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**BRANZ**

Tested & Approved (Monoglass)  
to Aus/NZ Standards ASTM C518-04  
Registered No. D10020/01



**NATA**

ACCREDITED FOR

TECHNICAL

COMPETENCE

### Thermatec Technologies (Australian/NZ Operations)

#### Monoglass® Spray-On Insulation

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#### MELBOURNE (Head Office)

Unit 2/401 Francis Street, Brooklyn, Vic. 3025

Phone: 1300 307 398 Fax: 1300 307 193



#### SYDNEY

140 Centaur Street, Revesby Heights, N.S.W. 2212

Phone: 1300 791 061 Fax: 1300 791 062



## INSULATING YOUR WORLD FOR 25 YEARS

### Thermal Insulation

### Acoustic Control

### Condensation Control



**Monoglass® Spray-On Insulation** was developed in 1979 when Mr. Douglas Eyrl recognized a need for a spray applied fiberglass insulation that could provide higher installed R-Values with easier application than the cellulose based spray insulations in use at the time.

The result was a versatile, safe and effective thermal and acoustic product that would better meet the needs of architects and installing contractors alike.

**Monoglass®** is a two-part product, which combines white, non-combustible, inorganic, elongated glass fibers with a non-toxic, formaldehyde-free polymer binder. It is spray applied in a quick, one pass application to achieve 127mm overhead or 178mm on vertical surfaces, without layering or mechanical support.

**Monoglass®** is the original spray applied fiberglass insulation and is used in many countries worldwide. Our reliability and competitive pricing has made **Monoglass®** the choice for architects, engineers, specification writers and building owners for over 25 years.





## MONOGLASS® PRODUCT OVERVIEW

### The Solution for Hard-to-Insulate Areas

Overhead and vertical surfaces can be applied quickly and easily in one pass without costly, slow layering or mechanical support.

Monoglass® combines soft glass fibers and polymer adhesive to create a non-combustible, non-toxic, insulation that can be quickly spray applied to virtually any surface or configuration.

Monoglass® is applied by trained applicators using approved equipment, ensuring quality control and consistency.



Department of Administration, Providence, RI.  
Complex concrete waffle ceiling easily insulated with Monoglass®.

### The product is multi-purpose and is suitable for a multitude of applications, including:

- Multi-tenancy residences
- Stadiums & Arenas
- Hospitals
- Office Buildings
- Airports
- Schools
- Sports Facilities & Gymnasiums
- Swimming Pools



### Monoglass® bonds easily to:

- Concrete
- Steel
- Fireproofing products
- Wood
- Gypsum
- Rigid fiberglass and plastic insulations
- Most painted surfaces

### Monoglass® provides:

- High Thermal Value
- Excellent Noise Reduction
- Non-Combustible
- Non-Toxic
- Permanent
- Quickly Installed
- Competitively Priced
- Inorganic
- 37% Re-Cycled Content
- No support for mold growth



# HORIZONTAL SURFACES

## Applications Below Occupied/Conditioned Spaces

### Warm and cold climates need Monoglass®

In commercial or residential buildings, cold floors are eliminated with **Monoglass® Spray-On** without adding combustible elements to the structure. In warm climates, **Monoglass®** applied below air-conditioned spaces will help reduce building cooling time and costs. Overhead applications of 127mm can be installed in one pass with no mechanical support. With the addition of mechanical support, up to 178mm can be installed overhead.

K-Value: 0.25(BTU inch/(ft² hr°F))

KSI: 0.036 W/(m°C)

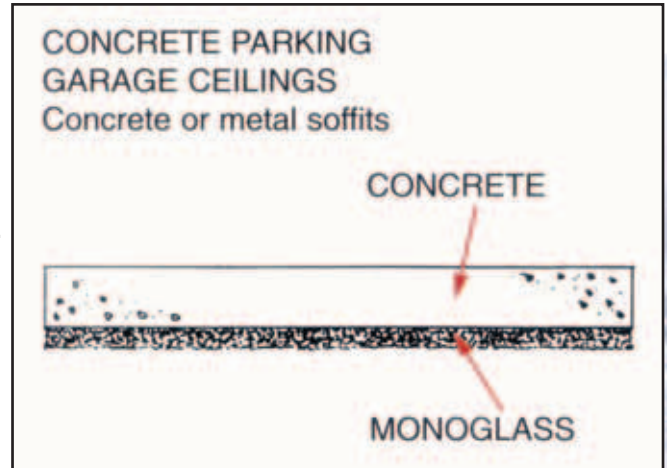
RSI: 27.7 Km²/Wm

ASTM C-518, National Research Council

- Permanent
- High thermal value
- Fire Safe
- Monolithic
- Clean & bright
- Low cost



Soffits insulated at Expo '86 to prevent cold floors.



Gaston Memorial Hospital, Gastonia, NC  
Concrete slab above drop ceiling is sprayed with Monoglass®  
to thermally insulate the occupied space above.



## HORIZONTAL SURFACES



The Vancouver Library, Vancouver, B.C.  
Non-combustible, inorganic, white Monoglass® improves fire and visual safety for the public in underground parking facilities.



Ohio State University Football Stadium  
Monoglass® insulates the concourses and undersides of the stadium's corporate suites.

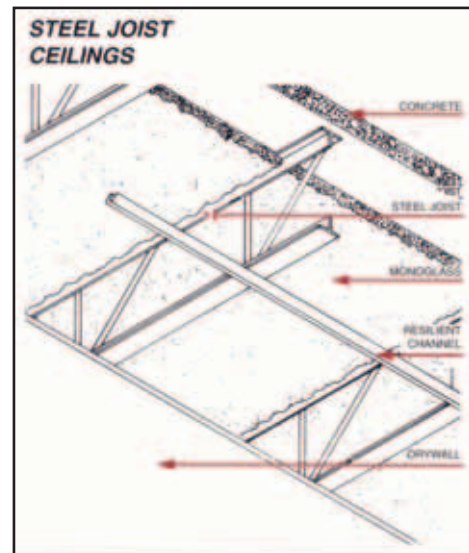


## HORIZONTAL SURFACES

### Terrace / Roof Garden Isolation

**Monoglass®** provides the most economical method of insulating and sound proofing the underside of roof terrace gardens.

In many climates, this also allows for the application of roofing membrane directly to the substrate without exterior insulation complications.



Wawanessa, Vancouver, BC  
Waisman Dewar, Grout, Carter, Architects



## VERTICAL SURFACES

### Thermal insulation and design flexibility

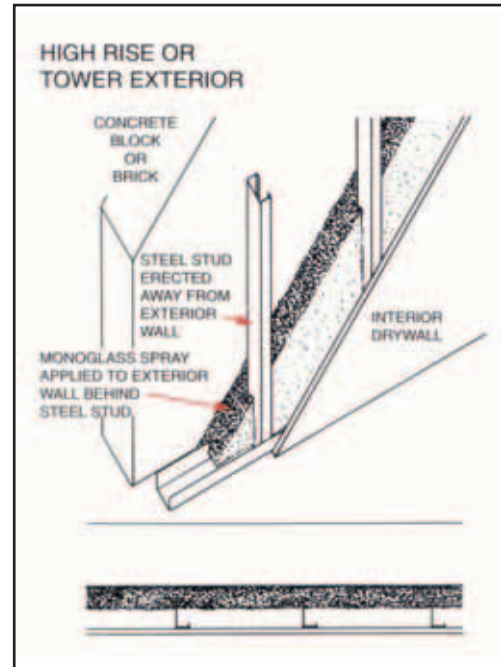
**Monoglass® Spray-On** has an exceptionally high thermal value creating savings in both heating and cooling costs by reducing fuel and power consumption. **Monoglass®** ensures higher internal surface temperatures within a building and minimizes "Cold Radiation", increasing individual comfort and shortening the time required for the artificial heating or cooling of the building.

As a result of the high R-value, thermal shock in the structure is reduced, particularly in pre-cast concrete and metal buildings.

**K-Value:** 0.25(BTU inch/(ft<sup>2</sup>h°F))

ASTM C-518 National Research Council

Freedom of design and **Monoglass®** are partners in flexibility. Difficult configurations are easily insulated at low cost with a seamless application of **Monoglass®**.



Thermal cycling problems eliminated. Barlow Plaza



Monoglass® insulated both the exterior walls and the underground parking areas of the Milner Avenue Office Tower, Toronto, ON.



# ASBESTOS REPLACEMENT



Re-spraying for condensation control and noise control.



**Monolithic Monoglass®:** thermal seal at lower cost than original asbestos.

**Monoglass® Spray-On** facilitates asbestos removal from manufacturing, maintenance and sales depots at low cost.

Asbestos is removed under negative building pressure to protect the outside environment. Exposed interior and projections are vacuumed, sealed, and reinsulated with **Monoglass®**.

- Non-Combustible
- Non-Hazardous
- “Building Green” approved
- Clean and Bright
- Comfortable

## Cost-effective asbestos replacement

Re-insulation is quick and easy with **Monoglass®**.

**Monoglass®** covers internal projections and fill voids on uneven surfaces. Quick installation means minimum plant down time.

**Monoglass®** also provides condensation control, protecting the structure from corrosion.

Better noise control is achieved, with reverberation time dramatically reduced.



