United States Patent [19]

Fowler

[11] **3,855,463**

[45] **Dec. 17, 1974**

[54] **TRANSILLUMINATED PYRAMIDAL-SHAPED SUPERSTRUCTURE**

[76] Inventor: **Joe W. Fowler,** B2 Box 39, Reidsville, N.C. 27320

[22] Filed: **Mar. 9, 1970**

[21] Appl. No.: **17,793**

[52] **U.S. Cl.** ..... **240/9 A,** D13/1 B, 52/28

[51] **Int. Cl.**..... **F21v 33/00,** F21v 5/02, E04d 13/03

[58] **Field of Search**..... 240/2 AD, 2 W, 9, 93, 2 R, 240/2 V, 92, 94; 52/28, 82, 104, 200; D13/1 B

[56] **References Cited**

UNITED STATES PATENTS

1,791,126	2/1931	Guth	240/93
2,052,755	9/1936	Duffy	52/28 X
2,059,332	11/1936	Friedman	240/2 R
3,017,712	1/1962	Sherron	240/2 R X
3,031,040	4/1962	Torbett	240/2 R
3,201,579	8/1965	Harper	240/9 X
D196,038	8/1963	Rodriguez	D13/1

OTHER PUBLICATIONS

Drive-In Restaurant, Nov., 1968, p. 26, TX-901-D7.

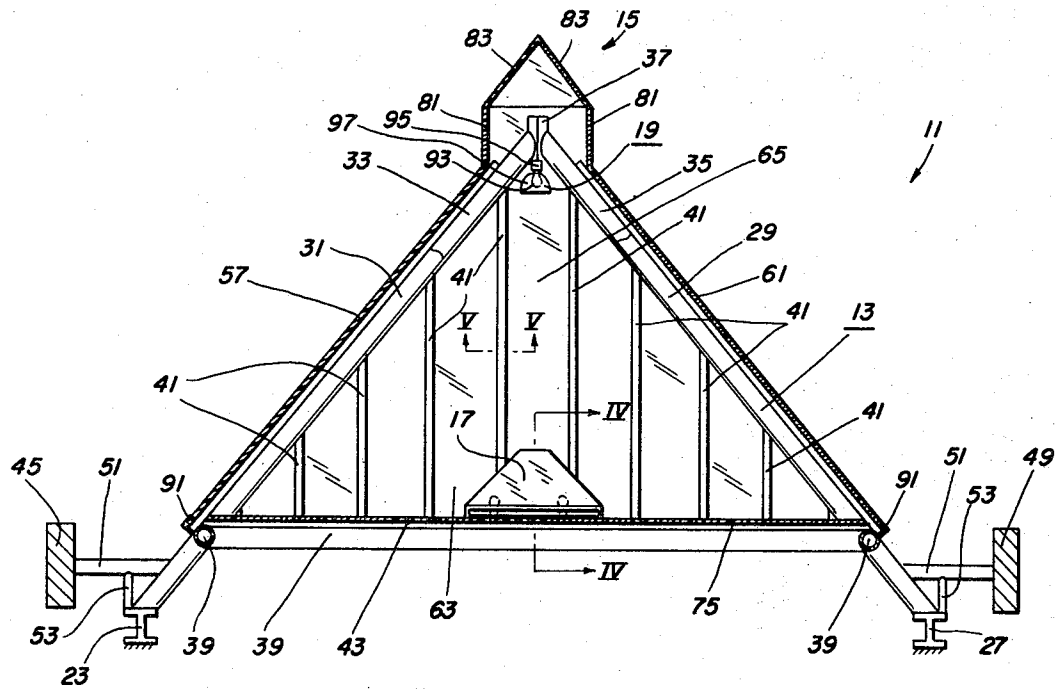
Drive-In & Carry-Out, May, 1969, p. 45, TX-90-1-D7.

Primary Examiner—Richard C. Queisser
Assistant Examiner—Frederick Shoon
Attorney, Agent, or Firm—John R. Walker, III

[57] **ABSTRACT**

A superstructure for a restaurant or the like comprising a pagoda having a pyramidal-shape which is completely enclosed with translucent panels and a quaint cupola. Housed in the pagoda are a pair of luminaries, one lower and one upper, which illuminate the exterior surfaces of the pagoda and the cupola in such a manner that they have a conspicuousness during the hours of darkness substantially equal to that which they have during the daylight hours. The illuminated surfaces of the pagoda and cupola are void of objectionable shadows and/or bright spots.

