

THE THERMOLITE WINDOW SYSTEM



GSA Federal Supply Contract Information and Price List

General Services Administration
Federal Supply Service
Authorized federal Supply Schedule Price List
Contract Number: GS-07f-0116H

Therm-O-Lite, Inc.
3502 W. Sample St
South Bend, IN. 46619
574-234-4004
574-234-4005 FAX
www.thermolitewindows.com

Veteran Owned Business

The web address for GSA Advantage! is:
<http://www.gsaadvantage.gov>

ENERGY SAVINGS

ENERGY EFFICIENCY

ENERGY INTEGRITY

ENERGY SECURITY



Therm-O-Lite, Inc.
635 South Lafayette Boulevard
South Bend, IN 46601
Phone: 574-234-4004 Fax: 574-234-4005

GSA Contract # GS-07F-0116H

Federal Reserve Bank Eccles – Blast, thermal, historic
Washington, D.C.
Project Manager: Jacob Goldsmith (703) 928-0487

GSA – Silver Springs Deep energy Retrofit - Thermal
Silver Springs, MD
Project Manager: Ameresco

Department of Interior – Blast, thermal, historic
Washington, D.C.
Project Manager: Dave Onks, Caffes-Steele (301) 937-5750

Lafayette Building – Blast, thermal, historic
Washington, D.C.
Project Manager: Greta Soderman, Grunley Construction (202) 559-1177

St. Elizabeth's Adaptive Reuse – Blast, thermal, historic
Washington, D.C.
Project Manager: Bill Six, Grunley Construction (240) 399-2000

1800 F Street (GSA HQ) – Blast, thermal, historic
Washington, D.C.
Project Manager: David Smith, GPR Windows (703) 300-8868

Washington Naval Yard – Thermal, historic
Rockville, MD
Project Manager: John Wysong (202) 658-8871

American Building – Thermal
Indianapolis, IN
Project Manager: Rem Yoder (317) 363-3830

Federal Reserve Bank Annex (1709 New York Avenue) – Blast, thermal, historic
Washington, D.C.
Project Manager: Charlie House (202) 452-2061

Sidney Yates Building – Blast, thermal, historic
Washington, D.C.
Project Manager: John Schulte (757) 627-5684

Foley Federal Building – Blast, thermal
Las Vegas, Nevada
Project Manager: April Ratka, At Your Service (602) 943-6318 Ext 111

Fort Sill, Building #455 – Blast, thermal, historic
Lawton, Oklahoma
Project Manager: Ric Schulte, He & I Construction (580) 536-8180

Wheeler Opera House – Thermal, historic
Aspen, Colorado
Project Manager: City of Aspen (970) 920-5055

Indigo Garden District Hotel – Hurricane
New Orleans, Louisiana
Project Manager: Fred Shinkle, Commercial Renovation Services (770) 345-3570

New York Academy of Medicine, Rare Book Room – Thermal, historic
New York, New York
Project Manager: Bill Kennedy, Kilroy Windows (718) 638-2503

Philadelphia Federal Reserve Bank – Blast, thermal
Philadelphia, PA
Project Manager: Chris Ivanowski (215) 574-6560

Grey Towers Historic Mansion – Thermal, historic
Milford, PA
Site Director: John LoDolce (570) 296-6061 ext 2

Lifescan - Thermal
Milpitas, Ca
Project Engineer: Reena David (408) 956-4026
Staff Mechanical Engineer: Frank Lo (408) 956-4802

Great Lakes Naval Station
Building #3
Great Lakes, IL
Project Manager: Blinderman Construction (773) 444-0500

McNamara Building – Thermal
Detroit, Michigan
Building Manager: Munir Muhammad (313) 226-2106
Project Manager: Chris Mourgelas (313) 226-2258
Contract Officer: Lisa Gonzalez (312) 886-4106

Anthony Celebrezze Federal Building - Thermal
Cleveland, Ohio
Building Manager: Greg Wade (216) 522-7156
Project Manager: Robert Lowe (216) 621-2973
Contract Officer: Evelyn Smith (312) 353-3955

Federal Trade Commission – Blast, thermal, historic
Washington, D.C.
Building Manager: Robert Bass (202) 326-2265

Department of Commerce (HCHB) – Blast, thermal, historic
Emergency Operations Center
Washington, D.C.
Procurement Specialist: Greg Servant (202)482-6124

National Defense University – Blast, thermal, historic
Fort McNair
Building #59
Washington, D.C.
Project Manager: Steve Hatch (202) 685-3929

Preble Hall – Blast, thermal, historic
Annapolis, MD
Project Manager: Paola Lyle (301) 963-5000

White House Visitor Center – Blast, thermal, historic
Washington, D.C.
Project Manager: Anthony Monday (202) 205-5166
Manager: Kathy Langley (202) 208-1631

**GENERAL SERVICES ADMINISTRATION
FEDERAL ACQUISITION SERVICE
AUTHORIZED FEDERAL SUPPLY SCHEDULE CATALOG/PRICE LIST**

On-line access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order is available through **GSA Advantage!**, a menu-driven database system. The INTERNET address for **GSA Advantage!** is <http://www.gsaadvantage.gov>

SCHEDULE TITLE: Federal Supply Schedule 056 – Buildings, Building Materials, Industrial Services and Supplies
FSC Group: 5620

CONTRACT NUMBER: GS-07F—0116H

CONTRACT PERIOD: August 31, 2013 – August 30, 2018

For more information on ordering from Federal Supply Schedules click on the GSA Schedules link at www.gsa.gov

CONTRACTOR: Therm-O-Lite, Inc.,
3502 West Sample Street,
South Bend, IN 46619
Phone: 574-234-4004
FAX: 574-234-4005
Email: info@thermolitewindows.com

CONTRACTOR'S ADMINISTRATION SOURCE: Mary Ann Perrine

BUSINESS SIZE: Small

Socioeconomic Indicators: Veteran-Owned

CUSTOMER INFORMATION:

1a. TABLE OF AWARDED SPECIAL ITEM NUMBERS (SINs)

SIN	DESCRIPTION
563 16	Blast Mitigation, Bullet Resistant, and Glass Fragmentation Products
563 23	Doors, Windows Panels, and Shutters
563 98	Ancillary Services Related to Building Materials/Supplies

1b. LOWEST PRICED MODEL NUMBER AND PRICE FOR EACH SIN:
(Government net price based on a unit of one)

<u>SIN</u>	<u>MODEL</u>	<u>PRICE</u>
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To be completed by contractor on text file submission

1c. HOURLY RATES: (Services Only)
To be completed by contractor on text file submission

2. **MAXIMUM ORDER*:** \$200,000 (SIN 563 16); \$75,000 (SIN 563 23); and \$200,000 (SIN 563 98)

*Ordering activities may request a price reduction at any time before placing an order, establishing a BPA, or in conjunction with the annual BPA review. However, the ordering activity shall seek a price reduction when the order or BPA exceeds the simplified acquisition threshold. Schedule contractors are not required to pass on to all schedule users a price reduction extended only to an individual ordering activity for a specific order or BPA.

3. **MINIMUM ORDER:** \$100

4. **GEOGRAPHIC COVERAGE:** Domestic – 50 states, Washington, DC, Puerto Rico, US Territories and to a CONUS port or consolidation point for orders received from overseas activities

5. **POINT(S) OF PRODUCTION:** Therm-O-Lite, Inc.
3502 West Sample Street
South Bend, IN 46619 (St. Joseph County)

6. **DISCOUNT FROM LIST PRICES:** GSA Net Prices herein.

7. QUANTITY DISCOUNT(S):	<u>Number of Windows Per Order</u>	<u>Amount of Discount</u>	<u>Limit of Different Sizes</u>
	100 to 200	1.7%	5
	201 to 500	3.4%	10
	501 to 2000	5.0%	15
	Over 2001	6.7%	20

8. **PROMPT PAYMENT TERMS:** Net 30 days. Information for Ordering Offices: Prompt payment terms cannot be negotiated out of the contractual agreement in exchange for other concessions.

9.a **Government Purchase Cards must be accepted at or below the micro-purchase threshold.**

9.b **Government Purchase Cards are accepted above the micro-purchase threshold. Contact contractor for limit.**

10. **FOREIGN ITEMS:** None

11a. **TIME OF DELIVERY:** Within 42 to 56 days after receipt of order

11b. **EXPEDITED DELIVERY:** Negotiated on a case by case basis

11c. **OVERNIGHT AND 2-DAY DELIVERY:** None Offered.

11d. **URGENT REQUIRMENTS:** Customers are encouraged to contact the contractor for the purpose of requesting accelerated delivery.

