FläktGroup®

SEMCO®

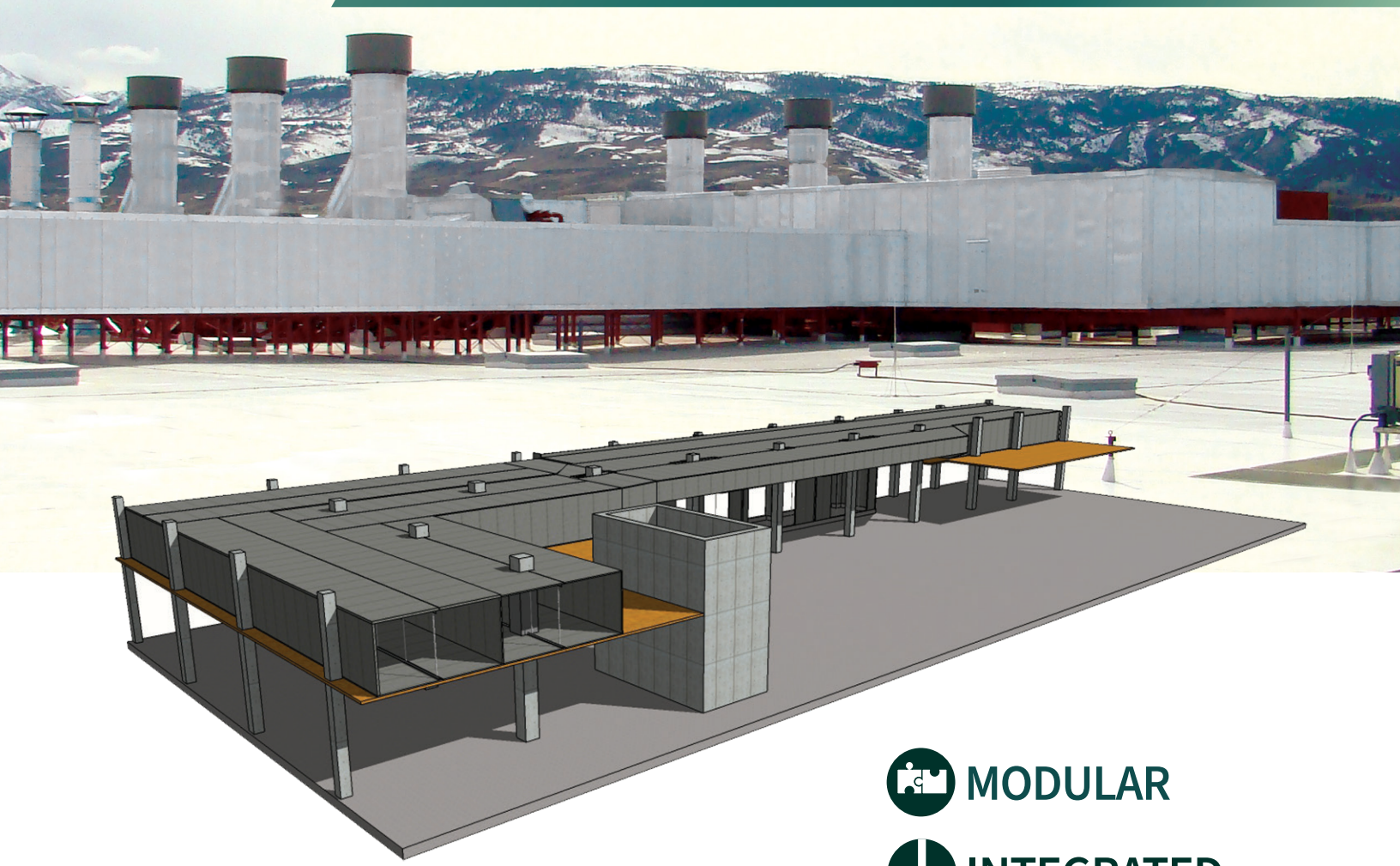
LABOR SAVING

STRUCTURAL INTEGRITY

MODULAR DUCT SYSTEMS

MD PANEL SOLUTIONS

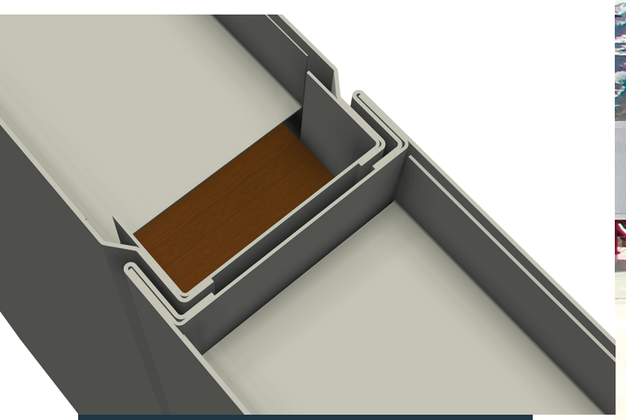
SALES BROCHURE

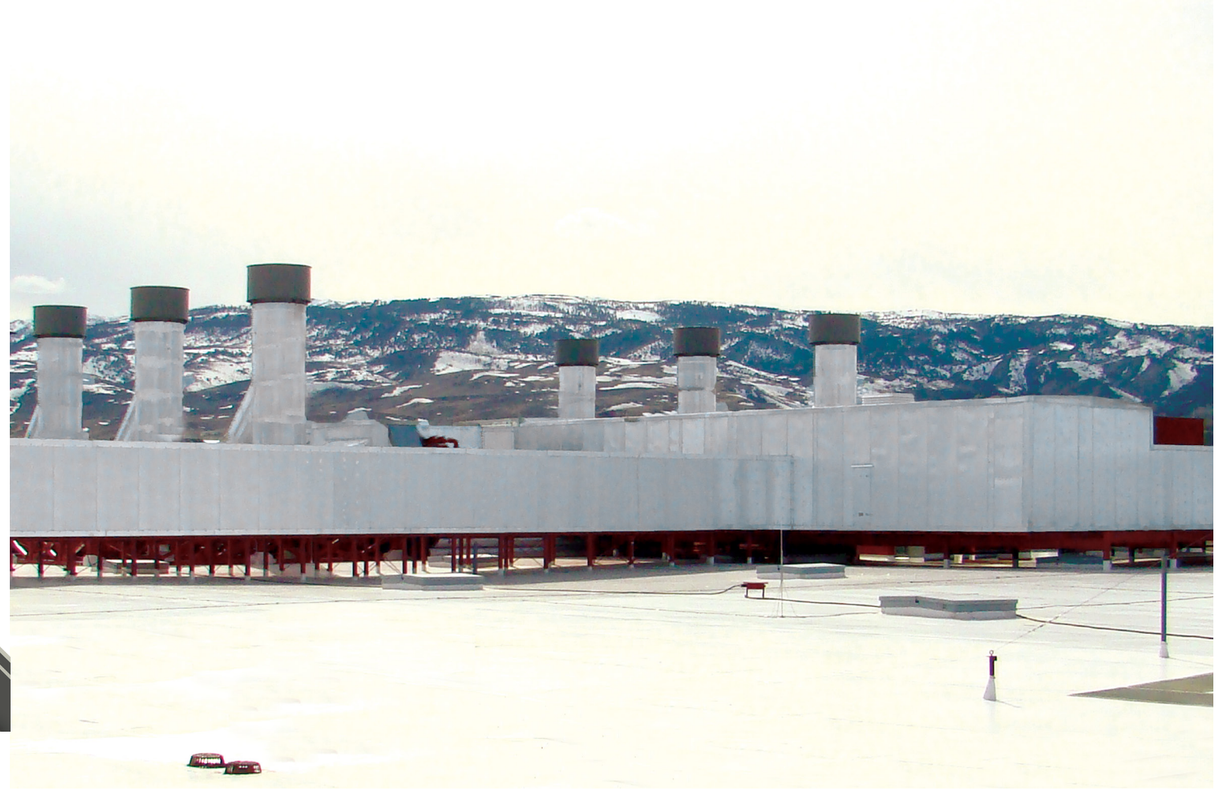


MODULAR

INTEGRATED REINFORCEMENT

PANEL SOLUTIONS





Performance: independently tested for acoustical, thermal and structural performance

Ease of Installation: factory-supplied cutouts make a stronger structure while minimizing installation time.

