

Rectangular Duct & Fittings

304L Stainless Steel = ASTM-A-240

316L Stainless Steel = ASTM-A-240

Aluminum 3003H14 = ASTM-B-209

Galvanized Metal = ASTM-A653-96

Reference SMACNA tables 1" - 10" W.G. for construction standards and reinforcement schedule

Ducts on Demand, Inc. (DOD) Rectangular Duct & Fittings are fabricated from galvanized steel in accordance with 3rd Edition 2005 SMACNA Duct Construction Standards

DOD Standards based on 3rd Edition 2005 SMACNA standards:

Galvanized Sheets	26 & 24 ga	G-60 Lfq
all duct 12" and above will be beaded		
½" WG to 2" WG	Snaplock Seam	(Pittsburg available at an additional cost)
3" WG to 48" wide	Snaplock Seam	(Duct over 48" wide-pittsburg)
4" WG to 10" WG	Pittsburg Seam	
Fittings - assembled	Straight Duct - unassembled	(assembly available at an additional cost)
Duct sections (width + height)	up to 18"	wrapped
	up to 70"	"L" Shaped
	71" & up	4 pc.

FS/D = flat slip (24ga) & drive (24ga) MPT = midpoint tie-rod TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive JTR=joint tie-rods(both ends)

2x2x1/8" angle = midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"/1½" or 2" in stock



Ducts on Demand Shop Standards for Rectangular Duct

Based on 3rd Edition 2005 SMACNA Standards

TDC - 1" WG	Max Width	Connector	DUCT LENGTHS				
			60"	48"	36"	30"	24"
10" - Down		FS/D	26	26	26	26	26
11" - 12"		FS/D	26	26	26	26	26
13" - 14"		FS/D	26	26	26	26	26
15" - 16"		FS/D	26	26	26	26	26
17" - 18"		TDC	26	26	26	26	26
19" - 20"		TDC	26	26	26	26	26
21" - 22"		TDC	26	26	26	26	26
23" - 24"		TDC	26	26	26	26	26
25" - 26"		TDC	26	26	26	26	26
27" - 28"		TDC	26	26	26	26	26
29" - 30"		TDC	26	26	26	26	26
31" - 36"		TDC	26	26	26	26	26
37" - 42"		TDC	24	24	26	26	26
43" - 48"		TDC	22	24	24	24	26
49" - 54"		TDC	22	22	24	24	24
55" - 60"		TDC	24 MPT	22	22	24	24
61" - 72"		TDC	22 MPT	22 MPT	22	22	22
73" - 84"		TDC	20 MPT/JTR	20 MPT	20 MPT	20 MPT	22 MPT
85" - 96"		TDC	20-2 MPT	20-2 MPT	20 MPT	20 MPT	22 MPT
97" - 108"		DuctMate 35	18 MPT	18 MPT	18	18	18
109" - 120"		DuctMate 35	18 MPT	18 MPT	18	18	18

DOD Standards based on the latest SMACNA standards

Galvanized Sheets 26 & 24 ga G-60 LFQ

all duct 12" and above will be beaded

½" WG to 2" WG Snaplock Seam (Pittsburg available at an additional cost)

3" WG to 48" wide Snaplock Seam (Duct over 48" wide-pittsburg)

4" WG to 10" WG Pittsburg Seam

Fittings - assembled Straight Duct - unassembled (assembly available at an additional cost)

Duct sections (width + height)	up to 18"	wrapped
	up to 70"	"L" Shaped
	71" & up	4 pc.

FS/D = flat slip (24ga) & drive (24ga) MPT = midpoint tie-rod TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive JTR=joint tie-rods(both ends)

2x2x1/8" angle = midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"

Ducts on Demand Shop Standards for Rectangular Duct

Based on 3rd Edition 2005 SMACNA Standards

TDC - 2" WG	Max Width	Connector	DUCT LENGTHS				
			60"	48"	36"	30"	24"
10" - Down	FS/D		26	26	26	26	26
11" - 12"	FS/D		26	26	26	26	26
13" - 14"	ST-S/D		26	26	26	26	26
15" - 16"	ST-S/D		26	26	26	26	26
17" - 18"	TDC		26	26	26	26	26
19" - 20"	TDC		26	26	26	26	26
21" - 22"	TDC		26	26	26	26	26
23" - 24"	TDC		26	26	26	26	26
25" - 26"	TDC		26	26	26	26	26
27" - 28"	TDC		24	24	26	26	26
29" - 30"	TDC		24	24	26	26	26
31" - 36"	TDC		22	24	24	26	26
37" - 42"	TDC	24 MPT		22	24	24	24
43" - 48"	TDC	22 MPT		20	22	22	24
49" - 54"	TDC	22 MPT	22 MPT		20	22	22
55" - 60"	TDC	20 JTR	22 MPT	20		20	22
61" - 72"	TDC	20 MPT/JTR	20 JTR	20 MPT		22 JTR	22 JTR
73" - 84"	TDC	20-2 MPT/JTR	20 JTR	20 MPT		20 JTR	20 JTR
85" - 96"	TDC	20-2 MPT/JTR	20-2 MPT/JTR	20 JTR		20 JTR	20 JTR
97" - 108"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR		18	18
109" - 120"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR		18 JTR	18

DOD Standards based on the latest SMACNA standards

Galvanized Sheets 26 & 24 ga G-60 LFQ

all duct 12" and above will be beaded

½" WG to 2" WG Snaplock Seam (Pittsburg available at an additional cost)

3" WG to 48" wide Snaplock Seam (Duct over 48" wide-pittsburg)

4" WG to 10" WG Pittsburg Seam

Fittings - assembled Straight Duct - unassembled (assembly available at an additional cost)

Duct sections (width + height) up to 18" wrapped

up to 70" "L" Shaped

71" & up 4 pc.

