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INSULUX
GLASS BLOCK

CATALOG FOR 1953

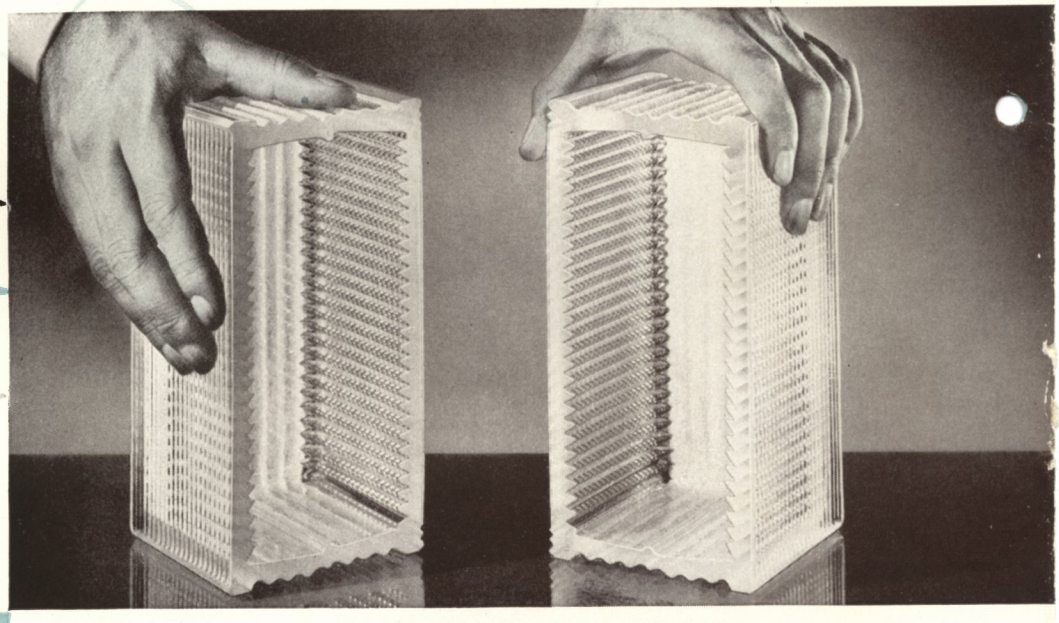
A.I.A. FILE NO. 10-F

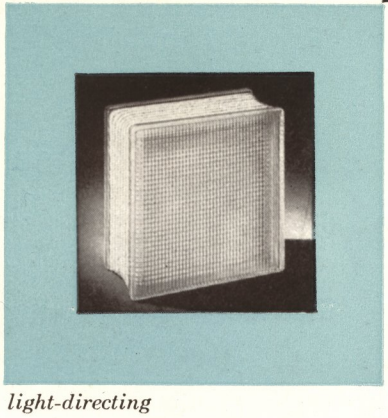
CONTENTS

description

INSULUX GLASS BLOCK are hollow blocks of water-clear glass, formed in two separate sections and permanently sealed together at high temperatures to make an all-glass unit. Dead air in the partially-evacuated block is dehydrated to eliminate condensation within the unit and to provide an effective barrier against heat transfer.

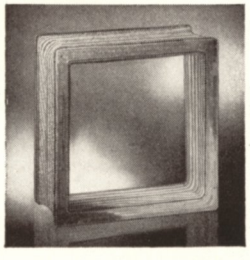
Mortar-bearing edges of each block are corrugated for extra bond area and a mortar joint of greater lateral strength. Mortar surfaces of each block are coated with an exclusive marble grit to allow better adhesion of mortar to glass.



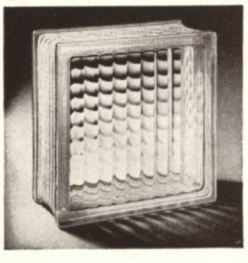


light-directing

decorative



general purpose



Available in three sizes and six face designs, Insulux Glass Block are adaptable to a wide variety of architectural and aesthetic requirements. Sizes are 5¾ ″, 7¾ ″ and 11¾ ″ square; all blocks are 3⅞ ″ thick. Corner and radial blocks are also available for special uses. Face designs are classified into three groups, decorative, general purpose, and light controlling. Choice of block design is dictated by artistic effect and amount of light control desired.

Insulux Glass Block panels are laid up in checkerboard bond by regular brick masons with standard cement-lime mortar. Expansion strips are installed at panel jambs and head. Horizontal mortar joints, 24″ o. c., are reinforced with continuous galvanized welded wire ties. Glass block panels are not load bearing; openings must be framed to carry superimposed loads in the same manner as doors and windows.

More than ever, Insulux Glass Block is a leader in fenestration values. Non-critical and immediately available, it is ready now to serve you in home, office, school, or factory.

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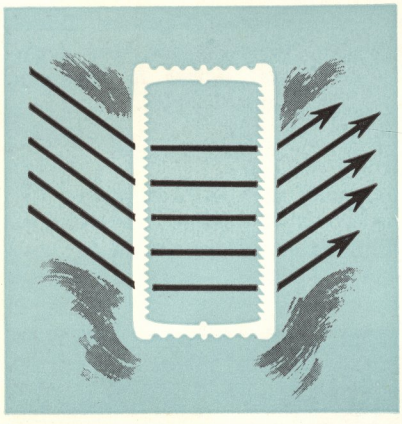
INSULUX
GLASS BLOCK

advantages:

LIGHT



diffusion and transmission

The six face designs of Insulux Glass Block offer as many degrees of diffusion and privacy. Beginning with Design No. 70, there is light with vision; in Design No. 07, light with limited privacy; in Design No. 16, light with increased privacy; in Design No. 31, light with the rich effect of hand-made glass; in Design No. 40, highly diffused light with almost complete privacy; and in Designs Nos. 63 and 65, light control with complete privacy.

light control

Insulux Glass Block No. 363, the prismatic light-controlling design, represents a remarkable advance in the daylighting of interiors. With the ability to direct daylight upward to a reflective ceiling, it has opened new trends in the utilization of daylight.

INSULATION

. . . against cold

Tests under natural weather conditions give Insulux panels a heat loss rating approximately that of an 8″ brick wall, insuring more uniform temperatures and draft-free rooms. Smaller heating plants may often be used.

. . . against heat

Heat control problems are easier with Insulux Glass Block. Insulux has an officially-rated solar heat gain less than half that of unshaded single glazing. With proper ventilation, this means cooler interiors.

. . . against noise

Insulux Glass Block, laid in mortar, ranks with or betters sound reduction ratings of most partition wall materials. With a 40.7 decibel sound reduction rating, Insulux is equal to 4″ clay tile, plastered on two sides.

PERMANENCE

cuts maintenance

Ordinary window maintenance charges diminish with the installation of Insulux—no painting, no reputtying, fewer washings.

peak protection

Able to withstand blows that shatter ordinary glass, Insulux Glass Block panels afford excellent protection against breakage, vandalism.

lifetime value

Exposure to the worst conditions—extreme temperatures and high humidity conditions—leave Insulux untouched. Panels remain in A-1 condition indefinitely.

ends infiltration

Buildings daylighted with Insulux Glass Block panels and ventilated mechanically are sealed against airborne grit and other substances that damage goods and machines.

International Business Machines Corp., Plant No. 2, Poughkeepsie, N. Y. Engineers: Seelye, Stevenson & Value, New York.

Boardman Elementary School, Boardman, Ohio. Architects: Kling & Frost, Youngstown, Ohio.

Oakdale Christian School, Grand Rapids, Mich. Architect: James K. Haveman, Grand Rapids.

a lifetime investment in trouble-free daylighting

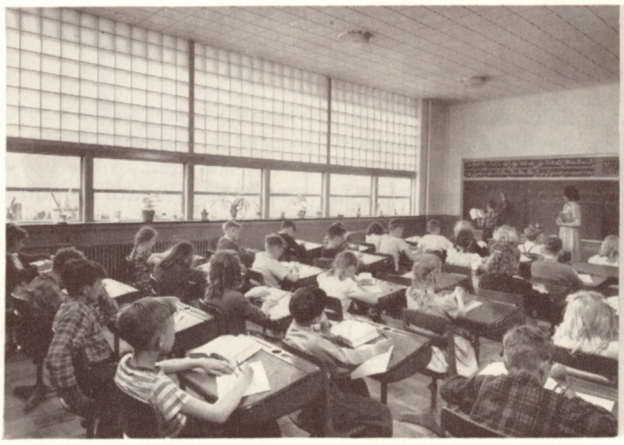
Industrial users of Insulux Glass Block and Insulux Fenestration Systems find that they can utilize daylight to the fullest extent in illumination of both plants and offices without fear of uncomfortable brightness contrasts and eyestrain. Light-controlling Insulux Glass Block at once improves overall daylighting conditions while helping to bring brightness ratios within acceptable limits of good seeing. The result is greater efficiency, less fatigue, and higher production.

As a low-maintenance investment for industry, Insulux Glass Block panels are excellent. Fewer and easier washings, freedom from deterioration, and absolute permanence mean real savings in fixed costs.

Low condensation point resulting from low "U" factor makes Insulux Glass Block panels ideal for high-humidity operations.

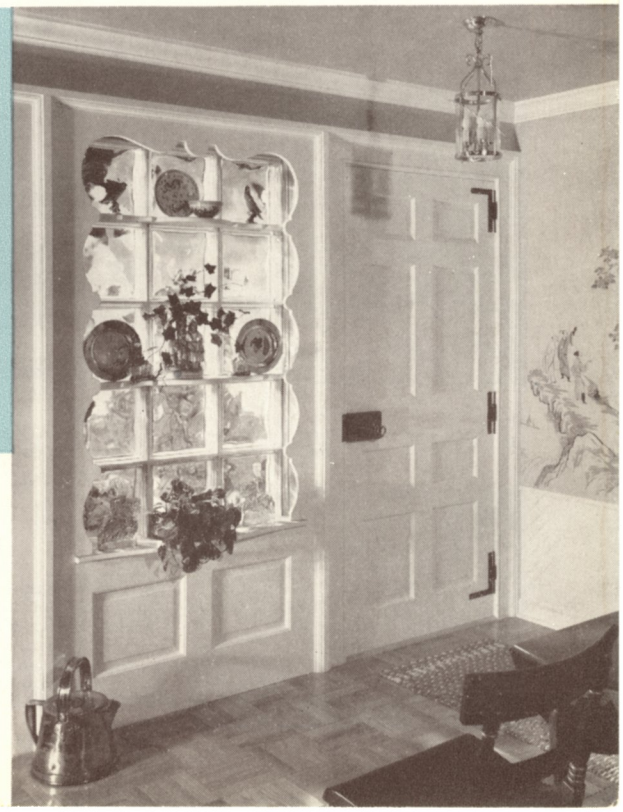
Top right: South District Filtration Plant, Chicago, Ill. Architect: Paul Gerhardt, Jr., City of Chicago. Bottom right: American Stove Co., St. Louis, Mo. Architect: Harris Armstrong, St. Louis.

better seeing by daylight with INSULUX *Glass Block*



Nowhere is daylight more important than in the Nation's schools. Good quality natural light for classroom illumination makes for easy vision, better concentration on work, fewer pairs of glasses for America's schoolchildren. Insulux light-directing glass block utilizes daylight more fully by directing it upward to a matte ceiling which reflects it down over work areas. Effect of this light direction is better light distribution throughout classrooms with comfortable brightness ratios from any position in the room. With the main beam of light directed upward out of the line of vision, shading of glass block is unnecessary.

added beauty for the home with extra insulation, too



More and more, progressive home builders and designers are using Insulux Glass Block to achieve unusual and handsome effects in architecture and interior decoration. Glass block panels enjoy the advantage of transmitting daylight without sacrificing privacy, allowing more extensive use of daylight in the home.

Important, too, is the high insulation factor of Insulux Glass Block panels with corresponding fuel savings. Cost of glass block panels is no more than most other types of home fenestration.

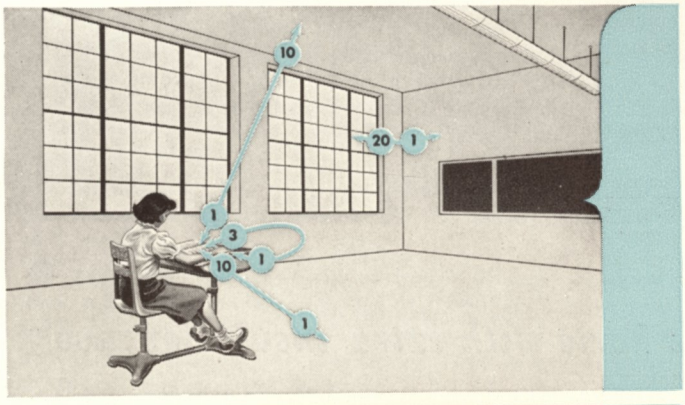
light control with no. 63 INSULUX *Glass Block*

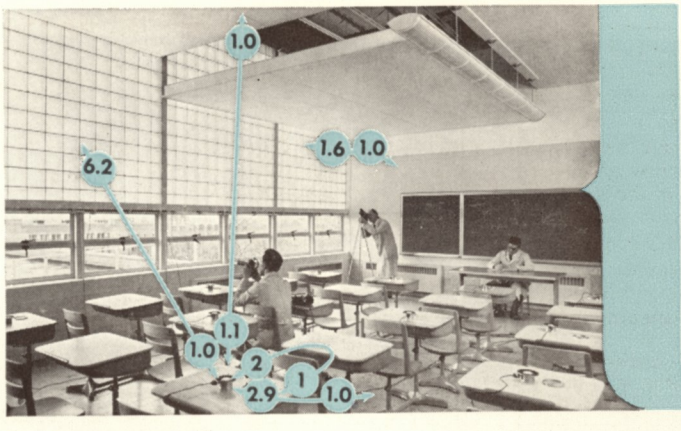
the problem

Proof that easy seeing is largely dependent upon reasonable brightness ratios is demonstrated in the diagrams at right. While the automobile headlights produce the same intensity of light in both night and day, the viewer's ability to discern details of the automobile is markedly different.

This difference is the result of creating two widely varying brightness ratios within the visual field. In the left-hand diagram the headlights appear against a well-lighted background, producing a very low brightness ratio. In the right-hand diagram, the same headlights appear against a very dark background, producing a brightness ratio sufficiently extreme to be called a "glare" condition, thus making seeing very difficult.