7 Claims, 6 Drawing Figures



PATENTED DEC 17 1974

3 855,463

SHEET 1 OF 2

FIG. 1

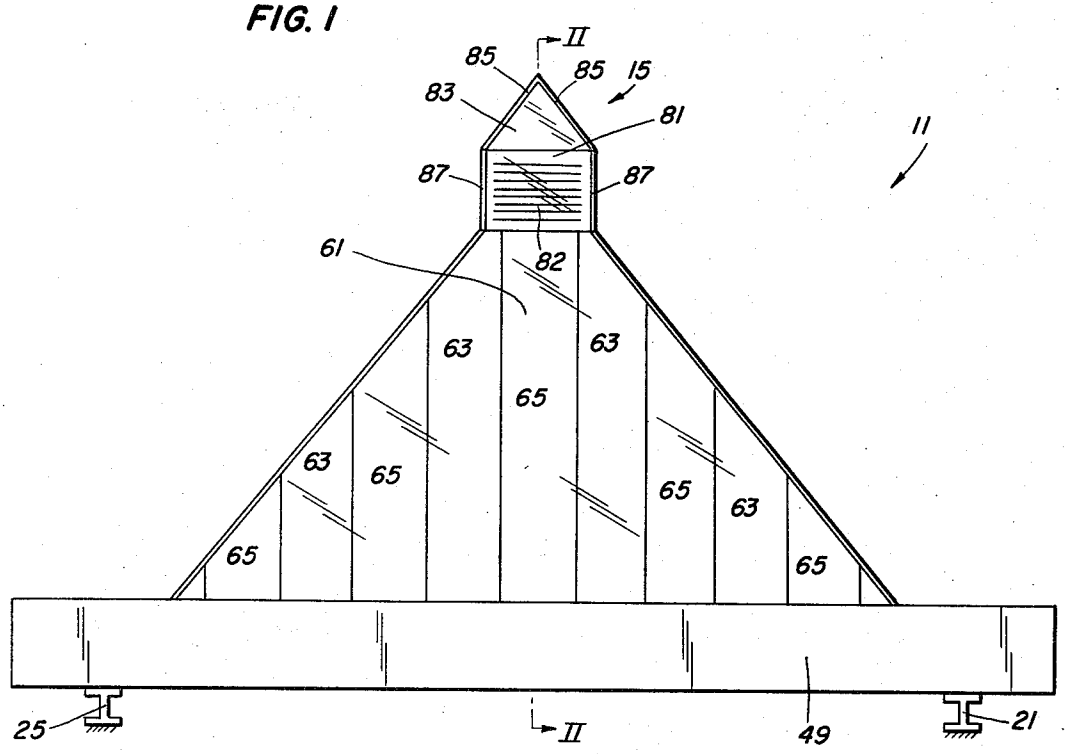
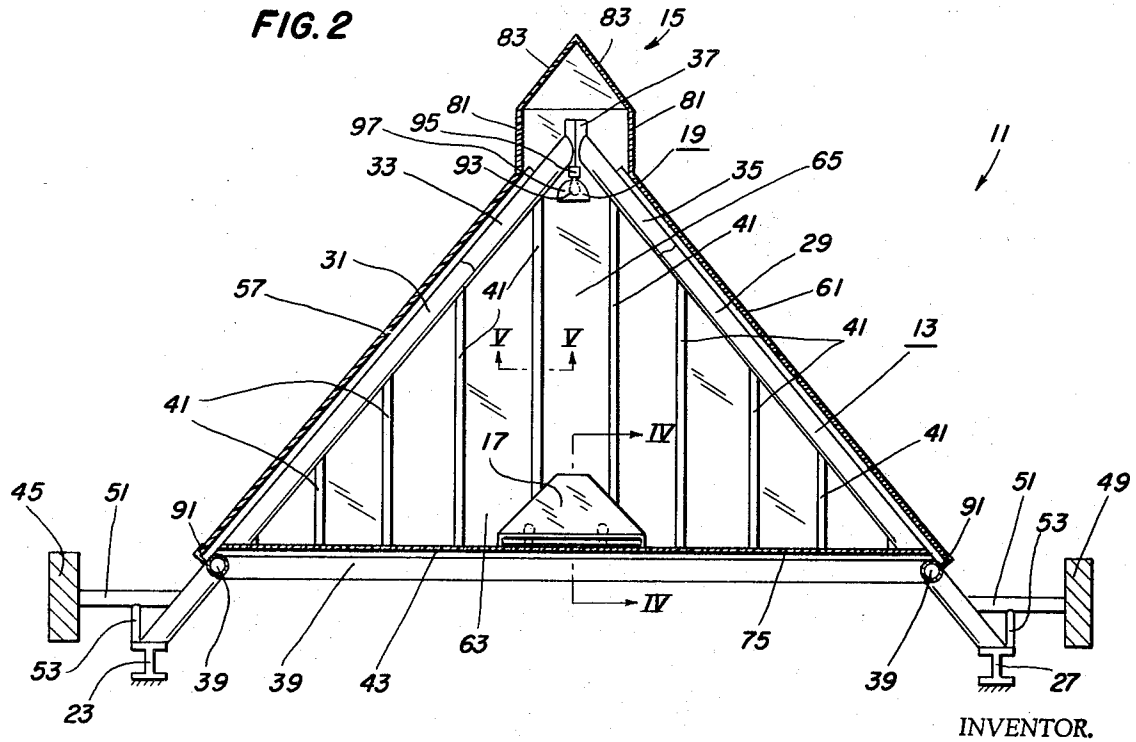


