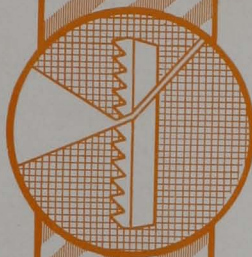




# Luxfer Daylighting



# Luxfer Prism Daylighting System



## AMERICAN Luxfer Prism COMPANY

CHICAGO, Heyworth Bldg.  
BOSTON, 49 Federal St.  
CLEVELAND, 419 Citizens' Bldg.  
DULUTH, 106 W. Michigan St.  
INDIANAPOLIS, 7 E. Market St.  
KANSAS CITY, 948 N.Y. Life Bldg.


MILWAUKEE, Stroh Building  
NEW YORK, 507 W. Broadway  
NEW ORLEANS, 904 Hennen Bldg.  
PITTSBURG, 1222 Fulton Bldg.  
PHILADELPHIA, 411 Walnut St.  
ROCHESTER, 38 Exchange St.

ST. PAUL, 615 Ryan Bldg.  
MINNEAPOLIS, 507 Andrus Bldg.  
DALLAS, Builders' Exch.  
SAN FRANCISCO, 445-47 Turk St.  
LOS ANGELES, 1701 N. Main St.





# Luxfer Prisms Represent the Only Recognized Scientific System of Daylighting All Kinds of Buildings

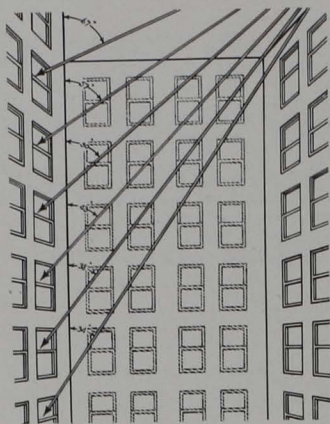

CIENCE is the dividing line between the practical and the impractical, and *unless* a thing or method is absolutely *scientific* it is not absolutely *right*. No better example of this fact can be illustrated than that which is offered by a careful study of the different daylighting methods now on the market of which only one, the Luxfer System, is scientifically successful.

Until we *originated* the business of furnishing daylight the subject had not been given the important attention it deserved, and no attempts were made to treat it from a scientific standpoint.

It was not until the results of our extensive research work and experiments were commercialized that the impracticability of every other method was exposed, and the absolute necessity of expert attention to daylighting problems firmly established. Even today ours is the only company which really applies scientific principles to every job undertaken. Imitation installations are made purely from guesswork and are haphazard in the extreme.

During the course of our investigations, various methods of transmitting daylight were evolved and, of these, the only one which ultimately proved successful, both in theory and practice, was the system we now use; this leaves no room for improvement in its basic principles.

For the protection of the public and ourselves, we may state that the majority of so-called "prism" systems on the market are *discarded Luxfer experiments*, which were found *impractical* and *abandoned* by us during our laboratory developments many years ago. Among them, one idea (of erroneously claimed merit), a vertically waved outer surface, was thoroughly demonstrated to be inefficient, and was discarded. This fact will emphasize the importance of Architects and others insisting upon the Luxfer System and refusing imitations. Had any of the features, extolled by present-day competitive systems, possessed the advantages claimed for them, they surely would have been embodied in the Luxfer System during the time we were making experiments under the direction of eminent physicists; the fact that they were *not* adopted is proof of their weakness.



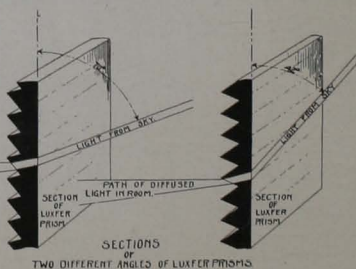
The principle of the Luxfer System is based fundamentally upon the natural laws of refraction, whereby rays of light coming from the sky are received and controlled by the prisms, and directed by them into dark places; the direction of refracted light being determined by the angles on the prisms. It is by acting in harmony with natural laws, and not in opposition, that Luxfer Prisms are successful. And it cost us a fortune to discover the way to do it.

Without being technical we may explain that in order to meet the requirements of varying sky conditions, our prisms are constructed in more than a hundred different angles, so as to conform with the varying angles at which the light rays strike the prisms. With this fact established the peculiar significance of the Luxfer principle is apparent. The Luxfer System is the only one in which the *entire surface* of each prism is available for refracting the light rays. In *all* other methods only a fraction of the rays—50% at the most—is actually refracted or used; the remainder being *reflected* out and lost.

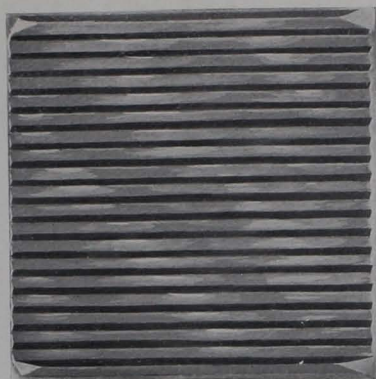
The necessity of furnishing different angles to meet different sky conditions is well illustrated by the accompanying diagram which shows windows on six floors, all obtaining their light from the same limited source. On referring to this illustration, and then to the sectional view shown on this page, the error of using the same angle of prisms on more than one floor is clearly apparent. We are often called upon to daylight buildings of several floors where the same intensity and direction of light is required on each floor, and in this we are invariably successful.