Economy: excellent cost-to performance ratio

WHY STOP AT THE CURB?

What does this mean? It means taking advantage of the most efficient and affordable means of installing large double wall rectangular duct extending beyond a plenum or housing.

FläktGroup® SEMCO® MD-PANEL Modular Duct Systems are designed specifically to be an affordable substitute for engineers and contractors when designing and installing double wall rectangular duct to connect duct systems to plenums or housings.

For decades double wall acoustical/thermal panels have been designed to accommodate built-up plenums and housings installed on concrete curbs and housekeeping.

But FläktGroup SEMCO asks, "Why stop there?" The performance, structural integrity and ease of installation makes a MD-PANEL Modular Duct System the perfect affordable substitute, replacing the limited capabilities of double wall rectangular duct work when high operation pressures and long spanning dimensions are required.

MODULAR DUCT SYSTEMS MD PANEL SOLUTIONS

STRUCTURAL INTEGRITY. EASY INSTALLATION.

The FläktGroup® SEMCO® MD-PANEL Modular Duct System offers performance-engineered assemblies made of quality constructed double wall panels.

FEATURES & BENEFITS

- Labor Saving
- Structural Integrity
- Long spanning - eliminates flange connections
- Easy to install
- Ideal for high pressure applications
- Proven performance

OPTIONS & ACCESSORIES

- Powder Coated finish
- AVRON46® Antimicrobial Protection
- Mylar, Tedlar, Vinyl, and Fiberglass cloth wraps
- "D" size ¼" scale CAD drawings
- All screws and caulk provided

MATERIALS AVAILABLE

- Galvanized steel
- Stainless steel
- Aluminum
- Aluminized

SIZES AVAILABLE

- 2", 4", and 6" thick
- Up to 16' - 0" maximum panel span
- 18 gauge solid outer shell
- 22 gauge perforated inner shell

IF YOU NEED A CUSTOM SIZE, MATERIAL, OR COATING, WE WILL WORK WITH YOU TO CREATE A **CUSTOM SOLUTION.**

An MD-PANEL Modular Duct System using acoustical panels is much easier and more affordable than making double wall rectangular duct in the field.

FläktGroup SEMCO's modular panels are designed with an integrated structure which eliminates much of the expensive structural steel and fabrication labor required when fabricating large field-built dual wall duct. This, combined with the "no screws" tongue-and-groove joint, factory engineered details and complete assembly drawings, provides a complete and affordable pre-engineered "System."

Pre-engineered. Modular. Affordable.

EXPERIENCE
IN THE FIELD

There are many benefits to acoustical panels beyond just acoustics. Since they have grown increasingly popular over the last 50 years, acoustical panels have found a variety of different applications beyond sound attenuation in the HVAC field.

A case in point is Saint Thomas West Hospital located in Nashville, TN. The 42-year-old, 550 bed hospital recently completed an outdoor-air retrofit to improve IAQ and energy recovery sustainability measures to it seven-level, 800,000 sq.ft. K Tower. The retrofit brings the circa-1973 building into current ASHRAE Standard 170, "Ventilation for Health Care Facilities", recommendations. It is also part of a network wide ongoing environmental stewardship mission inspired by its non-profit parent organization Ascension Health (St. Louis, MO). The retrofit enhanced the IAQ the hospital supplies to its patients and employees.

Engineering the retrofit was not easy, however, because the building has not space to add additional ductwork to deliver conditioned outdoor air from the retrofit project's rooftop ERVs. The only alternative beyond a destructive and space consuming internal duct system was a vertical ductwork riser installed externally down the side of the building.

Instead of conventional insulated ductwork, mechanical contractor, Nashville Machine Co. (Nashville, TN) suggested 4" thick acoustic panels for the 5' x 5' rectangular air-distribution riser that runs down the building's exterior. The panels supplant metal ductwork serving the dual purpose of supplying conditioned outdoor air from the rooftop ERVs and returning exhaust air from each floor to the ERVs, all inside the same 5' x 5' riser. An interior dividing panel creates two separate 2.5' square runs.