FIG. 2



INVENTOR.
JOE W. FOWLER
BY John R. Walker, III
Attorney

FIG. 3

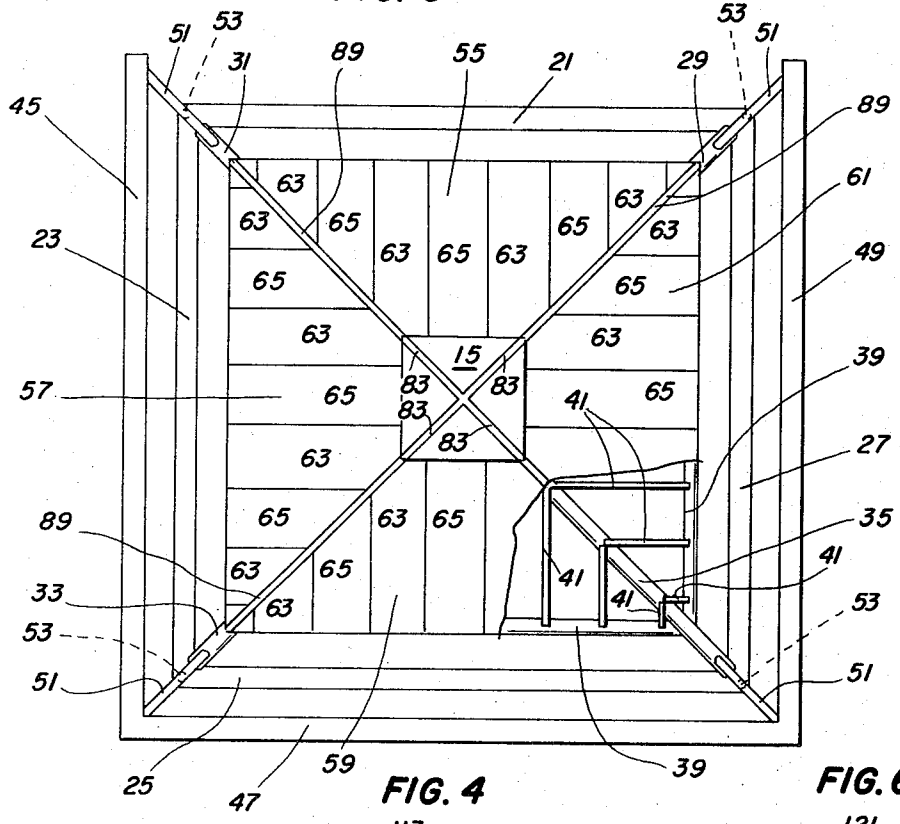


FIG. 4

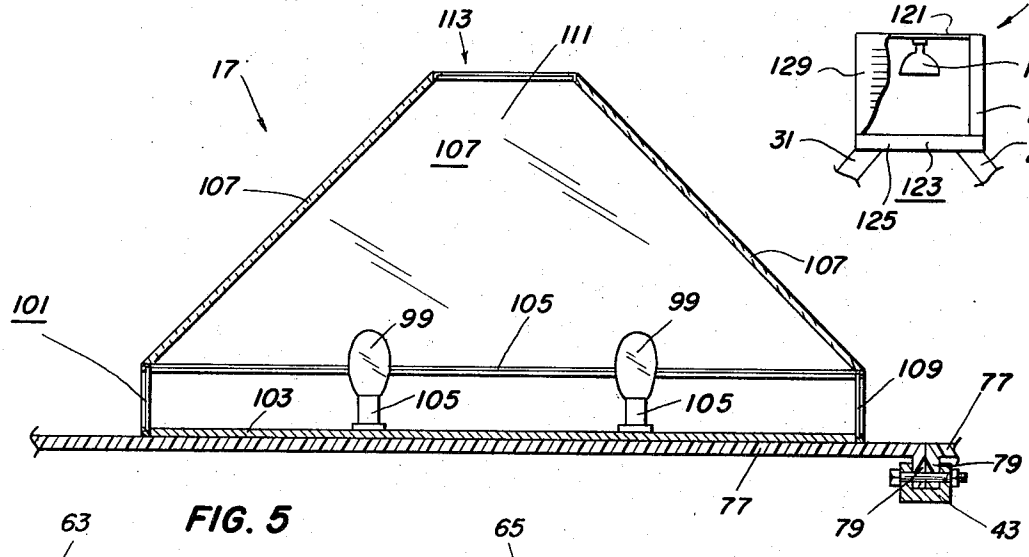
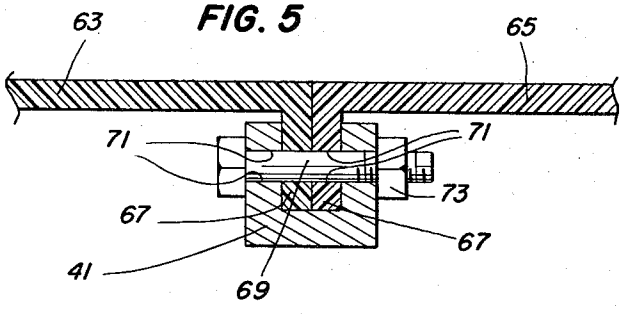