The value of the Luxfer System and Luxfer "service" is proven by the quantity of installations; over thirty-three thousand buildings having been Luxfer Daylighted. We alone have raised and maintained the daylighting business from a haphazard hit-or-miss proposition to one where every element of guesswork is removed, and results are actually pre-determined with scientific accuracy.

Luxfer Prisms are furnished in different forms as shown on the following pages, and are made of the finest quality pressed crystal glass by our own special process. In whatever form our prisms are used, the construction of the system can be relied upon as being the most practical and durable of any known. We shall be glad to take up any daylighting problem with you direct, or through our nearest branch office.







This shows  
appearance  
of simple  
Prism Square.  
Note angles  
on surface.

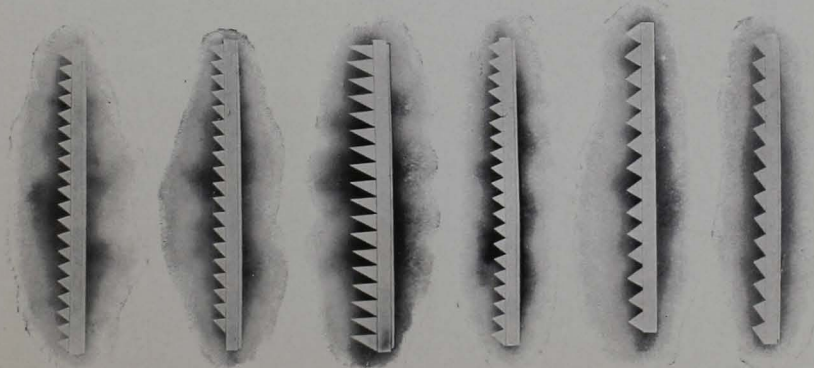
## OVER ONE HUNDRED DIFFERENT ANGLES

Why do we make Luxfer Prisms in more than a hundred different angles?

Because that number is absolutely necessary to fully cover the great range and variety of lighting problems, where an accurate selection must be made.

The difference between these angles is sometimes so small as to be barely discernible—but it represents the difference between success and failure in daylighting. It *must* be *exact*—it *has* to be correct to the last fraction.

When the above fact is considered is there any cause for wonder at the failure of systems that use the same angle of glass for all installations?





LUXFER PRISM SYSTEMS ARE USED FOR  
THE COMPLETE DAYLIGHTING OF  
STORES FROM ROOF TO BASEMENT

While Luxfer Prisms invariably form part of the construction of a new store front, their use is just as readily adaptable for installation in old-style fronts without interfering with the existing construction, and their benefits are just as pronounced. Practically every store requires more daylight than usual conditions permit, and can be equipped with a Luxfer Daylighting System at the minimum of trouble and investment.

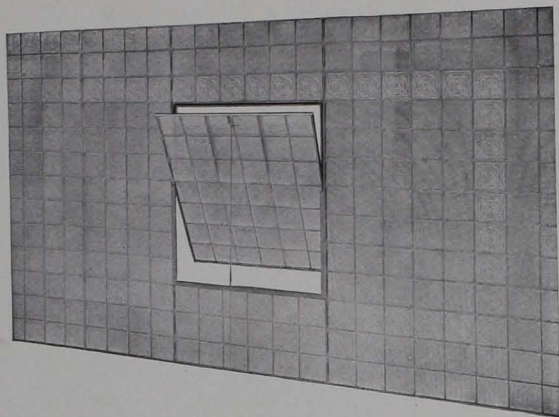
The advantages of daylighted stores over dark, gloomy ones are so obvious as to hardly require citing. Apart from the general air of brightness which always pervades the *natural* daylighted store, the improved working conditions for the clerks, the fact that goods are shown in their true colors, and the *vast reduction in the consumption of artificial light*, are even more important considerations.

Modern store conditions make every inch of space valuable, and it increases in value in proportion to its productiveness. It is conceded that a light section of a store is far more valuable than a dark one, and it is the reclaiming of these dark spaces, and making them proportionately equal in selling value to any other part of the store, that forms the purpose of the Luxfer System.

## SPECIFY

"The store front transoms and upper sash of windows as shown on plans shall be Luxfer Prisms four inch pressed tile, electro copper plated bar, and ornamental border as manufactured by the American Luxfer Prism Company."

