

Since 1955  
**Kalwall**<sup>®</sup>

*Translucent  
Wall and Skyroof  
Systems*



Kalwall<sup>®</sup>, developed and manufactured in the U.S.A. for over fifty years, is a highly insulating, diffuse-light-transmitting composite. A matrix of glass prisms inherent in Kalwall absorbs external light levels and redistributes an interior Museum-quality Daylighting<sup>™</sup> that virtually eliminates glare, hot spots and shadows. Introducing natural daylight into any space is beneficial to health, productivity and general well-being.

able building component because of the way it is manufactured and its material composition. It reduces both the environmental impact of the building process and the building's energy consumption. Importantly, it makes a substantial contribution to providing a safer and healthier indoor climate.

**No** other fenestration or system matches the performance of Kalwall.

### Powerful Advantages

- **Maximum Environmental Benefits**
- **Proven Structural Integrity**
- **Demanding Code Compliance**
- **Design and Aesthetic Flexibility**
- **System Reliability and Integrity... for over 50 years!**

Kalwall's unique construction reduces solar gain while at the same time maximizing thermal insulation with resultant cost and environmental benefits.

Kalwall is rated a green and sustain-



*Shin'enKan Pavilion for Japanese Art, Los Angeles, CA  
 Bruce Goff, Designer; Bart Prince, Architect*



*Blackfoot Crossing Historical Park, Alberta, Canada  
 Goodfellow Architecture Ltd.*



*Mona Shores High School, Mona Shores, MI  
 URS Greiner, Architects*



*Farm Bureau Credit Union, Goshen, IN; Leedy/Cripe Architects  
 DesignBuilder, DJ Construction Co., Inc.; Photo by Michael Dailey, Dailey Photo*

## Sustainable... LEED<sup>®</sup> Contributor

*Cover photo: Walla Walla Community College, William A. Grant Water & Environmental Center, Walla Walla, WA; ALSA Architects; Photo ©Explosive Illusions.com Lower left: Academy of Information Technology and Engineering at Rippowam Campus, Stamford, CT; Fuller and D'Angelo, P.C. Architects and Planners Lower right: Blackburn College, Lancashire, UK; DLA Architecture*

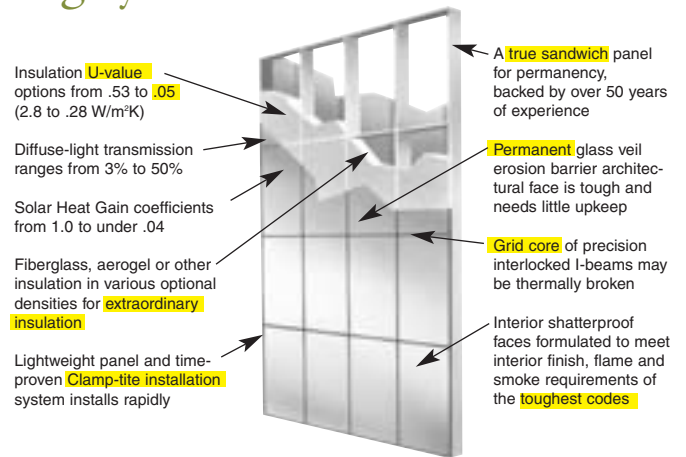
# The most highly insulating daylighting system in the world!

## What Kalwall is...

The primary element of the Kalwall System is a flat or curved, structural composite sandwich panel formed by permanently bonding specially formulated, fiberglass-reinforced translucent faces to a grid core constructed of interlocked, structural aluminum/composite, thermally broken I-beams.

The natural thermal properties of the sandwich panel can deliver increased energy performance by the inclusion of translucent fiberglass "batts" or aerogel during the manufacturing process and by specifying a fully thermally broken grid core. U-value options range from .29 to .05 (1.57 to .28 W/m<sup>2</sup>K) by NFRC for the 2<sup>3</sup>/<sub>4</sub>" (70 mm) thick panels and .15 or .08 (.83/.45 W/m<sup>2</sup>K) for 4" (100 mm) thick panels.

Kalwall panels are installed with the efficient, proven Clamp-tite™ aluminum system.