The most critical factor in choosing panels over sheet-metal ductwork was aesthetics. The panels and FläktGroup SEMCO's ability to customize, factory powder-coat, and color match them to the building's beige exterior actually appear as an accoutrement. Project architect FreemanWhite (Brentwood, TN) and consulting engineer TME (St. Louis, MO) paid strict attention to aesthetics, that the panels were factory designed, and assembled in sections where their seams matched the building seams.

EASE OF
INSTALLATION

FläktGroup SEMCO assembly does not require screws at the panel joint. Our joint design will ensure a leakage rate of less than one half percent (<0.5%). This is achieved using only a bead of factory supplied LEED certified caulk. With no screws through panel joints, the possibility of air and noise leaks is eliminated and the installed cost is reduced.

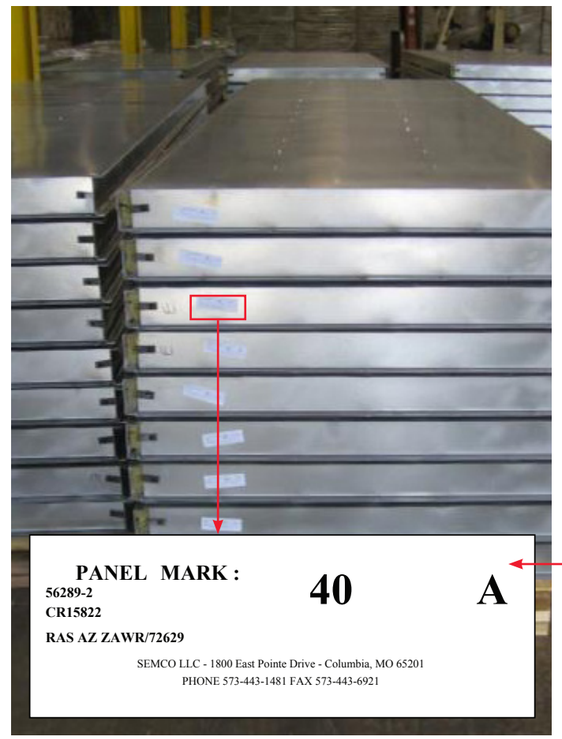
The effectiveness of an MD-PANEL Modular Duct System depends upon a quality design and proper installation. FläktGroup SEMCO's design enhances the close tolerance and effectiveness of the tongue-and-groove joint. Assembly is also simplified because PANEL Solutions panel systems are designed with a inside and outside trim, tongue-and-groove panel, and a base channel.

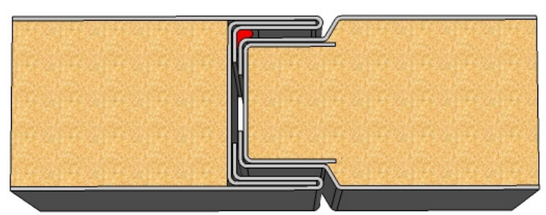
These components can be assembled quickly and easily. In fact, each piece is numbered as it is manufactured to match the number on the custom design drawing. This "construction by numbers" process reduces installation time and costs by including easy-to-follow assembly instructions, plus all necessary trim, sealant, and screws.

Installation is simplified with tongue-and-groove joints and pre-formed corner panels, which eliminate the need for corner trim. FläktGroup SEMCO's ease and speed of assembly is unmatched.

