



LIBBEY • OWENS • FORD

Glass

FLAT DRAWN SHEET GLASS • POLISHED PLATE GLASS • TUF-FLEX TEMPERED PLATE
GLASS • VITROLITE COLORFUL STRUCTURAL GLASS • VITROLUX COLOR FUSED TEMPERED
PLATE GLASS • AKLO HEAT-ABSORBING PLATE GLASS • EXTRUDALITE STOREFRONT
METAL • BLUE RIDGE FIGURED AND WIRE GLASS • OPTEX GLASS BLACKBOARD

Glass

IN ARCHITECTURE

● As America rebuilds, the rule of common sense in architectural planning everywhere is evident. Ornamental appendages of prewar days are gone. The vision of a new type of architectural beauty based on related functional forms is a definite reality.

In this sweeping new movement in architecture, GLASS is being emphasized more and more. Its unique characteristics, enhanced by latest improvements in manufacturing processes, solve many a problem in residential, commercial and industrial building.

The fact that the average person spends at least half a lifetime between four walls makes self-evident the need for ample fenestration, more and larger windows. Window Walls, Picture Windows, Sun Porches and Solaria, as integral features of design, help the average person to bring more light and air into the daily pattern of his life. These are but a few of the ways in which glass, skillfully handled by the architect, compensates for the limitations of modern living habits.

In interior design, the beauty and practical utility of glass are recognized by architects as valuable aids, with generous areas of wall space being specially allotted to mirrors. Architects realize that mirrors mean much to the successful execution of interiors . . . that mirrors will double the apparent size of a room. Mirrors bring light to shadowed corners. Mirrors are gay and sparkling as they reflect lights and throw back color motifs. Their importance brings mirrors, unquestionably, within the architect's province to design and place judiciously throughout. Color, too, is now available for interesting

effects with mirrors of L·O·F Polished Plate Glass . . . in blues, peach and green.

The glass industry has kept pace with the modern trend of architectural design. It has developed new and practical types of glass whose special characteristics and physical properties open up broader fields for the use of the product in design and construction. Tuf-Flex Tempered Plate Glass is three to seven times stronger than regular plate glass and has unusual resistance to physical and thermal shock. Vitrolux Color-Fused Tempered Plate Glass has the same physical properties as Tuf-Flex and is available in a wide range of colors. This glass enables the architect to practically build with color and light. Aklo, the heat absorbing plate glass, absorbs the infra-red rays of the sun and when used in double glazing fulfills many important useful functions in design and construction. All of these special glasses are discussed in detail in this catalog.

The increasing demands on glass — for more light and distinctive character in all types of modern construction — emphasize the importance of unvarying, highest quality in the product specified and used.

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SELECTING THE RIGHT GLASS

● The current trend in building which demands so much of glass has created the need for specialized types of glass to meet special requirements. As a result, well-known types of flat glass have been greatly improved. New types have been developed. Their uses cover an ever-broadening field, summarized in the following outline of glazing practice.

SHEET GLASS

● A Quality Double Strength is widely used in glazing private homes, apartment houses where low rentals prevail, smaller hotels, schools, hospitals and other public buildings.

POLISHED PLATE GLASS (Clear and in Colors)

● In buildings and in private homes where the importance of quality glazing is recognized, Polished Plate Glass is used extensively. It is essential for store windows. Its use in many mirror installations falls logically within the province of the architect. To furnish even broader opportunities in mirror treatment, L·O·F Polished Plate Glass is also now regularly produced in three shades of blue, a peach and a green.

FIGURED AND WIRE GLASS

● Figured Glass is generally specified for office corridors, partitions, skylights, elevator doors and other openings where obscurity is desirable. As a decorative medium, its distinctive character is employed in many homes and public buildings. Wire Glass is used in skylights and light wells and usually is required by building codes in openings exposed to the possibility of fire.

SAFETY GLASS

● Safety Glass has many uses in industrial plants and in other buildings as a protection against theft.

VITROLITE

● Vitrolite Opaque Structural Glass is furnished in a variety of plain and agate colors for use in bathrooms and kitchens in the home, modern store-front facings, store

interiors and fixtures, wainscoting, theater lobbies, toilet partitions in public buildings and similar installations. It is preferred for its unusual structural beauty, for sanitation and for the ease and economy with which its sparkling surface can be maintained.

TUF-FLEX

● Tuf-Flex Tempered Plate Glass has many specialty uses which employ the advantages of its peculiar properties. Its resistance to impact and thermal shock makes it ideally suited for uses where greater strength is necessary such as in display cases, revolving doors, display shelves, sign facings and show-window trim. Tuf-Flex cannot be cut, mitered, beveled or edged after tempering, and **must therefore be ordered from the factory in exact sizes required.**

VITROLUX

● Vitrolux Color Fused Tempered Plate Glass has the same physical characteristics as Tuf-Flex with the added feature that it is available in a wide range of attractive colors—some translucent and some opaque. It answers the architect's demand for a material that will enable him to use luminous color as an integral part of the structure itself, and may be used to create unusual exterior or interior lighting effects. For more complete information see pages 9 to 13 of this catalog.

AKLO

● This Plate Glass, with its special chemical composition, has the unusual property of absorbing infra-red heat rays. This is an important aid in maintaining even temperatures within a structure. AKLO Plate Glass reduces the cost of operating air-conditioning equipment for cooling purposes, because it reduces the total load for a given window area. Recommended for store fronts and lighting fixtures where perishable products are to be displayed.

L·O·F SHEET GLASS



The formation of the sheet by the Exclusive L·O·F Flat Drawing Process is illustrated above. Here the glass is being drawn from the melting tank and passed through carefully regulated gas flames which give it a natural fire finish and lasting brilliance.

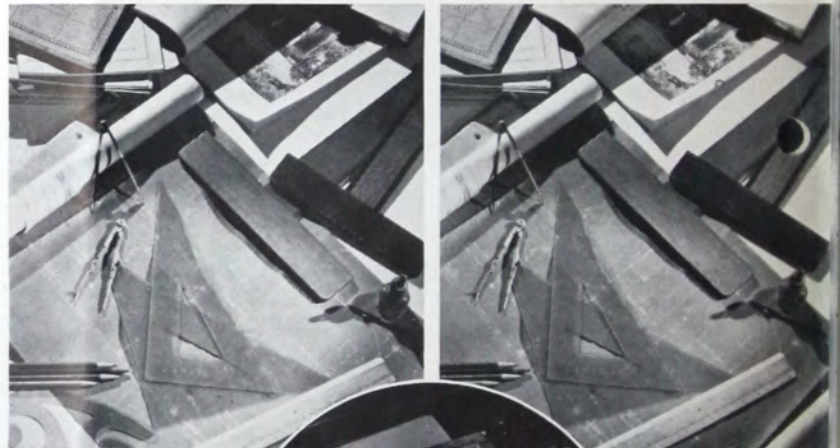
● When first introduced over 19 years ago, the Exclusive Libbey·Owens·Ford Flat Drawing Process revolutionized the window glass industry. This process has been constantly refined and improved. Today the glass made by it is brighter, flatter and clearer than any the industry has ever offered. The exceptional flatness of L·O·F Sheet Glass is vitally important when it is used in double glazing—so essential for air conditioning and lower fuel cost.

After the glass is drawn from the tank by the Exclusive L·O·F Sheet Glass Machine, it is thoroughly annealed in lehrs four or five times longer than those used in any other process. This slow and thorough annealing eliminates strain, making a less brittle glass and consequently one in which there is far less breakage.

Because of these characteristics and the wide public acceptance enjoyed by all L·O·F products, a closed specification for L·O·F Quality Glass assures your client's satisfaction.

Can you tell which is which?

While this is by no means a technical or scientific test, it is nevertheless a very practical one, and convincing evidence that L·O·F Quality Sheet Glass is exceptionally clear and flat. It explains, in some measure, why so many architects write a closed specification for this fine glass. For your protection, instruct contractors and builders to leave the labels on until final inspection has been made.

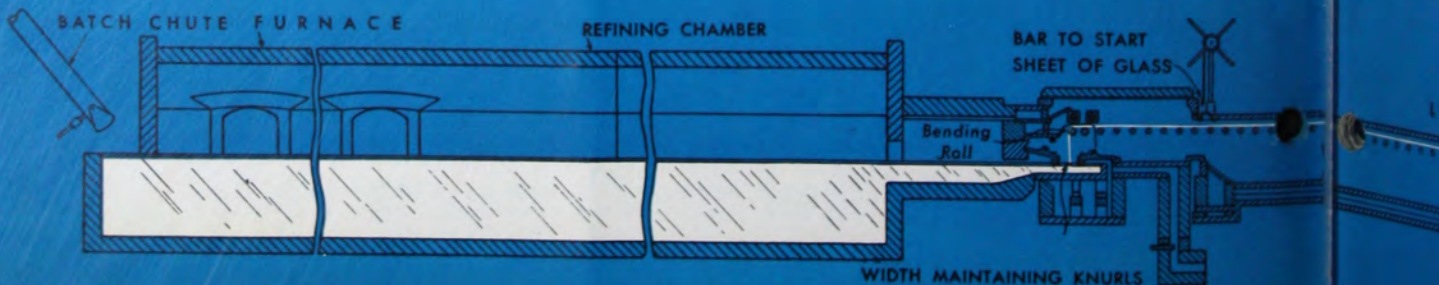


The authenticity of these photographs is attested to by Underwood & Underwood.

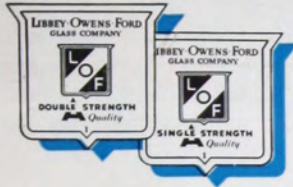


One of these pictures was taken through a piece of L·O·F Quality Glass. (In the other there was nothing between the camera and the subject.)

A PRACTICAL DEMONSTRATION OF THE Superior Quality OF L·O·F QUALITY SHEET GLASS



PRACTICAL INFORMATION ON SHEET GLASS



● Libbey-Owens-Ford Flat Drawn Sheet Glass is manufactured in several grades and of varying thicknesses. Single Strength and Double Strength Sheet Glass are regularly supplied in two standard grades—A Quality and B Quality. Both are labeled. (A blue label indicates Double Strength—a red label, Single Strength.)

FLATNESS

The L·O·F exclusive process of manufacture draws the glass into a flat sheet directly from the molten state. This process produces a glass so free from wave that it gives a clearer, sharper image.

TOLERANCES IN THICKNESS

L·O·F Sheet Glass Table of Thickness Standards is given below:

	Thickness, in.		Lights per in.		Av. Weight, oz. per sq. ft.
	Min.	Max.	Min.	Max.	
SINGLE STRENGTH . . . . .	.087	.100	10.5	11.50	19.55
DOUBLE STRENGTH . . . . .	.118	.133	7.5	8.50	26.00
$\frac{1}{16}$ " SHEET . . . . .	.187	.200	5.0	5.35	40.00
$\frac{1}{8}$ " SHEET . . . . .	.212	.225	4.4	4.70	45.00
PICTURE GLASS . . . . .	.056	.067	15.0	17.00	13.00

DIMENSIONS

L·O·F Sheet Glass is cut to dimensions well within the allowable limits of Government specifications, less than 1/32 in. per 1/8 in. thickness.

PACKING

All L·O·F Sheet Glass is shipped in Cushion Corner Cap packages—the neatest, cleanest, and nearest to moisture-proof method of packing so far developed.

STANDARD SPECIFICATIONS

All Flat Drawn Sheet Glass shall be Libbey-Owens-Ford A Quality Double Strength, except as otherwise noted, packed in Cushion Corner Cap boxes. Each light shall bear the Libbey-Owens-Ford label, indicating strength and quality of the glass.

One of these pictures was taken through a piece of L·O·F Quality Glass. (In the other there was nothing between the camera and the subject.)



L·O·F POLISHED PLATE GLASS

● Libbey-Owens-Ford Polished Plate Glass is manufactured in plants fitted throughout with the finest and most modern equipment. Only raw materials of highest quality are used. The sparkling luster and brilliance characteristic of L·O·F Plate Glass are a result of grinding and polishing by highly accurate machines. Grinding removes surface inequalities as the glass reaches this stage of manufacture. Polishing, which imparts distinctive beauty to L·O·F Plate Glass is accomplished by felt-covered rotating discs. Each light of glass is carefully inspected and graded before it receives the identifying L·O·F label. Because of its superior finish, unusual clearness and enduring brilliance, discriminating architects prefer and specify Libbey-Owens-Ford Polished Plate Glass for an increasing number of uses.

PRACTICAL INFORMATION

The very finest polished plate glass, which is used almost exclusively in making the costliest mirrors, is known as "First Silvering Quality." Owing to the high cost of selecting this quality, it is never specified for building purposes. The next quality is called "Second Silvering" and is often used for high-grade glazing work, but is seldom specified in sizes over 20 sq. ft. Most of the plate glass used in glazing is known as "Glazing Quality." Definite requirements for tolerances in thickness and dimensions are set up in U. S. Government specifications. The general requirements under U. S. standards are:

SIZE AND THICKNESS

The standard thickness of plate glass shall be $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$ and $1\frac{1}{2}$ in. Sheets are available $\frac{1}{4}$ -in. thick in sizes having a maximum area of 250 sq. ft. Glass of $\frac{1}{4}$ -in. thickness may be furnished in any dimensions under the maximum 126 x 284 in. The standard stock thickness for glazing purposes is $\frac{1}{4}$ in., but this may vary between $\frac{7}{32}$ and $\frac{5}{16}$ in. Standard thickness of colored plate glass is $\frac{7}{32}$ in.

TOLERANCES IN THICKNESS

The maximum and minimum thickness allowed shall not be more than the given thickness plus or minus one half the difference between the standard thicknesses, although for $\frac{1}{4}$ -in. glass occasional plates as thick as $\frac{5}{16}$ in. are supplied. The general variation in thickness should not be more than $\frac{1}{32}$ in. for individual lights under 10 sq. ft., in thicknesses up to $\frac{1}{4}$ in. The variation in lights over $\frac{1}{4}$ in. in thickness should not exceed one half the total tolerance for that thickness.

STANDARD SPECIFICATION

Where polished plate glass is specified or shown on plans, it shall be manufactured by the Libbey-Owens-Ford Glass Company, and shall be of (—) quality and (—) thickness (insert quality and thickness) in accordance with U. S. Government Standards.

POLISHED PLATE GLASS FOR *Mirrors*

MIRRORS have become, in many instances, an integral part of architectural design. In modern residences, as well as in stores and public buildings, they form an important part of the interior decorative motif. As the use of silvered plate glass continues to broaden, its specification and adaptation become more and more a province of architecture. Libbey-Owens-Ford Polished Plate Glass is noted for its brilliant polish and freedom from imperfections.

STANDARDS OF QUALITY • For the guidance of the architect and owner and for the protection of the mirror manufacturer, the following standards of quality have been approved by the Mirror Manufacturers Association of America.

A QUALITY • The central area of mirrors of this quality shall be free from major defects, but may contain well-scattered seed and short faint hair lines, when not grouped, and occasionally very light short finish visible only on close inspection. The outer area, in addition to the foregoing, may contain seed and short faint scratches when not grouped.

No. 1 QUALITY • The central area of mirrors of this quality may contain scattered seed, faint hair lines, and light short finish. The outer area in addition to the foregoing may contain short scratches and occasional strings not over 2 in. long.

No. 2 QUALITY • Mirrors of this quality may contain the following defects: Numerous scattered seed, occasional coarse seed, light reams, strings, light scratches, short finish if not torn, hair lines if not too densely grouped, and bullseye if not visible from front inspection.

THICKNESS • Plate glass mirrors of commercial standard quality shall be between $\frac{1}{8}$ and $\frac{3}{4}$ of an inch thick. If specific thicknesses are ordered, a variation of $\frac{1}{32}$ in. plus or minus the given thickness shall be allowed.

SILVERING • All commercial standard quality mirrors shall be silvered in an approved manner and guaranteed for a period of one year from the date of manufacture unless the mirrors are subjected to unusual conditions, such as open weather, moist walls, steamed rooms, direct sunlight or, similar conditions.

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Right—The sparkling brilliance of these mirror panels forms the decorative keynote of this excellent interior design.



Right—A mirrored wall panel effectively flanked by mirror strips brightens up this wall area and reflects light back into the room.



Above—This happy combination of the functional and decorative use of a large mirror area gives added width to the room and a note of brilliance to its attractive interior.



Right—View through a picture window of peach color plate glass, the exterior of which is illustrated on page 7.





Colored PLATE GLASS

Architects and interior designers are finding that polished plate glass in colors is a valuable aid in creating interesting effects both in residences and public buildings. In mirrors, the peach or the green, or any of the three shades of blue can be used to add a cheerful emphasis to the decorative treatment. Peach color plate glass is used in the picture window illustrated here. From within, the view through this delicately colored glass assumes an unusual warmth.



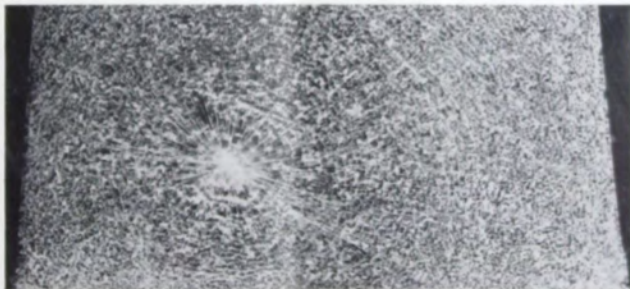
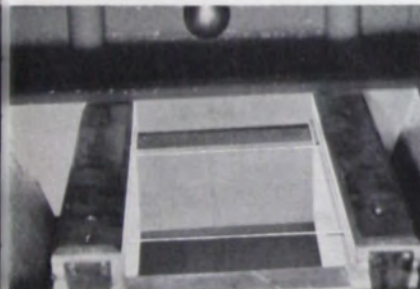
TUF-FLEX

Tempered PLATE GLASS

● **TUF-FLEX** is a tempered plate glass made by a special process of reheating and cooling polished plate glass. It is much stronger than plate glass of the same thickness and more resistant to impact and thermal shock. Tuf-Flex is ideally suited for glass shelving and fire-screens; for porthole glass in ships; for sterilizing ovens, oven doors and similar enclosures subject to extreme heat changes; for glazing doors of stores and public buildings and places of amusement; for kick-plates on doors; for show-case shelves in stores and in exhibition cases in museums; for use in modern fixtures; and as a practical substitute for wire glass in skylights and monitors when additional light is required. These are a few of the many practical new uses for Tuf-Flex constantly being discovered.

Tuf-Flex is furnished in clear or colored plate glass. Vitrolite Structural Glass can also be tempered into Tuf-Flex to give it extra strength and greater heat resistance. Tuf-Flex can be supplied silvered, ground or etched, but cannot be cut after it is tempered, consequently **the exact sizes required must be specified**. It is available in sizes not exceeding 48 x 48 in. and in thickness from 1/4 in. up, with the exception of Tuf-Flex made of colored plate glass which is produced in 7/32-in. thickness only. Complete information on Tuf-Flex is available in booklet form.

*While Tuf-Flex is not unbreakable, its tempering process limits its susceptibility to breakage. Chipping or puncturing exposed edges or surfaces causes the glass to disintegrate into small crystals which have a tendency to fly apart.



ABOVE ● The photograph on the left shows a 2-pound steel ball bounding back from a 12 x 12-in. light of 1/4-in. Tuf-Flex, after a drop of 5 ft. At the right, from less than 1 ft., the same ball shatters a similar light of 1/4-in. regular plate glass. The center photograph shows the manner in which Tuf-Flex disintegrates when the limit of resistance is reached.

BELOW ● At the left, Tuf-Flex does not break when molten lead is poured on it, even though the 1/4-in. light rests on a cake of ice. Regular plate glass, similarly tested, shattered instantly. At the right, a 12 x 48-in. light of Tuf-Flex twists through an angle of 20 degrees without failure. Regular plate glass of the same size and thickness failed at 7 degrees.