12. **FOB POINT:** Origin – Prepay/Add

13a. **ORDERING ADDRESS:** same as Contractor address above

13b. **ORDERING PROCEDURES:** For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPA's) are found in FAR 8.405-3

14. **PAYMENT ADDRESS:** Same as Contractor address above

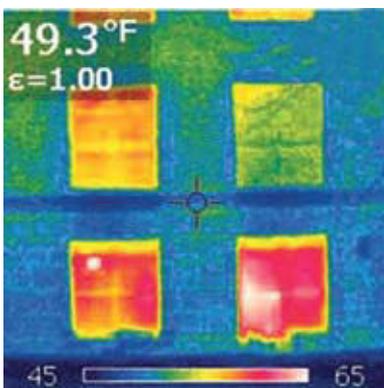
15. **WARRANTY PROVISION:** 1 year; manufacturer responsible for freight on warranty replacement. Customer should contact contractor for a copy of the warranty
16. **EXPORT PACKING CHARGES:** None
17. **TERMS AND CONDITIONS OF GOVERNMENT PURCHASE CARD ACCEPTANCE:** (any thresholds above the micro-purchase level may be inserted by contractor)
18. **TERMS AND CONDITIONS OF RENTAL, MAINTENANCE, AND REPAIR (IF APPLICABLE):** N/A
19. **TERMS AND CONDITIONS OF INSTALLATION (IF APPLICABLE):** Services for installation are available.
20. **TERMS AND CONDITIONS OF REPAIR PARTS INDICATING DATE OF PARTS PRICE LISTS AND ANY DISCOUNTS FROM LIST PRICES (IF AVAILABLE):** N/A
- 20a. **TERMS AND CONDITIONS FOR ANY OTHER SERVICES (IF APPLICABLE):** N/A
21. **LIST OF SERVICE AND DISTRIBUTION POINTS (IF APPLICABLE):** N/A
22. **LIST OF PARTICIPATING DEALERS (IF APPLICABLE):** N/A
23. **PREVENTIVE MAINTENANCE (IF APPLICABLE):** N/A
- 24a. **SPECIAL ATTRIBUTES SUCH AS ENVIRONMENTAL ATTRIBUTES (e.g. recycled content, energy efficiency, and/or reduced pollutants):** N/A
- 24b. **Section 508 Compliance for EIT:** as applicable
25. **DUNS NUMBER:** 03-935-3297
26. **NOTIFICATION REGARDING REGISTRATION IN SYSTEM FOR AWARD MANAGEMENT (SAM) DATABASE:** Contractor has an Active Registration in the SAM database.

FEDERAL TRADE COMMISSION BUILDING, WASHINGTON, D.C.

If you are thinking about replacement windows—

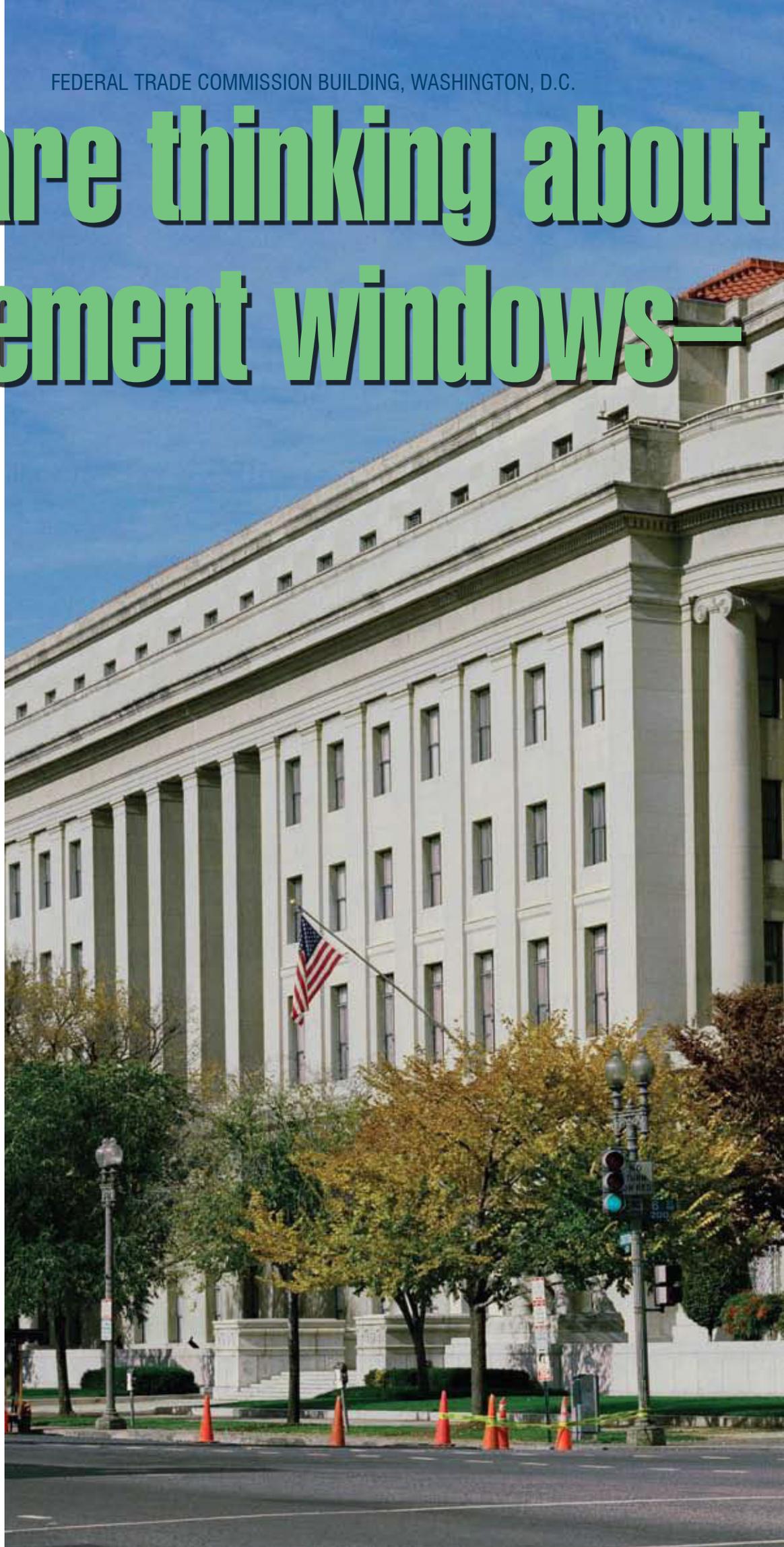


Designed to improve the performance of existing windows, Thermolite patented Window Systems are installed on the interior of windows that are structurally sound. Thermolite Window Systems work in conjunction with your existing windows to give you double or triple frame protection eliminating up to 90% of air infiltration and conduction heat loss up to 50%.



THERMAL IMAGE SCAN SHOWING THERMOLITE WINDOW (UPPER RIGHT) REDUCES HEAT LOSS.

According to the Department of Energy¹, buildings account for 40% of U.S. Primary Energy Consumption and 50% of this energy is impacted by windows; almost 14% of the total energy in the U.S.





We have been securing America's most valuable buildings for over 30 years.

The technology perfected for the federal government saves time, energy, investment capital and lives. It is now available for use in the private sector for commercial, office, educational, hospitality, banks, historic and medical building projects.

Founded in the early 1980s, Thermolite's original concept to create an insulated glass window unit, by incorporating a supplemental pane of glass behind the existing exterior building glass, has evolved into something special.

THERMOLITE WINDOW SYSTEMS

- ✓ **Lower initial investment**
- ✓ **Reduces total energy costs**
- ✓ **Reduces sound infiltration**
- ✓ **Maintains architectural integrity**
- ✓ **Non-interruptive installation**
- ✓ **Enhanced security options**
- ✓ **Reduces condensation**
- ✓ **Reduces HVAC upgrades**
- ✓ **Improves building comfort**
- ✓ **Installs from the interior**
- ✓ **Does not affect sight line**
- ✓ **Blast, Hurricane & Signal Defense upgrades**

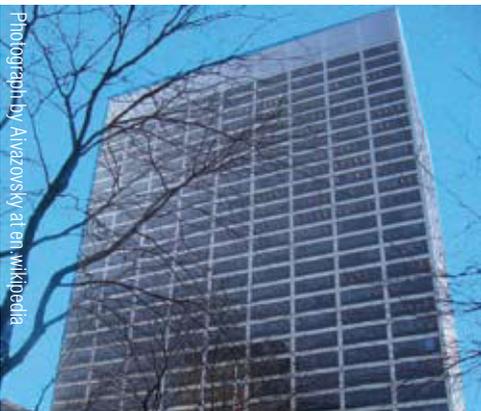
Thermolite windows install on the interior to reduce the noise infiltration, provide a security barrier and increase energy efficiency of existing windows.