FS/D = flat slip (24ga) & drive (24ga) MPT = midpoint tie-rod TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive JTR=joint tie-rods(both ends)

2x2x1/8" angle = midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"

Ducts on Demand Shop Standards for Rectangular Duct

Based on 3rd Edition 2005 SMACNA Standards

S&D - 1" WG		DUCT LENGTHS				
Max Width	Connector	60"	48"	36"	30"	24"
10" - Down	FS/D	26	26	26	26	26
11" - 12"	FS/D	26	26	26	26	26
13" - 14"	FS/D	26	26	26	26	26
15" - 16"	FS/D	26	26	26	26	26
17" - 18"	ST-S/D	26	26	26	26	26
19" - 20"	ST-S/D	26	26	26	26	26
21" - 22"	ST-S/D	26	26	26	26	26
23" - 24"	ST-S/D	26	26	26	26	26
25" - 26"	ST-S/D	26	26	26	26	26
27" - 28"	ST-S/D	26	26	26	26	26
29" - 30"	ST-S/D	26	26	26	26	26
31" - 36"	ST-S/D	24	26	26	26	26
37" - 42"	ST-S/D	24	24	26	26	26
43" - 48"	ST-S/D	22	24	24	26	26
49" - 54"	TDC	22	22	24	24	24
55" - 60"	TDC	24 MPT	22	22	24	24
61" - 72"	TDC	22 MPT	22 MPT	22	22	22
73" - 84"	TDC	20 MPT/JTR	20 MPT	20 MPT	20 MPT	22 MPT
85" - 96"	TDC	20-2 MPT	20-2 MPT	20 MPT	20 MPT	22 MPT
97" - 108"	DuctMate 35	18 MPT	18 MPT	18	18	18
109" - 120"	DuctMate 35	18 MPT	18 MPT	18	18	18

DOD Standards based on the latest SMACNA standards

Galvanized Sheets 26 & 24 ga G-60 LFQ

all duct 12" and above will be beaded

½" WG to 2" WG Snaplock Seam (Pittsburg available at an additional cost)

3" WG to 48" wide Snaplock Seam (Duct over 48" wide-pittsburg)

4" WG to 10" WG Pittsburg Seam

Fittings - assembled Straight Duct - unassembled (assembly available at an additional cost)

Duct sections (width + height) up to 18" wrapped

up to 70" "L" Shaped

71" & up 4 pc.

FS/D = flat slip (24ga) & drive (24ga)

MPT = midpoint tie-rod

TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive

JTR=joint tie-rods(both ends)

2x2x1/8" angle = midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"

Ducts on Demand Shop Standards for Rectangular Duct

Based on 3rd Edition 2005 SMACNA Standards

S&D - 2" WG	Max Width	Connector	DUCT LENGTHS				
			60"	48"	36"	30"	24"
10" - Down	FS/D		26	26	26	26	26
11" - 12"	FS/D		26	26	26	26	26
13" - 14"	ST-S/D		26	26	26	26	26
15" - 16"	ST-S/D		26	26	26	26	26
17" - 18"	ST-S/D		26	26	26	26	26
19" - 20"	ST-S/D		26	26	26	26	26
21" - 22"	ST-S/D		26	26	26	26	26
23" - 24"	ST-S/D		26	26	26	26	26
25" - 26"	ST-S/D		26	26	26	26	26
27" - 28"	ST-S/D		24	26	26	26	26
29" - 30"	ST-S/D		24	26	26	26	26
31" - 36"	TDC		22	24	24	26	26
37" - 42"	TDC	24 MPT		22	24	24	24
43" - 48"	TDC	22 MPT		20	22	22	24
49" - 54"	TDC	22 MPT	22 MPT		20	22	22
55" - 60"	TDC	20 JTR	22 MPT		20	20	22
61" - 72"	TDC	20 MPT/JTR	20 JTR	20 MPT		22 JTR	22 JTR
73" - 84"	TDC	20-2 MPT/JTR	20 JTR	20 MPT		20 JTR	20 JTR
85" - 96"	TDC	20-2 MPT/JTR	20-2 MPT/JTR	20 JTR		20 JTR	20 JTR
97" - 108"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR		18	18
109" - 120"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR		18 JTR	18

DOD Standards based on the latest SMACNA standards

Galvanized Sheets 26 & 24 ga G-60 LFQ

all duct 12" and above will be beaded

½" WG to 2" WG Snaplock Seam (Pittsburg available at an additional cost)

3" WG to 48" wide Snaplock Seam (Duct over 48" wide-pittsburg)

4" WG to 10" WG Pittsburg Seam

Fittings - assembled Straight Duct - unassembled (assembly available at an additional cost)

Duct sections (width + height) up to 18" wrapped

up to 70" "L" Shaped

71" & up 4 pc.

FS/D = flat slip (24ga) & drive (24ga) MPT = midpoint tie-rod TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive JTR=joint tie-rods(both ends)

2x2x1/8" angle = midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"

Ducts on Demand Shop Standards for Rectangular Duct

Based on 3rd Edition 2005 SMACNA Standards

TDC - 3" WG	Max Width	Connector	DUCT LENGTHS			
			60"	48"	36"	30"
10" - Down	ST-S/D	26	26	26	26	26
11" - 12"	ST-S/D	26	26	26	26	26
13" - 14"	ST-S/D	24	26	26	26	26
15" - 16"	TDC	24	26	26	26	26
17" - 18"	TDC	24	24	26	26	26
19" - 20"	TDC	24	24	26	26	26
21" - 22"	TDC	24	24	26	26	26
23" - 24"	TDC	24	24	26	26	26
25" - 26"	TDC	24	24	26	26	26
27" - 28"	TDC	22	24	24	26	26
29" - 30"	TDC	22	24	24	24	26
31" - 36"	TDC	20	22	22	24	24
37" - 42"	TDC	22 MPT	24 MPT	22	22	24
43" - 48"	TDC	22 MPT/JTR	22 MPT	20	20	22
49" - 54"	TDC	22 MPT/JTR	20 MPT	20 MPT	20	20
55" - 60"	TDC	20 MPT/JTR	20 MPT	20 MPT	22 JTR	20
61" - 72"	TDC	20-2 MPT/JTR	20 MPT/JTR	20 MPT	20 JTR	20 MPT
73" - 84"	TDC	20-2 MPT/JTR	20-2 MPT/JTR	18 MPT	20 JTR	20 JTR
85" - 96"	TDC	18-2 MPT/JTR	20-2 MPT/JTR	18 MPT	20 JTR	20 JTR
97" - 108"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR	18 JTR	18 JTR
109" - 120"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR	18 JTR	18 JTR

DOD Standards based on the latest SMACNA standards

Galvanized Sheets 26 & 24 ga G-60 LFQ

all duct 12" and above will be beaded

½" WG to 2" WG Snaplock Seam (Pittsburg available at an additional cost)

3" WG to 48" wide Snaplock Seam (Duct over 48" wide-pittsburg)

4" WG to 10" WG Pittsburg Seam

Fittings - assembled Straight Duct - unassembled (assembly available at an additional cost)

Duct sections (width + height) up to 18" wrapped

up to 70" "L" Shaped

71" & up 4 pc.