FIG. 6

FIG. 5



INVENTOR.
JOE W. FOWLER
BY John R. Walker, III
Attorney

TRANSILLUMINATED PYRAMIDAL-SHAPED SUPERSTRUCTURE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention pertains to the field of illumination of the superstructure of buildings, as restaurants or the like.

2. Description of the Prior Art

Pertinent patents of which the applicant has knowledge are:

a. the Natzel et al. U.S. Pat. No. 1,713,050 pertaining to an ornamental building having a frusto-conical lower structure and a frusto-conical upper portion. The lower portion is illuminated by exterior luminaires and the upper portion houses a luminaire illuminating a glass globe which is intended to resemble a scoop of ice cream resting on an ice cream cone formed of dough stock.

b. The Braastad U.S. Pat. No. 1,756,839 pertaining to an exhibition and advertisement stand constructed so as to be substantially totally transparent having transparent glass panels covering the wall and roof frame members. A unique feature of the Braastad apparatus is the structure utilized to make the supporting framework invisible, as shown in FIG. 3 of the drawings.

c. The Kessler U.S. Pat. No. 3,063,496 pertaining to a telephone booth having walls of translucent plastic sheet material. A typical interior luminaire emits light rays which are transmitted through the plastic panels and shows up any printing on the outside. The unique feature of the Kessler device appears to be the door assembly.

d. The Harper U.S. Pat. No. 3,201,579 pertaining to an illuminated building and sign having banks of lights so arranged that the roof and the light banks cooperate with each other and with the main frame of the structure to impart structural strength to the roof. An important feature of the invention is that the undersurface of the roof is adapted to constitute an illuminated sign receiving direct illumination from the light sources within the structure and readily visible and legible from the exterior of the structure.

e. The Russell U.S. Pat. No. 3,377,754 pertaining to an illuminated canopy structure used for lighting and sheltering service station pump islands. The primary object of this invention is the shelter construction and the use of translucent plastic sheet material for improving the illuminating capabilities of the canopy, as well as it appearance.

f. Also, there have been structures similar in outward appearance accomplished by utilizing typical sign panels with flourescent light sources in close proximity, e.g., 8 inches or 10 inches from the visible surfaces.

None of the above patents suggest or disclose the structure of the transilluminated pyramidal-shaped superstructure of the present invention.

SUMMARY OF THE INVENTION

The present invention is directed toward providing a pagoda superstructure for a building, i.e., a restaurant, service station, or the like, which is preferably gaily colored and conspicuously attractive. An important feature of this invention is that the pagoda has substantially equal conspicuousness during the hours of darkness as it does during the daylight hours. In one case of a prototype of the present invention, the surface of the pagoda produced an average brightness of 150 foot lamberts or was approximately 400 percent brighter than previous structures known and evaluated. Additionally, this is accomplished with approximately 50 percent of the electrical power used to illuminate other similar type structures. It will be understood that brightness levels may be varied without departing from the design concepts of the present invention.

The innovative features of the present invention which makes the above accomplishment possible are: First, the pagoda is completely enclosed with translucent panels, as for example, fiberglass panels of any of the well known filament reinforced plastics having a controlled quantity of pigmentation for affecting the optimum reflectance and transmission of light rays. Secondly, the interior of the pagoda houses two unique luminaires, one upper and one lower. The upper luminaire has a translucent convexo-concave diffuser-reflector extending downwardly completely covering the lamp so as to transmit light rays upwardly into the cupola and reflect a greater portion of light rays downwardly. The translucent diffuser-reflector obviates any bright spot when viewed from the exterior of the pagoda. The lower luminaire has a truncated pyramidal surface comprising four platelike members which act as prismatic lenses refracting the light from the plurality of lamps housed therein.