Cost effective asbestos replacement.  
Building is re-insulated with **Monoglass®**.





## FIRE SAFETY

### Zero flame spread – with no chemical additives.

Because it is made from glass, **Monoglass®** is naturally a non-combustible material. **Monoglass®** does not require the addition of chemicals to control flammability, as all cellulose based insulations do. Furthermore, **Monoglass®** will never need to have such chemicals re-applied, reducing long term costs, and ensuring long term product safety.

**Monoglass®** is rated as a Class 1 Building Material and meets the requirements for non-combustible building materials.

Because **Monoglass®** is inorganic and non-combustible, it is approved for use in multi-story, multi-tenancy and high density structures.

**Monoglass®** has been tested for Fire Gas Toxicity, as per the University of Pittsburgh Protocol. Under the fire conditions simulated, **Monoglass®** produced a maximum of 3.5% concentration of CO<sub>2</sub> Carbon Dioxide and 0.30% CO Carbon Monoxide.

As a result, **Monoglass®** complies with strict requirements of The New York State Uniform Fire Prevention and Building Code, Article 15 Part 1120, and is listed as an approved product.



Oceania Residential Development, Brooklyn, New York.



St. Luke's Hospital, Houston, TX.

Monoglass®	FIRE SAFETY	
	25.4mm	76.2mm
Flame Spread	0	0
Fuel Contribution	0	0
Smoke Development	0	0
ASTM E84-79 and UL S102-1979		

# NOISE REDUCTION

## Acoustic Treatment - Noise control within a space

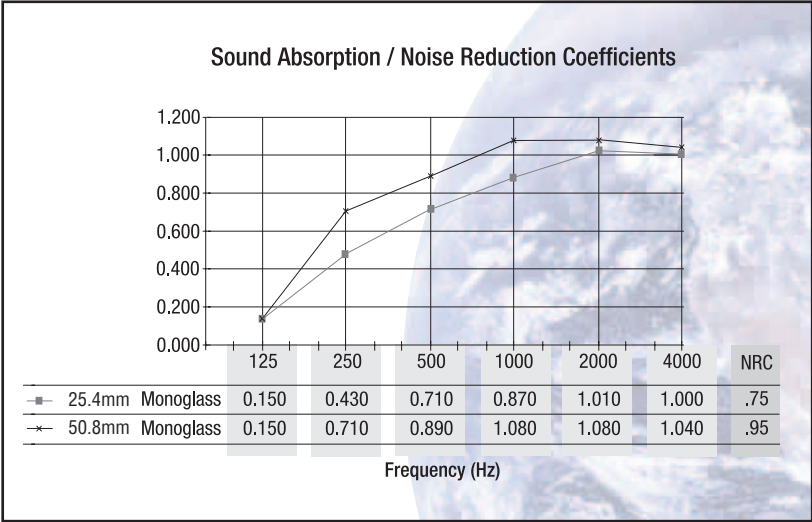


**Monoglass® Spray-On** provides aesthetics and excellent reverberation control in:

- Night clubs
- Auditoriums
- Theaters
- Restaurants
- Television and film studios
- Gymnasiums & sport facilities
- Factories and machine shops
- Offices and retail shops

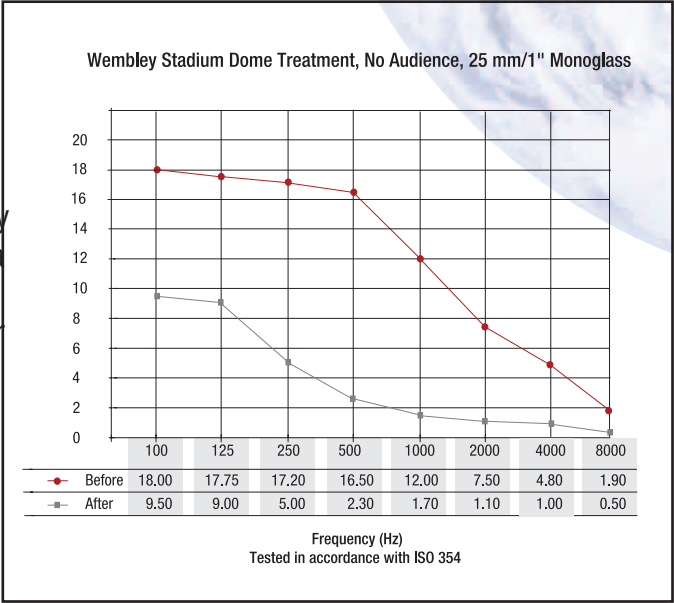
**Monoglass® Spray-On's** low compressive strength glass fiber produces noise reduction coefficients greater than many other insulations. This capability reduces airborne noise transmitted through the structure from external sources and provides superb absorption of internal airborne sound.

**Monoglass®** can be applied in several standard colors, or painted with an appropriate acoustic paint with minimal effect on the NRC or STC ratings.



Noise reverberation time can be greatly reduced with a minimal application of **Monoglass®**, as demonstrated in the Wembley Indoor Sport Stadium, Johannesburg, South Africa. Treated with only 1" / 25 mm of **Monoglass®**, the graph (right) depicts the reverberation times with 0% occupancy measured before and after treatment. This shows a considerable reduction in reverberation time over the entire frequency range, which resulted in major improvements in speech intelligibility.

Before treatment, speech conversations more than 6½ feet / 2 meters was very difficult. After treatment, even with the hall empty (no audience), conversation can now be conducted without any special effort.







## SOUND CONTROL SOLUTIONS

Sound control in the environment has become absolutely necessary in a complex society, be it where we work, live or play. Cotton-like **Monoglass® Spray-On** is non-combustible and exceeds older, inefficient, non-permanent systems without increasing construction costs.



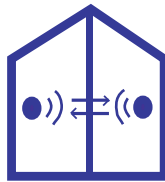
N.R.C.

### Noise Reduction Coefficient - NRC

**Monoglass®** provides solutions for sound attenuation control within a confined space such as auditoriums, gymnasiums, factories and schools.

### Sound Transmission Class – STC

**Monoglass®** provides solutions for sound levels between spaces such as between suites in multiple tenancy buildings, condominiums, townhouses and office buildings.



S.T.C.



In addition to having high STC and NRC ratings, **Monoglass®** is pneumatically applied, which helps seal cracks and holes in plaster, fills voids normally left by batt insulations, and seals around plumbing and electrical outlets to prevent sound 'leaks'.

# FIRE SAFETY & ACOUSTIC PERFORMANCE

## Dual purpose – fire safety and acoustic enhancement.

### Monoglass® Spray-On:

- is inorganic, non-combustible and will not provide any assistance to the build-up of fire.
- is rated a **Class 1 Building Material per ASTM E-84**.
- can be safely installed over fireproofing materials without affecting fire ratings.
- is permanently non-combustible and does not require occasional re-application of chemicals to maintain its flame spread properties, unlike some spray materials.
- is approved for use in multi-story, multi-tenancy and high population density structures.
- complies with or exceeds applicable building codes.



The Canadian Center for Architecture chose Monoglass® for use in their controlled environment archives.

Monoglass®	FIRE SAFETY	
	25.4mm	76.2mm
Flame Spread	0	0
Fuel Contribution	0	0
Smoke Development	0	0
ASTM E84-79 and UL S102-1979		

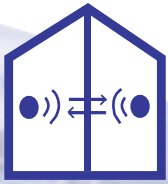
Monoglass® SOUND ABSORPTION & NOISE REDUCTION COEFFICIENTS							
ASTM C423-77 & ISO 354							
Frequency	125	250	500	1000	2000	4000	NRC
Thickness 17.78mm	0.020	0.123	0.385	0.736	0.859	0.835	0.55
25.40mm	0.150	0.430	0.710	0.870	1.010	1.000	0.75
35.56mm	0.267	0.363	0.816	1.008	1.074	0.916	0.80
50.80mm	0.150	0.710	0.890	1.080	1.080	1.040	0.95





## SOUND TRANSMISSION

### Acoustic treatment – Sound control between spaces



S.T.C.

Minimum STC ratings are required under most building codes for partition walls, corridor walls and floor/ceiling assemblies. The higher the STC number, the greater the sound transmission resistance. A descriptive table outlining the various increments of STC class is shown below.

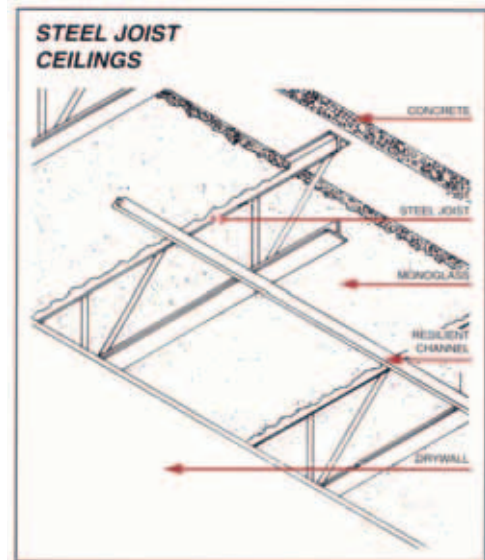
Changes in STC Rating	Changes in Apparent Loudness
+/- 1	Almost imperceptible
+/- 3	Just perceptible
+/- 5	Clearly noticeable
+/- 10	Twice (or half) as loud

Source: [www.acoustics.com](http://www.acoustics.com) website March 2004

### Interior sound walls and ceilings

A 37mm / 1.46 inch application of **Monoglass®** has been shown to increase the STC value of an assembly by 5, when tested to ASTM E-90-85. This will make a clearly noticeable difference when compared to an uninsulated wall or ceiling.

