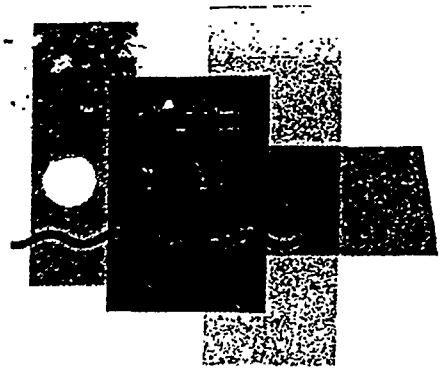


PLAINTIFF'S EXHIBIT

RSE-15

JOHNS-MANVILLE ASBESTOS-CEMENT BUILDING PRODUCTS

TECHNICAL BULLETIN

FLAT TRANSITE

Physical and Thermal Properties*

Density (Dry), lb/cu ft, minimum	—
Up to 7/8" thickness	100
Over 7/8" thickness	95
Moisture Content (Normal), % of dry weight	5 to 13
Water Absorption, % of dry weight, maximum (After 48 hour immersion)	22
Transverse Strength (Dry), psi (Modulus of Rupture)	—
1/4" thickness	4500
3/8" to 7/8" thickness	4000
Over 7/8" thickness	3500
Modulus of Elasticity (Dry), psi (From Transverse Test)	—
1/4" thickness	2.1×10^6
3/8" to 7/8" thickness	1.8×10^6
Over 7/8" thickness	1.4×10^6
Compressive Strength (Normal), psi	
1/4" thickness	16000
3/8" to 7/8" thickness	14000
Over 7/8" thickness	12000
Tensile Strength (Normal), psi	1400
Shear Strength (Normal), psi	
1/4" thickness	4000
3/8" to 7/8" thickness	3500
Over 7/8" thickness	3000
Moment of Inertia (4.2" width), $in.^4$	—
Section Modulus (4.2" width), $in.^3$	—
Charpy Impact Resistance (Normal), in. lb (ASTM D256-54T, Method B—4" span, 5" x 1/2" x thickness—unnotched samples)	
1/4" thickness	2.9
1/2" thickness	5.6
Screw Holding Strength (Normal), lb/screw (Withdrawal load for Type A, No. 6-12 Sheet Metal Screws)	
1/2" penetration	430
7/8" penetration	1020
Complete penetration	—
Brinnell Hardness No. (Dry) (500 kg. load, 10 mm ball, 10 sec)	
1/4" thickness	32
3/8" to 7/8" thickness	25
Over 7/8" thickness	20
At crowns	—
At flanks	—
Freezing and Thawing Resistance	Satisfactory
Dimensional Change Due to Moisture, in./in.	
Shrinkage—Normal to Dry	0.0020
Expansion—Normal to 90% RH	0.0006
Expansion—Dry to Saturated	0.0028
Thermal Expansion, in./in./F (Avg over range of temp up to 400F)	5.0×10^6
Maximum Service Temperature, F	600
Thermal Conductivity, Btu in./sq ft/F/hr	4.5
Dimensional Tolerances of Full Sheets (Normal), in.	
Length	—
Untrimmed and trued one side and one end	+1-1/2,—0
Trued four edges	±1/32
Width	
Untrimmed and trued one side and one end	+3/4,—0
Trued four edges	±1/32
Width of half corrugation on each edge	—
Thickness	
1/4" to 5/8" thickness	±3/64
Over 5/8" thickness	±1/16
At crowns	—
Squareness, per linear ft (Trued edges only)	1/64

* The figures given are average values (unless otherwise specified) obtained in accordance with accepted test methods. Strength figures must be modified by applying adequate factors of safety to arrive at working values. "Dry" refers to oven-dried samples; "Normal," to normal conditions of 75F and 50% R.H.