A LIBBEY · OWENS · FORD PRODUCT

[8]



VITROLUX

COLOR FUSED TEMPERED

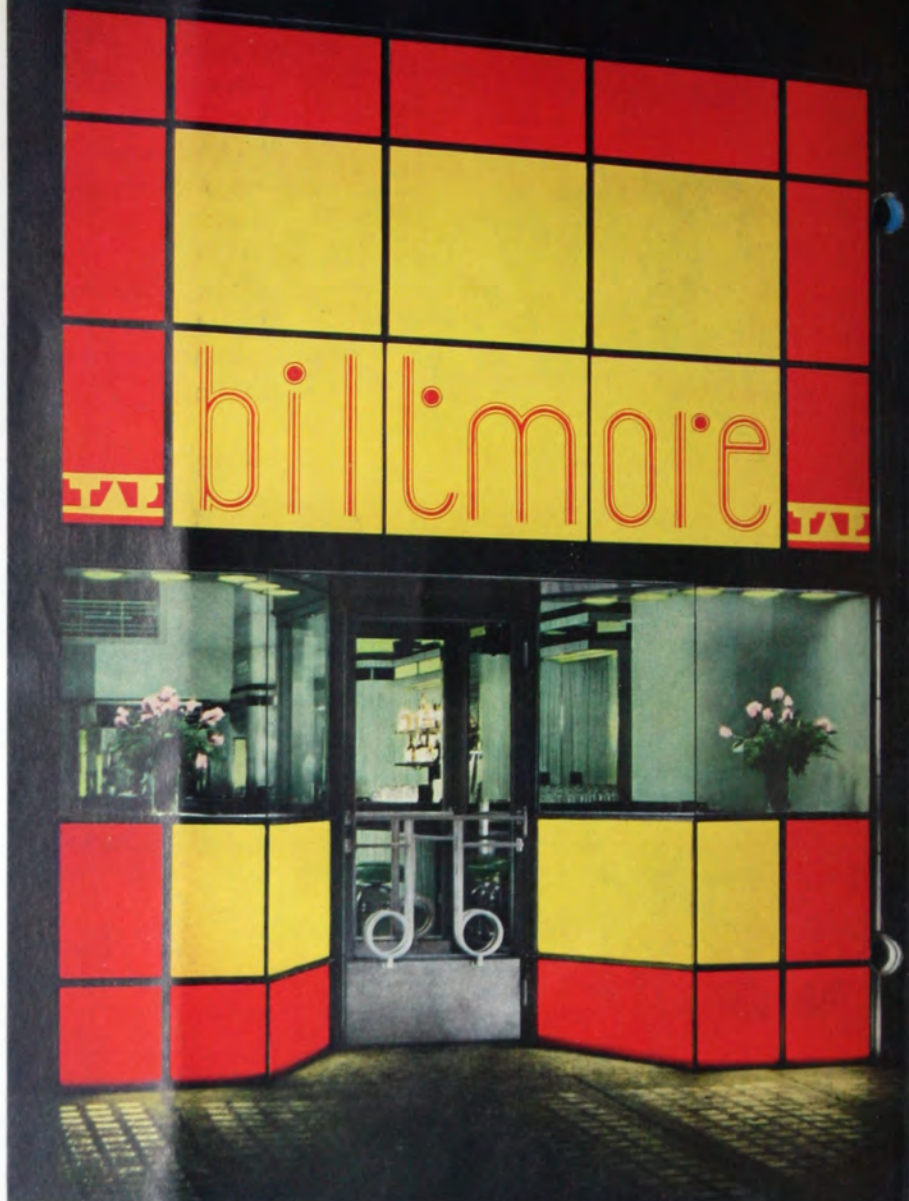
Plate Glass
OFFERS

Limitless combinations
for store fronts . . .
theaters . . . restaurants
. . . gas stations

● In recent years architecture has been seeking a more skillful, a more colorful use of light. This architectural demand for a medium offering diversified colors and surfaces evenly luminous by better light diffusion has led to the creation of VITROLUX. Now, luminous color as an integral part of the structure itself opens up vast new design possibilities. Luminous buildings that "give off," not merely reflect light, become beacons of soft, glowing color. Store fronts are created that bring every eye to attention.

VITROLUX—three to seven times stronger than ordinary plate glass and highly resistant to thermal shock—is offered in a wide range of colors, translucent or opaque. It becomes, therefore, the logical companion of VITROLITE (opaque colorful structural glass, a product of Libbey-Owens-Ford Glass Company) in achieving full realization of modern design possibilities in commercial fronts and in details of residential interiors.

TWO TYPES of Vitrolux are available—TRANSLUCENT in 18 colors, OPAQUE in 9 colors, or any two-color COMBINATION. Infinite design possibilities thus afforded are further increased when considered in conjunction with VITROLITE.



TRANSLUCENT VITROLUX diffuses light with such exceptional uniformity that with properly designed lighting, no bright spots reveal the source of illumination. When not illuminated, Translucent Vitrolux appears to be a solid opaque colored glass.

No other material available today has the same combination of characteristics that makes Vitrolux the outstanding material for store fronts. Vitrolux provides even diffusion of light; the fire fused colors are an integral part of the glass and because of its unusual resistance to thermal shock it is not affected by rain or snow coming in contact with the warmed surfaces of the lighted glass area.

LEFT—The Bill
69 E. Madison
designed and
Palmer Person
highly luminous
translucent Vitrolux
illustrated—excellent welcome

RIGHT—A ca-
tion-arresting
shop—Vitrolux
place of busi-
ness and p

BELOW—Lum-
are strikingly
be created
Vitrolux. Lett-
are an integ-
glass.



An entire store front may be designed to provide space for lighting and is thus transformed by the use of Vitrolux into a startlingly different new type of front—appealing to the eye—advanced in smartness. Vitrolux is ideally suited for lettering of exterior signs on store fronts and other commercial buildings. Cut-out wood or metal letters provide silhouette lettering. Also, signs of two-color Vitrolux may be furnished in two translucent colors—or an opaque background with translucent letters—or a translucent background with opaque letters. Any of these combinations produce a striking effect. Vitrolux is particularly applicable to theater fronts, transoms, bulkheads and gas stations.

LEFT— The Billmore Tap Room, 69 E. Madison Ave., Chicago, designed and erected by Palmer Personal Service. The highly luminous effect of translucent Vitrolux is clearly illustrated—offering a brilliant welcome to all who pass.

RIGHT— A colorful and attention-arresting front for a smart shop—Vitrolux makes any place of business appear modern and progressive.

BELOW— Luminous signs that are strikingly beautiful can be created with translucent Vitrolux. Lettering and color are an integral part of the glass.



And because of its exceptional strength and unusual resistance to thermal shock, Vitrolux is highly effective in the creation of attractive overhead hanging signs—particularly in localities where codes normally restrict the size of glass panels because of danger of breakage. For if broken, this new, remarkable type of glass crumbles into relatively small particles resembling bath salts—an added provision for public safety.

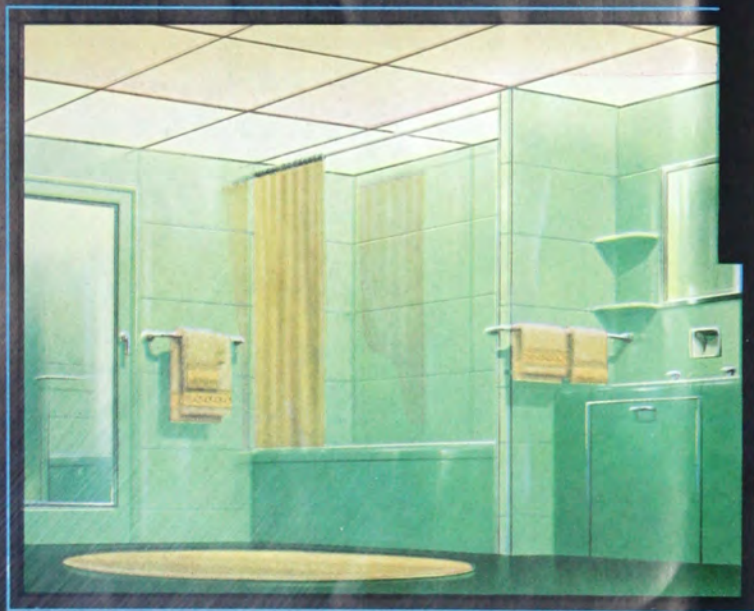
While Vitrolux is not unbreakable, its tempering process limits its susceptibility to breakage. Chipping or puncturing exposed edges or surfaces causes the glass to disintegrate into small crystals, and if not framed, the crystals have a tendency to fly apart.

OPAQUE VITROLUX is made at present in nine colors, six of which match the six standard plain colors of Vitrolite and special colors can be furnished on order. Opaque Vitrolux may be installed with mastic in the same manner as structural glass.



IN
modern homes
USE
**VITROLUX AND
VITROLITE**

● Rare and distinctive beauty is attained in modern bathrooms with the combined use of Vitrolite and Vitrolux. Walls of Vitrolite in soft shades with luminous Vitrolux for ceiling lighting elevate the bathroom to a new plane of attractiveness and convenience—make it modern.



GENERAL SPECIFICATIONS FOR VITROLUX

VITROLUX is Tuf-Flex Tempered Plate Glass with the added feature of vitreous color—fire-fused on the back surface to become an integral part of the glass itself. Vitrolux color is of the sunfast type and offers the same natural resistance to weathering, crazing and checking as ordinary glass. Vitrolux Glass can only be furnished cut to exact size or pattern. All edgework, pattern cutting or drilling of holes, etc. must be done at the factory.

DIMENSIONS—Thickness $\frac{1}{4}$ " only. Maximum length 48". Maximum breadth 48". No lights furnished in long, thin pro-



portions exceeding 1 to 12. Examples of limits: 2" x 24", 3" x 36", 4" x 48".

CUTTING—Vitrolux cannot be cut or ground after manufacture. This necessitates careful layout work as exact dimensions must be given in ordering.

EDGEWORK—Unless otherwise specified, all Vitrolux is furnished with seamed (or swiped) edges at no extra charge. On order, Vitrolux will be furnished with polished edges, bull noses or most types of standard edgework.

TONG MARKS—Always found along one edge. (Small lights may be produced without them.)

DRILLED HOLES—Minimum size of hole that will be drilled, $\frac{1}{4}$ " diameter. All holes or apertures must have minimum distance of $1\frac{1}{2}$ " from perimeter to edge of light.

WARPAGE—Slight warpage possible, never serious enough to interfere with installation.

INSTALLATION—Vitrolux should be handled as glass, bearing in mind, of course, that it can be neither worked nor altered on the job. Translucent Vitrolux should be installed exactly as ordinary glass is installed. When used for structural purposes, opaque Vitrolux should be installed exactly as structural glass is installed.

Essentials

OF LIGHTING DESIGN FOR LUMINOUS ELEMENTS OF VITROLUX GLASS

LIGHTING METHOD—The recommended lighting of translucent Vitrolux Glass is accomplished by placing electric lamps behind the glass and enclosing them with reflecting surfaces. These reflecting surfaces may assume various shapes or forms referred to as Element Forms, and while no general set of design data can embrace all the conditions encountered in luminous architecture, the eight Element Forms illustrated in accompanying tables are typical of a wide range of applications.

REFLECTING SURFACE—It is extremely important to economy and effective luminosity to completely enclose the lamps behind the glass with a reflecting surface of high efficiency. All interior surfaces should have a white finish such as mat white paint.

ELECTRICAL EQUIPMENT—The lighting design is based upon the use of standard Mazda lamps, and no special fittings or reflectors are required in most elements.

BRIGHTNESS—The desirable brightness for luminous displays governs the lamp wattage to be selected. Brightness is the degree of brilliancy of a surface and is measured in Foot-Lamberts. A luminous surface of too high brightness causes glare while a luminous surface too low in brightness is drab and unattractive. An installation of any given Foot-Lamberts will have an effect of low brightness or high brightness under varying conditions such as size and brightness of nearby displays and surrounding areas and size of the installation itself. And different types of commercial establishments require not only a careful color selection but different degrees of brightness to provide the desired effect. With certain colors, too, a lower brightness often proves effective.

USE OF TABLES—The following table lists various types of installations and recommends the degree of brightness most advantageous in low-, medium- or high-brightness districts. In selecting the lamp wattages from Table II only an approximate brightness value is required from Table I.

(TABLE I)
SUGGESTED AVERAGE BRIGHTNESS VALUES FOR VITROLUX

(In Foot-Lamberts)

Type of Luminous Installation	General Brightness of District		
	Low	Medium	High
Luminous store fronts, luminous transoms, luminous backgrounds and signs.....	80-130	100-200	150-350
Projecting units of dominant character.....	50-130	70-170	150-300
Decorative flush units (Principal units in design).....	30-100	50-150	100-300
Translucent letters with an opaque background.....	150-200	200-400	300-600
Marquees, pylons, gasoline service stations, etc.....	80-150	100-250	200-400
Interior ceiling installations: (Approx. upper limits)			
High ceilings	500		
Low ceilings	250		
Interior bathroom and shower ceilings	75		

ELEMENTS—The majority of the eight luminous element forms illustrated and tabled below are adaptable to typical Vitrolux applications. Each offers advantages to particular installations such as—No. 3, shallow background; No. 1, use of lower wattage; No. 5, more suitable to corner installations.

LAMP LOCATION AND SIZE—After the selection of the element form, the table accompanying the element chosen will determine such factors as size and wattages of lamps, distance from the back of the glass to the center of the lamp and correct spacing between lamps. In the tables below,

W—represents the width of the Vitrolux glass to be illuminated.

D—is the distance from the back of the Vitrolux glass to the center of each lamp.

S—is the maximum spacing between lamps for uniformity of brightness (measured between centers of filaments).

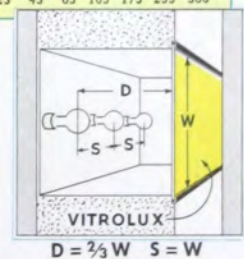
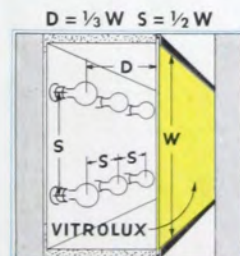
EXAMPLE—For a transom sign 30" high the element form must first be chosen. If, say, element form 2 is chosen, run down the column headed W to 30 and we find that the lamps should be spaced 10 inches behind the glass and 15 inches apart. The other figures at the right represent varying degrees of brightness as set forth in Table I. If brightness 150 is selected, the figure at the top of the column indicates that 60-watt lamps should be used.

(TABLE II)

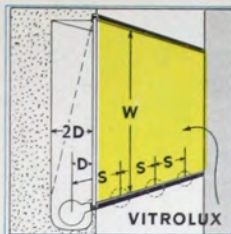
COMPUTED AVERAGE BRIGHTNESS VALUES IN FOOT-LAMBERTS FOR LUMINOUS ELEMENTS OF DIFFUSING WHITE VITROLUX GLASS

(Depreciation from initial values has been allowed for—initial brightness x 0.7)

Dimensions in Inches		ELEMENT FORM No. 1															
		Watts per Lamp															
W	D	S	10	15	25	40	50	60	75	100	150	200	300	500	750	1000	
6	4	6	90	160	290	500											
9	6	9	40	70	130	220	295	415	535								
12	8	12	20	40	70	125	165	230	300	430							
15	10	15		25	45	80	105	150	195	275	465						
18	12	18			30	55	75	105	135	190	320	455					
24	16	24				30	40	60	75	105	180	255	410				
30	20	30					25	35	50	70	115	165	260	450			
36	24	36						25	35	50	80	115	180	310	455		
48	32	48								25	45	65	105	175	255	360	

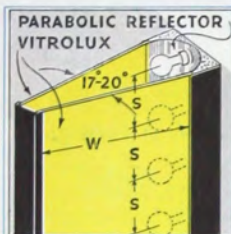


Dimensions in Inches		ELEMENT FORM No. 2															
		Watts per Lamp															
W	D	S	10	15	25	40	50	60	75	100	150	200	300	500	750	1000	
12	4	6	90	160	290	500											
18	6	9	40	70	130	220	295	415	535								
24	8	12	20	40	70	125	165	230	300	430							
30	10	15		25	45	80	105	150	195	275	465						
36	12	18			30	55	75	105	135	190	320	455					
48	16	24				30	40	60	75	105	180	255	410				



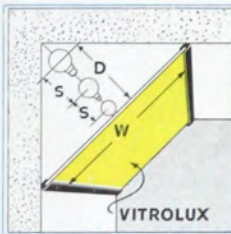
$$D = \frac{1}{10}W \quad S = \frac{2}{10}W$$

		ELEMENT FORM No. 3													
Dimensions in Inches		Watts per Lamp													
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750	1000
18	2 4	25	45	65	145	190	265	345	490						
24	2 5	25	50	85	115	160	210	295	500						
30	3 6		35	55	75	105	140	195	330	470					
36	3 7			40	55	75	100	140	240	335	535				
48	5 10				30	40	50	75	125	175	280	480			



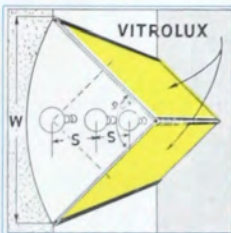
$$S = \frac{2}{5}W$$

		ELEMENT FORM No. 4													
Dimensions in Inches		Watts per Lamp													
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750	1000
18	8			35	65	85	115	155	220	370	520				
24	10			40	50	70	190	130	220	315	500				
30	13				30	45	55	80	135	195	310	530			
36	15					30	40	60	100	135	215	380	555		
42	18						30	40	70	100	165	270	400		
48	21							30	55	75	120	205	300	425	



$$D = \frac{2}{5}W \quad S = \frac{3}{5}W$$

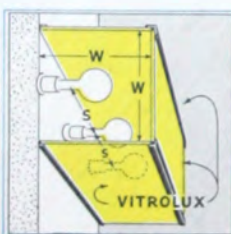
		ELEMENT FORM No. 5													
Dimensions in Inches		Watts per Lamp													
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750	1000
12	5 7 1/2	40	65	125	215	285	400	515							
15	6 9	25	45	85	140	190	265	345	490						
18	7 10 1/2		30	60	100	135	190	245	350	590					
24	10 15			30	55	70	100	130	185	310	440				
30	12 18				35	45	65	85	120	210	290	465			
36	14 21					35	45	60	85	150	210	335	575		
48	19 29						25	35	50	80	110	180	320	450	



$$S = \frac{1}{2}W$$

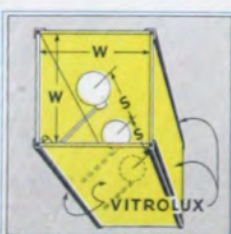
		ELEMENT FORM No. 6													
Dimensions in Inches		Watts per Lamp													
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750	1000
12	* 6	40	70	130	220	295	415	535							
18	* 9		30	55	100	130	185	240	340	570					
24	* 12			30	55	75	105	135	190	320	445				
30	* 15				35	45	65	85	120	205	290	465			
36	* 18					35	45	60	85	145	200	320	555		
48	* 24						25	35	50	80	115	180	310	450	

*Position Lamps Equidistant from the two sides.



$$D = \frac{1}{2}W \quad S = \frac{3}{4}W$$

		ELEMENT FORM No. 7													
Dimensions in Inches		Watts per Lamp													
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750	1000
12	6 9		25	50	85	115	160	205	290	495					
18	9 13 1/2			20	40	50	70	90	130	220	315	500			
24	12 18				30	40	50	75	125	175	280	480			
30	15 22 1/2					25	35	45	80	110	175	310	450		
36	18 27						25	35	55	80	125	215	310	445	
48	24 36							20	30	45	70	120	175	250	



$$D = \frac{1}{2}W \quad S = \frac{7}{10}W$$

		ELEMENT FORM No. 8													
Dimensions in Inches		Watts per Lamp													
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750	1000
12	6 8 1/2			45	80	105	145	190	270	460					
18	9 12 1/2				35	50	65	85	125	210	295	470			
24	12 17					25	35	50	70	115	160	260	445		
30	15 21						25	30	45	75	105	165	290	420	595
36	18 25							30	50	75	115	200	290	410	
48	24 34								30	40	65	110	160	230	

(TABLE II—Continued)

NOTE: These tables are based on enclosed white reflecting surfaces reflecting 75% of the light.

For the sake of simplicity, only a single sheet of Vitrolux glass covers the face of the element in each of the element forms illustrated. But it is, of course, possible to use any desired number of pieces of glass for the face of the element.

To produce luminous areas larger than those shown in the tables, element forms may be combined one above or beside another. For example, the design of lighting for an area 12 ft. high may be composed of 3 units of Element Form No. 1, each 48" high, and the size and location of lamps determined directly from the table of Element Form No. 1. In this case the abutting reflecting surfaces of the three combined elements may be omitted, enclosing the lamps with the outer end and rear reflecting surfaces only.

If such a design results in a depth greater than practical, the distance behind the glass may be reduced by designing the lighting to be comprised of four element forms each 36" high, etc., etc.

LIGHTING DESIGN OF VITROLUX IN COLORS OTHER THAN WHITE

The lighting design for other colors should be determined by the same procedure followed in the design for lighting for white Vitrolux. The same values of "D" and "S" should be used regardless of color.

The lamp wattages as determined in Table II for white Vitrolux may also be used for

- Ivory
- Yellow
- Bright Yellow
- Light Orange
- Deep Orange
- Chinese Red
- Brilliant Red
- Bright Red

It is suggested that the next larger size of lamp be used for

- Pastel Green
- Sea Green
- Baby Blue
- Apple Green
- Light Blue

Lamps two sizes larger than those determined by Table II are recommended when using

- Irish Green
- Dark Green
- Dull Green
- Medium Blue

For example, in working out an installation in which Table II requires 60-watt lamps for white Vitrolux, use 75-watt lamps instead, if Pastel Green Vitrolux is used. If Irish Green Vitrolux is to be installed, use 100-watt lamps instead of 60-watt lamps.

In figuring wire sizes and circuit layout, it is good practice to allow capacity for at least one size larger lamp than planned in order to provide a margin for testing or future increases of brightness.

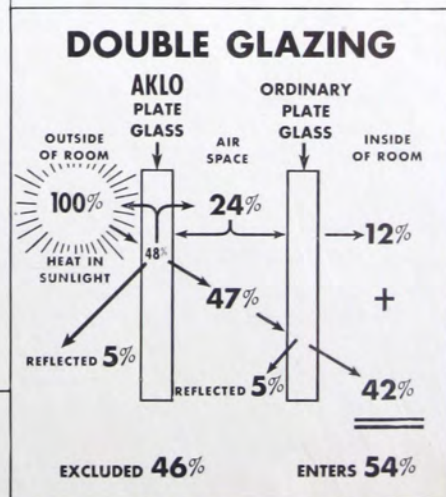
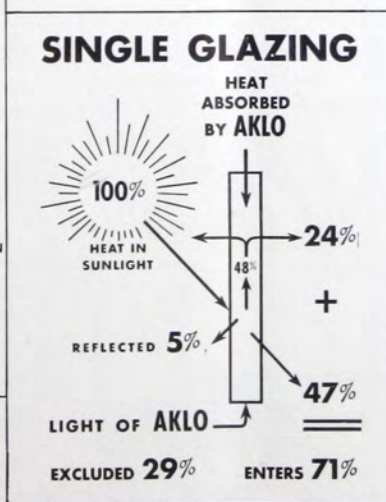
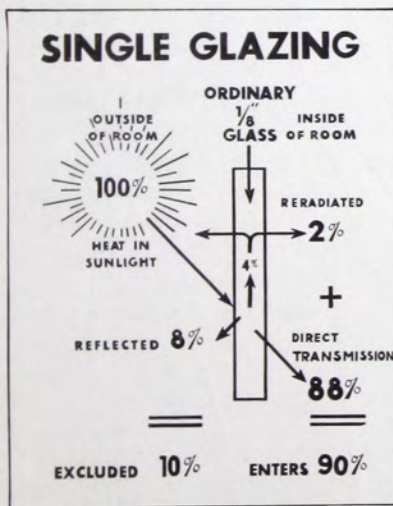
AKLO HEAT-ABSORBING PLATE GLASS

AKLO Plate Glass is a glass of special chemical composition that has the peculiar property of absorbing heat. It is a practical aid in solving the problem of transmission of solar heat into all types of buildings. Even when air-conditioning equipment is installed to assure comfortable temperatures by artificial means, **AKLO** Plate Glass reduces the cost of operating that equipment by reducing the total cooling load for a given window area. Double glazing, of course, is always recommended and is practically essential with air-conditioning equipment. **AKLO** simply increases its efficiency, as is evident from the table at the right that records the results of laboratory experiments.