ENERGY SAVINGS

- ✓ **Lower Investment**
- ✓ **Faster Return**
- ✓ **Financing Available**

Most installations realize immediate financial return with the Thermolite Window System. Besides lowering the initial investment (the “I” in ROI), the Thermolite Window System has a profound impact on the TOTAL BUILDING, which needs to be considered in your evaluation.

- 1. Reduction in energy loss provides utility savings immediately – now and into the future.**
- 2. Reduction in peak loads for electricity results in immediate utility cost reduction.**
- 3. Lower total energy demand for your building results in smaller HVAC, boiler, chiller capital cost and capacity need. This is significant.**
- 4. Reduction in load and HVAC capacity reduces the operating cost and overall maintenance cost, while extending the lifetime of this very expensive equipment.**
- 5. Financing available through our Renewable Energy Equipment Leasing partnership.**



CELEBREZZE FEDERAL BUILDING, CLEVELAND, OH

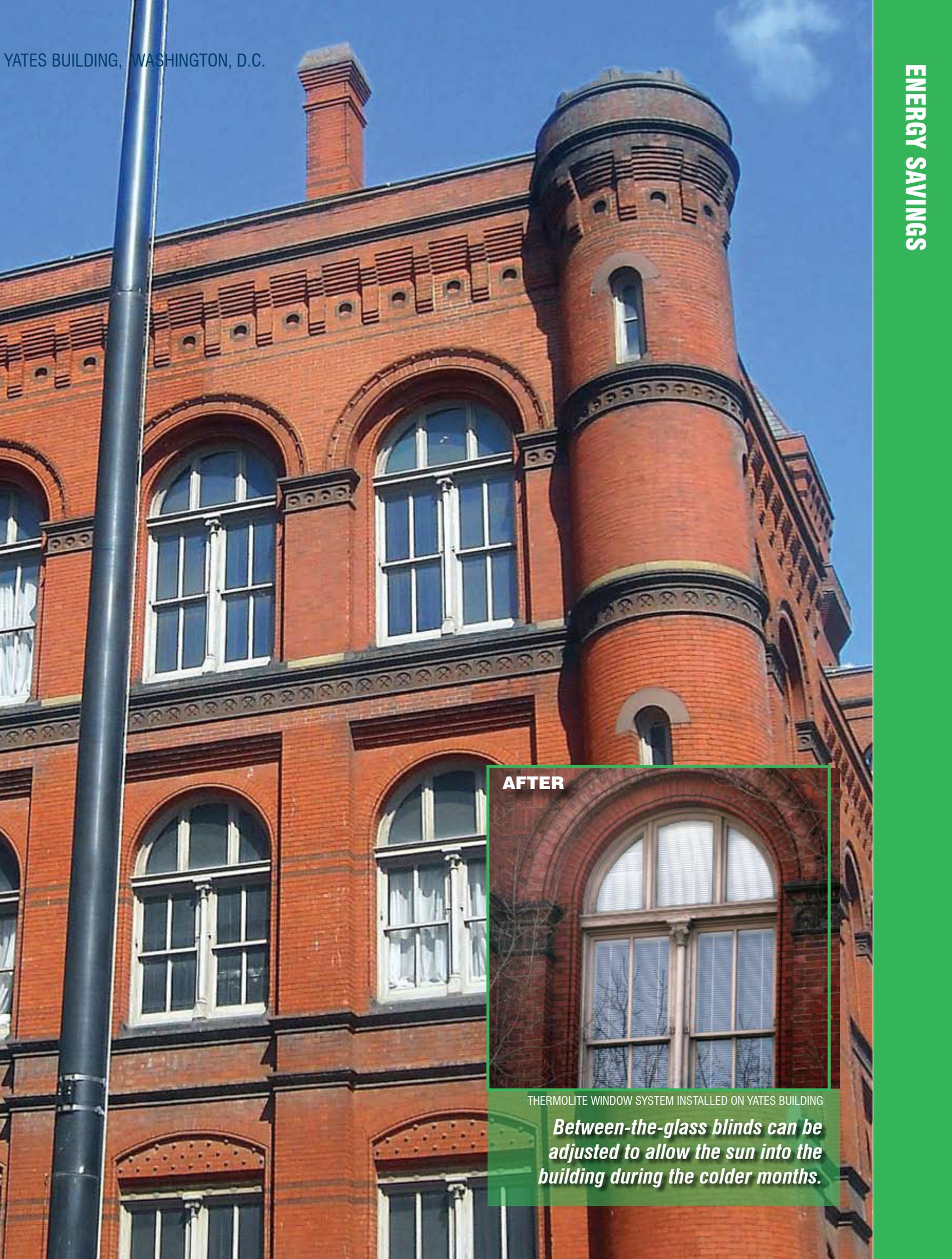


THERMOLITE WINDOWS INSTALLED IN YATES BUILDING



YATES BUILDING, WASHINGTON, D.C.

ENERGY SAVINGS



AFTER



THERMOLITE WINDOW SYSTEM INSTALLED ON YATES BUILDING

Between-the-glass blinds can be adjusted to allow the sun into the building during the colder months.

FEDERAL RESERVE BOARD ANNEX, WASHINGTON, D.C.

ENERGY EFFICIENCY

Thermolite blast windows eliminate the need for structural reinforcing while maintaining best-in-class energy performance.



NO-MESS, NON-INTERRUPTIVE INSTALLATION

A window installation project doesn't have to be messy, noisy, unsightly and disruptive. Because Thermolite Window Systems fit inside the frame of existing windows, there is very little dust and no mess. The average estimated time to complete installation per window is 2 hours, and we'll do the installation during non-work hours so your productivity and work flow will not be affected. The benefit of that is your visitors will not be greeted with a "construction zone" as they approach your building.

As a consumer, if you make an installation comparison between traditional replacement windows and Thermolite Window Systems, you'll see that shorter install time and reduced interruption of your employees' productivity contribute to an overall lower project cost. When you specify Thermolite, you get project savings now plus energy savings not only immediately but over the life of the building.

ENERGY EFFICIENCY

HASSLE-FREE INSTALLATION

- ✓ **No exterior scaffolding**
- ✓ **No relocation of staff**
- ✓ **Minimum mess**
- ✓ **Off-hours install available**
- ✓ **No exterior indication of on-going project**



THERMOLITE WINDOWS INSTALLED IN THE ARCHED WINDOWS AT FT. SILL. —U.S. ARMY

MAINTAINS BUILDING'S ARCHITECTURAL AND HISTORIC INTEGRITY

Thermolite Window Systems are preferred by building and project managers for historical preservation requirements because they are engineered to fit the building's original openings. Besides looking like original windows, our system virtually eliminates condensation and significantly reduces street noise with an STC49 rating.

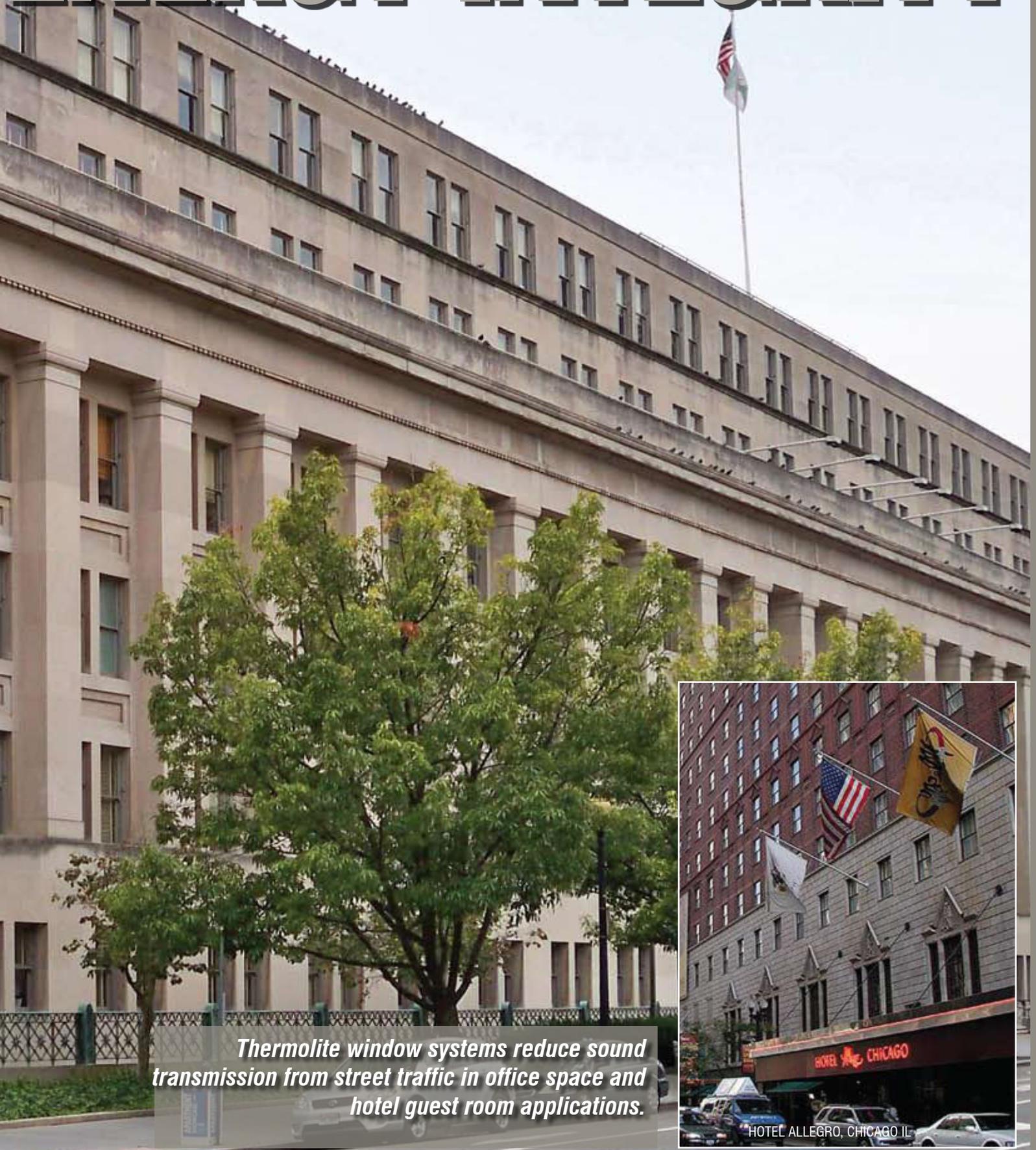
Not only do Thermolite Window Systems extend the life of existing windows, they also protect historic or artistic treasures and interior furnishings with the addition of between-glass blinds and/or laminate which significantly reduces UV damaging rays.