RS-10055

CHEMICAL RESISTANCE...FLAT TRANSITE

"X" Denotes Satisfactory Behavior under Indicated Conditions

CHEMICAL REAGENT	CONCENTRATION			CHEMICAL REAGENT	CONCENTRATION		
	Less than 5%	Moderate	Concentrated		Less than 5%	Moderate	Concentrated
ACIDS:				**SALTS:**			
Acetic	—	—	—	Aluminum chloride	—	—	—
Carbolic (Phenol)	X	X	X	Aluminum sulphate	—	—	—
Carbonic	X	X	X	Ammonium chloride	X	X	X
Citric	X	X	X	Ammonium nitrate	—	—	—
Formic	—	—	—	Ammonium sulphate	—	—	—
Hydrochloric	—	—	—	Amyl chloride	X	X	X
Hydrofluoric (1%)	—	—	—	**Calcium chloride	X	X	X
Nitric	—	—	—	Calcium hypochlorite	X	X	X
Nitrous	—	—	—	Copper sulphate	—	—	—
Oxalic	—	—	—	Ferric chloride	—	—	—
Phosphoric	—	—	—	Ferric sulphate	—	—	—
Sulphuric	—	—	—	Ferrous chloride	—	—	—
Sulphurous	—	—	—	Ferrous sulphate	—	—	—
Tannic	—	—	—	Magnesium chloride	—	—	—
BASES:				Magnesium sulphate	—	—	—
Ammonium hydroxide	X	X	X	Sodium carbonate	X	X	X
Sodium hydroxide	X	X	X	**Sodium chloride	X	X	X
ORGANIC SOLVENTS:				Sodium ferricyanide	X	X	X
Acetone	X	X	X	Sodium hypochlorite	X	X	X
Amyl acetate	X	X	X	Sodium nitrate	X	X	X
Benzene (C_6H_6)	X	X	X	Sodium phosphate	X	X	X
Butyl acetate	X	X	X	Sodium sulphide	X	X	X
Carbon bisulphide	X	X	X	Sodium sulphite	X	X	X
Carbon tetrachloride	X	X	X	**MISCELLANEOUS:**			
Ethyl acetate	X	X	X	Aniline	X	X	X
Ethyl alcohol	X	X	X	Benzaldehyde	X	X	X
GASES:				Chlorine (saturated solution)	—	—	—
Ammonia (anhydrous)	X	X	X	Formaldehyde	X	X	X
*Chlorine	—	—	—	Hydrogen peroxide (3%)	X	X	X
*Hydrogen sulphide	X	X	X	*ATMOSPHERE:			
*Sulphur dioxide	—	—	—	Oxidizing	X	X	X
				Reducing	X	X	X

* For temperatures to 150F.

** Transite and Flexboard should not be used where exposed to alternate freezing and thawing cycles in the presence of de-icing chemicals, such as calcium chloride or sodium chloride or where subject to alternate wetting and drying in the presence of soluble salts.

Note: In the presence of certain other chemical reagents not X'd above, suitable impregnants or coatings may be used to provide satisfactory and economical service. No material or coating is immune from attack, marking, or discoloration from all chemicals. Where it is essential that appearance be maintained, Transite should have a protective coating.

Johns-Manville

22 East 40th Street · New York, N.Y. 10016

Sales Offices in Principal Cities

RS-10056

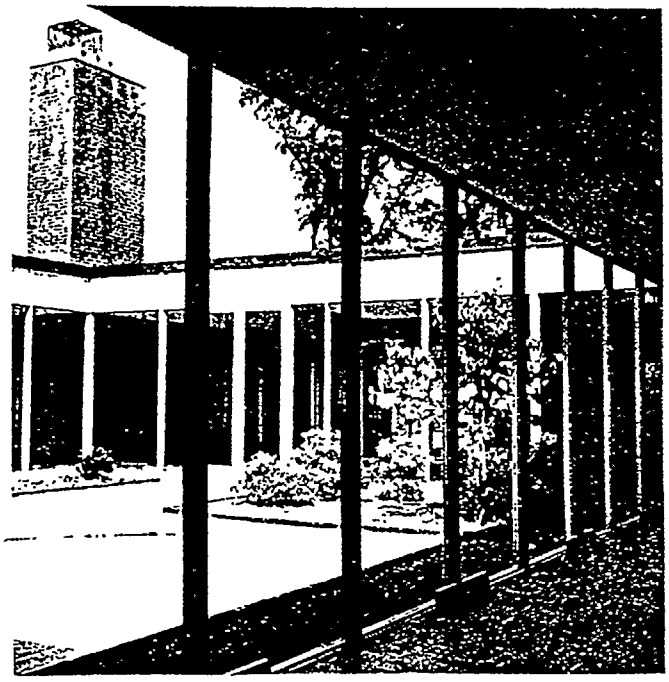
Johns-Manville Corrugated and Flat Transite

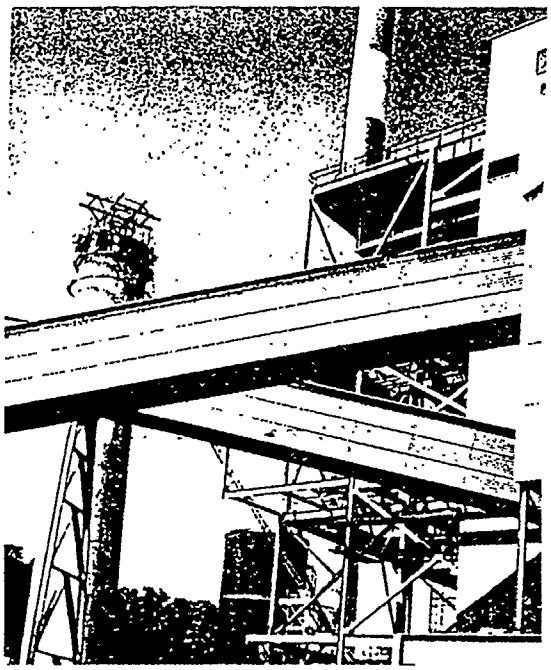
LARGE SIZE SHEETS GO UP EASILY... COVER LARGE AREAS QUICKLY!

