3-Way Lighting Systems

Sidewalk Lights—Skylights

Catalog 14-S

American 3-Way Prism Company

Main Office and Factory
LaPorte, Indiana

Eastern Office and Factory
New York City

Branch Offices and Warehouses
Philadelphia Chicago

Sold by
Pittsburgh Plate Glass Co.
ST. PAUL, MINN.
American 3-Way Systems Light The Dark Places

Dark cellars, basements, and vaults can be so easily and so economically daylighted, transforming them into productive space for display and selling, that there is no good reason why every building should not be so arranged. Underground space that now is dark, gloomy and disagreeable is rendered light and attractive by the use of 3-WAY sidewalk lights.

The American 3-Way Prism Company's system of daylighting is designed to transmit light to the dark places in basements. And because of our long experience we know that there is scarcely a cellar lighting problem that is not solved by some one of our constructions.

If you are erecting a new building do not overlook the big advantage in having the basement flooded with daylight for it gives space, that is usually dedicated to storage, to use as work rooms or as sales rooms. Here is space that will bring you in a profitable rental, either in money or use.

Perhaps your building is an old one and you have outgrown the selling space on the first floor or you could rent the basement if it were daylighted. Make this space pay you a profit by installing American 3-WAY Sidewalk Lights.

The returns are so large in proportion to the cost that there is no other investment in the entire building that will prove as profitable as the daylighting of the basement. But by daylighting we do not mean just the lighting of a little spot under the sidewalk—light the whole front of the room and light it brightly so that it can be put to any use that you may desire.

Probably the greatest advantage in daylighting your basement with our sidewalk lights is the saving in the cost of artificial light. With our system the saving in artificial light cost alone should pay for the installation in a very short time. More space to use and that at less expense is the result of the installation of the American 3-WAY Prism Company's sidewalk lighting systems.

Lofts and attics that are now indifferently lighted by small inefficient skylights can be redeemed and made to earn their share in the returns from the building if the lighting area is enlarged and equipped with our system of daylighting. Economical and highly effective, our skylight construction will in a very short time pay for itself in saving in light bills as well as the increase in returns from space made more valuable by the increase in the light. So accurately and carefully are our skylight constructions made that, under repeated tests they have proven strong enough to carry many times the load that might be put on them in actual use.
Vault Lighting and How It Is Secured

The proper lighting of basements and subsidewalk space depends largely on the use of the correct form of glass. To meet every possible condition and to satisfy all ideas in regard to the best type of glass to use, we make our sidewalk and skylight tiles in many different forms and sizes. We are thus able to solve every lighting problem in the most effective manner. For size and number of each, look under the headings of the different forms of constructions.

PLAIN LENS, round or square. For lighting the space immediately below the setting. An efficient form where the space to be illuminated is not large, for the light rays drop down.

SINGLE PENDANT PRISM, round or square. For throwing the light to spaces outside the range of the Plain Lens. The large single prism throws a strong single beam of light in one direction only. It has the advantage over the plain lens in that it illuminates a larger area but, because of its weight the cost is considerably more.

MULTI PRISM, square only. For general diffusion and the breaking up of the direct light rays. Preferred, by some, to the plain lens for this reason.

3-WAY PRISM, square only. For spreading the light rays over a large area and illuminating the largest amount of space. Each of the three prisms on the tile are of a different size and of a different angle. Thus the light is thrown in three separate beams to the various parts of the room. Probably the most efficient form of tile because it gives a wider range to the light equalized over a large area.

All of our glass is made of a special tough composition that resists wear and pressure so that danger from breakage is reduced to a minimum. The trade mark TANEX is moulded in every tile. Be sure to specify TANEX.
Paschall Interlocking System of Sidewalk Lights

In glass area, the most important item in sidewalk lights, the Paschall System is by far the leader. The glass surface on the top approximates 50% of the total and on the underside it reaches the big proportion of approximately 75%. More glass means more light, and as some other constructions show glass surface of only from 25% to 40%, the great superiority of the Paschall can be instantly appreciated. Because of this large percentage of glass surface, it is not necessary, with the Paschall System, to install such a large part of the sidewalk in light construction as it is with other makes, to secure the same amount of illumination in the basement. This means a saving at the outset. And if the same amount of Paschall construction is installed, as was figured for the less efficient types, the illumination will be proportionately greater. Hence, requiring less artificial light, meaning a continued saving.

