



# WRAPIDSEAL™

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## GUIDELINE SPECIFICATION

### 1 Scope

- 1.1 This guideline specification describes the requirements for procurement, installation and inspection of WrapidSeal™ Manhole Encapsulation System used for corrosion protection and the prevention of water infiltration into manhole and below grade concrete structures. The specification governs functional properties of the product, pre-qualification of contractors, manufacturers, installation techniques and inspection procedures.
- 1.2 Limitations: The manufacturer must be consulted where heavy soil stresses are common or where the installed product will be exposed for extended periods in temperatures greater than 130°F (55°C).

### 2 Safety

- 2.1 The product manufacturer shall follow standard safety, health and environmental practices in the manufacturing plant, such as those prescribed by EPA, OSHA, or the equivalent. SDS information shall be provided for encapsulation system and primer upon request.
- 2.2 The installer shall be familiar with the safe operation of tools used for installation of the product and follow the equipment manufacturer's safety guidelines.

### 3 Product Description

- 3.1 The finished product shall consist of an irradiated, cross-linked polyethylene backing with an adhesive layer such that the sleeve will bond to primed concrete, metallic or fiberglass surfaces. The subject material shall be supplied in bulk rolls either 12 inches or 18 inches in width to provide sufficient overlap of joints to be sealed.
- 3.2 A separate closure seal of sufficient width shall be used to secure the sleeve in place during installation and seal the overlap area. Each closure seal length shall be equal to the respective bulk roll sleeve widths as noted in Section 3.1 above.
- 3.3 Compatibility, Performance and Properties: the sleeve shall be compatible with concrete, steel, iron and fiberglass. The sleeve shall also meet or exceed the performance and properties as listed below:

## FUNCTIONAL PERFORMANCE OF HEAT SHRINKABLE SLEEVES

Property	ASTM Method	Units	Requirement
Peel Strength	D1000	pli	8.6
Lap Shear	D1002	psi	1.5
Impact Resistance	DIN 30672 (class C)	Nm	18%
Water Absorption	D570	%	0.02 max
Low Temp. Flex.	D2671	°F	-20

## PHYSICAL PROPERTIES OF HEAT SHRINKABLE SLEEVES

System Type	Stretch Ratio	Recovery Ratio	Nominal Thickness "As Applied"	Thickness Fully Recovered "Unrestrained"
High Shrink	70%	40%	101mils	125mils

## SLEEVE ADHESIVE

Property	Test Method	Units	Requirement
Softening Point	ASTM E28	F	212

## SLEEVE BACKING

Property	ASTM Method	Units	Requirement
Tensile Strength	D882	psi	3,000
Elongation	D882	%	669
Hardness	D2240	Shore D	46
Abrasion Resistance	D1044	mg	35

### 4 Pre-qualification

- 4.1 Contractor Qualifications: The contractor shall be familiar with the installation techniques as referenced below and shall attend at least one day of training at the manufacturer's facility or on-site with a manufacturer's representative.
- 4.2 Manufacturer Qualifications and Quality Control: the heat shrink sleeve system shall have been manufactured in an ISO 9002 registered facility. Capable of producing irradiated cross-linked polyethylene coating to allow shrinking of coating material in circumferential direction under influence of heat. Capable of providing manufacturer employed field personnel for site assistance as required.

- 4.3 Product Performance: The products shall conform to the requirements as stated in the tables entitled "Function Performance Characteristics of Heat Shrinkable Sleeves and Physical Characteristics of Heat Shrinkable Sleeves".

## **5 Installation**

- 5.1 WrapidSeal™ shall be installed on the corbel and joint sections of the manhole. WrapidSeal™ shall be installed from the frame to 3-4" below the cone and lowest grade ring joint.
- 5.2 Manufacturer shall provide complete installation guides with clear illustrations enclosed in each factory carton of sleeves. Installer shall follow all manufacturer's procedures to ensure proper application.

## **6 Inspection and Quality Assurance**

- 6.1 Surface Preparation: The concrete or fiberglass structure and steel manhole frame shall be clean, dry and free from surface rust and foreign objects. Abrade and/or prepare the surfaces strictly according to manufacturer's recommendations.
- 6.2 Sleeve Inspection: Visually inspect the installed sleeve to ensure that the sleeve is in full contact with the substrate, there are no cracks or holes in the polyethylene backing and no voids are present below the sleeve. Also, ensure that the adhesive has flowed beyond the sleeve edges.
- 6.3 Site Adhesion Testing: Perform peel tests on one in every 100 sleeves. The surface temperature at the time of the test shall be  $77 \pm 10^{\circ}\text{F}$  ( $25 \pm 5^{\circ}\text{C}$ ), unless environmental conditions will not allow, and the continuation of the test is approved by all parties involved. As the test is manually run under field conditions, use best discretion to obtain a peel rate of 4 in./min. (100 mm/min.). Testing shall be performed using a hand peel gauge on a 1 inch (25 mm) wide strip. Cut a strip as defined and induce initial failure by undercutting and peeling back the strip until a 2" (50 mm) flap is created. Attach a clamp to the strip and a hand peel gauge to the clamp and peel back at a 90° angle to the surface at the defined rate. A minimum peel strength of 8.6pli (15 N/m) with cohesive failure of the adhesive indicating a pass.