The STC ratings of **Monoglass®** insulation are similar to those of fiberglass batt insulations, however, because **Monoglass®** is sprayed in place it will fill voids that batt insulation may not. Also, **Monoglass®** adhesives keep the insulation in place so that it will never settle over time leaving gaps.



Music Room, W.J. Mouat School, Abbotsford, B.C.  
Gordon Graham, Architects

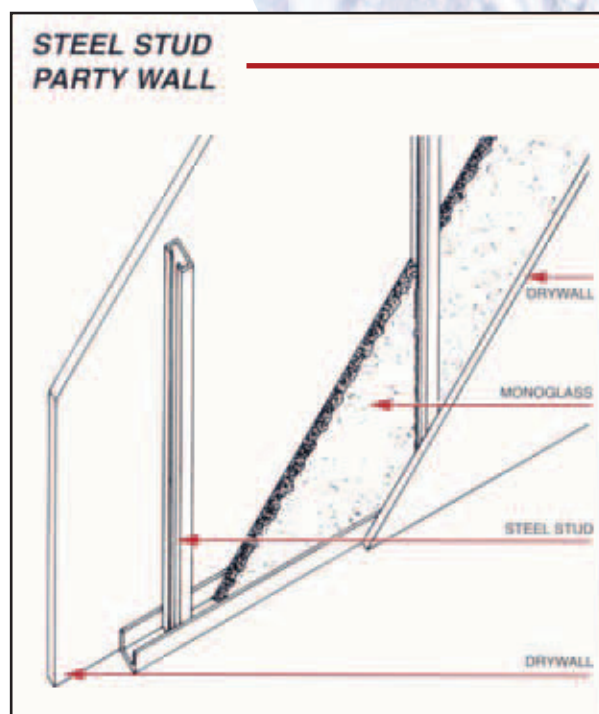
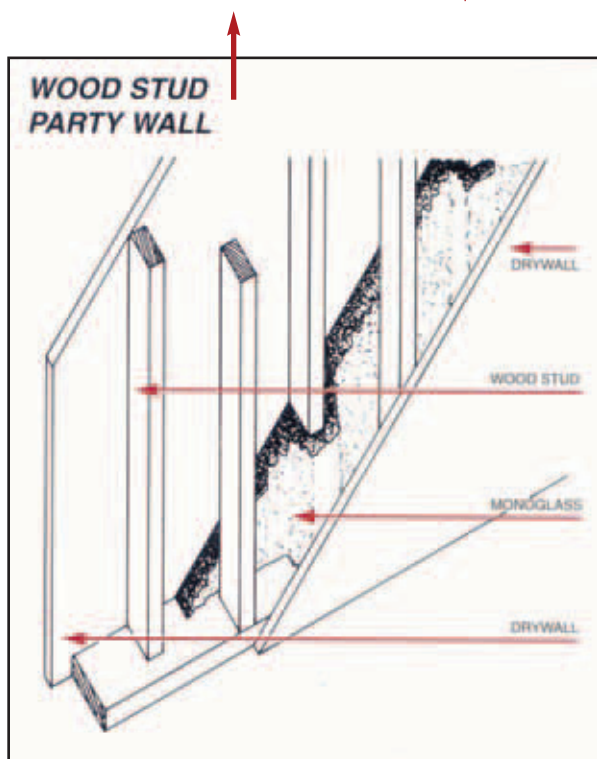


Monoglass applied above the drop ceilings to reduce sound transmission into occupied rooms above.

# SOUND RATING GUIDE

## Wood Frame Plaster Partition

Code	Framing	Facing	Sound Transmission Coefficient
WF 5	2 rows 2 x 3 studs 1" apart at 16" o.c.	5/8" plaster both sides and 1 1/2" Monoglass® Spray-On between studs, one side.	49
WF 10	2 x 4 studs at 16" o.c.	2 layers 1/2" plaster both sides and 1 1/2" Monoglass® Spray-On between studs, one side.	45
WF 15	2 x 4 studs at 16" o.c.	2 layers 5/8" plaster both sides and 1 1/2" Monoglass® Spray-On between studs, one side.	48
WF 20	Staggered 2 x 4 studs at 8" o.c. on 2" x 6" plate.	5/8" plaster both sides and 1 1/2" Monoglass® Spray-On between studs, one side.	51
WF 25	Staggered 2 x 4 studs at 8" o.c. on 2" x 6" plate.	2 layers 1/2" plaster both sides and 1 1/2" Monoglass® Spray-On between studs, one side.	54
WF 30	Staggered 2 x 4 studs at 8" o.c. on 2" x 6" plate.	2 layers 5/8" plaster both sides and 1 1/2" Monoglass® Spray-On between studs, one side.	56
WF 35	2 rows 2 x 4 studs 1" apart at 16" o.c.	5/8" plaster both sides and 1 1/2" Monoglass® Spray-On between studs, one side.	52







## SOUND RATING GUIDE

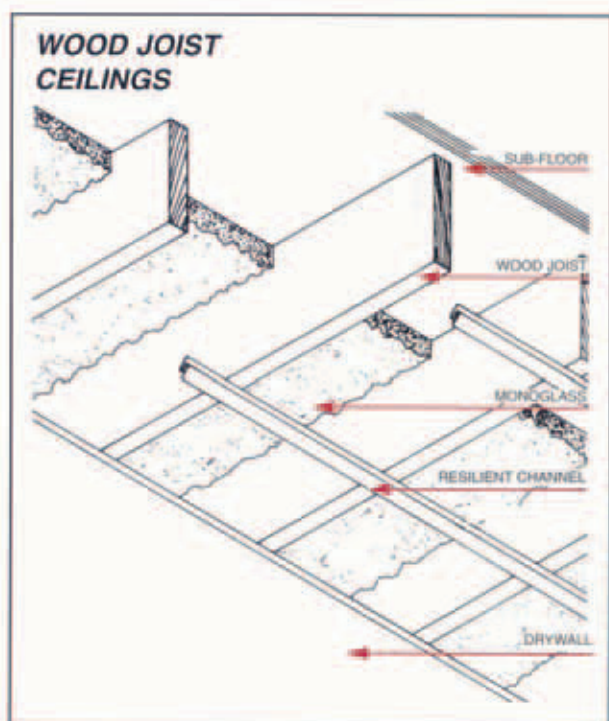
### Steel Frame Plaster Partition

Code	Framing	Facing	Sound Transmission Coefficient
SF 5	1½" studs at 16" o.c.	⅝" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	46
SF 10	1½" studs at 24" o.c.	2 layers ½" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	55
SF 15	2½" studs at 24" o.c.	½" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	47
SF 20	2½" studs at 24" o.c.	⅝" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	51
SF 25	2½" studs at 24" o.c.	2 layers ½" plaster one side, 1 layer ½" plaster other side and 1½" Monoglass® Spray-On between studs, one side.	52
SF 30	2½" studs at 24" o.c.	2 layers ⅝" plaster one side, 1 layer ⅝" plaster other side and 1½" Monoglass® Spray-On between studs, one side.	54
SF 35	2½" studs at 24" o.c.	2 layers ⅝" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	57
SF 40	3⅝" studs at 24" o.c.	½" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	48
SF 45	3⅝" studs at 24" o.c.	⅝" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	50
SF 50	3⅝" studs at 24" o.c.	2 layers ½" plaster one side, 1 layer ½" plaster other side and 1½" Monoglass® Spray-On between studs, one side.	53
SF 55	3⅝" studs at 24" o.c.	2 layers ⅝" plaster one side, 1 layer ⅝" plaster other side and 1½" Monoglass® Spray-On between studs, one side.	54
SF 60	3⅝" studs at 24" o.c.	2 layers ½" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	55
SF 65	3⅝" studs at 24" o.c.	2 layers ⅝" plaster both sides and 1½" Monoglass® Spray-On between studs, one side.	56

# SOUND RATING GUIDE

## Wood Joist Ceiling

Code	Ceiling Joist	Facing	Sound Transmission Coefficient
WJ 5	2 x 8 joists at 16" o.c.	½" plaster and 1½" <b>Monoglass® Spray-On</b> between joists and plaster resilient channel.	45
WJ 10	2 x 8 joists at 16" o.c.	⅝" plaster and 1½" <b>Monoglass® Spray-On</b> between joists and plaster resilient channel.	46
WJ 15	2 x 8 joists at 16" o.c.	2 layers ½" plaster and 1½" <b>Monoglass® Spray-On</b> between joists and plaster resilient channel.	50
WJ 20	2 x 10 joists at 16" o.c.	½" plaster and 1½" <b>Monoglass® Spray-On</b> between joists and plaster resilient channel.	47
WJ 25	2 x 10 joists at 16" o.c.	⅝" plaster and 1½" <b>Monoglass® Spray-On</b> between joists and plaster resilient channel.	48
WJ 30	2 x 10 joists at 16" o.c.	2 layers ½" plaster and 1½" <b>Monoglass® Spray-On</b> between joists and plaster resilient channel.	53
WJ 35	2 x 10 joists at 16" o.c.	2 layers ⅝" plaster and 1½" <b>Monoglass® Spray-On</b> between joists and plaster resilient channel.	54