A glare problem similar to that faced by the night driver exists in many improperly lighted buildings. In such buildings the extreme brightness ratios make seeing difficult. Glare sources which produce high brightness ratios in poorly lighted rooms may be due to either improperly controlled artificial illumination or daylight sources.





the solution

Insulux light-directing block, developed in the world's most modern daylighting laboratory, located at the University of Michigan, directs the major portion of the light to the upper part of the room from where it is reflected down onto the working surfaces. This block solves the glare problem and brings brightness ratios well within the limits prescribed by lighting authorities.

The diagram at the left shows the maximum brightness ratios recommended by the Illuminating Engineering Society for comfortable seeing conditions in rooms where critical tasks are done. The figures on the photograph of the room show brightness ratios between various surfaces in a school classroom daylighted by light-directing block. Measurements were taken on a bright day when the vertical surface illumination was 6750 foot-candles.

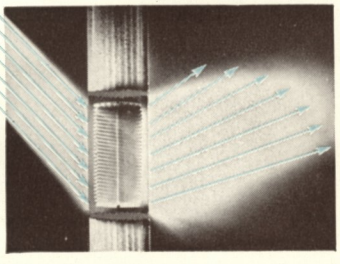
While these particular measurements were taken on a bright day, exhaustive tests show that the ratios do not vary regardless of exterior illumination conditions.

Note how well brightness ratios fall within the recommended standards. For example, even though the I.E.S. standards permit a 20 to 1 ratio between fenestration and adjacent wall, the use of Insulux light-directing glass block as a fenestration material will produce a ratio of only 1.6 to 1 with other ratios in the room following this proportion.

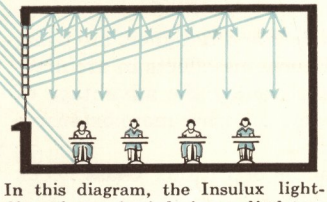
While typical Insulux Fenestration* has become a widely used system for producing controlled daylight conditions in many buildings, architects are now using light-directing glass block in a great variety of combinations with clear glass and other building materials. Architects also use color accents within rooms daylighted with light-directing block, without losing the high light reflectivities of pastel shades.

**Windows below Insulux light-directing glass block.*

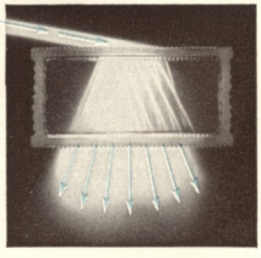
CONTROLLED DAYLIGHT WITH INSULUX NO. 63



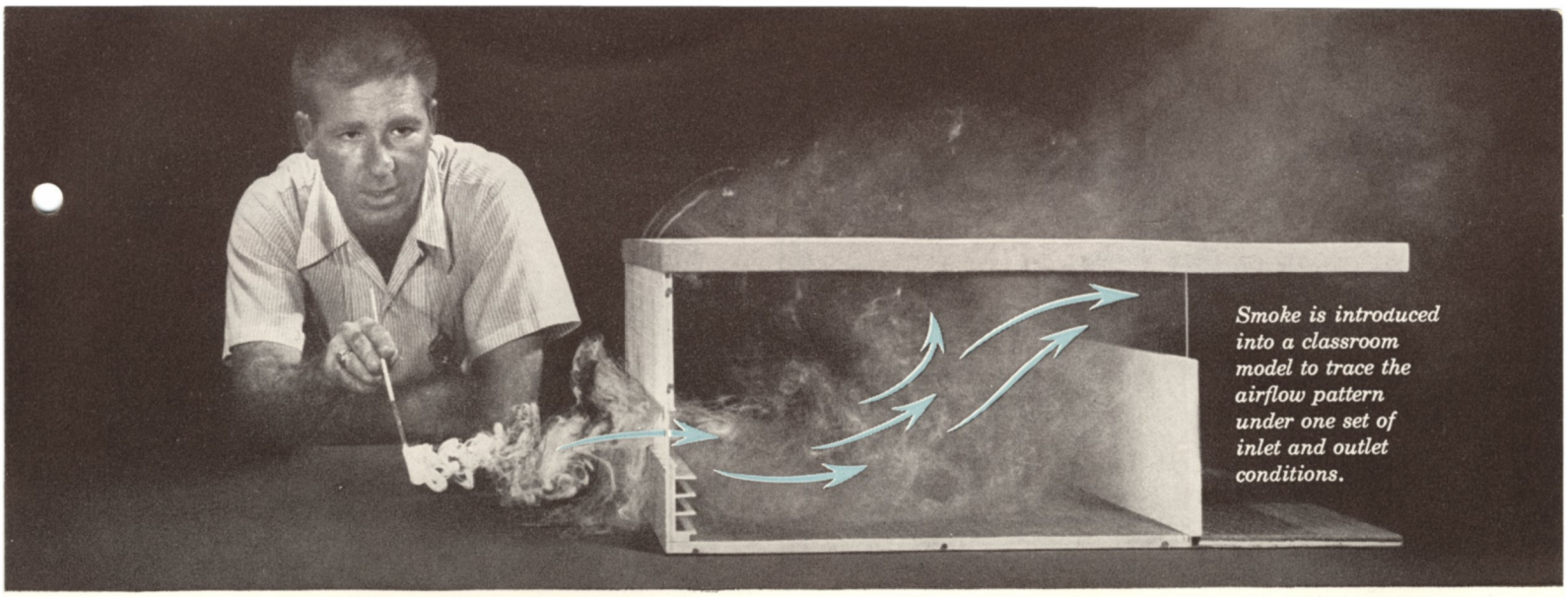
Vertical photographic cross-section of No. 63 Glass Block. Prismatic ribs direct incoming light upward above the horizontal toward a reflective ceiling.



In this diagram, the Insulux light-directing principle is applied to a schoolroom. Observe how the farthest corners of the room are daylighted.



Horizontal cross-section, looking down, affords a good view of Insulux "azimuth correction". Block accepts daylight from horizontal angles and diffuses it uniformly.



Smoke is introduced into a classroom model to trace the airflow pattern under one set of inlet and outlet conditions.

natural ventilation with Insulux Fenestration

Since the basic expense of mechanical temperature and humidity control excludes its use for many of today's buildings, the question raised more and more often is "How can natural ventilation be made to do a better job?"

Kimble Glass Company, interested in perfecting better ventilation schemes for use with glass block fenestration, requested the Texas Engineering Experiment Station (affiliated with the Texas A & M College) to conduct a study on the question.

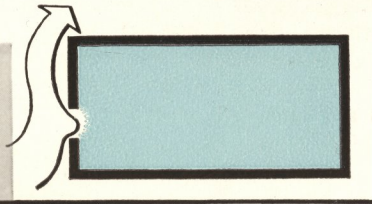
Using a series of scale-models with simulated Insulux fenestration, the Experiment Station succeeded in tracing air flow and measuring air speeds within rooms under a wide variety of ventilation arrangements.

These studies showed that the vision strip customarily used below the light-directing glass block in many buildings provided an adequate ventilating area to do a satisfactory job even in hot climates providing certain important features were incorporated into the design of buildings.

These features are: **1** Proper orientation of buildings, **2** Proper outlet openings into corridor or lee side of the building, **3** Proper design of ventilators and **4** Proper design of vision strip hoods.

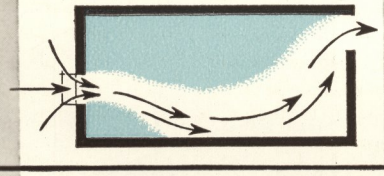
The diagrams on this page are typical of the studies made. A full report of all tests conducted is available by writing Kimble Glass Company, Toledo 1, Ohio.

NO OUTLET OPENING ON LEE SIDE



This test showed that air cannot enter a room through an opening on the windward side of a building if no outlet is provided on the lee side.

WITH OUTLET ON LEE SIDE



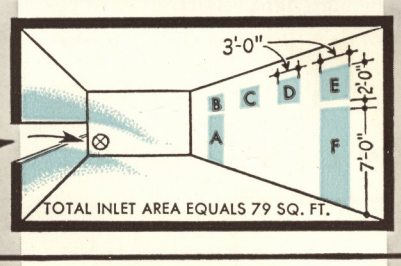
This test shows the effect that an outlet opening on the lee side of the building has on the movement of air through the room. The particular window used in this test was a casement type and was selected because it would not divert the air either upward or downward.

OTHER VENTILATOR TYPES

In this test the only alteration made in the model was to replace the casement window with a projected type window. The projected type window directed the air to the upper part of the room, thus producing a limited cooling effect upon the occupants of the room, as compared to the free movement of air through the lower part of the room when casement or pivoted windows were used.

VARIABLE OUTLET OPENINGS

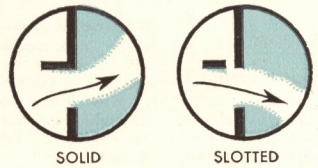
Effect of varying size of outlet opening



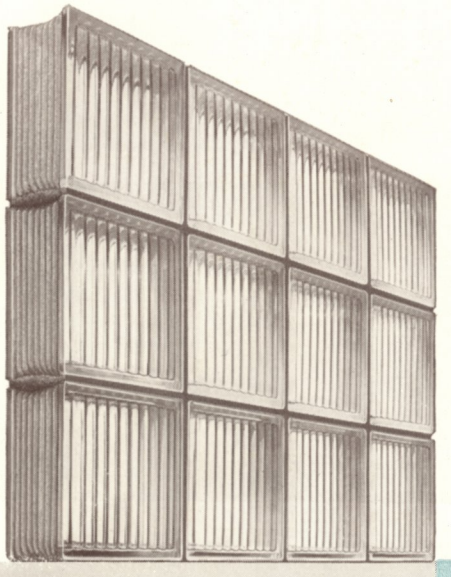
Tests showed the size of the outlet opening on the lee side of the building has a substantial effect on the velocity of the air moving through the room. Within reason, the larger the outlet opening, the greater the velocity of the air. Note table below.

TEST	TOTAL OUTLET	Sq. Ft.	% Ratio of Outlet Area To Inlet Area	% Relative Air Speed At ⊗
1	A	21	27	30
2	A B	27	34	35
3	A F	42	53	53
4	A B E F	54	68	73
5	A B C D E F	66	84	84
6	A B C D E	45	57	58
7	B C D E	24	30	38

SUN HOODS

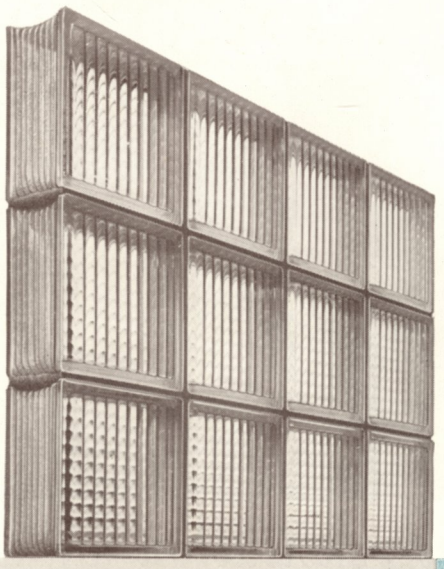


Since it has been the custom in many buildings to use a hood above the vision strip as a shading device, a series of tests were made to determine the effect of the hood on the direction of the air movement through the room. These tests show that a solid hood tended to deflect the air upward through the room, whereas a slotted or louvered hood helped to direct the air down over the occupants of the room.



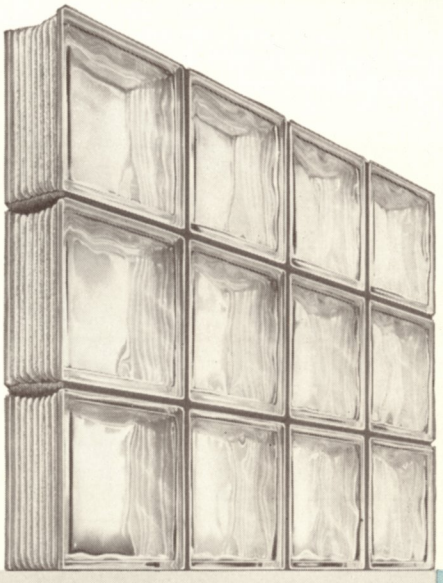
design no. **07**

Smooth-faced with convex ribs parallel on both interior faces. High light transmission and limited privacy. Lower brightness when laid with ribs vertical.



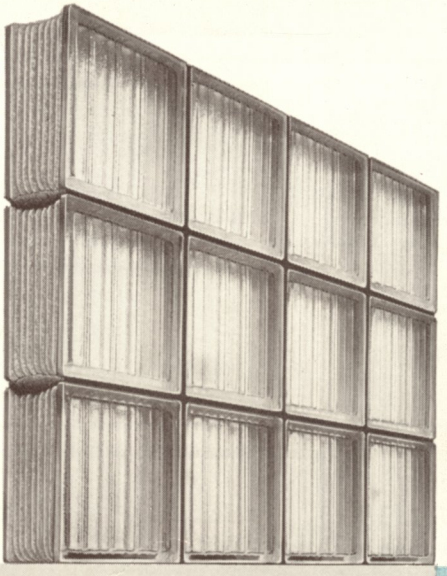
design no. **16**

Smooth-faced decorative block with convex ribs on interior faces at right-angles to each other. Privacy fair. Decorative light pattern in sun or artificial light.



design no. **31**

Similar in appearance to hand-made colonial glass; each block varies slightly in design figuration. Highly decorative, nearly transparent. High light transmission.



design no. **40**

Exterior faces have wide, flat, vertical ribs. Stippled interior faces have ribs paralleling those on exterior faces. Privacy good. High light transmission; moderate diffusion.

