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Comfort Systems USA (Arkansas), Inc.  
P.O. Box 16620  
Little Rock, AR 72231  
Phone 501-834-3320  
Fax 501-834-5416

**Date:** 5/17/2024

**Return Request:** 5/27/2024

**Project:** CALS Main Library Renovations

**Supplier:** Knight & Wilson

**Manufacturer:** Various

**Submittal:** Metal Ducts

**Submittal Number:** 23 31 13-01

**Drawing # and Installation:** Mechanical Drawings

**ARCHITECT**

Polk Stanley Wilcox  
801 South Spring St.  
Little Rock, AR 72201  
501-378-0878

**ENGINEER**

Bernhard  
1 Allied Drive, Bldg. 2, Suite 2600  
Little Rock, AR 72202  
501-666-6776

**GENERAL CONTRACTOR**

CDI  
3000 Cantrell Rd.  
Little Rock, AR 72202  
501-5666-4300

**MECHANICAL SUBCONTRACTOR**

Comfort Systems USA (Arkansas), Inc.  
9924 Landers Rd.  
N. Little Rock, AR 72117  
501-834-3320

Notes:

**CSUSA PROJECT NO.**

**23-8016**

[dpierce@comfortar.com](mailto:dpierce@comfortar.com)

9924 Landers Rd.  
No. Little Rock, AR 72117

# K & W

**Knight & Wilson, Inc.**  
 "Sheet Metal Contractors"  
 676 East E.H. Crump Blvd. Memphis Tn 38126  
 901-274-6978

## SUBMITTAL

<b>EQUIPMENT:</b>	<b>DUCTWORK - RECTANGULAR - GALVANIZED</b>
<b>SPEC SECTION:</b>	<b>23 3113 - 2.01</b>
<b>PROJECT:</b>	<b>CALS MAIN LIBRARY RENOVATION</b>
<b>LOCATION:</b>	<b>LITTLE ROCK, AR</b>
<b>CONTRACTOR:</b>	<b>COMFORT SYSTEMS USA</b>

WE CONSTRUCT ALL OUR DUCTWORK OF G-90 GALVANIZED DOMESTIC STEEL. THIS DUCT WILL BE SEALED, REINFORCED AND FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS. TABLES BELOW INDICATE MINIMUM STANDARDS

Note-on 10 "SP, button-punch snaplock is <b>NOT allowed.</b>					ALTERNATE		
<b>10" SP-MEDIUM PRESSURE DUCT</b>				Reinforcement-O.C.		Tie Rods	
Duct Size	Gauge	Longitude Seam	Joint	Mid Point	@ Joint	Mid Point	@ Joint
0-28"	22	Pittsburg	TDF or Ward J	X	X	X	1 > 26"
29-42"	20	"	TDF or Ward J	1-1/2 x 1/8"	2-1/2 x 1/8"	1 > 26"	1
43-72"	18	"	TDF or Ward J	2-1/2 x 1/8"	2-1/2 x 1/8"	2	2
73-84"	16	"	TDF or Ward J	2-1/2 x 1/8"	2-1/2 x 1/8"	2	2
		"	TDF or Ward J				

Note-on 6 "SP, button-punch snaplock is <b>NOT allowed.</b>					ALTERNATE		
<b>6" SP-MEDIUM PRESSURE DUCT</b>				Reinforcement-O.C.		Tie Rods	
Duct Size	Gauge	Longitude Seam	Joint	Mid Point	@ Joint	Mid Point	@ Joint
0-30"	24	Pittsburg	TDF or Ward J	1-1/4 x 1/8"	X	1 > 26"	1 > 26"
31-36"	22	"	TDF or Ward J	2-1/2 x 1/8"	X	1	1
37-43"	20	"	TDF or Ward J	2-1/2 x 1/8"	2-1/2 x 1/8"	1	1
44-72"	20	"	TDF or Ward J	2-1/2 x 1/8"	2-1/2 x 1/8"	2	1
61-84"	18	"	TDF or Ward J	2-1/2 x 1/8"	2-1/2 x 1/8"	1 (2>73")	1
85-96"	16	"	TDF or Ward J	2-1/2 x 1/8"	2-1/2 x 1/8"	2	1

Note-on 4 "SP, snaplock is <b>allowed if</b> screws are put thru seam <b>at each end.</b>					ALTERNATE		
<b>4" SP-MEDIUM PRESSURE DUCT</b>				Reinforcement-O.C.		Tie Rods	
Duct Size	Gauge	Longitude Seam	Joint	Mid Point	@ Joint	Mid Point	@ Joint
0-30"	24	Pittsburg	TDF or Ward J	X	X	X	X
31-43"	22	"	TDF or Ward J	1-1/2 x 1/8"	X	1 > 37"	1>43"
43-54"	20	"	TDF or Ward J	2-1/2 x 1/8"	1-1/2 x 1/8"	1	1

# K & W

**Knight & Wilson, Inc.**

"Sheet Metal Contractors"

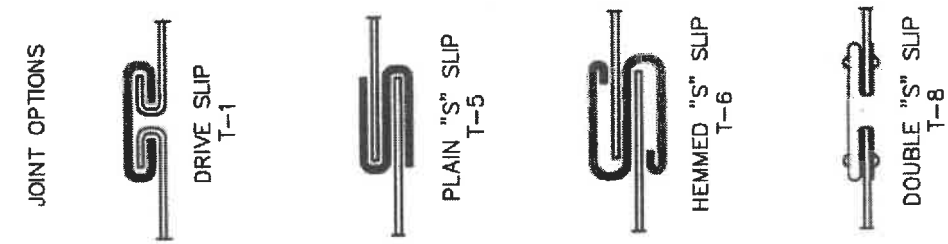
676 East E.H. Crump Blvd. Memphis Tn 38126

901-274-6978

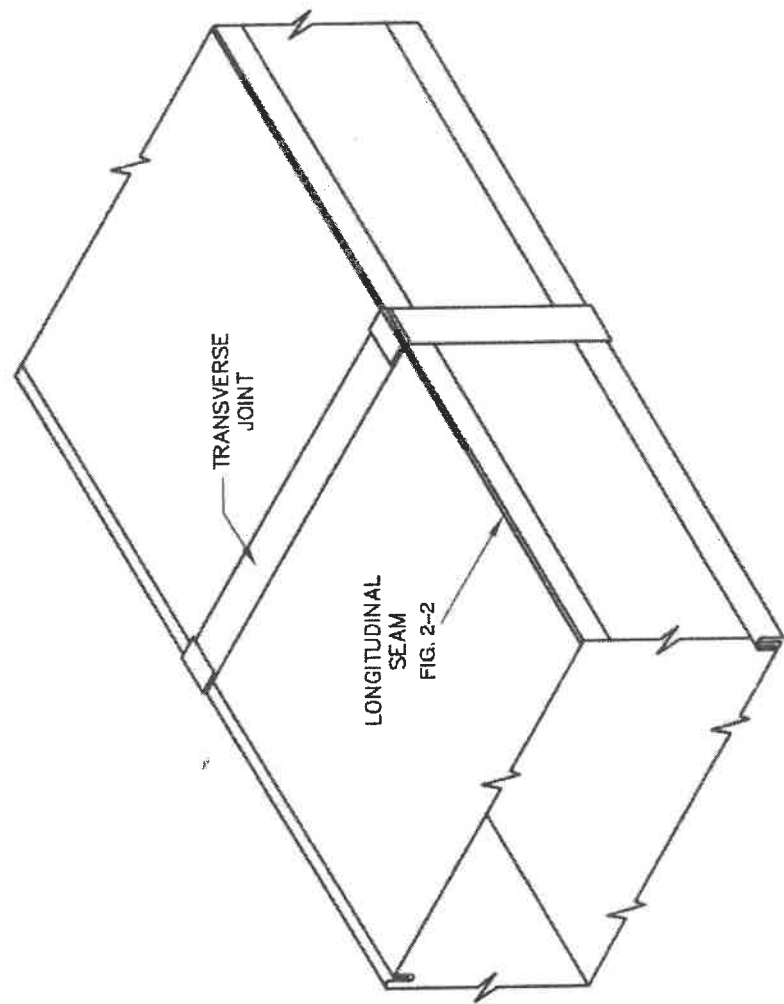
55-72"	20	"	TDF or Ward J	2-½ x 1/8"	1-1/2 x 1/8"	1 (2>60")	1
73-84"	18	"	TDF or Ward J	2-½ x 1/8"	1-1/2 x 1/8"	2	1
85-96"	18	"	TDF or Ward J	2-½ x 1/8"	2-½ x 1/8"	2	1

Note-on 3 "SP, snaplock is allowed if screws are put thru seam at each end.						ALTERNATE	
3" SP-MEDIUM PRESSURE DUCT				Reinforcement-O.C.		Tie Rods	Tie Rods
Duct Size	Gauge	Longitude Seam	Joint	Mid Point	@ Joint	Mid Point	@ Joint
0-30"	24	Pittsburg (Snaplock)	TDF or Ward J	X	X	X	X
31-48"	22	"	TDF or Ward J	1-1/2 x 1/8"	X	1 > 37"	1 > 43"
49-54"	22	"	TDF or Ward J	2-½ x 1/8"	1-1/2 x 1/8"	1	1
55-72"	20	"	TDF or Ward J	2-½ x 1/8"	1-1/2 x 1/8"	1 (2>60")	1
73-84"	18	"	TDF or Ward J	2-½ x 1/8"	1-1/2 x 1/8"	2	1
85-96"	18	"	TDF or Ward J	2-½ x 1/8"	2-½ x 1/8"	2	1

LOW PRESSURE DUCT-2" SP<				Reinforcement-O.C.		Tie Rods	Tie Rods
Duct Size	Gauge	Longitude Seam	Transverse Joint	Mid Point	@ Joint	Mid Point	@ Joint
0-12"	26	Snaplock	S'S and Drives	X	X	X	X
13-30"	24	"	S'S and Drives	X	X	X	X
31-60"	22	"	TDF or Ward J	X	X	1 > 37"	X
55-60"	20	"	TDF or Ward J	1-1/2 x 1/8"	X	1	1
61-84"	20	"	TDF or Ward J	2-½ x 1/8"	1-1/2 x 1/8"	1 (2-73">)	1
>85"	18	"	TDF or Ward J	2-½ x 1/8"	2-½ x 1/8"	2 or more	1



SEE TABLES 2-47 AND 2-48.  
DUCTS WITH FLAT SLIP CONNECTORS  
AND NO REINFORCEMENT  
SEE OTHER FIGURES AND TEXT  
FOR COMPLETE REQUIREMENTS  
AND LIMITATIONS



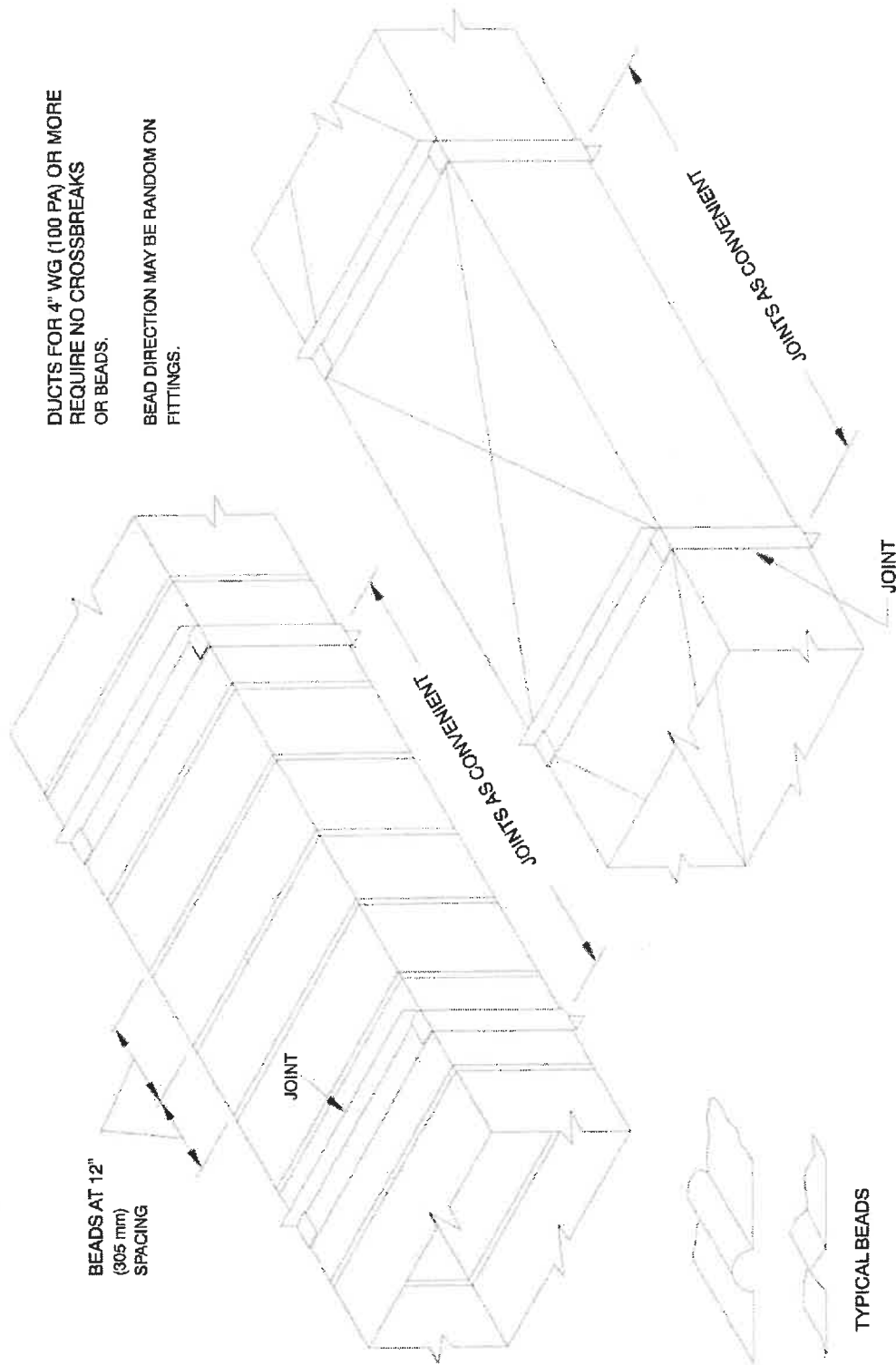
**FIGURE 2-9 UNREINFORCED DUCT**



DUCT SIZES 19" (483 mm) WIDE AND LARGER WHICH HAVE MORE THAN 10 SQUARE FEET (0.93 SQUARE METER) OF UNBRACED PANEL SHALL BE BEADED OR CROSS BROKEN UNLESS DUCTS WILL HAVE INSULATION COVERING OR ACOUSTICAL LINER. THIS REQUIREMENT IS APPLICABLE TO 20 GAGE (1.00 mm) OR LESS THICKNESS AND 3" WG (750 PA) OR LESS. IT IS UNNECESSARY TO BREAK OR BEAD ALL SIDES UNLESS EACH DUCT DIMENSION REQUIRES IT.