FS/D = flat slip (24ga) & drive (24ga)

MPT = midpoint tie-rod

TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive

JTR=joint tie-rods(both ends)

2x2x1/8" angle = midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"

Ducts on Demand Shop Standards for Rectangular Duct

Based on 3rd Edition 2005 SMACNA Standards

TDC - 4" WG Max Width	Connector	DUCT LENGTHS				
		60"	48"	36"	30"	24"
10" - Down	ST-S/D	26	26	26	26	26
11" - 12"	ST-S/D	26	26	26	26	26
13" - 14"	TDC	24	26	26	26	26
15" - 16"	TDC	24	26	26	26	26
17" - 18"	TDC	24	24	26	26	26
19" - 20"	TDC	24	24	26	26	26
21" - 22"	TDC	24	24	26	26	26
23" - 24"	TDC	22	24	24	26	26
25" - 26"	TDC	22	22	24	24	26
27" - 28"	TDC	22	22	24	24	26
29" - 30"	TDC	20	22	24	24	24
31" - 36"	TDC	22 MPT	24 MPT	22	24	24
37" - 42"	TDC	20 MPT	22 MPT	20	20	22
43" - 48"	TDC	20 MPT/JTR	20 MPT	20 MPT	20 MPT	20
49" - 54"	TDC	20 MPT/JTR	20 MPT/JTR	20 MPT	20 MPT	20 MPT
55" - 60"	TDC	20 MPT/JTR	20 MPT/JTR	20 MPT	20 MPT	20 MPT
61" - 72"	TDC	20-2 MPT/JTR	20 MPT/JTR	18 JTR	20 MPT	20 MPT
73" - 84"	TDC	18-2 MPT/JTR	18 MPT/JTR	18 JTR	18 JTR	20 JTR
85" - 96"	TDC	18-2 MPT/JTR	18-2 MPT/JTR	18 JTR	18 JTR	20 JTR
97" - 108"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR	18 JTR	18 JTR
109" - 120"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR	18 JTR	18 JTR

DOD Standards based on the latest SMACNA standards

Galvanized Sheets 26 & 24 ga G-60 LFQ

all duct 12" and above will be beaded

½" WG to 2" WG Snaplock Seam (Pittsburg available at an additional cost)

3" WG to 48" wide Snaplock Seam (Duct over 48" wide-pittsburg)

4" WG to 10" WG Pittsburg Seam

Fittings - assembled Straight Duct - unassembled (assembly available at an additional cost)

Duct sections (width + height) up to 18" wrapped
up to 70" "L" Shaped
71" & up 4 pc.

FS/D = flat slip (24ga) & drive (24ga) MPT = midpoint tie-rod TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive JTR=joint tie-rods(both ends)

2x2x1/8" angle = midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"

Ducts on Demand Shop Standards for Rectangular Duct

Based on 3rd Edition 2005 SMACNA Standards

TDC - 6" WG		DUCT LENGTHS				
Max Width	Connector	60"	48"	36"	30"	24"
10" - Down	ST-S/D	24	24	26	26	26
11" - 12"	ST-S/D	24	24	26	26	26
13" - 14"	TDC	22	24	26	26	26
15" - 16"	TDC	22	24	26	26	26
17" - 18"	TDC	22	24	26	26	26
19" - 20"	TDC	22	24	24	26	26
21" - 22"	TDC	22	22	24	24	26
23" - 24"	TDC	22	22	24	24	24
25" - 26"	TDC	20	22	22	24	24
27" - 28"	TDC	22 MPT	20	22	22	24
29" - 30"	TDC	22 MPT	20	22	22	24
31" - 36"	TDC	20 MPT	24 MPT	20 MPT	20	22
37" - 42"	TDC	20 MPT/JTR	22 MPT/JTR	20 MPT	20 MPT	20
43" - 48"	TDC	20 MPT/JTR	20 MPT/JTR	20 MPT	20 MPT	20 MPT
49" - 54"	TDC	20 MPT/JTR	20 MPT/JTR	20 MPT	20 MPT	20 MPT
55" - 60"	TDC	20 MPT/JTR	20 MPT/JTR	18 MPT	20 MPT	20 MPT
61" - 72"	TDC	18 MPT/JTR	18 MPT/JTR	18 MPT	18 MPT	18 MPT
73" - 84"	TDC	18-2 MPT/JTR	18-2 MPT/JTR	18 MPT	18 MPT	18 MPT
85" - 96"	DuctMate 35	16 MPT/JTR	18 MPT/JTR	16 JTR	16 JTR	18 JTR
97" - 108"	DuctMate 35	16-2 MPT/JTR	18 MPT/JTR	16 JTR	16 JTR	18 JTR
109" - 120"	DuctMate 35	16-2 MPT/2JTR	16-2 MPT/2JTR	16-2 MPT/2JTR	16 JTR	18 JTR

DOD Standards based on the latest SMACNA standards

Galvanized Sheets 26 & 24 ga G-60 LFQ

all duct 12" and above will be beaded

½" WG to 2" WG Snaplock Seam (Pittsburg available at an additional cost)

3" WG to 48" wide Snaplock Seam (Duct over 48" wide-pittsburg)

4" WG to 10" WG Pittsburg Seam

Fittings - assembled Straight Duct - unassembled (assembly available at an additional cost)

Duct sections (width + height) up to 18" wrapped

up to 70" "L" Shaped

71" & up 4 pc.