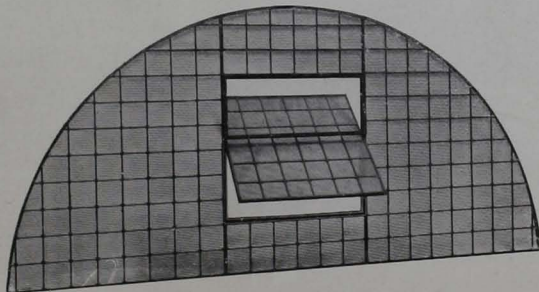


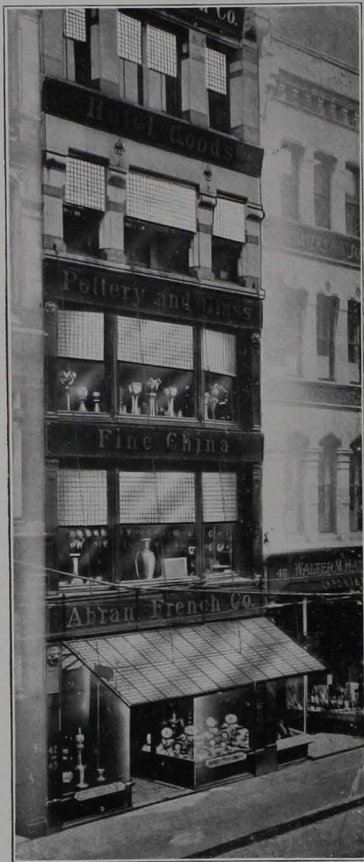


While merchants usually give most attention to daylighting the main floor, they should realize that every part of *every floor*, including the basement, can be flooded with daylight through the instrumentality of one or more forms of the Luxfer System. Lighting from the front is usually accomplished by Luxfer Transom Prisms. For the rear and sides our Transom Prisms are used wherever possible but, in many cases, Luxfer Skylights and Canopies are called into requisition. Again, our Rooflights and Floorlights have solved many difficult problems and are frequently used instead of light wells. For basement lighting Luxfer Prism Sidewalk Lights are wonderful agents, transforming basements into main floor values for selling and display space.

Luxfer Prism Transoms are composed of pressed crystal glass prisms, four inches square, glazed in panels, multiples of which extend clear across the store front, including the entrances. When desired we equip one or more panels with a swinging section which forms a ventilator.

Luxfer Prism Transom Panels are set in exactly the same manner as plate glass, and in the same arrangement of sash and frames, the necessity of skilled labor being eliminated entirely. In existing store fronts it is an easy matter to install Luxfer Prism Transom Panels in place of the plain glass; in old fronts, where



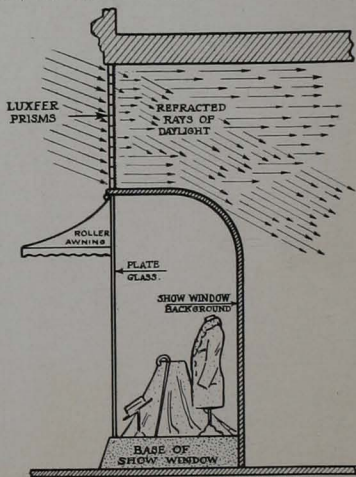


heavy pillars are in use, the Luxfer panels are set *outside* the pillars, leaving the existing glass intact; in appearance this effect is very pleasing. An excellent example of this form of construction, which also shows the artistic appearance of Luxfer Panels, is shown by the store front illustrated on sixth page.

The most practical form of storefront construction is where the plate glass extends to the transom bar, or approximately two-thirds of the total height, the remaining one-third being Luxfer Prism Transoms. Where an awning is installed it is placed *below* the transom bar so as not to interfere with the light rays striking the Prisms. The back of the show window is equivalent in height to the plate-glass front, leaving the passage of light from the prisms entirely unobstructed. Notice the sectional view on this page.

An example of how the Luxfer System solves difficult problems is constituted by the daylighting of the store shown on this page. This store is located on a street, too narrow to permit our ordinary

transoms to be effective on the ground floor, and it was necessary to install a Luxfer Prism Canopy. On the second and third floors Luxfer Prism Transoms were placed *behind* the existing plate glass of the windows. On the fourth floor, where the windows were the old-fashioned recessed style with wide pillars, our Transoms were placed in *front* of the existing glass and flush with the outside of pillars. In the windows of the fifth floor we installed Luxfer Prisms in place of the plain glass in the *upper sash*. The result of this installation, through our studied application of light







BEFORE



AFTER

An excellent illustration of the effectiveness of daylighting with the Luxfer System is furnished by the above two photographs, which were taken before and after the installation, under exactly the same outside conditions.

principles, knowledge, experience and selection of angles, was extremely effective, and produced a building flooded with daylight.

The importance of obtaining absolutely the best prisms (Luxfer) for store daylighting cannot be too strongly emphasized, when an added fact is considered that, in practically every system but the Luxfer, the prism glass will turn purple and give a false light value on the goods displayed. Luxfer Prisms will not do this; they are absolutely clear crystal and remain so indefinitely.

## BANKS

The need of pure daylight in the majority of banks is growing more apparent every day, and large numbers are adopting some form of the Luxfer System. The accompanying cut shows a typical installation of Luxfer Prism Transoms in a bank. We invite correspondence on any problem.







No. 76—MULTI-PRISM



No. 78—SQUARE BLANK LIGHT



No. 60—PENDANT PRISM



No. 65—ROUND BLANK LENS



No. 68—SQUARE BLANK LENS

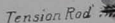
## LUXFER PRISM SIDEWALK LIGHTS

No. 76 is a Multi-Prism,  $2\frac{3}{4}$  inches square, with a number of scientifically formed prisms on the under surface. This has wonderful daylighting qualities.

No. 78 is a Square Blank Light, or Lens,  $2\frac{3}{4}$  inches square, companion to our No. 76 minus the prisms. It is hollow on the under surface which gives a greater degree of reflecting power than the ordinary make of vault light.