DUCTS FOR 4" WG (100 PA) OR MORE REQUIRE NO CROSSBREAKS OR BEADS.

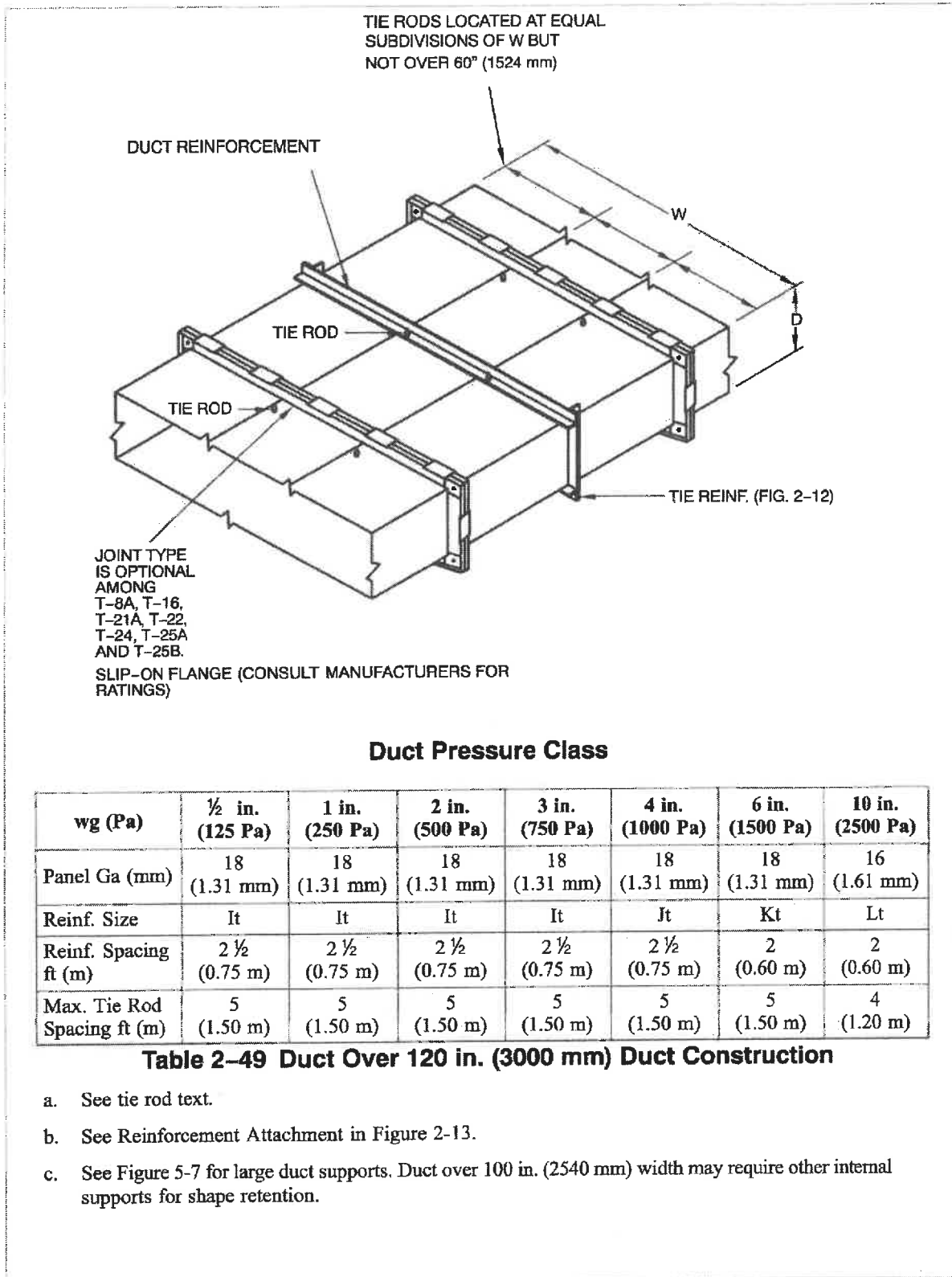
BEAD DIRECTION MAY BE RANDOM ON FITTINGS.



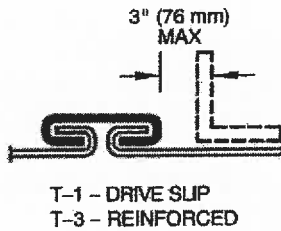
NOTICE: NEITHER BEADS NOR CROSSBREAKS AFFECT REINFORCEMENT SPACING SCHEDULE.

**FIGURE 2-10 CROSSBROKEN AND BEADED DUCT**

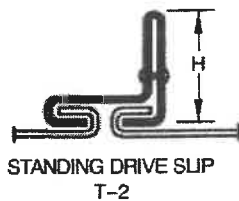




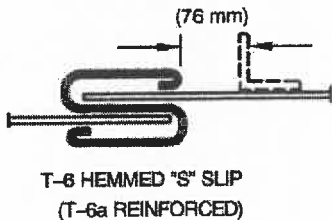
**FIGURE 2-14 DUCT OVER 120 IN. (3000 MM) WIDE**



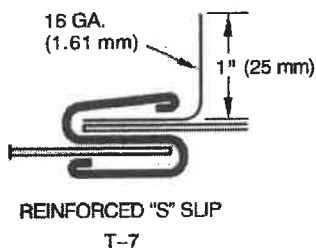
- Gage no less than two gages less than duct gage
- 24 ga minimum
- Qualification as reinforcement per Table 2-48
- T-3 - Slip Gage as per T-1
  - Any length at 2 in. wg
  - 36 in. maximum length at 3 in. wg
  - 30 in. maximum length at 4 in. wg
  - Not allowed above 4 in. wg



- Fasten standing portions within 2 in. of each end and elsewhere at 8 in. spacing or less
- Any length at 2 in. wg
- 36 in. maximum length at 3 in. wg
- 30 in. maximum length at 4 in. wg
- Not allowed above 4 in. wg

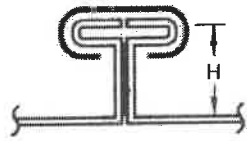


- Not less than two gages less than duct gage
- 24 ga minimum
- When used on all 4 sides, fasten within 2 in. of the corners and at 12 in. maximum intervals
- 2 in. wg maximum pressure



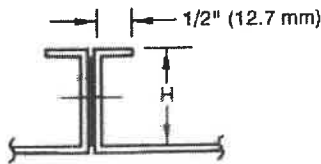
- Use slips conforming to T-6
- Use 16 ga angle of 1 in. height into slip pocket
- Fasten with screws at ends
- Angle used only for A, B, or C rigidity class
- 2 in. wg maximum pressure

**FIGURE 2-1 RECTANGULAR DUCT/TRANSVERSE JOINTS**



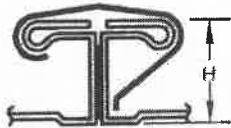
FLANGED  
(WITH GASKET)  
T-24

- Assemble per Figure 2-17
- Close corners with minimum 16 ga corner pieces and  $\frac{3}{8}$  in. bolts min.
- Lock flanges together with 6 in. long clips located within 6 in. of each corner
- Clips spaced at 15 in. maximum for 3 in. wg pressure class or lower
- Clips spaced at 12 in. maximum for 4, 6 and 10 in. wg
- Gasket to be located to form an effective seal



FLANGED  
(WITH GASKET)  
T-24A

- Bolt, rivet 1 in. maximum from ends and at 6 in. maximum intervals
- Limited to 2 in. wg pressure class
- See Figure 2-17
- Gasket to be located to form an effective seal

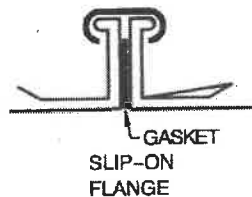


FLANGED  
(WITH GASKET)  
T-25a



FLANGED  
(WITH GASKET)  
T-25b

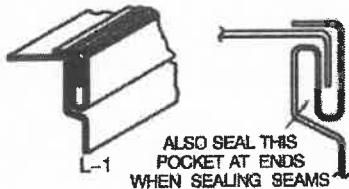
- Assemble per Figure 2-18
- Ratings may be adjusted with EI-rated bar stock or members from Tables 2-29 and 2-30
- Supplemental members may be attached to the duct wall on both sides of the joint
- Single members may be used if they are fastened through both mating flanges
- Gasket to be located to form an effective seal



- Consult manufacturers for ratings established by performance documented to functional criteria in Chapter 11.

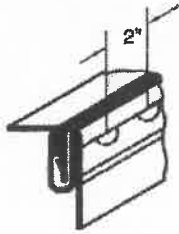
FIGURE 2-1 RECTANGULAR DUCT/TRANSVERSE JOINTS (CONTINUED)





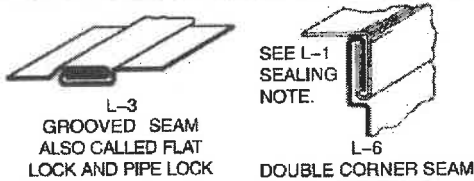
L-1  
PITTSBURGH LOCK

- Pocket depth from 1/4 in. to 5/8 in.
- Use on straight duct and fittings
- To ± 10 in. wg



L-2  
BUTTON PUNCH SNAP LOCK

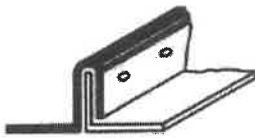
- 5/8 in. pocket depth for 20, 22, and 24 ga
- 1/2 in. pocket depth for 24 and 26 ga
- To ± 4 in. wg
- Screws must be added at the ends of all duct of 4 in. wg and at the ends of 3 in. wg when the duct is over 48 in. width



L-3  
GROOVED SEAM  
ALSO CALLED FLAT  
LOCK AND PIPE LOCK

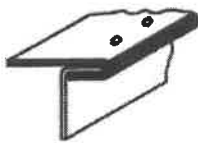
SEE L-1  
SEALING  
NOTE.  
L-6  
DOUBLE CORNER SEAM

- To ± 10 in. wg



SEE FIG. 2-8 ALSO  
L-4 STANDING SEAM

- To ± 10 in. wg
- 1 in. seam minimum
- May be used on duct interiors
- Fasten at 2 in. maximum from ends and at 8 in. maximum intervals

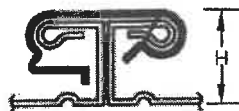


L-5 SINGLE CORNER SEAM

- To ± 10 in. wg
- Fasten as per L-4



FLANGED  
(WITH GASKET)  
T-25a



FLANGED  
(WITH GASKET)  
T-25b

- Modify for longitudinal seam application.

**FIGURE 2-2 RECTANGULAR DUCT/LONGITUDINAL SEAMS**

# K & W

***Knight & Wilson, Inc.***  
*"Sheet Metal Contractors"*  
676 East E.H. Crump Blvd. Memphis TN 38126  
901-274-6978

## SUBMITTAL

**EQUIPMENT:**

**SNAPLOCK PIPE & ADJUSTABLE ELBOWS**

**SPEC SECTION:**

**23 3113 - 2.03**

**PROJECT:**

**CALS MAIN LIBRARY RENOVATION**

**LOCATION:**

**LITTLE ROCK, AR**

**CONTRACTOR:**

**COMFORT SYSTEMS USA**

### **NOTE:**

LOW PRESSURE ROUND SNAPLOCK "26ga" PIPE & "26ga"  
ADJUSTABLE ELBOWS PER ATTACHED SUBMITTAL.

**CONTACT:**

**LARRY RUSSELL, K&W - OPERATIONS MGR.**

**DATE:**

**5/3/2024**



# SOUTHWARK METAL MANUFACTURING COMPANY

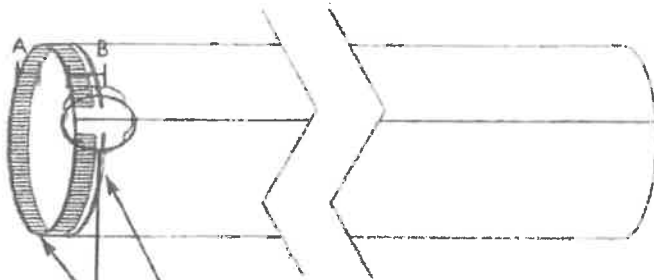
Philadelphia, PA • Greenville, SC • Indianapolis, IN • Southaven, MS • Fremont, NE • Caldwell, ID

Corporate Headquarters: 2800 Red Lion Road, Philadelphia PA 19114

tel: (800) 523-1052 • fax (800) 722-2076 • www.southwarkmetal.com

## SUBMITTAL DRAWING

### SNAPLOCK PIPE (MODEL NO: SL)



**Measurements**

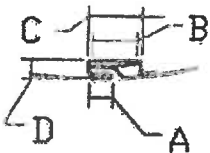
.375" width of bead

A - 1 1/2" crimp length (+/- .0625")

.25" length of tapered leading edge (+/- .0625")

B - 1 1/4" length from top of bead to bottom of tapered leading edge

Reeves Lock



**Measurements**

A - .23"

B - .375"

C - .4375"

D - .20"

From SMACNA HVAC  
Duct Construction Standards  
Metal and Flexible, 2nd Ed  
(1995); 3.3 & 3.8

**Product Availability**

Diameter	30 Ga	28 Ga	26 Ga	24 Ga
3"			x	
4"			x	x
5"			x	x
6"			x	x
7"			x	x
8"			x	x
9"			x	x
10"			x	x
12"			x	x
14"			x	x
16"			x	x
18"			x	x
20"			x	x
22"			x	x
24"			x	x

**SMACNA Gauge Requirements for Galvanized Steel**

Duct Diameter	2" w.g. max Positive Pressure	Duct Diameter	2" w.g. max Negative Pressure
3" - 8"	28 Ga	6" - 10"	28 Ga
9" - 14"	26 Ga	12"	26 Ga
15" - 26"	24 Ga	14" - 16"	24 Ga
		18" - 20"	22 Ga
		22" - 26"	20 Ga

### NOTES

- Material: Hot Dipped Galvanized Steel per ASTM A653 CS Type B
- Available in all standard gauges
- Crimp and bead male connection and straight female connection
- Meets 2" W.G. pressure
- Consult factory for available joint lengths
- Aluminum and stainless steel pipe available in certain sizes and gauges
- .0625" thickness of crimp
- RL-7 longitudinal seam