The strength of the Paschall construction is another point in which the competitors are also followers. Made of steel I bars of 1 1/2 inch breadth, interlaced at regular intervals, of 4 1/4 inch centers with 1 inch flat steel rods, the entire frame is of such strength that, for the average opening up to six feet, no parallel supporting beams are necessary. Another saving to the builder. The I bars are in reality carrying beams themselves and there is one for every row of glass.

All metal work on the Paschall construction is made up in either natural iron, galvanized or painted finishes. This is all formed in a finished grid with the angle iron sidebars, for the expansion joint, made an integral part of the same. And with the metal work all preformed the specified amount of glass area must be given.

Each tile of glass rests on the flat steel cross bars on two sides, the other two sides are set under the head of the I bar, thus locking each into place. After the glass is dropped into its seat the cement is spread, being worked well down around the glass and the steel bars.

Concrete does not adhere to iron or steel if they have been finished with any kind of coating but this is of no disadvantage in the Paschall
in a solid mass of concrete and steel, it requires the most severe kind of an accident to break the tiles. With the edges of the tiles beveled, the cement finish is worked well up over the bevel, thus holding the Plastic Malleable coating in place. No chance for the expansion of the concrete and the glass to squeeze this out and thus leave an unprotected edge on the tile to be chipped by nails in heels; nor to open the seam and make the installation leaky.

**Easy To Install**

With the metal work supplied in a complete grid, ready to set in place, and the seat of each glass tile ready for simply slipping it into place, any experienced sidewalk man can, by following our blueprints, and with our simple directions, easily install the Paschall Sidewalk Lights. For the full description of our patented expansion joint that absolutely prevents leakage without the necessity of continued caulking, see page 15. By increasing the weight of the steel I bars, we can span any reasonable width without the use of light-obstructing supporting beams. The average weight, set in place, complete, is about 25 pounds per square foot.

Architects specifications and details of construction on page 7.

**Plastic Malleable Coating**

The chief fault of glass sidewalk construction has been the breaking of the glass due to the unequal expansion and contraction of the glass, metal and concrete. In the Paschall (as well as our other constructions) we have provided for this danger by protecting each glass tile with an expansion cushion to absorb the excess pressure of the concrete and thus save the glass. This cushion is made of our Plastic Malleable Coating and is found in all our glass.

By means of our patented form this cushion or coating is countersunk, so that when pressure is exerted by expansion the coating is not squeezed out. The joints are waterproof if properly caulked, and it should not be necessary to recaulk for many years. Locked, as the glass is,
For Skylights

In form and construction the PASCHALL SYSTEM of Skylight Installation is the same as the sidewalk lights. The only difference is that each glass tile has over two times the light area. This gives to the entire installation a much greater lighting area, but it would not be adaptable to the sidewalk on account of the difference in the possible loads.

With the bars set farther apart, the glass larger and the coating of concrete not so heavy, the entire weight of the skylight construction is much lighter than the sidewalk form. Thus we are able to span any reasonable distance without the use of any intermediate supporting beams. This construction is available for use in any type of skylight.

For the bottom of light courts in office buildings or stores; for lean-to roofs; for roofs of public buildings; for glass domes; for roof lights of all kinds, the PASCHALL is the ideal installation as it combines the greatest strength with the lightness in weight and the maximum of glass area, having the fewest supporting beams.

The metal grids can be supplied in natural iron, galvanized or painted finishes as desired. Spans as long as 10 feet can be installed so that the amount of supporting structure is materially less than in nearly every other form. This means a saving in structural expense as well as an increase in glass area.