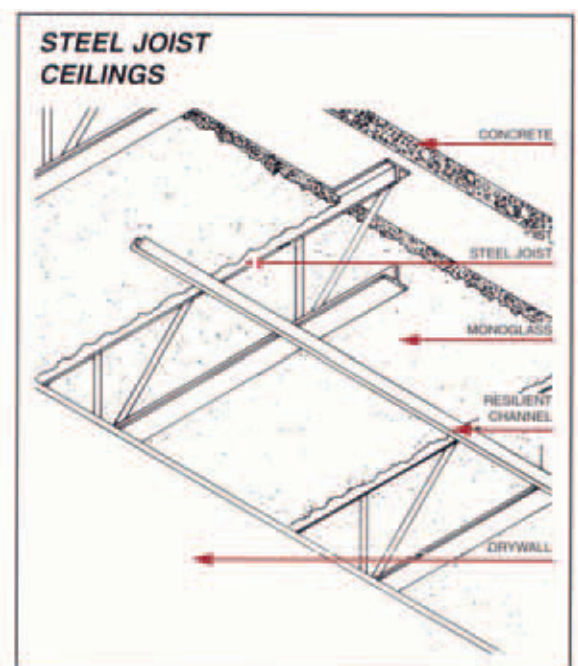




## SOUND RATING GUIDE

### Steel Joist Ceiling

Code	Joist & Floor	Facing	Sound Transmission Coefficient
SJ 5	12" steel joists 6 lb./ft. at 24" o.c. 2" – 3000 PSI concrete floor	5/8" plaster on plaster furring channel at 24" o.c. and 1" <b>Monoglass® Spray-On</b> to concrete slab ceiling.	49
SJ 10	12" steel joists 6 lb./ft. at 24" o.c. 2" – 3100 PSI concrete floor	1/2" plaster on plaster furring channel at 24" o.c. and 1" <b>Monoglass® Spray-On</b> to concrete slab ceiling.	48
SJ 15	10" steel joists 4.8 lb./ft. at 24" o.c. 2 1/2" – 4000 PSI concrete floor	1/2" plaster on plaster furring channel at 24" o.c. and 1" <b>Monoglass® Spray-On</b> to concrete slab ceiling.	50
SJ 20	12" steel joists 6 lb./ft. at 24" o.c. 2" – 3500 PSI concrete floor	2 layers 5/8" plaster on nailing channel at 24" o.c. and 1" <b>Monoglass® Spray-On</b> to concrete slab ceiling.	50
SJ 25	Hambro steel joists 10" deep 5.5 lb./ft. min. 2 1/2" or 3 1/2" – 3500 PSI concrete floor, air duct, firestop flap, electrical outlets.	1/2" plaster on plaster furring channel at 24" o.c. and 1" <b>Monoglass® Spray-On</b> to concrete slab ceiling.	55







## MARINE APPLICATIONS

**Monoglass®** has been used in container ships, private luxury yachts, ferries, U.S. Coast Guard ships and British naval vessels. Well over 100 ships worldwide use **Monoglass®** for its superior thermal properties.

**Monoglass®** is also ideally suited as an acoustical treatment for the walls and ceilings of engine rooms and other noise generating areas of the ship where maximum levels of sound absorption are required.

For ship safety, **Monoglass®** is inorganic and non-combustible, and will not provide any assistance to the buildup of fire.

**Monoglass®** is particularly well suited for extremely low temperature service. Gulf Oil chose **Monoglass®** to thermally insulate their floating housing attached to their drilling operations in the Beaufort Sea, where temperatures reach -70°F/-56°C.

Thermal and acoustic insulation is quickly and economically achieved with **Monoglass® Spray-On**.



Gulf Oil – Beaufort Sea Crew Housing. Acoustic separation and full thermal resistance achieved prior to interior lining of ship.



### Marine Approvals

- Canadian Coast Guard (Steamship Inspection) No. F1-233
- ISO 1182 Part 1 of Annex 1 to IMO Resolution MSC.61(67), Part 1 of the FTP Code: Passed / Non-Combustible
- Lloyd's Register EMEA, Certificate of Fire Approval No. SASFO 30479
- Germanischer Lloyd Nr. 4741/95 UII/ABi
- China Corporation Register of Shipping, 321-97-22
- See-Berufsgenossenschaft Nr. 114245
- Siglingamalastofnun Ríkisins No. S.R.15.05.95.04

# SPORTS FACILITY APPLICATIONS

## Gymnasiums, Swimming Pools, Ice Arenas & Stadiums

**Monoglass® Spray-On** will not absorb moisture easily or support mold growth, and so it is ideally suited for ice arenas, swimming pools and other applications subject to high relative humidity. In addition, the high light reflectance adds to the overall brightness of the location.

Moisture Absorption per CGSB 51-GP-36P:

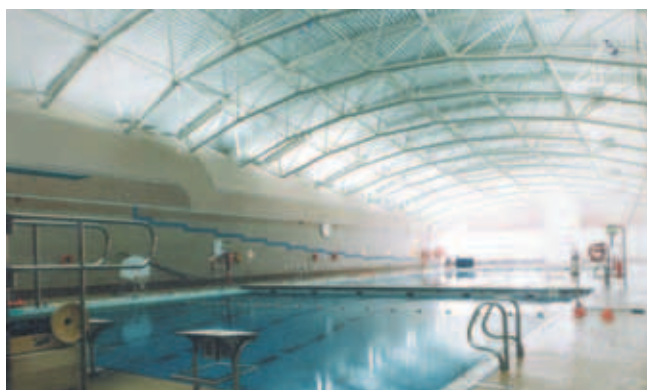
Maximum allowable 20%, **Monoglass®** Result: 4.9%

Fungus and Bacterial Resistance per ASTM G-21-90:

Result: **Monoglass®** received a “zero growth” rating.



Paul Brown Stadium, Cincinnati, OH



Variety Club Children's Charity, Variety Village Swimming Pool,  
Sievenpiper Associates Inc., Architects



Kitchener Memorial Ice Rink



Victoria Curling Rink insulated for thermal and acoustic control.





## SPORTS FACILITY APPLICATIONS



Arthur Ashe Stadium U.S. Tennis Association, Flushing Meadows, NY

K-Value: 0.25(BTU inch/(ft<sup>2</sup>h°F))

KSI: 0.036 W/(m°C)

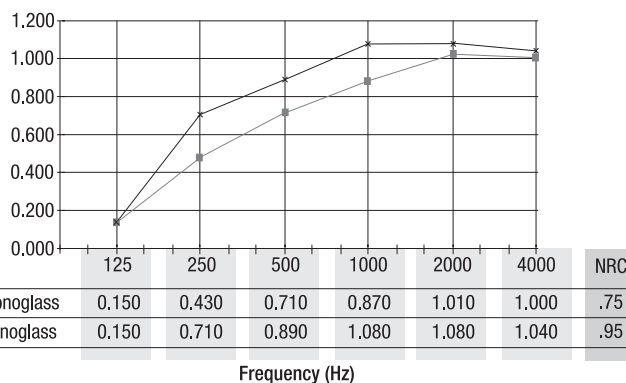
RSI: 27.7 Km<sup>2</sup>/Wm

### Monoglass® SOUND ABSORPTION & NOISE REDUCTION COEFFICIENTS

ASTM C423-77 & ISO 354

Frequency	125	250	500	1000	2000	4000	NRC
Thickness 17.78mm	0.020	0.123	0.385	0.736	0.859	0.835	0.55
25.40mm	0.150	0.430	0.710	0.870	1.010	1.000	0.75
35.56mm	0.267	0.363	0.816	1.008	1.074	0.916	0.80
50.80mm	0.150	0.710	0.890	1.080	1.080	1.040	0.95

Sound Absorption / Noise Reduction Coefficients





# MONOGLASS® OVER FIREPROOFING

## Fireproofing & Monoglass® Insulation – The Effective Combination

**Monoglass®** is approved for use over fireproofing materials because it is non-combustible and will not affect the fire ratings of the fireproofing materials it is applied to. Because it is sprayed right over the fireproofing, it helps solve normally difficult design problems such as how to insulate the underside of corrugated steel decking.

Structural fireproofing and **Monoglass®** thermal/acoustic insulation combine to achieve required fire ratings, thermal values and acoustic properties on steel or concrete structures.

### 1st Application

Structural steel and concrete beams are sprayed with cementitious fireproofing material, to provide fire-resistance ratings.

### 2nd Application

**Monoglass®** is applied over fireproofing to achieve thermal and acoustic requirements, bonding easily and permanently to the fireproofing material beneath.