Each of the four platelike members is directed toward one of the four sides of the pagoda and the rays of light are refracted so as to distribute a uniform array of brilliance to the interior of the skin surface of the pagoda. The pagoda of the present invention is elevated a considerable distance above the flat weatherproof roof of the building, e.g., approximately 3 feet. The pagoda has a floor or false bottom comprising opaque panels which have a very high light ray reflectance, e.g., 85 percent plus. The truncated upper portion of the lower luminaire opens downwardly into a cavity housing the lamps. It should be understood that the lower luminaire has a truncated pyramidal upper portion and a boxlike lower portion. The lower portion has four substantially vertical corner members extending upwardly from the base of the luminaire terminating at the junction of the sloping members of the upper pyramidal structure. The four sides of the lower portion are open so that, when the lamps are operating, the heat generated therefrom rises and escapes through the truncated opening. The four open sides of the lower portion allows an inlet of air. Thus, a continuous flow of induced air, by a chimney effect, accomplishes a wiping action of the interior surfaces of the external skin. By virtue of this air movement, electrostatic particles and dirt do not accumulate on the internal surfaces nearly as readily as they would otherwise.

Since the structure of the present invention is completely enclosed with translucent panels, the entire internal surfaces act as a plenum for redirecting light rays striking a given surface. The angular relationship between the various surfaces redirects a reflected light ray from surface to surface until the attenuating light ray is dissipated. The fiberglass material for the sloped

surfaces and the cupola is a combination of reflecting and transmitting material, therefore, all internal surfaces in effect become an illumination source, e.g., a white translucent panel reflects approximately 50 percent of the light which strikes it allowing approximately 40 percent to be transmitted through it. Darker colors, i.e., red or the like, have a lower reflectance and transmission of light rays, e.g., approximately 20 percent transmission and 40 percent reflectance. This ratio of transmission and reflectance can be varied (within limits) by adjusting the pigmentation in the panels. The opaque false bottom, preferably white in color, has a very high reflectance. All metal structural members are painted with a high reflectance white paint for achieving maximum reflectance. Accordingly, the metal structural members do not project shadows on the external surface of the pagoda. The light rays are reflected circumjacent the structural members and the light rays which are transmitted through the panels create outside brightness.

The efficiency of the plenum for redirecting light rays is such that, in the event one luminaire becomes inoperative, the entire exterior surface of the pagoda would continue to have considerable brightness. Therefore, it is intended that the upper luminaire can be deleted from subject invention without departing from the spirit and scope of the invention. In the event, the lamps in the lower luminaire burn out or for some other reason become inoperative, the upper luminaire will continue to illuminate the entire pagoda with amazing brightness, however, the induced air flow system ceases to function, and the time period between internal maintenance, i.e., washing of the internal surfaces, is shortened considerably.

The advantages of constructing a structure in accordance with the specifications of the subject invention are:

a. Integrated structure for withstanding extremely high winds.

b. Low operating costs, i.e., illuminating the surface to approximately four times the brightness of the prior art structure by utilizing 50 percent of the electrical power.

c. The structure is elevated above the roof a nominal distance so that it is not a part of the roof but an appendage to the building. This allows for the normal heating and/or air conditioning ductwork and other hardware of this nature to be installed on the roof adjacent to the structure of the present invention.

d. Ease of maintenance, access into the enclosed structure of the present invention is gained readily facilitating routine maintenance. Washing of the interior surface with copious amounts of water, e.g., hosing, has no deteriorating effect.

e. Durability, the structure of the present invention is extremely durable, being designed to withstand flying missiles, i.e., small rocks or the like, and 25 lbs. per square foot windload (80 mph) is standard with a capability for greater structural strength for certain local requirements.

f. The pagoda is weathertight which keeps out moisture and/or foreign particles of dust, etc.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side elevation view of the pagoda of the present invention.

FIG. **2** is a sectional view taken as on the line II—II of FIG. **1.**

FIG. **3** is a plan view of the pagoda of the present invention with a portion of the covering broken away to reveal the inner structure.

FIG. **4** is an enlarged sectional view of the lower luminaire taken as on the line IV—IV of FIG. **2.**

FIG. **5** is a further enlarged sectional view taken as on the line V—V of FIG. **2.**

FIG. **6** is a fragmentary side elevational view of a modified embodiment of the cupola, with a portion broken away for purposes of illustration.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The pagoda **11** of the present invention includes an integrated frame having a pyramidal shape and a quaint cupola **15.** The pagoda **11** also includes a pair of unique luminaires, one lower **17** and one upper **19,** housed in the interior of the frame **13.**

From FIGS. **1** and **2** of the drawings, it may be seen that the pagoda **11** is supported by four I-beam girders **21, 23, 25, 27** which substantially form the shape of a square and are securely attached, as by welding or the like, one to the other at the corners thereof and to the steel structure of the building. The integrated frame **13** comprises four elongated structural members **29, 31, 33, 35,** each extending upwardly, from a corner of the just-mentioned square formed by the girders **21,23,25,27,** and inwardly converging at a vertically disposed common center square tubular member **37** and four horizontally disposed supporting members **39** arranged so as to form a square the dimensions of which are considerably smaller than the square formed by the girders **21,23,25,27.** The members **29,31,33,35** are each secured, as by welding or the like at the one end thereof, to a respective corner of the just mentioned square formed by the girders **21,23,25,27.** The upper ends of the members **29,31,33,35** are each secured, as by welding or the like, to a respective face portion of the common center square member **37.** Each horizontal member **39** is straddled by an adjacent pair of the members **29,31,33,35** and each horizontal member **39** is securely attached, as by welding or the like, at each end thereof to the related straddling pair of steel members **29,31,33,35,** as best viewed in FIGS. **2** and **3.**