The glass is protected in the same way as in the sidewalk, by means of the countersunk Plastic Malleable coating, against breakage by expansion pressure.
Strength Test

To settle definitely the much discussed and much mooted question of the strength of the various types of construction (and there have been many charges of "fixed" tests with special slabs, by different concerns) we employed Robt. W. Hunt & Co. Inspection and Testing Engineers of international reputation to test and report to us the load bearing strength of a stock slab of each of our different forms. Below will be found extracts from their report on the PASCHALL sidewalk installation.

"The following is a report of our 'Transverse Tests' on your Paschall Standard Interlocking Vault Light Construction and made with your glass No. 43-A."

Construction

"The specimens tested were 17½ inches wide by 54 inches, 78 inches and 102 inches long, respectively. In the 17½ inch width there were three rows of No. 43-A glass."

"The longitudinal reinforcement, partially imbedded in concrete, consisted of four I beams 1½ inches high with a web thickness of ½ inch and a width across the flanges of ½ inch. These I beams were spaced 4½ inches to 4½ inches center to center. The transverse reinforcement consisted of flat bars 1 inch by ½ inch, not imbedded, and carried between the adjacent glasses and directly underneath them, engaging shoulders on the same. They were spaced 4½ inches center to center."

Conduct of Tests

"The specimens were successfully placed on supports 8 feet, 6 feet and 4 feet, c. to c., respectively. The loads were applied on the ½ points of the spans and under increasing loads the deflections at the center of the span were measured. The observed loads and the deflections were carefully plotted."

For those who are interested we have prepared a copy of the complete report which may be had on request.
Specifications and Details

No. 43—Plain Lens, No. 44—3-Way Prism, No. 116—Single Pendant Prism. 4 inch square with 2 3/4 inch face. (Described on page 2)

SPECIFICATIONS—Sidewalk lights and floor lights as shown on plans shall be Paschall (Standard) Interlocking Steel Construction, with galvanized (natural or painted) frame. Glass shall be No._______, as manufactured by the American 3-Way Prism Company. Work shall be done according to their instructions (or by their skilled workmen). 3-Way Patented Expansion Joint to be installed between all panels at right angle to building, and filled with 3-Way Caulking Compound.

Skylight Glass No. 137—Plain Lens, No. 138—3-Way Prism. 7 inch square with 6 inch top. (Described on page 2)

SPECIFICATIONS—Skylights and roof lights as shown on plans shall be Paschall Steel Skylight Construction, with galvanized (natural or painted) frame. Glass shall be No._______, as manufactured by the American 3-Way Prism Company. Work shall be done according to their instructions (or by their skilled workmen). 3-Way Patented Expansion Joint to be installed between all panels at right angle to building, and filled with 3-Way Caulking Compound.
The 3-Way Simplex System

of Double Reinforced Preformed Concrete Slab Construction for Sidewalks and Skylights

SOLE LICENCEES FOR Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Wisconsin and Wyoming.

Simplex Sidewalk Light construction embodies all the advantages of the regular reinforced concrete type but omits all of its objectionable features.

In building the Simplex Slabs, the under half is made in our factory. This is of the best concrete, properly proportioned (one part Portland cement to two parts sharp sand), moulded around the lower half of steel I bars. Through the mass, piercing and tying together the steel I bars are twisted square rods ½ inch thick. Thus the lower half of the slab of reinforced concrete is complete when it leaves the factory. When on the job, this slab is put in position, the glass set in the openings and the top half of usual cement finish put on. Any good cement finisher can install the Simplex.

As in the Paschall, the head of the I bar locks the upper half of the concrete in place so that it rigidly and securely holds the glass in its place.

Because of the two layers of concrete, each reinforced by the same I bars, the strength of the slabs is increased without increasing the weight. The I bars (1½ inch) extend longitudinally through the slab so that the ends of the bars are on the bearings at each end when set in position, and, as in the Paschall construction, the strength of the bars is so
there probably is no reinforced concrete construction that gives as much light when installed as the Simplex.

The form of the glass tiles in the SIMPLEX is the same as for the Paschall, except that the sides are moulded with a special ridge to make a close joint with the cement. With a maximum of glass area, the SIMPLEX, preformed, leads all concrete types of construction as an effective daylighting installation.