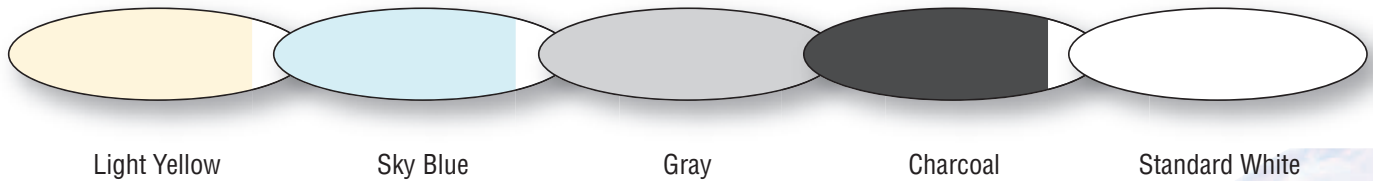
University of California Fireproofing over-sprayed with Monoglass® insulation.

### Approvals

**Monoglass®** has undergone numerous tests over the past 25 years and meets the following standards for Non-Combustibility:

- ASTM E-136-82
- CAN 4-S114-78
- ISO 1182-90 / Part 1 of IMO FTP Code
- SABS 0177 Part V
- IMO Resolution A 472

# MONOGLASS® COLOR SPRAY



**Monoglass® Bonding Adhesives** are now pre-tinted in four shades, allowing tinted finishes to be achieved without spray painting or dyeing. Tinted finishes are an excellent choice for any application that requires controlled lighting and acoustics.

## Perfect for use in:

- Film Studios
- Theaters
- Night Clubs
- Gymnasiums
- Restaurants



**Monoglass® Spray-On** gives an attractive finish and excellent thermal and acoustic insulation performance all in one product.

**Monoglass®** also provides the added safety of being non-combustible, combined with higher thermal resistance than combustible cellulose insulations.

- K-Factor 0.25
- NRC .75 @ 25.4mm
- NRC .95 @ 50.8mm
- No Fungal / Bacterial Growth
- Flame Spread = 0
- Smoke Developed = 0
- Non-Toxic
- Non-Combustible

## Approvals

- GreenSpec - Approved Green Building Material
- New York State Building Standards: MEA 333-88M
- Canada Board of Steamship Inspection
- National Building Code of Canada: CCMC 10025-R
- State of California: CA-T318CN
- British Standards: BS-476 Part 4
- South Africa Bureau of Standards & International Standards Organization: Thermal, Acoustic & Non-Combustibility



## ENVIRONMENTAL RESPONSIBILITY

### GreenSpec, LEED and Recycled Content

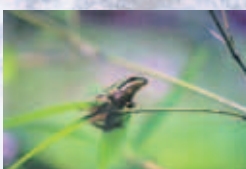


**Monoglass®** is made from a combination of post consumer recycled glass and recycled manufacturing glass. The total volume of post consumer material is not less than 25%. When this is combined with the recycled manufacturing waste, the total recycled content of **Monoglass®** is not less than 37%.

**Monoglass®** has been installed in educational facilities, community centers, hospitals as well as a variety of other locations where environmental responsibility and product safety are of high concern.

### What makes Monoglass® Green?

- The high R-value of **Monoglass®** is in itself part of the reason **Monoglass®** is considered a green product. By virtue of being a good thermal insulator, **Monoglass®** reduces the amount of fossil fuels required to heat a building, thereby reducing the amount of greenhouse gasses that are put into the atmosphere. In addition to this, the heating costs for the building are reduced.
- As an inorganic, naturally non-combustible material, **Monoglass®** needs no additional chemicals to reduce flammability.
- **Monoglass®** does not support the growth of mold/fungus, eliminating the need for chemical fungicides.
- As a white product with high light reflectance, **Monoglass®** reduces the amount of energy required to light an area. The high light reflectance also provides a safer environment at night.
- The PVA binder used in the **Monoglass®** application has only trace VOC emissions. When applied, the amounts of potential VOC emissions are approximately .000053% by weight.



**Monoglass®** is designed with the environment in mind. We believe that we all have a duty to be responsible to the world we inhabit. Our efforts in this area will continue and we will enhance the “green” attributes of **Monoglass®** whenever possible.

**Monoglass® is a Building Green approved product.**



Please visit their website [www.GreenSpec.com](http://www.GreenSpec.com) for further information.



# MOLD CONTROL

## Monoglass® will not support mold growth

Unfortunately, mold has become a substantial problem in almost all areas of building construction. When a product is being chosen, the specification writer must have confidence that the product utilized will not support mold growth at any time during the life of the building. The health of the people using a building as well as liability considerations must be taken into account for the projected life span of any new project.

## Monoglass® is a perfect way to help eliminate mold concerns.

### *How are we able to achieve this?*

In order for mold to grow, there needs to be a food source. Organic, paper based products provide an abundant source of food. The only way for these products to reduce the risk of mold is through the addition of chemicals, which over time may lose their effectiveness.

As a fiberglass based product, **Monoglass®** is inorganic and therefore incapable of supporting mold growth. Simply put, the mold has no food source. There is no need for the addition of any chemical products to retard mold growth. Therefore, there is never a need to reapply any chemicals in order to maintain mold resistance.

**Monoglass®** provides peace of mind with the knowledge that as an inorganic compound, it will not support mold growth.



**Monoglass®** has been tested to ASTM G-21  
Result: No Bacterial Growth.



Monoglass® is perfect for use in high humidity areas such as swimming pools.



## CONDENSATION CONTROL

**Monoglass® Spray-On** combined with proper ventilation prevents condensation on the internal face of a structure by maintaining the temperature of the air on the internal face, nearer to that of the air temperature in the rest of the building.

**Monoglass®** provides this protection particularly well on metal buildings and buildings with similar exposed projections on the inside wall, which can be sprayed in conjunction with the exterior cladding, providing a monolithic thermal barrier.

K-Value: 0.25(BTU inch/(ft<sup>2</sup>h°F))

KSI: 0.036 W/(m°C)

RSI: 27.7 Km<sup>2</sup>/Wm



Permanent adhesion to metal cladding.

**Monoglass® Spray-On** was used to replace hazardous asbestos on B.C. Hydro & Power Authority pumping and metering stations, providing high thermal value, condensation control and noise abatement without fire or health hazard.



B.C. Hydro & Power Authority pumping and metering stations  
19 gas pumping stations Vancouver to Hope, B.C.

## COLD AND FREEZING CLIMATES - Require Special Considerations

When considering a self-supported interior insulation for a heated metal building, where no vapour barrier will be used on the warm side of the insulation, consult with a local HVAC professional to determine what amount of insulation is appropriate for your building to avoid possible formation of a dew point inside the insulation.



## INTERNATIONAL PROJECTS

**Monoglass®** has agents and installing contractors in numerous countries around the world including The United Kingdom, Australia, The Peoples Republic of China, Turkey, Korea, and Taiwan. We have also supplied projects in far-away places such as Mauritius, a small French speaking island-country off the east coast of Africa.

**Here are just a few of the projects we have been involved in:**



### Hanger for the Ministry of Defence, United Kingdom

The Ministry of Defence chose **Monoglass®** to convert some rather large sheds into workshops to maintain and repair tanks. Although the buildings they had were certainly large enough, they were not suitable in other areas; the buildings were cold in winter, too hot in summer, noisy to work in and very dark and dismal. The application of **Monoglass®** remedied these problems.



### Building FC2 Canary Wharf Project, London, United Kingdom

This massive Reichman Bros. Project has been many years in the creation. Almost 15 years in the making, it has become a large urban live/work environment, now populated with some of the world's most prestigious companies.



### Mauritius Telecommunication

**Monoglass®** was used for thermal protection of Mauritius Telecommunication's sensitive electronic equipment.



## INTERNATIONAL PROJECTS



Marine insulation is big business in The Netherlands **Monoglass®** is popular for marine applications in The Netherlands, where it is used in freighters, pleasure crafts and warships. Because it is non-combustible, **Monoglass®** has been approved for marine use in The Netherlands by Lloyds Register.



### Heritage Building Renovation, The Netherlands

Old plaster ceilings were given an attractive new finish with **Monoglass®**, while greatly reducing the noise reverberation problems within this heritage building.



### London School for mainstream & deaf children

**Monoglass®** was chosen for acoustic insulation in this school project. The school caters to children with hearing difficulties therefore first class sound attenuation was essential.



## INTERNATIONAL PROJECTS



**Existing Rope Manufacturing Plant, Kaohsiung, Taiwan**  
This existing factory was quickly and easily insulated with **Monoglass®**, greatly improving temperature and noise control in one application.



**Office Building, Taiwan**  
**Monoglass®** was applied over the fireproofing on the parking and loading area ceilings, insulating the occupied spaces above from outside temperatures.



**Can manufacturing plant, Hoorn, Netherlands**  
The underside of the metal roof was sprayed with **Monoglass®** for acoustic control in the manufacturing areas.

# MONOGLASS® PROJECTS

This is a partial list of the projects completed by **Monoglass®** installers over the past 25 years.