Far Hills Country Day School, Far Hills, NJ  
Butler Rogers Basket Architects; Peter Brown, Woodruff Brown Photography



Milwaukee Zoo Primate House, Milwaukee, WI  
Jones & Jones Architects

### • Superior Load Capacity

When the wind starts to howl or rain and snow start to accumulate... or if someone walks across a skylight or skyroof, enormous loads push delicate poly-plastic panels far beyond their limit. Warping, buckling and collapsing result, followed by extensive interior damage and even bodily harm. Kalwall's composite panel delivers miraculous performance which can stand up to hurricane-force winds and other loads with ease.



This is NOT possible with competitive systems!

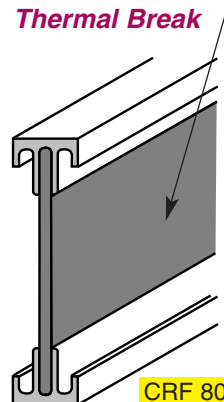
### • Weathering/Color Change:

Kalwall's exterior face is made with innovative super-weathering and colorfast resins the full thickness... not a low-grade substrate overlaid with thin plastic film or gel to simulate weatherability. All standard exterior faces include a permanent glass veil erosion barrier to prevent "fiber bloom"!

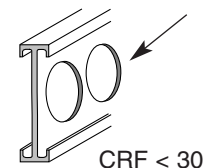
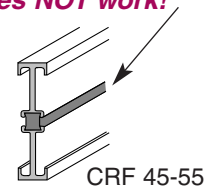
### • Kalwall Structural Thermal Break Composite

- 2<sup>5</sup>/<sub>8</sub>" (68 mm) I-beam • 1<sup>3</sup>/<sub>4</sub>" (44 mm) Non-conductive break
- 4" (100 mm) I-beam • 3" (76 mm) Non-conductive break
- Stronger than aluminum • Passes fire testing to 1200°F
- Superior insulation in panels — U-values as low as .05 (.30 W/m<sup>2</sup>K)
- Stops condensation — CRF 80+

#### Kalwall's Thermal Break



#### Competing technology does NOT work!



## 8 Daylighting Systems... Endless Possibilities



*SUNY Athletic & Wellness Center, New Paltz, NY; RMJM Hillier, Architect*



*Washington County Library, R.H. Stafford Branch,  
Woodbury, MN; ESG Architects, Inc.  
Don Wong Photo, Inc.*



*Washoe Medical Center, Reno, NV; HRD, Architect*

# • Walls • Curtainwall • Window Replacement



BMW Wolverhampton, West Midlands, UK  
MDG Architects; Photo by Daniel Hopkins

- Rapidly and economically enclose space – totally pre-finished when in place.
- Epitomizes the original Kalwall translucent sandwich panel concept.
- Controlled, natural daylight combined with many thermal and solar options.
- May be either flat or curved sandwich panels.
- Structural sandwich panels up to 5' x 20' (1500 mm x 6000 mm), 2 3/4" (70 mm) or 4" (100 mm) thick are secured to building with simple, Clamp-tite™ aluminum extrusions. System seals panel/panel and building, allowing for expansion/contraction and proper weepage to channel any moisture to building exterior.

## Wall Systems



X2 Warehouse, Heathrow Airport, UK; Cornish Architects  
Photo by Chris Mikami



Northumbria University, Newcastle, UK  
Atkins Design Studio, Architect

- Factory-assembled 2 3/4" (70 mm) sandwich panels, operating/fixed windows, louvers, even opaque panels.
- Provide rapid installation and permanent weather seal, unlike most stick-built, "frame and glaze" components which are all field-assembled.
- Kalwall prefabricated Curtainwall Systems, like our Panel Wall Systems, are totally pre-finished inside and out.
- Delivered to the job site in large preassembled units up to 5' x 35' (1500 mm x 10700 mm) and larger, depending upon project details, handling and shipping constraints.

## Curtainwall Systems



Central Library – University of Southern Maine, Portland, ME  
JSA, Inc., Architects



Greenwood Elementary School, Glen Allen, VA  
BCWH Architects; Chris Cunningham Photography

- Kalwall heavy-duty Window Replacement Systems – like our prefabricated Curtainwall Systems – are factory-assembled into easily managed building units.
- Kalwall provides optimum performance-controlled daylighting and still allows for fulfillment of vision/ventilation requirements.
- Vandal, graffiti, and impact resistance add up to minimal maintenance expenses with Kalwall.
- Eliminates the need for costly blinds, shades or light shelves!