Added to the fact that SIMPLEX is the most efficient as well as the easiest and simplest to install, is the fact that it is the most economical lighting system offered today. Strength, simplicity, effectiveness, safety, freedom from trouble and neatness all combine to make SIMPLEX the ideal installation for sidewalk lights.

Showing Effect of Sidewalk Light on Subway Underneath Platforms of Train Shed in New Michigan Central Depot, Detroit, Mich.
3-Way Simplex Construction for Skylights

Simplex Construction for skylights offers the same advantages in skylight construction that it does in sidewalk lights. But its greatest point is the fact that in no other concrete construction is there so large a glass surface to transmit the light. Because of the strength of the SIMPLEX the need of carrying beams is lessened and the lighting is correspondingly increased.

SIMPLEX is the one ideal roof for the train sheds of depots for, on account of the under layer of cement there is no exposed metal surface to be corroded with the gases from the locomotives. And its lightness and strength give the greatest lighting area.

Depot at Detroit, Mich., a large quantity of SIMPLEX sidewalk lights were installed.

For skylights the glass tiles are made six inches square on the face so that there will be as much lighting space as possible.

**REPORT OF STRENGTH TEST OF 3-WAY SIMPLEX SKYLIGHT CONSTRUCTION**

**SIMPLEX SKYLIGHT SLAB: 3' 5" x 6' 6 1/2" x 2 1/4"**
- **Bearing—2' 8" I Beams, flange 4".**
- **Span—6' 0" c. to c. bearings, 5' 8" clear span.**
- **Loading—Pig Lead.**
- **Area of slab loaded—3' 5" x 6' 0"—20.52 sq. ft.**

<table>
<thead>
<tr>
<th>Loading</th>
<th>Deflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increment</td>
<td>Total</td>
</tr>
<tr>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>2483</td>
<td>2483</td>
</tr>
<tr>
<td>2483</td>
<td>4966</td>
</tr>
<tr>
<td>2483</td>
<td>7449</td>
</tr>
<tr>
<td>1656</td>
<td>9105</td>
</tr>
</tbody>
</table>

Failure occurred—one glass cracked; four glasses chipped.

(Signed), GAUT AND CHASE, Engineers

The big Union Depot at Kansas City, Mo., is being equipped with about four acres of SIMPLEX skylights and sidewalk lights. On the Michigan Central Depot at Kansas City, Mo., is being equipped with about four acres of SIMPLEX skylights and sidewalk lights. On the Michigan Central...
3-Way Simplex Strength Test

We recently made two distinctly different tests of the strength of the Simplex sidewalk and skylight preformed slabs. The first by Gaut and Chase, Engineers, was planned to approximate, as closely as possible, real traffic conditions. The report shows that the sidewalk slab carried a distributed load of 1753 pounds to the square foot.

To confirm these figures and to satisfy ourselves that here was a construction that was unbreakable under any ordinary condition we commissioned Robert W. Hunt & Co. to make a strength test of the same types of SIMPLEX slabs with the hydraulic press.

Gentlemen:—Report of the "Transverse Tests" on specimens of your SIMPLEX Double Reinforced Concrete SIDEWALK Construction made with your glass No. 61.

CONSTRUCTION. The specimens tested were 15" wide by 54", 78" and 102" long, respectively. In the 15" width there were three rows of the No. 61 glass.

The longitudinal reinforcement, entirely embedded in concrete, consisted of four eye beams 1 1/2" high with a web thickness of approximately 3/4" and a width across the flange of 3/4". These eye beams were spaced 4 1/4" to 4 3/4" c. to c. Transverse reinforcement consisted of 2 3/8" twisted square bars spaced 4 1/2" c. to c. and carried through the web of longitudinal eye beams at a location 1 1/2" to 1 3/8" from top of slab.

CONDUCT OF TESTS. Specimens were successively placed on supports 8', 6' and 4' c. to c. The loads were applied on the 1/4 points of the spans and under increasing loads the deflections at the center of the spans were measured. The observed loads and deflections were carefully plotted.