HISTORIC IMPACT

- ✓ **No change to sightlines**
- ✓ **Preserve existing windows**
- ✓ **Frame to match interior decor**
- ✓ **Virtually eliminate condensation**
- ✓ **Protect interior structure and furnishings**
- ✓ **Realize historic building credits**
- ✓ **Maintain historic registry**



ENERGY INTEGRITY



Thermolite window systems reduce sound transmission from street traffic in office space and hotel guest room applications.

ENERGY INTEGRITY

HOTEL ALLEGRO, CHICAGO, IL

FOLEY FEDERAL BUILDING AND UNITED STATES COURTHOUSE, LAS VEGAS, NV

ENERGY SECURITY

Protect your people and your information using DoD-certified signal defense and blast-resistant glass technology by Thermolite.



THERMOLITE WINDOW SYSTEMS CAN SAVE LIVES

Protect the most valuable part of your building—the people inside—with the Thermolite Window System. Every energy product we manufacture can be equipped with blast, ballistic, hurricane and signal defense technology.

Broken glass from windows is the largest contributor to injuries and fatalities in a blast event. In the 1995 Oklahoma City bombing, more than 40% of the injuries and fatalities were attributed to broken windows. Since then, the incorporation of blast-resistant windows in new construction for high profile buildings has been a standard practice. Existing buildings often times do not have the structural reinforcement for new blast windows and had to rely on window film which will allow the window glass to detach if it's not structurally fastened. Our system eliminates the need for structural reinforcing while maintaining high levels of blast mitigation as specified by GSA and the Department of Defense.

- ✓ **Reduces structural reinforcement**
- ✓ **Reduces anchorage needed**
- ✓ **Maintains historic integrity**
- ✓ **Most affordable high-performance blast system available**

THERMOLITE WIN PROTECT LIVES

BLAST

Our patented compression release technology allows for minimal anchoring and no structural reinforcement. What this means is lower cost, higher ROI, larger window openings, pain-free installation—all with the highest level of security possible and with the most exceptional energy performance in the industry today.

Building Classification	Examples	Minimum Overpressure	Minimum Impulse
A	No protection	0	0
B	No protection	0	0
C	Federal Courts, Federal Buildings	4 psi	28 psi ms.
D	High-level Military	10 psi	90 psi ms.
E	State Department	Classified	Classified

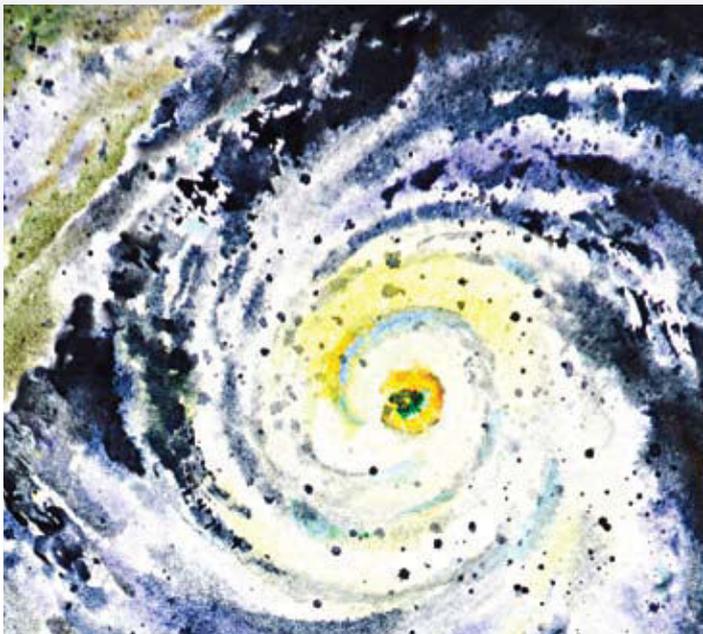
Performance Condition	Protection Level	Hazard Level	Description of Window Glazing Response
1	Safe	None	Glazing does not break. No visible damage to glazing or frame.
2	Very High	None	Glazing cracks but is retained by the frame. Dusting or very small fragments near sill or on floor acceptable.
3a	High	Very Low	Glazing cracks. Fragments enter space and land on floor no further than 3.3 ft. from the window.
3b	High	Low	Glazing cracks. Fragments enter space and land on floor no further than 10 ft. from the window.
4	Medium	Medium	Glazing cracks. Fragments enter space and land on floor and impact a vertical witness panel at a distance of no more than 10 ft. from the window at a height no greater than 2 ft. above the floor.
5	Low	High	Glazing cracks and window system fails catastrophically. Fragments enter space impacting a vertical witness panel at a distance of no more than 10 ft. from the window at a height greater than 2 ft. above the floor.

DOW SYSTEMS

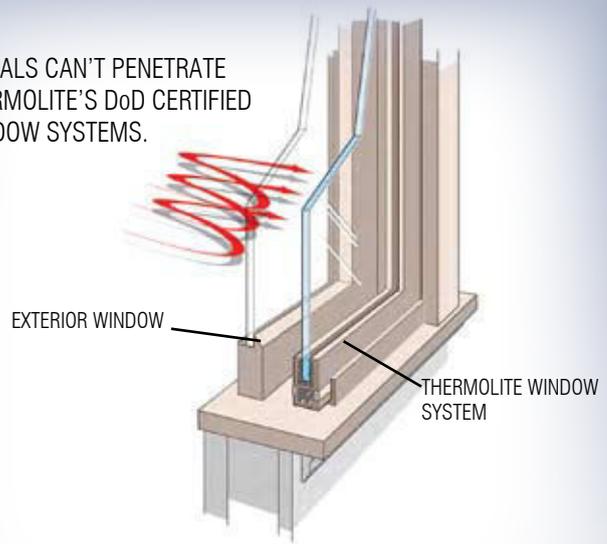
HURRICANE

Building openings like windows and doors have to be secure during a high-wind storm or the entire building will be at risk. Minimizing water damage is not the main purpose of hurricane windows. Instead, they protect the entire building from an overload of wind pressure, which may contribute to the entire roof lifting off. Wind blowing over the roof will create a negative pressure. Once the windows of a building fail, positive pressure will build up inside the structure, and total structural failure is likely.

The Thermolite Window System easily installs on the inside of the building and will secure your building. Our systems have been tested for large and small impacts and meet the strictest building codes in the country.



SIGNALS CAN'T PENETRATE THERMOLITE'S DoD CERTIFIED WINDOW SYSTEMS.



SIGNAL DEFENSE

Organizations desiring to properly secure locations handling sensitive and/or classified information should consider adding some kind of signal defense capabilities to the Thermolite Window System. A single event of information theft could devastate a business, and we have a solution ready to protect. Laminated glass with patented technology can be placed on the interior of your building, which will protect any kind of information from theft coming from your company's cell phones, routers or even audio espionage through the glass itself. We can provide an interior system to comply with US DoD Policy, Infrared and Radio Frequency Emanation Standard, Intelligence Community Directive 705.2, Certified TEMPEST Technical Authority (CTTA) specifications.