FS/D = flat slip (24ga) & drive (24ga) MPT = midpoint tie-rod TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive JTR=joint tie-rods(both ends)

2x2x1/8" angle = midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"

Ducts on Demand Shop Standards for Rectangular Duct

Based on 3rd Edition 2005 SMACNA Standards

TDC - 10" WG	Connector	DUCT LENGTHS				
		60"	48"	36"	30"	24"
8" - Down	ST-S/D	24	26	26	26	26
9" - 10"	ST-S/D	22	24			
11" - 12"	ST-S/D	22	24	26	26	26
13" - 14"	TDC	20	22	24	26	26
15" - 16"	TDC	20	20	24	24	26
17" - 18"	TDC	20	20	24	24	26
19" - 20"	TDC	18	20	22	24	26
21" - 22"	TDC	18	20	22	22	24
23" - 24"	TDC	18	20 JTR	20	22	22
25" - 26"	TDC	18	20 JTR	20	22	22
27" - 28"	TDC	18 JTR	20 JTR	20 JTR	20	22
29" - 30"	TDC	18 JTR	18 JTR	20 JTR	20 JTR	20
31" - 36"	DuctMate 35	20 MPT	18	20	22	22
37" - 42"	DuctMate 35	20 MPT	18	18	20	22
43" - 48"	DuctMate 35	18 MPT	22 JTR	18 JTR	18	22
49" - 54"	DuctMate 35	18 MPT/JTR	20 MPT/JTR	18 JTR	18	20
55" - 60"	DuctMate 35	18 MPT/JTR	20 MPT/JTR	18 JTR	18 JTR	20
61" - 72"	DuctMate 35	18 MPT/JTR	18 MPT/JTR	18 MPT/JTR	16 JTR	18 JTR
73" - 84"	DuctMate 35	16 MPT/JTR	18 MPT/JTR	18 MPT/JTR	16 JTR	18 JTR
85" - 96"	DuctMate 35		16 MPT/JTR	16 MPT/JTR	16 JTR	16 JTR
97" - 108"	DuctMate 35		16 MPT/JTR	16 MPT/JTR	16 MPT/JTR	16 JTR
109" - 120"	DuctMate 35		16-2 MPT/2JTR	16-2 MPT/2JTR	16 MPT/JTR	16 JTR

DOD Standards based on the latest SMACNA standards

Galvanized Sheets

26 & 24 ga

G-60 LFQ

all duct 12" and above will be beaded

½" WG to 2" WG

Snaplock Seam

(Pittsburg available at an additional cost)

3" WG to 48" wide

Snaplock Seam

(Duct over 48" wide-pittsburg)

4" WG to 10" WG

Pittsburg Seam

Fittings - assembled

Straight Duct - unassembled

(assembly available at an additional cost)

Duct sections (width + height)

up to 18"

wrapped

up to 70"

"L" Shaped

71" & up

4 pc.

FS/D = flat slip (24ga) & drive (24ga)

MPT = midpoint tie-rod

TDC = T25a roll formed flange

ST-S/D = Standing Slip(22ga) & Drive

JTR=joint tie-rods(both ends)

2x2x1/8" angle =

midpoint reinforcement in lieu of tie-rods

Duct liner available ½" or 1"

Standard Duct Sealing Requirements

Based on 3rd Edition 2005 SMACNA Standards

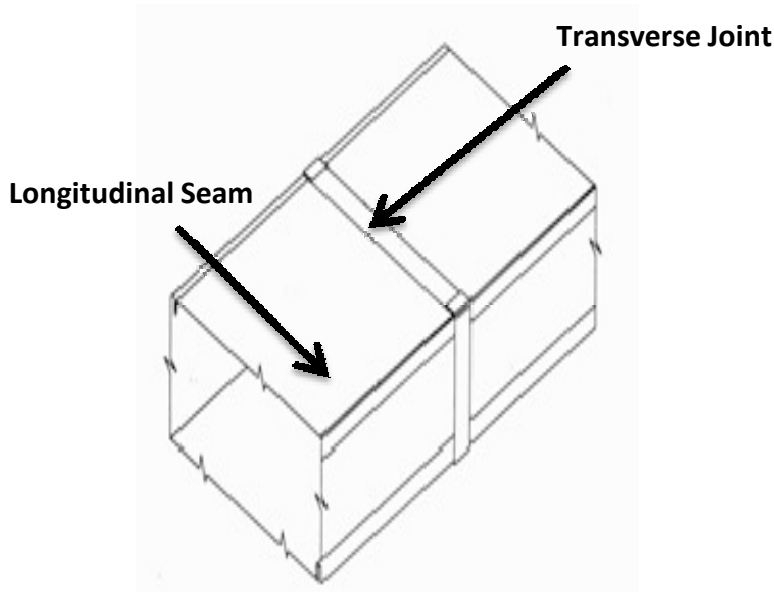
Seal Class	Sealing Requirements	Applicable Static Pressure Construction Class
A	Class A: All Transverse joints, longitudinal seams, and duct wall penetrations.	4" WG & up (1000 Pa)
B	Class B: All Transverse joints & longitudinal seams only	3" WG (750 Pa)
C	Class C: Transverse joints only	2" WG (500 Pa)

In addition to the above, any variable air volume system duct of 1" (250 Pa) and ½" WG (125 Pa) construction class that is upstream of the VAV boxes shall meet Class C.

Unreinforced Duct

Based on 3rd Edition 2005 SMACNA Standards

Ducts with flat slip connectors and no reinforcement



Joint Options



Drive Slip T1



Plain S Slip T-5



Hemmed S Slip T-6



Double S Slip T-8

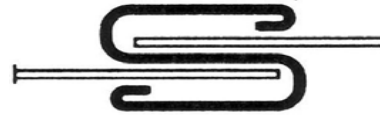
Seams & Connectors

Based on 3rd Edition 2005 SMACNA Standards

Connector Types



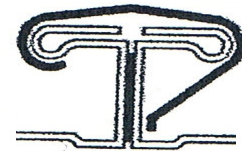
T-1 Drive



T-6 'S' Slip

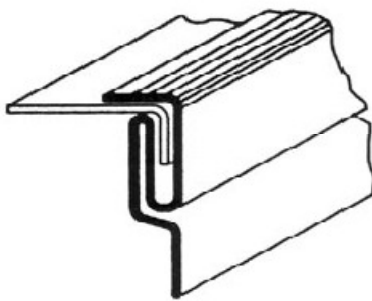


T-11 Standing
'S'

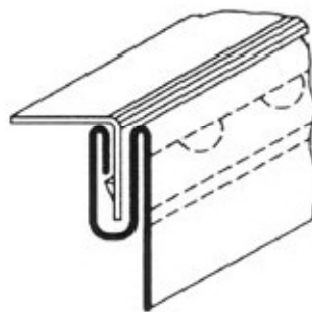


T-25a Flanged (TDC)