AKLO Plate Glass absorbs the infra-red rays from the sun and from artificial light. In the table at the right, the maximum temperature differences between the inside and outside of an enclosure were measured in a small box 6 x 6 x 3 in. in which a small

window was placed using different kinds of glass. The temperature differences were measured with the sun shining through the glass on the blackened bulb of a thermometer. These temperatures indicate to some extent what might be expected in a large room. The maximum difference in temperature inside and outside of a room will depend upon the area of the window or the heat energy transferred into the room, volume or heat capacity of the room and the rate of heat loss through the room.

Glass	Visible Light Transmitted	Total Radiant Heat Excluded	Maximum Temperature Difference Inside Enclosure and Outside
Ordinary sheet glass	92%	10%	79.5° F.
AKLO	78%	29%	60.0° F.
Double window, ordinary sheet glass	85%	19%	77.5° F.
Double window, AKLO and ordinary sheet glass	72%	45%	48.0° F.



Blue Ridge

FIGURED AND WIRE GLASS

● Familiar uses for Rolled Figured and Wire Glass and Polished Figured and Wire Glass manufactured by Blue Ridge Glass Corporation include the glazing of partitions, doors, transoms, windows, and skylights. The current architectural trend introduces many other innovations. For example, a variety of attractive ornamental effects is achieved

with plain or decorated figured glass panels, screens and lighting fixtures in private homes and public buildings as well as in show windows and interiors of fine stores. Structures designed to interpret the current mode which uses glass so liberally afford many opportunities for practical and distinctive applications of Blue Ridge products.

Blue Ridge Glass is carried in stock by leading glass jobbers and glazing contractors or can be furnished promptly by them through quick shipment of any pattern, size and thickness from the factory's ample supplies.

The following unvarying features distinguish this glass and keep it in high favor with leading architects of the nation: (1) Uniform quality and thickness; (2) Sparkling brilliance; (3) Attractive and efficient patterns; (4) Easily cleaned designs; (5) Light transmitting and diffusing effectiveness; (6) Versatility of use; and (7)



POLISHED WIRE GLASS

(Wire Mesh Shows Actual Size.) Used in all openings where clear vision and the security of non-scatterable fire-retardant glass are desired. Genuine polished plate glass with wire reinforcement. Note that the wire is clean—no disfiguring bubbles on the twisted wire to mar the sharp outline or distort the vision. Blue Ridge's outstanding quality product. (See table of sizes, thicknesses, etc.)

glass; (2) Wire glass is usually set with the wire running vertically, hence the first dimension given is understood to be across the wire twists (width) unless specifically shown otherwise; (3) Ribbed glass is generally glazed with the ribs running vertically (parallel to height); (4) Prism glass distributes light best when prisms are set horizontally (parallel to width); (5) Specify kind of glass by name and give thickness and finish (see table of Patterns, Thicknesses, Sizes and Weights); (6) Stipulate Blue Ridge Glass Corporation as the manufacturer and insist that Blue Ridge Glass be furnished.

The Standard Specification, Obscure and Wire Glass is as follows: Where figured or polished wire or obscure glass is specified herein, or shown on plans, it shall be [—] in. in thickness and shall be [—] pattern (specify thickness and pattern desired), and shall be manufactured by the Blue Ridge Glass Corporation.



Wire glass fire-retarding properties (approved by Underwriters' Laboratories, Inc. as Number R-2129).

In contemplating the use of or in specifying figured and wire glass, it is well to remember these few important facts: (1) State width (horizontal measurement) first, and height (vertical measurement) second, when writing the size of any kind of

BLUE RIDGE WIRE GLASS

FIRE RETARDANT NO. R-2129

STRENGTH. The exclusive method of manufacture employed by Blue Ridge effectively centers the wire in the glass. This is extremely important as wire glass is specified and used because of its fire-retarding properties and its greater resistance to breakage by impact and wind pressure as compared with unwired glass. In a series of tests conducted by a well-known physicist, it was found that glass with properly centered wire was consistently stronger than glass of the same thickness and pattern in which the wire was substantially closer to one surface than the other. The difference ran as high as 42% in some of the comparisons. When Blue Ridge Wire Glass, Figured or Polished, is specified the advantage of this extra strength is assured because the wire is placed where it should be—approximately in the center.

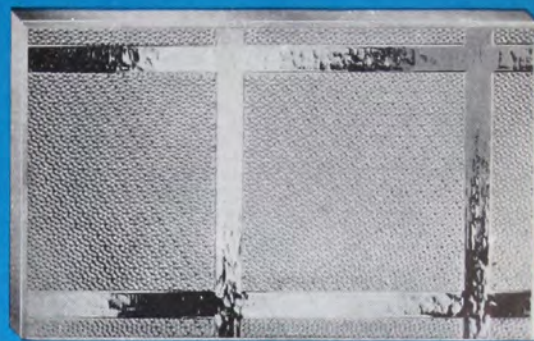
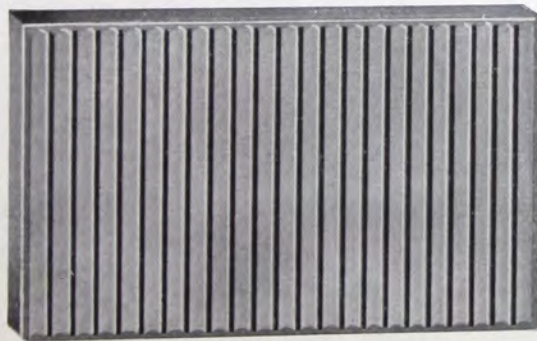
APPEARANCE. Another outstanding feature of our wire glass is its freedom from the clusters of bubbles on the wire that are so objectionable when appearance of the job is considered. And the wire itself is bright, clean and untarnished—all the result of a superior method of manufacture in which both physical properties and appearance of the product are given equal consideration.

LIGHT TRANSMISSION. The effect of wire in glass is to reduce the amount of light transmitted by about 10% as compared with unwired glass of the same pattern, thickness and batch composition.

UNDERWRITERS' RESTRICTIONS. The rules and requirements of the National Board of Fire Underwriters limit the size of wire glass which can be glazed in openings exposed to fire hazard. In no case shall the unsupported area of the glass measure more than 48 in. in either dimension or exceed 720 sq. in. (5 sq. ft.). Typical maximum sizes which satisfactorily meet that requirement are 15 x 48, 18 x 40, 20 x 36 and 24 x 30. It should also be noted that wire glass used for this purpose must be set in non-inflammable materials. Blue Ridge Wire Glass is an approved fire retardant bearing number R-2129 of the Underwriters' Laboratories, Inc.

See table of Patterns, Thicknesses, Sizes and Weights for list of patterns available in wire glass.

SKYTEX GLASS • (Pattern Shown Actual Size.) A pattern containing eight parallel vertical ribs per inch which spread the light passing through the glass and drain off condensation. Chiefly used in skylights, but equally suitable for general industrial glazing. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)



TRANSEX GLASS • (Pattern Shown About 1/3 Size, squares 3/4 x 3/4 in., division lines 3/8 in. wide.) For store-front transoms. A solid sheet of glass made to resemble separate panes set in metal bars. No cemented joints to weaken under the stress of wind and rain storms. The background pattern (Diffusex) and the smooth division lines are uniformly and but slightly elevated without pits, grooves or sharp angles in either. Transex will remain clean and distribute light efficiently even under unfavorable conditions long after dirt collections have destroyed the effectiveness of ordinary tiled or prism transoms. (See table of Sizes, Thicknesses, etc.)



DIFFUSEX GLASS • (Pattern Shown Actual Size.) Primarily for interior partitions, doors and transoms, but equally effective in any location where an adequate volume of softly diffused light is desired. An attractive grouping of small and very slightly elevated lenses spaced far enough apart to avoid dirt collecting pockets and to permit easy cleaning with a moist cloth. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)



HAMMERED GLASS • (Pattern Shown Actual Size.) For general industrial glazing—exterior and interior. The contiguous lenses forming the pattern distribute the light passing through the glass and accentuate the brilliance of the metal. A clean glass with beauty and mechanical efficiency. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)

Some facts

ABOUT TRANSMISSION AND DIFFUSION OF LIGHT BY

Figured GLASS

TRANSMISSION. Figures showing the percentage of light transmitted by one type of glass or another should always be accepted as only approximate in specifying glass for factory and commercial buildings. There are two very logical reasons why positive values cannot be established.

In the first place, transmission factors determined by laboratory apparatus in the hands of experienced observers often show wide variations. Differences up to 5% in the readings are not uncommon. In the second place, and of even greater significance, such studies are practically always made of glass that has been thoroughly washed and cleaned.

Obviously, glass in windows, skylights, transoms, doors and partitions in factory buildings (and to a lesser extent office buildings), cannot possibly be maintained in the same spotlessly clean condition as the laboratory samples. Glass will get dirty, some types more quickly than others, and dirt prevents the passage of light through the glass. Even clear window glass, which has two smooth surfaces, has been found to have lost about 50% of its original efficiency due to dirt collection within six months after glazing in windows of factory buildings. And the loss was 83% in the same set of tests for windows set on a slope of 60 degrees—the pitch of the average skylight.

Use glass liberally to insure adequate daylighting within buildings both old and new and, of equal importance, specify patterns that are free from grooves, crevices and pits which will collect dirt rapidly and hold it even if the glass is washed frequently. Blue Ridge Luminex, Diffusex, Industrex, Muralex, Hammered and Velvex are especially recommended for cleanliness and high transmission values. Transex, for store-front transoms, is another Blue Ridge pattern of the shallow type.



INDUSTREX GLASS • (Pattern Shown Actual Size.) For industrial and commercial buildings—exterior and interior openings. A compact arrangement of lens-shaped figures combining effective distribution of light and attractive appearance without the disadvantage of deeply cut grooved lines. Not a "dirt collector," Industrex can be easily cleaned with a moist cloth. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)



REGLEX GLASS • (Pattern Shown Actual Size.) A popular pattern for the interior glazing of fine buildings. The design is made of pyramidal-shaped indentations—64 to the square inch—which diffuse the light remarkably well and at the same time provide great obscurity. (See table of Sizes, Thicknesses, etc.)



PEBBLEX GLASS. (Pattern Shown Actual Size.) An unusually brilliant and obscure glass for office building interiors; diffuses light splendidly and affords privacy within the room. Pebblex is more deeply imprinted than some of the newer Blue Ridge patterns such as Diffusex and Muralex. Its attractive appearance has led many architects to specify it. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)



RIBBED GLASS * (Pattern Shown Actual Size.) Used only for industrial glazing. Diffuses light when clean but has a tendency to collect dirt more rapidly than our newer patterns. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)



FLOREX GLASS * (Pattern Shown Actual Size.) Long a favorite for interior glazing. A brilliant and attractive pattern, available both plain and wired. (See table of Sizes, Thicknesses, etc.)



MAZEX GLASS * (Pattern Shown Actual Size.) Another design for building interiors. Highly obscure, it distributes light remarkably well. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)

DIFFUSION. Occasionally, we are asked to guarantee that a certain glass will **eliminate** glare but such a guarantee can never be made in good faith by any manufacturer. Glare is the result of strong contrasting bright spots on the surface of the glass. It is the function of diffusing glasses to distribute the light which passes through and consequently to lessen the contrasting bright spots but perfect diffusion cannot be obtained from any figured glass. Opal glass, which is opaque, approaches perfection but its factor of transmission is low compared with Figured Glass.

Naturally, some Figured Glasses diffuse light better than others. Blue Ridge Pebblex, Diffusex, Industrex and Muralex are excellent diffusing patterns, while Luminex, Velvex and Hammered are less efficient in this respect. Ribbed Glass and Prism, both of which collect dirt rapidly, throw light mainly in two directions.

APPROXIMATE LIGHT TRANSMISSION OF VARIOUS PATTERNED GLASSES

A—Illuminometer reading of direct light.

B—Illuminometer reading with glass interposed and in contact with sensitive surface of cell.

100 B/A is taken as the percentage transmission.

GLASS	A	B	100 B/A
Diffusex	12.9	11.3	87.6
Florex	13.0	11.2	86.2
Hammered	13.0	11.7	90.0
Industrex	12.7	11.2	88.2
Luminex	12.9	11.4	88.4
Luminex, Satinol one side	12.9	11.2	86.8
Luminex, Satinol two sides	12.9	11.0	85.3
Luminex, Sandblasted one side	12.8	9.3	72.7
Luminex, Frosted	12.9	9.1	70.5
Mazex	12.7	11.1	87.4
Muralex	12.9	11.1	86.0
Muralex, Satinol one side	12.9	11.1	86.0
Muralex, Satinol two sides	12.9	10.6	82.2
Pebblex	12.8	10.2	79.7
Prism	12.8	7.8	60.9
Prism, Satinol pattern side	12.9	7.0	54.3
Prism, Satinol smooth side	12.8	7.2	56.3
Prism, Satinol two sides	12.9	7.0	54.3
Reglex	12.8	6.7	52.3
Ribbed	12.8	10.8	84.4
Ribbed Frosted	12.8	9.0	70.3
Skytex	12.9	8.6	66.8
Velvex	12.7	11.3	89.0
Velvex, Satinol one side	12.7	10.8	85.0
Velvex, Satinol two sides	12.8	10.3	80.5

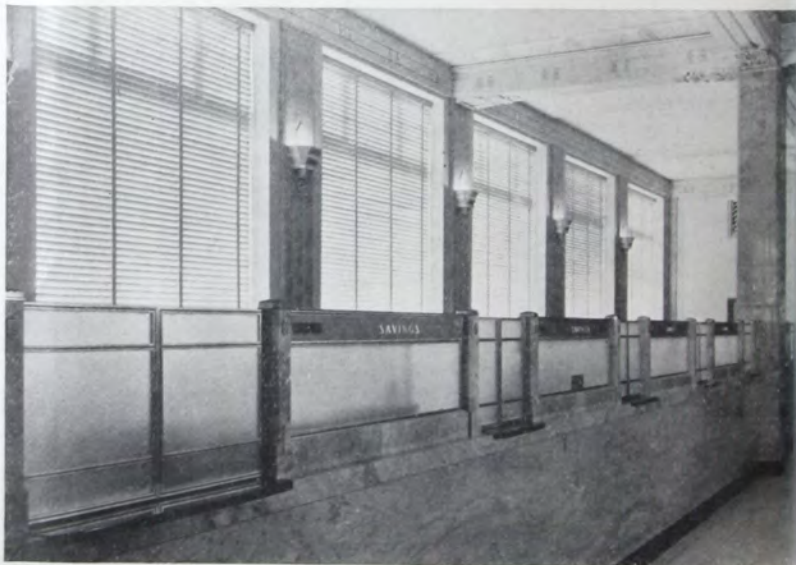
SATINOL

● Satinol is not a new glass. It is a process which may be applied to one or both surfaces of Blue Ridge Figured Glass. The finished thickness is $\frac{3}{16}$ in. and four Satinol-Processed patterns are carried in stock by the factory: Velvex, Luminex, Muralex and Louvrex. Other Blue Ridge designs in Satinol may possibly be obtained by special arrangements on application.

Satinol Processing gives a mellow satin-like finish which does not fingermark or spot. It materially improves the diffusing property of any glass to which it is applied and its illumination is soft, restful and pleasing to the eye. In general, Satinol on one surface reduces the transmission of light by about 3% and on two surfaces by about 6%.

Sandblasting, which is also applied to Figured Glass sometimes to improve the distribution of light decreases transmission by 16% one surface and from 20 to 30% both surfaces—depending on the pattern of glass. Rapid collection of dirt and difficulty in cleaning are additional objections to sandblasting. Dust which accumulates on the surface of Satinol-Processed glass can be removed with a dry rag.

The label which appears on every light of genuine Satinol-Processed Blue Ridge Glass states the degree of processing. The standard Satinol Specification is: "Where obscure glass is specified herein or shown on plans, it should be (-) inch in thickness and shall be (-) pattern Satinol (one surface or two surfaces), and each light shall bear the Satinol label of the Blue Ridge Glass Corporation." Always specify the thickness, name of pattern and whether one or two Satinol surfaces are desired.



LUMINEX GLASS • (Pattern Shown Actual Size.) Especially recommended for industrial buildings where the cost of keeping glass clean is an important factor. Provides a medium distribution of light and is a relatively transparent pattern of extremely fine texture that can be glazed and cleaned like clear glass. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)



VELVEX GLASS • (Pattern Shown Actual Size.) A highly practical glass for skylights, factory walls and monitors but also suitable for office partitions, doors and transoms. This unique pattern is extremely shallow, yet it creates the illusion of depth when light rays pass through the glass. An exceptionally clean glass—not totally obscure but sufficiently so for ordinary commercial and industrial building conditions. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)

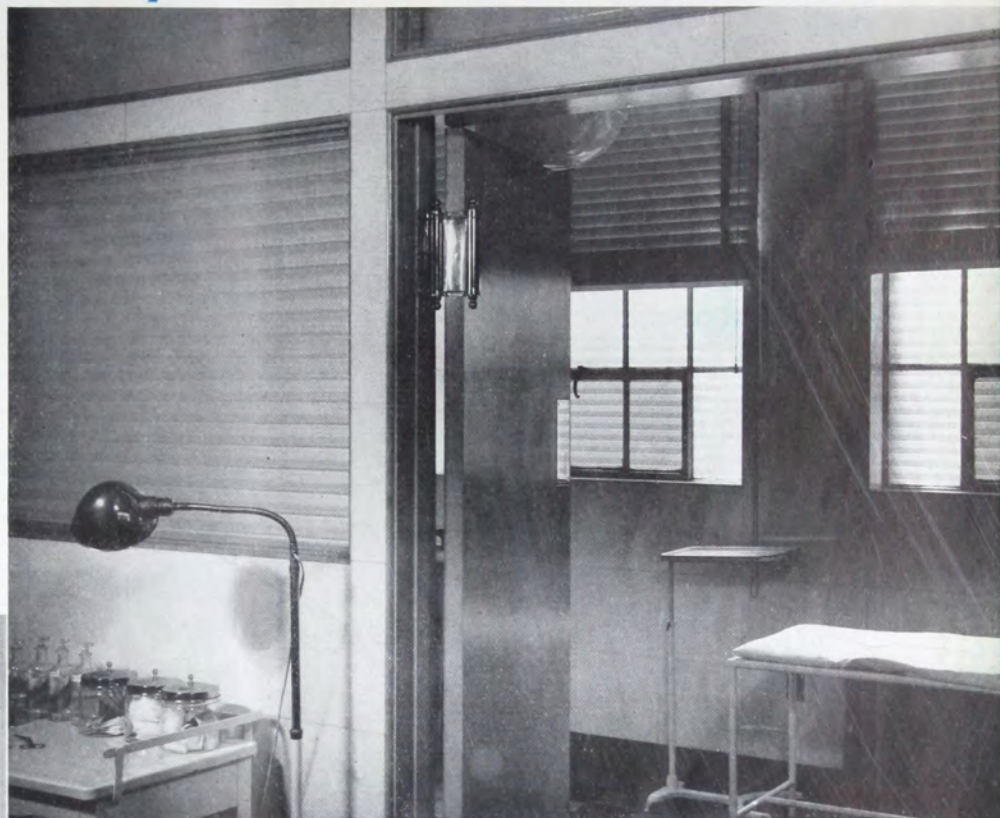


MURALEX GLASS • (Patterns Shown Actual Size.) A new glass for partitions, doors and transoms. Its modest dignified beauty harmonizes with any style of architecture and its mechanical efficiency insures its popularity. The pattern is finely engraved to reduce dirt collections and to afford easy cleaning. Available both plain and wired. (See table of Sizes, Thicknesses, etc.)



Blue Ridge

LOUVREX



● Louvrex is a new figured glass especially developed for use in modern architecture. Its directional pattern of parallel lines resembles a series of louvre boards in venetian blinds. This simplicity of design makes Louvrex particularly effective when glazed in large sections. Maximum dimensions of 136" x 60" permit unbroken expanses of the straight hori-

zontal and vertical lines so highly favored in contemporary building. Used for window glazing, Louvrex is not only pleasant to look at from the inside, but also has a dignified, modern appearance when viewed from outside. For window ventilators, partitions, shelving, transoms and many other practical and decorative uses, Louvrex produces smart and distinctive effects. Louvrex is available either semi-transparent or Satinol-Processed to a satin-like finish which does not fingerprint or spot. This treatment materially improves diffusion, increases obscurity and affords soft, restful illumination.

Highly translucent, Louvrex also provides a new range of appealing designs when double glazed with the pattern lines at right angles. When used for double glazing the maximum size is 60 x 60 inches. By varying the angle, many other distinctive results can be obtained. This not only increases the value of Louvrex as a decorative medium, but also strongly recommends its use in double glazing to reduce operating costs of heating and air-conditioning equipment.

The striking applications of this new glass are extended still further by the number of luminous effects it permits. When illuminated by reflected light, Louvrex provides soft, diffused lighting for homes and commercial buildings. It also affords attractive exterior illumination for storefronts, theaters, cafes and other buildings—and, when colored lights and colored backgrounds are used with Louvrex, a wide variety of entirely new and strikingly different color effects can be achieved.