THERMOLITE CLIENTS

UNITED STATES ARMY

UNITED STATES NAVY

NATIONAL DEFENSE
UNIVERSITY

DEPARTMENT OF
HOMELAND SECURITY

DEPARTMENT OF THE
INTERIOR

NATIONAL PARK SERVICE

DEPARTMENT OF
AGRICULTURE

FEDERAL RESERVE BANK
SYSTEM

STATE / FEDERAL
BUILDINGS

PRIVATE / PUBLIC
UNIVERSITIES

HOTELS, OFFICE &
COMMERCIAL BUILDINGS

THERMOLITE ™
WINDOW SYSTEMS

635 South Lafayette Boulevard
South Bend, Indiana 46601
Phone: 574.234.4004
Fax: 574.234.4005

E-mail: info@Thermolitewindows.com
Website: www.Thermolitewindows.com

Please call or e-mail us to find out how
THERMOLITE can be your window system.





STATE HOUSE

Visitor Center

LEGISLATIVE BUILDING
1850 W. WOOD
ANN ARBOR MI 48106

Hours of Operation
Monday - Friday
9:00 AM - 5:00 PM
Saturday - 10:00 AM - 4:00 PM
Sunday - Closed



Therm-O-lite Inc.

635 South Lafayette Boulevard | Phone: 574.234.4004
South Bend, Indiana 46601 | Fax: 574.234.4005

E-mail: info@Thermolitewindows.com | Website: www.Thermolitewindows.com

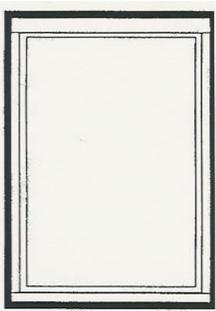
Please call or e-mail us to find out how **THERMOLITE** can be your window system.

Thermolite 2014 GSA Price List

**Energy Series 2000AL
Aluminum Fixed Window**

Interior fixed window system with painted aluminum sash and painted aluminum track.

Standard



Square Feet	1/4" annealed glass
0-10	\$166.46 each
Over 10 to 16	\$17.07/sq. ft
Over 16 to 26	\$15.10/sq. ft.
Over 26 to 36	\$13.67/sq. ft.
Over 36	\$12.49/sq. ft.

Add \$3.59 per sq. ft. for 1/4" or 3/16" Laminated.

Add \$4.19 per sq. ft. for 5/16" Laminated.

Add 1" blinds: \$2.39 per square foot

NOTES:

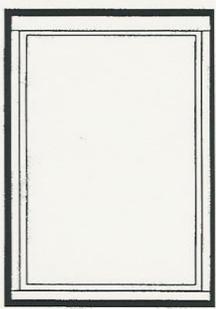
1. Standard painted aluminum colors are white and black.
2. Aluminum Framing may be required for installation process.
5. See **Additional Pricing Information** page before completing pricing.

Thermolite 2014 GSA Price List

**Energy Series RetroWAL
Aluminum Fixed Window**

Interior fixed window system with painted aluminum sash and painted aluminum track.

Standard



Square Feet	1/4" annealed glass
0-10	\$166.46 each
Over 10 to 16	\$17.07/sq. ft
Over 16 to 26	\$15.10/sq. ft.
Over 26 to 36	\$13.67/sq. ft.
Over 36	\$12.49/sq. ft.

Add \$3.59 per sq. ft. for 1/4" or 3/16" Laminated.

Add \$4.19 per sq. ft. for 5/16" Laminated.

Add 1" blinds: \$2.39 per square foot

NOTES:

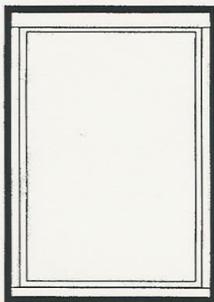
1. Standard painted aluminum colors are white and black.
2. Aluminum Framing may be required for installation process.
5. See **Additional Pricing Information** page before completing pricing.

Thermolite 2014 GSA Price List

**Energy Series 2100
Single Hung Operable
Aluminum Window**

Interior single hung operable window system with painted aluminum sash and painted aluminum track.

Standard



Square Feet	1/4" annealed glass
0-10	\$359.09 each
Over 10 to 16	\$32.92/sq. ft.
Over 16 to 26	\$29.92/sq. ft.
Over 26 to 36	\$26.93/sq. ft.
Over 36	\$23.94/sq. ft.

Add \$3.59 per sq. ft. for 1/4" or 3/16" Laminated.

Add \$4.19 per sq. ft. for 5/16" Laminated.

Add 1" blinds: \$2.39 per square foot

NOTES:

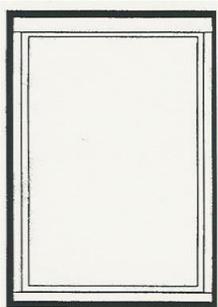
1. Standard painted aluminum colors are white and black.
2. Aluminum Framing may be required for installation process.
5. See **Additional Pricing Information** page before completing pricing.

Thermolite 2014 GSA Price List

**STORM SERIES 2000
CAT 3 Hurricane
Aluminum Fixed Window**

Interior fixed window system with painted aluminum sash and painted aluminum track.

Standard



Square Feet	5/16" laminated glass
0-10	\$335.15 each
Over 10 to 16	\$33.52/sq. ft.
Over 16 to 26	\$32.32/sq. ft.
Over 26 to 36	\$31.12/sq. ft.
Over 36	\$29.92/sq. ft.

Add 1" blinds: \$2.39 per square foot

NOTES:

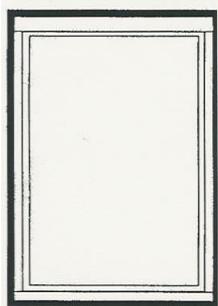
1. Standard painted aluminum colors are white and black.
2. Aluminum Framing may be required for installation process.
5. See **Additional Pricing Information** page before completing pricing.

Thermolite 2014 GSA Price List

**Safety Series 2000™
GSA LEVEL C – 4 PSI
Blast Resistant Aluminum Fixed Window Systems**

This product combines the energy benefits of Therm-O-Lite’s products with high levels of blast resistance (Up to GSA Performance Condition 1 rating).

Standard



Square Feet	5/16” laminated glass
0-10	\$365.97 each
Over 10 to 16	\$32.41/sq. ft.
Over 16 to 26	\$28.98/sq. ft.
Over 26 to 36	\$27.36/sq. ft.
Over 36	\$25.97/sq. ft.

Add 1” blinds: \$2.39 per square foot

NOTES:

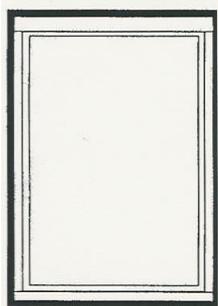
1. Aluminum Framing **must** be added onto window pricing for Safety Series 2000. See **Additional Pricing Information** page for pricing.
2. Standard painted aluminum colors are white and black.
3. See **Additional Pricing Information** page before completing pricing.

Thermolite 2014 GSA Price List

**SAFETY SERIES 2000
GSA Level D – 13 PSI
Blast Resistant Aluminum Fixed Window Systems**

This product combines the energy benefits of Therm-O-Lite's products with high levels of blast resistance (Up to GSA Performance Condition 1 rating).

Standard



Square Feet	7/16" laminated tempered
0-10	\$718.19 each
Over 10 to 16	\$68.83/sq. ft.
Over 16 to 26	\$65.83/sq. ft.
Over 26 to 36	\$62.84/sq. ft.
Over 36	\$59.85/sq. ft.

Add 1" blinds: \$2.39 per square foot

NOTES:

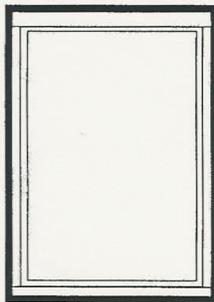
1. Aluminum Framing **must** be added onto window pricing for Safety Series 2000. See **Additional Pricing Information** page for pricing.
2. Standard painted aluminum colors are white and black.
3. See **Additional Pricing Information** page before completing pricing.

Thermolite 2014 GSA Price List

**SENTRY SERIES 2000
Triple Glazed Design/Build
Blast Resistant (6 PSI) Aluminum Fixed Window Systems**

This product combines the energy benefits of Therm-O-Lite's products with high levels of blast resistance (Up to GSA Performance Condition 1 rating).

Standard



Square Feet	Glass #1: 1" IGU w/1/4" sentry glas, laminated .030 Glass #2: 5/16" laminated
0-10	\$778.04 each
Over 10 to 16	\$71.82/sq. ft.
Over 16 to 26	\$68.83/sq. ft.
Over 26 to 36	\$65.83/sq. ft.
Over 36	\$62.84/sq. ft.

