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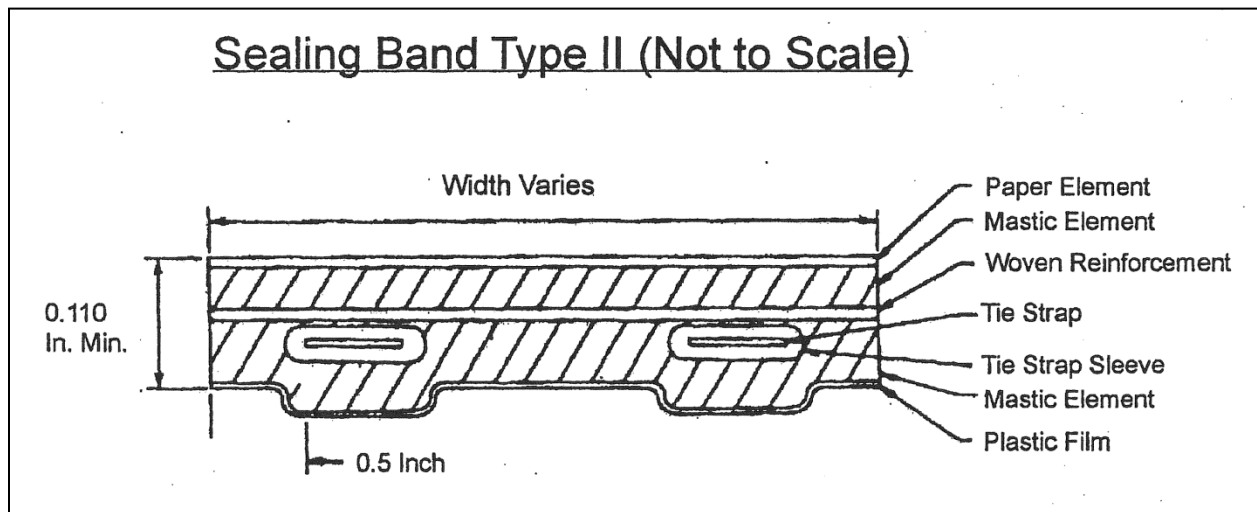
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# SPUNWRAP® COLLARS

## Exterior Pipe Joint Sealers

Meets ASTM Standards  
Specification C-877-94 (Type II)



# SPECIFICATIONS FOR SPUNSTRAND® INC. UNDERSLAB AIR DUCT WITH SPUNWRAP® COLLARS

## Part 2 - PRODUCTS

### 2.01 GENERAL

- A. Underground ductwork, including fittings, shall be constructed of fiberglass reinforced plastic manufactured by Spunstrand® Inc., 620 North Post Street, Post Falls, ID 83854. (208)777.7444 ph, (208)777.7445 fax. All duct and fittings shall be designed and constructed to meet the applicable requirements of 2006 Uniform Mechanical Code, Chapter 6 and be listed with I.C.B.O. for direct burial application. All ductwork and fittings shall include labels certifying this and shall be installed in strict accordance with the manufacturer's instructions.

### 2.02 MATERIALS

- A. Resin: The resin used shall be an isophthalic polyester, tested to meet the requirements of 2006 Uniform Mechanical Code, Chapter 6 and suitable for corrosion against all normal soil and moisture conditions.
- B. Inner Lining: All duct and fittings shall have a UL listed Class 1 inner liner for both flame spread and smoke developed ratings.
- C. Structural Layer: The structural layer shall be filament wound of resin and glass to meet the specified working pressures and depths of burial requirements.