The integrated frame **13** also includes a plurality of panel support channels **41,** as best viewed in FIGS. **2** and **3.** The channels **41** are respectively securely attached, as with bolts or the like, at the lower ends thereof to the support member **39** and slope upwardly terminating at the junction of the related member **29, 31,33,** or **35** where they are securely attached thereto, as with bolts or the like. Additional panel support channels **43,** being horizontally disposed, extend between two parallel support members **39** and are securely attached at each end thereto as with bolts or the like, as best viewed in FIGS. **2** and **4.**

Perimeter fascia illuminated signs **45,47,49** preferably are positioned at a suitable height (FIG. **1**) to obscure the lower portions of the frame **13.** The signs **43,45,47** are suspended from extension members **51** which extend horizontally outwardly in the same direction, as viewed from above, as the members **29,31,33,35** and are securely attached thereto as by welding or the like. It should be understood that fascia

signs **45,47,49** may be replaced with any suitable structure other than signs to obscure the lower portion of the frame **13** when desired. Each extension member **51** has a vertical support member **53** comprising a short section of tubular steel vertically disposed between the extension member **51** and the appropriate corner junction of the girders **21,23,25,27** and is fixedly secured thereto as by welding or the like. It should be understood that the frame **13** includes typical suitable support structure (not shown) to integrally secure the frame (not shown) of the cupola **15.**

The four sloping sides **55,57,59,61** of the pagoda **11** are covered with translucent panels, as fiberglass or the like, preferably having alternating colors, e.g., red panels **63** adjacent white panels **65,** creating a gaily striped conspicuous effect. The panels **63,65** have a portion of the outer edges adjacent the longitudinal margins thereof turned down substantially 90° forming a joining flange **67** as best viewed in FIG. **5.** A bolt **69** passes through a suitably aligned bolt hole **71** in the channel **41** and the flanges **67** which is secured by a nut **73** to hold the panels **63,65** securely in place. It should be understood that a plurality of bolts and nuts **69,73** are evenly spaced along the channels **41** so as to adequately secure the panels **63,65** in place and by a gutter effect form a water shedding joint between the adjacent flanges **67.**

A false floor **75** of the pagoda **11** is formed by a plurality of opaque panels **77** (preferably white in color) secured to the channels **43.** It will be understood that floor **75** may be, if desired formed of an opaque highly reflective material, as for example, aluminum or the like. The panels **77** have flanges **79** identical to the flanges **67** on the panels **63,65.** The panels **77** are secured to the channels **43** in the same manner as was just described for securing the panels **63,65** to the channels **41.**

The cupola **15** has four vertical walls **81** enclosing the apex of the frame **13** and a pyramidal upper portion **83.** The four walls **81** of the cupola **15** comprise translucent panels, as fiberglass or the like, preferably white in color, having simulated horizontal louvers **82** thereon. The roof **83** of the cupola **15** is enclosed with translucent panels, as fiberglass or the like, preferably red in color. The junction of the panels forming the roof **83** of the cupola **15** have an overlapping aluminum or the like cap strip **85** (FIG. **1**) securely attached, by any suitable means for making a weathertight joint. The four corners of the walls **81** of the cupola **15** have a cap strip **87** (FIG. **1**) attached in like manner and for the same purpose. The uppermost edges of the panels **63,65** abut each other and an overlapping aluminum or the like cap strip **89** (FIG. **3**) is attached in like manner as are cap strips **85, 87** so as to make a weathertight seal over the abutting ends. The lower ends of the panels **63,65** have a rain flashing member **91** (FIG. **2**) suitably attached to the horizontal supporting member **39.**

The upper luminaire **19** is suspended from the common center member **37** and is removably secured thereto in any well known manner. The luminaire **19** comprises a lamp **93,** e.g., a short arc discharge or high intensity discharge type lamp of suitable wattage, as for example — 1,075 watts, a standard lamp socket **95,** and a convexo-concave diffuser-reflector **97.** The diffuser-reflector **97,** formed from translucent material, as glass or the like and preferably white in color, reflects downwardly approximately 50 percent of the light rays and transmits approximately 40 percent upwardly for illuminating the cupola **15.** The diffuser-reflector **97,** having a shape substantially as depicted in FIG. **2,** extends downwardly below the lamp **93,** thus obviating a bright spot on the exterior of the pagoda **11.**