## Replacement Window Systems



Beach Park Elementary School  
Beach Park, IL

# 8 Daylighting Systems... Endless Possibilities

## Standard Skylights



East Columbia Library  
Columbia, MD  
Grimm & Parker, PC, Architects

- 2¾" (70 mm) and 4" (100 mm) thick flat Skylights up to 5' x 20' (1524 mm x 6096 mm).
- Pyramids from 4' (1220 mm) square up to 20' (6096 mm) square, 3 slopes.
- Geo-Roof® units in standard-sized units from 8' to 24' diameter (2440 mm to 7315 mm), 15° slope.
- Pyramids and Geo-Roofs available knocked down or prefabricated.
- These skylights are standardized for rapid fabrication and delivery.



Savannah High School, Savannah, GA  
Hussey Gay Bell & DeYoung Architects

## Pre-engineered Skylight Systems



First Bank of Cherry Creek  
Denver, CO  
Davis Partnership, Architects

- Centerline self-supporting ridges with 20°, 27°, 33°, 45°, slope to 20' (6096 mm) span.
- Kalcurve™ 180°, Low-Profile 90° in 1' (300 mm) curb width increments: 3' (914 mm) to 24' (7315 mm).
- Lightweight – less than 3 lbs. per square foot (145 Pa/m²) means sub-structure may be minimized. Only thrust-bearing curbs designed to accommodate local live, snow and wind load designs are required.



John F. Nuner Elementary School, South Bend, IN  
Hebard & Hebard Architects; hilliardphoto.com, Photography

## Custom Skyroof™ Systems



The David Geffen Foundation  
Building, Beverly Hills, CA  
Gwathmey Siegel & Associates  
Architects; Tom Bonner, Photography

- Sandwich Panel Systems over sub-structure designed and installed by others.
- Flat, curved or combination for design versatility and consistent with all Kalwall Systems.
- Easy, fast installation, coupled with large-sized panels to eliminate troublesome joints.



Roosevelt Elementary School, Elkhart, IN  
Fanning Howey Associates, Inc. Architects; Bill Lempke, Photography

# • Skylights • Walkways • Structures



Pfizer Global Research & Development, New London, CT

- Combinations of sandwich panels, glass and framing components.
- Standard modular walkways.

## Walkways & Canopies

### NEW!

- Fully pre-engineered canopies and walkways, including aluminum structure, are now available!



Yahoo Headquarters  
Sunnyvale, CA  
RMW Architects



Yankee Stadium, Bronx, NY; HOK Sport

- Taking Kalwall sandwich panel technology to another dimension... the marriage of aluminum box beams and Kalwall panels into a monolithic, structural space enclosure.
- Variety of designs, unequaled by any other daylighting system.
- Design control, fabrication, delivery and complete installation for the ultimate in single-source responsibility!
- Installations completed in weeks – not months – due to component standardizations and CAD technology.
- Complete buildings, including Pool Enclosures, featuring non-corrosion and moisture resistance built-in.
- Thermal break technology for the ultimate condensation control.

## Structures & Large Systems



Academy of Information Technology and Engineering at Rippowam Campus, Stamford, CT  
Fuller and D'Angelo, P.C.  
Architects and Planners

## Kalwall<sup>®</sup> Structures Unlimited

Kalwall, with strategic partner Structures Unlimited, Inc., offers a single-source solution to self-supporting systems with clearspans over 150 feet. Pre-engineered, custom-fabricated aluminum box beam structures are combined with Kalwall panels to create a total composite Skyroof™ System or even an entire building.

