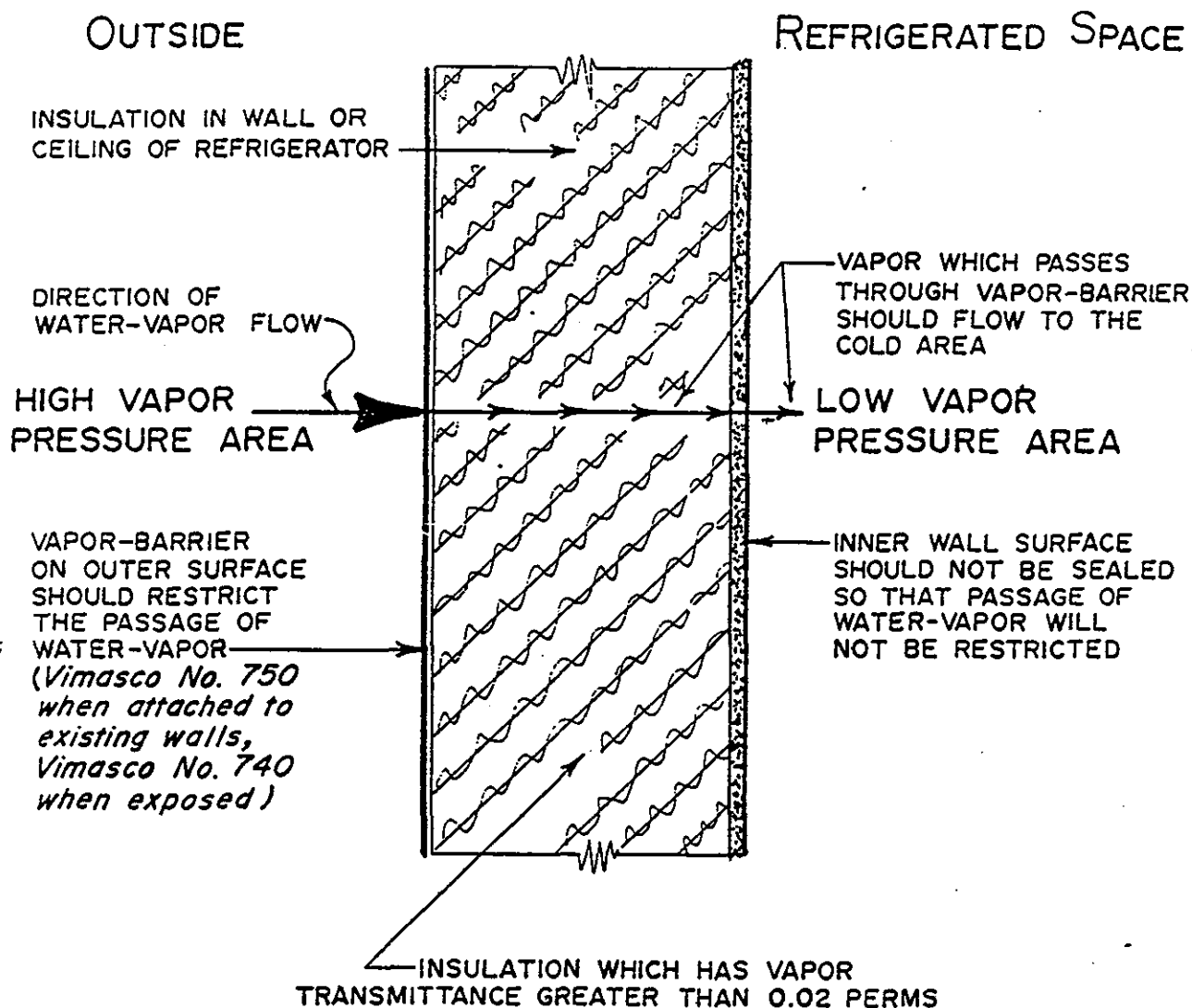


DIAGRAM OF INSULATED WALL OR
CEILING OF REFRIGERATED SPACE

Figure No. 27