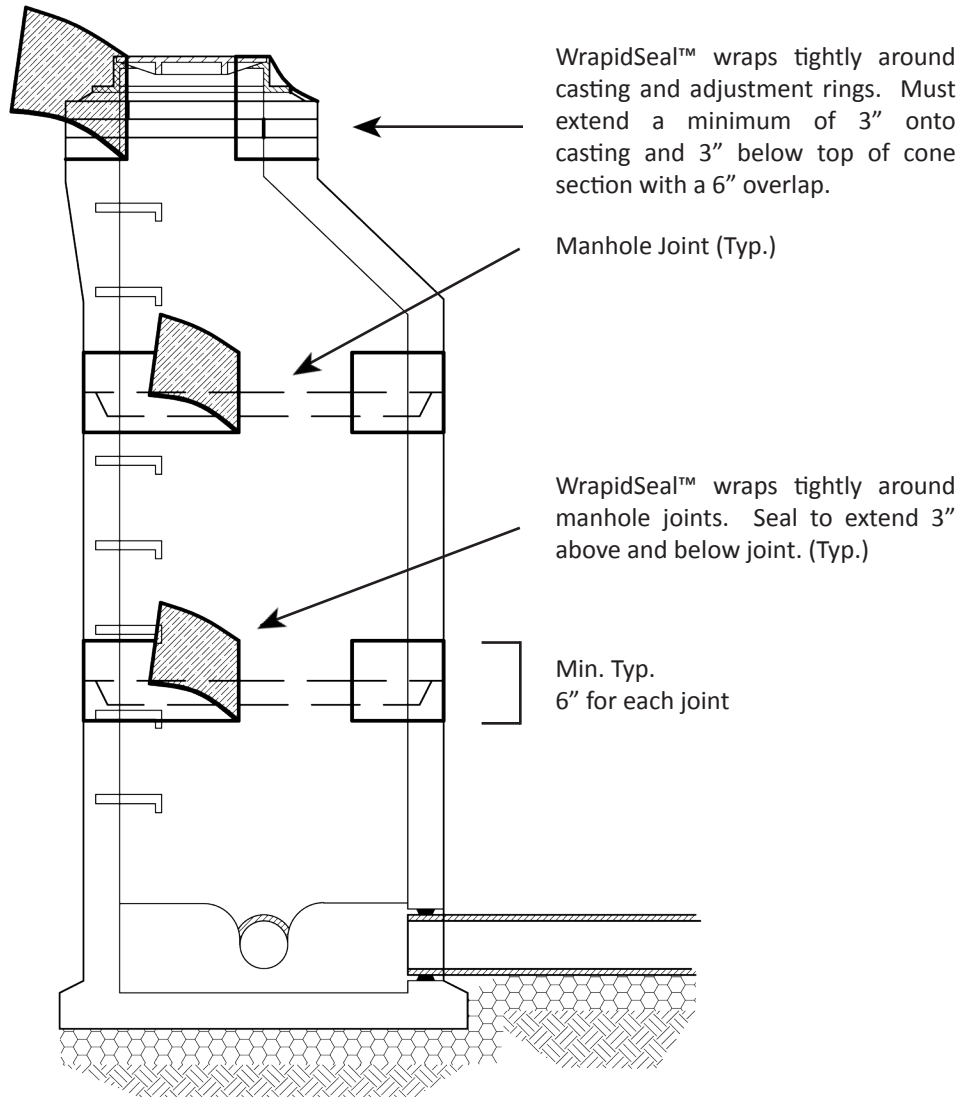
## **7 Shipping, Packaging and Storage Provisions**

- 7.1 The heat shrinkable sleeves shall be packaged in containers to ensure acceptance and safe delivery to their destination. Individual sleeves shall be protected to prevent adherence to other sleeves, the packing material or carton.
- 7.2 The carton shall be marked with the name of the manufacturer, product name, batch or lot number, date of manufacture and information required by state, federal or provincial law.

7.3 Cartons shall be stored in an environment which protects the product from extremes in temperature and prevents rain or other moisture from damaging the cartons or finished product.

## 8 Warranty

8.1 Manufacturer shall warrant that their product conforms to the minimum requirements of this specification and is appropriate for use as stated in their technical data sheets.



# CCI PIPING SYSTEMS, LLC

1026 O'Neal Drive • Breaux Bridge, LA 70517

ccipipe.com • sales@ccipipe.com

337.332.5808 • 800.867.2772