SUMMARY or TESTS. The following is a summary of the deflections under calculated uniformly distributed loads.

<table>
<thead>
<tr>
<th>Slab No.</th>
<th>Span in Feet</th>
<th>Cal. Distr. Load, Lbs. per Square Foot</th>
<th>Deflections at Center of Span, Inches</th>
<th>Total Per sq.ft.</th>
<th>Total Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>61-6</td>
<td>4'</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>61-5</td>
<td>6'</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>61-4</td>
<td>8'</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Load of 28,650 Pounds of Lead Billets on 5 Foot Span, Supported at Ends Only

Gentlemen:—Simplex Slabs tested were AMERICAN 3-WAY PRISM COMPANY'S Standard SIMPLEX CONSTRUCTION. Tests were all conducted under conditions identical with those which prevail in actual service and with uniformly distributed loads.

Readings were taken with a level 2 in. by 2 in. wood standard, two scales being read after each load increment. One scale was graduated to thirty-second of an inch, the other to hundredths of a foot.

TESTS

SIMPLEX SIDEWALK SLAB: 3' 6" x 6' 6" x 2 3/4"

Bearing—8" I beams. Bearing surface, top flange 4".

Span—5' 0"—c. to c. bearings; 4' 8" clear span.

Area loaded—4' 8" x 3' 6" — 16.33 sq. ft.

<table>
<thead>
<tr>
<th>Increment</th>
<th>Total Per sq.ft.</th>
<th>Deflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910</td>
<td>116.9</td>
<td>1/16 0.0052</td>
</tr>
<tr>
<td>1910</td>
<td>233.8</td>
<td>1/8 0.0104</td>
</tr>
<tr>
<td>1910</td>
<td>350.7</td>
<td>7/32 0.0182</td>
</tr>
<tr>
<td>1910</td>
<td>467.6</td>
<td>9/32 0.0234</td>
</tr>
<tr>
<td>1910</td>
<td>584.5</td>
<td>5/16 0.0260</td>
</tr>
<tr>
<td>1910</td>
<td>701.4</td>
<td>13/32 0.0359</td>
</tr>
<tr>
<td>1910</td>
<td>818.3</td>
<td>17/32 0.0443</td>
</tr>
<tr>
<td>1910</td>
<td>935.2</td>
<td>21/32 0.0547</td>
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<tr>
<td>1910</td>
<td>1052.1</td>
<td>25/32 0.0651</td>
</tr>
<tr>
<td>1910</td>
<td>1169.0</td>
<td>7/8 0.0729</td>
</tr>
<tr>
<td>1910</td>
<td>1285.9</td>
<td>31/32 0.0807</td>
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<tr>
<td>1910</td>
<td>1402.8</td>
<td>1-1/16 0.0885</td>
</tr>
<tr>
<td>1910</td>
<td>1519.7</td>
<td>1-7/32 0.1016</td>
</tr>
<tr>
<td>1910</td>
<td>1636.6</td>
<td>1-3/8 0.1146</td>
</tr>
</tbody>
</table>

After fourteenth load was applied, deflection continued until total deflection of 2 inches was reached. Load was removed and slab returned to within 3/4 inch of original alignment, within ten minutes. Concrete on top surface slightly scaled, total area scaled about four square inches. Concrete on bottom side showed eight tension cracks through middle third of slab.

After load was removed all cracks closed as slab regained normal position.

(Signed), ROBERT W. HUNT & CO.

(Signed), GAUT AND CHASE, Engineers
Simplex Specifications

SPECIFICATIONS—Sidewalk lights and floor lights as shown in the plans shall be Simplex Double Reinforced Concrete Sidewalk Construction, of preformed slabs and glazed with No. glass, as manufactured by the American 3-Way Prism Company. Installations shall be made according to their instructions (or by their skilled workmen), and all space between panels equipped with 3-Way Patented Expansion Joints, and filled with 3-Way Caulking Compound.