# Wall/Panel-Unit Wall System Details

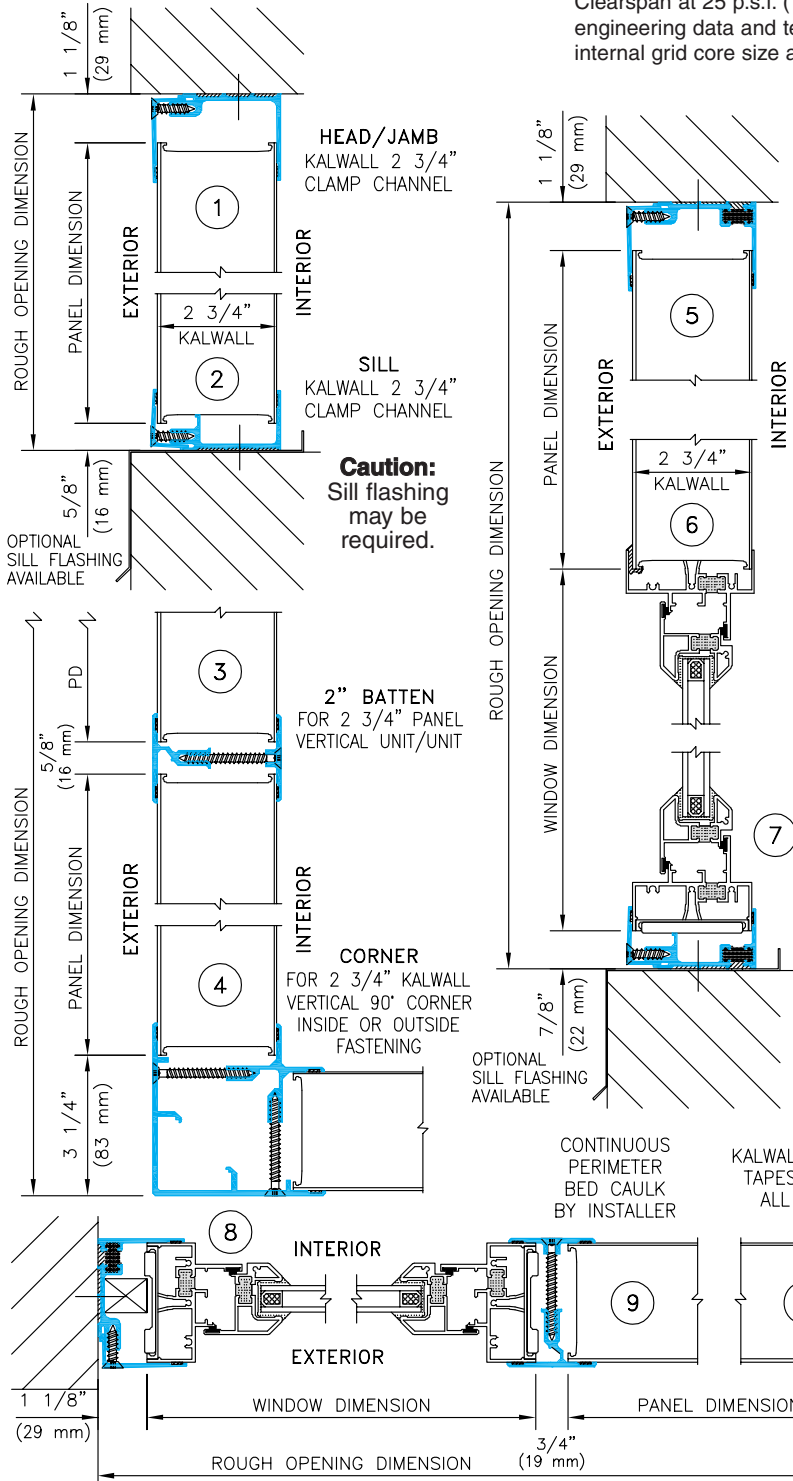
## For 2 3/4" (70 mm) vertically oriented panels.

These are standard Clamp-tite™ details. Systems for other conditions, e.g., horizontally oriented, concealed fastener, Kalcurve™, Explosion Venting or Blast Resisting, are similar, but do contact Kalwall for specifics. High-performance coatings in Kalwall Corrosion Resistant Finish are standard. CAD versions of these details and more available at [www.kalwall.com](http://www.kalwall.com).

## KALWALL SPAN TABLE — 4' (1200 mm) MODULE Maximum Allowable Clearspan

	Translucent Panel	Panel Unit Wall Mid-span Joint	Nominal Grid Size
2" (51 mm) Batten	12'-7" (3835 mm)	9'-2" (2794 mm)	12" x 24" (300 mm x 600 mm)
2 3/4" (70 mm) ST+ #4SSSE	16'-2" (4927 mm)	13'-1" (3987 mm)	12" x 24" (300 mm x 600 mm)
3 1/4" (83 mm) IS-H	19'-7" (5970 mm)	17'-11" (5461 mm)	12" x 24" (300 mm x 600 mm)
Silhouette Stiffener	24'-6" (7467 mm)	23'-4" (7112 mm)	12" x 24" (300 mm x 600 mm)

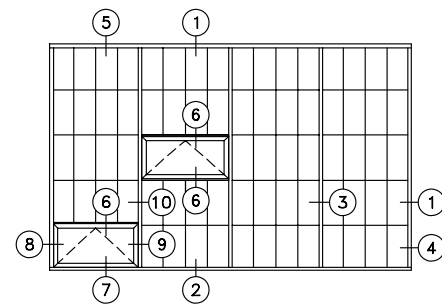
Clearspan at 25 p.s.f. (1.2 kPa) wind pressure, L/60 minimum. Spans based on engineering data and tests. Others possible. CAUTION! Spans will vary with panel internal grid core size and orientation. Above based on grid oriented the panel length.