OB NAME: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_  
 ARCHITECT: \_\_\_\_\_  
 ENGINEER: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

DATE: 01/03/13 | SW-SLPNE | SD-0004

Snaplock Pipe  
MODEL NO: SL



# SOUTHWARK METAL MANUFACTURING COMPANY

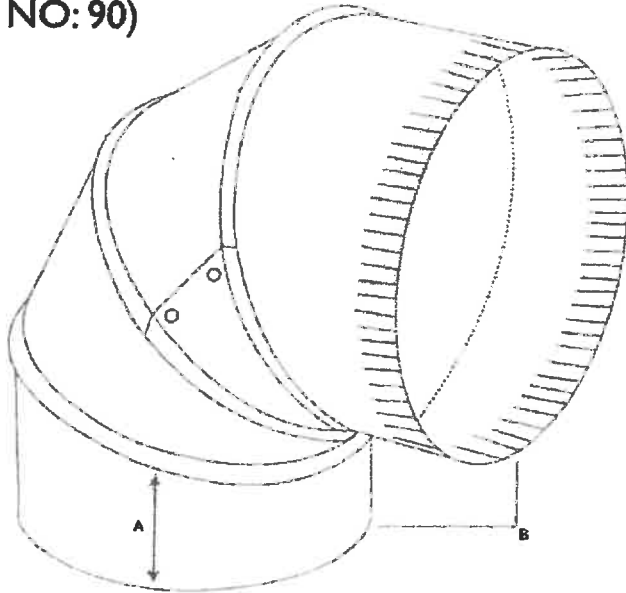
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Corporate Headquarters: 2800 Red Lion Road, Philadelphia PA 19114

tel: (800) 523-1052 • fax (800) 722-2076 • www.southwarkmetal.com

## SUBMITTAL DRAWING

### 90° ELBOW (MODEL NO: 90)



#### Product Availability

Diameter	20-Ga	24-Ga	26 Ga	24 Ga
3"			x	
4"			x	x
5"			x	x
6"			x	x
7"			x	x
8"			x	x
9"			x	x
10"			x	x
12"			x	x
14"			x	x
16"			x	x
18"			x	x
20"			x	x
22"			x	x
24"			x	x

Diameter	A	B	Diameter	A	B
3"	1½"	2½"	12"	1½"	3"
4"	1¾"	3"	14"	2½"	4"
5"	1¾"	3"	16"	2¼"	3½"
6"	1¾"	3¼"	18"	1¾"	3½"
7"	2"	3¼"	20"	1¾"	4½"
8"	2"	3½"	22"	1¾"	5½"
9"	2"	3½"	24"	2"	6½"
10"	2¼"	4"			

#### SMACNA Gauge Requirements for Galvanized Steel

Duct Diameter	2" w.g. max Positive Pressure	Duct Diameter	2" w.g. max Negative Pressure
3" - 8"	28 Ga	6" - 10"	28 Ga
9" - 14"	26 Ga	12"	26 Ga
15" - 26"	24 Ga	14" - 16"	24 Ga
		18" - 20"	22 Ga
		22" - 26"	20 Ga

From SMACNA HVAC Duct Construction Standards Metal and Flexible, 2nd Ed (1995); 3.3 & 3.8

### NOTES

- Material: Hot Dipped Galvanized Steel per ASTM A653 CS Type B
- Crimp and bead male connection and straight female connection
- 1" crimp length
- Meets +/- 2" W.G. pressure overall
- ½" overlap for riveting using ¼" rivets
- RL-2 rivet seam; meets +/- 4" w.g. pressure
- 3" through 20" diameters = 4 pc. assembly
- 22" through 24" diameters = 5 pc. assembly
- Aluminum and type 304 stainless steel pipe available in certain sizes and gauges

JOB NAME: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_  
 ARCHITECT: \_\_\_\_\_  
 ENGINEER: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

DATE: 01/03/13 SW-SLPNE SD-0004

Snaplock Pipe  
 MODEL NO: SL



963 South Bellevue  
 Memphis, TN 38106  
 (901) 774-2220  
 (901) 774-2174 Fax

**SINGLE WALL ROUND**  
**GALVANIZED**  
**MANUFACTURING STANDARDS**

<b>Project:</b>	CALS Main Library Renovation
<b>Location:</b>	Little Rock, AR



**SPIRAL SEAM**

**10" Positive WG**  
 (SMACNA 2005 Standard)

DIAMETER	Spiral Seam Pipe	Longitudinal Seam Pipe	Fitting Construction
3" -18"	26		24
19" - 24"	26		24
25" - 42"	24		22
43" - 60"	22		20
61" - 66"	22		18
67" - 96"	20		18

**Construction Standards:**

- Standard lengths of spiral pipe are 10' for spiral seam and 5' for longitudinal welded seam construction
- Class 1 air duct materials, or UL 181
- Galvanized Steel pipe will be lock-forming quality and have a zinc-coating of G-60 or greater in accordance with ASTM A653 (formerly ASTM A525/A527)
- Spiral Seam construction will be RL-1 to 4" W.G Negative. Longitudinal seam will be RL-4 to 4" W.G. Negative in accordance with SMACNA
- Fabrication in accordance with SMACNA HVAC Duct Construction Standards - Metal & Flexible (2005) except as indicated and Spiral Pipe Manufacturers Association (SPIDA) standards.

<b>Submittal By:</b>	Dale Turner
<b>Submittal Date:</b>	5/7/2024



963 South Bellevue  
 Memphis, TN 38106  
 (901) 774-2220  
 (901) 774-2174 Fax

## SINGLE WALL ROUND FITTINGS

<b>Project:</b>	CALS Main Library Renovation
<b>Location:</b>	Little Rock, AR
<b>Construction:</b>	Tack Welded Seam or Gore Locked Standing Seam and Sealed with high pressure duct sealant

<b>SE90</b>	<b>SPIRAL 90° ELBOW</b>
	<p>SPIRAL ELBOWS ARE SPIRAL LOCKSEAM ONE PIECE MACHINE FABRICATED FOR UP TO CLASS 3 AND 10" W.C. APPLICATION</p> <p style="text-align: right;"><b>R = A x 1.5</b></p> <p style="text-align: center;"><b>4" THRU 12" STANDARD</b></p>

<b>SE45</b>	<b>SPIRAL 45° ELBOW</b>
	<p>SPIRAL ELBOWS ARE SPIRAL LOCKSEAM ONE PIECE MACHINE FABRICATED FOR UP TO CLASS 3 AND 10" W.C. APPLICATION</p> <p style="text-align: right;"><b>R = A x 1.5</b></p> <p style="text-align: center;"><b>4" THRU 12" STANDARD</b></p>

<b>LTF</b>	<b>LATERAL TAP ON FLAT</b>

<b>Submitted By:</b>	Dale Turner
<b>Submittal Date:</b>	5/7/2024

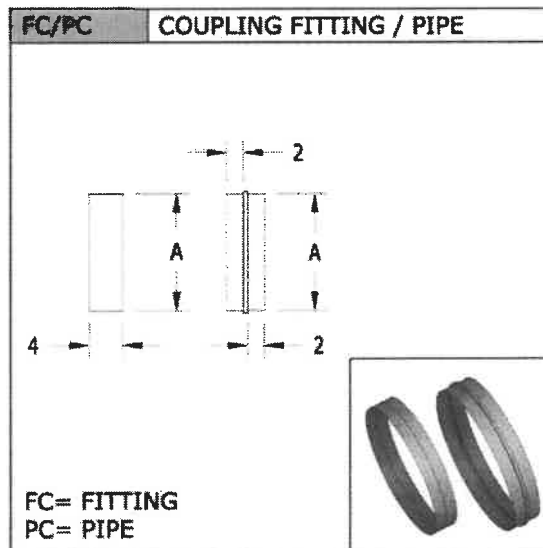


963 South Bellevue  
 Memphis, TN 38106  
 (901) 774-2220  
 (901) 774-2174 Fax

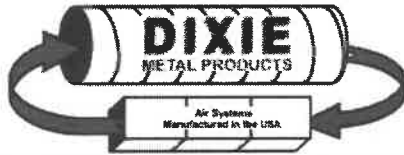
## SLIP COUPLING TRANSVERSE DUCT CONNECTION

Project:	CALS Main Library Renovation
Location:	Little Rock, AR
Sizes:	All Round Single Wall
Construction:	<p>Transverse duct connection via slip coupling for pipe/pipe or fitting/fitting connection. Coupling will be of comparable fitting gauges per duct submittal. Single Wall (SW) duct connection will be with single coupling.</p> <p>For field installation, coupling should be inserted into pipe/fitting until contact is made with center bead in coupling. Adjoining pipe/fitting will be slipped on remaining half of coupling until contact is made with center bead. Coupling is then screwed on 6" centers with sheet metal screws and sealed with appropriate high pressure duct sealant.</p>

### ROUND DUCT:




Submitted By:	Dale Turner
Submittal Date:	5/7/2024



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 (901) 7742174

**DOUBLE WALL ROUND SPIRAL  
 GALVANNEALED  
 MANUFACTURING STANDARDS**

Project:	CALS Main Library Renovation
Location:	Little Rock, AR

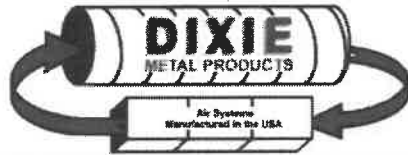
 <p><b><u>OD WALL:</u></b> Solid Galvannealed Steel suitable for field painting  <b><u>ID WALL:</u></b> Solid Galvanized Steel  <b>INSULATION:</b> 1"- 1.5 lb density</p>	<p><b><u>OUTSIDE DIAMETER</u></b>          10" Positive WG          (SMACNA 2005 Standard)</p> <table border="1"> <thead> <tr> <th>DIAMETER</th> <th>Spiral Seam Pipe</th> <th>Fitting Construction</th> </tr> </thead> <tbody> <tr> <td>3" - 26"</td> <td>26</td> <td>24</td> </tr> <tr> <td>27" - 36"</td> <td>24</td> <td>22</td> </tr> <tr> <td>37" - 50"</td> <td>22</td> <td>20</td> </tr> <tr> <td>51" - 54"</td> <td>20</td> <td>18</td> </tr> <tr> <td>56" - 80"</td> <td>18</td> <td>18</td> </tr> </tbody> </table>	DIAMETER	Spiral Seam Pipe	Fitting Construction	3" - 26"	26	24	27" - 36"	24	22	37" - 50"	22	20	51" - 54"	20	18	56" - 80"	18	18
	DIAMETER	Spiral Seam Pipe	Fitting Construction																
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3" - 34"	24	24																	
35" - 58"	22	22																	
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**Construction Standards:**

- Standard lengths of spiral pipe are 10' for spiral seam and 5' for longitudinal welded seam construction
- Galvannealed Outer Dimension pipe (OD) will be lock-forming quality and have a coating suitable for field painting in accordance with ASTM A875.
- Galvanized Inner pipe will be lock-forming quality and have a zinc-coating of G-60 or greater in accordance with ASTM A653 (formerly ASTM A525/A527)
- Fitting construction will follow above standard.
- Insulation will have a thermal conductivity factor of .26 BTU/hr/sq. ft./deg F or better.
- Spiral Seam construction will be RL-1 to 10" W.G. +/- pressure.
- Fabrication in accordance with SMACNA HVAC Duct Construction Standards - Metal & Flexible (2005) except as indicated and Spiral Pipe Manufacturers Association (SPIDA) standards.

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Submittal Date:	5/7/2024

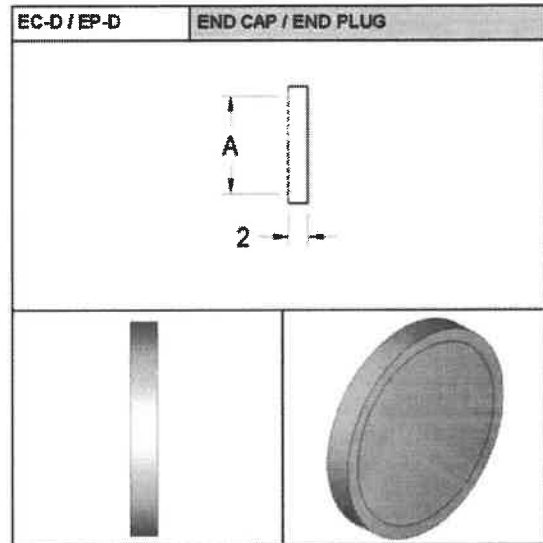
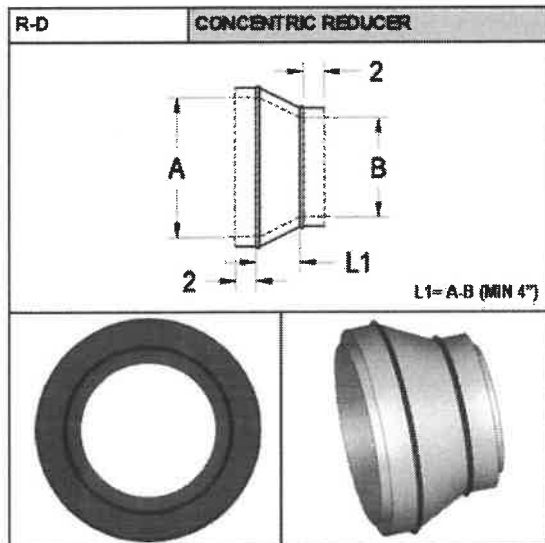
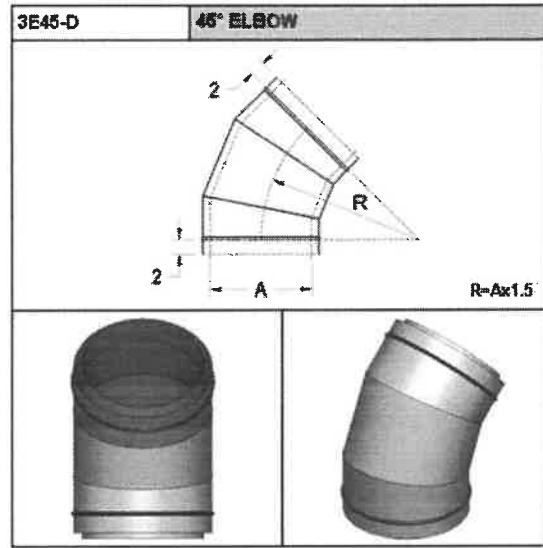
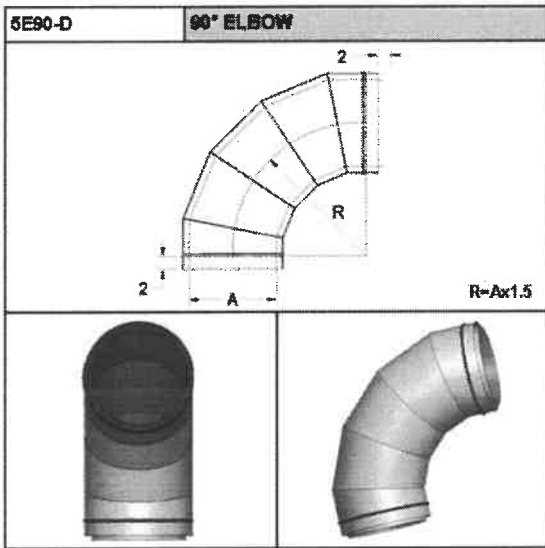