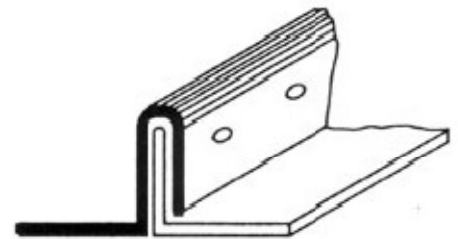
Seam Types



Pittsburgh
Lock



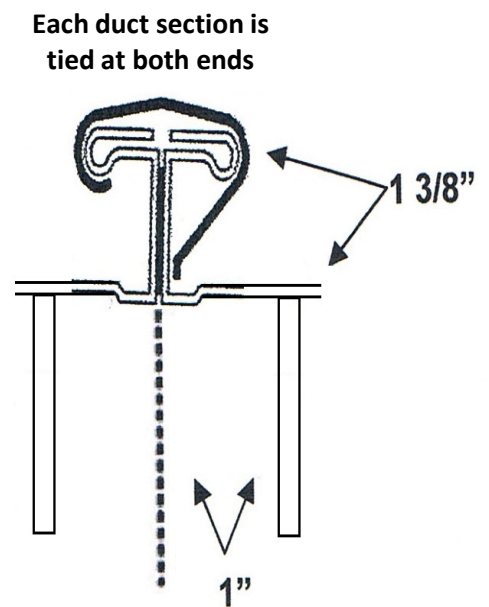
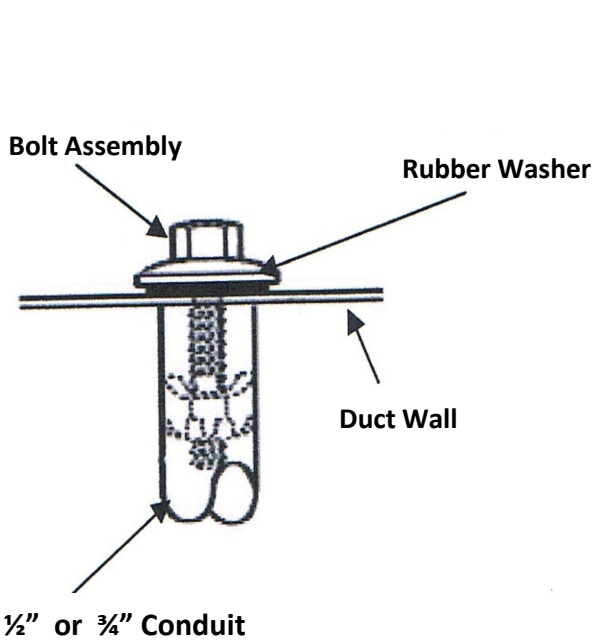
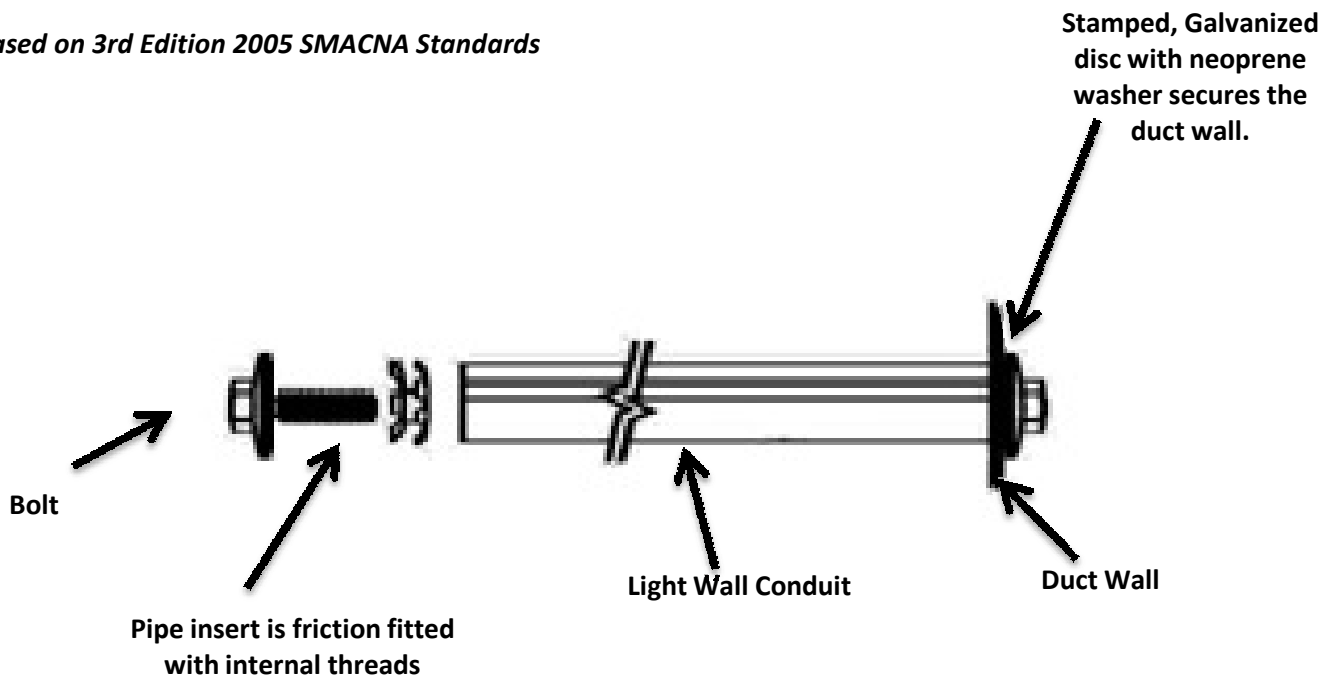
Snap Lock



Standing Seam

Tie Rods

Based on 3rd Edition 2005 SMACNA Standards



Liner Installation

Based on 3rd Edition 2005 SMACNA Standards

½" - 2 lb. density liner

1" - 1½" lb. density liner

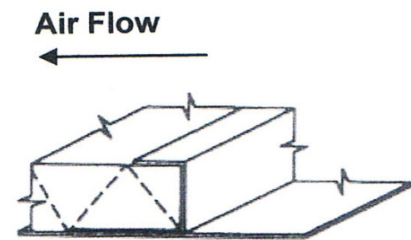
Other thicknesses and densities available upon request.

Notes: Metal nosing must be used wherever liner is preceded by unlined metal: otherwise when velocity exceeds 4000 FPM (20.3 MPS) use metal nosing on every leading edge.