BLUE RIDGE *Optex* GLASS BLACKBOARDS

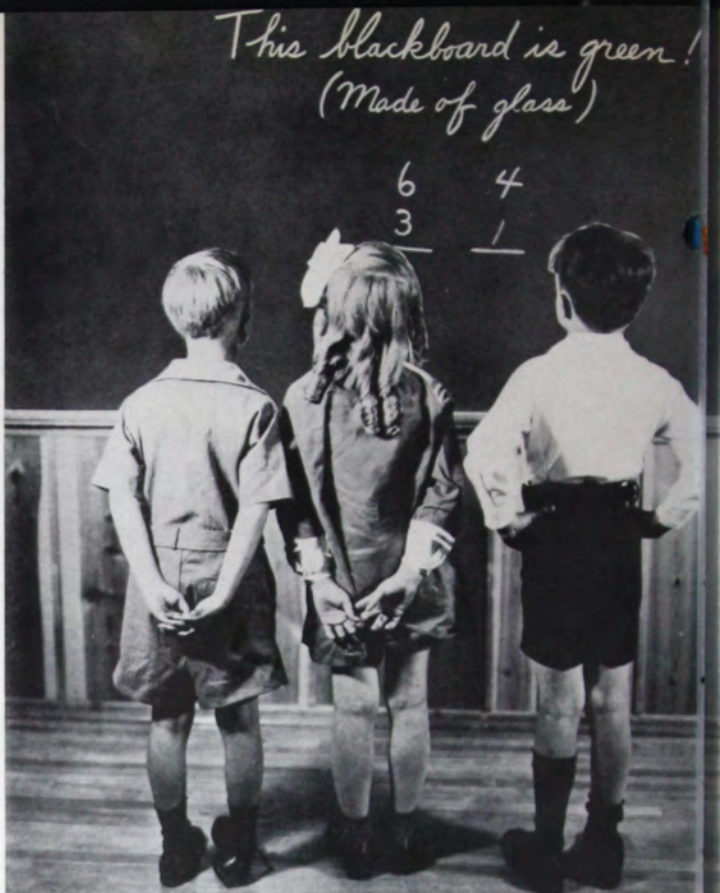
● Optex Glass Blackboards are more serviceable, more efficient and more attractive. For several years highly successful results have been obtained with Optex Glass Blackboards by schools, offices and industrial plants in various sections of the country.

Available in black and green or other colors on special orders, Optex blackboards fit any color scheme. Reflection of light, always a problem, is practically eliminated—eye-strain is reduced and visibility increased. Colors are permanent and uniform—no matching or grading of sections is required. The hard, vitreous surface of Optex glass is highly resistant to wear and offers greater protection against accidental scratching. Its machine-smoothed finish is not injured by washing with water, soap, alcohol or naphtha—even oil paints come off easily with a paint remover. Available in 12-foot lengths, as well as in smaller sections, Optex boards provide a larger unbroken writing area. Clearly visible and permanent rulings can be applied to Optex at the factory.

The back surface of Optex is coated with a special enamel unaffected by moisture, heat, free lime in plaster or frost in brick walls. A special elastic fibrous backing protects the enamel and adapts itself to variations in expansion of glass. The air cushion between the Optex board and the wall insures ventilation and combines with the fibrous backing to deaden noise. Optex will not break unless subject to exceptional shock and, if broken, pieces of glass tend to adhere to the elastic backing.

INSTALLATION DETAILS

Optex blackboards are not cemented to the wall, therefore all finish back of the board can be omitted. Two strips of lumber $\frac{1}{2}$ " x 1" are affixed to the wall, level and plumb,



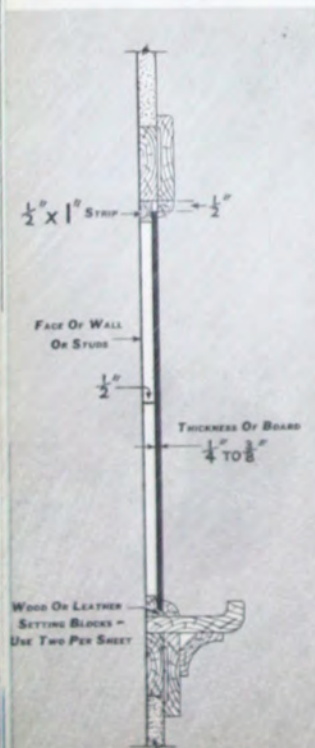
so that Optex boards may lean against them without undue strain. Where vertical joints are necessary, a zinc "H" joint-moulding is furnished, and a small amount of putty should be placed on the back portion of the board which fits into this section—otherwise no putty or mastic of any kind should be used. As the zinc section is thicker than the Optex board, the $\frac{1}{2}$ " x 1" strips, top and bottom, should be relieved where the joints occur. Opening sizes: Height of board, plus $\frac{3}{4}$ ", Length of board, plus 1". Weight is 4.5 lbs. per sq. ft. Optex can be installed easily by carpenters or glaziers at a saving which represents a considerable item in the final cost. Frames and chalk rails to be supplied by others.

SPECIFICATIONS

Wherever blackboards are specified or indicated on the drawings, the contractor shall furnish and install $\frac{3}{4}$ inch thick Optex glass blackboards as manufactured by the Blue Ridge Glass Corporation, Kingsport, Tenn., and distributed by The Libbey-Owens-Ford Glass Company, Toledo, Ohio.

The color of these boards shall be _____,
(State color desired—black or green.)

Each piece must be marked by the manufacturer with the word "Optex" in the lower left hand corner.

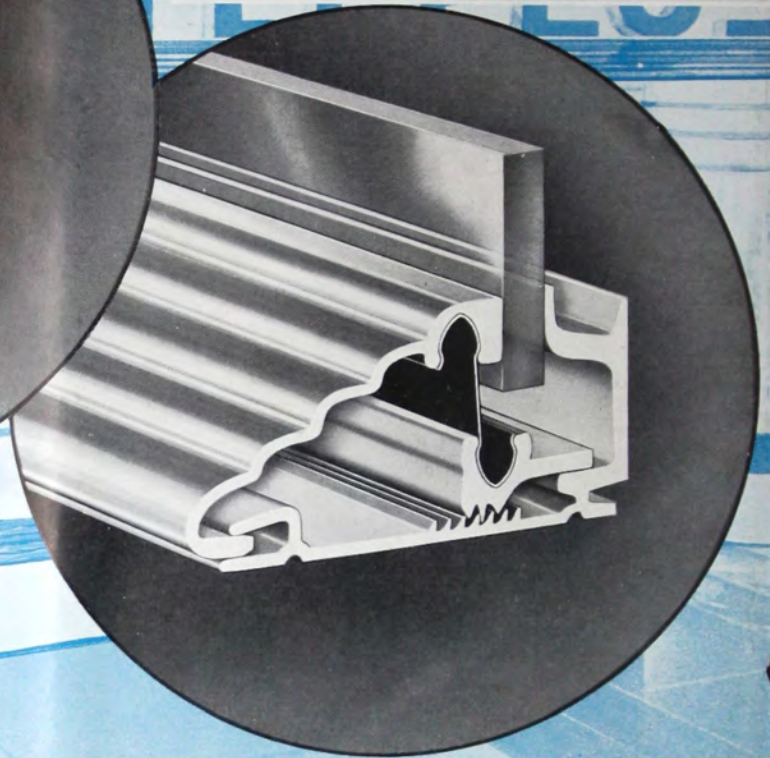
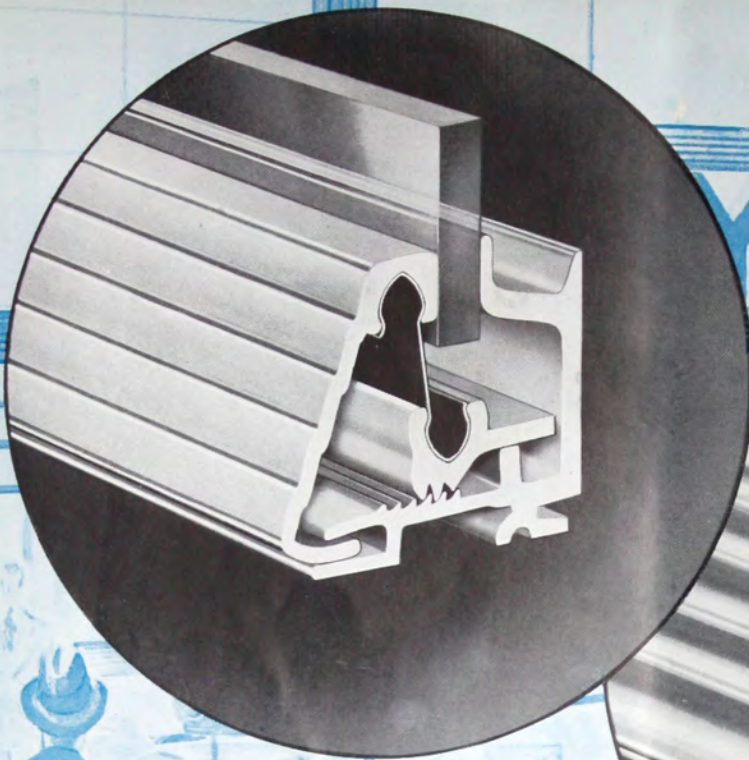


PATTERNS, THICKNESSES, SIZES AND WEIGHTS

THICKNESS IN.	PATTERNS	MAX. WIDTH IN.	MAX. LENGTH IN.	APPROXIMATE WEIGHT PER SQ. FT., LBS. (Glass Only)
ROLLED FIGURED GLASS				
1/8	Hammered, Ribbed, Luminex, Skytex, Velvex, Industrex, Diffusex, Florex, Mazex, Pebblex, Reglex	48	132	2
3/8	Hammered, Ribbed, Luminex, Skytex, Velvex, Industrex, Diffusex, Florex, Mazex, Pebblex, Reglex	48	136	2 3/4
1/4	Hammered, Ribbed, Luminex, Skytex, Velvex, Industrex, Diffusex, Florex, Mazex, Pebblex, Reglex	48	136	3 1/2
Approx. 1/4	Louvrex	60	136	3 1/2
Approx. 1/4	Muralex, Transex, Prism	48	136	3 1/2
3/8	Hammered, Ribbed	48	90	5
1/2	Hammered, Ribbed	48	90	6 3/4
SATINOL PROCESSED GLASS				
3/8	Louvrex	60	136	2 1/2
1/8	Luminex, Velvex, Muralex	48	136	2 1/2
WIRE GLASS				
1/4	Hammered, Ribbed, Luminex, Skytex, Velvex, Industrex, Diffusex, Florex, Mazex, Pebblex, Muralex	48	144	3 3/4
3/8	Hammered, Ribbed	48	90	5
1/2	Hammered, Ribbed	48	90	8
1/4	Polished	48	144	4
POLISHED FIGURED GLASS				
Approx. 1/4	Diffusex, Pebblex, Reglex, Muralex, Louvrex	48	136	3 3/4

NOTE: Where 48 in. is shown as minimum width, some patterns and thicknesses may be available up to 60 in. wide, depending on stock on hand. Also, thicknesses greater than indicated above may be made to order by special arrangement. Likewise, patterns other than Louvrex, Luminex, Velvex and Muralex may possibly be obtained with Satinol finish, but 3/8 in. is the minimum thickness at all times.

A New Day in
STORE FRONT CONSTRUCTION



LIBBEY • OWENS • FORD ANNOUNCES

EXTRUDALITE

METAL STORE FRONT CONSTRUCTION

Featuring the Pressure-Controlled
Shock-Absorbing Sash

● Extrudalite is a fundamentally new principle of store front construction and design offering outstanding advantages hitherto unobtainable. Extrudalite's patented sash construction definitely



minimizes plate glass breakage. All pressure contacts between metal and glass are automatically controlled to a predetermined degree and constant pressure is maintained through spring cushioning.

Features

OF REVOLUTIONARY EXTRUDALITE

- It is a far cry from the old fashioned store fronts of yesteryear to our modern store fronts of eye-compelling beauty trimmed with colorful structural glass, illuminated panels, and self-supporting extruded metal glass-retaining mouldings.

Extrudalite, likewise, is a radical step forward both in design and practical construction features, as compared with glass mountings hitherto obtainable.

The Extrudalite line, as the name suggests, consists of solid extruded members only. It is sufficiently diversified in size, design and consequent price range, to fit every class of construction. Even the most modest store front may now include the distinction of extruded metal.

DESIGN FEATURES

Extrudalite is revolutionary in eye appeal. Its profiles are truly metallic in interpretation, at the same time eliminating entirely all plain, flat surfaces prone to give the optical illusion of waviness.

By giving each distinct area a slight radius and by using "reeds" and "cascades", these flat surfaces have been made artistic and beautiful. By "streamlining" old classical design standards, a new type of store front design has been developed. Only in extruded metal is it possible to so accurately and faithfully reproduce intricate details of design.

Unlike flat metal surfaces, which must be kept spotlessly clean to be attractive, the distinctive beauty of Extrudalite is easily maintained. A casual wiping of the surface, easily a part of window-washing routine, will bring out the high points of the reeds and cascades in contrast with the lower portions of the profiles. This accentuates the contrast between light and shade which is the main object of moulding profile design. This unique decorative effect thus produced is a new design element in store front construction.

CONSTRUCTION FEATURES

SASH

The sash is the key member of metal store front construction. To fulfill its functions perfectly it must be self-supporting—retain its own perfect alignment for the glass to rest against—provide strong but limited pressure for holding the glass and should contain a cushioning means to absorb shocks, vibration, expansion and contraction.

Contrary to general belief, the sash should be as nearly

air-tight as possible, in our opinion. It should also dust-proof the display windows rather than provide holes for doubtful ventilation and drainage. Moisture from condensation or window washing can be taken care of with a chamois or sponge. However, standard drain holes will be furnished if desired.

Extrudalite Sash No. 500 fulfills all the above requirements and provides a comparatively deep reveal for the glass.

The interlocking teeth of the base member, and the clip member which is attached to the face piece, allow identical action and pressure to be applied at all points regardless of the thickness of the glass.

After the face piece is in loose setting position, held there by the tongue-and-groove fitting at the front, the Installer runs down the set-screw from behind until it locks into permanent setting position.

The amount of cushioned pressure thus applied to the glass is pre-determined. It is impossible to apply too much tension or pressure.

This action and pressure can be described as follows:

The direct pressure of the screw spreads through the rigid clip-lever and is transferred into the cushioning spring. The spring transfers the cushioned pressure to the rigid face-piece which, in turn, applies it evenly all along the face of the glass.

The spring is like a transformer because it transforms the direct rigid pressure into cushioned pressure. The face-piece may be likened to a distributor because it distributes the cushioned pressure evenly along the face of the glass.

Reversely, the spring also acts as a shock-absorber because it absorbs all shocks, vibrations and expansions into itself. The same spring also acts as a stabilizer by throwing the pressure back against the glass under contraction.

These performances are impossible under direct or indirect rigid pressure.

This principle of pressure transformation, distribution and control is revolutionary in store front construction. It will tend to eliminate glass breakage from any and all sash failure causes.

Extrudalite Sash No. 300 contains the above described features but is smaller and provides a narrower reveal. Being smaller it is also lower in cost—and outstanding in its size and price range.



EXTRUDALITE FEATURES

Extrudalite Sash No. 100 does not contain the pressure control, nor the cushioning features of the two larger sashes but does contain many features that make it a stand-out in its price class. In price it compares very favorably with most of the standard rolled type of sash. Being of extruded metal however, it is in a class of its own in this field. Sash No. 100 is installed by running a wood screw through the face piece and gutter into a wood backstop. By the addition of a rigid clip into which a screw is tapped through the face piece this sash is transformed into sash No. 101 which is self-supporting.

SASH CAPS

Extrudalite sash caps do away with the necessity of mitering and have no screws exposed.

VERTICAL CORNER, REVERSE AND DIVISION BARS

A perfect bar of the above type should be strong enough to withstand abnormal wind pressure without allowing glass breakage. It should not, however, be so bulky that it will obstruct vision.

These bars should be well designed with no operating parts exposed. They should take a definite cushioned grip on the edges of the glass and fit all angles within its classified range.

Extrudalite is unique in that it fulfills all of these requirements.

The necessity for tape or plastic materials of any kind when installing the bars is eliminated.

A light standard-type division bar is provided for use in transom work. There is also available one size of reinforcement which can be used for division of plate glass, in show windows where cost is a major factor.

In addition there is a structural vertical division bar which is especially adaptable for use in large illuminated areas. This member, when anchored at top and bottom provides ample support for the glass facing. Horizontal division strips may be tied directly to the backs of these vertical members for their support.

A variety of face-pieces will be furnished allowing either the horizontal or vertical members to run straight through or allowing for mitering of these members. In this connection, we have developed a horizontal auxiliary bar which allows replacement of the upper or lower light of glass separately. It is small in size, has the same contour on both faces and is absolutely water-proof.

This member ties in perfectly with the above mentioned structural vertical bars and will also find wide use for the separating of painted glass valance signs from the clear plate glass below.

NOTE THE BEAUTY OF EXTRUDALITE TRANSOM BARS

Standard practice for the covering of transom bars has been

to provide a top and bottom interlocking member of metal which forms a 4" bar. Wider bars have been obtained by the use of 2" filler strips, as many as necessary being used in order to obtain the required height.

This method has been improved by providing a one-piece 4" bar, a two-piece interlocking 6" bar, a 2" filler strip with which to form an 8 and 10" bar and a 6" filler to form a 12" bar.

All of which means a simple and less costly installation of transom bars and the opportunity to incorporate real character of design.

A very important feature of Extrudalite is this—If a complete store front installation is made using Extrudalite sections as called for on our standard detail sheets, there will be no possibility of this front leaking at any point. This is assured by proper designing of the sections.

Aside from the aforementioned items Extrudalite includes all the latest features contained in sills, jambs, Vitrolite trim moulding, copings, soffit sections, hinged ventilators, show-case doors, pilaster coverings, and also offers a complete line of extruded tubular doors, transoms and frames. In fact, anything and everything in metal that comes in connection with a store front, in radically improved construction and design is offered by Extrudalite.

Due to the flexibility of Extrudalite and to its method of manufacture, we are in a position to offer the architect a highly specialized service. Anything that he cares to develop in the way of a designed section can be incorporated into the regular line at a minimum cost and will be held exclusively for his use. We will also assist in working out any special store front problem the architect cares to submit.

EXTRUDALITE IS EASY TO INSTALL

Installation is one of the most important steps from the time a job is planned until it is completed. It is even more important to the owner than the planning or materials.

Extrudalite is fundamentally new and different. Yet it does not radically depart from proven standards of setting. The few departures it makes actually improve and simplify the job. Extrudalite eliminates minute and intricate workmanship so as to make the installation fool-proof.

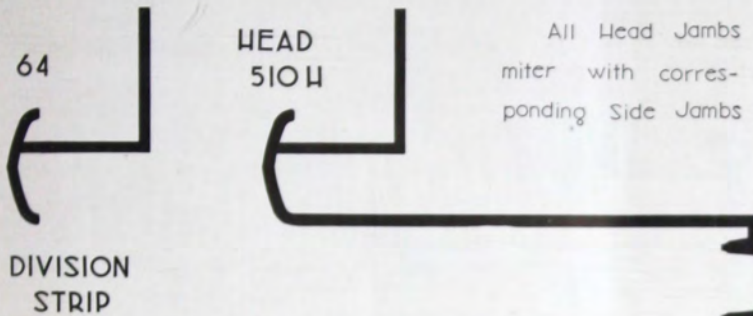
Detail sheets are designed to work to two different planes of alignment. First, the woodwork to which the metal is attached. This is made easy for the carpenter by lining on one plane for all members. Second, EXTRUDALITE lines itself to the face of the Vitrolite.

EXTRUDALITE is featured in aluminum alloy No. 53-S with gloss alumilite finish, a protective finish is furnished on all welded construction instead of alumilite which discolors at weld joints. It is also available in extruded bronze, polished or satin finishes. EXTRUDALITE can also be furnished upon special order in nickel silver. Other special finishes on all metals can be supplied.