No. 60 is a Pendant Prism,  $2\frac{1}{2}$  inches square, well known for its efficiency in basement daylighting. The pendant portion extends two inches below the under surface of the concrete.

No. 65 is a Round Blank Lens,  $2\frac{3}{4}$  inches in diameter, and is an efficient daylighting medium.



## REINFORCED CONCRETE SETTING

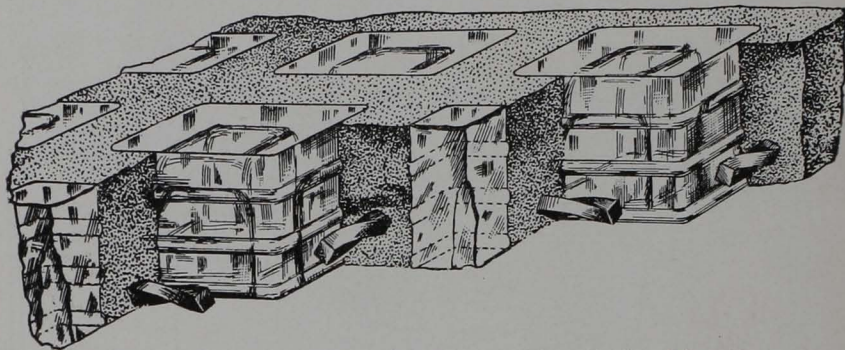
This product, which is distinctively a Luxfer innovation, is the most advanced form of sidewalk and floorlight construction, and represents the solution to the problem of shaling and breaking of the glass lights—a frequent and unavoidable trouble where usual methods of setting are employed.

The primary cause of the lights becoming shaled or broken is the unequal expansion and contraction of the concrete and glass. We have counteracted its effect, in the Luxfer System, by surrounding each light of glass with a Special Waterproof Composition Coating, which acts as a protective cushion and, by reason of its elastic qualities, will expand and contract with the concrete, thereby relieving the glass light of all pressure.

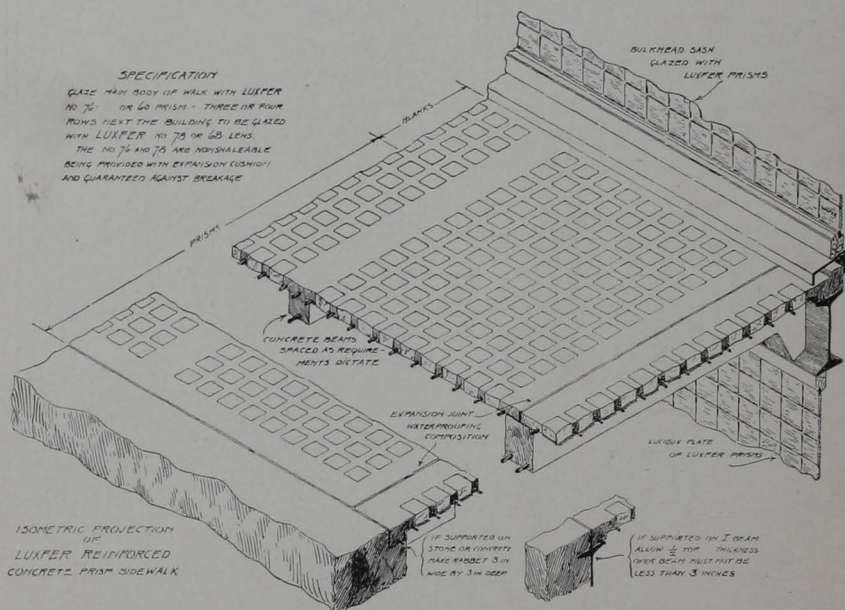
We set this at the building by our own skilled workmen, or ship in ready-to-set slabs, so that any contractor can install them without the aid of expert labor. Full directions for ordering sent upon request.

## SPECIFY

"The Sidewalk Lights shown on plans shall be Luxfer Cushion Protected Frism No. 76 (or Lens No. 78) in Luxfer System of Reinforced Concrete Setting. This work to be executed by the American Luxfer Frism Company's own skilled mechanics."



Detail of Luxfer Sidewalk Showing Plain Lights No. 68



### Isometric Projection of Luxfer Reinforced Concrete Prism Sidewalk



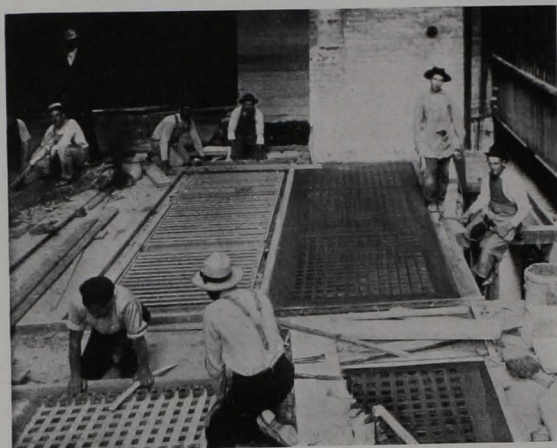
## THE LUXFER SYSTEM OF SIDEWALK DAYLIGHTING

Consistent with the important part played by sidewalk lights in the daylighting of buildings, and the length of time each installation is intended for use, the selection of the type requires the most careful attention. The comparative advantages of the various kinds are of far greater consequence than the comparative prices, and the question of initial cost is over-shadowed by the results attainable.