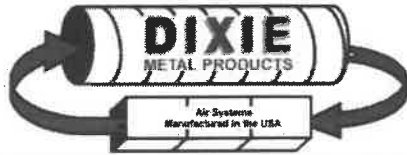
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 (901) 7742174

## DOUBLE WALL ROUND FITTINGS

<b>Project:</b>	CALS Main Library Renovation
<b>Location:</b>	Little Rock, AR
<b>Construction:</b>	OD & ID seams to be Tack Welded and Sealed with high pressure duct sealant
<b>Fitting Walls:</b>	OD Wall will be Solid Galvannealed Steel suitable for field painting. ID Wall will be Solid Galvanized Steel



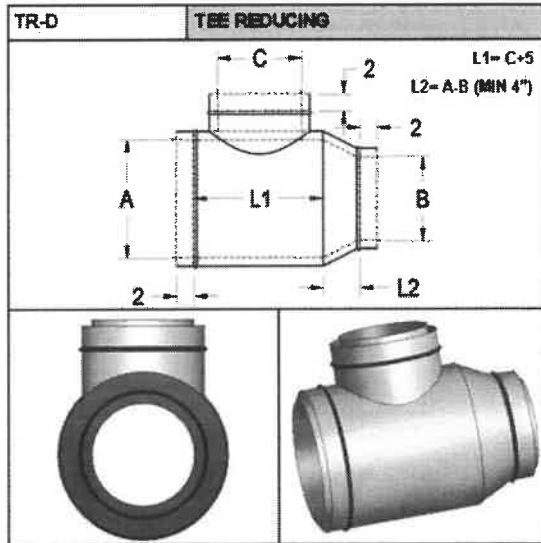
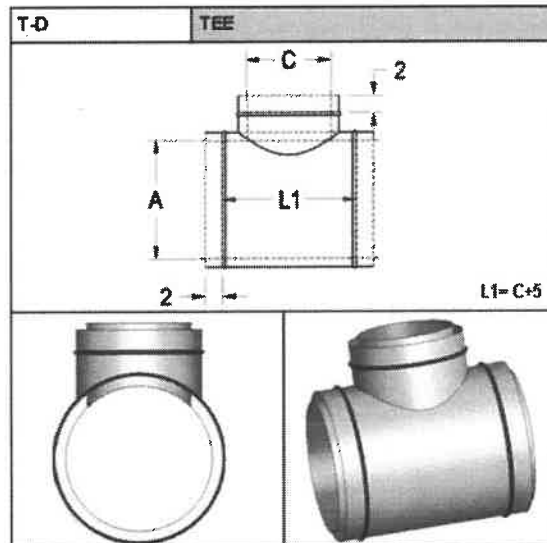
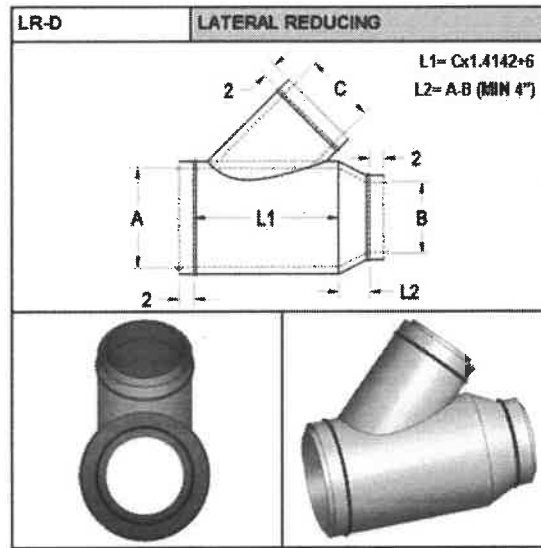
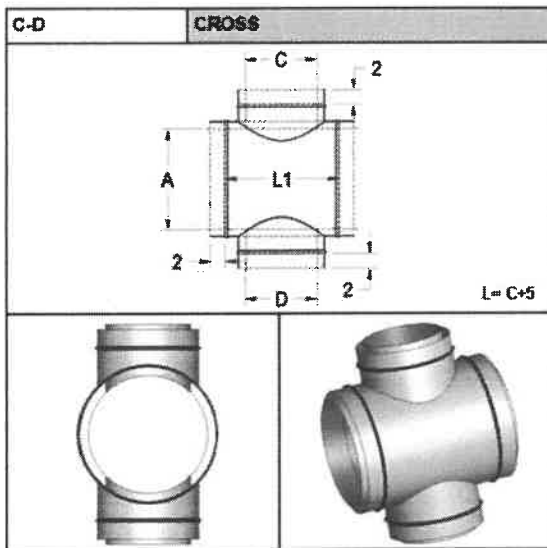
<b>Submitted By:</b>	Dale Turner
<b>Date:</b>	5/7/24



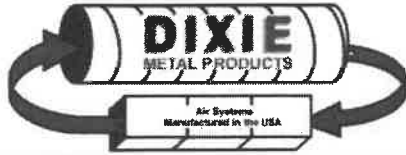
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## DOUBLE WALL ROUND FITTINGS

<b>Project:</b>	CALS Main Library Renovation
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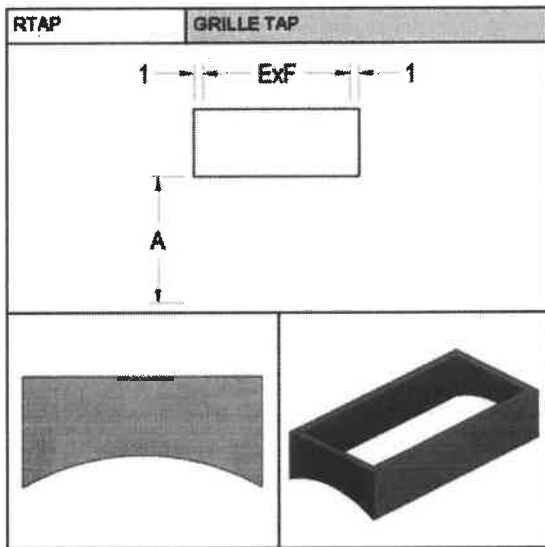
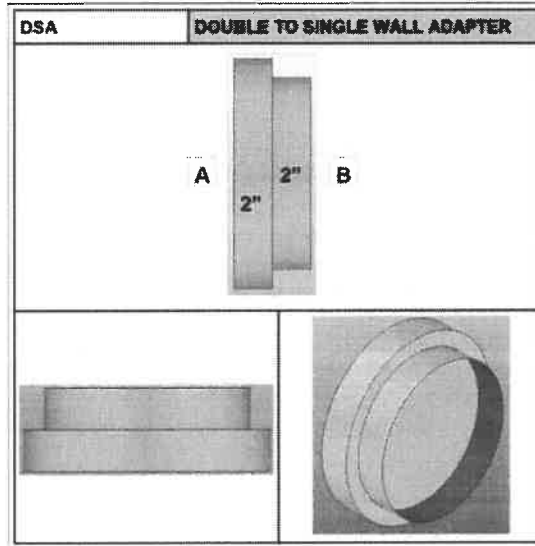
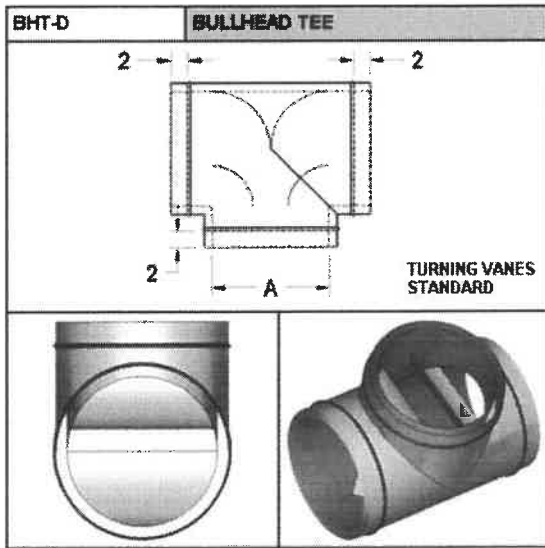
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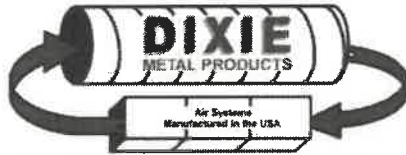
## DOUBLE WALL ROUND FITTINGS

<b>Project:</b>	CALS Main Library Renovation
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<b>Construction:</b>	OD & ID seams to be Tack Welded and Sealed with high pressure duct sealant
<b>Fitting Walls:</b>	OD Wall will be Solid Galvannealed Steel suitable for field painting. ID Wall will be Solid Galvanized Steel



The 4" tall grille tap shown will be factory installed on spiral pipe sections.

<b>Submitted By:</b>	Dale Turner
<b>Date:</b>	5/7/24

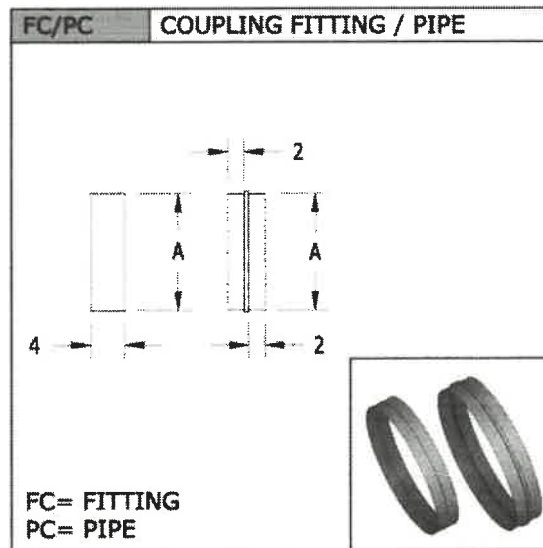


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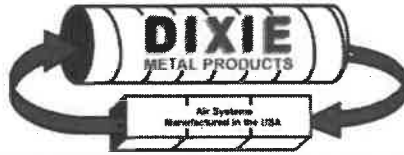
## SLIP COUPLING TRANSVERSE DUCT CONNECTION

Project:	CALS Main Library Renovation
Location:	Little Rock, AR
Sizes:	All 11" & smaller round double wall sizes
Construction:	<p>Transverse duct connection via slip coupling for pipe/pipe or fitting/fitting connection. Coupling will be of comparable fitting gauges per duct submittal. Single Wall (SW) duct connection will be with single coupling.</p> <p>For field installation, coupling should be inserted into pipe/fitting until contact is made with center bead in coupling. Adjoining pipe/fitting will be slipped on remaining half of coupling until contact is made with center bead. Coupling is then screwed on 6" centers with sheet metal screws and sealed with appropriate high pressure duct sealant.</p>

### ROUND DUCT:



Submitted By:	Dale Turner
Submittal Date:	5/7/2024

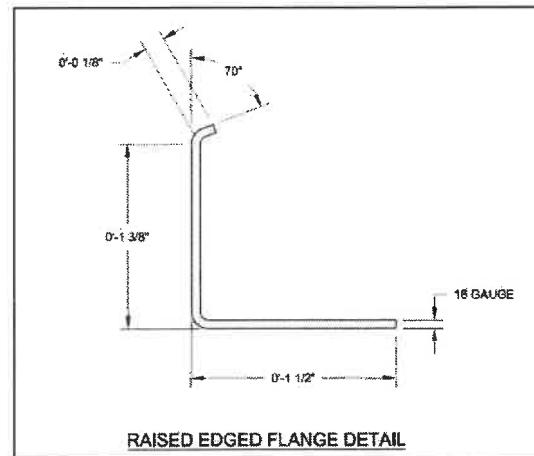
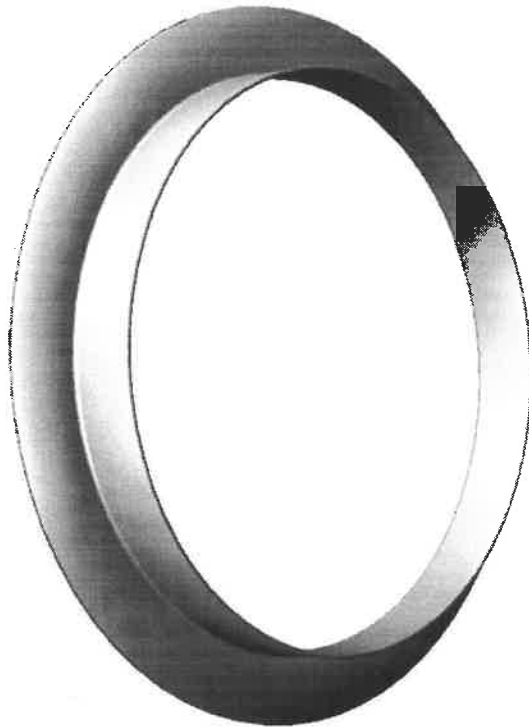


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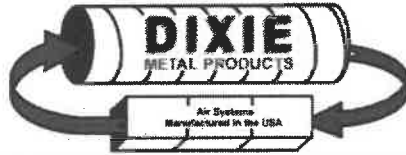
## DIXIFLANGE ROUND FLANGE CONNECTION

### \*\* 1" DOUBLEWALL \*\*

Project:	CALS Main Library Renovation
Location:	Little Rock, AR
Sizes:	All 12" & larger round double wall sizes
Construction:	<p>16ga Construction – Flanges will be provided on double wall (DW) round pipe and fittings as listed above. Flange will be manufactured and installed in our facility as a 1" flange attached to the ID and a 1-3/8" flange attached to the OD per the profile below. Flange will be tack welded to pipe and then continuously sealed with high pressure duct sealant between the outside pipe wall and the flange.</p> <p>For field installation, duct and fitting transverse joints will be mated with a gasket between flanges and then screwed on 6" centers with sheet metal screws.</p>