### 2.03 ACCESSORIES

- A. Fittings: Fittings shall be fabricated from straight duct and have the same working pressure and will also be corrosion and moisture resistant. Reducers shall be filament wound as specified for the duct.
- B. Joints: Duct shall be joined using an internal galvanized sheet metal sleeve secured with sheet metal screws and are to be watertight by bonding the duct using SpunWrap® Collars in strict accordance with the manufacturer's instructions. This includes thoroughly cleaning the areas to be joined prior to the application of the Spun Wrap® Collars. See "SpunWrap® Collar Field Installation Instructions".
- C. Register Boots: Register Boots, if constructed of galvanized sheet metal with a flange secured to the duct with sheet metal screws, must be encased in concrete, covering well around joint.  
Preferred: Register Boots shall be made of the same material as the duct including a flange to match duct O.D. Wet joint material shall be used to secure the joint.  
Optional: Underground supply and / or return air plenums shall be round and made of the same material as the duct. They shall be of one piece construction including the stub outs for connecting to the ductwork and bottom and top end caps. Flanged sheet metal is connected to the field cut hole in the top end cap as described for register boots.

### 2.04 INSULATION

- A. Underground ductwork shall be factory pre-insulated including all fittings. The duct shall be I.C.B.O. listed and installed in strict accordance with the manufacturer's instructions. The insulation value of the duct shall be **minimum R-5.3**.

# INSTALLATION INSTRUCTIONS FOR USING SPUNSTRAND® INC. UNDERSLAB AIR DUCT USING SPUNWRAP® COLLARS

## Part 3 - INSTALLATION

### 3.01 GENERAL

- A. Spunstrand® Inc. duct is a semi-rigid reinforced thermosetting resin product designed to deflect approximately 5% under external load without structural damage. The performance of the duct is affected by the amount of strain introduced into the duct wall from internal pressure, external loads and the resulting deflection of the duct with respect to its wall thickness.
- B. It is important to recognize the need for care in handling the duct during the installation process and to properly provide uniform support for the duct by carefully placing the backfill material under and around the duct. Large diameter duct will usually require internal support during the backfilling process and until all external soil loads have stabilized.
- C. When installed underground, the load of the soil above the duct tends to flatten the duct and make it wider. As the duct tries to widen, the walls push into the soil at the side developing a resistance that helps support the vertical load. The higher the soil resistance, the less the duct will deflect. Proper installation techniques are necessary to prevent excessive deflections and the resulting failure of the duct by buckling.

### 3.02 TRENCH CONSTRUCTION

- A. The surface at the bottom of the trench should be continuous, smooth, and free of rocks to avoid point loading on the duct. Were this cannot be accomplished the trench bottom should be over excavated to allow a minimum of 4 inches of bedding material under the duct.
- B. Trench width should not be greater than necessary to provide adequate room for joining the duct in the trench and for compacting the backfill in the bedding zone and at the sides of the duct. The minimum distance between the duct and the trench is four (4) inches; maximum recommended trench width is twice the diameter of the duct.