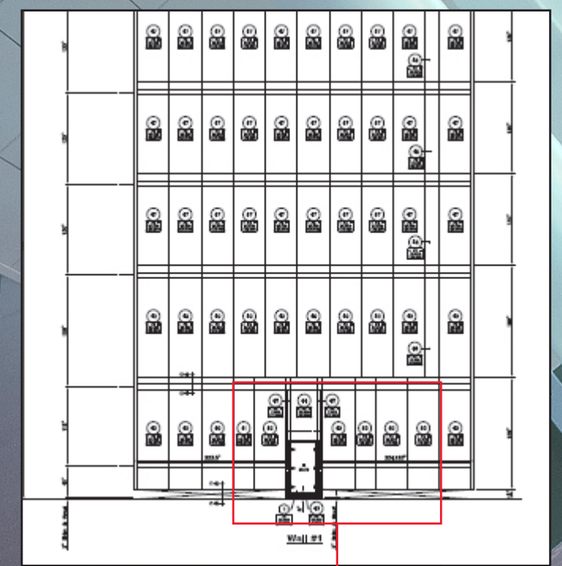
Panel to panel, our tongue-and-groove joints seal with only one bead of field-applied, factory-supplied LEED certified caulk.

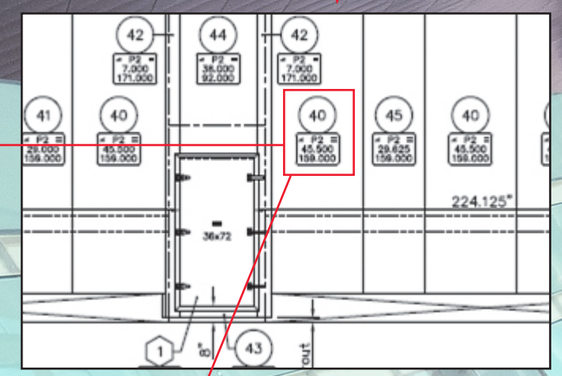
In all, FläktGroup SEMCO's complete factory engineering offers savings for the installer. Specifying MD-PANEL Solutions allows you more control in construction and reduced installation time.





Tongue-and-groove panel is fully insulated at the male-female joint. We give you a better acoustic and thermal joint with less installation time.





From the initial calculations to final installation, FläktGroup® SEMCO® offers personalized support to ensure your project is completed in the most effective and efficient manner possible. **Our experts are able and ready to serve you.**

- Complete ¼" scale "D" size drawings ensure accurate system layout
- AutoCAD drawings with panel layout, installation details, and individual panel markings shortens the approval process and reduces field labor.
- Flexibility is built into each design to allow for unexpected job site changes
- Individual panel piece-mark and assembly drawings
- Detailed Bill of Materials

PANELS - BILL OF MATERIALS

JOB NAME : RAS AZ

JOB # : CR15822 UNIT # : Stack

CONSTRUCTION STANDARD P2

: Panel 4" 16 Ga. G90 Solid EXT /24 Ga. G90 Perf INT / 18 Ga. G90 IS @ 16" o.c. / 8#MW

Mark	Drawing No	Qty.	Width	Length	A	B	C	D	TagCode
40	1	57	45.500	159.000					A
41	1	2	29.000	159.000					A
42	1	4	7.000	171.000					A
43	1	2	38.000	6.000					A

PROVEN PERFORMANCE

TRANSMISSION LOSS AND ABSORPTION COEFFICIENT

FläktGroup SEMCO's acoustical/thermal panels, used in building MD-PANEL Modular Duct Systems, outperform all other commercially available modular panel systems. Backed by independently certified test data, the unique tongue & groove panel design provides optimum transmission loss and interior absorption resulting in unequaled STC and NRC ratings.

Construction	Absorption Coefficient					
	2 125	3 250	4 500	5 1K	6 2K	7 4K
2"	0.58	0.93	1.16	1.18	1.15	1.12
4"	0.70	1.14	1.18	1.14	1.14	1.16
6"	0.82	1.14	1.20	1.15	1.15	1.20