## Airports

- John F. Kennedy Airport, Queens, NY
- Logan International Airport, Boston, MA
- McKinney Airport, McKinney, TX
- Pearson International Airport, Toronto, ON
- Rochester International Airport Main Terminal, Rochester, NY
- San Francisco International Airport, San Francisco, CA
- Vancouver International Airport, Vancouver, BC

## Convention Centers

- Melbourne, Australia
- Canada Place, Vancouver, BC
- Moody Gardens Resort, Galveston, TX
- Providence Convention Center, Providence, RI

## Educational Facilities

- Arleta Public School, Portland, OR
- Blessed Sacrament Church School, Boston, MA
- Emily Carr College of Art and Design, Vancouver, BC
- Ethel Walker School, Simsbury, CT
- Hidden Lakes School, Saginaw, TX
- J. Frank Dobie High School, Houston, TX
- Nolin Middle School, Killeen, TX
- Ontario College of Art and Design, Sharp Centre, Toronto, ON
- Parkrose High School, Portland, OR
- Portland Christian School, Portland, OR
- Shiver Road Elementary School, Saginaw, TX
- Southern Methodist University, Meadows Museum, Dallas, TX
- University of British Columbia, Vancouver, BC
- University of California (Oakland), Oakland, CA
- University of North Carolina at Chapel Hill, Chapel Hill, NC
- Wellesley College, Wellesley, MA



Vancouver International Airport,  
Vancouver, BC



Providence Convention Center,  
Providence, RI



Ontario College of Art and Design,  
Sharp Centre, Toronto, ON





## MONOGLASS® PROJECTS

### Hospitals

- Anchorage Neighborhood Health Center, Anchorage, AK
- Children's Hospital, Brookline, MA
- Children's Hospital, Providence, RI
- Gaston Memorial Hospital, Gastonia, NC
- Miriam Hospital, Providence, RI
- New York Psychiatric Center, New York, NY
- Mt. Sinai Hospital, New York, NY
- South Shore Hospital, Weymouth, MA
- St. Lukes Hospital, Houston, TX



St. Lukes Hospital, Houston, TX

### Hotels, Condominiums and Residential

- Alyeska Prine Hotel, Girdwood, AK
- Comfort Inn Hotel, Anchorage, AK
- Emabarcadero Hotel, San Francisco, CA
- Hesse Residence, Houston, TX
- Marriott Hotel, Burlingame, CA
- Marriott Hotel, Providence, RI
- Marriott Hotel, San Francisco, CA
- North Beach Village, San Francisco, CA
- Oceana Residential Development, Brooklyn, NY
- San Antonio Housing, Oakland, CA
- Site "K" Apartments, San Francisco, CA
- The Canyons, Park City, UT
- The Clocktower Lofts, San Francisco, CA
- 111 Jones Street Apartments San Francisco CA



The Canyons, Park City, UT

### Houses of Worship

- Vancouver Community Church, Vancouver, WA
- Asbury United Methodist Church, Tulsa, OK
- Trinity Church, Anchorage, AK
- Saint Aloysius Church, Moncton, NB



Asbury United Methodist Church, Tulsa, OK

### Ice Arenas

- Chipman Ice Arena, Chipman, NB
- General Motors Place, Vancouver, BC
- Kitchener Ice Arena, Kitchener, ON
- Listowell Arena, Listowell, ON
- Planet Ice, Coquitlam, BC
- Stoney Creek Arena, Stoney Creek, ON



Kitchener Ice Arena, Kitchener, ON

# MONOGLASS® PROJECTS

## Libraries

- Benton County Library, Corvallis, OR
- Calgary Public Library, Calgary, AB
- Canadian Centre for Architecture, Montreal, Quebec
- Vancouver Public Library, Vancouver, BC

## Manufacturing & Warehouse Facilities

- American Tape Factory, Richmond, KT
- Atlantic Warehouse, Westwood, MA
- Berkshire Gas Company, Pittsfield, MA
- Branch Smith Printing, Fort Worth, TX
- Chas. H. Lilly Co., Portland, OR
- Kem Manufacturing, Tualatin, OR
- Lavar Summers Fruit Processors, Mud Lake, ID
- Nu-Tec Precision Metals, Waterbury, CT
- Old Pullman Car Factory, Worchester, MA
- Pfizer Chemical, Groton, CT
- Precision Metals Corp., Stoughton, NY
- Romar Terminals, Cambridge, MA
- Royal Foods Distribution Centre, Edison, NJ
- Spaulding Co., Rochester, NH
- Sports Plus Warehouse, Boston, MA
- Union Pacific Rail Road, Portland, OR
- Weyerhaeuser Paper Plant, Coos Bay, OR
- Williams Equipment, Salinas, CA

## Marine

- Arklow Shipping Arklow Star, Bureau Veritas, Barkmeyer
- DERA RV Triton, Warship, Southampton UK
- Dublin Shipping Rathboyne, Bureau Veritas, Barkmeyer
- Feederlines Boterdiep, Lloyds Reg IC, Darnen
- Feederlines Zuiderdiep, Lloyd's Reg IC, Darnen
- Gulf Oil, ship housing for drilling operation, Beaufort Sea, AK
- M/V Cabot Ferry, NS
- Palmer Johnson Inevitable, Luxury Yacht, Sturgeon Bay, WI
- Palmer Johnson Savannah, Luxury Yacht, Sturgeon Bay, WI
- Reg Grundy Boadicea, Yacht, MSA, Ameis
- River Barge Excursions, New Orleans, LA



Vancouver Public Library, Vancouver, BC



Moody Gardens Hotel and Convention Center, Galveston, TX



Palmer Johnson Inevitable, Luxury Yacht, Sturgeon Bay, WI





## MONOGLASS® PROJECTS

### Natatorium / Swimming Pools

- Comfort Inn Hotel Swimming Pool, Anchorage, AK
- Common Leisure Pool, Mississauga, ON
- Jarvis Pool, Toronto, ON
- Loretteville Swimming Pool, Loretteville, QC
- Maine Rehabilitation Center Pool, Waterville, ME
- Monarch Park Pool, Toronto, ON
- Norians' Residence Pool, Toronto, ON
- Vanier Pool, Toronto, ON
- Variety Village Pool, Toronto, ON

### Office Complexes and Towers

- Alewife Center, Cambridge, MA
- Canary Wharf, London, UK
- Glaxo Pharmaceutical Headquarters and Manufacturing Plant, Greensboro, NC
- IBM, Somers, NY
- JFK Building, Boston, MA
- Johnson & Johnson Corporate Headquarters, Golden Triangle Building, New Brunswick NJ
- Mineral Spring Office Building, Providence, RI
- Nike World Headquarters, Portland, OR
- Proctor & Gamble, Cincinnati, OH
- Spyglass Office Building, Austin, TX
- Tektronix Corporate Headquarters, Beaverton, OR
- VISA Metro Center, Phase I, Foster City, CA

### Restaurants / Night Clubs

- Century City Brew Pub, Surrey, BC
- Planet Hollywood, New York NY
- Shooter's Restaurant, Providence, RI
- The Unicorn / Mavericks, Vancouver, BC
- University of Rhode Island, Dining Hall, Kingston, RI

### Shopping Malls & Retail Facilities

- Bertelly Office Complex, Castroville, CA
- Bish's Outdoors, Idaho Falls, ID
- Carousel Mall, Syracuse, NY
- Chevron Gas Station, San Ramon, CA
- Citizens Bank, Providence, RI
- Eaton Center, Toronto, ON
- IKEA, Vancouver, BC
- Bed, Bath & Beyond, College Station, TX



Variety Village Pool, Toronto, ON



IBM, Somers, NY



Planet Hollywood, New York NY



IKEA, Vancouver, BC



# MONOGLASS® PROJECTS

- Palisades Center, West Nyack, NY
- Phipps Plaza, Atlanta, GA
- State Street Bank, Boston, MA
- Super Stop & Shop, Waterbury, CT
- Town East Mall, Mesquite, TX
- Yonkers Dodge, Yonkers, NY

## Stadiums & Sports Facilities

- Alerro Center, Belle Chasse, LA
- General Motors Place, Vancouver, BC
- Len Casanova Athletic Center, Eugene, OR
- Mesquite Rodeo Arena, Mesquite, TX
- Ohio State University Stadium, Columbus, OH
- Paul Brown Stadium, Cincinnati, OH
- Rams Head Center, Chappel Hill, NC
- Strahand Coliseum Texas State University, San Marcos, TX
- The Fed Ex Forum, Memphis, TN
- Arthur Ashe Stadium/U.S. Tennis Center, Flushing Meadows, NY

## Studios (Film, Television, Radio)

- Paramount Pictures Vancouver Film Studios, Vancouver, BC
- School of Mass Communications, University Of New Orleans, New Orleans, LA
- WKRR Rock 92 Radio Station, Greensboro, NC

## State Owned / Public Works

- Binghamton State Office, Binghamton, NY
- Department of Administration, Providence, RI
- Detroit Water and Sewage Department Building, Detroit, MI
- Filtration Plant, Newport, RI
- JFK Building, Boston, MA
- NASA Integrated Test Facility, Edwards Air Force Base, CA
- New York State Office Building, New York, NY
- Oregon Health Sciences, Portland, OR
- Oregon National Guard Commander Center, Portland, OR
- Pennsylvania Dept. of Transport, PENNDOT, Harrisburg, PA
- South Anchorage Police Shooting Range, Anchorage, AK
- State Compo Insurance Fund, San Jose, CA
- State Employment Building, Salem, OR
- U.S. Postal Facility, Polk Gulch, San Francisco, CA



Paul Brown Stadium, Cincinnati, OH



Paramount Pictures Vancouver Film Studios, Vancouver, BC



JFK Building, Boston, MA



## TECHNICAL DATA SHEET

### Spray Thermal/Acoustic Insulation

### Divisions 7 & 9

#### Product Name

**Monoglass® Spray-On Insulation**, Glass Fiber Insulation Spray Applied for Thermal and Acoustic Applications.

#### Manufacturer

**Monoglass® Incorporated**  
922 - 1200 W. 73<sup>rd</sup> Avenue  
Vancouver, BC Canada V6P 6G5  
Phone: 888-777-2966  
Phone: 604-261-7712  
Fax: 604-261-1342  
www.monoglass.com  
e-mail: info@monoglass.com

#### Product Description

##### BASIC USE

**Monoglass® Spray-On** is intended for use in residential and commercial construction, for use as a thermal and acoustic insulation. It can be sprayed onto most surfaces, in wall and ceiling applications.