Add 1" blinds: \$2.39 per square foot

NOTES:

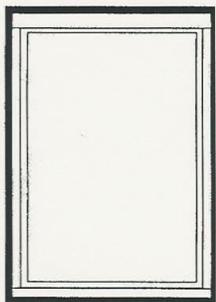
1. Aluminum Framing **must** be added onto window pricing for Sentry Series 2000. See **Additional Pricing Information** page for pricing.
2. Standard painted aluminum colors are white and black.
3. See **Additional Pricing Information** page before completing pricing.

Thermolite 2014 GSA Price List

**SAFETY SERIES 2250
Hinged
Blast Resistant (5.2 PSI) Aluminum Fixed Window Systems**

This product combines the energy benefits of Therm-O-Lite's products with high levels of blast resistance (Up to GSA Performance Condition 1 rating).

Standard



Square Feet	5/16" laminated glass
0-10	\$837.88 each
Over 10 to 16	\$74.81/sq. ft.
Over 16 to 26	\$71.82/sq. ft.
Over 26 to 36	\$68.83/sq. ft.
Over 36	\$65.83/sq. ft.

Add 1" blinds: \$2.39 per square foot

NOTES:

1. Aluminum Framing **must** be added onto window pricing for Safety Series 2250. See **Additional Pricing Information** page for pricing.
2. Standard painted aluminum colors are white and black.
3. See **Additional Pricing Information** page before completing pricing.

Thermolite 2014 GSA Price List

Additional Pricing Information

Optional Low "E" Glass

Add \$3.56 per square foot

Tempered Glass

\$4.04: 1-1200 square feet

\$1.20: over 1200 square feet

Aluminum Framing

1" x 1"	\$4.13 per lineal foot
1" x 1 1/2"	\$4.72 per lineal foot
1" x 2"	\$5.62 per lineal foot
2" x 2"	\$6.61 per lineal foot
1" x 3"	\$7.55 per lineal foot
3-1/2" p-tube	\$10.07 per lineal foot
4-1/2" p-tube	\$12.04 per lineal foot

Anodizing

Add \$.92 per lineal foot

Custom Painted Color

Add \$.48 per lineal foot



Thermolite 2014 GSA Price List

Minimum Delivery Charge FOB South Bend

Destination Distance From South Bend	Minimum Shipping Cost
Under 25 Miles	\$100.00
26 to 75 Miles	\$225.00
76 to 125 Miles	\$350.00
126 to 175 Miles	\$475.00
For Every 50 Miles Over 175 Miles	Add \$125.00

*Distributor should make every effort to combine small orders.

*If Company can combine orders to other distributors in your general area, this minimum charge would be prorated as to quantity and distance.

*For multiple orders, total miles through final delivery will determine the distance. If Company can negotiate better delivery rates, the savings will be passed through to the Distributor.

Note: at every 200 mile increment (200, 400, 600, etc.) **add \$100.00 per diem.**

Example: 600 Mile Trip	\$	475.00
		1,125.00 (9 x 125)
		<u>300.00</u> per diem
		\$ 1,900.00

GSA LABOR CATALOG PRICING
Contract Number GS-07F-0116H SIN 563-98
THERM-O-LITE WINDOW INSTALLATION

Training and Certification fees for In-House Installation **\$602.76 per day**
Travel Expenses **Quoted upon area of request**

GENERAL CONDITIONS

Standard application into wood or aluminum prime frame where pre-drilling or anchors are not required.

All furnishings and accessories must be clear of immediate area.

Inside of prime window including sill must be clean.

Receiving and storage area must be provided.

Project Sequencing, Escorts when required, and access must be scheduled to allow for continuous work schedules.

All prices are based upon performing work during normal working hours, Monday thru Friday between 7:00 am and 5:00pm, excluding Holidays.

FRAME & GLASS INSTALLATION
(NO WOOD FRAME)

Fixed Aluminum	\$1.32/U.I. (\$92.40 Minimum)
Safety Series 2000™	\$5.21/U.I. (\$364.40 Minimum)
Operable	\$5.42/U.I. (\$379.40 Minimum)
Blast/Design-Build Fixed	\$9.96/U.I. (\$697.20 Minimum)
Framing	\$1.82/U.I. (\$127.40 Minimum)

*United Inches equals the sum of one width & one height per window

BLIND INSTALLATION

Install blinds **\$34.53 each**

WOOD FRAME INSTALLATION

Wood window frame installation with track pre-installed	
Wood/Drywall	\$.72/U.I.
Masonry	\$1.43/U.I.

REMOVAL/DISPOSAL FEES

Remove existing draperies	\$59.38/man hour
Reinstall draperies	\$59.38/man hour

MISCELLANEOUS FEES

Cleaning Prime window inside	\$.39 sq. ft.
Measuring windows	\$2.66 per opening
Staging of products to point of installation	\$3.82 each lite
Installation of mullions and caulking	\$2.42 per foot
Drill and anchor mullions (standard)	\$2.38 per lineal foot
Remove film	\$3.64 per square foot

ADDITIONAL ANCHORAGE

<u>ANCHOR</u> DIAMETER	<u>ANCHOR DEPTH</u> PER FOOT COST	<u>HOLE SIZE</u> DIAMETER
1"	\$258.44	2 1/2"

Therm-O-Lite Inc.
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South Bend, IN 46619
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Case Study Sidney R. Yates Federal Building Washington, DC

Energy Reduction and Historical Integrity



The Sidney R. Yates Federal Building is a 5 story historic complex located in Washington, DC at 14th Street and Independence Avenue SW. The building consists of 152,329 square feet of office and support spaces and was given a Category III Landmark designation by the National Register of Historic Places. It was constructed from 1878-1880 in the Classical Revival style to serve as home to the Bureau of Engraving and Printing. Formerly known as the Auditors Building Complex, the building was renamed in honor of Illinois Congressman Sidney R. Yates. The building now serves as the USDA Forest Service headquarters, and also contains a Visitors Center with museum and the National Fire Center.



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W I N D O W S Y S T E M S



Thermolite Window Systems installed in the hallway, viewed from the inside.

Energy Efficiency and Historical Integrity

The facilities staff at the Yates Building was looking for ways to improve the energy efficiency of the building, particularly due to the Visitors Center and National Fire Center (NFC) being open outside of the normal office hours of the rest of the building's occupants.

Maintaining temperature control for these two areas required the entire building's Heating, Ventilating, and Air Condition (HVAC) system.

As a means to save energy, the facilities staff wanted to isolate the HVAC for the Visitors Center and NFC so the entire building's system wouldn't need to be operating in order to maintain temperature for these two areas.

Since the Yates Building is a Category III Landmark, exterior renovation options to improve energy efficiency are limited by the DC Commission of Fine Arts, (CFA) and possibly the National Capitol Planning Commission (NCPC).

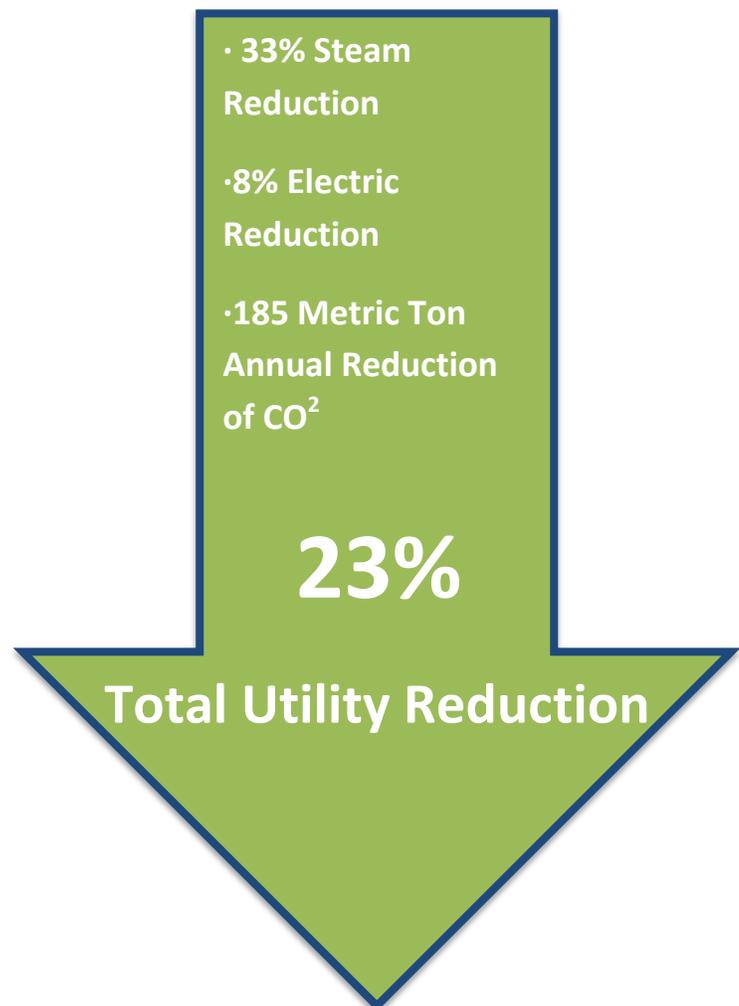
The top priority of these agencies is preserving the external appearance of historic buildings, such as matching original materials and details; however, the standard option for improving a building's energy performance typically includes replacing older fixtures with new versions that reduce air infiltration.