From this angle of reasoning the Luxfer System represents the most desirable daylighting investment possible, being far greater in daylight-giving qualities, more durable and practical in construction, keeping in better condition and costing less for maintenance than any other system known. These are conservative statements and are amply proven by the fact that ninety per cent (90%) of all sidewalk daylight installations in the country are Luxfer.

There is no exposed iron and consequently no slippery or rusting surfaces in the Luxfer System; all metal is embedded in the concrete, away from moisture and, owing to the thickness of the slab, condensation is eliminated. The advantages of this type of construction are particularly apparent to those who have had experience with types where the large amount of exposed metal on the upper surface has been a source of numerous accidents due to its slippery surface, besides having exposed iron on the under surface which is rusting, scaling and dripping, in addition to presenting an uneven and unsightly appearance. The surface of a Luxfer walk—above and below—is all glass and concrete; nothing else.

The sectional view on twelfth page shows the basic principles of Luxfer Sidewalk construction. This consists of Luxfer Prisms or Blank Lights (various styles of which are shown on tenth page) embedded in concrete  $1\frac{7}{8}$  inches thick, reinforced by longitudinal and transverse  $\frac{1}{4}$ -inch square twisted steel tension rods placed between *each* glass unit and  $3\frac{3}{4}$  inches apart, thus forming a mesh of great rigidity, capable of supporting any weight. Support is obtained on beam at building, retaining wall or beam at outer edge and upon concrete beams placed between as dimensions may require. Joints properly caulked and made watertight are placed at proper intervals to provide for expansion and contraction of the mass. The top surface makes an excellent wearing pavement. The under surface may be plastered flush with the bottom of the lenses. No other system can be finished in this manner.



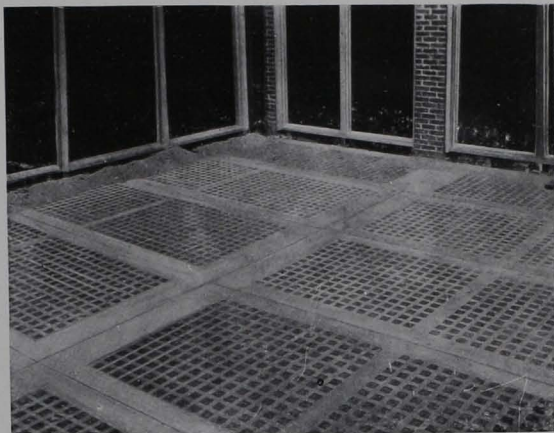
Luxfer Sidewalk Lights in process of installation at building by our own skilled workmen.

This construction gives a sidewalk which is absolutely waterproof, soundproof and non-deteriorating, and so strong that the maximum of its strength would never be tested.

For quick setting it is especially desirable; the materials are always ready and can be assembled without the delay necessitated in making patterns and castings. Luxfer Sidewalk Prisms will distribute light throughout a basement, even to a depth of a hundred feet from the sidewalk line, reducing—and often eliminating—the use of artificial light during the daytime. In stores their advantages are obvious. Dark basements may be transformed into light workshops or profit-producing salesrooms; even where the basement is used merely as a stock room the introduction of daylight makes it far more valuable.

Different styles of sidewalk lights may be used to meet conditions, but where the maximum daylight is required our Prism lights should be used. In many cases a combination of Luxfer Prisms and Blank Lights may be used to good advantage and, where daylight is desired only in that section of the basement immediately below the sidewalk, our Blank Lights will serve the purpose. In this connection it is well to remember that the cost of a system employing Luxfer Prism Lights is no more than the ordinary forms of cast iron settings, and is immeasurably superior to the many cheap, flimsy and short lived forms now on the market.

Luxfer Side-  
walk Lights  
installed at  
bottom of  
light shaft.



We install sidewalk lights complete by our own skilled workmen at the building, thus avoiding possible defects caused by inexperienced labor.

We also make ready-to-set slabs, complete in any size, so that the contractor can simply lay them in place. This form of construction is described on sixteenth page.

## SPECIFY

"The Sidewalk Lights shown on plans shall be Luxfer System of glass and reinforced concrete.

The concrete to be reinforced by cold twisted steel tension rods, separating glass and running longitudinally and transversely over the opening.

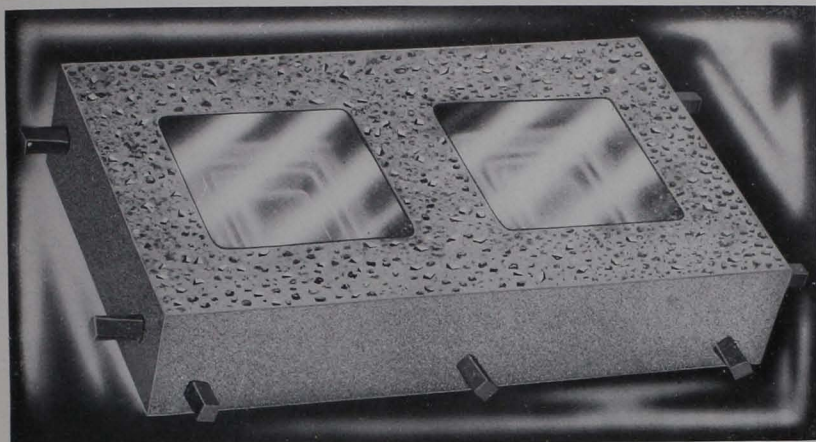
Glass shall be Luxfer No. —. This work to be executed by the American Luxfer Prism Company's skilled mechanics."