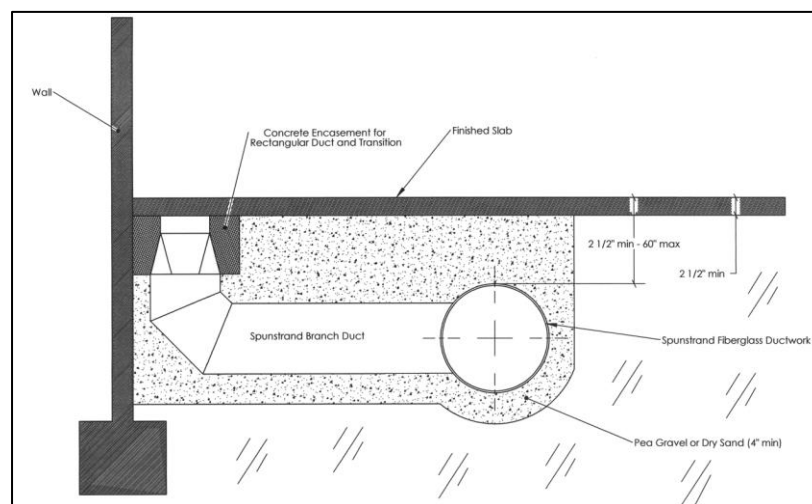
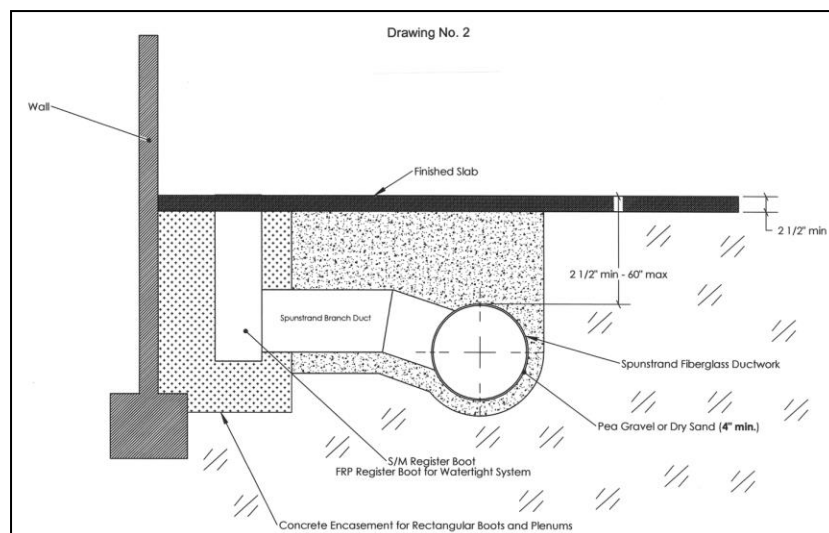
### 3.03 JOINING THE DUCT

- A. Because of its relatively low weight per foot, Spunstrand® Inc. duct can be joined before lowering into the trench thus minimizing the number of in-trench joints required during the installation. Field joints require an internal galvanized sheet metal liner furnished by installing contractor (see Physical Data for Spunwrap® Collar Joining System on page 5). Field joints are to be SpunWrap® Collars in strict accordance with the manufacturer's instructions. This includes thoroughly cleaning and sanding areas to be joined.

### 3.04 INSTALLATION

- A. Installation shall be in strict accordance with the manufacturer's instructions including but not limited to the following: duct to be installed in a trench with provision for good drainage and an allowance for a minimum of 4" pea gravel or *dry* sand to completely encase the duct. The top of the duct shall be at least 2 1/2" below the top of the concrete slab.

- B. Store and handle the duct so as to prevent damage. Carefully inspect each length before installation. If long sections are to be assembled alongside the trench then lowered into position, the duct run should be supported along its length to avoid strain and potential overstress or buckling of the duct or damage to the joints. Lay the duct in the trench so that it bears evenly on the bedding or bottom of the trench throughout its entire length. Arrows on the duct clearly mark the direction of airflow. A minimum thickness of 2 1/2" of concrete is recommended where duct protrudes through the concrete. The maximum depth of burial for standard Spunstrand® Inc. underslab air duct allows for 5 feet of backfill cover. Deeper burial is possible; however, your Spunstrand® Inc. representative must be contacted for special recommendations that may be required. If the duct is not underslab it should be below the frost line. If the duct must pass directly under a load / weight bearing wall or under a road, reinforcement over the duct may be required. Again, please contact your Spunstrand® Inc. representative for specific requirements if your application meets these referenced, or any other custom considerations. (See Drawing No. 2 below.)