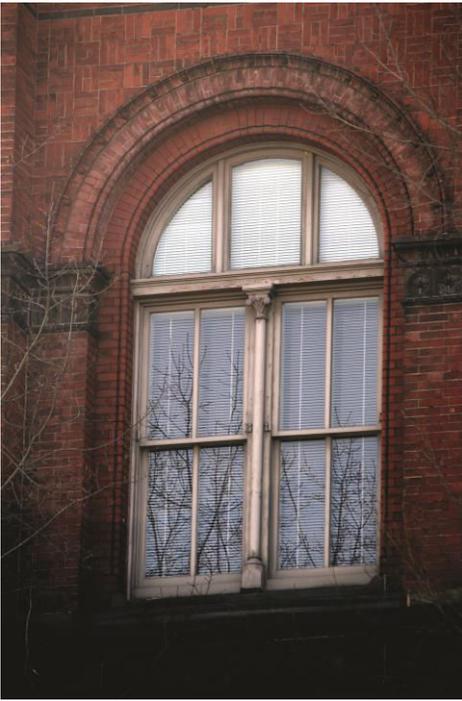
As replacement is generally not an option for historical building renovations, the Yates Building facilities staff was presented with the challenge of determining how to improve energy efficiency while not changing the exterior appearance of the building.

Updating Windows in Accordance with Preservation Guidelines

The Yates building is a General Services Administration (GSA) property, and all proposed changes must be reviewed, approved, funded, and managed by the GSA. The GSA commissioned Pepco to provide an energy analysis of the Yates Building in 2009 to develop strategies for their future management goals, in which it was recommended that high-efficiency windows be installed to improve building energy performance.

In 2011, Therm-O-lite was contracted to retrofit the existing windows of the Yates Building, which was completed in January 2012. This solution allowed for all historic exteriors to remain untouched, while still making the building more energy efficient.





Outside appearance of windows remained unaltered.

Energy Savings Findings

A utility baseline report was developed in 2013 for the evaluation of energy savings related to Therm-O-Lite's upgrade of windows at the Sidney R. Yates Federal Building. The utility bill history was provided by the building occupants and the operating information was obtained during a brief site review with the assistance of the building occupants.

The baseline was developed utilizing two (2) years of utility history, which was then compared with energy data for the following third year after it was normalized for temperature variations. During the time of this study, there were no significant occupancy changes or other energy upgrades.

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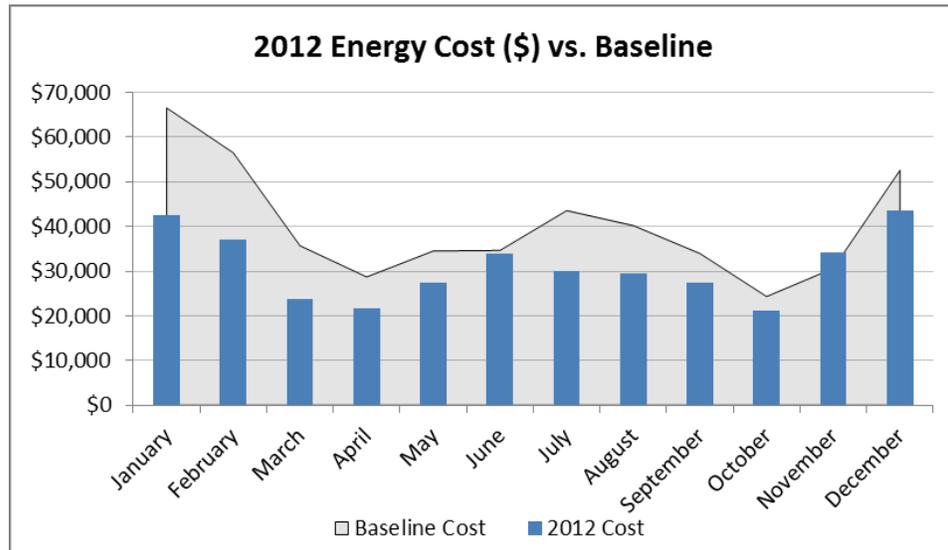
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An average level of energy consumption at the building was established based on normalizing the two (2) years of utility data for specific criteria such as: weather, billing cycle, building size and occupancy.

The result is a "true" utility baseline for the facility that can then be used to compare against utility bills in future years to determine the level of savings generated from upgrades implemented at the building.

The reduction in utility consumption is experienced for both electricity and steam. However, the steam savings provides a very high level of savings due to the significant reduction in cold air infiltration and reduced heat loss through the windows.

The following chart provides an overview of the monthly savings related to the utility cost at the building pre and post-retrofit of

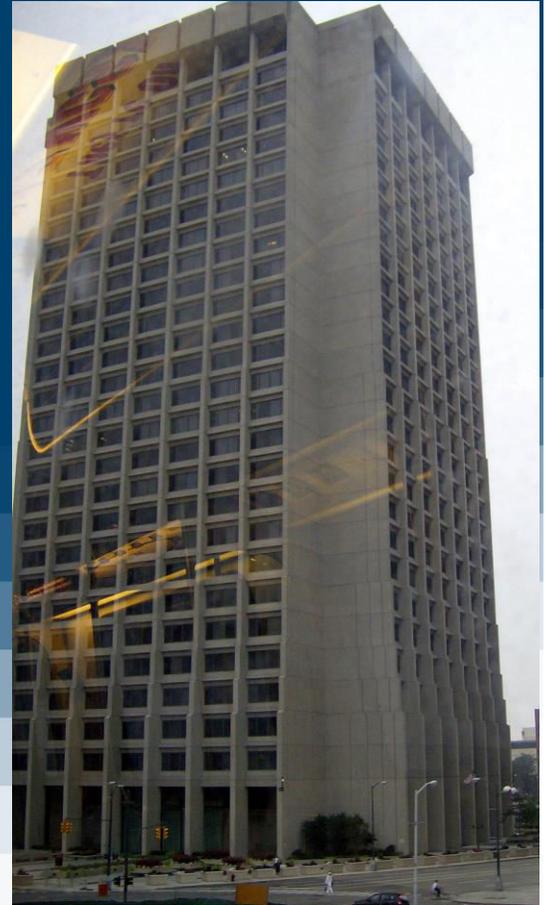


the windows: (Gray = Pre-retrofit, Blue Bar = Post-retrofit)

Case Study

Patrick V. McNamara Federal Building Detroit, MI

Capital Reduction



The Patrick M. McNamara Federal Building, located in downtown Detroit, Michigan, is a class A skyscraper. It features approximately 1,000,000 square feet (93,000 m²) on 27 floors and is designed in the brutalist architectural style. The corners are recessed providing additional strength to the structure and eliminating the battle for corner offices.

The building was named after former US Senator Patrick Vincent McNamara, who served Michigan from 1955 to 1966 and houses a variety of government agencies, including the Consumer Product Safety Commission, Army Corps of Engineers, Defense Contract Management Agency, Federal Bureau of Investigation, Internal Revenue Service, Peace Corps, Railroad Retirement Board and Social Security Administration.



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W I N D O W S Y S T E M S



The McNamara Building is a 27 story skyscraper in downtown Detroit and is home to several government agencies.

A Need for Modernization

As part of the GSA's initiative to reduce the environmental footprint of federal buildings and make them as green and energy efficient as possible, a series of projects to modernize and improve the performance of the McNamara Building's HVAC system was put into place.

To accomplish the task of improving the building envelope, Thermolite was called upon to install interior insulating windows.

A total of approximately 90,693 square feet of glass (8,425 m²) was used in the McNamara Building at a total cost of \$1,543,404. Thermolite installed 2,440 RetroWAL™ Silver Series with between glass blinds.

The RetroWAL™ window system was able to reduce the air infiltration that was contributing to the need for significant heating and cooling costs in the McNamara Building.

This was accomplished by sealing the window seams that were allowing in outdoor air and requiring additional HVAC system usage to maintain temperature. RetroWal also increased the existing glass R value.