Nosing may be formed on duct or be channel or zee attached by screws, rivets, or welds.

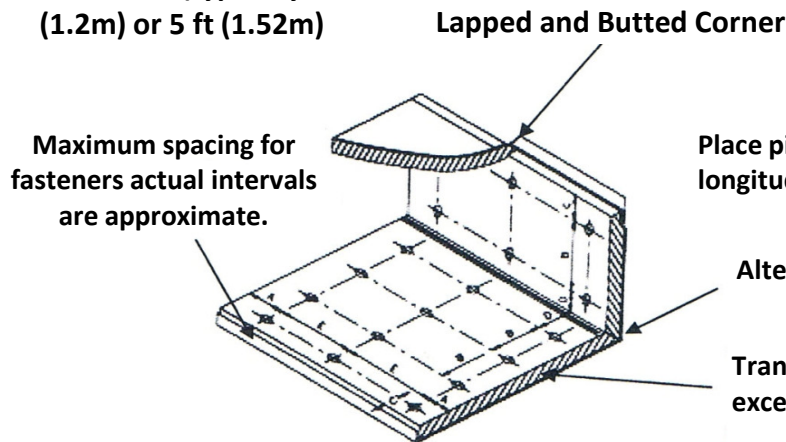
Interior width of 8" (200mm) and less does not require pins.

The velocity rated side of liner must face the air flow.



**Detail – A
Metal Nosing Channel or Zee**

**Duct section (typically 4 ft
(1.2m) or 5 ft (1.52m)**



Place pins 3" (76mm) along each side of a butted longitudinal liner seam that is away from a corner.

Alternate folded corner

Transverse edges to be coated with adhesive except when nosing is present.

Liner adhered to the duct with 90% min. area coverage of adhesive.

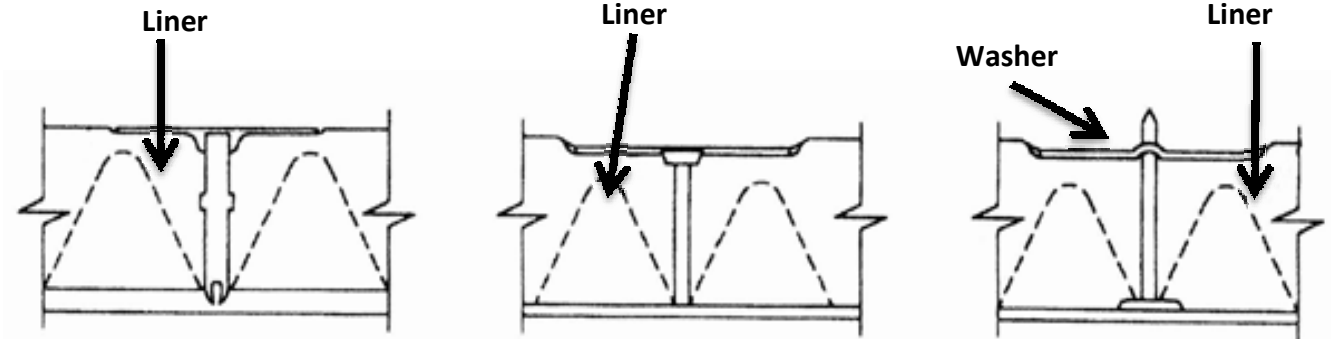
"A" pin row may be omitted when metal nosing is used. "E" then starts from nosing.

Velocity*	Dimensions				
	A	B	C	D	E
0 - 2500FPM (0 - 12.7MPS)	3" (76.2)	12" (305)	4" (102)	6" (152)	18" (457)
2501 - 6000 FPM (12.7 - 30.5 MPS)	3" (76.2)	6" (152)	4" (102)	6" (152)	16" (406)

*Unless a lower level is set by manufacturer or listing agency.

Liner Fasteners

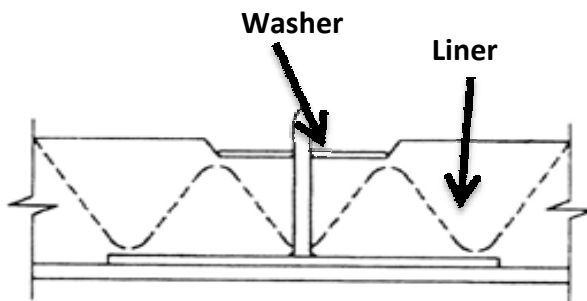
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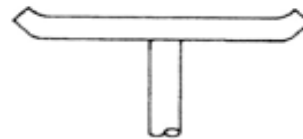
Type 1
Clinched Pin: Integral
Head-Impact Applied