INSULUX GLASS BLOCK

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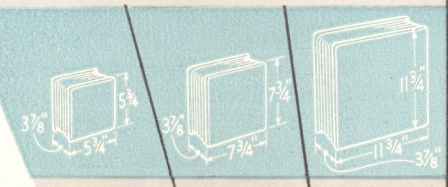
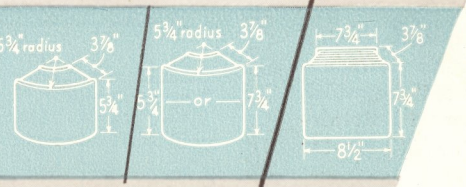
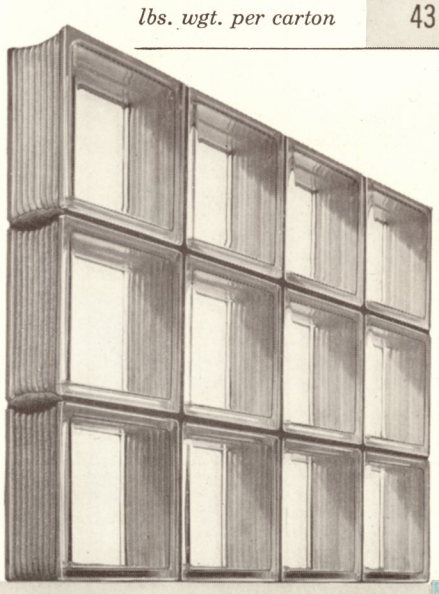
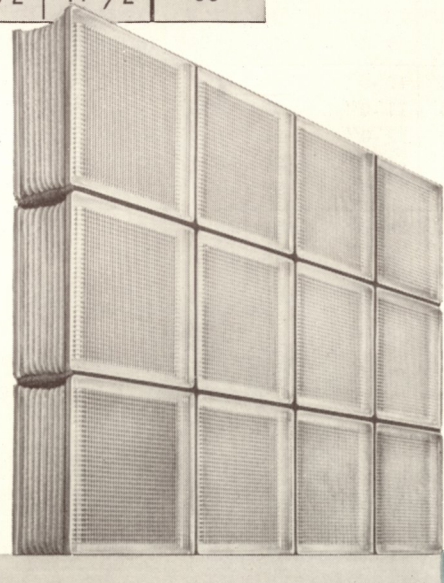
		SQUARE BLOCKS			CORNER BLOCKS			RADIAL BLOCKS				
												
order by these numbers / design numbers		5 3/4 x 5 3/4 x 3 1/8"	7 3/4 x 7 3/4 x 3 7/8"	11 3/4 x 11 3/4 x 3 7/8"	USE TWO 5 3/4" CORNER BLOCKS WITH 11 3/4" SQUARE							
					5 3/4" HIGH	7 3/4" HIGH	7 3/4" HIGH	degree of privacy	smooth-face	ribbed-face	to match corner blocks, lay with ext. ribs vertical
DECORATIVE AND GENERAL PURPOSE	07	207	307	407				limited	•		•
	16	216	316	416	216-C	316-C	316-R	fair	•		•
	31		331	431				very limited	•		
	40	240	340	440	240-C	340-C	340-R	good		•	•
	70		370				370-R	none	•		
FUNCTIONAL BLOCKS for LIGHT CONTROL Write for full Data	63		363	463		363-C	363-R	complete		•	•
	65		365	465		365-C	365-R	complete		•	•
number per carton		12	8	4	12	8	8				
lbs. wgt. per carton		43	55•58	63	49 1/2	44 1/2	58				





design no. 70

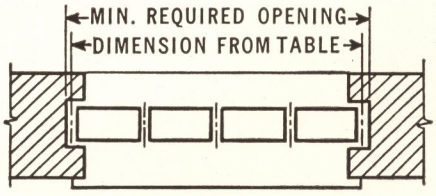
A clear block for limited vision. Adaptable for insertion into panels of other designs when vision is required. Smooth-faced. High light transmission, no diffusion, no privacy.

designs nos. 63/65

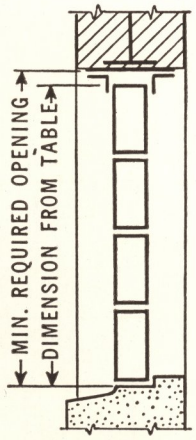
Functional, azimuth-correcting designs for daylight control. No. 63 is light-directing and No. 65 is light-diffusing. Similar in appearance, both have low surface brightness. Install as marked.

table of dimensions

To find minimum required opening size for glass block panels use dimensions below, adding ½" for width and ⅜" (plus maximum lintel deflection) for height. ¼" mortar joints recommended.



PLAN



SECT.

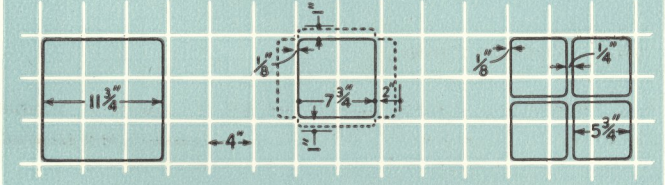
No. of Units	5¾ x 5¾ x 3⅞"	7¾ x 7¾ x 3⅞"	11¾x11¾ x 3⅞"
1	6"	8"	1'-0"
2	1'-0"	1'-4"	2'-0"
3	1'-6"	2'-0"	3'-0"
4	2'-0"	2'-8"	4'-0"
5	2'-6"	3'-4"	5'-0"
6	3'-0"	4'-0"	6'-0"
7	3'-6"	4'-8"	7'-0"
8	4'-0"	5'-4"	8'-0"
9	4'-6"	6'-0"	9'-0"
10	5'-0"	6'-8"	10'-0"
11	5'-6"	7'-4"	11'-0"
12	6'-0"	8'-0"	12'-0"
13	6'-6"	8'-8"	13'-0"
14	7'-0"	9'-4"	14'-0"
15	7'-6"	10'-0"	15'-0"
16	8'-0"	10'-8"	16'-0"
17	8'-6"	11'-4"	17'-0"
18	9'-0"	12'-0"	18'-0"

No. of Units	5¾ x 5¾ x 3⅞"	7¾ x 7¾ x 3⅞"	11¾x11¾ x 3⅞"
19	9'-6"	12'-8"	19'-0"
20	10'-0"	13'-4"	20'-0"
21	10'-6"	14'-0"	21'-0"
22	11'-0"	14'-8"	22'-0"
23	11'-6"	15'-4"	23'-0"
24	12'-0"	16'-0"	24'-0"
25	12'-6"	16'-8"	25'-0"
26	13'-0"	17'-4"	
27	13'-6"	18'-0"	
28	14'-0"	18'-8"	
29	14'-6"	19'-4"	
30	15'-0"	20'-0"	
31	15'-6"	20'-8"	
32	16'-0"	21'-4"	
33	16'-6"	22'-0"	
34	17'-0"	22'-8"	

Maximum panel dimension without reinforcement

Mortar joints are ¼"

MODULAR COORDINATION



Insulux Glass Block is a modular product. The details of installation determine the position of the block relative to the grid lines. Vertically, the panels may be 1" above or below the grid lines depending upon head and sill details used. Horizontally, panels may be on the grid lines or centered between, depending upon jamb details.

curved panel laying radii

Either Standard or Radial Block can be laid to several radii by varying the thickness of the mortar joints. By combining both Standard and Radial in one panel various radii can be laid with a more uniform joint thickness.

Type "A" Panels laid with all Standard Block.

Type "B" Panels laid with all Radial Block.

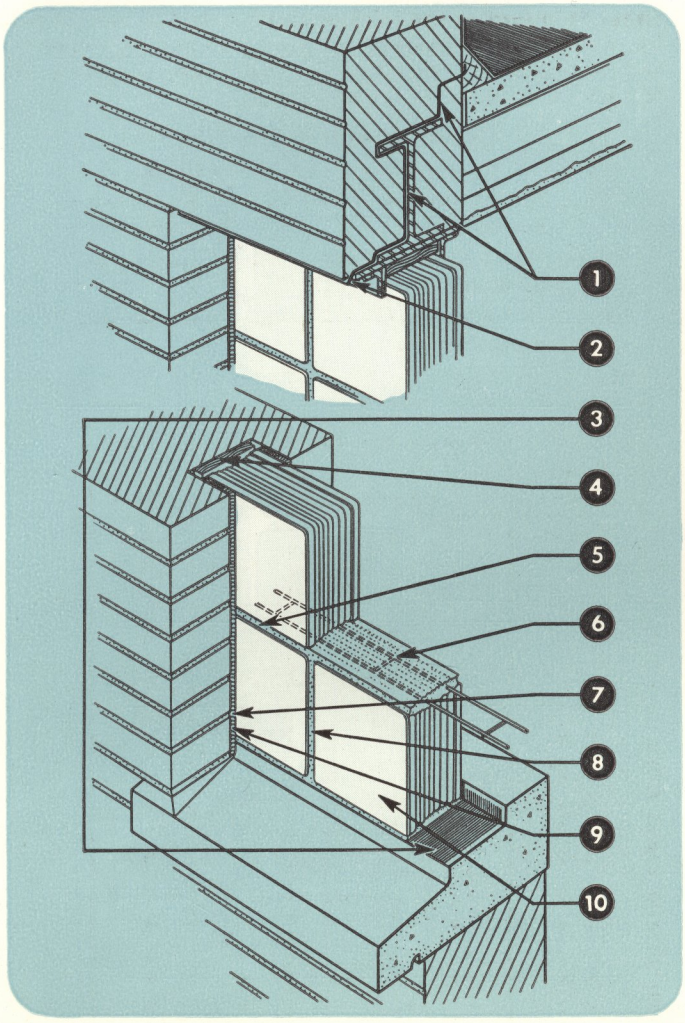
Type "C" Panels laid alternating—2 Radial with 1 Standard Block.

Type "D" Panels laid alternating—1 Radial with 1 Standard Block.

Type "E" Panels laid alternating—1 Radial with 2 Standard Block.

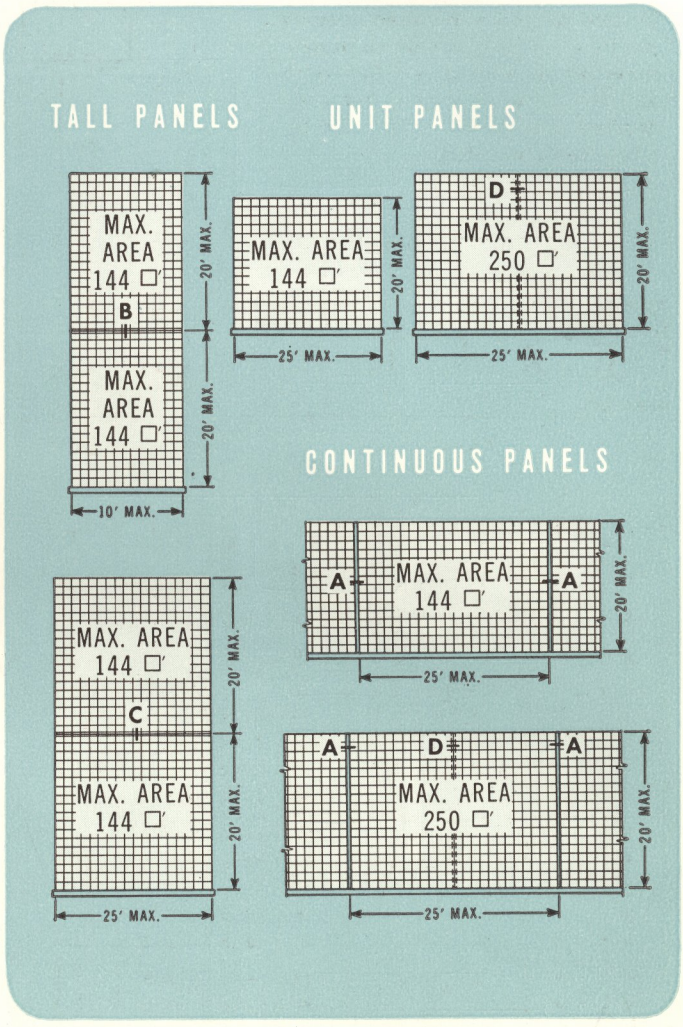
	Outside Radius	Number of Units S-Standard R-Radial		Joint Thickness Inside	Joint Thickness Outside	Type
7¾" STANDARD AND RADIAL BLOCK	2'-5"	5-R		⅛"	⅝"	B
	2'-10"	6-R		3/16"	⅜"	B
	3'-3"	7-R		⅜"	7/16"	B
	3'-8"	8-R		3/16"	⅛"	B
	4'-1"	6-R	3-S	⅛"	5/16"	C
	4'-4"	9-R		⅝"	9/16"	B
	4'-8"	10-R		7/16"	¼"	B
	5'-0"	8-R	3-S	¼"	¼"	C
	5'-4"	6-R	6-S	⅛"	¼"	D
	5'-9"	7-R	6-S	⅛"	3/16"	D
	5'-9"	13-S		⅛"	⅝"	A
	6'-0"	7-R	6-S	½"	9/16"	D
	6'-4"	7-R	7-S	⅜"	⅜"	D
	6'-4"	14-S		⅜"	¾"	A
	6'-8"	7-R	8-S	¼"	¼"	D
	6'-8"	15-S		¼"	⅝"	A
	7'-0"	6-R	10-S	⅛"	¼"	E
	7'-0"	16-S		⅛"	½"	A
	7'-5"	6-R	11-S	⅛"	¼"	E
	7'-5"	17-S		⅛"	7/16"	A
	7'-8"	6-R	11-S	7/16"	½"	E
	7'-8"	17-S		7/16"	¾"	A
	8'-0"	6-R	12-S	5/16"	7/16"	E
	8'-0"	18-S		5/16"	⅝"	A
	8'-4"	7-R	12-S	¼"	¼"	E
	8'-4"	19-S		¼"	½"	A
5¾" STANDARD BLOCK	4'-3"	13-S		⅛"	⅝"	A
	4'-8"	14-S		⅛"	½"	A
	5'-0"	15-S		⅛"	½"	A
	5'-4"	16-S		⅛"	½"	A
	5'-8"	17-S		3/16"	½"	A
	6'-0"	18-S		3/16"	½"	A
	6'-4"	19-S		3/16"	½"	A
	6'-8"	20-S		¼"	½"	A
	7'-0"	21-S		¼"	½"	A
	7'-4"	22-S		¼"	½"	A
11¾"	8'-6"	13-S		⅛"	⅝"	A

how to install Insulux



1. Install through-wall flashing in all masonry walls above glass block.
2. Drip flashing to exterior.
3. Apply a coat of Insulux Asphalt Emulsion to the sill.
4. Install Insulux Expansion Strips at jambs and heads of openings.
5. Lay glass block, using full mortar joints. Mortar mix 1 part Portland Cement, 1 part hydrated lime and 4 parts sand to a stiff consistency.
6. Install Insulux Wall Ties continuous in horizontal joints 24″ o.c.
7. Anchor panels at jambs by setting into rebates formed by chase, or use Insulux Anchors every third horizontal joint.
8. Tool joints and give blocks preliminary cleaning before mortar reaches final set.
9. Pack oakum on both sides of chases at jambs and head. Calk these joints with mastic to depth of at least ⅜″.
10. Give panel final cleaning. No. 363 has a special, transparent chemical finish for quick and easy cleaning.

panel size and area



Sizes: Max. Length—25 Ft., Max. Height—20 Ft. Panels over these limiting dimensions shall be divided by mullions, detail "A" or shelf angles, details "B" or "C," to provide expansion joints and reinforcement against wind pressure. (Page 12).