Note—We strongly recommend the No. 76 Prism or No. 78 Lens, which are non-shalable, being provided with expansion cushion and guaranteed against breakage.

Note—For perfect non-slip surface specify "work to be Crystolux Surfaced." (See seventeenth page.)







## LUXFER "CRYSTOLUX" SURFACED (Non-Slip) SIDEWALK

The only point about sidewalk lights ever objectionable, was the fact of their presenting a slippery surface when wet which, combined with the smooth surface of the concrete, made a bad medium upon which to walk. This objection has been entirely overcome by the introduction of the Luxfer "*Crystolux*" Surfaced Sidewalk.

Instead of the concrete being left smooth, which has been the condition hitherto, it is purposely finished rough, with mineral crystals in the top dressing. These crystals, the product of an electric furnace, have the greatest abrasive and lasting qualities of any mineral known and will wear an indefinite period.

This "*Crystolux*" rough top produces a full safety-tread surface, to which the foot actually clings—and it cannot slip. The abrasive properties last as long as the installation and can be relied upon absolutely.

The cost is little more than the ordinary smooth surface sidewalks.

### SPECIFY

"Sidewalk Lights shall be Luxfer type as called for above, and shall be Luxfer (non-slip) '*Crystolux*' Surfaced."





## LUXFER PRISM EXTENSION SKYLIGHT

Luxfer Extension Skylights are for daylighting buildings from the rear and sides. These skylights are composed of prisms, 13 inches square by  $\frac{5}{8}$ -inch thick, set in galvanized iron or copper frames in the manner shown by sectional view. The prisms should be set at an angle of about 60 degrees from the vertical, and the top edge of skylight should be as near the ceiling line as possible.

The metal construction, in which the prisms are glazed, is important, and our experience has demonstrated the condensation rib to be the most practical under all conditions. After the prisms have been thoroughly embedded in putty the ribs are capped; these caps are bolted to the ribs and lap over the water table on each side of prism, covering the joint between glass and metal, and establishing an absolutely waterproof construction.

Illustration at top shows a typical example of our skylight, which is the only source of light, there being no windows. Notwithstanding the fact that an eight story building located only twenty feet back of the skylight, overshadows it and prevents the direct admission of all light, the room shown, more than seventy-five feet deep, is flooded with daylight; no artificial light whatever is used during the daytime. This is but one example out of hundreds.



When required, we can equip the skylight with vent sash that raise and close with automatic attachment, which holds and locks sash in any desired position. Luxfer Prism Skylights are as readily adaptable to old buildings as to new ones. It is a comparatively simple matter to replace old skylights with Luxfer, the entire work, under favorable conditions, taking about four days, and without any interference to that section of the floor immediately beneath it.

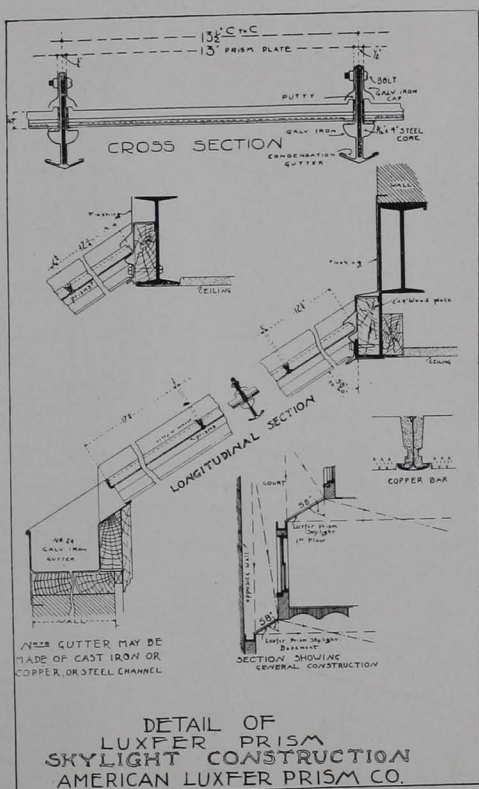
The Luxfer Prism Skylight is the only kind approved by the National Board of Fire Underwriters, and which meets all requirements of the New York Board of Fire Underwriters, the Fire Insurance Exchange, and the Department of Buildings, without necessitating the addition of wire screens such as are required in all other types.

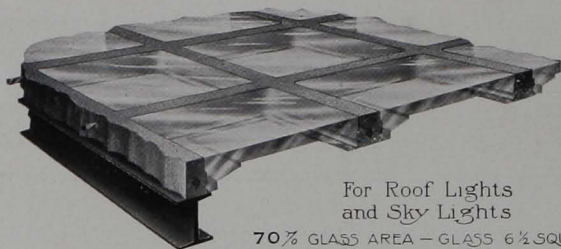
Upon request, our experts will examine the premises or plans, and make suggestions calculated to obtain the best results from the installation.