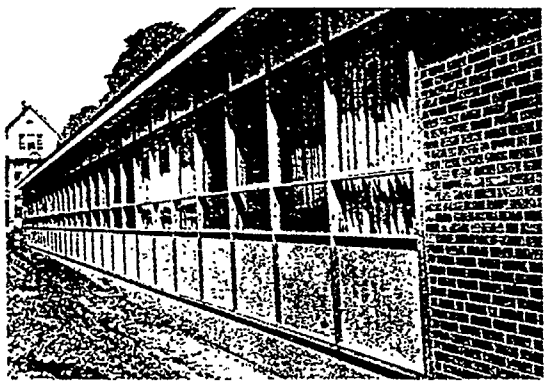
Corrugated Transite and Flat Transite are made of two materials that are practically indestructible . . . mineral fibers and cement. These are combined under pressure into large building sheets that not only look like stone . . . they last like stone.

The finished sheets are really big . . . up to 12 ft. long for Corrugated Transite; 8 ft. long for Flat Transite. These big sheets require minimum framing, cover large areas quickly, help you meet demanding deadlines. Once in place, they require practically no upkeep.

Both Corrugated and Flat Transite have a natural stone gray color which is the result of combining mineral fibers and cement. This natural gray is handsome and dignified. No further decoration is required. However, both Corrugated Transite and Flat Transite can be painted if desired.







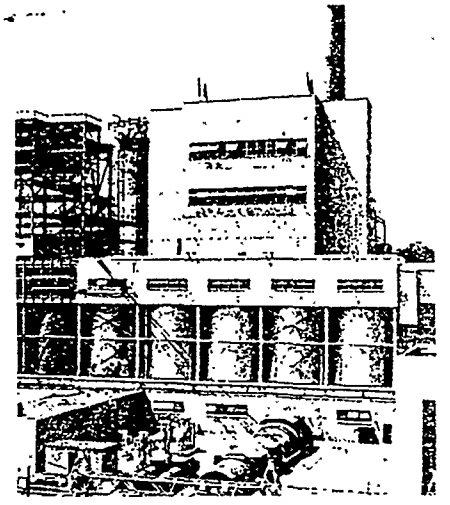
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TRANSITE® Registered in U.S. Patent Office as a Johns-Manville trademark for its brand of mineral fiber cement products.





Johns-Mansville Corrugated Transite and Flat Transite are versatile materials, readily adaptable to industrial, commercial and institutional construction.



For over 40 years, Corrugated Transite and Flat Transite have set the standard for quality building materials. They can be used effectively for new buildings or for remodeling existing structures. They can be used for an entire building or combined with other materials.

Corrugated and Flat Transite are performance-proven products that have met the rigid requirements on industrial buildings in almost every field.

FIRE RESISTANT

Transite is inherently fire resistant and will not burn. It has been tested and meets the U.L. rating requirements of 0 for combustibility, flame spread and smoke production. It is suitable for use with constant working temperatures as high as 650°F.

WEATHERPROOF, DURABLE AND STRONG

Corrugated and Flat Transite withstand all kinds of weather severity . . . their durability and strength have been demonstrated in almost every type of situation. They are unaffected by the corrosive action of salt air, most fumes and gases; they will not rot or rust; they will not twist or splinter and they cannot be penetrated or riddled by vermin.

LONG LASTING, MAINTENANCE FREE

Corrugated and Flat Transite are two of the most enduring building materials ever developed. They actually become tougher and stronger with age. They require no preservative treatment and this savings on maintenance can add up to important economies.