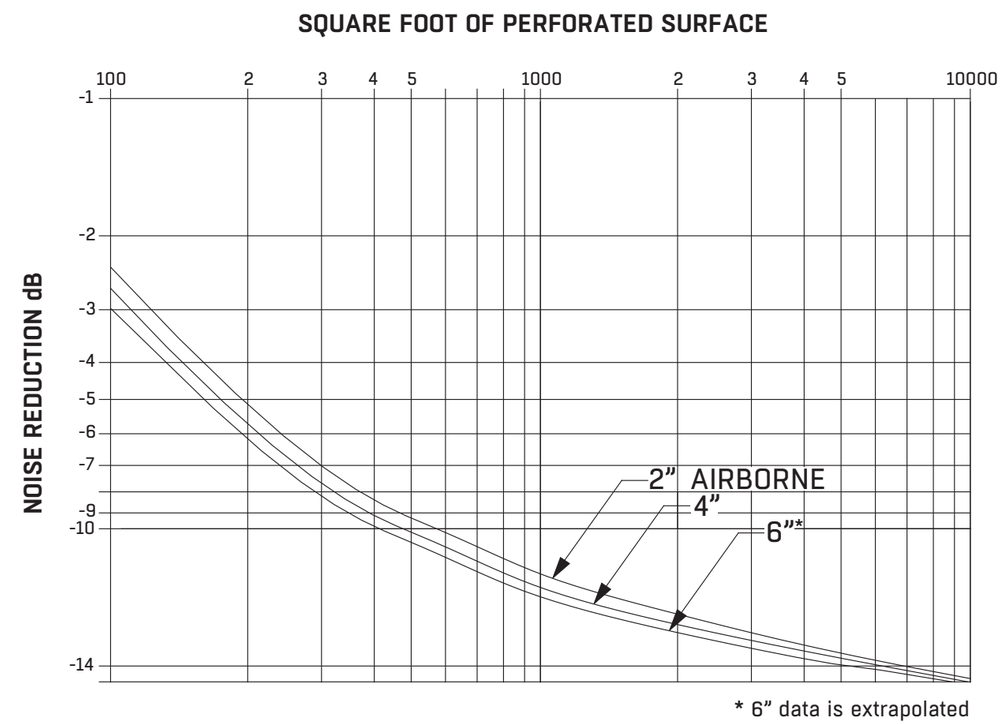
Construction	Transmission Loss						STC
	2 125	3 250	5 500	5 1K	6 2K	7 4K	
2" 18 gauge solid/22 gauge perforated	26	29	33	44	52	60	38
2" 18 gauge solid/22 gauge solid	29	35	39	47	51	64	39
4" 18 gauge solid/22 gauge perforated	26	32	38	51	60	67	43
4" 18 gauge solid/22 gauge solid	23	37	43	53	60	58	46
4" 18 gauge solid/22 gauge perf. w/ gypboard	27	34	42	53	61	70	45
6" 18 gauge solid/22 gauge perforated	28	38	44	53	62	58	49
6" 18 gauge solid/22 gauge solid	30	40	46	55	63	61	50

FIRE SAFETY

	Flame Spread	Smoke Development
Surface Burning Characteristics	15	0

FläktGroup SEMCO's standard panel interior is completely filled with a minimum three pound per cubic foot density glass fiber insulation. Insulation is corrosion and moisture resistant, and rated noncombustible as defined by NFPA Standard 220 when tested in accordance with ASTM E136. Surface burning characteristics per ASTM E84 are listed in the chart on the left.

PLENUM ACOUSTICS



Plenum Acoustics- Airborne Noise Reduction

1. Noise reduction is per square foot of perforated area. The perforated area from the fan discharge to the supply air opening is effective area of absorption of the supply system.
2. Perforated area from the fan intake to the return air opening is the effective area of absorption for the return system.
3. Area not defined by either notes 1 and 2 are not to be used in calculating dB reduction.

“I don’t think we would have got the same service from other suppliers. FläktGroup® **SEMCO®** made me glad I used them.”