Areas: 144 Sq. Ft. (without stiffener)—250 Sq. Ft. (using stiffener detail "D"). Panels over these areas to be reinforced with mullions; detail "A," or shelf angles, details "B" or "C". (Page 12)

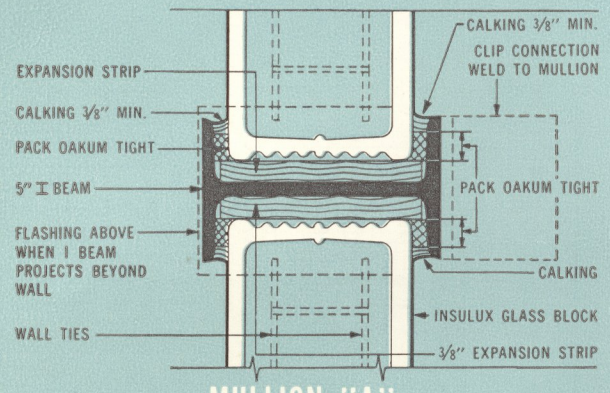
Wall Anchor Panels

Wall anchor-type panels (panels not set in chases at jambs) should not be more than 10 feet wide or 100 square feet in area.

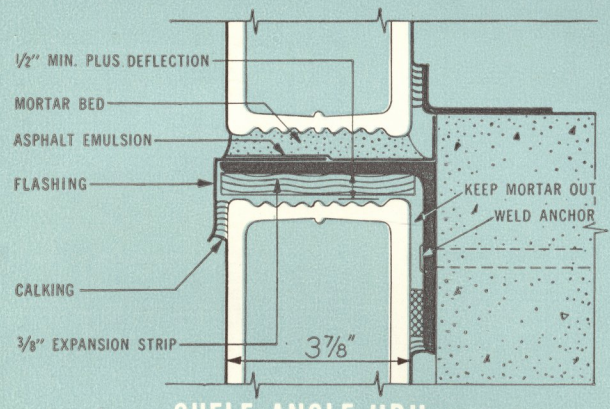
Fire-Retardant Panels

To qualify for Underwriters' Laboratories light fire retardant rating for Class F Openings, panels must not exceed 12 feet in width or height nor 120 square feet in area. Special details required for fire-retardant construction. Available upon request.

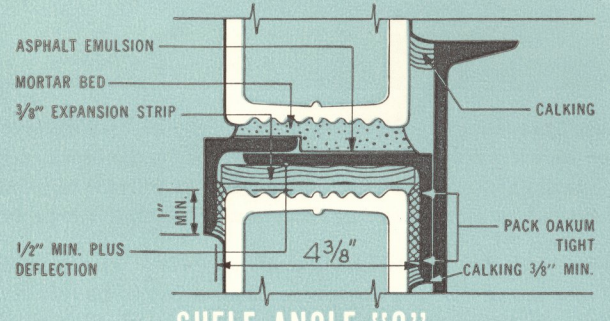
reinforcing large panels



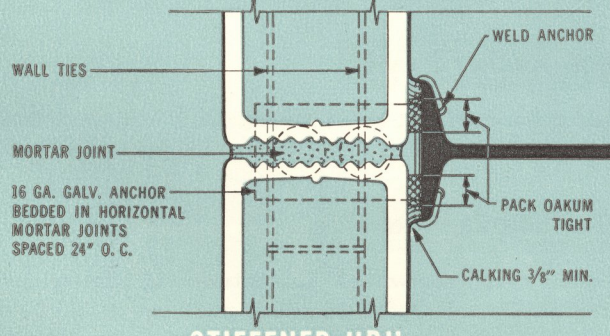
MULLION "A"



SHELF ANGLE "B"

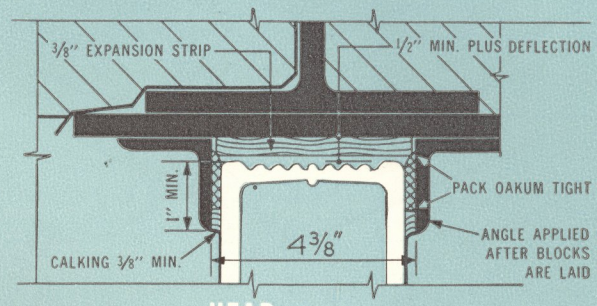


SHELF ANGLE "C"

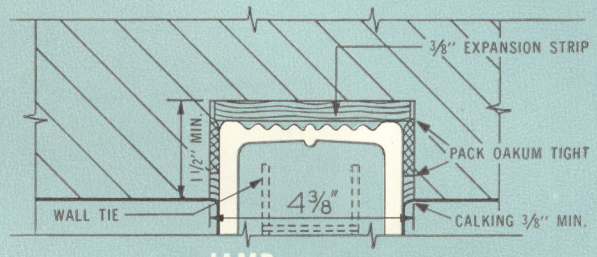


STIFFENER "D"

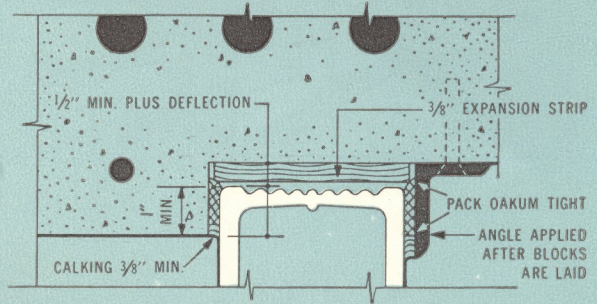
12" walls



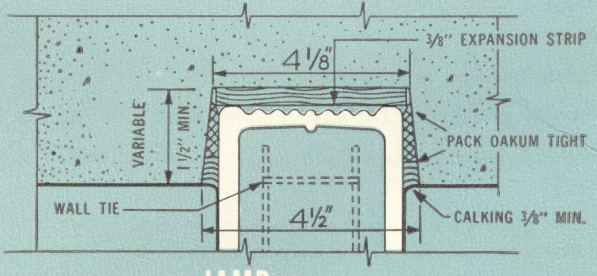
HEAD (Masonry) *



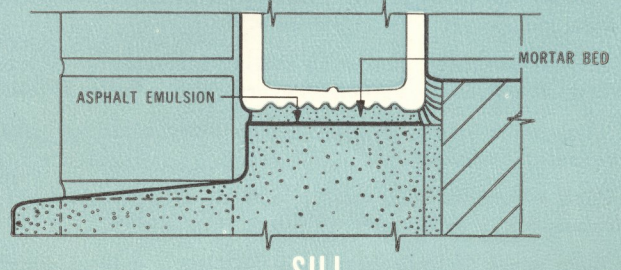
JAMB (Masonry)



HEAD (Concrete)



JAMB (Concrete)

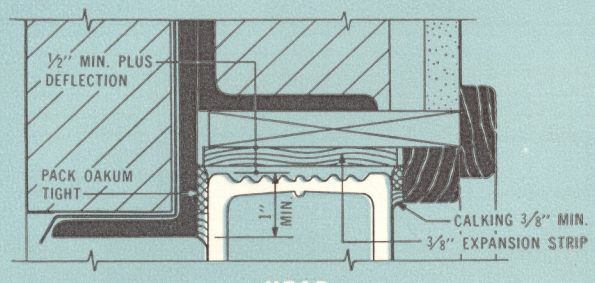


SILL

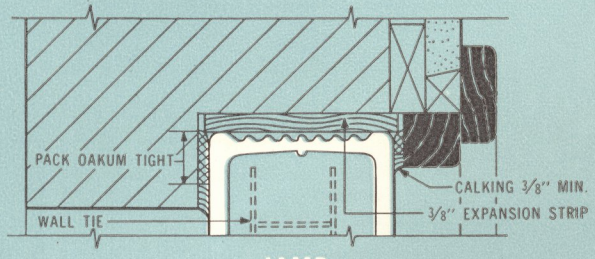
*Flash head through wall as shown in detail on Page 11.

Scale 3"= 1'-0"

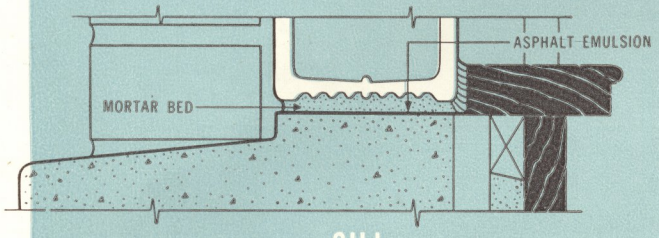
8″ walls



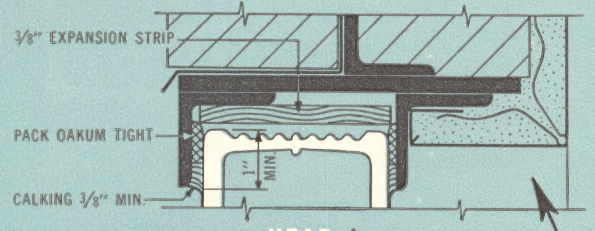
HEAD *



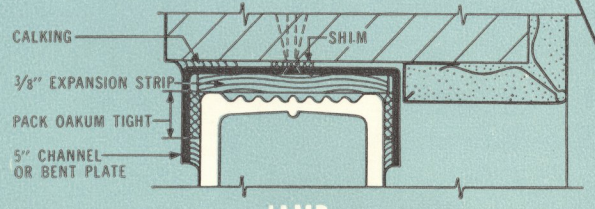
JAMB



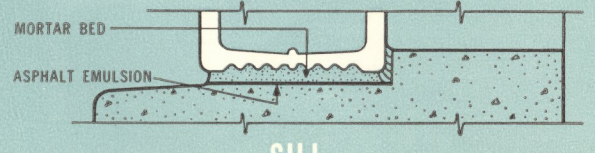
SILL



HEAD *



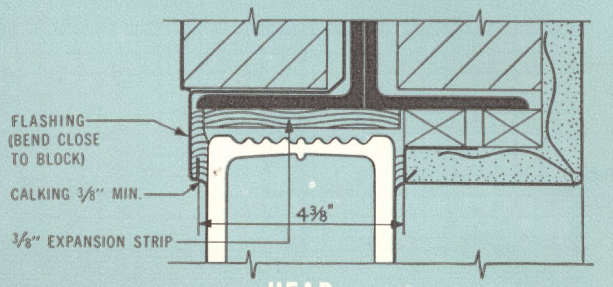
JAMB



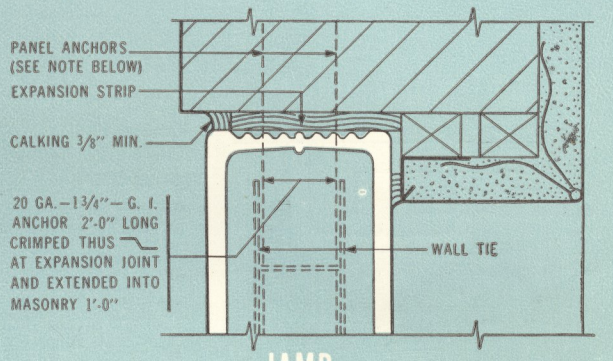
SILL

***Flash head through wall as shown in detail on Page 11.**

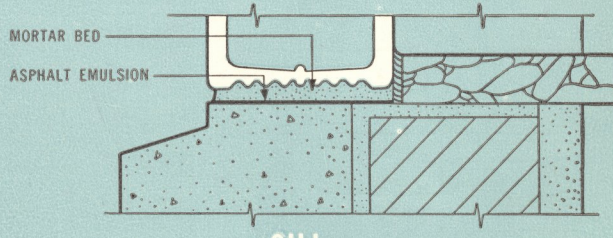
small panel details



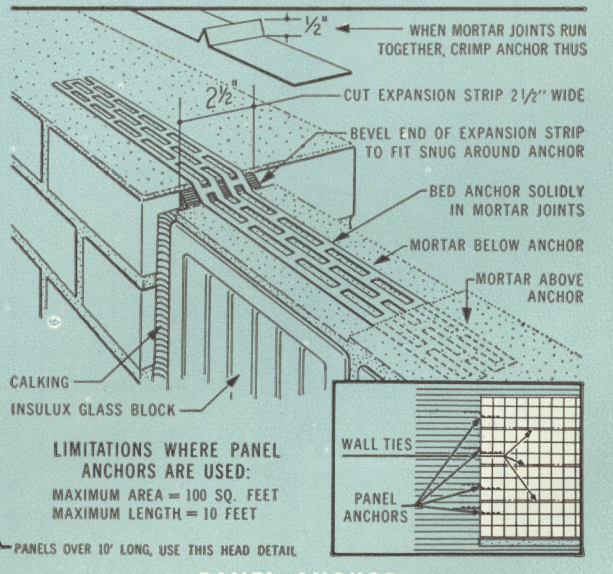
HEAD *



JAMB



SILL

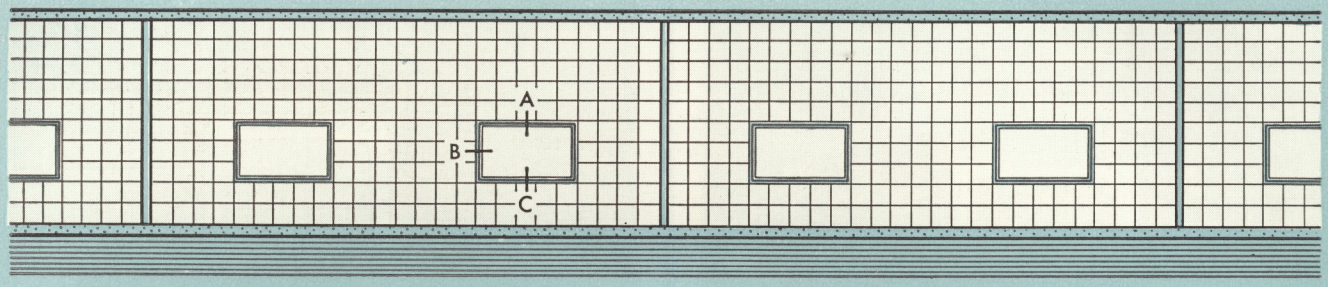


PANEL ANCHOR

***Flash head through wall as shown in detail on Page 11.**

Scale 3″ = 1′-0″

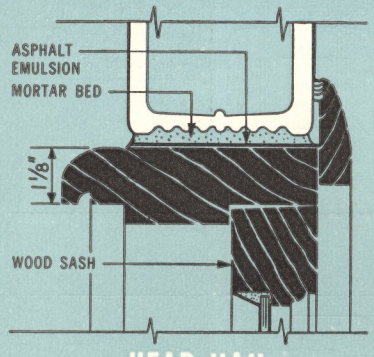
stock size ventilators for glass block panels