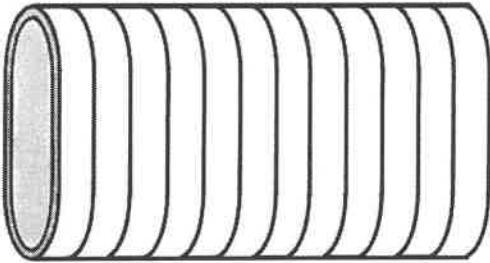


Submitted By:	Dale Turner
Submittal Date:	5/7/2024



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**DOUBLE WALL OVAL SPIRAL  
 GALVANNEALED  
 MANUFACTURING STANDARDS**

Project:	CALS Main Library Renovation																				
Location:	Little Rock, AR																				
 <p><b><u>OD WALL:</u></b> Solid Galvannealed Steel suitable for field painting  <b><u>ID WALL:</u></b> Solid Galvanized Steel</p> <p>INSULATION: 1" – 1.5lb density</p>	<b><u>OUTSIDE DIAMETER</u></b> 10" Positive WG (SMACNA 2005 Standard)																				
	<table border="1"> <thead> <tr> <th>MAJOR AXIS</th> <th>Spiral Seam Pipe</th> <th>Fitting Construction</th> </tr> </thead> <tbody> <tr> <td>3" -24"</td> <td>24</td> <td>20</td> </tr> <tr> <td>25" – 36"</td> <td>22</td> <td>20</td> </tr> <tr> <td>37" – 48"</td> <td>22</td> <td>18</td> </tr> <tr> <td>49" – 60"</td> <td>20</td> <td>18</td> </tr> <tr> <td>61" - 70"</td> <td>18</td> <td>16</td> </tr> </tbody> </table>	MAJOR AXIS	Spiral Seam Pipe	Fitting Construction	3" -24"	24	20	25" – 36"	22	20	37" – 48"	22	18	49" – 60"	20	18	61" - 70"	18	16	<b><u>INSIDE DIAMETER</u></b>	
MAJOR AXIS	Spiral Seam Pipe	Fitting Construction																			
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35" – 58"	22	22																			
60" +	22	22																			

**Construction Standards:**

- Standard lengths of spiral pipe are 10' for spiral seam and 5' for longitudinal welded seam construction
- Galvannealed Outer Dimension pipe (OD) will be lock-forming quality and have a coating suitable for field painting in accordance with ASTM A875.
- Galvanized Inner pipe will be lock-forming quality and have a zinc-coating of G-60 or greater in accordance with ASTM A653 (formerly ASTM A525/A527)
- Fitting construction will follow above construction standard.
- Insulation will have a thermal conductivity factor of .26 BTU/hr./sq. ft./deg F or better
- Spiral Seam construction will be RL-1 to 10" W.G. +/- pressure.
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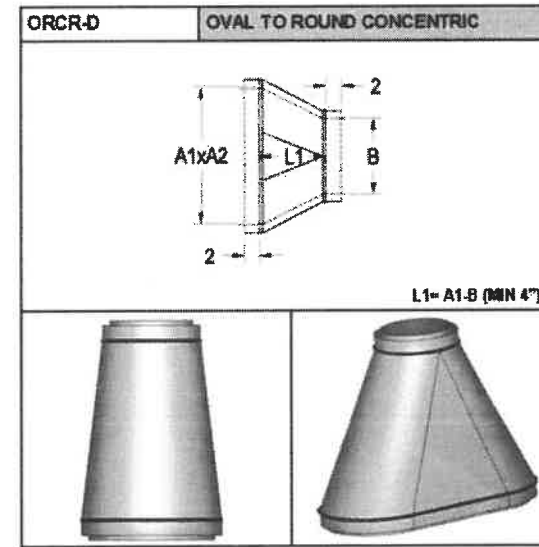
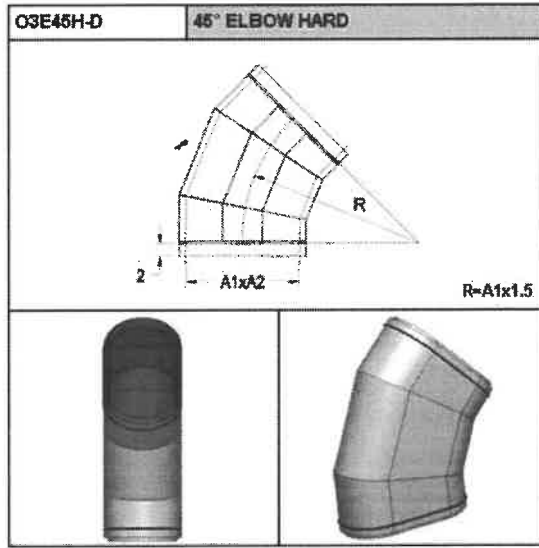
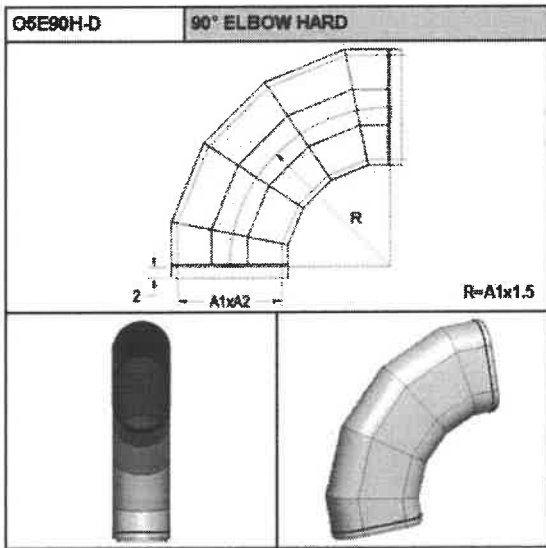
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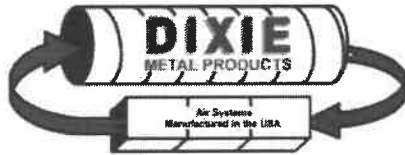
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 Memphis, TN 38106  
 (901) 774-2220  
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## DOUBLE WALL OVAL FITTINGS

<b>Project:</b>	CALS Main Library Renovation
<b>Location:</b>	Little Rock, AR
<b>Construction:</b>	OD & ID Seam Tack Welded and internally sealed with high pressure duct sealant.
<b>Fitting Walls</b>	OD Wall will be Solid Galvannealed Steel suitable for field painting. ID Wall will be Solid Galvanized Steel



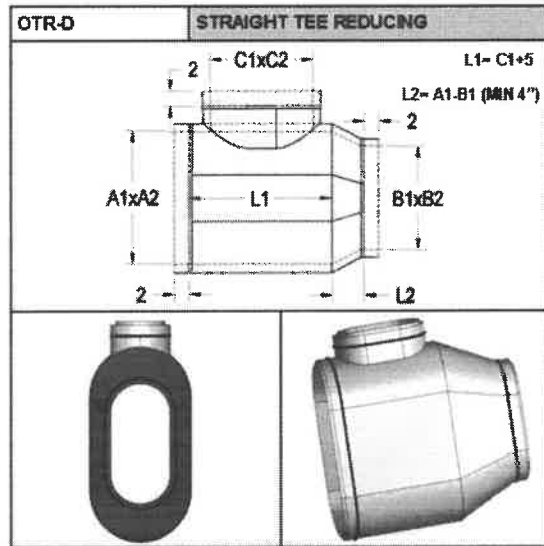
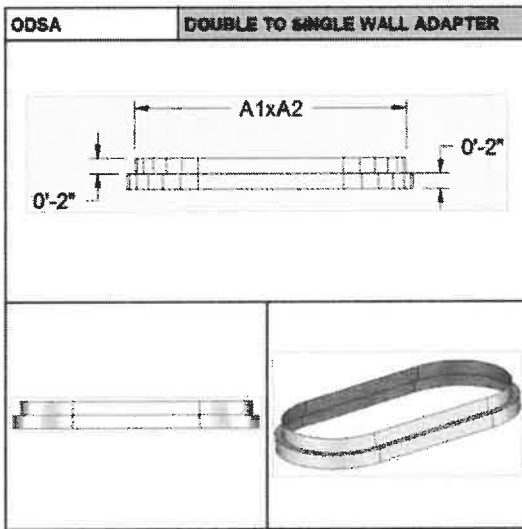
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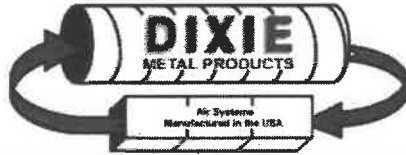
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<b>Project:</b>	CALS Main Library Renovation
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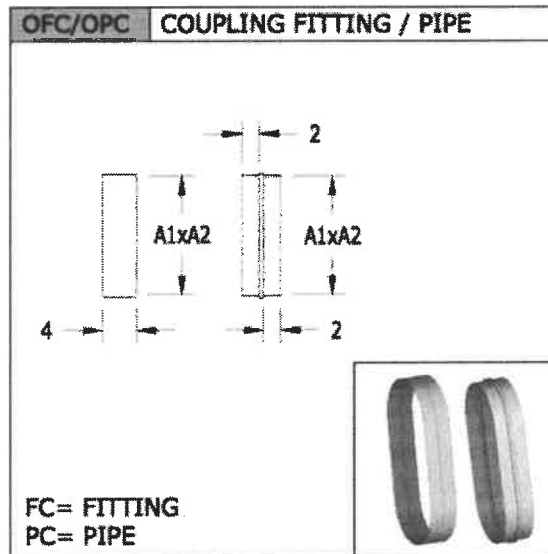


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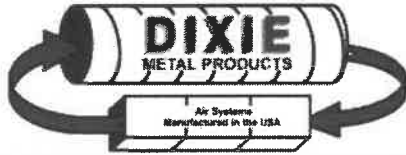
## SLIP COUPLING TRANSVERSE DUCT CONNECTION

Project:	CALS Main Library Renovation
Location:	Little Rock, AR
Sizes:	All Oval double wall sizes with an 11" & smaller minor axis
Construction:	<p>Transverse duct connection via slip coupling for pipe/pipe or fitting/fitting connection. Coupling will be of comparable fitting gauges per duct submittal. Single Wall (SW) duct connection will be with single coupling.</p> <p>For field installation, coupling should be inserted into pipe/fitting until contact is made with center bead in coupling. Adjoining pipe/fitting will be slipped on remaining half of coupling until contact is made with center bead. Coupling is then screwed on 6" centers with sheet metal screws and sealed with appropriate high pressure duct sealant.</p>

### OVAL DUCT:



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Submittal Date:	5/7/24

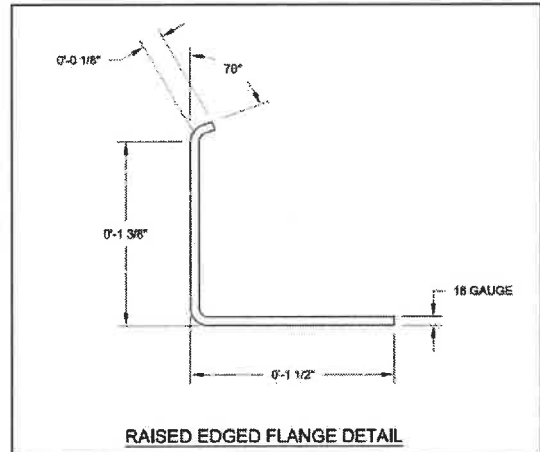
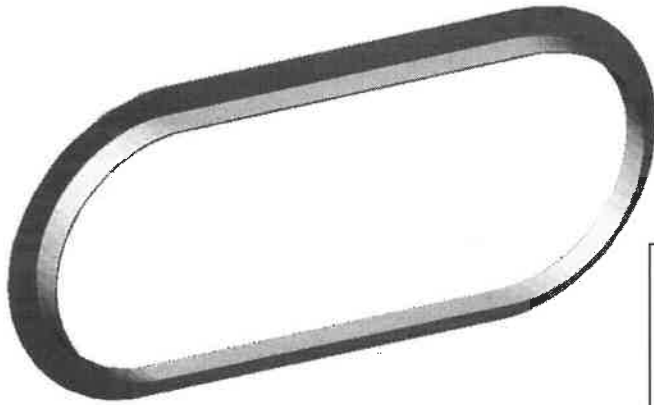


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## DIXIFLANGE OVAL FLANGE CONNECTION

### \*\*DOUBLEWALL\*\*

Project:	CALS Main Library Renovation
Location:	Little Rock, AR
Sizes:	All Oval double wall sizes with a 12" & larger minor axis
Construction:	<p>16ga Construction – Flanges will be provided on DOUBLE WALL oval pipe and fittings with a 12" and larger minor axis only. Flange will be manufactured and installed in our facility per the attached below profile. OD Flange will be tack welded to pipe and then continuously sealed with high pressure duct sealant between the OD pipe wall and the flange.</p> <p>ID duct will be secured with a second flange that is tack welded to the OD flange to provide a continuous and rigid transverse connection</p> <p>For field installation, duct and fitting transverse joints will be mated with a gasket between flanges and then screwed on 6" centers with sheet metal screws.</p>



Submitted By:	Dale Turner
Submittal Date:	5/7/24

# K & W

***Knight & Wilson, Inc.***

*"Sheet Metal Contractors"*

676 East E.H. Crump Blvd. Memphis TN 38126

901-274-6978

## SUBMITTAL

**EQUIPMENT:**

**DUCT LINER - 2" @ R.A.G. INSULATED "ELL"; Det. #3-M602  
DUCT LINER - 1" @ EXPOSED DUCT**

**SPEC SECTION:**

**23 3113 - 2.06**

**PROJECT:**

**CALS MAIN LIBRARY RENOVATION**

**LOCATION:**

**LITTLE ROCK, AR**

**CONTRACTOR:**

**COMFORT SYSTEMS USA**

### **NOTE:**

**WE PROPOSE TO USE (WHERE NOTED AT DRWGS/SPECS.)  
FIBER GLASS LINER BY JOHNS MANVILLE; "LINACOUSTIC RC  
DUCT LINER" PER THE ATTACHED SUBMITTALS**

**CONTACT:**

**LARRY RUSSELL, K&W - OPERATIONS MGR.**

**DATE:**

**5/3/2024**

**DESCRIPTION**

Linacoustic® RC insulation is a flexible duct liner made from strong glass fibers bonded with a thermosetting resin. The airstream surface is protected with JM's exclusive Reinforced Coating system, which combines our state-of-the-art Permacote® acrylic coating with a flexible glass mat reinforcement to provide a smooth airstream surface.

**FACTORY-APPLIED EDGE COATING**

Edge coating is factory applied to the edges of the liner core, ensuring coverage of the leading edges per NAIMA/SMACNA requirements. Shop fabrication cuts may be coated with SuperSeal® edge treatment (refer to publication AHS-202).

**USES**

Linacoustic RC insulation is specifically designed for lining sheet metal ducts in air conditioning, heating and ventilating systems, providing superior acoustical and thermal performance.