- Herman Henson, Gamewell Mechanical

STRUCTURAL INTEGRITY

Maximum Unsupported Perforated Panel Span (in inches)

Static Pressure	2” Roof		2” Wall		4” Roof		4” Wall		6” Roof		6” Wall	
	(+) POS	(-) NEG	(+) POS	(-) NEG	(+) POS	(-) NEG	(+) POS	(-) NEG	(+) POS	(-) NEG	(+) POS	(-) NEG
0”	192	192	192	192	192	192	192	192	192	192	192	192
2”	159	144	136	160	192	192	192	192	192	192	192	192
4”	115	120	108	127	192	192	188	192	192	192	192	192
6”	98	107	94	111	172	175	163	183	192	192	192	192
8”	88	98	85	101	147	161	141	166	186	192	177	192
10”	78	91	76	93	130	150	126	154	165	192	158	192

Span based on maximum deflection of L/240

Maximum Unsupported Solid Panel Span (in inches)

Static Pressure	2” Roof		2” Wall		4” Roof		4” Wall		6” Roof		6” Wall	
	(+) POS	(-) NEG	(+) POS	(-) NEG	(+) POS	(-) NEG	(+) POS	(-) NEG	(+) POS	(-) NEG	(+) POS	(-) NEG
0”	192	192	192	192	192	192	192	192	192	192	192	192
2”	187	153	155	173	192	192	192	192	192	192	192	192
4”	133	129	123	137	192	192	192	192	192	192	192	192
6”	113	115	107	120	192	188	182	192	192	192	192	192
8”	101	105	97	109	173	173	165	180	192	192	192	192
10”	93	98	90	101	155	162	149	168	192	192	189	192

Span based on maximum deflection of L/240

STRUCTURAL LOAD CONVERSIONS

Pressure (w.g.)	Wind Load (M.P.H.)	Snow Load (lbs. per sq. ft.)	Live Load* (lbs. per sq. ft.)
0.5	30	3	3
1.0	40	5	5
1.5	50	8	8
2.0	60	10	10
3.0	80	16	16
4.0	90	21	21
5.0	100	26	26
6.0	110	31	31
7.0	120	36	36
8.0	130	42	42
9.0	135	47	47
10.0	140	52	52
11.0	150	57	57

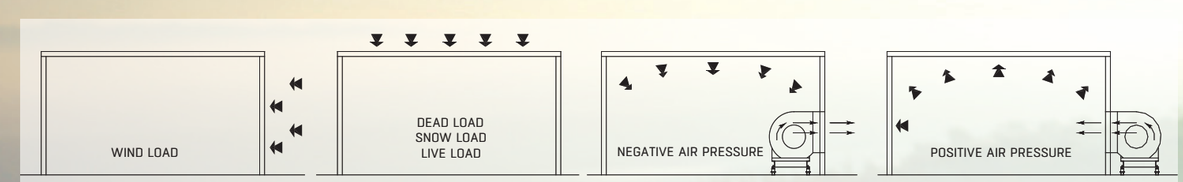
*Live load converted to static pressure equals 1” w.g. for each 5.2 lbs.

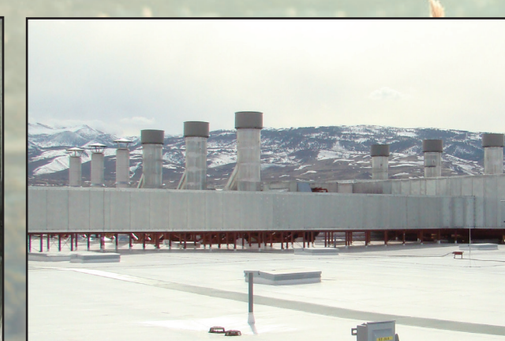
This information is not intended to be the primary source of your structural design. For additional information on structural design contact FläktGroup® SEMCO.®

Outdoor enclosures must be looked at differently than indoor enclosures. Units will be subject to structural design criteria when environmental conditions such as snow and/or wind load are considered. When these loads exist they must be considered in addition to the internal pressure. This chart expresses the equivalent pressure in water gauge with regards to wind, snow, and live loads.

Refer to ASCE 7-88 for an expanded discussion on “Minimum Design Loads for Buildings and Other Structures” for additional information such as seismic loads. Always refer to the local building codes for more specific information on local requirements.

POSITIVE AND NEGATIVE AIR PRESSURE





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FläktGroup® SEMCO® delivers smart and energy efficient Air Distribution and Air Quality solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported by more than fifty years of accumulated industry experience. The widest product range in the market, and strong market presence in 65 countries worldwide, guarantee that we are always by your side, ready to deliver Excellence in Solutions.

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