SPECIFICATIONS—Skylights as shown in the plans shall be Simplex Double Reinforced Concrete Skylight Construction of preformed slabs and glazed with No. glass, as manufactured by the American 3-Way Prism Company. Installations shall be made according to their instructions (or by their skilled workmen), and all space between panels equipped with 3-Way Patented Expansion Joints, and filled with 3-Way Caulking Compound.
Reinforced Concrete Sidewalk Lights

To be able to meet all different conditions and to give our customers the best and most satisfactory form of illumination we maintain several gangs of expert and experienced sidewalk men who are able to install any of our constructions in accordance with the high standards of this company. We guarantee that all work done under our direction or by our men will be satisfactory in every way.

These men build our reinforced concrete work right on the job and every one of thousands of customers testify to the perfection of their work. Our reinforced concrete construction is the strongest and best proportioned of any type now made. Using 5/16 inch twisted square rods (where some others use 3/4 inch) and properly proportioning the glass area and the cement to get the greatest amount of illumination consistent with the greatest strength has made our construction the most specified by architects and the most ordered by owners. No other reinforced concrete sidewalk installation is so popular because none is so satisfactory.

Specify reinforced concrete sidewalk lights as installed by the American 3-Way Prism Company and you will secure the most effective and the best construction of this type.

Reinforced Concrete Slabs

For installations of small area or on work at too great a distance from source of supplies we recommend the use of our factory-made reinforced concrete slabs. We make these slabs complete, glazed and finished, ready to be set in place. Send us the blue print or the sketch of the opening to be filled and we will make up the slab of perfectly proportioned concrete, 1 3/8 inch thick and reinforced with 5/16 inch twisted rods run both ways between all rows of glass. For this we use any of the various styles of glass tiles as described on page 2 and shown by cuts, page 14. You can select and specify the one you want as determined by the use you want to make of your light.

If the opening to be filled requires more than one slab we supply the necessary T bars, cut to the proper length, for the supporting members. With the complete directions and the perfectly made and perfect fitting slabs we supply any ordinary workman can set the installation and caulk the joints; thus making a perfect job.

For figures on the strength of these reinforced concrete slabs, read the extracts from the engineers' reports as given on following page.
Strength Test

Chicago, February 5th, 1914.

AMERICAN 3-WAY PRISM CO.,
3646 South Ashland Avenue, Chicago.

Gentlemen: The following is a report of our "Tranverse Tests" on certain specimens of your Reinforced Concrete Slab Construction made with your glass No. 151.

The specimens were 17¼" wide by 54", 78" and 102" long, respectively. In the 17¼" width there were three rows of the No. 151 glass.

The longitudinal reinforcement consisted of six 8" twisted square bars, two at each edge, 2" c. to c. and two in the center between the rows of glass, 4 3/4" c. to c. The transverse reinforcement consisted of 16" twisted square bars spaced 4 3/4" c. to c. The longitudinal reinforcement was carried 1/8" from the bottom of the slab and the transverse reinforcement 3/8" from the bottom of the slab.

CONDUCT OF TESTS

The specimens were successively placed on supports 8', 6' and 4' c. to c. The loads were applied on the 1/4 points of the spans and under increasing loads the deflections at the center of the spans were measured. The observed loads and deflections were carefully plotted.

SUMMARY OF TESTS

Following is a summary of deflections under the calculated uniformly distributed loads.

<table>
<thead>
<tr>
<th>Slab No.</th>
<th>Span in Feet</th>
<th>Calc. Distr. Load, Lbs per Square Foot</th>
<th>Deflections at Center of Span, Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>151-3</td>
<td>4'</td>
<td>0</td>
<td>0</td>
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<tr>
<td>151-2</td>
<td>6'</td>
<td>50</td>
<td>0.05</td>
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<tr>
<td>151-1</td>
<td>8'</td>
<td>100</td>
<td>0.28</td>
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<td></td>
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<td>150</td>
<td>0.35</td>
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<tr>
<td></td>
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<td>200</td>
<td>0.6</td>
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<td>250</td>
<td>1.01</td>
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<td></td>
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<td>300</td>
<td>1.40</td>
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<td></td>
<td></td>
<td>700</td>
<td>8.3</td>
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<tr>
<td></td>
<td></td>
<td>750</td>
<td>10.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max. distr. load sustained</td>
<td>967</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Defl. under max. load</td>
<td>1.18</td>
</tr>
</tbody>
</table>