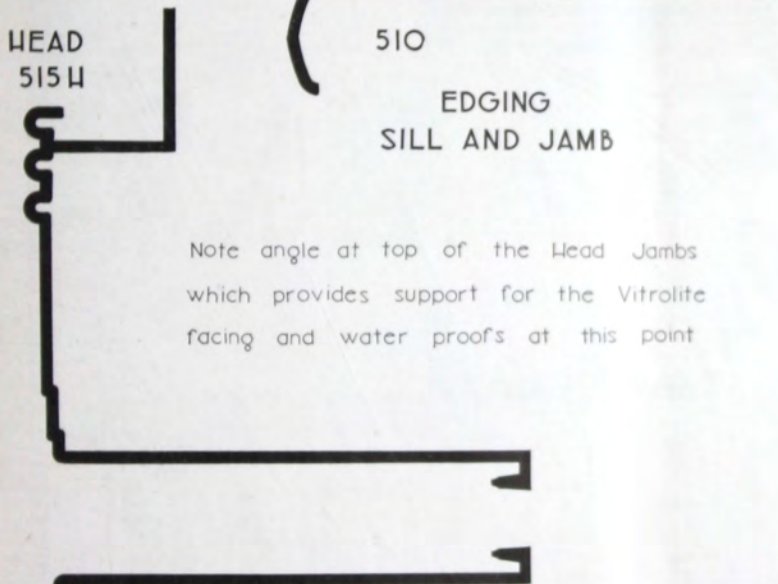
● Extrudalite detail sheets have been developed in the simplest form possible as an aid in planning and laying out the practical constructive interpretation of store front designs. The following sheets give in simple basic form full sized cross sections of all members in the line in order to give the "feel" of each individual moulding when choosing desired sections. These full sized sections may also prove useful in

solving and detailing special conditions with various combinations of standard items. For standard vertical and horizontal sections through typical store fronts, will be found sheets giving details in 1/4 full size scale. They are offered as a guide to correct and practical combinations of the individual members and are drawn to the small scale in order to make the job of detailing lighter. The importance of complete store front



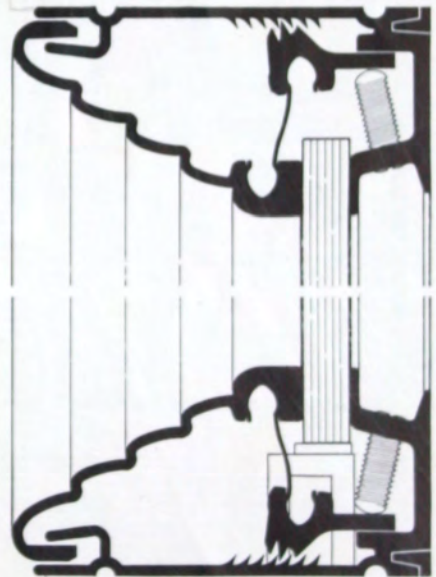
All Head Jamb's miter with corresponding Side Jamb's

See Sheet Number II for quarter size Vertical and Horizontal Sections using these elements

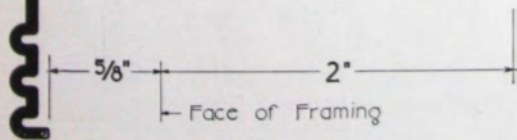


Note angle at top of the Head Jamb's which provides support for the Vitrolite facing and water proofs at this point

All sections drawn are actual size



Sills and Jamb's engage with the Sash Gutter providing a water tight joint and alignment for the Sash



SILL AND JAMB 515



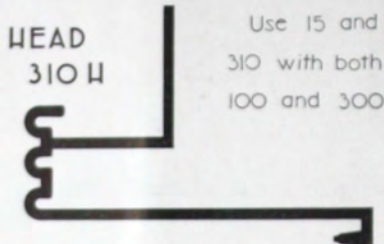
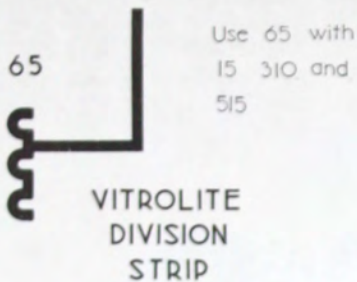
details on every job cannot be emphasized too strongly. Backed up with clear cut and adequate specifications, they insure the job being completed exactly as designed and planned.

We will be glad to assist in working out special condition details.

All Extrudalite sections are designed to assemble and install

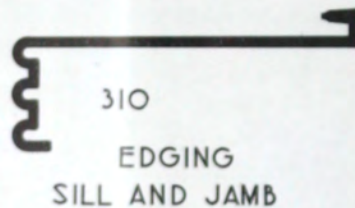
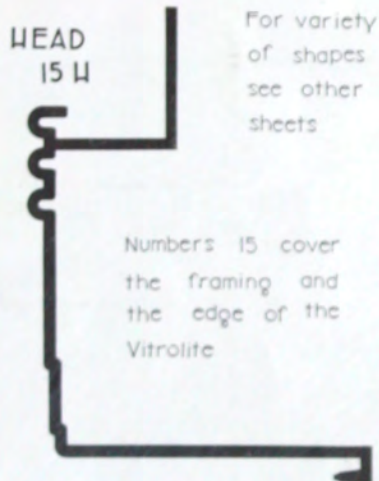
in a water-tight and dust-proof manner. Assembly sheets 11, 12 and 13 illustrate this fact clearly.

Sash ventilation holes do not prevent nor remove frost or condensation from the inside of the windows, they do, however, admit damaging dust. Drainage holes at the bottom sash rail serve their intended purpose for only a short time until the inside of the sash packs with dirt and debris, they

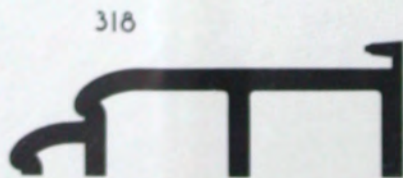
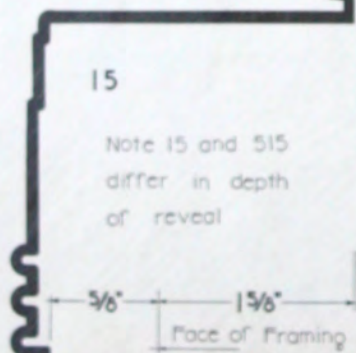


See Sheet Number 12
for quarter size Vertical
and Horizontal Sections
using these elements

All sections
are actual size



SASH 300



SELF SUPPORTING
SILL AND JAMB

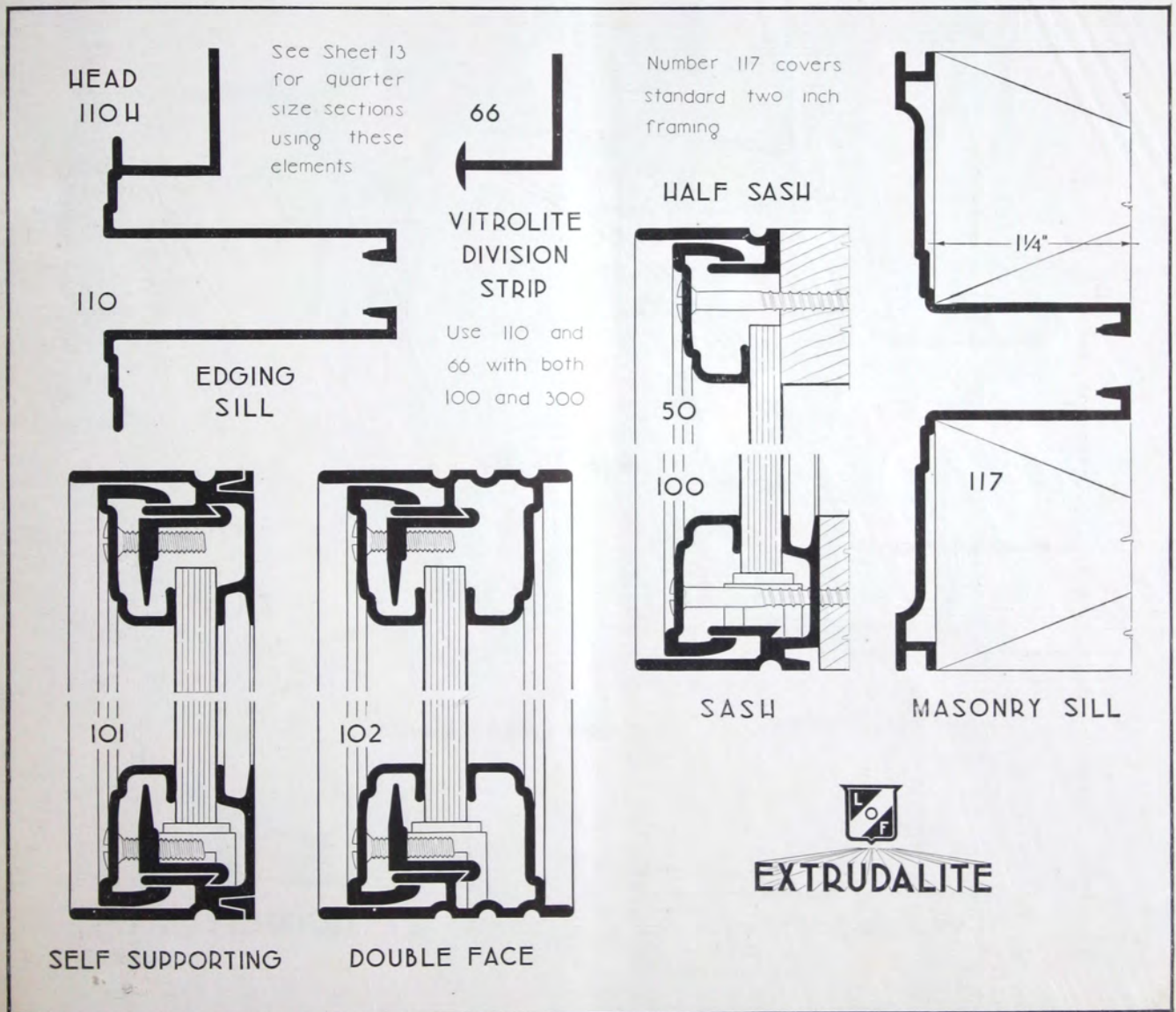
Use 318 with
masonry construction



then become holes for blowing dust into the window. Elimination of this very questionable feature helps to maintain bright clean displays, and improves the appearance of sash face pieces. Extrudalite provides a generous sized interior gutter to catch and hold water from window washing and it is a simple matter to soak up these drippings with sponge or chamois after each cleaning. Make your windows water-tight and dust-proof with the proper Extrudalite sections.

Extrudalite basic quality at minimum cost is featured throughout the Number 100 series. No job has to be designed and planned so modestly that it must be denied the handsome sturdiness and clean cut lines of Extrudalite. Note the versatility of uses possible with Double Face Sash Number 102.

It is the practical support and trim for various types of glass partitions. It is well suited for residential picture windows. Note that Half Sash Number 50 is of two piece construction. This allows for adjustment to various glass thicknesses without the usual gapping at the bottom of the face which is unsightly and not water-tight. This is a decided improvement in half sash construction. However, we recommend that you use half sash construction only when it is absolutely necessary from a cost standpoint, the small savings effected by using this item make such occasions rare. When used, be sure to specify that the wood stop which receives the back of the glass is to be of fine quality and planed to perfect alignment. Under no conditions should half sash be used at the bottom of glass.



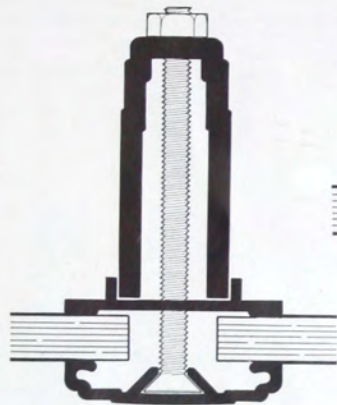
Extrudalite vertical bars are built to uphold their part of this line from a standpoint of both construction and design. They are not just metal strips to cover glass joints. Bars Nos. 20, 21 and 22 are built to automatically fit a wide range of angles and contain spring cushioned pressure. No bulky extra reinforcement members are necessary to strengthen these bars, and no operating parts are exposed on the inside to detract from their design. Each bar is a complete mechanical unit—designed as such—and requires no tape or plastics to securely but safely hold the glass.

Structural Division Bar Number 240 was designed especially to support large areas of Vitrolux. It can be furnished with a

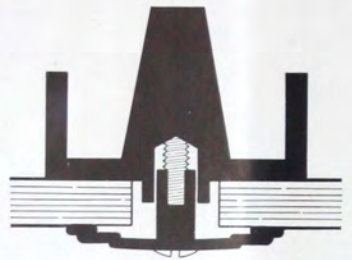
variety of face pieces and can be fastened either from the face or the rear. See special Vitrolux details for application of this member.

Division Bar Number 121 is for use exclusively in transom glass where strength is of minor importance, when transformed by reinforcing member R into Division 121-R it provides a rigid construction for use with large lights of glass where very low cost is an important factor. This bar is particularly designed to take its place in the Number 100 series.

All bars should be securely anchored at top and bottom with Extrudalite anchors.

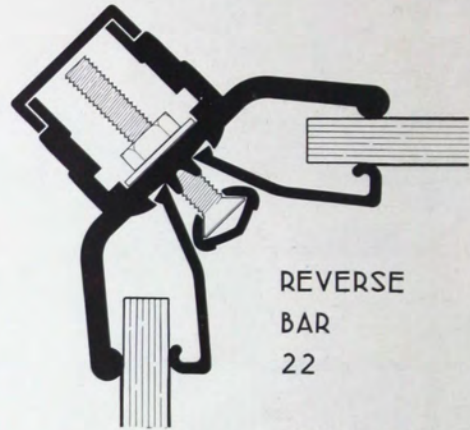


LIGHT DIVISION
BAR
121 R

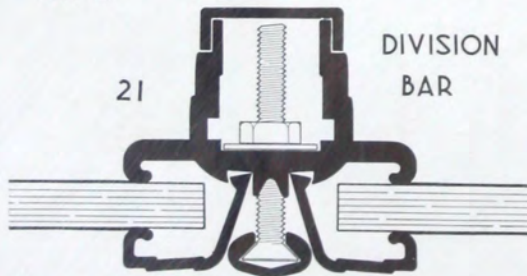


240
STRUCTURAL
DIVISION
BAR

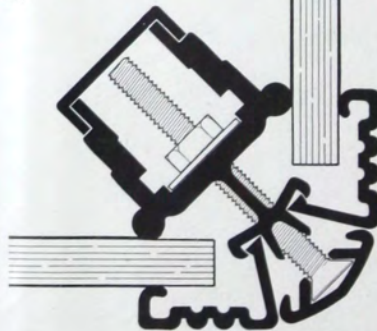
Sections
actual size



REVERSE
BAR
22

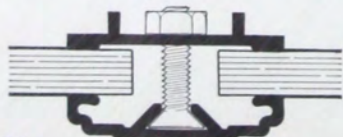


21
DIVISION
BAR



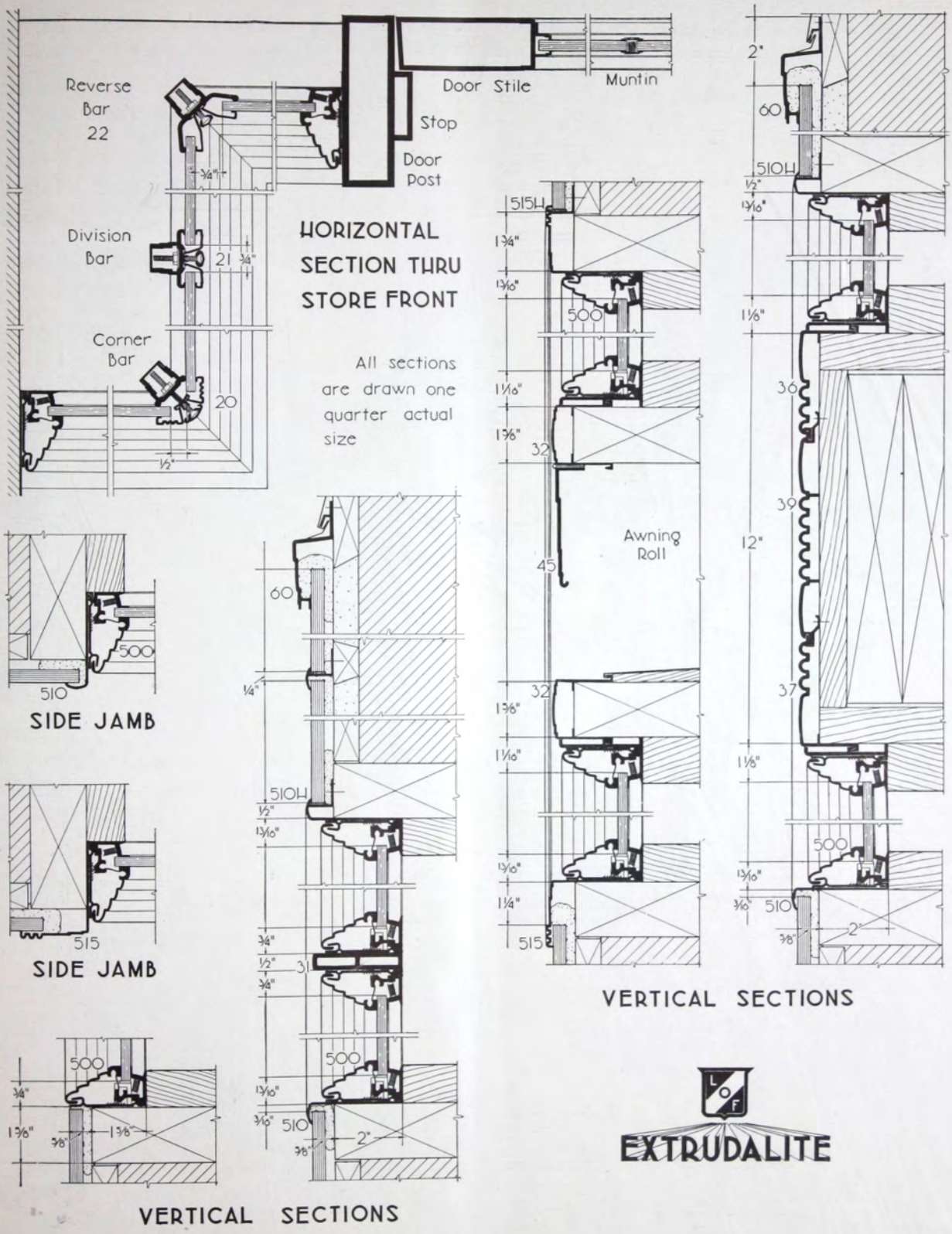
CORNER
BAR
20

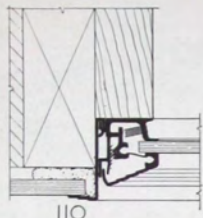
Bars 20 21 22
are universal in
adapting them-
selves to all ne-
cessary angles



121
TRANSOM DIVISION BAR

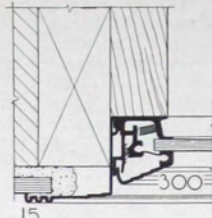






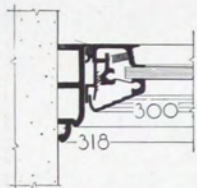
SIDE JAMB

All framing is
on one plane



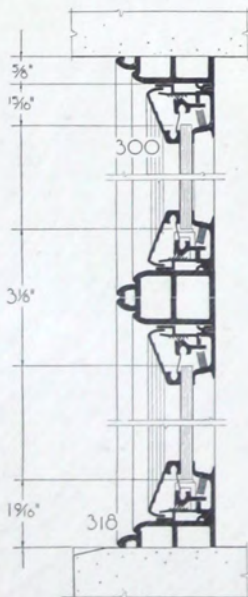
SIDE JAMB

Cast End Brackets
furnished



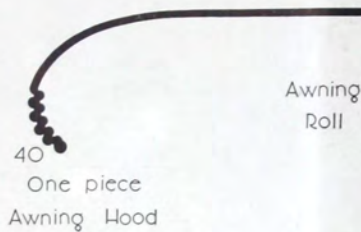
SIDE JAMB

Note weather proof
construction thruout

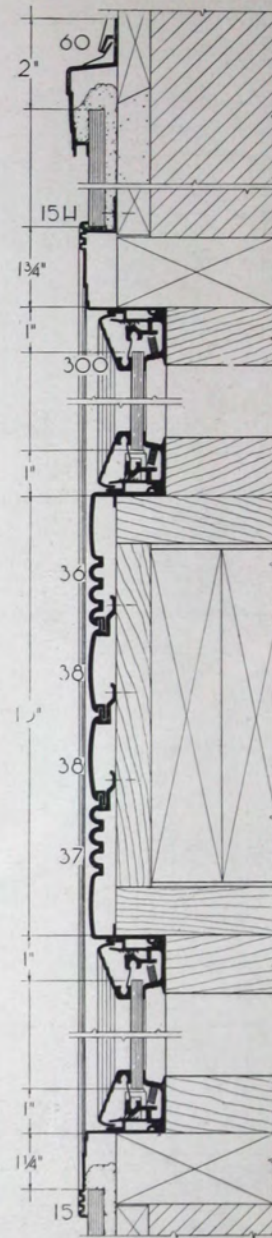
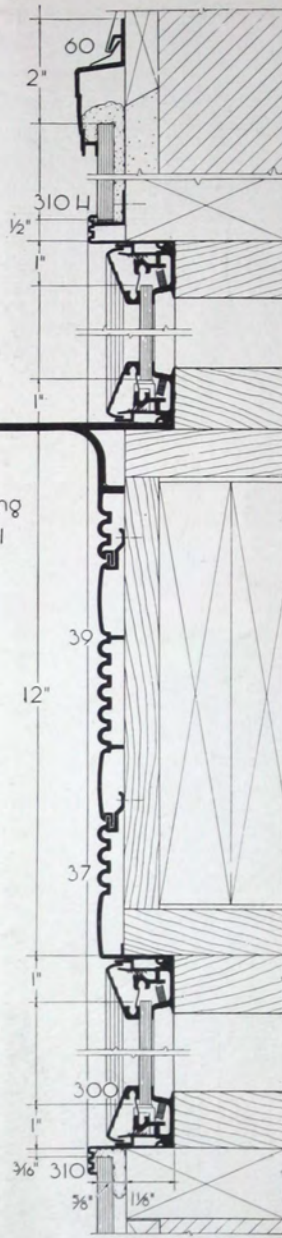
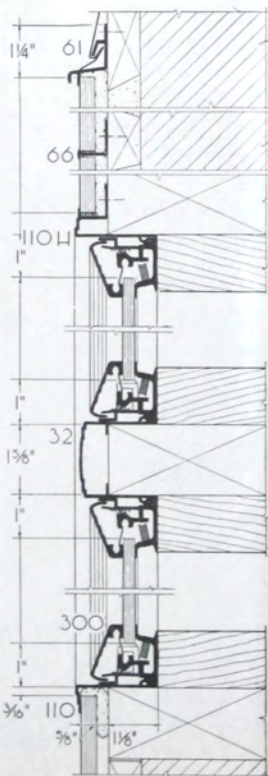


**SELF SUPPORTING
SILL AND JAMB**

VERTICAL SECTIONS



Awning
Roll



VERTICAL SECTIONS



L O F



VITROLITE

Colorful Structural Glass



VITROLITE IN ARCHITECTURE

● Vitrolite has a long record of usefulness in buildings of all kinds and serves a great variety of purposes. Used at first as a material for sanitary purposes, the variety of colors in which it is made and the beauty of its surface have led architects to recognize in Vitrolite a means of securing architectural character and striking decorative effects. Vitrolite is peculiarly expressive of the modern movement in architecture and decoration and has been used for both interior and exterior purposes by leading architects, in an imposing list of buildings. Vitrolite requires definitely different structural methods and detailing than marble or tile. To make it easier to work out projects in Vitrolite the details and specifications on the following pages are presented to the architectural profession with the assurance that in Vitrolite they will find a material that not only meets the most exacting requirements of service, but will prove a source of increasing interest and fascination to the designer who is striving to interpret the needs of this modern age in terms of directness, simplicity and color.