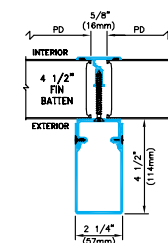
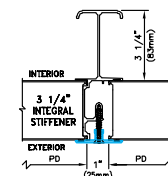
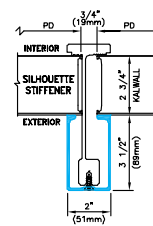
See [www.kalwall.com](http://www.kalwall.com) for more complete CAD Details!

Details 5, 7, and 8 show thermally broken options. All Kalwall windows are thermally broken.

Blue items are field-installed and may require trimming.



WALL ELEVATION





# Shed/Supported Ridge Skyroof™ Details

For 2 3/4" (70 mm) vertically and horizontally oriented flat panels.

Details for other conditions, e.g., Kalcurve™, self-supporting ridge, pyramid, hurricane or blast resistant, are similar, but not identical so be sure to contact Kalwall.

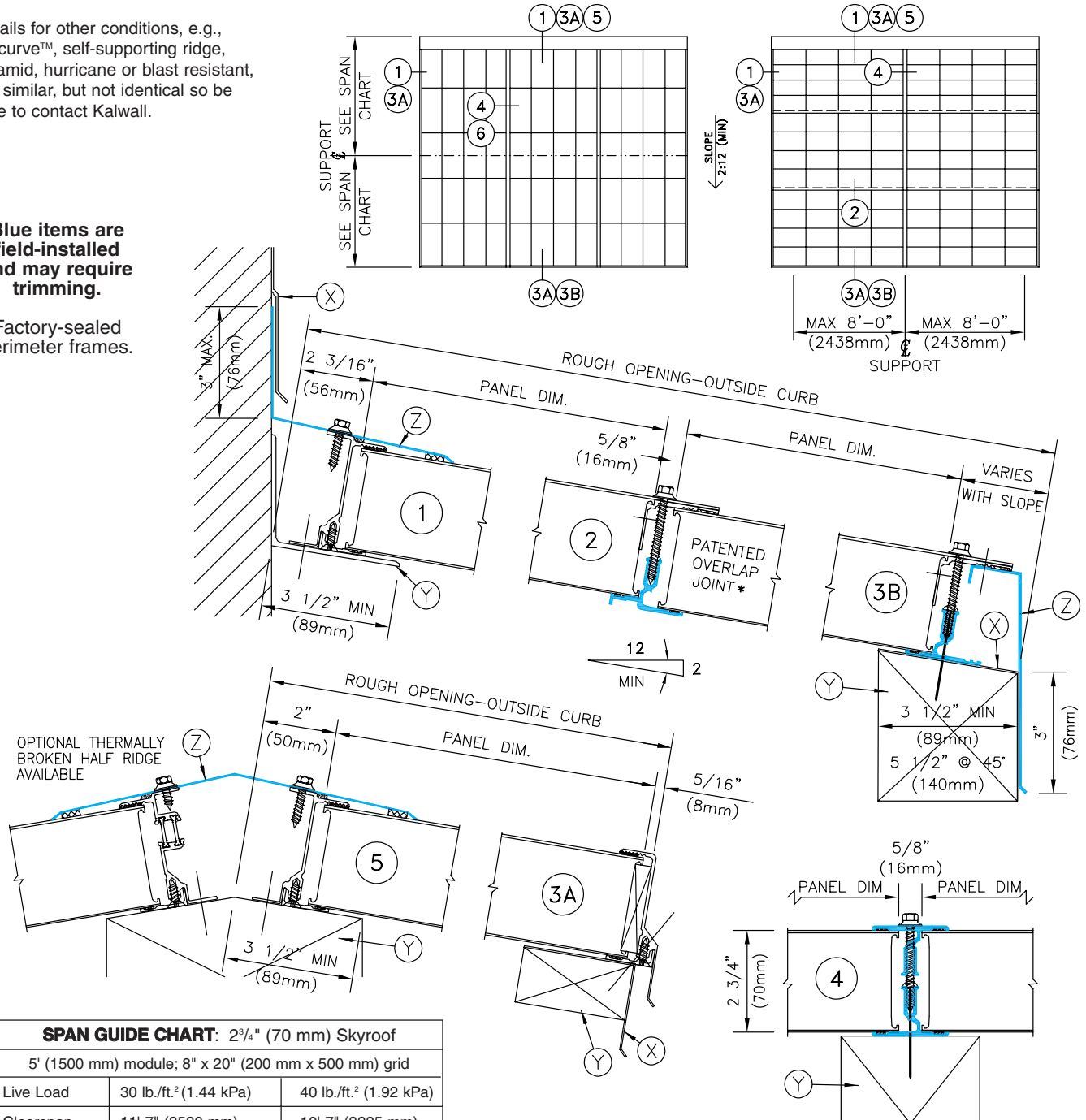
Blue items are field-installed and may require trimming.