**STORAGE**

Linacoustic RC should be kept clean and dry during storage, transport, fabrication, installation, and system operation.

**GENERAL PROPERTIES**

Operating temperature (max.) – ASTM C411	250°F (121°C)
Air velocity (max.) – ASTM C1071	6,000 fpm (30.5 m/sec)
Water repellancy – INDA IST 80.6	≥6
Fungi resistance – ASTM C1338	Does not breed or promote
Fungi resistance – ASTM G21	No growth

**STANDARD THICKNESSES AND PACKAGING**

Thickness	Roll Length		Roll Widths for All Thicknesses*			
	in	mm	lineal feet	lineal meters	in	mm
½	13	100, 150, 200	31, 46, 61	34 to 72	864 to 1829	
1	25	50, 100, 150, 200	15, 31, 46, 61	34 to 72	864 to 1829	
1½	38	50, 100	15, 31	34 to 72	864 to 1829	
2	51	50	15	34 to 72	864 to 1829	
3	76.2	50	15	55 to 60	1422 to 1524	

\*Available in ¼" (6.4 mm) increment.

Contact your Regional Sales Office for stock items and availability of special sizes.

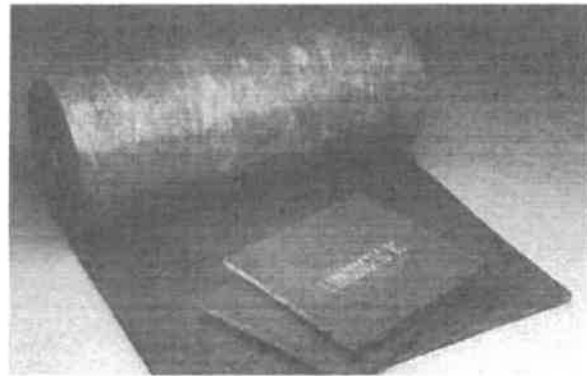
**SURFACE BURNING CHARACTERISTICS**

Linacoustic RC duct liner meets the Surface Burning Characteristics and Limited Combustibility of the following standards:

**Standard/Test Method**

- ASTM E84
- UL 723
- NFPA 255
- NFPA 90A and 90B
- NFPA 259
- CAN/ULC S102

Maximum Flame Spread Index	25
Maximum Smoke Developed Index	50


**SPECIFICATION COMPLIANCE**

- ASTM C1071, Type I
- ICC Compliant
- California Title 24
- MEA #353-93-M
- Conforms to ASHRAE 62
- SMACNA Application Standards for Duct Liners
- NAIMA Fibrous Glass Duct Liner Installation Standard
- Canada: CGSB 51-GP-11M and CAN/CGSB 51.11

**ADVANTAGES**

**Improves Indoor Building Environment.** Linacoustic RC duct liner improves indoor environmental quality by helping to control both temperature and sound.

**Resistant to Dust and Dirt.** The tough acrylic polymer Permacote coating helps guard against the incursion of dust or dirt into the substrate, minimizing the potential for biological growth.

**Will Not Support Microbial Growth.** Permacote coating is formulated with an immobilized EPA-registered protective agent to protect the coating from potential growth of fungi and bacteria.

Linacoustic RC duct liner meets all requirements for fungi and bacterial resistance. Tests were conducted in accordance with ASTM C1338 and ASTM G21 (fungi testing). Detailed information is available in Johns Manville fact sheet HSE-103FS.

Note: As with any type of surface, microbial growth may occur in accumulated duct system dirt, given certain conditions. This risk is minimized with proper design, filtration, maintenance and operation of the HVAC system.

**Cleanability.** If HVAC system cleaning is required, the Reinforced Coating airstream surface may be cleaned with industry-recognized dry methods. See the North American Insulation Manufacturers Association (NAIMA) "Cleaning Fibrous Glass Insulated Air Duct Systems."

**Highly Resistant to Water.** The reinforced coating surface provides superior resistance to penetration of incidental water into the fiber glass wool core.

**LINACOUSTIC® RC**  
 FIBERGLASS DUCT LINER WITH REINFORCED COATING SYSTEM

DATA SHEET

**SUSTAINABLE BUILDING CERTIFICATIONS**

GREENGUARD®  
 GREENGUARD® GOLD

Certified  
 Certified

GREENGUARD® Certified products have been screened for more than 10,000 volatile organic compounds (VOCs) and meet stringent standards for low chemical emissions based on established criteria from key public health agencies



**INSTALLATION**

Linacoustic RC duct liner installation must be performed in accordance with the requirements of the NAIMA Fibrous Glass Duct Liner Standards or SMACNA HVAC Duct Construction Standard. All transverse edges, or any edges exposed to airflow, must be coated with an approved duct liner coating material, such as Johns Manville SuperSeal products.

**Minimizes Pre-installation Damage.** Linacoustic RC duct liner's Reinforced Coating System is highly resistant to damage that can occur during in-shop handling, fabrication, jobsite shipping and installation.

**Easy to Fabricate.** Linacoustic RC duct liner is lightweight and easy to handle. Clean, even edges can be accurately cut with regular shop tools.

**THERMAL PERFORMANCE**

Thickness		R-value		Conductance	
in	mm	(hr·ft²·°F)/Btu	m²·°C/W	Btu/(hr·ft²·°F)	W/m²·°C
½	13	2.2	0.39	0.46	2.61
1	25	4.2	0.74	0.24	1.36
1½	38	6.3	1.11	0.16	0.91
2	51	8.0	1.41	0.13	0.74
3	76.2	12.0	2.11	0.08	0.47

*R-value and conductance are calculated from the material thermal conductivity tested in accordance with ASTM C518 at 75°F (24°C) mean temperature.*

**SOUND ABSORPTION COEFFICIENTS (TYPE "A" MOUNTING)**

Thickness		Sound Absorption Coefficient at Frequency (Cycles per Second) of						
in	mm	125	250	500	1000	2000	4000	NRC
½	13	0.07	0.20	0.44	0.66	0.84	0.93	0.55
1	25	0.08	0.31	0.64	0.84	0.97	1.03	0.70
1½	38	0.10	0.47	0.85	1.01	1.02	0.99	0.85
2	51	0.25	0.66	1.00	1.05	1.02	1.01	0.95
3	76.2	0.47	0.96	1.17	1.10	1.02	1.05	1.05

*Coefficients were tested in accordance with ASTM C423 and ASTM E795.*

**ISO 9001:2015 CERTIFICATION**

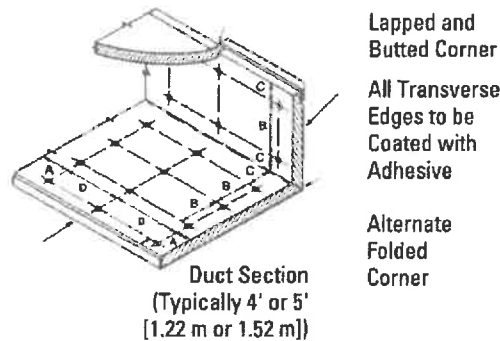
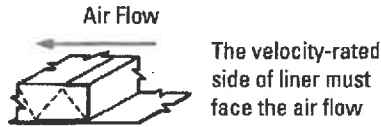
Johns Manville mechanical insulation products are designed, manufactured and tested in our own facilities, which are certified and registered to stringent ISO 9001:2015 (ANSI/ASQC 90) series quality standards. This certification, along with regular, independent third-party auditing for compliance, is your assurance that Johns Manville products deliver consistent high quality.

**LINACOUSTIC® RC**  
FIBERGLASS DUCT LINER WITH REINFORCED COATING SYSTEM

DATA SHEET

**DUCT LINER INSTALLATION**

When velocity exceeds 4000 fpm (20.3 m/sec), use metal nosing on every leading edge. Nosing may be formed on duct or be channel or zee attached by screws, rivets or welds. A metal nosing shall also be installed at the fan discharge and at any point where lined duct is preceded by unlined duct.



\*Maximum spacing for fasteners. Actual intervals are approximate.

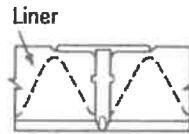
Velocity*	Dimensions							
	A		B		C		D	
	in	mm	in	mm	in	mm	in	mm
0-2500 fpm (0-12.7 m/sec)	3	76	12	305	4	102	18	457
2501-6000 fpm (12.7-30.5 m/sec)	3	76	6	152	4	102	16	406

\*Unless a lower level is set by the listing agency.

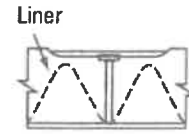
Liner adhered to the duct with 90% minimum area coverage of adhesive. Adhesive shall conform to ASTM C 916.

Shop or field cuts shall be liberally coated with SuperSeal Edge Treatment or approved adhesive.

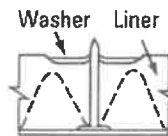
**LINER FASTENERS**



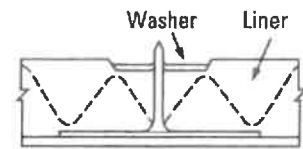
**Type 1**  
Clinched Pin: Integral Head (Impact Applied)



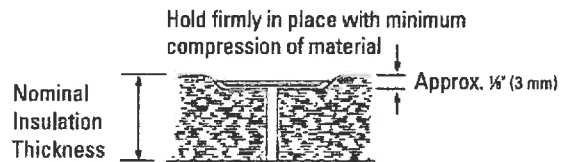
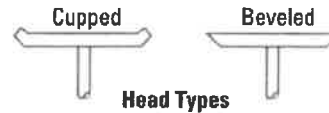
**Type 2**  
Welded Pin: Integral Head



**Type 3**  
Welded Pin: Press-on Head



**Type 4**  
Adhered Pin: Press-on Head



717 17th St.  
Denver, CO 80202  
300-654-3103  
www.JM.com

**North American Sales Offices,  
Insulation Systems**

**Eastern Region & Canada**

P.O. Box 158  
Defiance, OH 43512  
800-334-2399  
Fax: 419-784-7866

**Western Region & Outside  
North America**

P.O. Box 5108  
Denver, CO 80217  
800-368-4431  
Fax: 303-978-4661

Technical specifications as shown in this literature are intended to be used as general guidelines only. Please refer to the Safety Data Sheet and product label prior to using this product. The physical and chemical properties of Linacoustic RC listed herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Any references to numerical flame spread or smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

All Johns Manville products are sold subject to Johns Manville's standard Terms and Conditions, which includes a Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville standard Terms and Conditions or for information on other Johns Manville thermal insulation and systems, visit [www.jm.com/terms-conditions](http://www.jm.com/terms-conditions) or call (800) 654-3103.



Coil-Tack is a nonflammable, water-based insulation adhesive engineered for spray or extruding coil line applications and spray booth applications. It has been developed to eliminate clogging within the adhesive delivery system, ensuring consistent operation. Coil-Tack's exceptional coverage and easy clean-up means lower application cost.

**PART NUMBERS**

308582	1 5-Gallon Pails (Black)
308580	1 5-Gallon Pail (White)
308581	1 50-Gallon Drum (White)
308584	1 50-Gallon Drum (Black)

**TECHNICAL DATA**

Color	White (wet), White (dry) and Gray (wet), Black (dry)
Consistency	Low-viscosity liquid
Base	Synthetic latex
Solvent	Water
Weight per Gallon	10.0 lbs (+/- 0.2)
Solids Content	36% (+/- 2%)
Viscosity	11,000–12,000 cps
Coverage	Up to 530 sq ft/gal (sprayed)
Initial Bonding Time	30 minutes* (5 mls @ RT)
Dry Time	45 minutes to 1 hour* (5 mls @ RT)
Service Temperature	-20°F to 200°F (-28.8°C to 93.3°C)
Water Resistance	Good
Mildew Resistance	Mold and mildew resistant
VOC	71 g/l (less water)
Packaging	5-gal pail, 50-gal drum
Freeze/Thaw Stability	Passed 5 cycles

**APPLICATION**

Temperature	35°F to 110°F (1.7°C to 44°C)
Method	Use when the insulation is immediately secured by an insulation fastener or the duct section is stored horizontally until the adhesive is dry. May be spray, brush- or roller-applied to secure insulation to the substrate. Apply according to SMACNA specifications and local codes.
Preparation	Surface must be dry and free of dirt, oil and grease.
Clean Up	UN-TACK™ or Solvent (Use safe handling practices)

**STORAGE**

Temperature	35°F to 110°F (1.7°C to 44°C)
Shelf Life	One year (unopened)
Flammability	Non-flammable

**PRECAUTIONS**

Inspect all winter shipments upon arrival. Apply when temperatures will not fall below freezing. Do not apply this product in weather-exposed areas or where temperatures will exceed 200°F. Keep out of the reach of children. Review Material Safety Data Sheet for safety information prior to use.

**For Industrial Professional Use Only.**

**SPECIFICATION/STANDARDS COMPLIANCE**

Property	Method	Results
Duct Thermal Insulation	ASTM C916	Pass
VOC Limitation	SCAQMD Rule 1168	Pass
	City of Los Angeles Approval RR #8069	Pass

**CLASSIFIED**  
**UL**  
**US**

**UNDERWRITERS LABORATORIES, INC.®**  
CLASSIFIED ADHESIVE  
Surface Burning Characteristics 294U  
\*Applied to inorganic reinforced cement board

FLAME SPREAD..... 0  
SMOKE DEVELOPED..... 0

\*Tested as applied in two 3" (76.2 mm)-wide strips 8" (203.2 mm) on center at a coverage of 530 sq ft/gal (13 sq M/L). Flash point of finished adhesive, closed cup: no flash to boiling.