WHAT VITROLITE IS—Vitrolite is an opaque structural glass, fused at high temperature. Its structure is dense and tough, with a tensile strength and resistance to wear greater than that of marble. The face of Vitrolite has a high luster and the back has a ribbed surface that may be effectively attached with mastic to any smooth, dry and permanently secure background.

QUALITIES—Vitrolite will not warp, swell, or craze. Liquids in common use cannot penetrate it, and it will not absorb liquids or gases that give off unpleasant odors. It is highly resistant to staining and to burns from cigars or cigarettes. It is difficult to write or mark upon, and is easily cleaned by wiping with a damp cloth—or in extreme cases by the application of soap and water.

STRENGTH—Vitrolite has a minimum tensile strength of 937 lb. per sq. in. and crushing strength of 31,658 lb. per sq. in., which is about 40% greater than marble. It has a very high resistance to abrasion.

WEIGHT—Actual net weight, lbs. per sq. ft.: 11/32 in., 4.4 lbs.; 7/16 in., 5.6 lbs.; 3/4 in., 10.2 lbs.; 1 in., 14 lbs.; 1 1/4 in., 17.5 lbs.

SURFACES—Vitrolite is produced in two types of surfaces—fire polished and mechanically ground and polished.

THE FIRE POLISHED SURFACE is a natural result of the process of melting, rolling and annealing Vitrolite. The polish

is high, hard, smooth, and dense, and therefore sanitary and highly resistant to staining and abrasion. Due to recently improved manufacturing methods, this surface has been highly perfected, being remarkably free from defects and the waviness common to fire-polished surfaces.

MECHANICALLY POLISHED SURFACE—Where mirror-like, reflective surfaces are desired, Vitrolite in black, and in a number of other colors, is supplied with a Mechanically Polished Surface, at slightly higher cost.

VITROLITE COLORS—Vitrolite is furnished in sheets of various thicknesses and sizes, in a number of plain colors and a variety of agate colors, as shown on Vitrolite Color Chart.

DECORATIVE PROCESSES—Decorative effects or letters may be secured in plain or colored sandblasted ornament or by inlays of thin colored opaque glass or mirrors. A very effective relief sign can be made by cementing Vitrolite letters to Vitrolite background. By protecting the solid surface with a stencil, a grille may be made by sandblasting through the Vitrolite. An irregular pattern effect of interesting reflective value, similar to frosting on glass, may be obtained through a process of glue chipping. By sandblasting over a resist, black Vitrolite may be given a surface resembling black granite. A crackle finish is attained by sandblasting over a resist that has separated in drying.

THICKNESS—White, Black, Gray, Jade and Ivory are produced in thicknesses of 11/32 in., 7/16 in., 3/4 in., 1 in. and 1 1/4 in. Agate colors are produced in 11/32 in. thickness only. Other plain colors—Red, Yellow, Sun Tan and Tropic Green are made in 11/32 in. only. Latest information regarding colors available will be furnished by the company or any of the authorized Vitrolite dealers located in principal cities.

SIZES—The size of slabs to be used in actual installation are dependent on the location, construction and the purpose for which they are used. For store fronts, limit size of slabs to 6 sq. ft. with 3 ft. as the maximum horizontal width and 4 ft. as maximum height. For wainscoting, ashlar pieces from 8 x 12 in. to 24 x 24 in. are commonly used. Within these limits they are furnished with finished edges at a somewhat lower price than if especially cut and finished to fractional or irregular sizes. Pieces for special wainscoting should not exceed 3 x 4 ft. Slabs for toilet partitions may be had up to 5 ft. square.

STRUCTURAL ORGANIZATIONS—Franchised Vitrolite dealers, experienced and competent in the installation of Vitrolite are located in all principal cities. They may be called upon for additional information and estimates.

USES—Due to its decorative and sanitary values, its permanence, and ease of maintenance, Vitrolite has many uses in new construction and in modernizing.

Among these are:

Modernizing store fronts.

Facing exteriors of buildings.

Lobbies of hotels and office buildings.

Wainscoting and partitions for corridors, washrooms, shower baths and toilets in public buildings.

In homes as walls and wainscoting for bathrooms, kitchens, breakfast rooms, as well as work tables and splash backs.

For walls, ceilings and wainscoting of laboratories, bakeries, dairies.

In hospitals—for operating rooms, diet kitchens, laboratories, and bathrooms.

In barber shops, meat markets and other shops.

For lunch counters, bars, soda fountains, table tops in restaurants, confectioneries and taverns.

CONSTRUCTION METHODS—Careful study of the details and specifications will indicate a considerable difference in construction methods for exterior and interior work.

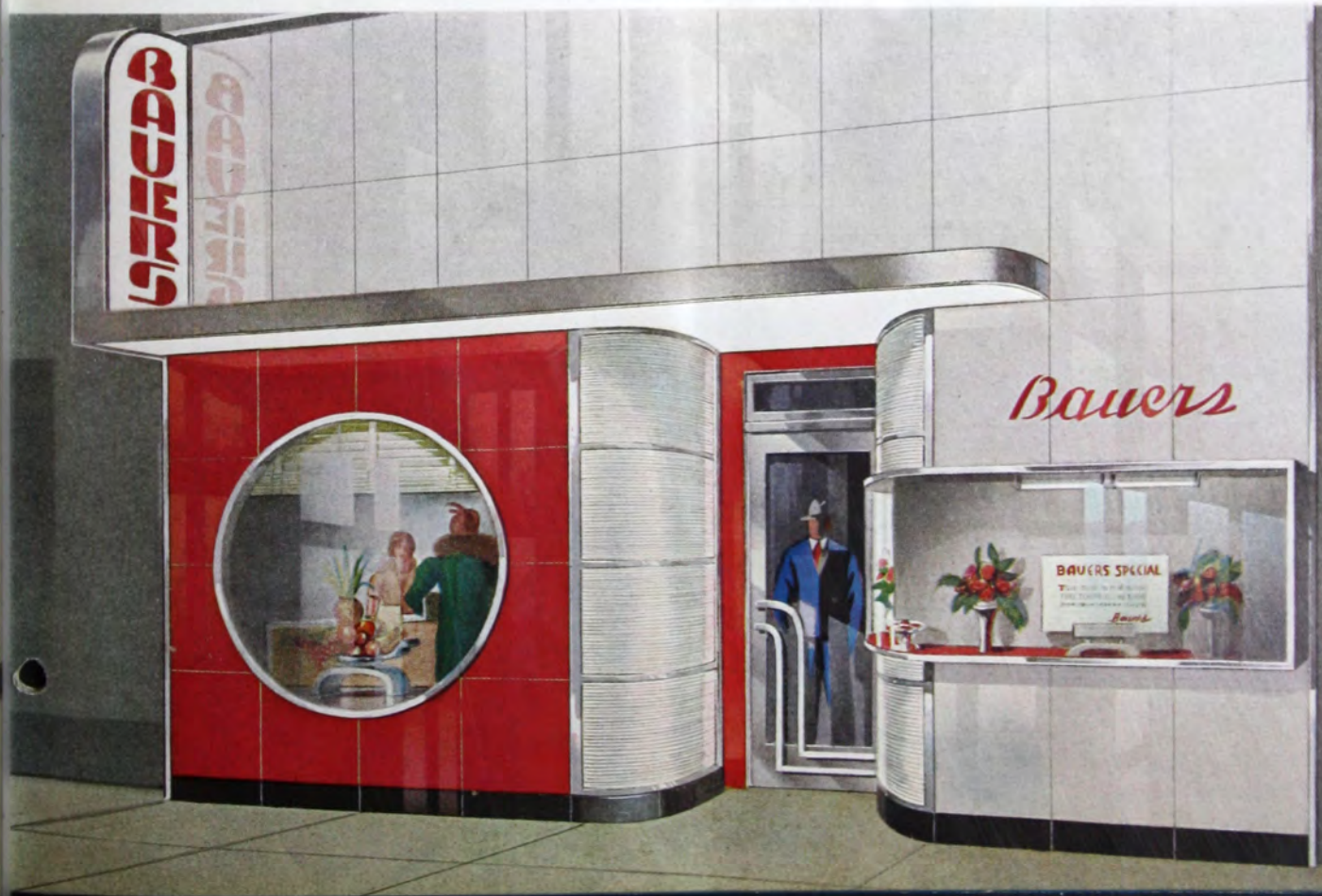
EXTERIOR CONSTRUCTION—Because of the extremes of temperature and exposure in exterior work special precautions must be observed to safeguard the Vitrolite, which has a very slight degree of expansion, against the expansion of materials back of it or adjacent to it, such as metal, wood, concrete or masonry, which have a considerably higher degree of expansion. Vitrolite should never come in direct contact with these materials but there should always be a space for clearance between them, filled with joint cement, cork tape or caulking, depending on the location. The facing at bulkheads should contain a base section about six inches high so as to produce an extra horizontal joint for expansion. On exteriors the Vitrolite is attached to masonry or cement plaster walls with special mastic cement made for exterior use, supplemented by shelf angles. The details shown apply generally to heights of two stories. Horizontal joints are $\frac{1}{8}$ in. wide and have adhesive cork tape set back from the face. Vertical joints are $\frac{1}{32}$ in. wide and all joints are buttered with joint cement.

Outside edges and top of store fronts should be protected with metal trim.

For upper stories attachment may be made by concealed hangers or exposed metal members, details of which will be furnished upon request.

INTERIOR CONSTRUCTION—On interiors Vitrolite is attached against plaster or other dry and permanently secure wall surface with a mastic cement made for interior use. It is set with contact joints which are pointed with joint cement except in showers or bath tub recesses, where the joints should be solidly buttered with joint cement.

[34]



(A) STORE FRONTS and BUILDING EXTERIORS

(A-1) WORK INCLUDED. The Contractor for Structural Glass (afterwards referred to as this Contractor) shall furnish and set all of the Structural Glass required for the completion of the building (alterations) (work) as indicated on the drawings and as hereinafter specified.

This Contractor shall consult the General Conditions, Form of Contract, and other documents bound herewith or on file at the office of the Architects for instructions pertaining to his work.

(A-2) WORK NOT INCLUDED. This Contractor shall not include the following items, which work will be done by other contractors:

NOTE: List any items of which there may be doubt as belonging in the contract for Structural Glass.

(A-3) MEASUREMENTS. This Contractor shall take all measurements he may require, at the building, and shall be responsible for the proper working out of all details and dimensions and for the proper relation between the Structural Glass and the work of other contractors. He shall confer with all contractors whose work adjoins the Structural Glass to see that all details are in perfect agreement.

(A-4) DISTRIBUTION. The following schedule is submitted for this Contractor's guidance as to the locations, kind and extent of Structural Glass.

(a) This schedule is not necessarily complete in every detail and shall be used by this Contractor in conjunction with the drawings, this Contractor providing all exterior Structural Glass that may be indicated or called for:

NOTE: "Describe the location and various kinds of Structural Glass and details of thickness, color special decorations, names and similar details."

(b) Unless otherwise indicated, the Structural Glass finish shall return into all recesses, window and door openings and shall be carried around all projections.

(A-5) SEPARATE PROPOSALS. This Contractor shall submit separate proposals as called for under the heading of "GENERAL WORK."

(A-6) SAMPLES. This Contractor shall submit duplicate samples of the various kinds of Structural Glass included in the contract to the Architect for his approval before executing any of the work and he shall submit additional samples if the first samples are not approved. All samples shall be properly labeled and all Structural Glass furnished shall be equal in every respect to the approved samples.

(A-7) SHOP DRAWINGS. This Contractor shall prepare and submit complete shop drawings of all Structural Glass to the Architect for his examination before executing any of the work, as further described under "GENERAL CONDITIONS".

The shop drawings shall indicate the jointing, the various thicknesses of material, color, finish and all other salient details.

(A-8) COLOR AND FINISH. All exterior Structural Glass shall be of colors indicated (or to be selected) and the surfaces shall be fire polished or mechanically ground and polished with sandblasted and special decorations or textures, all as indicated on the drawings and details and as described under side heading of "DISTRIBUTION". The back of all Structural Glass shall have ribbed surface.

(A-9) MATERIALS. All Structural Glass shall be opaque and homogeneous, fused and rolled into slab form and thoroughly annealed.

(a) All Structural Glass shall be "Vitrolite" as manufactured by the Libbey-Owens-Ford Glass Co.

(b) All cement for setting Structural Glass shall be an asphaltic cement especially made for external use and shall be approved both by the Architects and the manufacturer of the glass. All joint cement shall be of a make as approved by the manufacturer of the Structural Glass and the Architects.

(A-10) FABRICATION. This Contractor shall follow the approved details and shop drawings in cutting, fitting and setting all Structural Glass.

(a) All Structural Glass shall be fabricated to exact sizes and shall be plumb, true and square.

(b) Where indicated Structural Glass shall be cut to special shapes and bent to indicated radius or curve. All abutting edges shall be ground square and the angles at the intersection of the face and edges shall be slightly beveled or rounded. At salient angles all exposed edges shall be polished and shall be square, rounded or beveled. Concealed edges (not abutting glass) may be clean cut.

(A-11) INSTALLATION. All Structural Glass shall be set in the best possible manner. Only experienced and competent setters shall be employed. Surfaces shall be plumb and true. Horizontal joints shall be in perfect alignment. Where continuous vertical joints occur they shall be plumb and form perfect intersections with the horizontal joints.

(a) All surfaces to which Structural Glass is to be applied shall be dry, rigid and secure and shall be masonry or cement plaster on metal lath.

(b) Wood backing will not be permitted.

(c) This Contractor shall examine the surfaces left by other contractors and shall report all defects in wall surfaces to the architects.

(d) The commencement of his work shall be an indication of the acceptance of the surfaces by him.

(e) All exterior surfaces over which Structural Glass is to be applied shall receive a bond coat of approved material applied by this Contractor. This bond coat shall be of a type that will act as a water-proofing material and that will provide an affinity between the wall surface and the cement.

NOTE: This bond coat is not required on glazes vitrified or other similar impervious and non-absorbent surfaces.

(f) The surfaces of the wall and the back of the Structural Glass shall be perfectly dry.

(g) The Structural Glass shall be cemented by an approved mastic to the wall surfaces, and the space between the wall and the glass shall not exceed approximately $\frac{3}{8}$ in. with a variance of $\frac{1}{8}$ in. narrower or wider.

(h) Where Structural Glass starts at the sidewalk level it shall be set on a cushion strip of heavy roofing or other approved permanent and resilient material at least $\frac{1}{4}$ in. thick.

(i) At the base, top and sides of the Structural Glass, and around all openings the setting cement shall be applied solidly for a width of 3 in. from the edge of the glass. Elsewhere the cement shall be set in daubs 2 to 3 in. in diameter evenly distributed so that 60% of the total area of the glass shall be covered with cement when set.

(j) Each horizontal joint shall have a strip of adhesive cork tape $\frac{1}{16}$ in. thick set back about $\frac{1}{8}$ in. from the face. This tape shall be buttered over and the open joint in front filled with joint cement.

(k) Each vertical joint shall be at least $\frac{1}{32}$ in. in thickness and shall be thoroughly buttered with joint cement and in no case shall pieces of Structural Glass in either vertical or horizontal joints abut directly against each other.

(l) Where the edges of Structural Glass finish against metal or against adjoining property a joint of $\frac{1}{16}$ to $\frac{1}{8}$ in. shall be left and the joint pointed smooth and even with joint cement.

(m) The Structural Glass shall be supported on shelf angles set approximately 3 feet apart vertically and in such a manner that they will be concealed by the joint cement.

(n) These angles shall be No. 18 gauge (galvanized iron) (brass) approximately 3 in. square and with a $\frac{1}{2}$ in. leg to support the Structural Glass.



(o) They shall be spaced at approved intervals and shall be secured to the wall with expansion bolts, toggle bolts or other approved manner.

(p) The top edge of the upper course of Structural Glass shall be set under the masonry sill or projection and the joints shall be thoroughly filled with cement.

(q) Where no projection occurs, the top course of Structural Glass shall be covered with a member of (aluminum) (stainless steel) which shall be furnished and installed by this Contractor.

(r) This member shall be formed to provide a drip and shall be flashed into the wall in a manner to eliminate the possibility of water getting in behind the Structural Glass.

(s) Where the Structural Glass facing extends to the top of a wall where no coping is used, this Contractor shall furnish and install an (aluminum) (stainless steel) coping well anchored to the wall and forming an approved drip.

(t) Exposed edges of Structural Glass at the extreme sides of the installation shall be covered by an (aluminum) (stainless steel) molding. This molding shall be furnished and installed by this Contractor in a manner to cover the cement joint and to eliminate the possibility of moisture getting behind the Structural Glass.

(u) Where ceiling and soffit slabs occur see (k) and (l) under B-11-Interiors.

(v) Where Structural Glass is indicated above limit and height permitted for setting by the methods described above the mastic cement

shall be supplemented by the use of mechanical fastenings to be approved by the Architect and in conformance with the requirements of the local building ordinance.

(A-12) CUTTING, DRILLING AND FITTING. This Contractor shall do all cutting, drilling and fitting of Structural Glass required for its proper installation and as required by other contractors to properly complete their work.

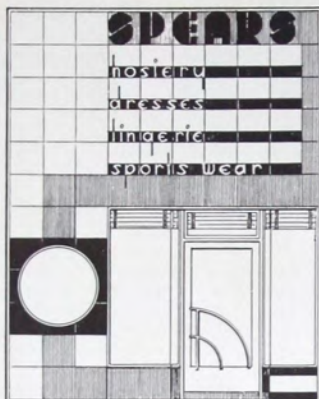
(A-13) SCAFFOLDING. This Contractor shall furnish, maintain and move as required all scaffolding he may require for the installation of Structural Glass.

All scaffolding shall be constructed and maintained in strict accordance with Federal and State Laws and City Ordinance requirements.

(A-14) PROTECTION, CLEANING AND POINTING. This Contractor shall provide all items of protection necessary to prevent damage to the Structural Glass at all times during the progress of the work. At completion he shall carefully point up all joints as required, shall clean the glass and leave all surfaces in perfect condition.

(A-15) GUARANTEE. This Contractor shall guarantee the entire installation against all defects of workmanship and material, including crazing, absorption of foreign matter, parting from wall, loosening or brecking except from the effects of external force or excessive heat, for a period of eighteen (18) months after the completion of the contract, as evidenced by the issuance of the final certificate, and he shall promptly repair at his own expense any defects that may arise within that period upon written notice from the Owner or Architects.