(Signed), ROBERT W. HUNT & Co.
3-Way Patented Expansion Joint

The big problem in sidewalk construction of all kinds is that of providing for the expansion of the mass and at the same time of having the joints water tight. Experiment after experiment has been tried and until the perfection of the 3-Way Expansion Joint every one failed in some vital way. One would be too open and require packing with oakum and compound, but in summer this would soften up and squeeze out, leaving a leaky seam; another would be too close and the expansion would crack either the glass or the cement, and thus start a leak.

The 3-Way patented Expansion Joint is the only one that is always weather proof and at the same time allows for the pressured due to expansion. Any sheet metal, preferably zinc or copper, is drawn in the form of a V with broad flanges. As shown, the 3-WAY joint is placed between sections of Paschall construction or Simplex preformed slabs at right angles to building, then the concrete is worked in, embedding the two flanges of the metal in the cement mass. This V-shaped gutter or trough is absolutely water tight and it closes and spreads as the walk expands and contracts.

These Expansion Joints should be placed at intervals of four feet or less and should be at right angles to the building. Any regular cement contractor should be able to set this work, following the directions we supply.

"Make expansion joint first, placing 3-WAY Expansion Joint in position where joint is desired, then insert wedge shaped wooden strip in the joint to the level of the finish surface, as in Fig. 15. Leave in position while cementing and allow to remain till the cement is sufficiently set so as to loosen up the strip without cracking the cement,—and after the cement is thoroughly set, remove and fill the opening with 3-WAY Caulking Compound, poured in hot."

Joints made in this way will remain water tight. Expansion joints in floors, roofs and skylights can all be successfully fitted with the 3-WAY patented Expansion Joint. We can furnish the 3-WAY Expansion Joint to those who wish to use it in this way at a moderate price.

Special Note: While we will supply this joint to those who want it, we must call attention to the fact that the 3-WAY Expansion Joint is fully covered with patents and any infringers will be prosecuted.

Caulking Compound

Our Caulking Compound is the result of years of study and experiment to make a compound that would be water-proof and at the same time would remain plastic and soft but not sticky. We can and do guarantee our 3-WAY Caulking Compound to fill all these demands.

Sold in 1 and 2-gallon cans and in bulk to those contractors who wish to make their work permanently satisfactory.
Coal Hole Covers, Vent and Sidewalk Doors

We make sidewalk doors to lie flush with the pavement, presenting no obstructing hinges or handles to be stumbled over. Every flush sidewalk door is provided with our patented gutter that takes care of all leakage of water. The improved countersunk hinges and underside locks are supplied only in our various constructions.

We supply any of our construction with covers for any openings desired, to be built in as part of the pavement or roof. For vents only, the cross bars in the Paschall frame can be left in, so that even with the vent open, entrance is impossible.

Our special book on sidewalk doors, vents, etc., will describe these different forms fully. Ask for Catalog No. 14-D.

3-Way Prisms for Transoms

Every architect, as well as those who are interested in the daylighting of store rooms, offices and work rooms should get our Catalog No. 14-P. This rather comprehensive booklet gives a full description of the most satisfactory ways of illuminating rooms that are dark and gloomy.

3-WAY Prism tiles set in the form of transoms or as canopies are shown to be the ideal form of lighting. Economical, effective, attractive and efficient, the 3-WAY prism lights are the most satisfactory method of illumination.

For factories, school-houses and other large surface installations, the sheet prism glass made by us gives very satisfactory results in the way of lighting dark spaces. The full benefit of the prism glass cannot be secured unless the proper and correct form of prism angle be used; and this is determined only by several conditions which are fully outlined in our book.

If you have a daylighting problem of any kind, write to us and let us give you the benefit of our years of experience in helping you solve it.

You are entitled to all the daylight that you can get and we will help you get your share, economically, if you will write us.