# K & W

***Knight & Wilson, Inc.***

*"Sheet Metal Contractors"*

676 East E.H. Crump Blvd. Memphis Tn 38126

901-274-6978

## SUBMITTAL

**EQUIPMENT:**

**DUCT SEALANT - HARDCAST CCWI-181**

**SPEC SECTION:**

**23 3113 - 2.07; C.**

**PROJECT:**

**CALS MAIN LIBRARY RENOVATION**

**LOCATION:**

**LITTLE ROCK, AR**

**CONTRACTOR:**

**COMFORT SYSTEMS USA**

### **NOTE:**

**WE PROPOSE TO USE WATER-BASED HARDCAST CCWI-181 PER THE ATTACHED SUBMITTAL TO SEAL ALL JOINTS AND PENETRATIONS OF DUCT WALL ON HIGH AND LOW PRESSURE DUCT.**

**CONTACT:**

**LARRY RUSSELL, K&W - OPERATIONS MGR.**

**DATE:**

**5/3/2024**



**PART NUMBERS**

304142	1 Case w/ (25) 11 oz. Cartridges (White)
304146	1 Case w/ (25) 11 oz. Cartridges (Gray)
304144	1 Case w/ (4) 1-Gallon Pails (White)
304148	1 Case w/ (4) 1-Gallon Pails (Gray)
304143	1 - 2-Gallon Pail (White)
304147	1 - 2-Gallon Pail (Gray)
304145	1 - 5-Gallon Pail (White)

**TECHNICAL DATA**

Color	White & Gray
Consistency	Heavy textured
Base	Synthetic latex
Solvent	Water
Weight per Gallon	11.6 lbs.
Solids Content	73.4%
Viscosity	Thixotropic
Coverage (UL 181 A-M)	Apply 18 mil, scrim, addt. 18 mil
Coverage (UL 181 B-M)	Approximately 214 to 320 lin. ft. per gal. at 20 to 30 mil wet film thickness at 3" width
Shore A Hardness	> 20
Flexibility	Passes ¼ inch mandrel bend
Time to Test	48 hours*
Service Temperature	-20°F to 200°F
Mildew Resistance	Mold & Mildew resistant
VOC	Exempt: 0 g/l Non Exempt: 38 g/l (less water)
Surface Burning	Flame Spread - 0, Smoke Developed - 0 (When tested in accordance with ASTM E84, UL 723)
Pressure Classes	SMACNA ½, 1, 2, 3, 4, 6 and 10 inches w.g.
Seal Class	Meets Seal Class A
Packaging	11 oz. cart.; 1, 2 & 5 gal. pails
Freeze/Thaw Stability	Passed 5 Cycles

\*May vary according to temperature and humidity

**SPECIFICATION/STANDARDS COMPLIANCE**

Property	Method	Results
Freeze Thaw & Heat Cycling	ASTM C-731	Pass
Slump Test	ASTM D-2202	Pass
VOC Limitation	SCAQMD Rule 1168	Pass
	USDA	Pass
	FDA	Pass
	EPA	Pass
	City of Los Angeles Approval RR#8427	Pass

A versatile, all purpose duct sealant for use on all types of metal duct, fiberglass duct board, duct fabric and flex duct. CCWI- 181 incorporates a built-in polyester reinforcement for exceptional strength, with UV inhibitors for outdoor use. UL 181A-M listed / UL 181B-M listed.


**APPLICATION**

Temperature	35°F to 110°F (1.7°C to 44°C)
Method	Brush, putty knife, caulk gun
Preparation	Surface must be dry, dirt, oil, and grease free.
Rate (UL 181 A-M)	Apply 18 mil, scrim and 18 mil over scrim.
Rate (UL 181 B-M)	Approx. 214 to 320 lin. ft. per gal. at 20 to 30 mil wet film thickness at 3" width.
Clean Up Wet	Soap and water
Clean Up Dry	UN-TACK™ or Solvent (Use safe handling practices.)
Painting	Only latex or epoxy paints
Ductboard	Scrim required for UL 181A-M

**STORAGE**

Temperature	35°F to 110°F (1.7°C to 44°C) DO NOT FREEZE
Shelf Life	One year (unopened)
Flammability	Non-flammable

**Underwriters Laboratories Inc.®**  
LISTED  
**17NF**  
**UL 181A-M**  
FOR USE WITH U.L. LISTED RIGID FIBERGLASS AIR DUCTS OR CONNECTORS.  
**UL 181B-M**  
FOR USE WITH U.L. LISTED FLEXIBLE AIR DUCTS OR CONNECTORS



**PRECAUTIONS**

Surface must be clean and free of moisture, contamination and foreign matter. Do not allow this product to freeze. Apply when temperatures will not fall below freezing for at least 36–48 hours, depending on temperature and humidity. Do not apply this product where temperatures will exceed 200°F. Keep out of the reach of children. Review MSDS for complete safety information prior to use. DO NOT use where acidic or alkaline chemicals are present (i.e., lab fume hood, vents, etc.)

**For Industrial Professional Use Only.**



# K & W

***Knight & Wilson, Inc.***

*"Sheet Metal Contractors"*

676 East E.H. Crump Blvd. Memphis TN 38126

901-274-6978

## SUBMITTAL

**EQUIPMENT:**

**DUCT FLANGE GASKETS**

**SPEC SECTION:**

**23 3113 - 2.07; F.**

**PROJECT:**

**CALS MAIN LIBRARY RENOVATION**

**LOCATION:**

**LITTLE ROCK, AR**

**CONTRACTOR:**

**COMFORT SYSTEMS USA**

### **NOTE:**

WE PROPOSE TO USE DURO-DYNE "**BTL316**" SEALING GASKET TAPE AS PER THE ATTACHED SUBMITTAL.

**CONTACT:**

**LARRY RUSSELL, K&W - OPERATIONS MGR.**

**DATE:**

**5/3/2024**

SUBMITTAL RECORD \_\_\_\_\_  
 JOB \_\_\_\_\_  
 LOCATION \_\_\_\_\_  
 SUBMITTED TO \_\_\_\_\_  
 SUBMITTAL PREPARED BY \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_  
 DATE \_\_\_\_\_



# Submittal Form BTL316 Butyl Gasket



## DESCRIPTION

BTL316 Butyl Gasket is used in tape and bead form to seal transverse duct connection systems helping to provide a moisture and air tight seal. It is a dark gray permanently soft, non-drying tape sealant compound which contains virgin butyl polymer to enhance its sealing properties and aging characteristics. It is formulated to retain low temperature operating properties. BTL316 Butyl Gasket will not crack or separate while being applied at low end of temperature usage range, however, it is recommended that the material be stored at moderate temperature to enhance its application characteristics. When stored at warehouse conditions, it will remain usable for a prolonged period. BTL316 Butyl Gasket will adhere to most clean, dry surfaces such as steel, galvanized steel, aluminum, plastic, wood and concrete. The product is non-hazardous and non-toxic.

## FEATURES

- Excellent sealant for HVAC, as well as many others industries.
- Non-irritant: No limitation to eyes or skin as listed in CFR, Title 16, "Appraisal of the safety of chemicals in food, drugs, and cosmetics".
- Remains pliable and will not crack or separate while being applied at low end of temperature usage range; when stored in warehouse conditions, it will remain useable for a prolonged period.
- Chemical Resistance: Excellent resistance to water, alcohols, mild acids and bases.

## TYPICAL PROPERTIES

**Base:** Non-drying synthetic polymer  
**Fillers:** Mineral fillers and inert ingredients—Non-asbestos  
**Specific Gravity:** 1.43 to 1.47 G/CC  
**Cone Penetration:** Modified to total moving load at 300 gm., 5 sec @ 77° F; 80-90 mm/10.  
**Adhesive Tensile Strength:** 10 to 12 PSI  
**Temperature Tolerance:** -40° F to +249° F  
**Application Temperature:** Above 40° F  
**Weatherometer Test:** Will not harden even after 1000 hour  
**Flame & Smoke Rating:** Flame 15 Smoke 15  
**Shelf Life:** 1 year minimum  
**Flexibility:** No cracking at -20° F.  
**Paintability:** Yes  
**Vehicle Bleedout:** None  
**Non-Corrosive:** Will not corrode Metals  
**Color:** 21046-light gray / 13099-dark gray

ITEM#	CODE	DESCRIPTION
21046	BTL316-58LG	3/16 x 5/8 UV Resistant Butyl
13099	BTL316-58DGH	3/16 x 5/8 UV Resistant Butyl H-Style

## RELATED SMACNA RECOMMENDATIONS\*

### 1.4.1 - Duct Sealing

Ducts must be sufficiently airtight to ensure economical and quiet performance of the system. It must be recognized that airtightness in ducts cannot, and need not, be absolute (as it must be in a water piping system). Codes normally require that ducts be reasonably airtight. Concerns for energy conservation, humidity control, space temperature control, room air movement, ventilation, maintenance, etc., necessitate regulating leakage by prescriptive measures in construction standards. Leakage is largely a function of static pressure and the amount of leakage in a system is significantly related to system size. Adequate airtightness can normally be ensured by a) selecting a static pressure, construction class suitable for the operating condition, and b) sealing the ductwork properly.

The designer is responsible for determining the pressure class or classes required for duct construction and for evaluating the amount of sealing necessary to achieve system performance objectives. It is recommended that all duct constructed for the 1 in. (250 Pa) and 1/2 in. (125 Pa) pressure class meet Seal Class C. However, because designers sometimes deem leakage in unsealed ducts not to have adverse effects, the sealing of all ducts in the 1 in. (250 Pa) and 1/2 in. (125 Pa) pressure class is not required by this construction manual. Designers occasionally exempt the following from sealing requirements: small systems, residential occupancies, ducts located directly in the zones they serve, ducts that have short runs from volume control boxes to diffusers, certain return air ceiling plenum applications, etc. When Seal Class C is to apply to all 1 in. (250 Pa) and 1/2 in. (125 Pa) pressure class duct, the designer must require this in the project specification. The designer should review the *HVAC Air Duct Leakage Test Manual* for estimated and practical leakage allowances.

Seven pressure classes exist [1/2 in. (125 Pa), 1 in. (250 Pa), 2 in. (500 Pa), 3 in. (750 Pa), 4 in. (1000 Pa), 6 in. (1500 Pa), and 10 in. wg (2500 Pa)]. If the designer does not designate pressure class for duct construction on the contract drawings, the basis of compliance with the SMACNA *HVAC Duct Construction Standards* is as follows: 2 in. wg (500 Pa) for all ducts between the supply fan and variable volume control boxes and 1 in. wg (250 Pa) for all other ducts of any application.

Some sealants can adversely affect the release function of breakaway connections to fire dampers; consult the damper manufacturer for installation restrictions.

Seal Class	Sealing Requirements	Applicable Static Pressure Construction Class
A	Class A: All Transverse joints, longitudinal seams, and duct wall penetrations	4 in. wg and up (1000 Pa)
B	Class B: All Transverse joints and longitudinal seams only	3 in. wg (750 Pa)
C	Class C: Transverse joints only	2 in. wg (500 Pa)

In addition to the above, any variable air volume systems duct of 1 in. (250 Pa) and 1/2 in. wg (125 Pa) construction class that is upstream of the VAV boxes shall meet Seal Class C.

\*From SMACNA *HVAC Duct Construction Standards Metal and Flexible • Third Edition • 2005*

Duro Dyne Corporate Headquarters, Bay Shore, NY

631-249-9000 • Fax: 631-249-8346

Duro Dyne Midwest • Duro Dyne West • Duro Dyne Canada

www.durodyne.com • E-mail: durodyne@durodyne.com



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# K & W

***Knight & Wilson, Inc.***

*"Sheet Metal Contractors"*

676 East E.H. Crump Blvd. Memphis TN 38126

901-274-6978

## SUBMITTAL

**EQUIPMENT:**

**DUCT - HANGERS & SUPPORTS**

**SPEC SECTION:**

**23 3113 - 2.08**

**PROJECT:**

**CALS MAIN LIBRARY RENOVATION**

**LOCATION:**

**LITTLE ROCK, AR**

**CONTRACTOR:**

**COMFORT SYSTEMS USA**

### **NOTE:**

#### **SUSPENSION HANGER:**

WE WILL INSTALL DUCT HANGERS USING SMACNA STANDARDS LISTED UNDER FIGURE 5-2 (upper), FIGURE 5-5 (lower) AND TABLE 5-4 (strut) FOR LARGE DUCTS. FOR SMALLER DUCTS, WE WILL UTILIZE METAL STRAP HANGERS AS SHOWN ON ATTACHMENTS.

ALL HANGERS WILL BE IN ACCORDANCE WITH SMACNA H.V.A.C. DUCT CONSTRUCTION STANDARDS - 4th ED.

**CONTACT:**

**LARRY RUSSELL, K&W - OPERATIONS MGR.**

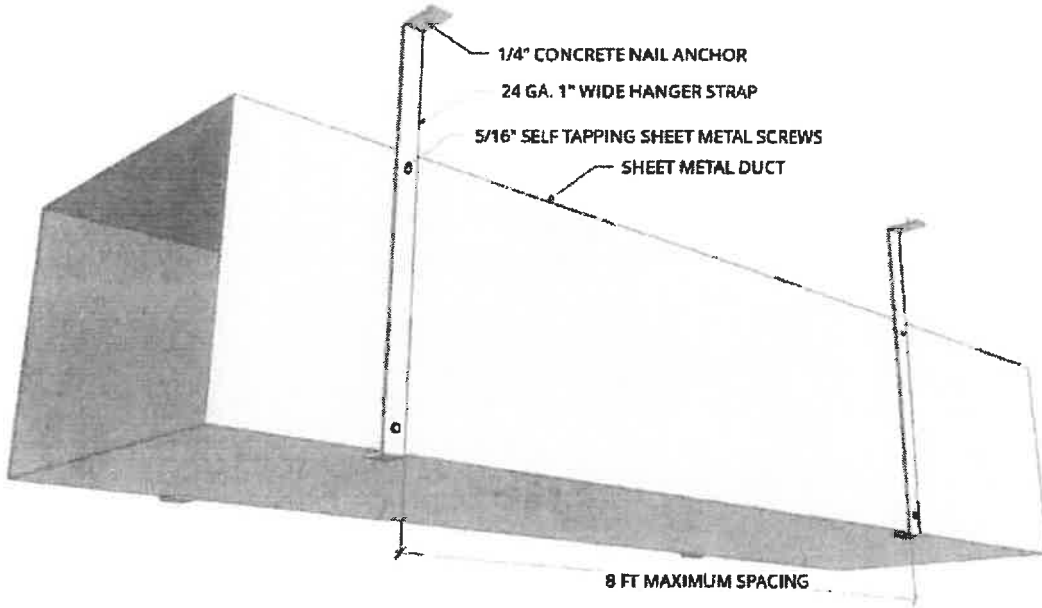
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**5/3/2024**