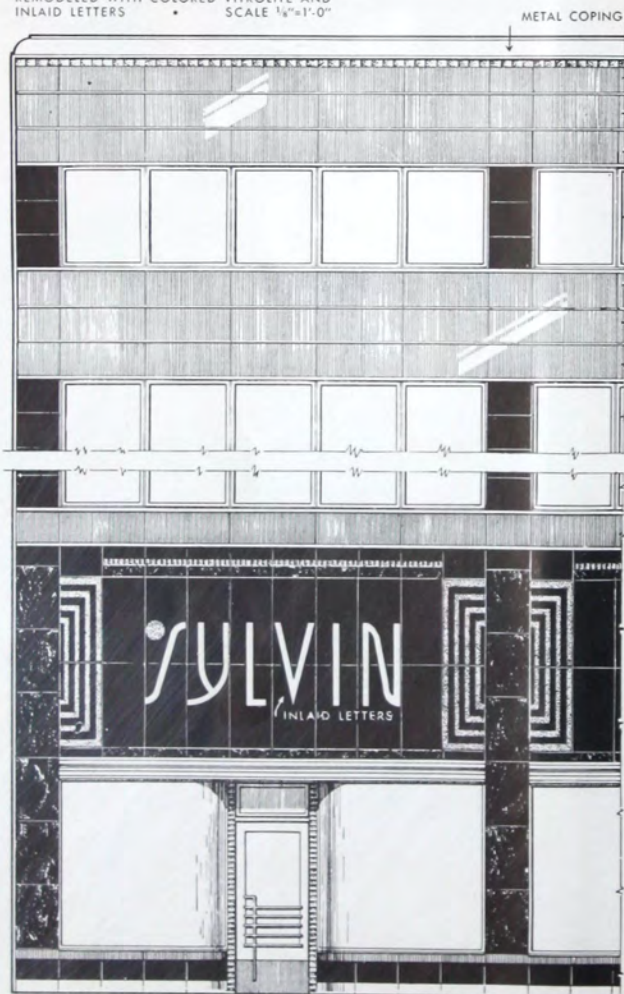




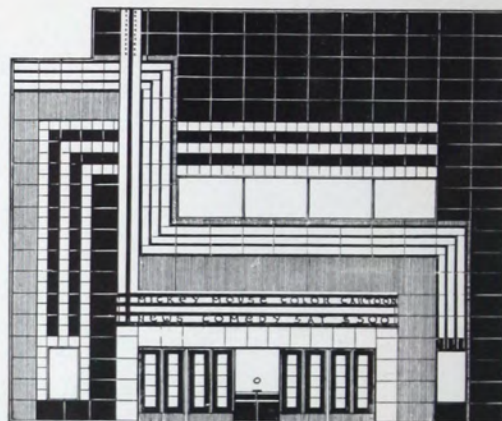
VITROLITE SHOP FRONT
REMODELED WITH COLORED VITROLITE AND
INLAID LETTERS • SCALE 1/8"=1'-0"



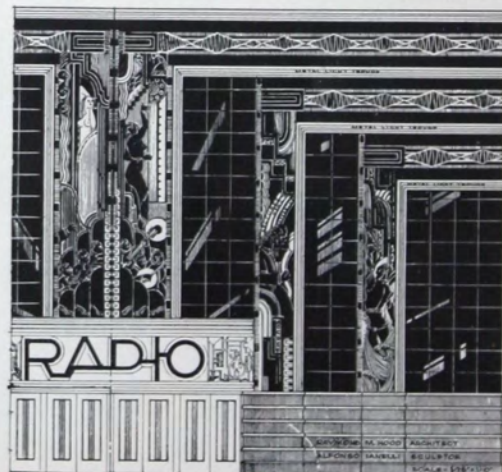
GAS AND SERVICE STATION
SHOWING EFFECTIVE APPLICATION OF VITROLITE CEMENTED
TO MASONRY WALL • SCALE 1/8"=1'-0"



VITROLITE EXTERIOR TREATMENT OF BUILDING
STORE FRONT SHOWING CURVED BULKHEADS AND SANDBLAST DECORATION. VITROLITE FOR
UPPER STORIES HELD IN PLACE BY MASTIC CEMENT AND METAL MOULDINGS. SCALE 1/8"=1'-0"

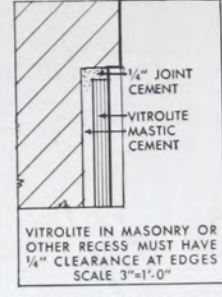
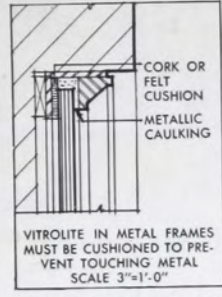
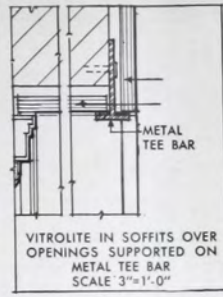
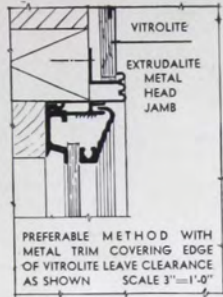
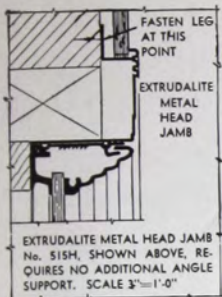


VITROLITE MOVIE THEATRE FRONT
COMBINATION OF COLORED AND BLACK VITROLITE WITH GLASS BLOCKS
IN DECORATIVE PATTERN EFFECT • SCALE 1/16"=1'-0"



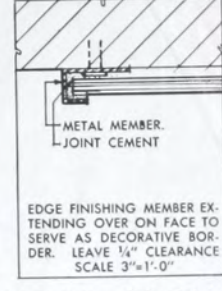
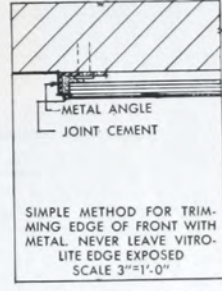
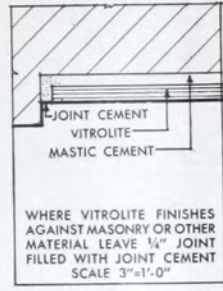
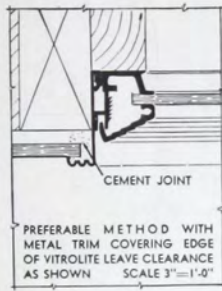
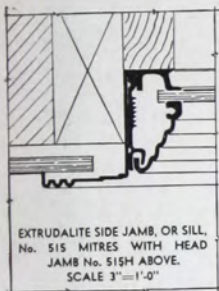
VITROLITE FACADE OF EXPOSITION BLDG.
SHOWING USE OF VITROLITE WITH BAS-RELIEF SCULPTURE AND INDIRECT
LIGHTING TROUGHES • SCALE 1/16"=1'-0"





SECTIONS THRU HEAD OF SHOW WINDOWS

SECTIONS THRU SPANDRELS

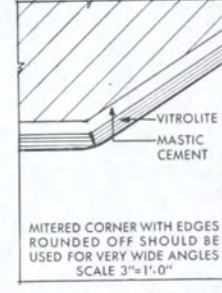
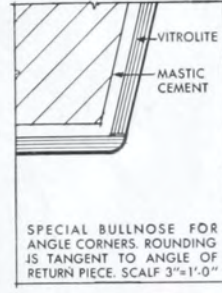
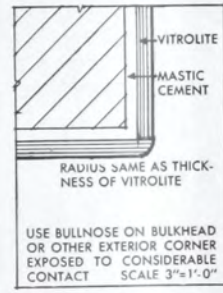
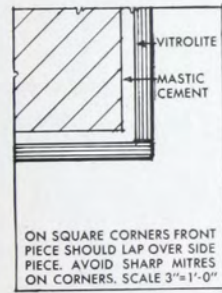
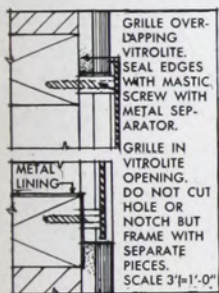


SIDE JAMB DETAILS

DETAILS

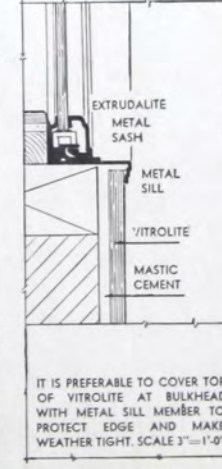
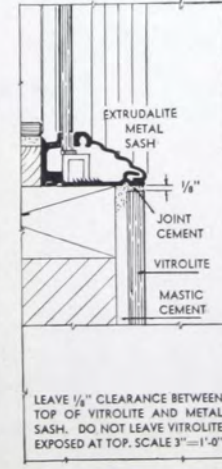
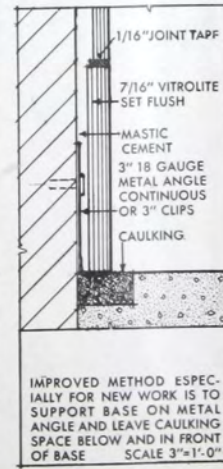
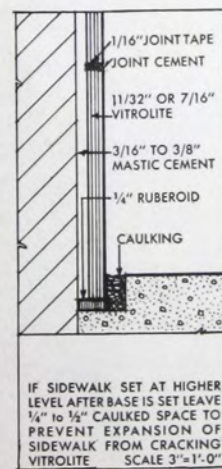
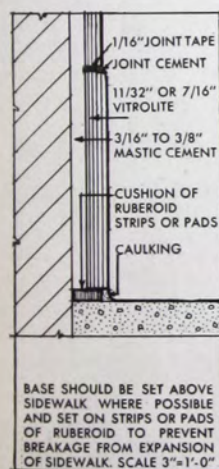
PLANS THRU

EDGES OF STORE FRONT



GRILLE DETAILS

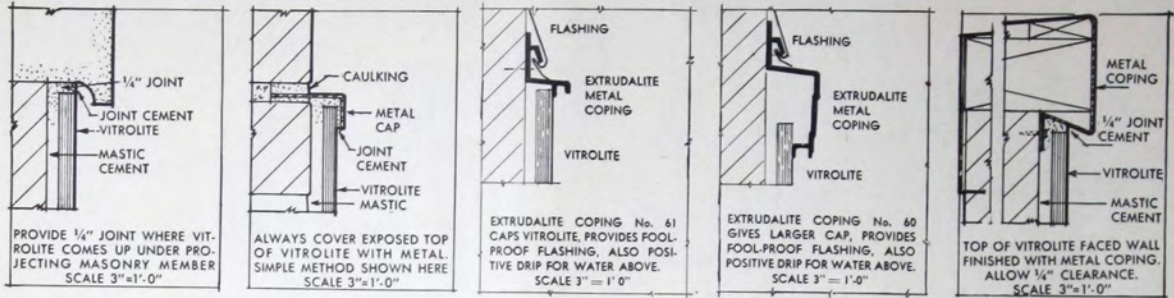
PLANS THRU VITROLITE AT CORNERS



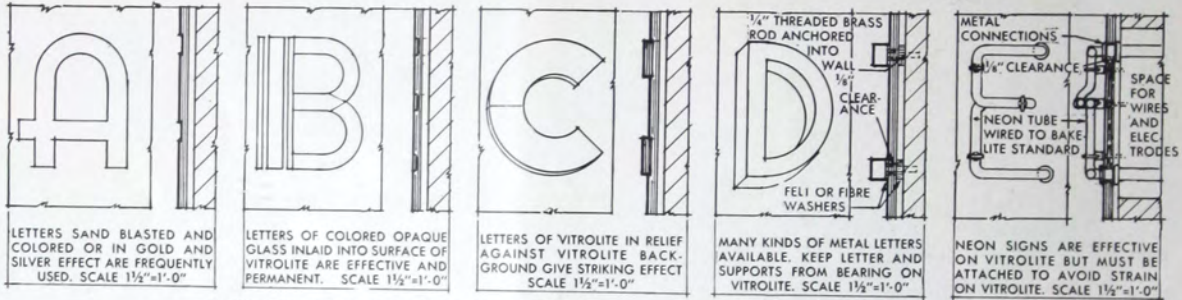
SECTIONS THRU BULKHEAD BASE

SILLS OF SHOW WINDOWS

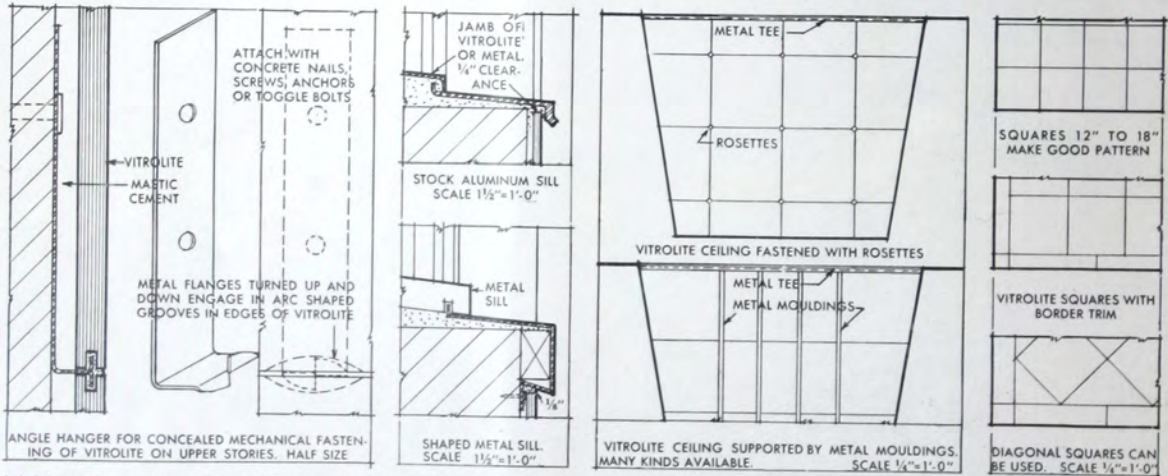




SECTIONS THRU FINISH AT TOP OF VITROLITE FACING



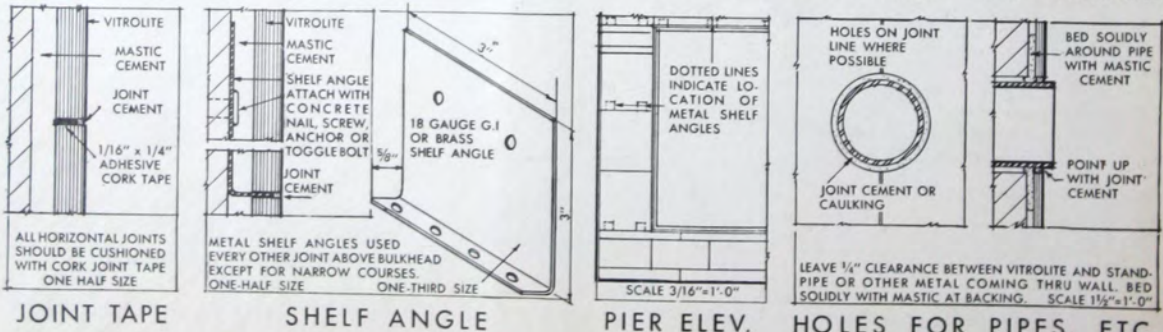
TYPES OF LETTERS USED ON VITROLITE FRONTS



HANGER FOR FASTENING WINDOW SILLS

CEILING OVER ENTRY

Show Wdw. Floors



JOINT TAPE

SHELF ANGLE

PIER ELEV.

HOLES FOR PIPES, ETC.



METAL COPING
 1/4" JOINT CEMENT
 VITROLITE
 MASTIC CEMENT
 FACED WALL METAL COPING CLEARANCE 1/4" TO 1/2"

SPACE FOR WIRES AND ELECTRODES

ARE EFFECTIVE BUT MUST BE VOID STRAIN SCALE 1 1/2" = 1'-0"

12" TO 18" WOOD PATTERN

SQUARES WITH TRIM

SQUARES CAN SCALE 1 1/2" = 1'-0"

dw. Floors

BED SOLIDLY AROUND PIPE WITH MASTIC CEMENT

POINT UP WITH JOINT CEMENT

AND STAND-UP WALL BED SCALE 1 1/2" = 1'-0"

, ETC.



VITROLITE FOR INTERIORS

● Vitrolite Structural Glass has a definite place in today's interior design and architecture that places so much emphasis on functional and decorative values. Interiors now gleam with color. And because Vitrolite is glass, it is inherently clean — it will not absorb odors, moisture or grease.

Vitrolite is ideally suited for the modernization of existing interiors as well as for new construction. It lends an evidence of quality and contributes to the owner's permanent satisfaction.

A sparkling, colorful interior of Vitrolite meets the most exacting requirements of cleanliness and sanitation. Its hard, reflective surface will not deteriorate from the effects of moisture or age. Washing is all that is ever required to maintain its original beauty.

Vitrolite is not only a lasting wall facing material, but because of its beauty of surface and color it is recognized as having a distinctly modern appearance and possessing decorative qualities of a high order.

The following pages contain construction details, specifications and information as to proper installation methods.

Vitrolite may be combined effectively with metal trim and accessories.

A typical building lobby installation of Vitrolite in combination with Vitrolux Color Fused Tempered Plate Glass, is illustrated above. Here the walls and trim are of colorful Vitrolite and the ceiling lighting is artistically concealed and evenly diffused with Vitrolux, set in the new L·O·F Extrudalite metal construction. Where the designer wishes to place metal division strips between Vitrolite panels, specially designed Extrudalite members are available. (See page 9 to 14 for Vitrolux data and pages 23 to 32 for Extrudalite data.) These products provide the architect with fascinating and versatile resources for effective design and color that will undoubtedly exert a strong influence upon the character of interior architecture.

(B) INTERIORS

(B-1) WORK INCLUDED. Same as A-1 Store Fronts.

(B-2) WORK NOT INCLUDED. Same as A-2 Store Fronts.

(B-3) MEASUREMENTS. Same as A-3 Store Fronts.

(B-4) DISTRIBUTION. Same as A-4 Store Fronts.

(a) This schedule is not necessarily complete in every detail and shall be used by this Contractor in conjunction with the drawings, this Contractor providing all interior Structural Glass that may be indicated or called for.

"Describe the location and various kinds of the Structural Glass with details of thickness, color, special decorations and similar details".

(b) Unless otherwise indicated, all Structural Glass finish shall extend to the wood members at the door jambs, and shall return in window openings to the frames including the stools.

NOTE: Structural Glass should not finish directly against door jamb. It is preferable to use a small molding between jamb and edge of structural glass.

(c) In conjunction with all Structural Glass base this Contractor shall form plinths as indicated on the drawings under door casings, pilasters and all other special treatment in the spaces in which the base occurs.

(d) Where base, wainscot and other Structural Glass work is specified in a space it shall be taken to include the entire space, including all walls, partitions, columns, returns in openings, alcoves and recesses, together with all pilasters and other features required to carry out designs in the various locations.

(B-5) SEPARATE PROPOSALS. Same as A-5 Store Fronts.

(B-6) SAMPLES. Same as A-6 Store Fronts.

(B-7) SHOP DRAWINGS. Same as A-7 Store Fronts.

(B-8) COLOR AND FINISH. Same as A-8 Store Fronts.

(B-9) MATERIALS. Same as A-9 Store Fronts.

(a) Same as (a)—A-9 Store Fronts.

(b) All mastic for attaching Structural Glass and all joint cement shall be of a make as approved by the manufacturer of the Structural Glass and the architect.

(B-10) FABRICATION. Same as A-10 (a & b) Store Fronts.

(B-11) INSTALLATION. Same as A-11 Store Fronts.

(a) All surfaces to which Structural Glass is to be applied shall have a brown coat, or finish coat of plaster which

shall be plumb, true and smooth, and shall be executed by the Plastering Contractor.

NOTE: While a plaster base is recommended, Structural Glass for interior work may be cemented against any surface that is dry, rigid, substantial and permanently secure.

(b) Same as (c) A-11 Store Fronts.

(c) Same as (d) A-11 Store Fronts.

(d) All interior surfaces over which Structural Glass is to be applied shall receive a bond coat of approved material by this Contractor.

(e) The surfaces of the wall and the back of the Structural Glass shall be perfectly dry.

(f) The Structural Glass shall be set in place with cement and all joints shall be hair line joints.

(g) Where Structural Glass occurs as wainscot above tubs in bathrooms and on rear and sidewalls of shower partitions, the bottom 2 in. shall be set solidly in mastic. Elsewhere the mastic shall be set in daubs 2 in. to 3 in. in diameter evenly distributed so that 60% of the total area of the glass shall be covered with mastic. All joints of wainscot on walls of showers, enclosures, around tubs, and similar locations shall be buttered with joint cement.

(h) In general, the Structural Glass for base, cap and trim shall be 7/16 in. (11/32 in.) thick and shall be of the dimensions indicated. The relation of the cap to the plaster surface above shall be as detailed.

(i) Ashlar material shall be 11/32 in. in thickness with an approximate minimum dimension of 8 in. x 12 in. and an approximate maximum dimension of 24 in. x 24 in.

(j) Window stools shall be 3/4 in. in thickness.

(k) Ceiling and soffit slabs shall be 11/32 in. in thickness and shall be secured to 1 in. x 4 in. wood furring strips set in place by this Contractor.

(l) The ceiling slabs shall be set in mastic on the furring strips and held in place by rosettes of material and design to be selected and approved by this Architect, set over felt washers and secured with brass wood screws.

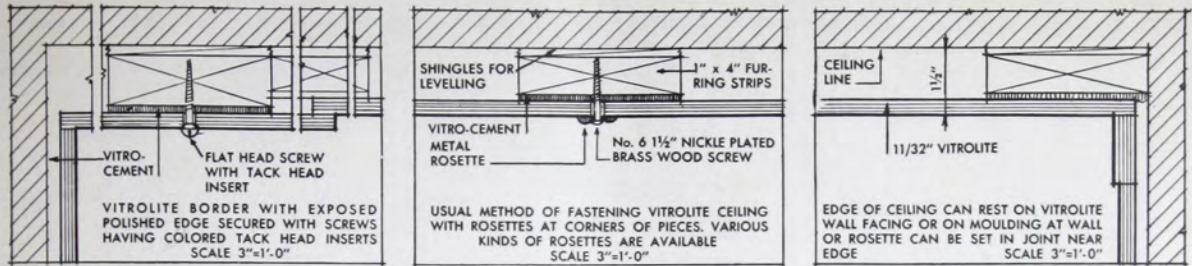
(m) This Contractor shall furnish and set the following bathroom accessories (Give list and description of accessories desired). They shall be located as indicated on the drawings or as directed by the architects.

(B-12) CUTTING, DRILLING AND FITTING. Same as A-12 Store Fronts.

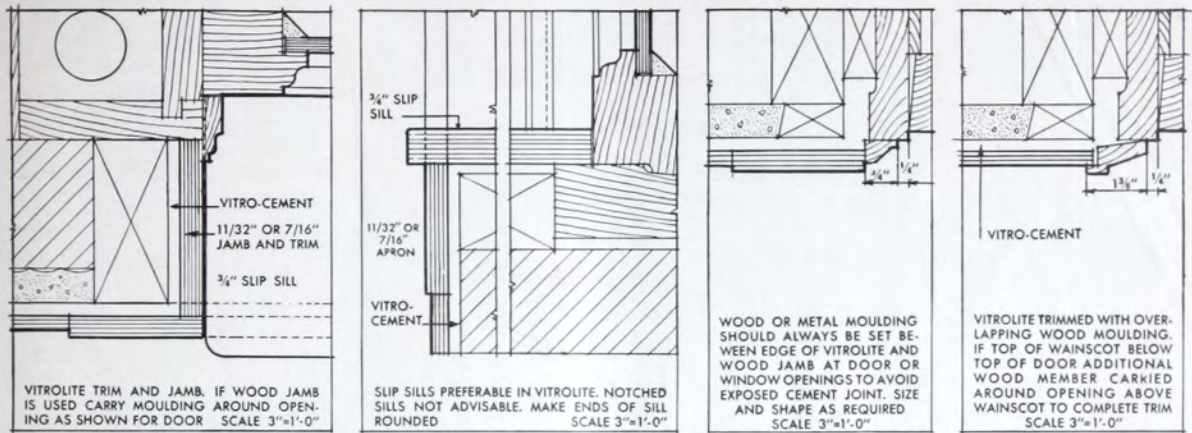
(B-13) PROTECTION, CLEANING AND POINTING. Same as A-13 Store Fronts.

(B-14) GUARANTEE. Same as A-14 Store Fronts.