**PHYSICAL DATA FOR SPUNWRAP® COLLAR JOINING SYSTEM**  
*Sheetmetal sleeve to be furnished by others.*

<b>NOMINAL DIAMTER - INCHES</b>	<b>SHEET METAL SLEEVE RECOMMENDED GAUGE / WIDTH</b>	<b>SPUNWRAP® COLLAR WIDTH / LENGTH</b>
4"	26 / 4"	9" / 26"
5"	26 / 4"	9" / 29"
6"	26 / 4"	9" / 33"
7"	26 / 4"	9" / 35"
8"	26 / 4"	9" / 38"
9"	26 / 4"	9" / 42"
10"	26 / 4"	9" / 44"
12"	26 / 4"	9" / 51"
14"	24 / 4"	9" / 57"
16"	24 / 4"	9" / 64"
18"	24 / 4"	9" / 69"
20"	24 / 4"	9" / 76"
22"	24 / 4"	9" / 82"
24"	24 / 4"	9" / 89"
26"	22 / 6"	9" / 94"
28"	22 / 6"	9" / 101"
30"	22 / 6"	9" / 107"
32"	22 / 6"	9" / 113"
36"	22 / 6"	9" / 126"
42"	22 / 6"	9" / 146"
48"	22 / 6"	9" / 165"
54"	22 / 6"	12" / 184"
60"	22 / 6"	12" / 203"
72"	22 / 6"	12" / 240"

## SPUNWRAP® COLLAR FIELD INSTALLATION INSTRUCTIONS FOR FSK UNDERSLAB AIR DUCT

The following items are required to be on hand before attempting the field assembly of duct joints: SpunWrap® collars, sheet metal sleeves, screw and drive tools, clean rags and solvent such as acetone or isopropyl alcohol for clean-up of area to be joined. Note: the collar(s) must be stored in a clean, warm and dry environment prior to use.

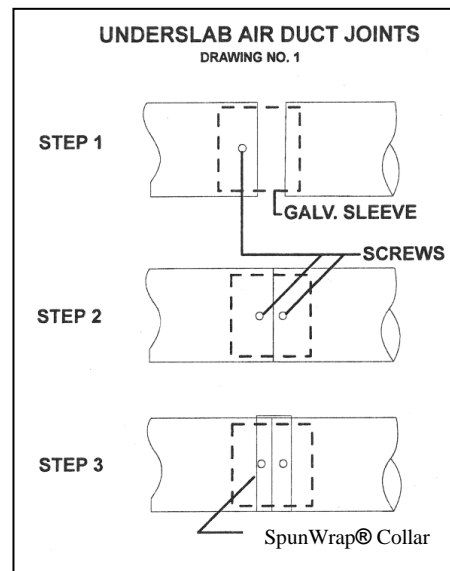
### PRECAUTIONS

The mastic based adhesive in the coupling works best when kept warm between 65° to 75°F. The collars must be kept clean, warm and dry from arrival on site until the finished joint is completed. A sheet metal sleeve (or piece of cardboard, if dry conditions exist) 18" to 24" wide, can be used under the duct area to be joined. The collar can then be slid under the duct on a clean surface. Anyone cutting the duct or coming in contact with cut edges must wear rubber gloves and protective eyewear.

### JOINING PROCEDURES

Cut the duct to the desired length using carbide grit or masonry blade circular saw, making sure that the cut ends are cut squarely to butt closely as per the tolerances specified in **S.M.A.C.N.A. Std. 7.26.3**. Using the acetone or isopropyl alcohol and a clean rag, clean the ends of the duct to be joined, removing soils and contaminants from the surface. The width of the area to be cleaned should extend 1" to 2" beyond the coupling width on each side of the duct joint. The width of the sleeve and couplings shall be in accordance with Spunstrand® Inc. standard Specifications, located in the **Physical Data for Spunwrap® Collar Joining System** table on page 5 of this section.