## SPECIFY

"The contractor shall furnish and set Luxfer No. 525 Skylight Prisms in all extension skylights where shown on the plans.

The construction shall be in accordance with the American Luxfer Prism Company's details for the same, and shall be of galvanized iron (or copper)."





For Roof Lights  
and Sky Lights

70% GLASS AREA — GLASS 6 1/2 SQUARE

REINFORCED CONCRETE

## A NEW REINFORCED CONCRETE ROOFLIGHT, FLOORLIGHT, SKYLIGHT

This construction is unique in that it combines the maximum of strength and durability with the minimum of interference to the light, being seventy per cent (70%) glass area, admitting a far greater quantity of daylight than is possible with any other form of rooflight or floorlight construction on the market.

It is composed of Heavy Crystal Glass Units (Luxfer No. 98), 6 1/2 inches square by 1 1/4 inches thick, set in Reinforced Concrete, with Twisted Tension Rods running longitudinally and transversely. This gives a construction capable of carrying any requirement of floor or roof load.

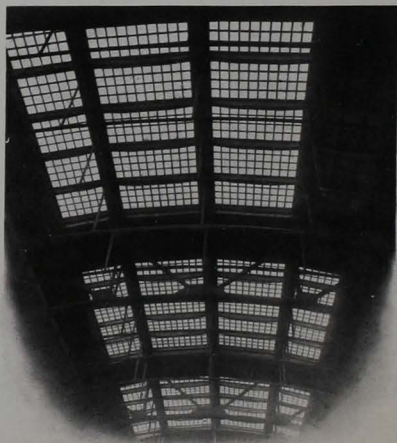
In addition to being used for roofs, floors and skylights, it is admirable for installing in Domes of any style—hemispherical, conical or elliptical. Its flexibility makes it easily adaptable to surfaces of any form.

For installation in Banks, Stores, Schools, Libraries, Museums, Art Galleries, and buildings of a similar character, this type of construction is ideal.

We are prepared to set this at the building by our own skilled workmen, or ship in ready-to-set slabs, so that any contractor can install them without the aid of expert labor. Full directions for ordering sent upon request.

### SPECIFY

"Roof Lights and Skylights shall be Luxfer No. 98 glass installed in Luxfer System reinforced concrete by the American Luxfer Prism Company."





## LUXFER PRISM CANOPIES

These are placed over windows at the rear, sides and in the light wells of buildings, or wherever the direct admission of light is obstructed by high adjoining structures, which is usually the trouble with buildings in large cities.

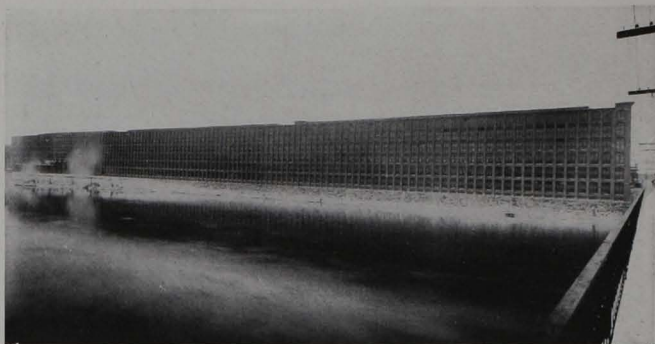
Luxfer Prism Canopies are set at a particular angle to the wall, so that the light rays are drawn from the sky, received and controlled by the prisms, and thrown directly into the interior of the building.

Luxfer 4-inch Pressed Crystal Glass Prisms, of a scientifically prescribed angle, are used for these canopy panels, which are set in iron frames revolving upon a pivot. This permits of their being easily cleaned and kept free from snow. We also furnish them in the stationary or folding types, but advise the use of the revolving style as being more convenient and practical. The frame is attached to the wall by brackets, which are made plain or ornamental to suit the class of building.

### SPECIFY

"Canopies as shown over windows in courts, etc., shall be Luxfer Prism Canopies of proper glass angles as prescribed by the American Luxfer Prism Company's Engineers."





## MILL AND FACTORY DAYLIGHTING

The need of daylight is probably more pronounced in manufacturing establishments than anywhere, and very little calculation is required to realize that every ray of daylight is of tangible value.

There are very few factories that get all the daylight, under normal conditions, that they require. In most cases the floor arrangement, shafting of machinery, etc., prevent the light reaching the section of the floor farthest from the windows, and it becomes a matter of necessity to so *direct* the light rays that they can extend to any part of the floor, and flood the darkest places with daylight.

The Luxfer System of Daylighting for manufacturing plants and warehouses is, without question, the only practical method yet devised. This fact is fully borne out by the huge number of installations and by the marvellous results accomplished. While the reduction in the consumption of artificial light (this alone amounts to a saving of from 25 to 50 per cent) is the item most readily appreciated, it is far from being the only advantage. Better working conditions for the operatives and a consequent improvement in their work, and an increased output, are benefits which always follow a Luxfer installation. The feature of increased output we can substantiate by actual statistics gathered from many sources.