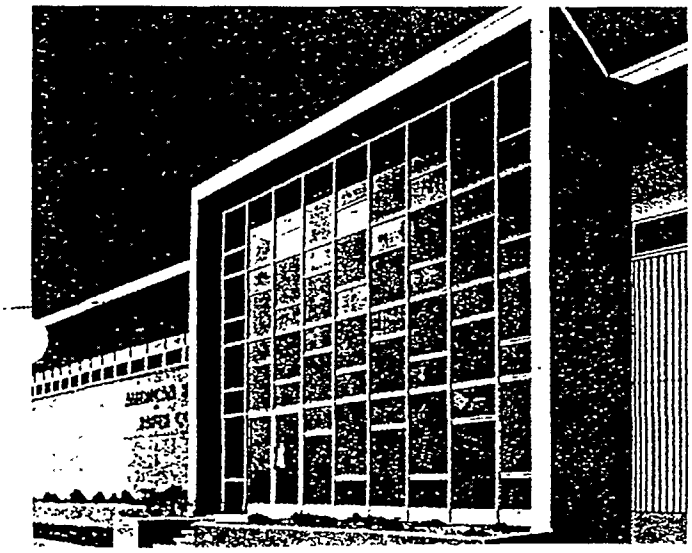
Corrugated Transite	PROPERTIES AND CHARACTERISTICS	Flat Transite
100 min.	Density-dry-lb/cu ft	100 min.
3.8 — 4.1	Weight-normal lb/sq ft	
20 max.	Water Absorption-% dry wt	22 max.
0.0010 0.0004 0.0005	Moisture expansion-in./in. Shrinkage-normal to dry Expansion-normal to 90% RH Expansion-normal to saturated.	0.0020 0.0006 0.0028
0.000005	Thermal Expansion-in./in./deg F	0.000004
650 1000	Temperature Limit-soaking heat-deg F Continuous service Intermittent service	650 1000
4.5	Thermal Conductivity-Bta/in./sq ft/ deg F/hr	4.5
5	Water Vapor Permeability (perms) -grains/hr/sq ft/in. of Mercury	
3/8	Thickness	
.348 .994	Section Modulus in³/4.2" width in³/ft. width	
.250 .714	Moment of Inertia in⁴/4.2" width in⁴/ft. width	
4500 3000	Modulus of Rupture, PSI Dry Wet	
4480 2985	Moment capacity in lb/ft of width Dry Wet	

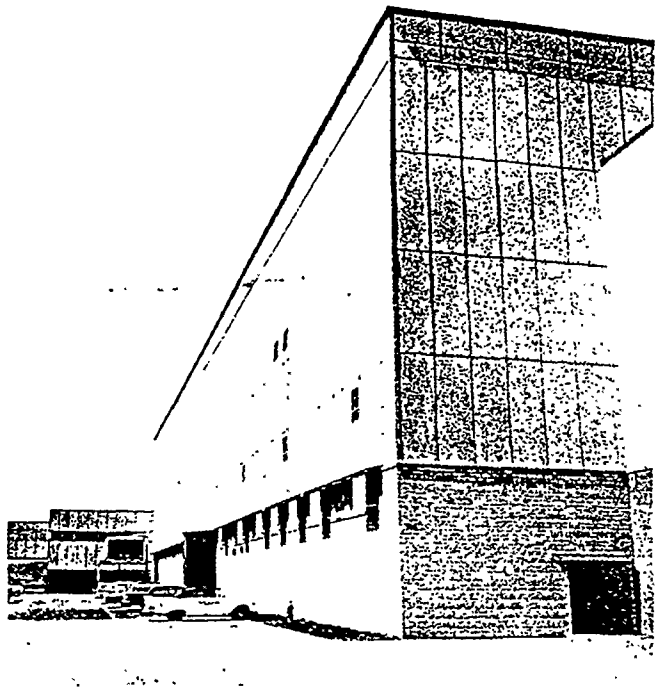
Corrugated Transite

ALLOWABLE SPAN* (Side Wall Applications Only)	
Load (PSF)	**Span (In.)**
20	94
30	77
40	67

*Wet, factor of safety 2:1, semi-fixed ends, single span

CAUTION: SEE PAGE 4





CHEMICAL RESISTANCE

Mineral fiber materials are highly resistant to most substances and abrasion. No material known is completely immune from attack or discoloration from all substances, in any concentration, or all forces and conditions of use. When hazardous conditions are known to exist, consult us.

Transite should not be used where exposed to alternate freezing and thawing cycles in the presence of de-icing chemicals, such as calcium chloride or sodium chloride or where subject to alternate wetting and drying in the presence of soluble salts.

WINDLOAD RESISTANCE-SPANS FOR FLAT TRANSITE SHEETS							
THICKNESS	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
HORIZONTAL SPAN	18"	24"	27"	36	45"	54"	72"
VERTICAL SPAN	18"	24"	30"	39"	48"	60"	78

Note: Semi-fixed ends, uniform load of 30 psf.

RS-10059

"The physical (or chemical) properties of Johns-Manville Corrugated and Flat Transite 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. Check the Johns-Manville Distrct Office to see [illegible]