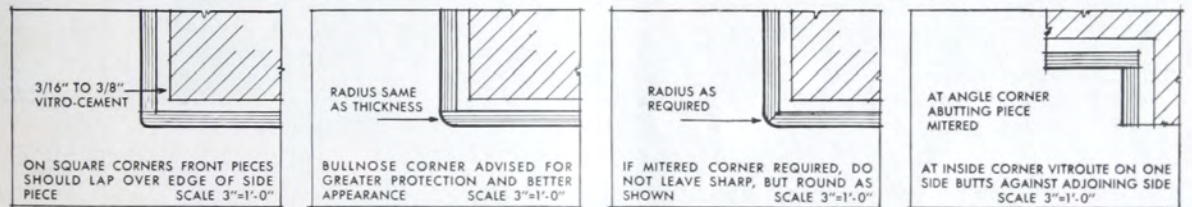


METHODS OF VITROLITE CEILING CONSTRUCTION

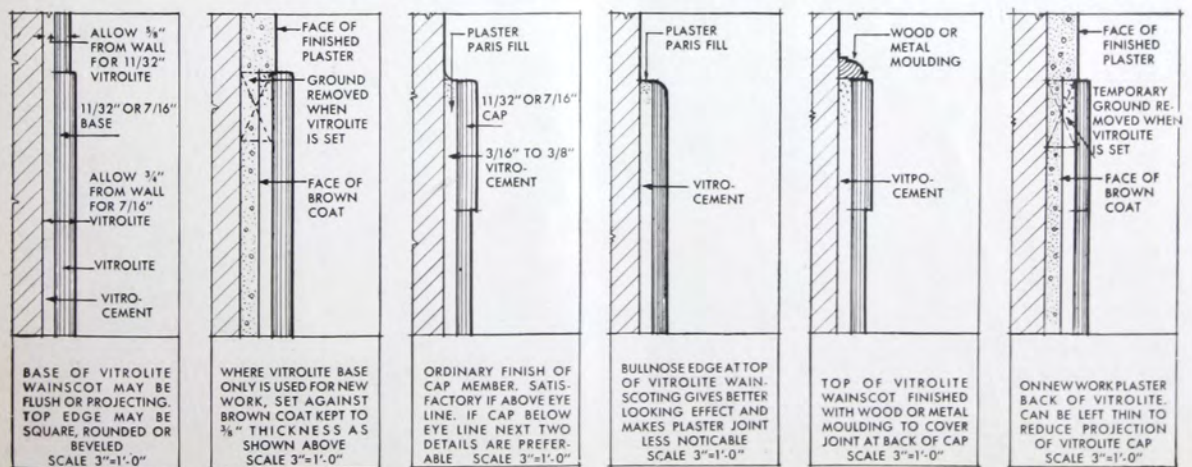


VITROLITE TRIM FOR WINDOWS

VITROLITE DOOR TRIM



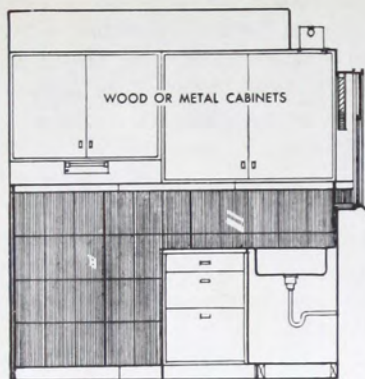
DETAILS OF CORNERS FOR VITROLITE INTERIORS



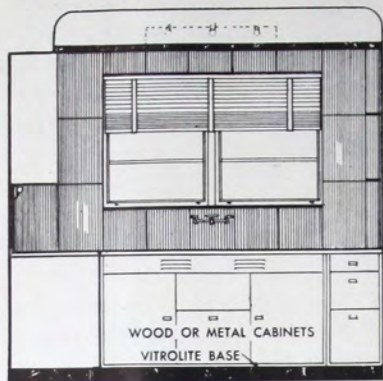
SECTIONS OF BASES

SECTIONS OF VITROLITE CAPS

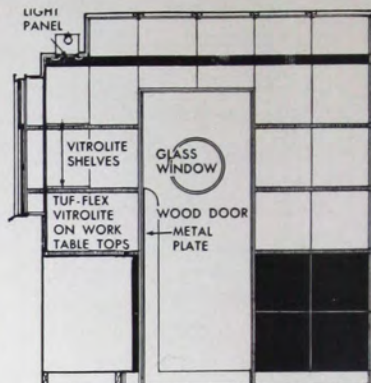




VITROLITE WAINSCOT IN ECONOMICAL STOCK SIZES. CAPS OF 2" OR 3" ASHLAR OF 8" x 12" OR 8" x 16" BASE OF 4" OR 6". SCALE 1/4"=1'-0"

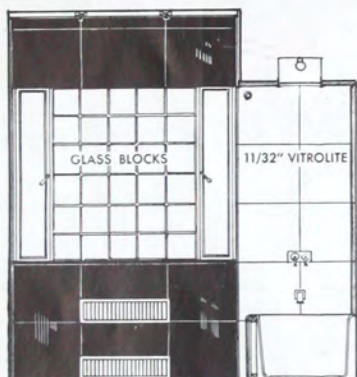


VITROLITE ARRANGEMENT TO FIT WALL CONDITIONS. PIECES OF EVEN INCHES UP TO 24" LOWER IN PRICE THAN FRACTIONAL SIZES. SCALE 1/4"=1'-0"

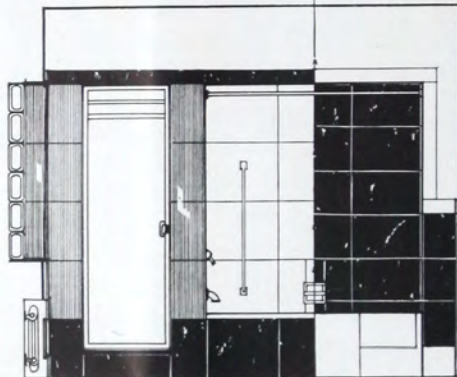


VITROLITE IN VARIETY OF SHAPES CAN BE USED IN INTERESTING COLOR SCHEMES ON WALLS AND CEILING. SCALE 1/4"=1'-0"

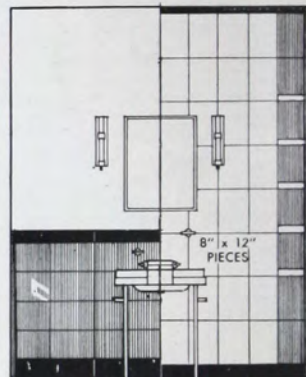
VITROLITE WAINSCOTING AND WALLS IN KITCHENS



BATHROOM WALLS AND CEILING SCALE 1/4"=1'-0"

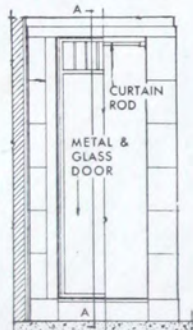


VITROLITE SCHEMES, SHOWER AND TUB RECESS SCALE 1/4"=1'-0"



WAINSCOT & WALL IN STOCK SIZES

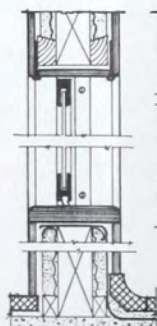
VITROLITE WALL TREATMENTS IN BATHROOMS



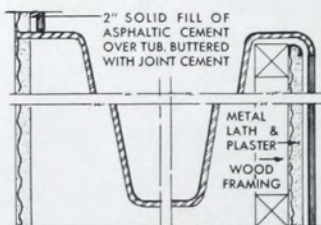
ELEVATION SCALE 1/4"=1'-0"



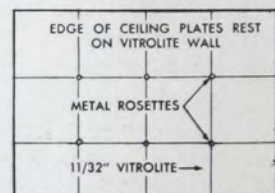
SECTION



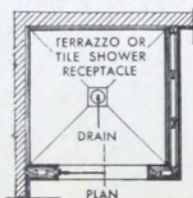
SECTION A-A



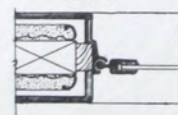
VITROLITE FACING ON TUBS PERMITS CARRYING UNIFORM BASE EFFECT AROUND ROOM. TUBS AS ABOVE SUPPLIED BY MOST BATHROOM FIXTURE MANUFACTURERS. SCALE 1 1/2"=1'-0"



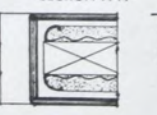
VITROLITE CEILINGS ARE ATTRACTIVE AND EASILY KEPT CLEAN. USUALLY IN SQUARES IN EVEN INCHES UP TO 24". SCALE 1/4"=1'-0"



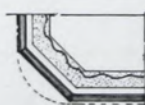
PLAN



PLAN THRU JAMB OF SHOWER SHOWING FASTENING OF SHOWER DOOR. SCALE OF DETAILS 1 1/2"=1'-0"



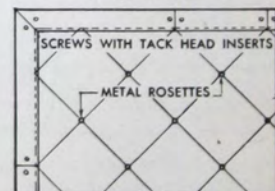
PLAN THRU SHOWER OPENING WITH VITROLITE JAMBS. SCALE OF DETAILS 1 1/2"=1'-0"



DIAGONAL CORNER FOR VITROLITE TUB FACING. SCALE 1 1/2"=1'-0"



ROUNDED CORNER FOR VITROLITE TUB FACING SAME RADIUS AS RIM. SCALE 1 1/2"=1'-0"



CEILINGS WITH BORDER IN RELIEF. VITROLITE MAY ALSO BE HELD WITH METAL MOULDINGS. MANY ARRANGEMENTS ARE POSSIBLE. SCALE 1/4"=1'-0"

DETAILS OF VITROLITE SHOWER

BATHTUB FACING

CEILINGS



(C) TOILET PARTITIONS, ETC.

(C-1) **WORK INCLUDED.** Same as A-1 Store Fronts.

(C-2) **WORK NOT INCLUDED.** Same as A-2 Store Fronts.

(C-3) **MEASUREMENTS.** Same as A-3 Store Fronts.

(C-4) **DISTRIBUTION.** Same as A-4 Store Fronts.

(a) Same as (a) B-4 Interiors.

"Describe fully the type of toilet partition required".

(C-5) **SEPARATE PROPOSALS.** Same as A-5 Store Fronts.

(C-6) **SAMPLES.** Same as A-6 Store Fronts.

(C-7) **SHOP DRAWINGS.** Same as A-7 Store Fronts.

(C-8) **COLOR AND FINISH.** Same as A-8 Store Fronts.

(C-9) **MATERIALS.** Same as A-9 Store Fronts.

(a) Same as (a) A-9 Store Fronts.

(b) Same as (b) B-9 Interiors.

(c) Plaster of Paris shall be made from pure Gypsum Rock, which has been thoroughly calcined, fully ground and air separated.

(d) It shall be free from lumps and uniform in fineness and setting quality and shall be of an approved standard brand especially adapted for the setting of Structural Glass.

(e) Portland Cement shall be an approved brand of non-staining white Portland Cement.

(C-10) **FABRICATION.** Same as A-10 Store Fronts.

(C-11) **INSTALLATION.** Same as A-11 Store Fronts.

TYPE A TOILET PARTITION. Type A toilets shall have partitions consisting of two 7/16 in. slabs cemented together and reinforced with two metal straps, which shall extend from the edges, which shall be bent and fitted to chromium plated metal sleeves (by this Contractor) to support the center stile and also bent and secured to the rear wall with plaster of Paris fill. (See Vitrolite construction details.)

The stiles shall be 1/4 in. thick and shall be let into the walls and floors 1 in. and set in plaster of Paris. The bottom of the stiles shall be wrapped around with a tight fitting strip of Ruberoid or similar material 1/4 in. thick and 1/2 in. in width which shall be left in place. The lower part of the stiles shall be wrapped with a protective layer of heavy building paper to be cut off at floor line at completion.

TYPE B TOILET PARTITION. Shall be similar to Type A except that partition shall not have metal straps but shall have metal tee-iron at the top anchored into rear wall and connected with chromium plated metal fitting at front stile. The stile being joined with square chromium plated metal head rails. The bottom of partitions shall rest on chromium plated metal standards at the back of stile and rear wall. (See Vitrolite construction details.)

(C-12) **HARDWARE.** This Contractor shall note that all

hardware will be furnished and installed by the Contractor for "Hardware", or the General Contractor. If this contractor is to install hardware the following will apply:

(a) This Contractor shall obtain templates as required and shall fit and secure all hardware necessary to complete the Structural Glass toilet partition.

(b) He shall install for each toilet stall door, two adjustable reverse spring hinges (or pivot type hinges) to hold door open when stall is unoccupied and which will be equal to (state manufacturer and number).

(c) One bolt equal to (state manufacturer and number).

(d) One strike equal to (state manufacturer and number).

(e) One approved double prong coat hook with rubber bumper (attached to door).

(f) He shall also install for each toilet stall an approved chromium plated cabinet type toilet paper holder (attached to the door).

(In cases where union regulations so require, coat hook and paper holder to be set by plumbing contractor.)

(C-13) **URINALS.** Where indicated the urinal wainscots shall be 11/32 in. ashlar and the divisions shall be 1 in. slabs polished on both sides and let in and cemented into grooves in the floor and walls.

(a) Where indicated, the backs of the urinals shall be constructed of one piece 3/4 in. thick slabs set above a terra cotta trough (by others) and in a manner to slope back at the top and fit below a - in. cap.

(b) Where so indicated this Contractor shall construct a Structural Glass cover for a concealed flush pipe.

(c) This shall be built around a (steel) (wood) support (by others), as indicated on the details.

(C-14) **SHOWER STALLS.** Shower stalls shall be built around a metal lath and cement plaster core (by others) using 11/32 in. ashlar, 7/16 in. (11/32 in.) cap finished in accordance with the details. All joints shall be buttered with joint cement.

(a) This contractor shall provide and install to all shower stalls.

(b) 1/2 in. diam. nickel metal rods. 26 oz. approved duck curtains 6 ft. 6 in. in length and fitted with nickel metal rings and grommets.

(C-15) **CUTTING, DRILLING AND FITTING.** Same as A-12 Store Fronts.

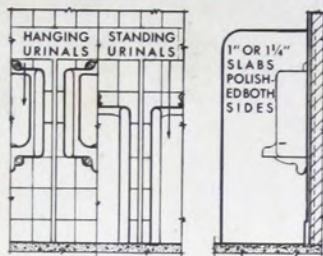
(C-16) **PROTECTION, CLEANING AND POINTING.** Same as A-14 Store Fronts.

(C-17) **GUARANTEE.** Same as A-15 Store Fronts.

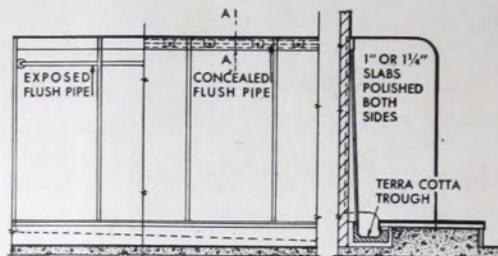
SHORT FORM OF SPECIFICATION

"All Structural Glass for..... shall be "Vitrolite", manufactured by the Libbey-Owens-Ford Glass Company, Toledo, Ohio, and shall be set in accordance with instructions issued by the above Company."

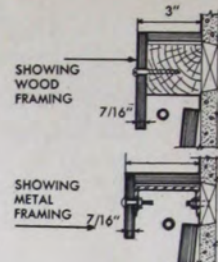




VITROLITE PARTITION SLABS AND WAJNSCOTING.
SCALE 1/4"=1'-0"

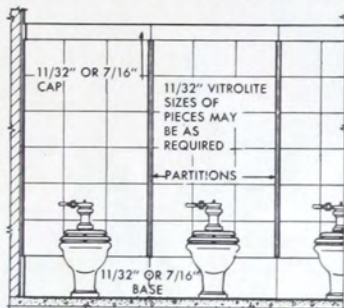


TYPE OF VITROLITE URINALS USED IN STADIUMS, FACTORIES AND INSTITUTIONS. • SCALE 1/4"=1'-0"



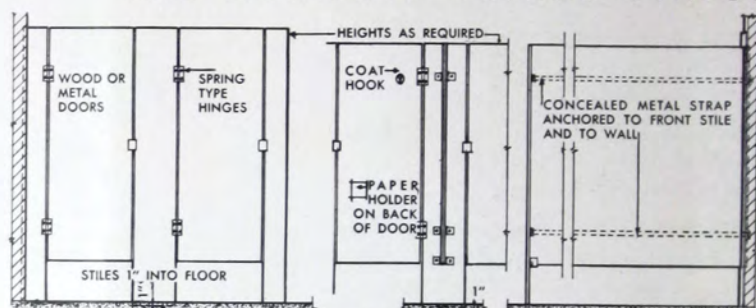
SECTIONS AT A-A
SCALE 1/2"=1'-0"

URINAL PARTITIONS

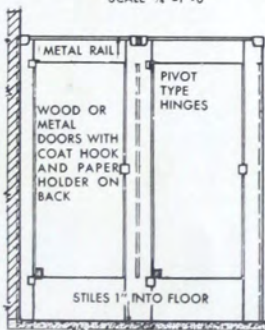


VITROLITE WAJNSCOTING AT BACK OF STALLS.
SCALE 1/4"=1'-0"

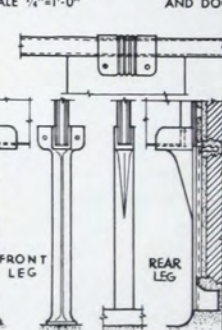
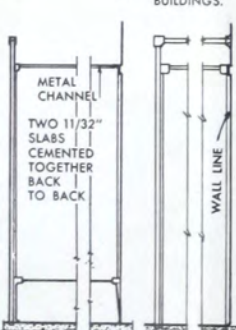
ALL-VITROLITE URINAL STALLS



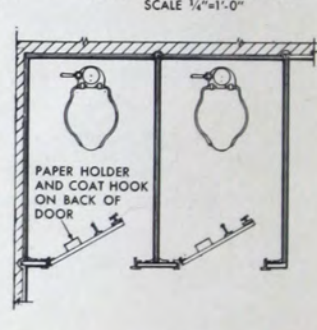
STANDARD TYPE USED IN THE FINEST OFFICE BUILDINGS. • SCALE 1/4"=1'-0"



FRONT ELEVATION
NEW TYPE OF VITROLITE TOILET STALL CONSTRUCTION WITH METAL HEADRAIL TO GIVE RIGIDITY AND WITH FLOATING PARTITION RELIEVED OF ALL STRAIN. SCALE 1/4"=1'-0"

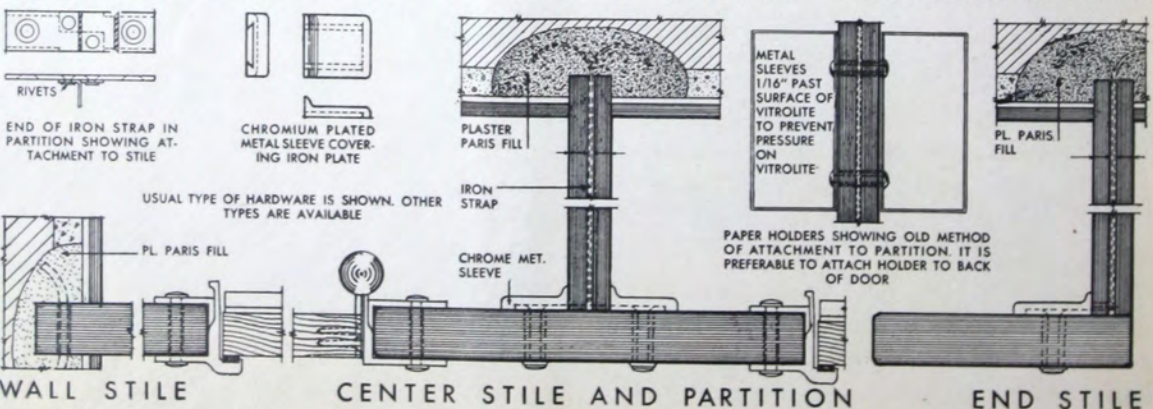


DETAILS OF NEW METAL HEADRAIL AND LEG SUPPORTS
SCALE 1"=1'-0"



FLOOR PLAN
WIDTH, DEPTH AND ARRANGEMENT TO SUIT REQUIREMENTS • SCALE 1/4"=1'-0"

VARIOUS TYPES OF VITROLITE TOILET COMPARTMENTS



COLORS AND DECORATIVE PROCESSES



WHITE



BLACK SHADED SANDBLAST



GRAY



IVORY



ORCHID AGATE



ROYAL BLUE AGATE



YELLOW



JADE AGATE



SUN TAN



WALNUT AGATE



EMERALD AGATE



JADE



COLORS SANDBLAST OR INLAY



BLACK



TROPIC GREEN



RED

THIS chart illustrates standard Vitrolite colors and the principal decorative processes. The agate colors will show a considerable variety in color and amount of veining. The illustrations represent a medium shade. Emerald Agate, Walnut Agate, and Royal Blue Agate are furnished in light, medium, and dark shades, and shade desired should be specified when ordering. There will also be a slight variation in other colors. Samples will be furnished upon request.

The Libbey-Owens-Ford Glass Company owns and operates eight factories. They are strategically located at Toledo, Ohio; Rossford, Ohio; Charleston, W. Va.; Parkersburg, W. Va.; Ottawa, Ill.; and Shreveport, La. Leading glass jobbers, conveniently located throughout the United States distribute the products of these plants. Direct factory sales representatives to serve efficiently the architectural profession are located in New York, Boston, Atlanta, Minneapolis, Milwaukee, Chicago, Philadelphia, Kansas City, Denver, Detroit, Shreveport, Buffalo, San Francisco, Los Angeles, Cincinnati, Seattle, Richmond and Syracuse. The executive offices of the company are located at Toledo, Ohio.



LIBBEY • OWENS • FORD GLASS COMPANY

NICHOLAS BUILDING, TOLEDO, OHIO



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