The medium for Luxfer Daylighting factories is Luxfer Sheet Prisms, which are installed in ordinary window sash in the same manner as window glass. They are furnished cut to any size to fit the sash to be glazed, and may be installed in half or whole sash as may be desired.

Luxfer installations are made only after a thorough knowledge of existing sky conditions, which is essential for furnishing prisms of the correct angle. Where there are a number of floors requiring the same intensity and direction of light, we vary the prisms to meet the conditions on each floor.

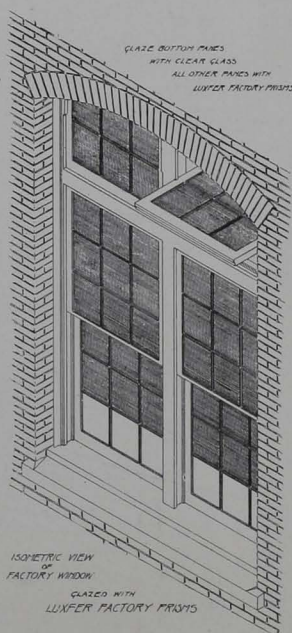
All this preliminary work is done by our engineering department, without any trouble or expense to the customer.

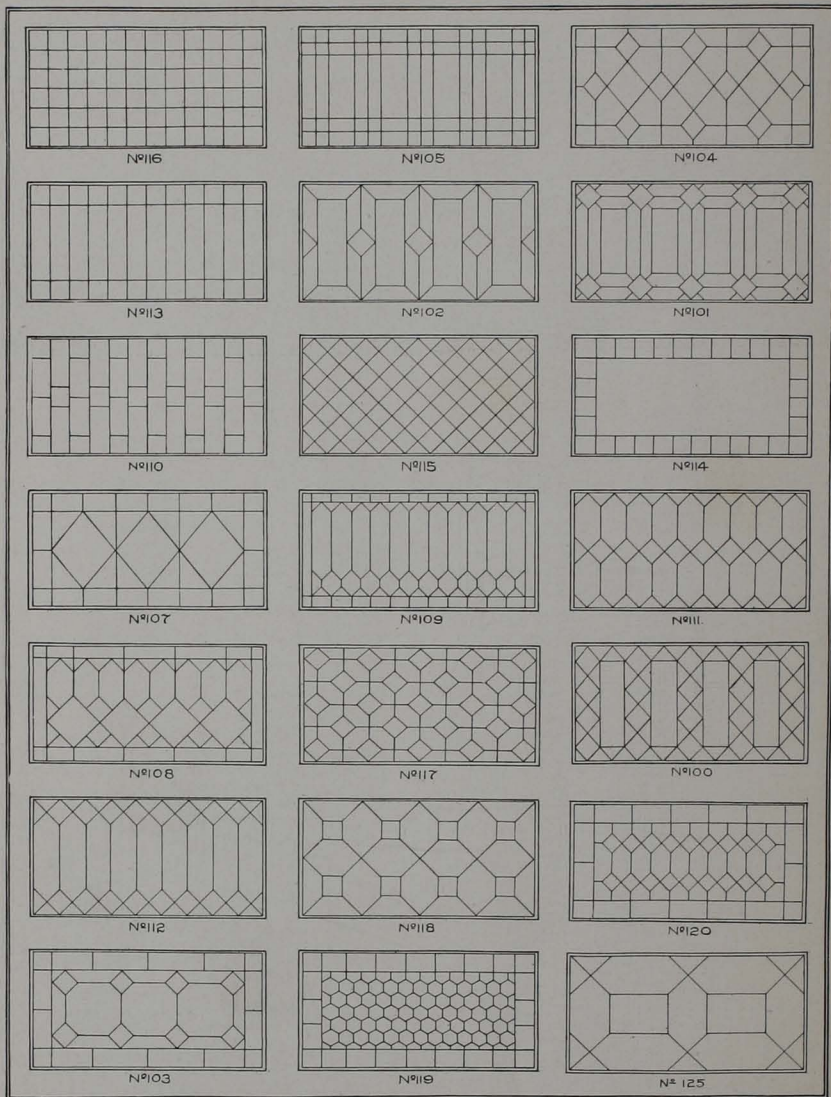


The above photographs were taken at the Tremont and Suffolk Mill, Lawrence, Mass., within fifteen minutes of each other—the first being taken at 2:45 P. M., the other at 3:00 P. M. They show the same room, the first photograph showing the north half in which Luxfer Prisms were not then installed; the second cut shows the south half which was Luxfer Daylighted. Except for the Prisms the conditions were exactly similar. Notice how artificial lighting was necessary before the Luxfer installation, and how it was eliminated afterwards. We can show hundreds of such examples.

## SPECIFY

"Contractor shall furnish and set "Luxfer "Sheet Prisms in all sash where shown on plans—the Prism angle shall be as prescribed by the American Luxfer Prism Company."





## LUXFER SHEET PRISMS GLAZED IN DESIGN

We always recommended the use of our standard 4-inch square tile prism for highest efficiency and best daylighting results. Sometimes, however, purchasers desire Sheet Prisms glazed in geometrical design patterns and we are prepared to fill any requirement.





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