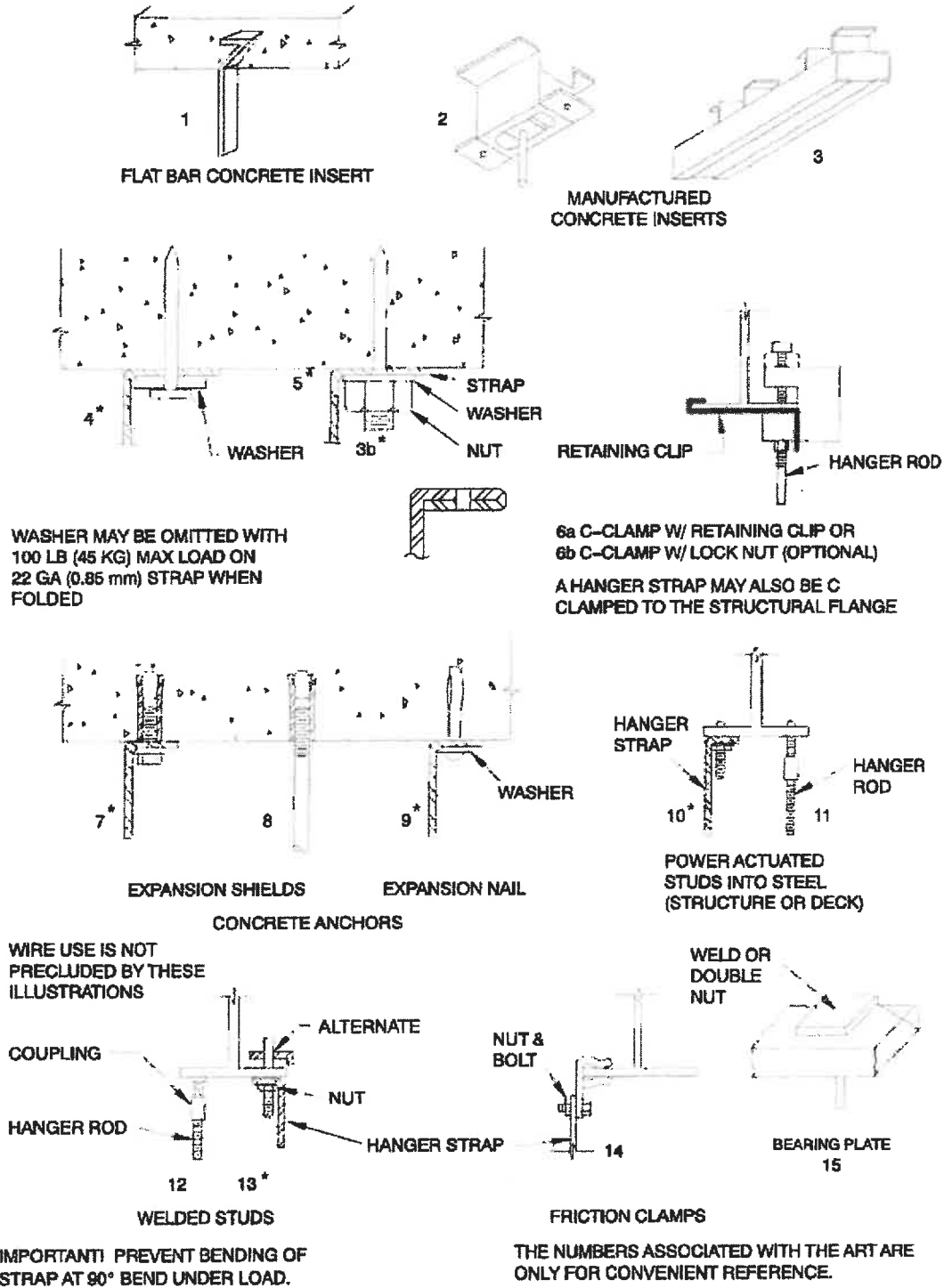


KNIGHT & WILSON, INC.

# Typical Strap Hanger Detail



UNLESS OTHERWISE APPROVED ALLOWABLE LOAD ON UPPER ATTACHMENT IS 1/4 OF FAILURE LOAD. UPPER ATTACHMENTS MAY BE TO WOOD STRUCTURES ALSO.



**FIGURE 5-2 UPPER ATTACHMENT DEVICES - TYPICAL**

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*"Sheet Metal Contractors"*  
676 East E.H. Crump Blvd. Memphis TN 38126  
901-274-6978

## SUBMITTAL

**EQUIPMENT:**

**DUCT PROTECTION**

**SPEC SECTION:**

**23 3113 - 3.02**

**PROJECT:**

**CALS MAIN LIBRARY RENOVATION**

**LOCATION:**

**LITTLE ROCK, AR**

**CONTRACTOR:**

**COMFORT SYSTEMS USA**

**NOTE:**

**TEMPORARY CLOSURE:**

DURING SHIPPING & STORAGE & AFTER INSTALLATION, IF A DUCT END IS NOT CONNECTED TO EQUIPMENT OR AIR DISTRIBUTION DEVICES, THAT END WILL BE TEMPORARILY SEALED WITH SHRINK WRAP USING DUROYNE **DYN-O-WRAP** PROTECTIVE DUCT WRAP FILM AS PER ATTACHED SUBMITTAL.

**CONTACT:**

**LARRY RUSSELL, K&W - OPERATIONS MGR.**

**DATE:**

**5/3/2024**

SUBMITTAL RECORD \_\_\_\_\_  
 JOB \_\_\_\_\_  
 LOCATION \_\_\_\_\_  
 SUBMITTED TO \_\_\_\_\_  
 SUBMITTAL PREPARED BY \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_  
 DATE \_\_\_\_\_



# Submittal Form Dyn-O-Wrap

## DESCRIPTION:

A self-adhesive film which can protect uninstalled duct sections from the intrusion of contaminants. Available in different sizes and several varieties, including Puncture Resistant Wrap and Reverse Puncture Resistant Wrap.

### DYN-O-WRAP

- Excellent adhesion to ductwork, yet easily removable without leaving residue.
- Color: Lightning Blue
- Adhesive Color: Water Clear
- 2.5 mil thickness + .5mil for adhesion
- Temperature range: 60° - 80°F
- Humidity range: 30% - 70%
- Lengthy heat, moisture and direct sunlight exposure can negatively affect the product performance.
- Cohesive products should be protected from direct UV contact.
- Up to a six-month shelf life: stored in airtight (white) bags, to keep film from drying out.
- Packaged in boxes



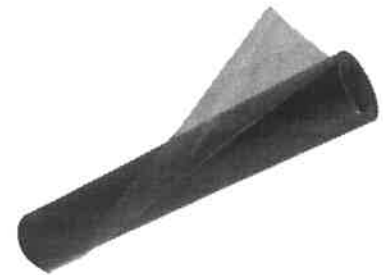
**Dyn-O-Wrap**

Item #	Code	Description
13380	DW24-200	Dyn-O-Wrap 24" x 200'
13384	DW36-200	Dyn-O-Wrap 36" x 200'
13388	DW48-200	Dyn-O-Wrap 48" x 200'



### PUNCTURE RESISTANT DYN-O-WRAP & REVERSE PUNCTURE RESISTANT DYN-O-WRAP

- Excellent adhesion to ductwork, yet easily removable without leaving residue.
- Water based and environmentally friendly
- Color: Blue
- Adhesive Color: Water Clear
- 1.5 mil thickness + .5mil for adhesion
- Temperature range: 50° - 90°F - For best results, keep within 60° - 90°F range. (Colder temperatures than listed will lessen the initial bond to the substrate.)
- Humidity range: 40% - 60%
- Keep away from exposure to temperature extremes, direct sunlight, water, solvent and other contaminants.
- Do not store substrates for longer than 6 months with protective masking films applied.
- Up to a six-month shelf life: stored in airtight (white) bags, to keep film from drying out.



**Puncture Resistant  
Dyn-O-Wrap**

Item #	Code	Description
13382	PRW24-200	Puncture Resistant Dyn-O-Wrap 24" x 200'
13386	PRW36-200	Puncture Resistant Dyn-O-Wrap 36" x 200'
13389	PRW48-200	Puncture Resistant Dyn-O-Wrap 48" x 200'
13344	PRW24-400	Puncture Resistant Dyn-O-Wrap 24" x 400'
13345	PRW36-400	Puncture Resistant Dyn-O-Wrap 36" x 400'
13346	PRW48-400	Puncture Resistant Dyn-O-Wrap 48" x 400'
13392	RPRW24-200	Reverse Puncture Resistant Dyn-O-Wrap 24" x 200'
13393	RPRW36-200	Reverse Puncture Resistant Dyn-O-Wrap 36" x 200'
13394	RPRW48-200	Reverse Puncture Resistant Dyn-O-Wrap 48" x 200'

Duro Dyne East Division, Bay Shore, NY  
 Duro Dyne Midwest Division, Hamilton, OH  
 Duro Dyne West Division, Fontana, CA  
 Duro Dyne Canada, Lachine, Quebec, Canada

631-249-9000 Fax: 631-249-8346  
 513-870-6000 Fax: 513-870-6005  
 562-926-1774 Fax: 562-926-5778  
 514-422-9760 Fax: 514-636-0328

www.durodyne.com E-mail: durodyne@durodyne.com



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# K & W

***Knight & Wilson, Inc.***  
*"Sheet Metal Contractors"*  
676 East E.H. Crump Blvd. Memphis TN 38126  
901-274-6978

## SUBMITTAL

**EQUIPMENT:**

**FLEXIBLE INSULATED DUCT; R-6**

**SPEC SECTION:**

**23 3113 - 2.11**

**PROJECT:**

**CALS MAIN LIBRARY RENOVATION**

**LOCATION:**

**LITTLE ROCK, AR**

**CONTRACTOR:**

**COMFORT SYSTEMS USA**

### NOTE:

WE PROPOSE TO USE **QUIETFLEX (R-6)** FLEXIBLE INSULATED DUCT PER THE ATTACHED SUBMITTAL.

**CONTACT:**

**LARRY RUSSELL, K&W - OPERATIONS MGR.**

**DATE:**

**5/3/2024**



## FLEX DUCT PRODUCT:

RIP STOP SILVER JACKET – FLEXIBLE DUCT

### Configurations

- Diameters available: 3-22" R4.2 and R6.0, 3-20" R8.0
- Lengths available: 12.5', 25' and 50' and custom lengths available

### Approvals

- UL Classified/Approved to UL 181 Standard
- NFPA standards 90A and 90B
- HUD/FHA standards 515.2.1 Paragraph B
- Meets most federal, state and local codes and standards
- GREENGUARD certified entire sleeve construction

### Fiberglass

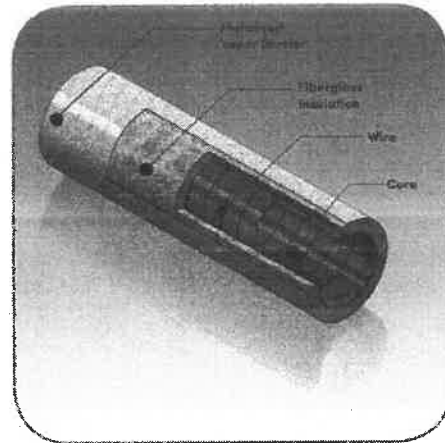
- R4.2, R6.0 and R8.0 certified by UL and the Air Diffusion Council using ASTM C-518 at installed thickness of insulation
- Made of formaldehyde free materials

### Surface burning characteristics

- Flame spread: Less than 25
- Smoke developed: Less than 50

### Vapor barrier

- The Quietflex Rip Stop Silver Jacket has a metalized polyester-vapor barrier with a special "rip stop" scrim reinforcement
- Vapor Transmission: at or below 0.05 perms



### Operating temperature range

- -20°F to 180°F - Continuous
- -20°F to 200°F - Intermittent

### Core

- Two layers of polyester film encapsulate a galvanized or bronze coated wire helix
- Rated positive pressure is 10" W.C. and negative pressure is 1/2" W.C. per the UL 181 standard
- Rated maximum air velocity is 6000 FPM

<b>Job Name</b>		<b>Submitter:</b>		<b>Date:</b>	
<b>Location</b>				Class 1 insulated flexible air duct metalized polyester vapor barrier	
<b>Contractor</b>				QFSD-006-01	
<b>Engineer</b>					
<b>Architect</b>					

4518 Britfmoore Road • Houston, Texas 77041 • Phone 713.849.2163 • quietflex.com

**Limited Warranty | Limitation of Liability | Disclaimer of Unstated Warranties**  
 The flexible air duct is warranted by Quietflex Manufacturing Company, L.P., for an (18) years against defects in material and workmanship. This warranty is for exchange of duct only and does not include installation.

**Warranty Exclusions**  
 Warranty is excluded if flexible air duct is used in the following installation applications:  
 1. Where duct is exposed to direct or indirect light  
 2. Where duct is used on the high-pressure side of variable air-volume (VAV) systems.

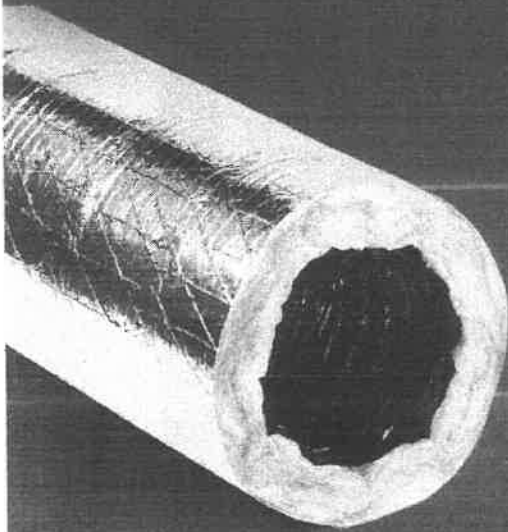
**Limitation of Liability**  
 Quietflex's liability for damages, whether in contract, in tort, under warranty, in negligence or otherwise, shall not exceed the return of the amount of the purchase price paid for the Quietflex products. Quietflex shall not be liable for special, indirect or consequential damages. Specifications and performance data listed herein are subject to change without notice.

**Disclaimer of Unstated Warranties**  
 This warranty is the only warranty of Quietflex products. All other warranties, expressed or implied, including, but not limited to, warranties of merchantability and fitness for a particular purpose are expressly disclaimed. Quietflex is a registered trademark of Quietflex Manufacturing Company, L.P.



Quietflex®

# "Rip Stop" Silver Jacket



## Product Specifications

Quietflex manufactures flexible duct for the commercial, residential and manufactured home industries. We produce 3" through 22" duct in R4.2 and R6.0 and 3" through 20" duct in R8.0.

The Quietflex "Rip Stop" Silver Jacket Flex Duct has a metallic, polyester-vapor barrier with a special "rip stop" scrim reinforcement.

[www.quietflex.com](http://www.quietflex.com)

## Key Features & Benefits

- Johns Manville Formaldehyde-free™ fiber glass insulation
- GREENGUARD® certified insulated products
- Galvanized or bronze metal core reinforcing
- Oversized core to fit on collars and register boxes
- Weather-resistant packaging
- Easy-to-carry package: Up to 10" bags are strapped to form a pair
- Available in boxes and bags
- 12.5', 25', 50' and custom lengths available
- HUD /FHA standards 515.2.1, paragraph B
- NFPA standards 90A and 90B
- Meets most BOCA, City of Chicago, federal, state and local codes and standards
- UL listed/approved to UL 181

## Other products we offer:

- Air Handling - Duct Board
- Air Handling - Duct Wrap



HARDI



QUALITY MANAGEMENT SYSTEM  
CERTIFIED BY DNV  
ISO 9001:2000