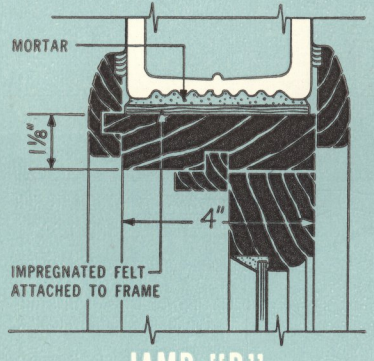
TYPICAL ELEVATION

Sub Frames Will Fit Block Laid With Mortar Joints Varying From 3/16" to 3/8"

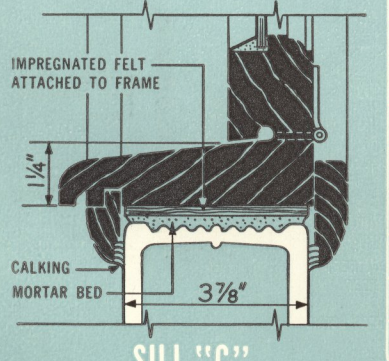
WOOD WINDOW DETAILS



HEAD "A"



JAMB "B"



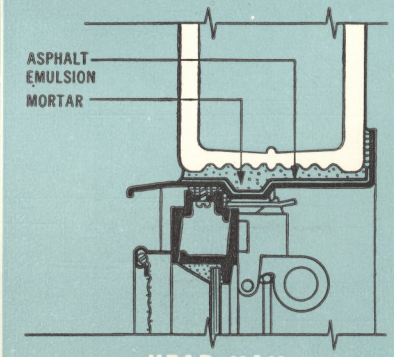
SILL "C"

TABLE OF STOCK SIZES

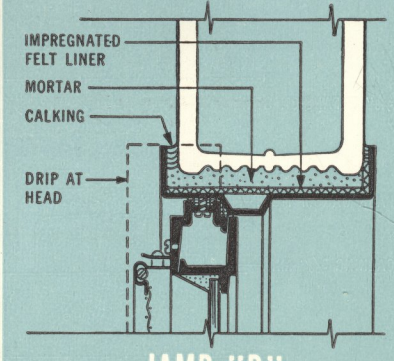
Nominal Glass Block Opening Size (WIDTH x HEIGHT)	Size of Block	Type of Sash *	Material
12" x 12"	6", 12"	Projected	Aluminum
18" x 12"	6"	Projected	Aluminum
24" x 12"	6", 12"	Projected	Aluminum
30" x 12"	6"	Projected	Aluminum
36" x 12"	6", 12"	Projected	Aluminum
24" x 18"	6"	Projected	Aluminum
30" x 18"	6"	Projected	Aluminum
24" x 24"	6", 8", 12"	Projected	Alum.,steel,wood
30" x 24"	6"	Projected	Aluminum
36" x 24"	6", 12"	Projected	Aluminum
16" x 8"	8"	Projected	Aluminum
24" x 8"	8"	Bottom Hinged	Alum., steel
32" x 8"	8"	Projected	Aluminum
16" x 16"	8"	Projected	Aluminum
24" x 16"	8"	Projected	Alum., steel
32" x 16"	8"	Projected	Alum., steel
40" x 16"	8"	Projected	Alum., steel
16" x 24"	8"	Projected	Alum., steel
32" x 24"	8"	Projected	Alum., steel
40" x 24"	8"	Casement	Steel
24" x 32"	8"	Projected	Alum., steel
32" x 32"	8"	Projected	Alum., steel
40" x 32"	8"	Projected	Alum.,steel,wood
40" x 40"	8"	Projected	Alum.,steel,wood
32" x 40"	8"	Projected	Steel

*Projected in or out

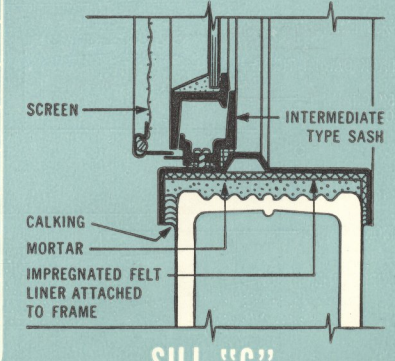
STEEL WINDOW DETAILS



HEAD "A"



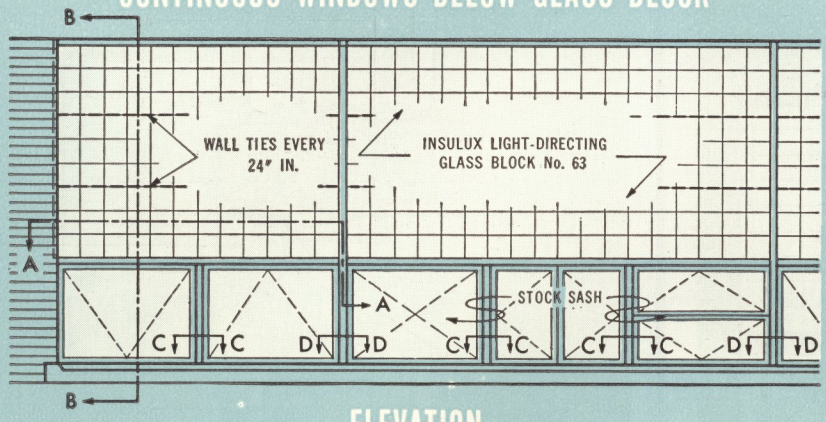
JAMB "B"



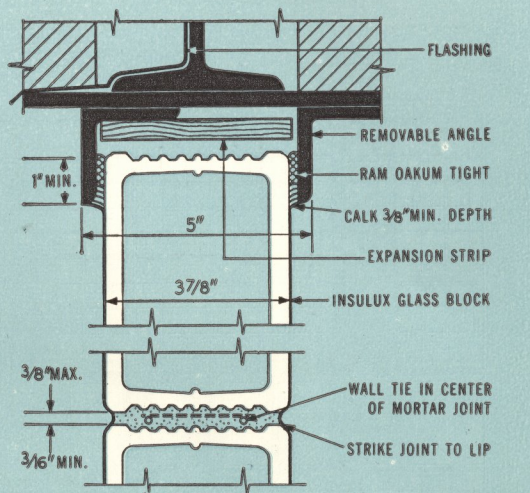
SILL "C"

Scale 3" = 1'-0"

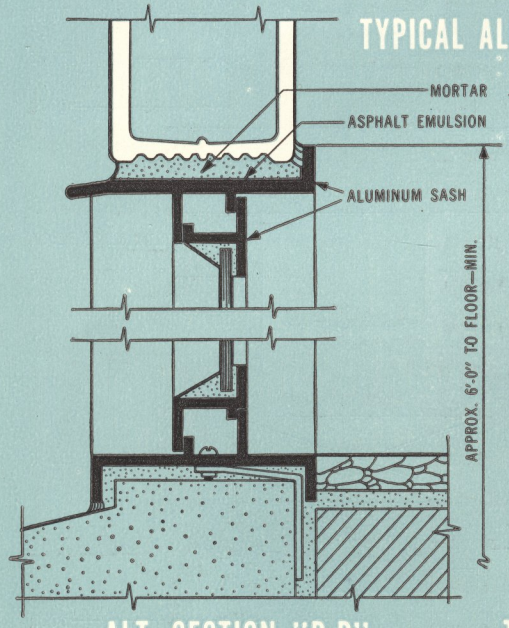
CONTINUOUS WINDOWS BELOW GLASS BLOCK



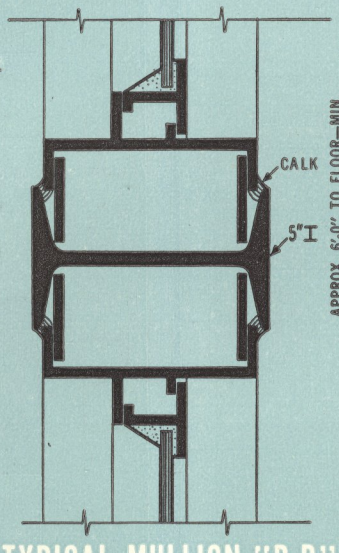
ELEVATION



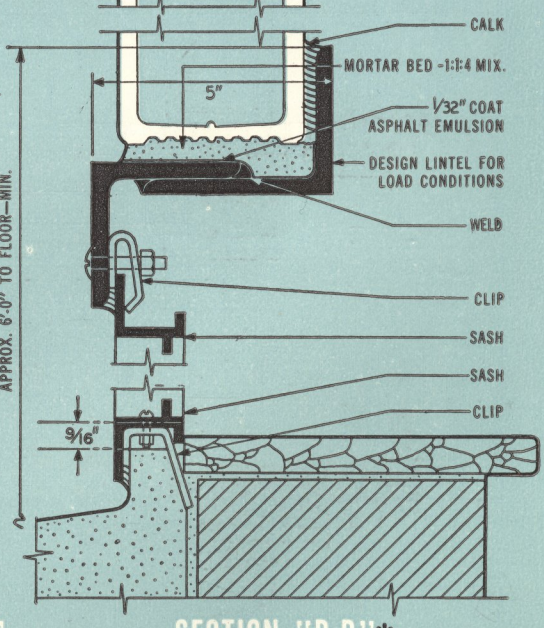
TYPICAL ALUMINUM SASH DETAILS



ALT. SECTION "B-B"
Aluminum Sash

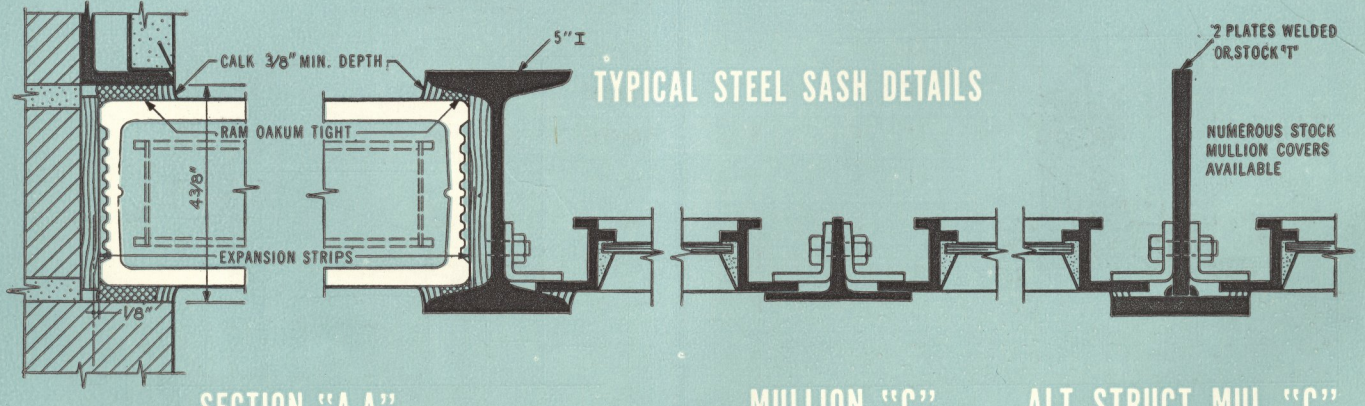


TYPICAL MULLION "D-D"
Aluminum Sash



SECTION "B-B"*
Steel Sash

TYPICAL STEEL SASH DETAILS



SECTION "A-A"

MULLION "C"

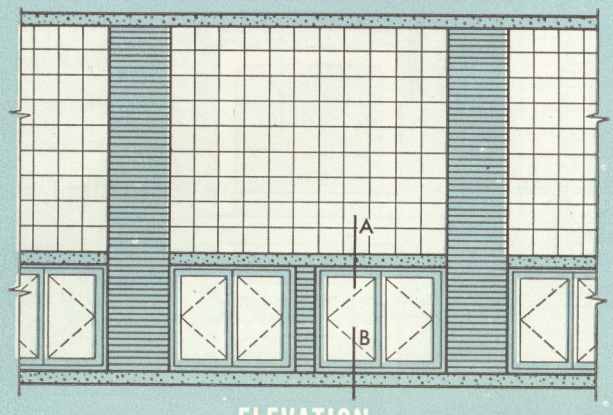
ALT. STRUCT. MUL. "C"
For Lintel Support When Required

*Flash head through wall as shown in detail on Page 11.

Scale 3"=1'-0"

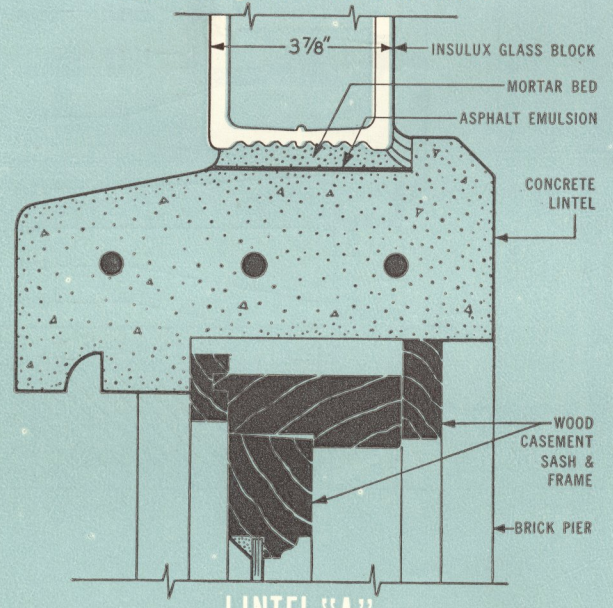
Insulux Fenestration

INSULUX FENESTRATION DETAILS WITHOUT THE USE OF STEEL

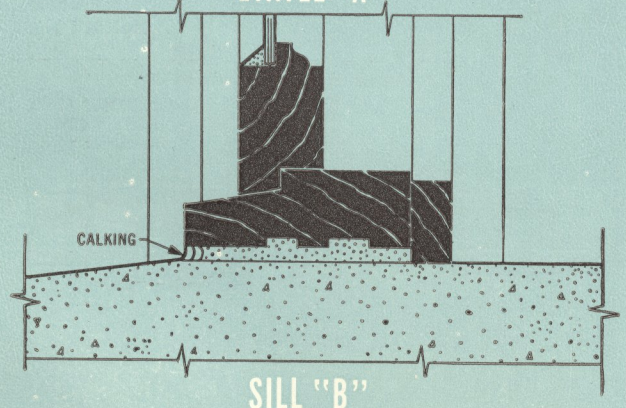


ELEVATION

Wall Bearing Piers • Concrete Lintels

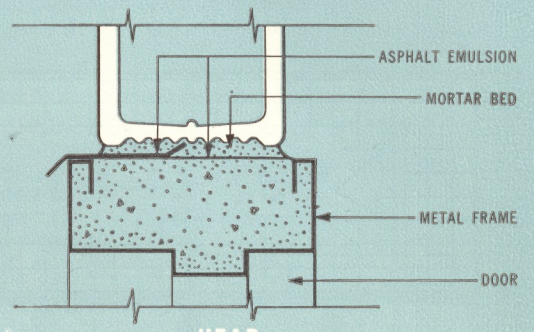


LINTEL "A"