Type 2
Welded Pin
Integral Head

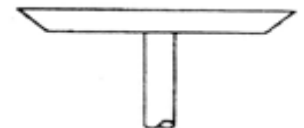
Type 3
Welded Pin
Press-On Head



Type 4
Adhered Pin
Press-On Head



Cupped



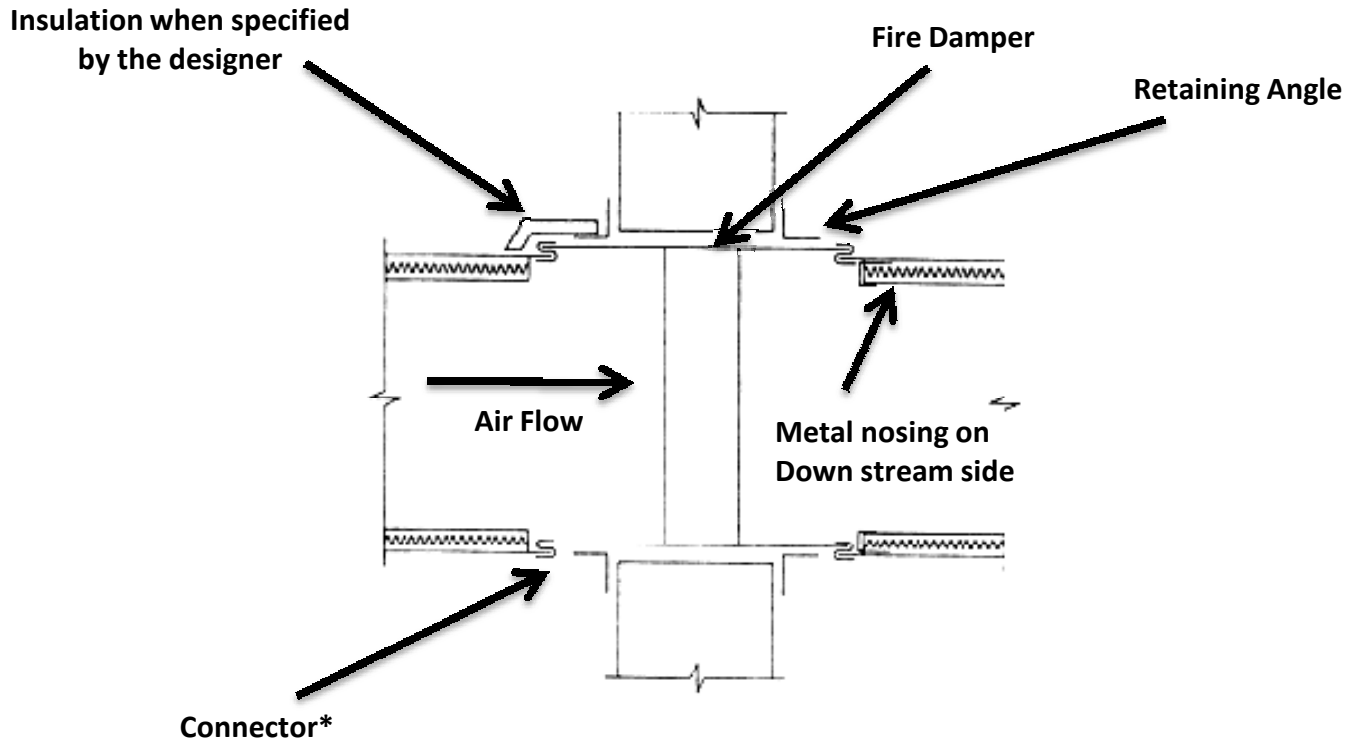
Beveled

Head Types

Installed pins and washers shall not compress liner more than the correct length specified for the liner thickness used.

Duct Liner Interruption

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Interruption of duct liner at fire damper (to avoid impairing damper operation) is required by NFPA Standard 90A. Where 90A is applicable, installation may be made as shown and should otherwise conform to the Duct Liner Installation Standards.

The designer should consider the possibility and consequences of condensation occurring on unlined or uninsulated metal at penetrations and should specify control measures.

The illustration and text does not address features of fire damper installations unrelated to duct liner

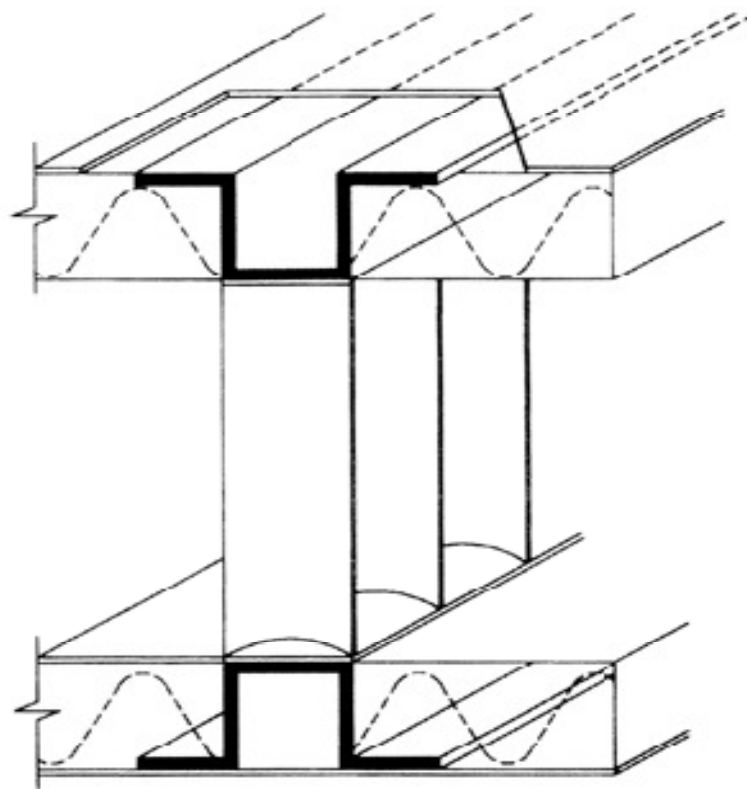
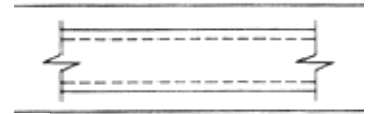
* S Slip illustrated; see type of connections permitted as a condition of damper listing.

Optional Hat Section

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Standard symbols now reflect the proper designation for showing duct liner on drawings. Duct dimensions designate net free area.

Acoustical Lining Duct Dimensions for NET Free Area



* HAT section used as insulated "Build Out." Build Out is attached to duct with sheet metal screws, bolts, or welds.

*Usage range 4001 FPM (20.3 mps) - 6000 FPM (30.5 mps)

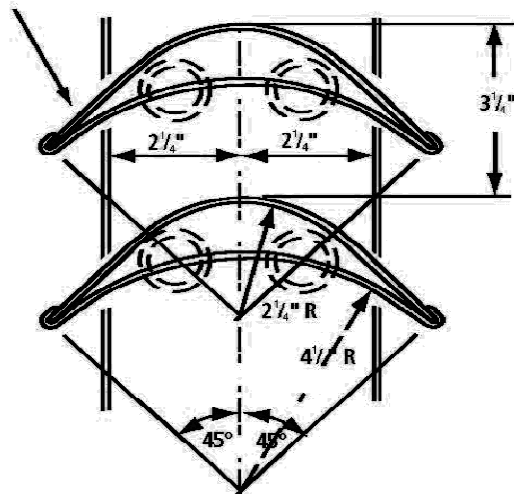
Vanes and dampers must be insulated in a manner that will not disrupt liner, restrict damper operation, or increase friction loss.

Rectangular Vanes

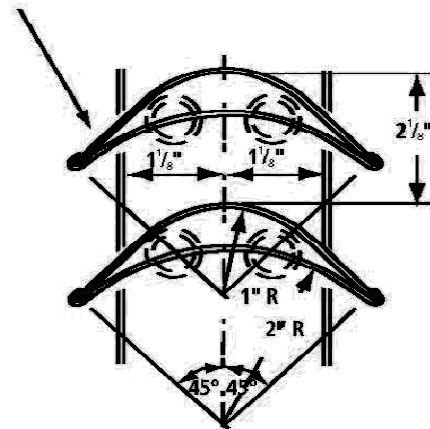
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Dual Wall Vanes

24 ga MIN.