Factory-sealed perimeter frames.

SUPPORT AS REQUIRED BY OTHERS

SKYROOF PLAN A  
PANELS ON SLOPE - 2" BATTEN

SKYROOF PLAN B  
PANELS ACROSS SLOPE - OVERLAP SYSTEM

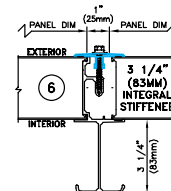


SPAN GUIDE CHART: 2 3/4" (70 mm) Skyroof		
5' (1500 mm) module; 8" x 20" (200 mm x 500 mm) grid		
Live Load	30 lb./ft. <sup>2</sup> (1.44 kPa)	40 lb./ft. <sup>2</sup> (1.92 kPa)
Clearspan	11'-7" (3530 mm)	10'-7" (3225 mm)
5' (1500 mm) module; 12" x 24" (300 mm x 600 mm) grid		
Clearspan	10'-2" (3098 mm)	9'-0" (2743 mm)

Clearspan @ 25 p.s.f. (1.2 kPa) wind pressure, L/60 minimum.  
**Note:** Longer clearspans possible. Contact factory.  
**RECOMMENDED MINIMUM PITCH Skyroofs** (field-installed panels) 2":12" (1:6)

Note: Exposed metal systems available in mill finish or Kalwall Corrosion Resistant Finish per AAMA 2604. Special finishes available as options.

- (X) COUNTER FLASHING NOT BY KALWALL
- (Y) SUPPORT NOT BY KALWALL
- (Z) STANDARD FLASHING BY KALWALL



**NOTE:**  
PLEASE CHECK WITH FACTORY FOR ALLOWABLE SPANS IN YOUR LOCALE USING THIS 3/4" I.S.

# Designing Panel-Unit Walls

## COMPONENTS

Factory-unitized in any combination up to 5' wide x 35' high (1500 mm x 10700 mm). Panel-units ready for installation with no additional finishing. **Panel-units eliminate superfluous structure** required with most other systems.

### LOUVERS – WALL SYSTEMS

Specify Kalwall louver as required.

### THERMAL BREAK SASH

Kalwall-manufactured, AAMA C-70 or HC-70 tested projecting sash for top performance up to 5' wide x 4'6" high (1500 mm x 1400 mm). Fixed and egress units also available. Glazing of all types, including 5/8" (16 mm) and 1" (25 mm) thick glazing panels available; factory-installed, if specified.

### OPAQUE PANELS

Sandwich panel construction with fiberglass, aluminum or other faces can be combined in the same system for aesthetic value or to fine-tune energy performance.

## PANEL OPTIONS

### STANDARD PANEL SIZES

Width — 4' and 5' (1200 mm and 1500 mm), other widths up to 5' (1524 mm) are optional.

Length — 3' to 20' (914 mm to 6096 mm) standard, 16' (4880 mm) maximum for skyroofs.

Thickness — 4" (100mm), 2<sup>3</sup>/<sub>4</sub>" (70 mm), 1<sup>9</sup>/<sub>16</sub>" (40 mm) and 1" (25mm) for window glazing only.

### STANDARD GRID DESIGNS

Nominal grid size — 12" x 24" (300 mm x 600 mm) standard; 8" x 20" (200 mm x 500 mm) optional for flat and curved panels.