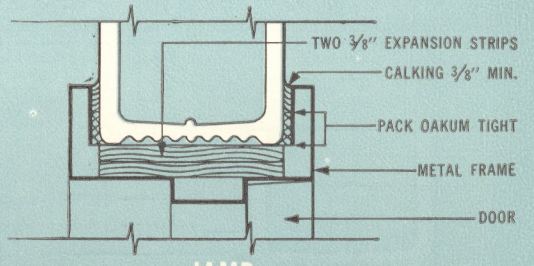


SILL "B"

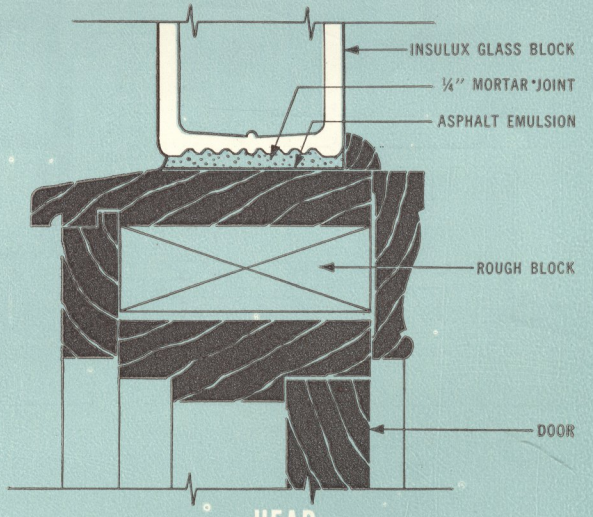
door frames



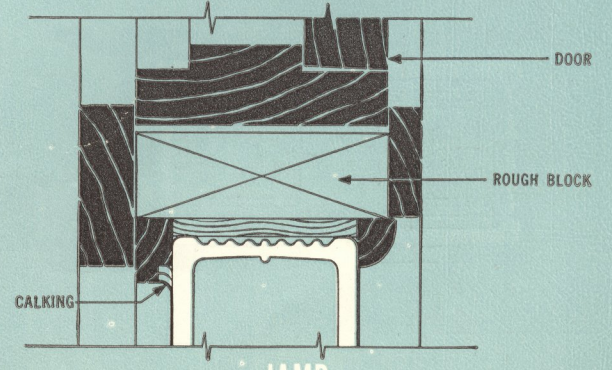
HEAD



JAMB



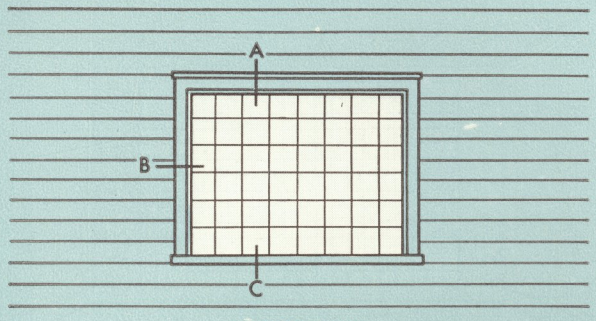
HEAD



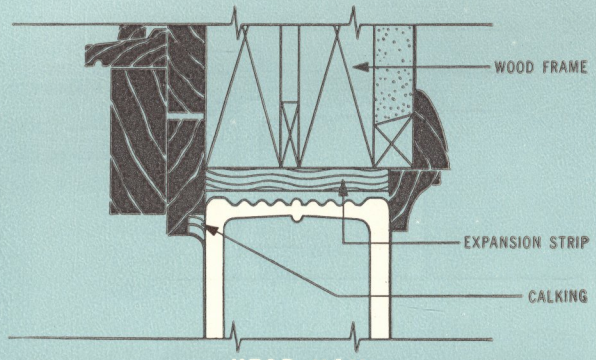
JAMB

Scale 3"=1'-0"

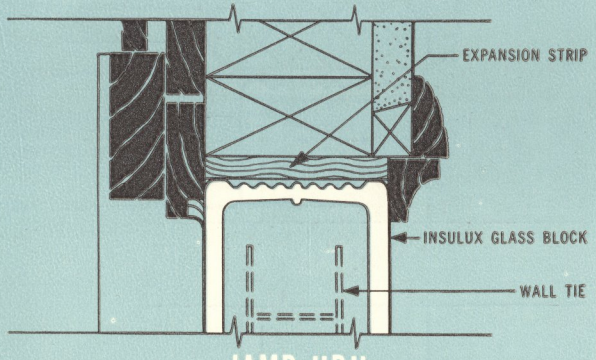
wood frame construction



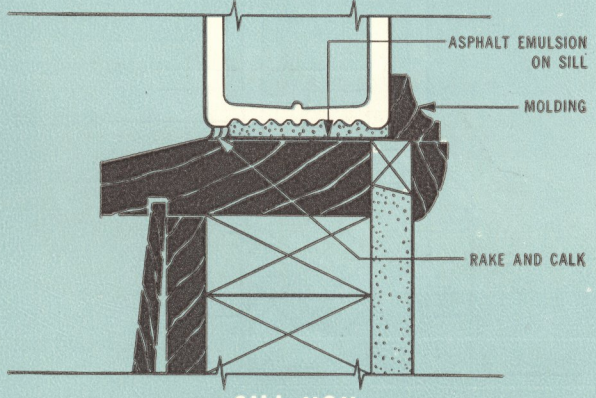
ELEVATION



HEAD "A"

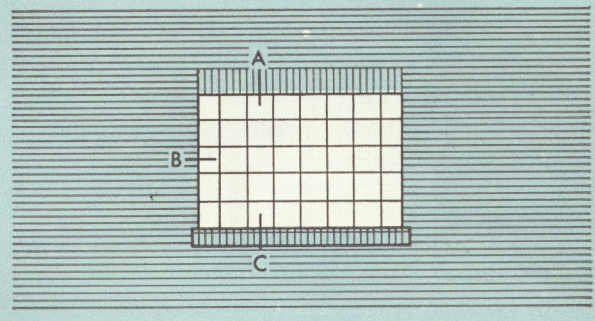


JAMB "B"

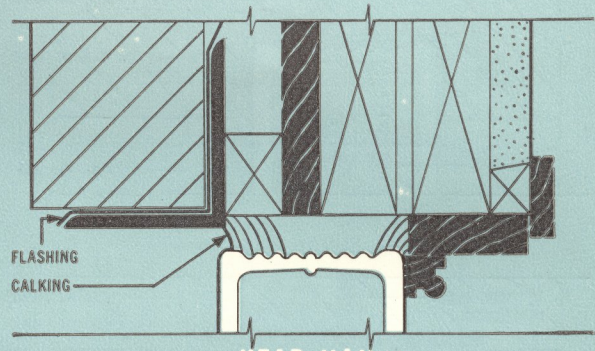


SILL "C"

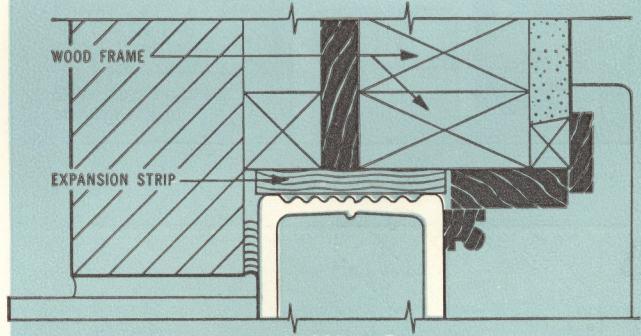
brick veneer construction



ELEVATION



HEAD "A" *



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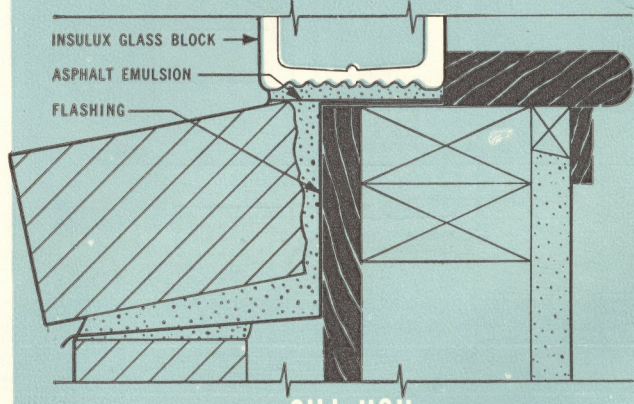
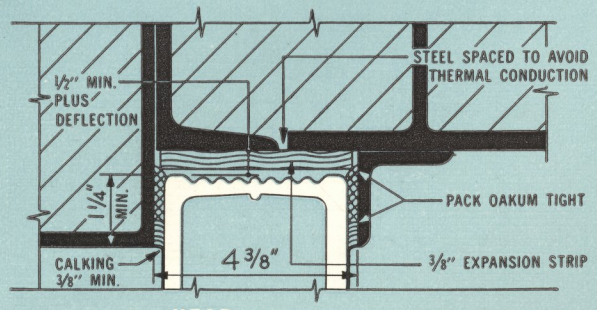


SILL "C"

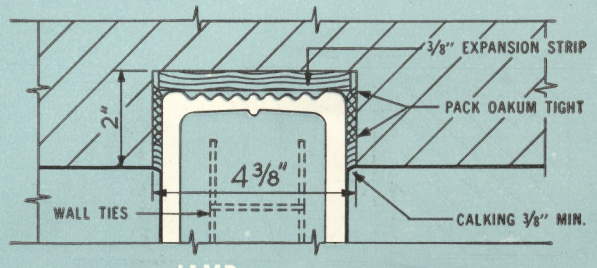
*Flash head through wall as shown in detail on Page 11.

Scale 3″=1′-0″

high humidity details



HEAD (New Construction) *



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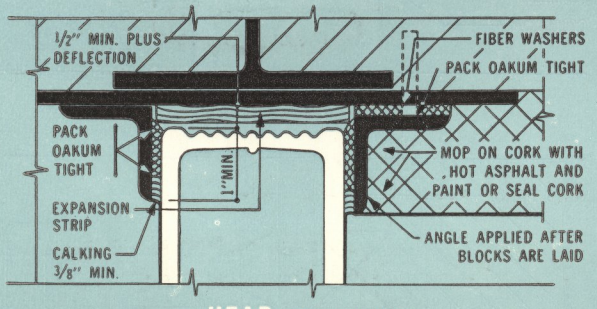
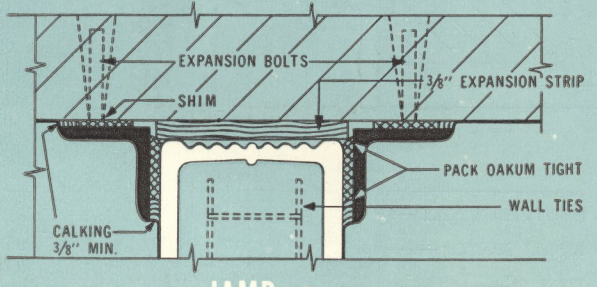
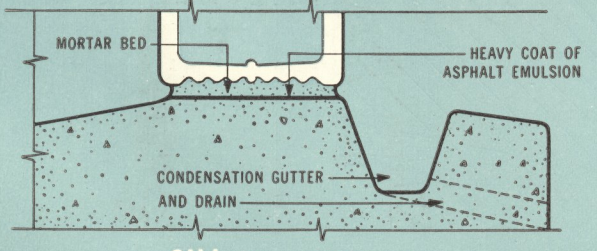


HEAD (Remodel) *



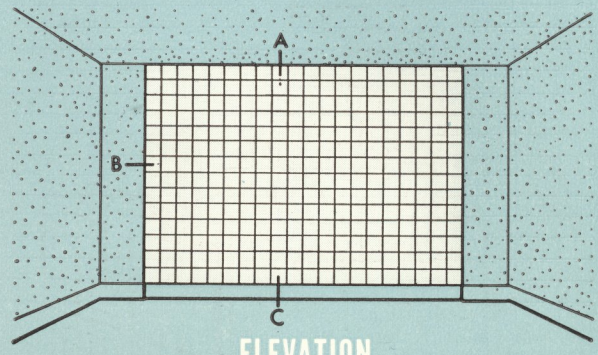
JAMB (Remodel)



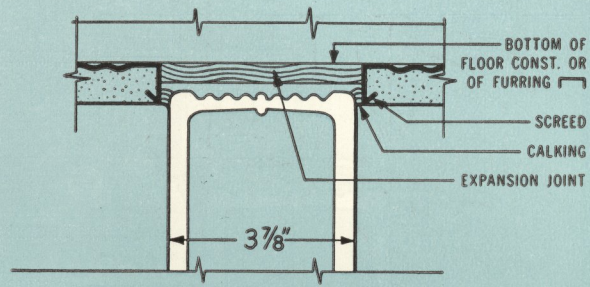
SILL (New and Remodel)

***Flash head through wall as shown in detail on Page 11.**

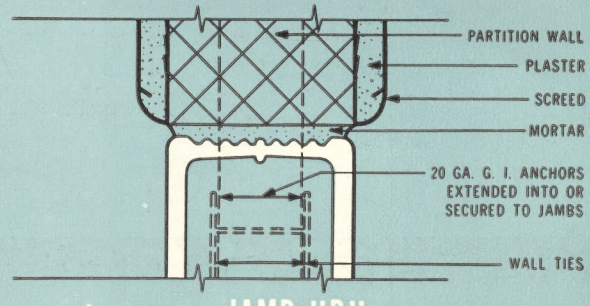
interior partitions



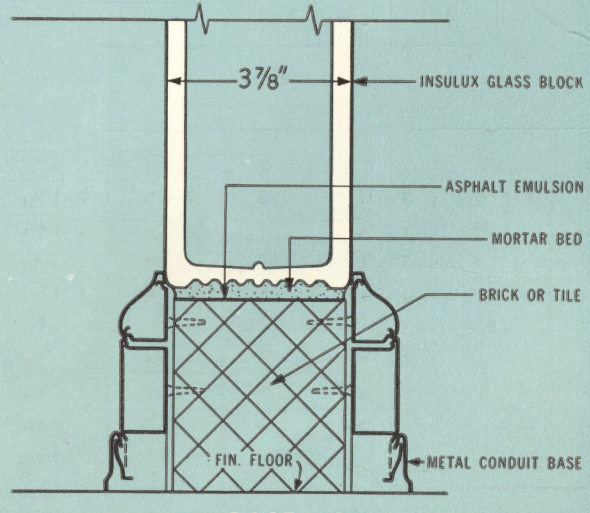
ELEVATION



HEAD "A"



JAMB "B"



BASE "C"

Scale 3"=1'-0"

set-in-wood construction for interior partitions

The Set-In-Wood system is simple, requiring only three basic wood pieces: Continuous strips for horizontal joints; made-to-length pieces for vertical joints; wedges for use at jambs and heads to lock panels together.