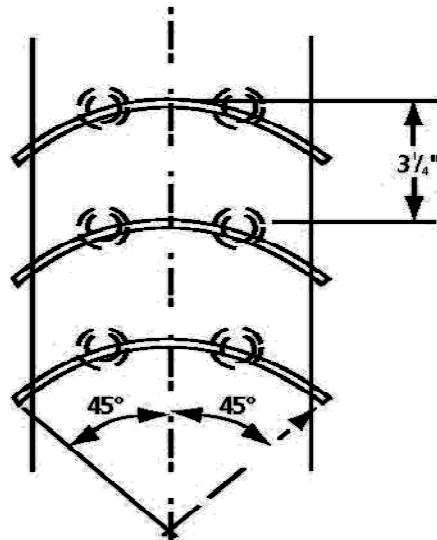


25 ga MIN.

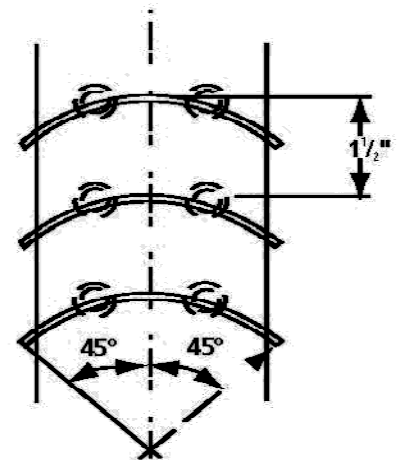


Single Wall Vanes

22 ga MIN.



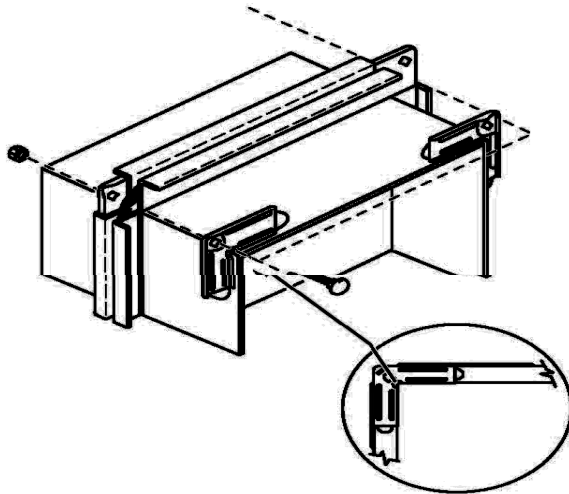
24 ga MIN.



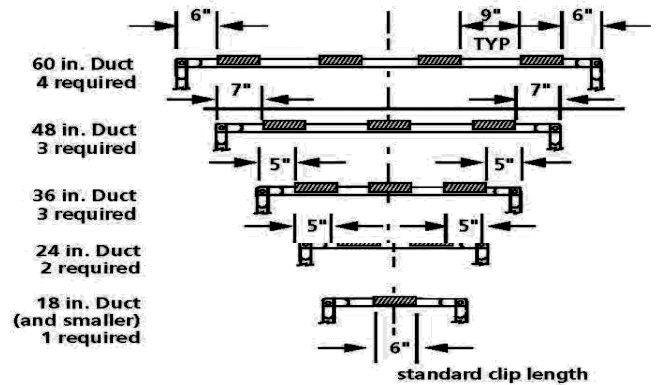
Rectangular Duct & Fittings

Based on 3rd Edition 2005 SMACNA Standards

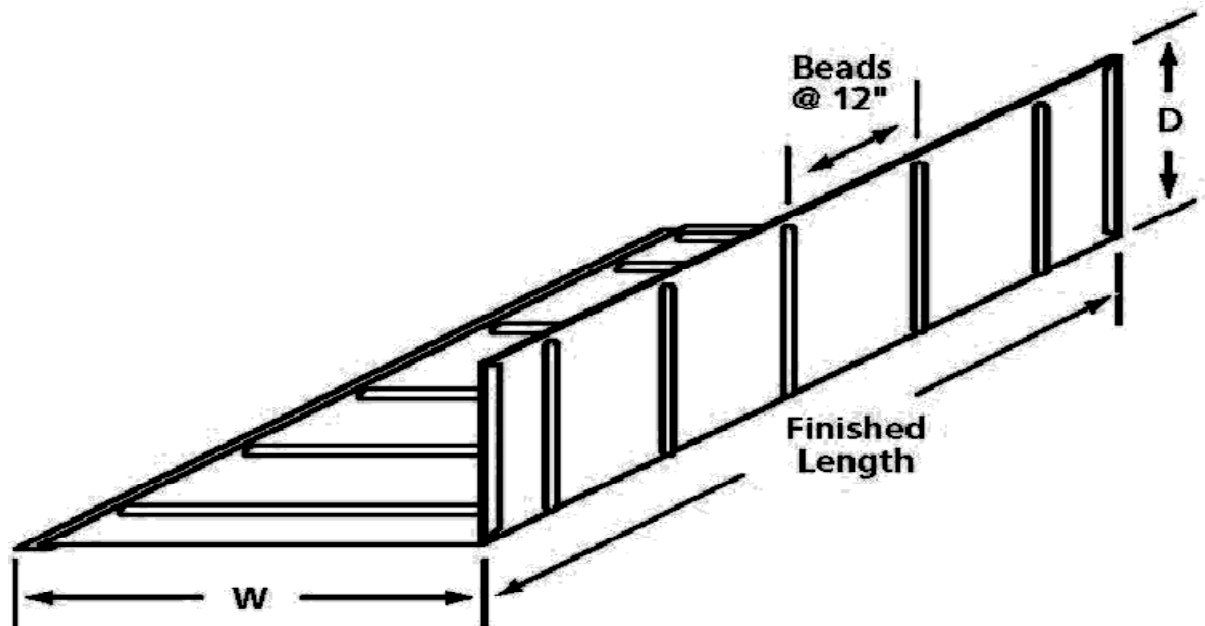
TDC Connection



Recommended Clip Spacing



Straight Duct



56" finished length with TDC 59" finished length with drive cleat edges 60" length with ends unfinished.