### OPTIONAL GRID DESIGNS

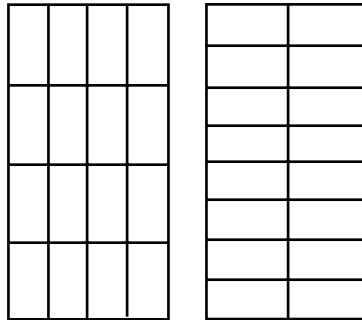
Other designs and grid sizes available. Please note that spans will vary with different grid patterns. Consult factory.

### METAL FINISHES

The installation system is available in mill finish or Kalwall Corrosion Resistant Finish, a high-performance coating that meets AAMA 2604, 2605 optional. The finish is highly resistant to acids, alkalis, salt, industrial and moisture-laden atmospheres.



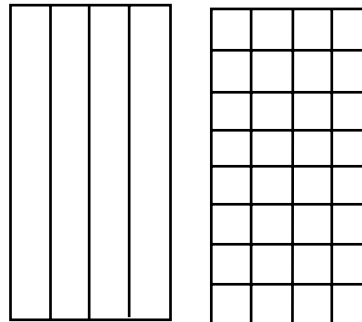
### STANDARD GRIDS



SHOJI

REVERSE SHOJI

### OPTIONAL GRIDS



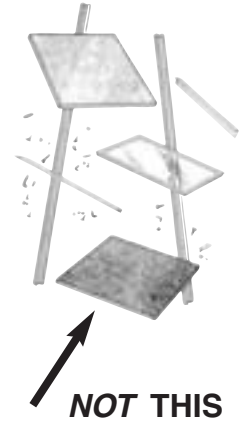
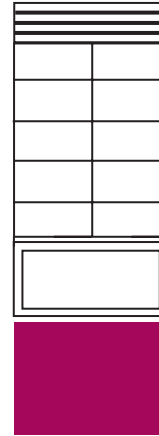
VERTI-KAL

TUCKERMAN

### TRANSLUCENT COLORS

**White and Crystal are standard** but other colors are available. The Kal-tint series and pebble finish are options. Colored translucent insulation inserts are available in an endless palette of colors.

THIS



NOT THIS

## INSTALLATION

### QUICK, LOW-COST

Kalwall interconnected structural components form rigid, modular units which replace the heavy mullions and floating panels of other curtainwalls. The unique construction and extreme structural strength of the components permit the largest panel-unit wall sections to be installed quickly and efficiently.



Merry Hill Shopping Centre, Brierley Hill  
INC Design Associates, Architects

# Technical Summary

Kalwall is a composite sandwich; various combinations are possible and test data should be interpreted from this point of view. Consult Sales Service Department for further clarification.

**HEAT & LIGHT TRANSMISSION:** Listed below are the light transmissions, solar heat gain coefficients, and U-factors for some 2<sup>3</sup>/<sub>4</sub>" (70mm) thick Kalwall panel face sheet combinations. Others are available. **Highlighted values indicate thermally broken panels.**

FACE SHEET COMBINATIONS		% LIGHT TRANSMISSION 2 <sup>3</sup> / <sub>4</sub> " (70 mm) thick panels					SOLAR HEAT GAIN COEFFICIENT @0°∠				
EXTERIOR COLOR	INTERIOR COLOR	0.53 "U"	0.29 /0.23 "U" note 2	0.22 /0.14 "U" note 2	0.18 /0.10 "U" note 2	0.05 "U" note 2	0.53 "U"	0.29 /0.23 "U" note 2	0.22 /0.14 "U" note 2	0.18 /0.10 "U" note 2	0.05 "U" note 2
Greenish Blue	White	25	14	5	3	12	0.50	0.23	0.14	0.10	0.19
Aqua	White	29	17	6	4	13	0.45	0.24	0.14	0.10	0.21
Rose	White	30	18	6	4	14	0.46	0.24	0.15	0.10	0.21
Ice Blue	White	35	20	8	6	18	0.54	0.28	0.17	0.12	0.26
Greenish Blue	Crystal	37	20	7	4	18	0.53	0.26	0.16	0.11	0.22
White	White	20	15	8	5	12	0.38	0.23	0.15	0.11	0.18
Crystal	White	35	20	12	8	17	0.52	0.28	0.17	0.13	0.25
Crystal	Crystal	50	30	15	10	NA	0.65	0.32	0.18	0.13	NA