The lower luminaire **17,** having a plurality of lamps **99** (preferably four in number), e.g., short arc discharge or high intensity discharge type lamp, of suitable wattage, as for example — 1,075 watts, comprises a frame **101,** a base plate **103,** formed from sheet steel or the like, having a plurality of upstanding standard lamp sockets **105** attached thereto in any well known manner and a plurality of platelike members **107** (preferably four in number) which act as prismatic lenses and which refract the light rays from the lamps **99.** From FIG. **4** of the drawings that it may be seen that the frame **101** of the luminaire **19** has a boxlike lower portion **109** and a truncated pyramidal upper portion **111.** The platelike members **107** enclose the truncated pyramidal upper portion only. This leaves an opening **113** uppermost of the luminaire **17.** The four sides of the boxlike lower portion of the frame **109** are likewise open. When the lamps **99** are operating, the heat generated therefrom rises and escapes from the luminaire **17** through the opening **113,** thus, creating an induced air flow system or chimney effect, i.e., cooler air, having more density, settles to the false floor **75** and is drawn into the openings subjacent the platelike members **107** and is heated by the lamps **99** and escapes from the luminaire **17** through the opening **113.**

The induced air flow system has a wiping effect across the interior surfaces of the cupola **15** and the panels **63,65,77,** minimizing particles, i.e, dust or the like, from accumulating on the surfaces. This feature greatly reduces the maintenance workload, i.e., washing of the internal surfaces of the panels **63,65,77** and the interior of the cupola **15.**

The translucent material chosen for the white panels **65** reflects approximately 50 percent of the light rays that strike it and approximately 40 percent of the light rays are transmitted through the material. The translucent material selected for the red panels **63** reflects approximately 40 percent of the light rays that strike it and approximately 20 percent of the light rays are transmitted through the material. The opaque material such as fiberglass, aluminum, or the like, selected for the false floor **75** has a very high reflectance of the light rays, i.e., 85 percent plus, and no transmission of the light rays. The frame **13** of the pagoda **11** and the frame **101** and base plate **103** of the luminaire **17** are finished with a very high reflecting paint (preferably white in color). These factors working together cause the entire internal surfaces, **63, 65,77,81,83** to act as a plenum for redirecting light rays. The light rays which are reflected bounce about the interior from surface to surface, ever decreasing in intensity as they travel. Each time a light ray strikes a incident surface, i.e., the sloping sides **55,57,59,61** of the pagoda **11** and the cupola **15,** a portion is transmitted through the translucent material. The light rays which are transmitted through the translucent material creates outside brightness which becomes conspicuously visible when viewed from outside the pagoda **11.** The light rays which are reflected are directed about in such a manner that substantially every square inch of the exterior of the pagoda **11,** excluding edge trims, has a uniform brightness. Stated an-

other way, all internal surfaces, in effect, become an illumination source. Washing out of shadows or darkness from the frames **13, 103** of the pagoda **11** and the luminaire **17** respectively is accomplished by virtue of the internal reflective plenum, as just described.

The pagoda **11** also includes an access opening (not shown) in the false bottom **75** for gaining access to accomplish internal maintenance, i.e., changing lamps **93,99** and/or washing the interior surface of the panels **63,65,77,81,83.** The induced air flow system, above described, greatly reduces the dust accumulation; however, occasional cleaning of the interior is recommended so as to maintain optimum brightness. The interior of the pagoda **11** may be washed with copious amounts of water, e.g., garden hose or any other well known method, without any adverse effects.

It should be understood that the efficiency of the pagoda **11** is such that the upper luminaire **19** may be deleted without departing from the spirit and scope of the invention. In the event the lower luminaire **17** becomes inoperative, the upper luminaire **19** would continue to illuminate substantially every square inch of the exterior surface of the pagoda **11** with an amazing brilliance.

The two luminaires **17,19** illuminate the pagoda **11** of the present invention to approximately four times the brightness as that observed and evaluated of structures, similar in outward appearance, by utilizing 50 percent of the electrical power. Therefore, the footlambert loss when either of the two luminaires **17,19** are inoperative does not have a significant effect.

While this invention has been disclosed by referring to colors, e.g., red panels **63** and white panels **65,** it should be understood that this invention encompasses all white or other colors and other combinations of colors.

FIG. **6** shows a modified cupola **119** and related structure which may be utilized, if desired, in place of cupola **15** and its arrangement. Cupola **119** is preferably square in shape with a flat top **121** adapted to receive a sign thereon, if desired. Also, instead of the member **37** of cupola **15,** there is an open square framework construction **123** to which the upper ends of members **29,31,33,35** are attached. Framework **123** is preferably formed from four elongated members **125** (only one shown) which are arranged to form a square with the adjacent ends of the members **125** being fixedly joined as by welding or the like. Additionally, cupola **119** includes four upstanding members **127** (only one shown) fixedly attached at the corners of framework **123** and which support top **121.** The panels **129** of cupola **119** are preferably similar to panels **81** of cupola **15.** Luminaire **131** of cupola **119** is similar to luminaire **19** except that luminaire **131** is mounted on the underside of top **121** up inside of cupola **119** rather than below the cupola.