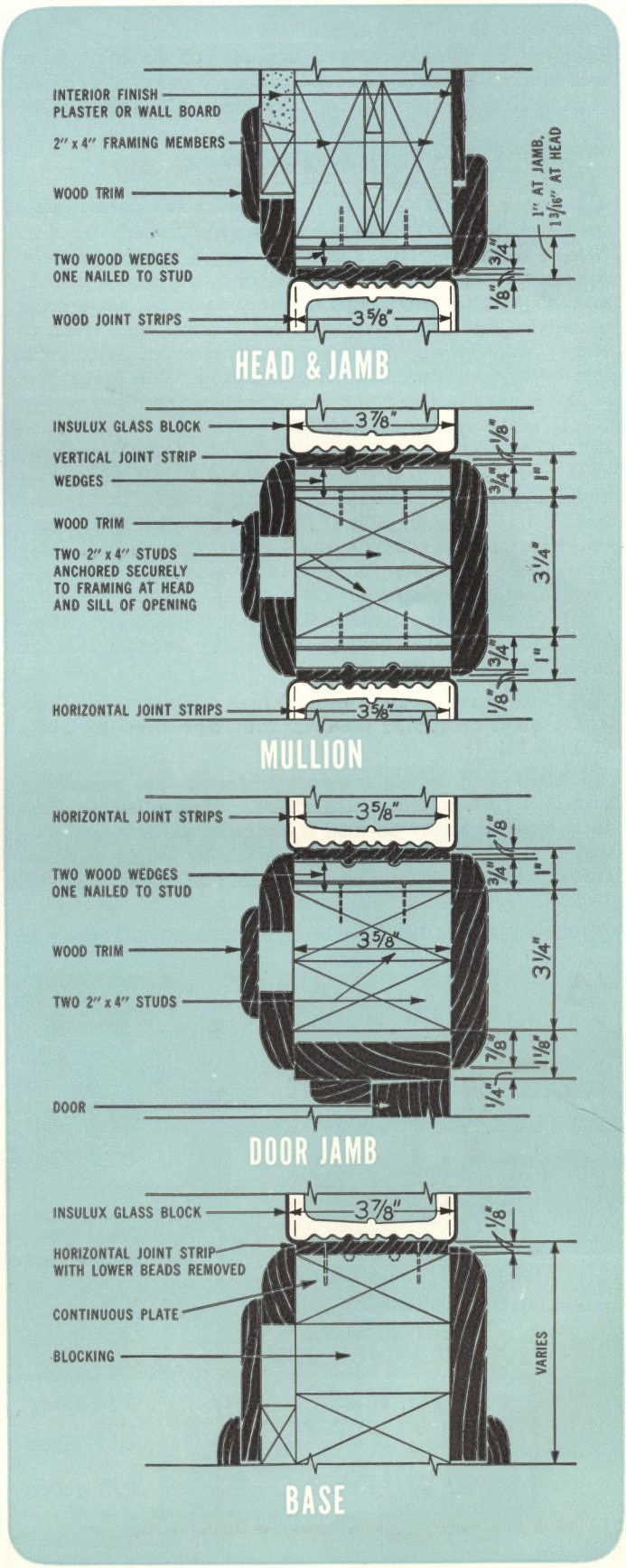
In framing the opening, it is important that rough bucks be sturdily and accurately built. The exact opening sizes are shown in the dimension table below.

Wood parts are available only for 8″ and 12″ block. For more information, write Kimble Glass Company.

DIMENSION TABLE, "SET-IN-WOOD" CONSTRUCTION

12″ BLOCK			8″ BLOCK		
No. of Block	Opening Width	Opening Height	No. of Block	Opening Width	Opening Height
1	1′-1¾″	1′-1 3/16″	1	9¾″	9 3/16″
2	2′-1¾″	2′-1 3/16″	2	1′-5¾″	1′-5 3/16″
3	3′-1 13/16″	3′-1¼″	3	2′-1¾″	2′-1 3/16″
4	4′-1 13/16″	4′-1¼″	4	2′-9¾″	2′-9 3/16″
5	5′-1 13/16″	5′-1¼″	5	3′-5¾″	3′-5 3/16″
6	6′-1⅞″	6′-1 5/16″	6	4′-1¾″	4′-1 3/16″
7	7′-1⅞″	7′-1 5/16″	7	4′-9¾″	4′-9 3/16″
8	8′-1⅞″	8′-1 5/16″	8	5′-5¾″	5′-5 3/16″
9	9′-1 15/16″	9′-1⅜″	9	6′-1¾″	6′-1 3/16″
10	10′-2″	10′-1⅜″	10	6′-9¾″	6′-9 3/16″
			11	7′-5¾″	7′-5 3/16″
			12	8′-1¾″	8′-1 3/16″
			13	8′-9¾″	8′-9 3/16″
			14	9′-5¾″	9′-5 3/16″
			15	10′-1¾″	10′-1 3/16″

Dimensions given are frame opening dimensions and include clearance at each side and top of panel for wedging. Panel limits—75 sq. ft.—10 ft. in width.



Scale 3″ = 1′-0″

basic specifications

General Conditions of the contract are hereby made, by reference, a part of this specification.

Scope: This work consists of furnishing all materials, labor and services necessary for the complete installation of all glass block as shown on the drawings or as specified hereinafter.

MATERIALS

a Glass Block shall be hollow units of pressed glass hermetically sealed at high temperatures, as manufactured by Kimble Glass Company. The mortar-bearing surfaces shall be corrugated to provide greater bond surface area and shall be precoated with an alkali and moisture-resistant, grit-bearing material. Glass blocks having ribbed exterior faces (Nos. 63 and 65) shall have a non-removable, colorless, chemical finish to prevent adhesion of mortar to the faces. Glass block shall be Insulux design numbers (*specify*) as shown on the drawings.

(If light directing type No. 63 is specified add the following: "Glass block shall direct at least 60% of the transmitted light in an upward direction for all conditions of exterior illumination. Each block shall have the words 'Top-Inside' molded in the mortar edge of the glass and shall have a gold stripe on the mortar bearing surface near the top inside edge for alignment in laying. The bottom of panels of No. 63 block shall be not lower than approx. 6 ft. above the floor.")

(If light diffusing type No. 65 is used add only the following: "Each block shall have the words 'Top-Inside' molded in the mortar edge of the glass.")

b Cement shall be waterproof, high early-strength Portland cement complying with A.S.T.M. Specifications C150-49 Type III.

c Lime shall be high-calcium hydrated lime complying with A.S.T.M. Specifications C6-31. Magnesium or dolomitic type lime may be used if hydrated under pressure so that it does not contain more than 8% by weight of unhydrated oxides, and comforms to A.S.T.M. Spec. C207-49, Type S.

d Sand shall be free from injurious amounts of organic or other foreign materials. It shall be uniformly graded from fine to coarse with 100% passing a No. 12 sieve.

e Water shall be clean and devoid of salts or other injurious elements.

f Mortar-Mix shall be composed of 1 part Portland cement, 1 part lime and 4 parts sand, measured by volume. It shall be mixed to a consistency as stiff and dry as possible and still retain good working characteristics. Do not use setting accelerators or anti-freeze compounds.

g Reinforcing Wall Ties shall be Insulux galvanized wire ties as furnished by Kimble Glass Company. Ties are to run continuously with ends lapped 6″ and are to be installed in horizontal mortar joints which are approx. 24″ apart.

h Asphalt Emulsion shall be Insulux emulsion as furnished by Kimble Glass Company and shall be a clay type suspended in water. It shall be used without diluting.

i Oakum shall be a non-staining type treated against dry rot and mildew, as approved by the architect.

j Calking, where indicated on the drawings, shall be first quality, non-hardening and non-staining mastic of gun grade consistency, as approved by the architect.

k Expansion Strips shall be Insulux expansion strips made of fibrous glass bonded together in strips 4⅛″ x ⅜″ x 25″, as furnished by Kimble Glass Company.

ERECTION

a Panels are to be of size and shape shown on the drawings. Openings for panels shall be formed as detailed and are to be built so that panels will be properly supported against wind pressure. All sills which receive glass block are to be coated with a heavy layer of asphalt emulsion at least 1/16″ thick, the coat being allowed to dry before laying the first mortar bed.

b Install expansion strips at panel jambs and heads, below shelf angles, at mullions and at any other location shown on the drawings. Strips are to run continuously so that the edges of the glass block panel do not come in contact with the building structure, except at sills.

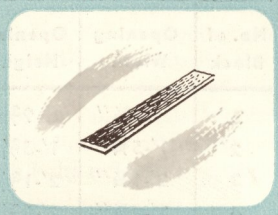
INSULUX ACCESSORIES

***Approx. quantity to lay 1000 pcs. block**

Based upon a panel 10′ x 10′ (100 Sq. Ft.). Conditions vary widely; quantities not guaranteed.

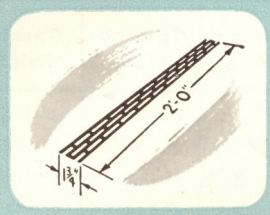
ASPHALT EMULSION

Asphalt dispersed in water. Apply to sill to break bond between sill and mortar.



EXPANSION STRIPS

Use at jambs and heads of panels. A resilient glass fiber pad 4 1/8" x 3/8" x 25".



PANEL ANCHORS

Anchor panels where no chase is used. Imbed in, nail or bolt to jambs. 20 ga. galv. 1 3/4" x 24".

*	ASPHALT EMULSION	EXPANSION STRIPS	PANEL ANCHORS
5 3/4″ blocks	1/6 gallon	38 pieces	20 pieces
7 3/4″ blocks	1/3 gallon	67 pieces	36 pieces
11 3/4″ blocks	2/3 gallon	150 pieces	80 pieces
how packed	1, 5 gallons, quarts	72 pcs. (150 lin. ft.) to cart'n	25 to bundle

c Blocks shall be laid plumb, true and level with all mortar joints filled completely with mortar. Do not furrow or feather joints. Each block shall be laid by shoving it tightly against the adjacent one so that the mortar fills all the corrugations and bonds with both blocks. Do not move blocks apart to widen the joints after they are laid. If necessary to realign the block, remove it and put on more mortar and re-lay. Exposed thickness of mortar joints shall be ¼ " unless otherwise shown on drawings. Do not allow mortar to lodge in expansion joints.

(Where light-directing type block, No. 63, or light-diffusing type, No. 65, are used add the following: "Lay all glass block in the wall exactly as marked, TOP-INSIDE.")

(Where No. 63 block are used add the following in addition to the above: "After each course is laid sight down course to see that all gold stripes are lined up along inside edge of wall indicating each block is set correctly.")

d Wall ties are to be installed in joints as heretofore specified, imbedding them completely in mortar.

e Tool the exposed surfaces of the mortar joints to a slightly concave, smooth, non-porous surface after mortar reaches its initial set. Tool the mortar back ⅛ " from the face to expose the square shoulders on the glass. Use a ⅜ " diameter jointer.

f Oakum and Calking. Pack oakum between the faces of the block and the sides of the chases after the mortar has set. Ram the oakum back at least ⅜ " from the finished surface. Fill the recesses thus formed at jambs and head of panels with mastic calking compound, both inside and out, to provide tightly sealed panels.

g Clean all loose mortar from the panel as the mortar joints are tooled. Final cleaning shall not be done until the mortar has reached its final set. Do not use acid on mortar joints.

Note: If final cleaning is not in this contract specify by "others".

Flashings: (Specify under "Masonry" or "Sheet Metal".) Lintels, spandrels or parapets above glass block panels shall be properly and completely flashed to prevent entrance of water.

Alternate Specifications For Anchored Panels

This specification to be used where glass block panels are not set in chases or frames at the jambs. This method not recommended for large panels or those subjected to severe conditions. (See Details.)

Add the following paragraph to those listed under "Materials" above:

MATERIALS

Panel anchors shall be Insulux anchors (as furnished by Kimble Glass Company) made of 20 gauge perforated steel strips, 24" long by 1¾ " wide, galvanized after forming. They are to be used as shown on the drawings, located in horizontal mortar joints as frequently as wall ties, but not in the same course and not less than two to each jamb.

ERECTION

Copy paragraphs A, B, C, D, E and G under "Erection". Add the following sentence to paragraph B:

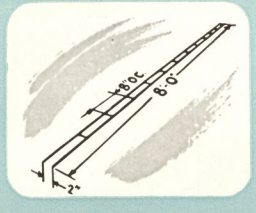
Cut standard expansion strips to width shown on drawings to provide at least ½ " space for calking exposed expansion joints.

Add the following paragraph B1 after paragraph B:

B1. Panel Anchors. Anchors shall be either bolted to or extended not less than 10" into masonry jambs. The balance of the anchor is to be imbedded in the horizontal mortar joints of the glass block panels, crimping the anchor at the expansion joint to permit movement. Do not use wire wall ties as anchors.

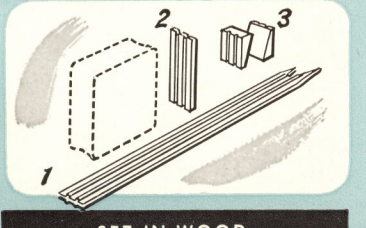
Substitute the following for paragraph F:

Calking. Clean all mortar from the expansion joints and point with mastic calking compound to a depth of not less than ½ ".