## Kalwall 100™

**NEW Kalwall 4" (100 mm) thick panels**  
for even greater energy and structural performance!

FACE SHEET COMBINATIONS		% LIGHT TRANSMISSION			SOLAR HEAT GAIN COEFFICIENT		
EXTERIOR COLOR	INTERIOR COLOR	0.55 "U"	0.15 "U"	0.08 "U"	0.55 "U"	0.15 "U"	0.08 "U"
White	White	20	12	5	0.38	0.06	NA
Crystal	White	35	14	7	0.52	0.08	0.04
Crystal	Crystal	50	17	8	0.65	0.10	0.07

U-value SI conversion: 1.0 W/m<sup>2</sup>K = 0.176 Btu/hr/ft<sup>2</sup>°F

- Approximate values by ASTM E-972. Light transmission values over 30% not recommended for most applications.
- U-values determined by NFRC test method (ASTM C-236, E-1423 and C-1199 at certified lab). Expressed as Btu/hr/ft<sup>2</sup>°F for aluminum grid / thermally broken grid, nominal 12" x 24" (300 mm x 600 mm). Perimeter aluminum excluded. Test temperature at 15 mph wind (6.7 m/s): 0°F (-18°C) cold side & 70°F (21°C) warm side.
- Shading Coefficient (SC) is equal to 1.15 times the Solar Heat Gain Coefficient (SHGC).

**NFRC CERTIFIED SYSTEMS:** Kalwall systems provide the best overall U-values **as low as .10 (.56 W/m<sup>2</sup>K)**

**BOND STRENGTH:** Panels and adhesives are tested according to the stringent requirements of "Criteria for Sandwich Panels" issued by ICC (International Code Council). **Before specifying an alternate, insist on actual field proof of bond integrity over a 20-year period.** Caution is urged in accepting look-alikes as equivalents.

**WEIGHT:** Most panels and systems weigh under 3 p.s.f. (14.65 kg/m<sup>2</sup>).

**FIRE TESTS:** Although some Kalwall panels contain combustible binder resins (ignition temperature greater than 800°F), they will withstand a 1200°F flame for one hour with no flame penetration; pass the Class "A" Burning Brand Test (ASTM E-108), or UL 790 listed Class A Roof system. All interior faces are CC-1 by ASTM D-635. Optional flame-spread/smoke developed ratings by UL 723 tunnel tests, including Class A, are available. Kalwall is listed by: **ICC #PFC-1705**; British Standard 476, Parts 3, 6, 7. NFPA 268 – Radiant Panel Test-Exterior Walls.

Whenever reference is made to fire tests, the numerical rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

**IMPACT:** The shatterproof exterior face will withstand 70 ft.-lbs. (81J) impact. Optional extra-hi-impact faces will withstand 230 ft.-lbs. (311J) impact by UL 972; also small and large missile.



### SPECIAL APPROVALS & LISTINGS:

- FM Explosion Venting Walls standard 4440
- FM Wall and Roof Systems standards 4881 and 4471
- Hurricane-Resistant Systems
- NFRC Certified Products Listing
- UL Listings for Class A Roof System and Faces
- UFC 4-010-01 DoD Anti-Terrorism Specifications
- ETA-07/0244 Wall Systems

**DoD and GSA  
ANTI-TERRORISM COMPLIANT!  
UFC 4-010-01  
BLAST-RESISTANT CONSTRUCTION**



Office Depot, Leicester, UK; NSW Architects



New York Hall of Science, Queens, NY; Polshek Partnership Architects

Davies PE and Dance Building at Roehampton University, London, UK; Devereux & Partners, Architects

## Daylighting Analysis

Take the unpredictability out of your site-specific designs.

Visit [www.daylightmodeling.com](http://www.daylightmodeling.com)

Consider us your Daylighting Design Consultant... We're eager to assist you with the tools of Daylight Modeling to assure your designs achieve the most desirable results. Let us know what you're planning... we can simulate the site-specific impact of daylighting.

[kalwall.com](http://kalwall.com) • [skylightinfo.com](http://skylightinfo.com) • [structuresunlimitedinc.com](http://structuresunlimitedinc.com)

# Kalwall®

Since 1955

1111 Candia Road, P.O. Box 237, Manchester, NH 03105  
Phone: 603-627-3861 Fax: 603-627-7905  
[www.kalwall.com](http://www.kalwall.com)

For immediate assistance call: 1-800-258-9777 (N. America)  
or e-mail: [info@kalwall.com](mailto:info@kalwall.com)  
Inquires for the UK/EU, contact [www.stoakes.co.uk](http://www.stoakes.co.uk)

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