##### COMPOSITION & MATERIALS

**Monoglass® Spray-On** is made from 37% recycled glass, is inorganic, non-toxic, odorless, and white for high light reflectance. **Monoglass®** is a noncombustible product, and contains no cellulose or asbestos. The polymer adhesive used to apply **Monoglass® Fiber** is water based and nonhazardous.

##### APPLICATIONS

**Monoglass®** bonds to concrete, wood, steel, gypsum, rigid fiberglass, plastic insulations and most painted surfaces. The pneumatic application allows it to be spray applied to virtually any surface configuration.

##### LIMITATIONS

Maximum thickness to be spray applied on overhead surfaces without mechanical support is 127mm. Higher R-Values can be achieved with mechanical support, contact **Monoglass® Inc.** for details.

Maximum thickness to be sprayed on vertical surfaces without mechanical support is 178mm.

**Monoglass® Adhesive** must be kept from freezing. **Monoglass®** cannot be applied when ambient and substrate temperatures are below 1°C / 34°F during the application and until the product is completely dry to the substrate. Adequate dry heat and ventilation must be supplied at low temperatures. **Monoglass® Fiber** should be kept dry during shipping and storage prior to installation.

#### Technical Data

##### APPLICABLE STANDARDS

American Society for Testing and Materials (ASTM):

- Fire Hazard ASTM E84-79: Flame Spread = 0, Smoke Developed = 0
- Thermal Conductivity ASTM C518: K-Factor = 0.25
- Noise Reduction Coefficient ISO 354 : NRC .75@25.4mm NRC .95@50.8mm  
ASTM C423-77: NRC .55@0.7" NRC .80@35.56mm
- Dry Density  
ASTM D1622-83: 3.0 pounds/cubic foot
- Non-Combustibility  
ASTM E-136-82: Non-Combustible
- Air Erosion ASTM 859: No Weight Loss
- Adhesion/Cohesion  
ASTM E-736-86: Passed
- Fungal Bacterial Resistance  
ASTM G-21-90: No Growth

##### ACCEPTANCES

- GreenSpec Approved Product
- National Building Code, Canada: CCMC 10025-R
- Canada Board of Steamship Inspection
- New York State Building Standards: MEA 333-88M
- State of California: CA-T318CN
- British Standard: BS-476 pt4
- International Marine Organization: ISO 1182:1990
- South Africa Bureau of Standards and International Standards Organization: Thermal, Acoustic & Non-Combustibility

#### Installation

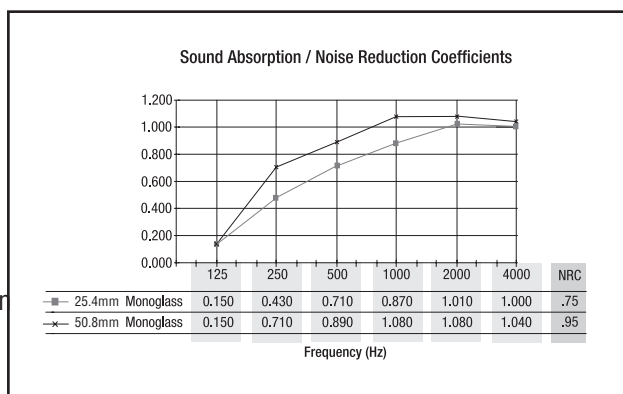
**Monoglass® Spray-On** shall be installed in accordance with manufacturer's instructions, using only **Monoglass® Bonding Adhesive** with **Monoglass® Fiber**. Contact **Monoglass® Inc.** for further details.

**Monoglass®** can be applied to most surfaces, however all surfaces should be inspected to ensure they are dry, clean, free of oil, grease, dirt, loose paint, mill scale or other deleterious material that would impair bond or cause staining of the product.

The **Monoglass®** surface can be left untamped for conventional finishes or tamped and over-sprayed for flatter finish. **Monoglass®** can also be applied with **Monoglass®** pre-tinted adhesives, or painted to the desired colour.

#### Availability & Cost

**Monoglass® Spray-On** insulation is available throughout the United States and Canada, and many countries worldwide. Contact **Monoglass® Inc.** for the names of contractors and **Monoglass® Agents** in your area.



#### Technical Assistance

Please contact **Monoglass® Inc.** or your **Monoglass® Agent** for technical assistance, complete product literature and test reports.



## STANDARD SPECIFICATION GUIDE

PROPERTY	TEST METHOD RESULTS
Fire Hazard Classification	ASTM E84-79: Flame Spread - 0 Smoke Developed - 0
Bond Strength	ASTM E-736: 4.062kPA
Non-Combustibility	ASTM E-136
Smolder Resistance	CGSB 51-GP-36P
Dry Density	ASTM D-1622-83: 3.0 pounds/cubic foot
Thermal Conductivity	ASTM C-518: K-Factor .25
Noise Reduction Coefficient	ISO 354: 25.4mm/1" NRC = .75 50.8mm/2" NRC = .95
Fire Gas Toxicity University of Pittsburgh Protocol	Passed
Fungus & Bacterial Resistance	ASTM G-21-90 - No Growth
Air Erosion	ASTM E-859 at 6.6mtrs/sec; No weight loss or damage

- c) MONOGLASS® Bonding Adhesive shall be mixed with fresh, clean potable water to the exact proportions recommended by the manufacturer.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

Examine all surfaces and conditions to which the work of this section is to be applied. Ensure they are adequate to provide a satisfactory application of the specified materials. Report any deficiencies to the design authority.

#### 3.2 PREPARATION

- a) Remove any dust, dirt, foreign material, loose paint, etc. on surfaces to which the work is to be applied, which could otherwise create a false bond or staining of insulation. Clean and seal as required.

- b) Verify bond requirements and compatibility of all surfaces to receive thermal insulation materials.
- c) Ensure that all ducts, piping, equipment, or other items which would interfere with application of thermal insulation are not positioned until thermal insulation work is completed.

#### 3.3 APPLICATION

- a) Mix and apply thermal insulation in strict accordance with manufacturer's recommendations.
- b) Apply insulation to the substrate as specified in the site drawings.
- c) Apply insulation to substrate in sufficient thickness to achieve the required thermal (acoustical) value. Board tamp and over-spray with adhesive if required by design authority.

#### 3.4 CLEAN-UP

- a) Remove sprayed thermal insulation from material and surfaces not specifically required to be insulated.
- b) Broom clean work areas affected by the work of this section.

#### 3.5 OPTIONS

- a) If required by design authority, board tamp sprayed insulation surface and apply Monoglass® adhesive to seal the tamped insulation surface, in accordance with manufacturer's written instructions.
- b) Paint as required, or apply spray insulation using manufacturer's pre-tinted adhesives, as per manufacturers instructions.

#### 3.6 RETURN AIR PLENUMS

For return air plenum applications, finish as in Options 3.5(a).



# MONOGLASS® TEST REPORT SUMMARY

## Monoglass® Test Data

Monoglass® has been tested to the following Test Standards applicable to spray applied thermal and/or acoustic insulation. Complete copies of test reports are available for your review on our website: [www.monoglass.com](http://www.monoglass.com) or simply call us to receive a copy by fax.

Please contact Monoglass® Incorporated if you have any questions regarding this information.