Although the invention has been described and illustrated with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes and modifications may be made therein which are within the full intended scope of this invention.

I claim:

1. A transilluminated superstructure for a building comprising means providing an upwardly facing reflective surface, open frame means disposed above said reflective surface, a plurality of translucent panels, means supporting said panels from said frame means with said panels establishing a large enclosure over said reflective surface, said enclosure having a plurality of sloping sides with the interior surfaces thereof defining plenum means for redirecting a portion of the light striking said interior surfaces and passing the remaining portion through said sides, and high intensity discharge type light source means mounted in said enclosure centrally of said reflective surface for providing light to said plenum means; said panels including flanges along their opposite side edges, and said panels being arranged side-by-side with a said flange on one panel being adjacent a said flange on an adjacent panel, and said means supporting said panels including means holding pairs of said adjacent flanges together.

2. A transilluminated superstructure for a building comprising means providing an upwardly facing reflective surface, open frame means disposed above said reflective surface, a plurality of translucent panels, means supporting said panels from said frame means with said panels establishing a large enclosure over said reflective surface, said enclosure having a plurality of sloping sides with the interior surfaces thereof defining plenum means for redirecting a portion of the light striking said interior surfaces and passing the remaining portion through said sides, and high intensity discharge type light source means mounted in said enclosure centrally of said reflective surface for providing light to said plenum means, including a plurality of plate-like prismatic means interposed between said light source means and said plenum means for refracting the light generally towards said interior surfaces of said plenum means; including frame means supporting said prismatic means with the lower edges thereof spaced above said reflective surface to establish a lower opening for cooler air to enter to be heated by said light source means and with the upper edges thereof being spaced apart to establish an upper opening for the heated air to leave so that a circulation of air is provided.

3. A transilluminated superstructure for a building comprising means providing an upwardly facing reflective surface, open frame means disposed above said reflective surface, a plurality of translucent panels, means supporting said panels from said frame means with said panels establishing a large enclosure over said reflective surface with portions of said enclosure being substantially spaced above said reflective surface, said enclosure having a plurality of sloping sides with the interior surfaces thereof defining plenum means for redirecting a portion of the light striking said interior surfaces and passing the remaining portion through said sides, high intensity discharge type light source means mounted in said enclosure centrally of said reflective surface in substantial spaced relationship relative to said enclosure and substantially closer to said reflective surface than to said enclosure for providing light to said plenum means, a cupola disposed at the top of said superstructure having translucent walls and opening downwardly into the interior of said enclosure, an upper luminaire means including a high intensity discharge lamp located in the upper part of said enclosure, and diffuser-reflector means around an upper portion of said lamp for directing a portion of the light from said lamp into said cupola and a portion into said enclosure.

4. A transilluminated superstructure for a building comprising a floor having a high light ray reflectance, means for mounting said floor in spaced relationship on

top of said building, open frame means converging upwardly from adjacent the outer edges of said floor, a plurality of translucent panels, means supporting said panels from said frame means with said panels establishing a large enclosure over said floor, said enclosure having a plurality of sloping sides with the interior surfaces thereof defining plenum means for redirecting a portion of the light striking said interior surfaces and passing the remaining portion through said sides, said panels including flanges along their opposite side edges and being arranged side-by-side with a said flange on one panel being adjacent a said flange on an adjacent panel, said means supporting said panels including means holding adjacent pairs of said flanges together, a group of upstanding high intensity vapor lamps mounted in said enclosure centrally of said reflective surface for providing light to said plenum means.

5. The superstructure of claim **4** in which said panels are in two groups with one of said groups having greater light transmitting characteristics than the other of said groups, and with said panels in said one group being alternated with said panels in said other group.

6. The superstructure of claim **5** in which is included a plurality of plate-like prismatic means interposed between said light source means and said plenum means for refracting the light generally towards said interior surfaces of said plenum means and in which is included frame means supporting said prismatic means with the lower edges thereof spaced above said reflective surface to establish a lower opening for cooler air to enter to be heated by said light source means and with the upper edges thereof being spaced apart to establish an upper opening for the heated air to leave so that a circulation of air is provided.

7. A transilluminated superstructure for a building comprising means providing an upwardly facing reflective surface, open frame means disposed above said reflective surface, a plurality of translucent panels, means supporting said panels from said frame means with said panels establishing a large enclosure over said reflective surface, said enclosure having a plurality of sloping sides with the interior surfaces thereof defining plenum means for redirecting a portion of the light striking said interior surfaces and passing the remaining portion through said sides, high intensity discharge type light source means mounted in said enclosure centrally of said reflective surface for providing light to said plenum means, said panels including flanges along their opposite side edges, said panels being arranged with a flange on one panel being adjacent a said flange on an adjacent panel, and said means supporting said panel including means holding pairs of said adjacent flanges together.

* * * * *