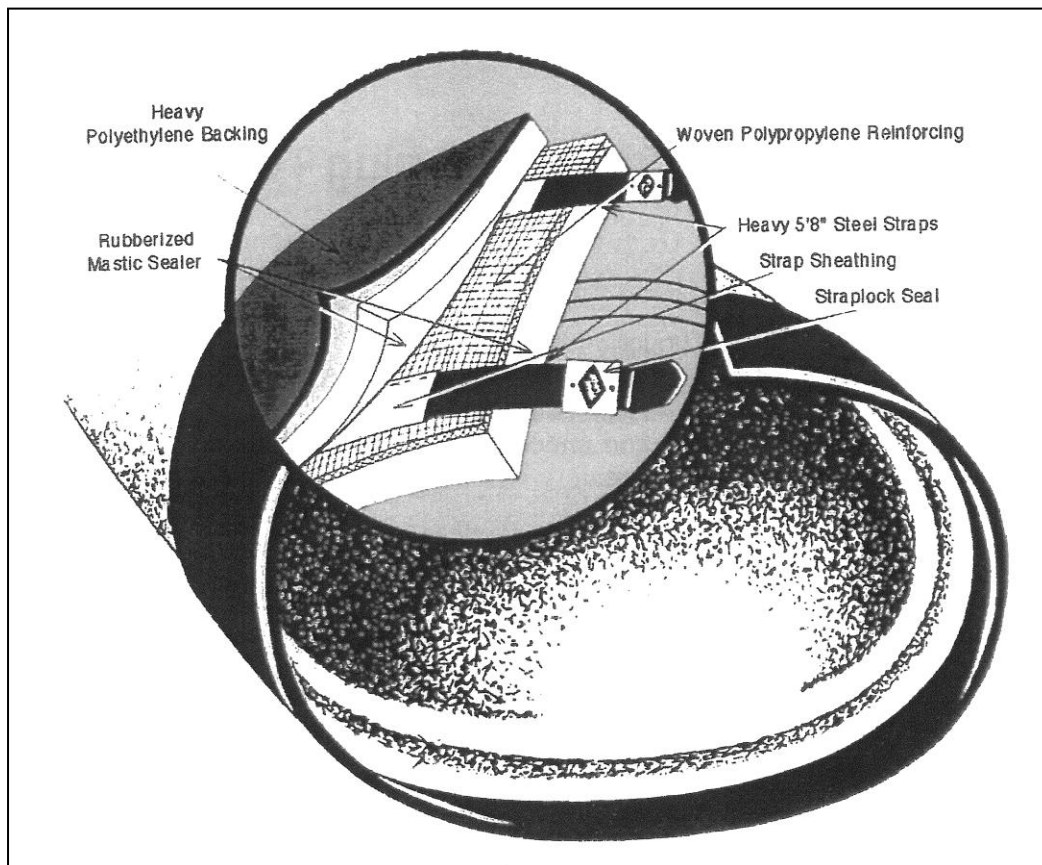
Join the duct and / or fittings with a sheet metal sleeve as shown in drawing no. 1 below.



**Note:** The sleeve should not be pre-formed as the duct I.D. can vary slightly. Insert one half of the sleeve into one end of the duct and secure it with sheet metal screws. Slide the other end of the duct or fitting over the remaining part of the sleeve and attach it with sheet metal screws. The recommended sheet metal sleeve is:

Duct Diameter: 4" - 12" = 26 gauge, 4" Wide  
 Duct Diameter: 14" - 24" = 24 gauge, 4" Wide  
 Duct Diameter: 26" - 72" = 22 gauge, 6" Wide

Once the sleeve has been installed and the joint area is cleaned, slide the sheet metal or cardboard under the duct joint area. Unwrap the collar and slide under the duct with the protective film side up and still on the coupling. After the coupling is fully extended under the duct, peel off the release film, stretch the collar tight from both sides and wrap around the duct. Burnish the coupling to the duct, removing air pockets and wrinkles. Tighten the bands, use the worm gear clamps (diameter 5" – 20") or gear tensioning ratchets (diameter 22" – 72"), refer to illustrations on the following pages. After both bands are sealed, remove the release film from the remaining flap and cover the exposed bands. Burnish the flap and the joint is complete.