WALL TIES

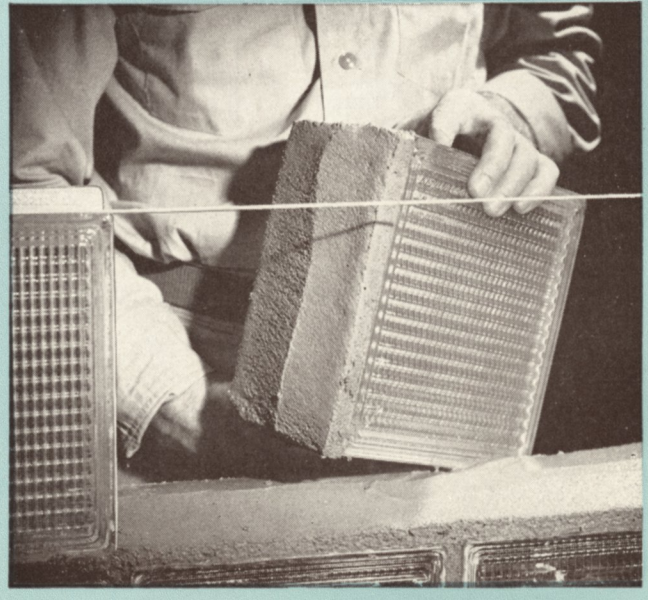
To reinforce panels. Imbed in horizontal mortar joints every 24" vertically, regardless of size of block.



SET-IN-WOOD

A prefabricated system for erecting interior partitions without mortar.

	1 10' strips	1 8' strips	1 6' strips	2 7¾" vert.	2 11¾" vert.	3 pr. wedges
13 pieces						
23 pieces	*Write for erection details*					
100 pieces						
8'0" long, 50 to bundle	12 to a bundle			144 cart'n		72 pr. cart'n



Underwriters' Test

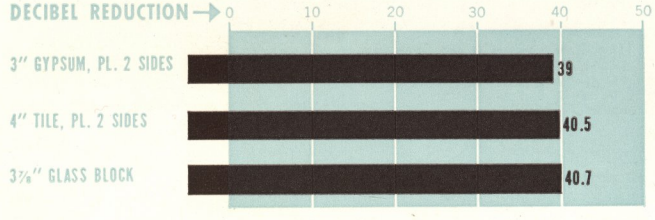
Insulux Glass Block panels have Underwriters' Laboratories approval for panels subject to light fire exposure (Class F Openings). The revised listing based on 1951 45-minute fire and hose stream tests permits the use of standard steel lintels above Insulux Glass Block panels as well as the concrete lintels heretofore required. All 6″ and 8″ block are approved.

Weight Per Square Foot

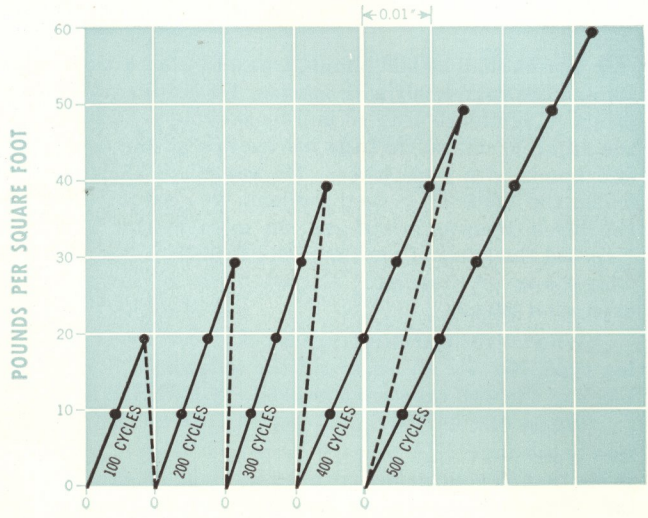
Varying slightly with the different patterns and sizes, the weight of Insulux panels is approximately 20 lbs. per sq. ft.

Sound Reduction

Glass block panels have an average sound reduction factor of 40.7 decibels over nine frequencies (128 to 4096 cycles).



Wind Pressure Tests



A 7′-3″ x 8′-8″ Insulux glass block panel tested at Materials Testing Laboratory, Purdue University, proved entirely elastic under pressure of 40 lb. per sq. ft. (equal to wind velocity of 115 m.p.h.). Final failure occurred at pressure equal to a 174 m.p.h. wind. The chart above shows successive results at end of each 100 cycles of pressure—up to 500 cycles.

Solar Heat Gain

Total Instantaneous Rates of Heat Gain of Insulux Glass Block Panels in B. T. U./hr./sq. ft.

For Clear Atmospheres, August 1, 40 degrees North latitude and five types of block with seven exposures. 75 degrees F. indoor temperature.

Sun Time	*Dry Bulb Temp.*	*Block Design Nos. 307, 316, 331, 370*							*Block Design No. 340*							*Block Design No. 340 With Fiberglas Insert*							*Block Design No. 365*							*Block Design No. 363*						
		NE	E	SE	S	SW	W	NW	NE	E	SE	S	SW	W	NW	NE	E	SE	S	SW	W	NW	NE	E	SE	S	SW	W	NW	NE	E	SE	S	SW	W	NW
5 am	74	2	2	-1	-1	-1	-1	-1	2	2	-1	-1	-1	-1	-1	1	1	-1	-1	-1	-1	-1	0	0	-1	-1	-1	-1	-1	0	0	-1	-1	-1	-1	-1
6 am	74	55	72	22	2	2	2	2	52	70	20	2	2	2	2	38	52	17	1	1	1	1	22	31	10	1	1	1	1	22	31	10	1	1	1	1
7 am	75	71	115	51	5	5	5	5	66	107	47	5	5	5	5	52	86	38	4	4	4	4	36	65	28	3	3	3	3	36	46	28	3	3	3	3
8 am	77	57	113	70	8	6	6	6	55	109	65	8	6	6	6	45	93	53	7	5	5	5	38	79	44	5	4	4	4	40	97	47	6	4	4	4
9 am	80	40	94	76	17	8	9	8	39	85	71	16	8	9	8	34	73	62	13	7	8	7	31	73	60	12	6	7	6	36	88	71	13	6	7	6
10 am	83	22	67	69	29	10	12	11	21	65	67	28	10	12	11	20	58	60	24	9	10	9	18	63	65	23	8	9	8	20	68	71	27	8	10	9
11 am	87	14	44	56	39	14	14	13	14	43	55	39	14	14	13	12	40	38	34	12	12	11	11	40	57	38	11	11	10	12	41	58	40	11	12	11
12 noon	90	16	24	41	42	24	16	15	16	24	41	42	24	16	15	14	22	37	40	20	14	13	13	22	41	44	38	14	12	14	22	39	45	22	14	13
1 pm	93	18	22	23	46	49	27	17	18	22	23	46	48	26	17	16	20	21	41	45	23	15	15	19	20	45	50	23	14	16	20	20	47	51	24	15
2 pm	94	18	23	18	42	74	59	19	18	23	18	41	72	57	20	16	21	17	37	65	50	19	15	20	16	36	70	55	17	16	21	16	40	76	60	19
3 pm	95	18	23	18	33	93	102	37	18	23	18	32	88	93	36	16	21	17	29	79	81	31	16	21	16	28	77	81	28	16	21	16	29	88	93	33
4 pm	94	17	21	17	23	94	136	66	17	21	17	23	89	127	64	16	20	16	22	77	100	54	15	19	15	20	68	86	47	15	19	15	21	71	104	49
5 pm	93	16	19	16	19	81	142	91	16	19	16	19	77	132	86	15	18	15	18	68	114	72	14	17	14	17	58	94	56	14	17	14	17	58	94	56
6 pm	91	13	15	13	15	54	104	81	13	15	13	15	52	101	78	12	14	12	14	49	90	64	12	14	12	14	42	69	48	12	14	12	14	44	69	48
7 pm	87	9	10	9	10	21	26	20	9	10	9	10	21	26	20	9	10	9	10	21	31	19	9	10	9	10	21	30	18	9	10	9	10	21	30	18
A.S.H.V.E. Type No.					I							II							III							IVA							V			

Note: For humid industrial atmospheres these figures may be reduced by 20 per cent for all types of glass block in east and west walls and 5 per cent in south walls.

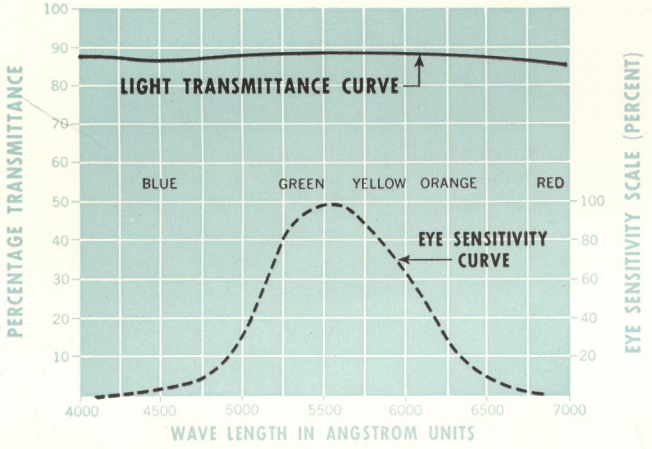
Corrections for deviations from indoor and outdoor design temperatures: For each degree the design room temperature exceeds 75 degrees F., subtract 0.5 B. T. U. from each value; for each degree the design outdoor temperature exceeds 95 degrees F., add 0.5 B. T. U.

Light Transmission

Insulux designs Nos. 07, 16, 31, and 70 transmit about 80% of light measured at normal incidence to their faces. Design No. 40, about 70% . Light-diffusing and light-directing designs not measured by standard methods.

Spectral Transmittance

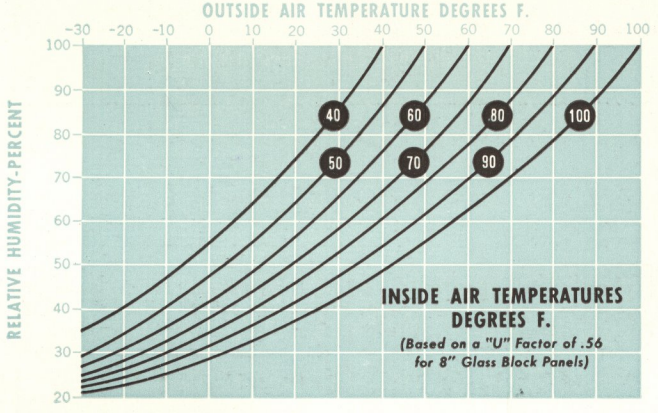
(at various wave lengths through Insulux Glass.)



Note: *Visibility of average normal eye ranges from 4100 to 6900 angstrom units as shown on eye sensitivity curve.*

The practical significance of this curve is that light through Insulux Glass Block is relatively true in color to the original light, the per cent transmittance being about constant for all wave lengths.

Surface Condensation

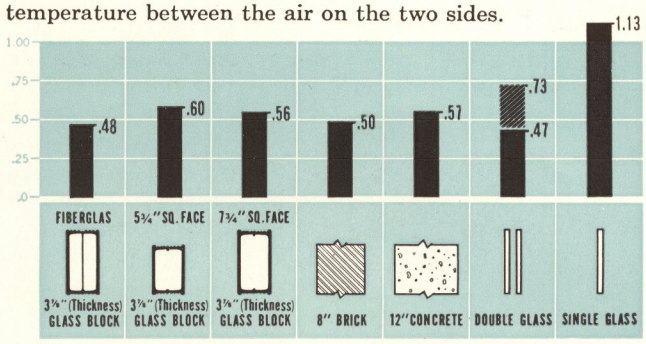


This chart shows the outside air temperatures which are required to start condensation to form on the room side surface of Insulux Glass Block panels for various inside temperatures and relative humidities. Because of a higher insulating value than single-glazed windows, Insulux Glass Block will permit higher humidities without condensation.

Also, for the same per cent relative humidity condensation will not occur on Insulux Glass Block panels until the outside air has reached a much lower temperature than that necessary for single-glazed windows.

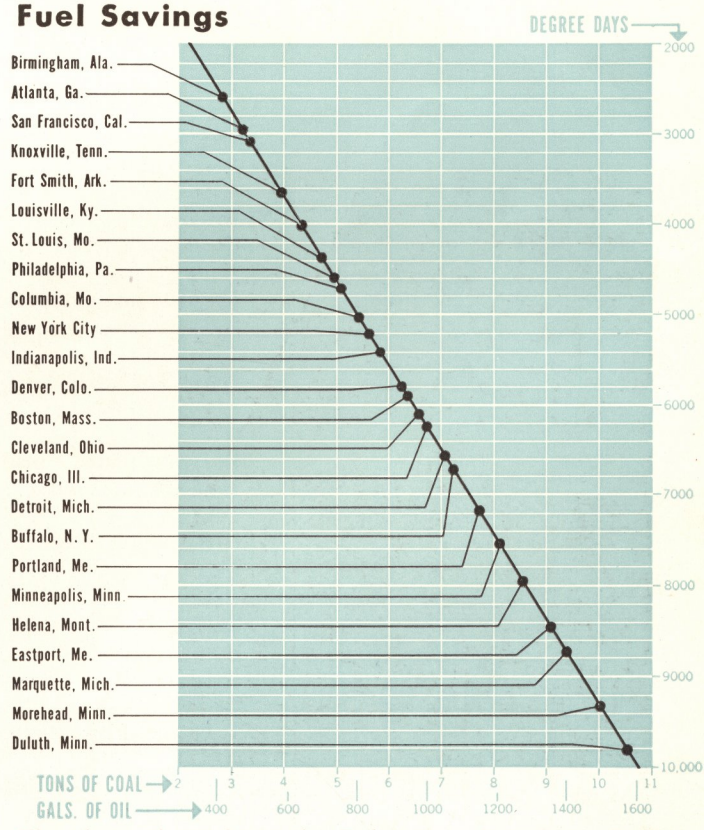
Coefficients of Heat Transmission

Coefficients of transmission, U, for various wall materials expressed in B.T.U./hour/sq. ft./degree F. difference in temperature between the air on the two sides.



Rating of double-glazing varies with type of sash and air space.

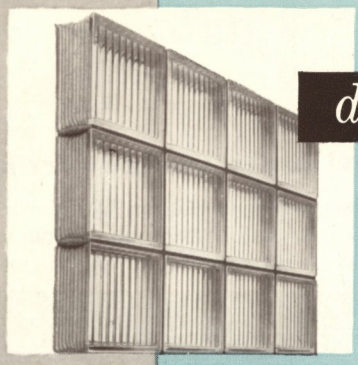
Fuel Savings



The above chart shows the fuel savings in gallons of oil and tons of coal for various cities and degree-days which can be attained by using panels of Insulux Glass Block in place of single-glazed metal windows. Figures are based on glass areas of 1,000 sq. ft.

These heat loss calculations were based upon heat transmission and infiltration through glass areas only.

Calculations were based upon the following factors: U value Sash, 1.13; U value Glass Block, 0.56; still air inside; 15 m.p.h. wind outside; 12,000 B.T.U. per lb. of coal at 60% efficiency; 140,000 B.T.U. per gallon of oil at 70% efficiency; inside temperature, 65 degrees F.



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