PROPERTY	TEST	REQUIREMENT	RESULT
Thermal Characteristics	ASTM C-518-76		
Noise Reduction Coefficient	ASTM C-423-77 ISO 354		17.78mm = .55 NRC 35.56mm = .80 NRC 25.40mm = .75 NRC 50.80mm = .95 NRC
Sound Transmission	ASTM E-90-85		STC 28: 37.5 mm Monoglass® on .5mm metal sheet
Field Sound Transmission Loss	Test No.113-601		FSTC 55: 25.40mm Monoglass® on concrete
Air Erosion	ASTM E-859		No Weight Loss or damage
Light Reflectance	GE reflectivity		80-85%
Vibration Resistance Type 1	CGSB 51-GP-11M	Maximum 0.5%	Passed:0.02%
Field Density	ASTM D-1622-83 CGSB-51-GP-36P		3.0 lbs/ft <sup>3</sup> 2.6 lbs/ft <sup>3</sup>
Bond Strength (Adhesion / Cohesion)	ASTM E736 CGSB 51-GP-36P	Not less than 1.7 kPa	Passed: 4.062 kPa
Moisture Absorption	CGSB 51-GP-36P	Maximum 20%	Passed: 4.9%
Fungus & Bacterial Resistance	ASTM G-21-90		Zero Rating - No Growth
Non-Combustibility	CAN 4-S114-78 ISO 1182-90 / Part 1 of IMO FTP Code ASTM E-136-82		Passed: Non-Combustible
Fire Hazard Classification / Surface Burning Characteristics	ASTM E84-79 ULC S-102-M88		0 Flame Spread 0 Fuel Contribution 0 Smoke Developed
Fire Gas Toxicity	Univ. of Pittsburgh Protocol		Passed Max CO <sub>2</sub> : 3.5% Max CO: 0.30%



## MONOGLASS® TEST REPORT SUMMARY

### Acceptances

- National Building Code Canada  
CCMC #10025-R
- New York State Building Standards  
MEA #333-88M
- State of California  
CA-T318(CN)
- GreenSpec  
Green Building Material - Approved

### Marine Approvals

- International Marine Organization  
Non-Combustible Material as tested to  
ISO 1182-90 / Part 1 of IMO FTP Code
- Lloyd's Register EMEA Certificate of Fire  
Approval No. SAS F030479
- Canadian Coast Guard  
Board of Steamship Inspection  
Approved Material, Certificate No. F1-319
- China Register of Shipping  
321-97-22

### INTERNATIONAL STANDARDS

British Standards	Surface Spread of Flame	BS-476 Part 4: Class 1
South African Bureau of Standards (SABS)	Thermal	Report 722/82316/KK41 : ISO 8301:1991
	Acoustic	Report 717/85190/K30 : ISO 354:1985
	Non-Combustibility	Report 0177 Part 3 & 5 : ISO 1182:1990
International Standards Organization (ISO)	Thermal	ISO 8301:1991 / ASTM C518 / SABS 722
	Acoustic	ISO 354:1985 / ASTM C423 /SABS 717
	Non-Combustibility	ISO 1182:1990 / CAN 4-S114 / SABS 0177



Thermatec Technology  
Unit 2 / 401 Francis Street  
Brooklyn, Victoria 3025

September 2, 2008

To Whom it May Concern:

**Re: Ozone Depleting Potential**

Thank you for your inquiry regarding Monoglass.

Please be advised that the Ozone Depleting Potential of Monoglass is zero.

Should you have any questions or require further information, please do not hesitate to contact me.

Sincerely,  
Monoglass Incorporated

Joe McDermid CTR  
Director - Sales & Marketing

**Monoglass® Incorporated**

922 - 1200 West 73rd Avenue, Vancouver, British Columbia, Canada V6P 6G5  
Phone: (604) 261-7712 Toll Free: 1-888-SPRAY-ON (777-2966) Fax: (604) 261-1342 E-mail: info@monoglass.com



## Monoglass / Cellulose Comparison

Property	Monoglass	Cellulose
<b>R-Value</b>	4.0 per inch <b>ASTM C518</b>	Unpublished – a range of R3 to R19 is usually provided. Some specifications will indicate an R Value of 3.8/inch
<b>Installed thickness</b>	Easily installed to 5 inches in one pass with no mechanical support	Double or multiple passes required to achieve thickness over 3 inches.
<b>Surface Burning</b>	Flame Spread = 0 Smoke Developed = 0 Fuel Contributed = 0 <b>ASTM 84</b> <b>ULCS 102</b>	Information not available
<b>Combustibility</b>	Naturally non-combustible <b>ISO 1182</b>	Achieved only through chemical treatment (borate additive), which may dissipate over time – per cellulose literature
<b>Air Erosion</b>	Zero Mass loss <b>ASTME E859</b>	Information not available
<b>Mold Growth</b>	Product is inorganic and will not support mold growth <b>ASTM G 21</b>	Achieved only through chemical treatment (borate additive), which may dissipate over time. Per cellulose literature
<b>Recycled Content</b>	Never less than 37%, 25% of which is from post consumer material	Made from recycled newspaper. Approximately 60% to 80% recycled content
<b>Natural Appearance</b>	Bright White	Tan
<b>Colors available</b>	Various	Various

E. & O.E. January 2007

This material is confidential and not for distribution past the intended recipient.

**ORTECH**

For: Monoglass Incorporated  
Thermal Evaluation

Report No: 95-J53-B0132

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**ACCREDITATION**

Standards Council of Canada, Registration #101.

**REGISTRATION**

ISO 9002-1987, registered by QMJ, Registration #001109.


**INTRODUCTION**

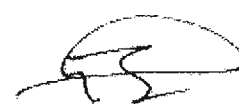
Samples of Monoglass were submitted for thermal resistance testing in accordance with section 9.3.7 of the CGSB 51-GP-36 Draft Standard for Spray Applied Cellulosic Fibre. The samples were assigned the ORTECH Sample No. 95-J53-M0255B.

**RESULTS**

Table 1 - Thermal Resistance Results		
Specimen	mK/W	25 mmK/W
95-J53-M0255B-1	28.334	0.708
95-J53-M0255B-2	28.337	0.708
95-J53-M0255B-3	28.744	0.719
Average	28.472	0.712

Please see attached Table 2 for the detailed thermal resistance results.

  
Franz C. Bauer  
Project Manager  
Building Performance Technology

  
Pamela Miki Shinkoda, P.Eng.  
Project Engineer  
Building Performance Technology

**Table 2 - Thermal Transmission Properties (ASTM C-518)**

ORTECH Sample: 95-J53-M0255B-1		SI Units	British Units
Specimen thickness	37.84	mm.	1.490 inch
Specimen density	62.87	kg/m <sup>3</sup>	3.92 lbs/ft <sup>3</sup>
Hot surface temperature	34.99	°C	94.99 °F
Cold surface temperature	12.99	°C	55.38 °F
Temperature differential	22.00	°C	39.60 °F
Mean test temperature	23.99	°C	75.18 °F
Heat flux through the specimen	20.521	W/m <sup>2</sup>	6.506 Btu/ft <sup>2</sup> .h
Thermal conductance of the specimen	0.933	W/m <sup>2</sup> .°K	0.164 Btu/ft <sup>2</sup> .h.°F
Thermal resistance of the specimen	1.072	m <sup>2</sup> .°K/W	6.088 °F.ft <sup>2</sup> .h/Btu
Thermal conductivity at the tested thickness	0.035	W/m.°K	0.245 Btu.in/ft <sup>2</sup> .h.°F
Thermal resistance per unit thickness	28.334	m.°K/W	4.086 °F.ft <sup>2</sup> .h/Btu.in
ORTECH Sample: 95-J53-M0255B-2		SI Units	British Units
Specimen thickness	37.71	mm.	1.485 inch
Specimen density	62.16	kg/m <sup>3</sup>	3.88 lbs/ft <sup>3</sup>
Hot surface temperature	35.00	°C	94.99 °F
Cold surface temperature	13.00	°C	55.39 °F
Temperature differential	22.00	°C	39.60 °F
Mean test temperature	24.00	°C	75.19 °F
Heat flux through the specimen	20.589	W/m <sup>2</sup>	6.528 Btu/ft <sup>2</sup> .h
Thermal conductance of the specimen	0.936	W/m <sup>2</sup> .°K	0.165 Btu/ft <sup>2</sup> .h.°F
Thermal resistance of the specimen	1.069	m <sup>2</sup> .°K/W	6.067 °F.ft <sup>2</sup> .h/Btu
Thermal conductivity at the tested thickness	0.035	W/m.°K	0.245 Btu.in/ft <sup>2</sup> .h.°F
Thermal resistance per unit thickness	28.337	m.°K/W	4.087 °F.ft <sup>2</sup> .h/Btu.in
ORTECH Sample: 95-J53-M0255B-3		SI Units	British Units
Specimen thickness	38.07	mm.	1.499 inch
Specimen density	69.56	kg/m <sup>3</sup>	4.34 lbs/ft <sup>3</sup>
Hot surface temperature	35.00	°C	95.00 °F
Cold surface temperature	13.02	°C	55.43 °F
Temperature differential	21.98	°C	39.57 °F
Mean test temperature	24.01	°C	75.21 °F
Heat flux through the specimen	20.088	W/m <sup>2</sup>	6.369 Btu/ft <sup>2</sup> .h
Thermal conductance of the specimen	0.914	W/m <sup>2</sup> .°K	0.161 Btu/ft <sup>2</sup> .h.°F
Thermal resistance of the specimen	1.094	m <sup>2</sup> .°K/W	6.213 °F.ft <sup>2</sup> .h/Btu
Thermal conductivity at the tested thickness	0.035	W/m.°K	0.241 Btu.in/ft <sup>2</sup> .h.°F
Thermal resistance per unit thickness	28.744	m.°K/W	4.146 °F.ft <sup>2</sup> .h/Btu.in