SpunWrap® collar is made up of two layers. The bottom layer (next to the pipe) is made of a tough, woven polypropylene fabric with a thick rubberized mastic coating with a peelable protective paper that is removed when the collar is applied to the pipe. The outer layer consists of an impervious polyethylene with a rubberized mastic that is bonded to the bottom layer. Between these layers are steel straps sheathed in tubes that allow the straps to slip freely and tighten around the pipe. The ends of the two layers are off-set so that in applying to the pipe, the bottom layer overlaps itself. The straps are secured and the top layer then covers the exposed portion of the strap completing the joint. The collar comes complete, ready for application.

### TYPICAL PROPERTIES

Polyethylene Backing	Tensile Strength, min, psi	-4,000 -D882, Method A
	Elongation at break, min %	-100 -D882, Method B
	Tear Resistance, min, psi	-1,500 -D624, Die C
	Water Absorption, max, %	-0.01 -D570
Reinforcing Mesh Element	Tensile Strength, min, lb, in.	-D1682
	Warp 75	
	Fill 75	
	Elongation at Break, min, %	
	Warp 20	
	Fill 20	

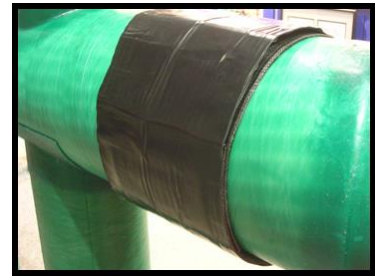
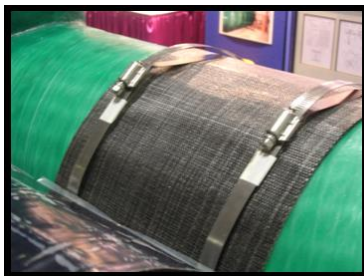
## SPUNWRAP® COLLAR INSTALLATION

### For Duct Diameters of 4” – 20” Equipped w/Worm Gear Clamps

- 1). The duct (green) has been cleaned and joined with the sheetmetal sleeve and secured with the sheetmetal screws. The installers have unwrapped the SpunWrap® collar and are sliding it under the duct seam with protective film side up.



- 2). The protective film is peeled off the SpunWrap® collar to expose the sticky surface to the duct seam. The collar needs to be stretched tight from both sides and wrapped around the duct seam.
- 3). The SpunWrap® collar has been stretched across the circumference of the duct and the integral metal straps are being prepared to be joined with worm gear clamps. Notice the extra overlap under the worker on the right. Once the straps are secured, this overlap will protect the finished installation.
- 4). The SpunWrap® collar is being stretched over the circumference of the duct. Notice the metal straps are located 90° from the top of the duct.
- 5). The SpunWrap® collar has been wrapped around and burnished to the duct. Air pockets and wrinkles have been removed. The straps are tightened with a worm gear-clamp by using a nut driver. (No additional tools required.) Remove protective film and overlap the steel bands and clamps.



- 6). After both straps have been sealed, the remaining protective film is removed from the remaining over-lap and used to cover the exposed straps. The result is a complete SpunWrap® joint.

## SPUNWRAP® COLLAR INSTALLATION

### For Duct Diameters of 22” – 72” Equipped w/Gear Tensioning Ratchets

- 1). Sweep or brush external portion of the joint to insure foreign material does not interfere with the direct contact between the mastic sealer and the joint to be sealed.

Align the collar directly over the joint to where the straps close over the top of the duct. Remove the protective film, exposing the mastic side to the joint. Wrap the exposed mastic around the joint.



- 2). Insert the loose strap and feed through slot in the take-up shaft. Push down and up on handle to apply tension. Once proper tension has been achieved, push handle down to lock into position. NOTE: *Excess strap may be cut off or tucked back into tubing.*



- 3). Remove the protective film from the closing flap to cover the two tensioning ratchets and straps, completing the joint.

The SpunWrap® joint system is water tight and tested to negative 12” water column and positive 25” water column.