Immediate Results and Long Term Savings

As a result of the performance of Thermolite's interior insulating windows, GSA was able to downsize the HVAC system upgrade of the McNamara Building. This yielded an immediate savings of more than \$1.5 million in their project budget.

The GSA also found that after the installation of Thermolite's RetroWAL retrofit window system, there was an annual energy savings of approximately \$400,000 in the McNamara Building.

McNamara Building Project Highlights

- 50% reduction in heating loads
 - 21% reduction in cooling loads
 - \$1.5 million decrease in HVAC upgrade costs
 - \$400,000 annual energy savings
- Immediate ROI***

*Window cost was 100% offset by savings in HVAC equipment.

Heating loads were reduced by over 50% and cooling loads reduced by 21%. The ability to reduce the mechanical equipment size paid for the window retrofit entirely.

Tenants of the building also reported being more satisfied with the temperature and sound control of the building.

“THE STEAM SAVINGS PROVIDES A VERY HIGH LEVEL OF SAVINGS DUE TO THE SIGNIFICANT REDUCTION IN COLD AIR INFILTRATION AND REDUCED HEAT LOSS THROUGH THE WINDOWS.”

Robert Calloway, PE

President

Global Facility Solutions, LLC



The McNamara Building occupies the entire city block of Howard and Second Streets, and Cass and Michigan Avenues.

Additional Findings

URS, the nationally recognized A&E firm as the architect of record, was under contract with GSA to perform the Mechanical, Electrical and Plumbing analysis for the modernization of the facility.

As part of this work, URS conducted an energy analysis, which reaffirmed the annual energy savings and provided a summary of the HVAC load calculations.

The final load calculations were based upon the incorporation of the Thermolite system but ignored the effect of the between glass blinds. This resulted in an equipment requirement of eight (8) AHU for an estimated cost of \$6M versus \$7.5M as originally specified.

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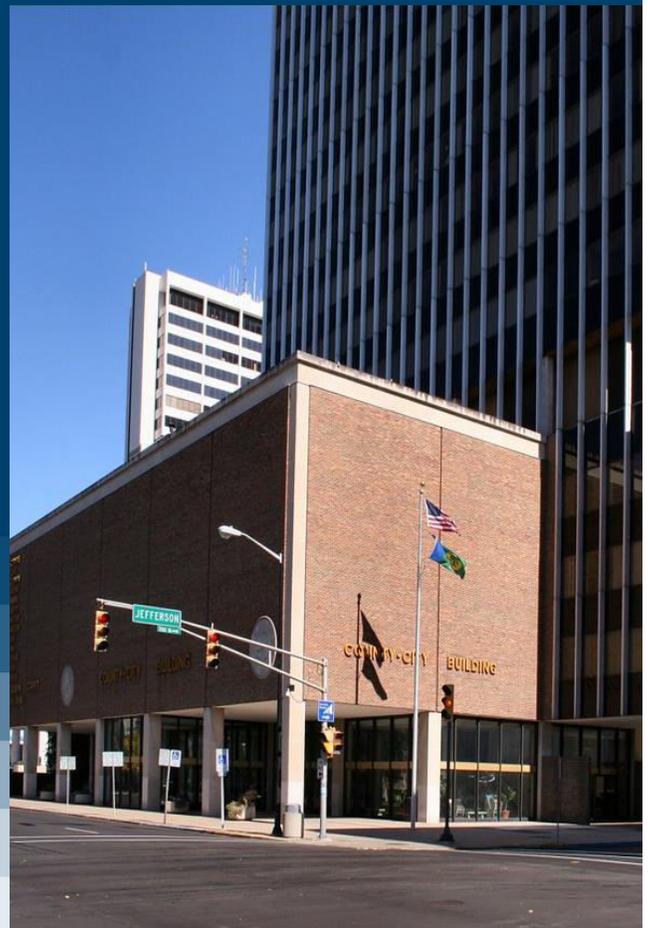
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WINDOW SYSTEMS

Case Study County City Building South Bend, IN

Capital Deferment and Increased Comfort



The County City Building Plaza is located in the heart of Downtown South Bend, Indiana. It was constructed in 1968, during a period of heightened urban renewal. Since it was built, the County City Building has served as the home of the local government employees of St. Joseph County, one of the largest employers in the city. Standing at approximately 150 feet tall, the County City Building measures around 200,000 square feet.



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WINDOW SYSTEMS



Front view of the windows on the County City Building.

“ANNUAL ENERGY SAVINGS ALONE WERE ESTIMATED AT \$58,000. THIS WAS NOT POSSIBLE BEFORE THE THERMOLITE WINDOWS WERE INSTALLED.”

*John P. Embrickson
Building Engineer
St. Joseph County City Building*

The Search for Temperature Control

Temperature control was a constant struggle for the occupants of the County City Building. The window inefficiencies required heating and cooling equipment to be run at all in times, while employees still had to alternate closing and opening drapes depending on the time of day.

Not only were these attempts at controlling the building temperature a burden, but they unfortunately remained ineffective at maintaining a comfortable environment.

“In the winter months, we were forced to set our steam coals to deliver between 120 and 140 degree heated air. In the summer months, we ran two 350 ton chillers.

Even with both chillers operating, we often would lose our ability to cool in the afternoons on hot humid days,” says John P. Embrickson, building engineer.

As a government building, factors such as budget, installation time, and historic preservation guidelines are especially important in regards to any building renovations.

Thermolite was called upon to provide a solution that would increase the temperature comfort levels of the County City Building, while also being more energy efficient, cost effective, with as inconvenient an installation as possible.

The solution: Thermolite installed a 2000 AL interior window system in the building. The system installs on the inside of existing windows with no need for the disruptive and expensive window removal and replacement.

The window glass used had a Low E glaze, which greatly improved the temperature control of the building by allowing light through while reflecting heat.



Immediate Results and Long Term Savings

After Thermolite installed the window system, the County City Building was able to immediately maintain set temperature points – without running equipment full time.

Not only were there significant decreases in energy use, but also in equipment maintenance and wear and tear. In fact, the building is now able to rotate one boiler monthly.

“In the spring of 1982, we lost our #1 chiller. Because of Thermolite, we are still able to maintain comfort levels with only one chiller. We found that one chiller, operating at 90% of full load, could now handle the entire complex,” explains Embrickson.

“I STRONGLY ENDORSE THE USE OF THERMOLITE. WE HAD NO OTHER ALTERATIONS TO OUR BUILDING OR ITS MECHANICAL SYSTEMS AND WE RECEIVED AMAZING RESULTS.”

*John P. Embrickson
Building Engineer
St. Joseph County City Building*



An indoor view of the lobby of the County City Building.

The County City Building received a return on its initial investment in the Thermolite Window System in just three years. A follow up over a decade after the installation found that not only was it still functioning just as efficiently, but it was yielding an average energy savings of \$58,000 every year.

The initial results of Thermolite’s Window System in the County City Building were so well-received that the building engineer opted to have entire complex reglazed and have reported additional energy savings, less complaints of cold drafts, and a reduced amount of fading in their furnishings.

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WINDOW SYSTEMS

Case Study Banking Industry

Physical Security and Energy Efficiency



Federal banking buildings have a unique set of needs and challenges for their windows: government mandates require them to follow both safety and energy performance protocols, while historical preservation guidelines prohibit work that changes the appearance of the windows.

Thermolite has worked with the window systems of major federal banking buildings that are also considered National Historic Places, including: Washington DC's 12 story Lafayette Building (also known as Export-Import Bank Building), the 5 story Marriner S. Eccles Federal Reserve Board Building in DC, the Federal Reserve Bank of Philadelphia, and the 8-story Federal Reserve Banking Annex Building in NYC, to remain in compliance of security, energy efficiency, and historical integrity guidelines with the use of our interior curtain wall retrofit window systems.



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WINDOW SYSTEMS



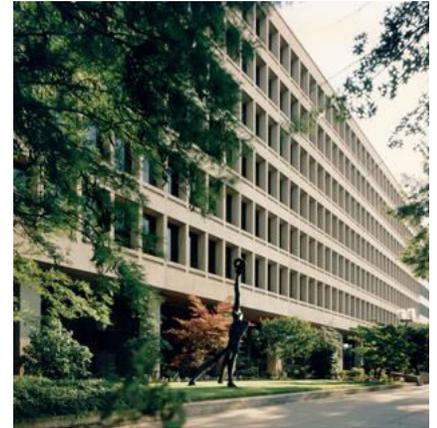
Lafayette Building in Washington DC

Background Information

While exact product installation details cannot be shared, Thermolite was able to provide the above mentioned federal banking buildings the unique opportunity to improve not only the security of their windows, but also the energy performance – without any disruption of building operations or altering of the exterior windows that would be against historical preservation guidelines.

Thermolite’s RetroWAL™ interior curtain wall retrofit window system is an ideal solution for these buildings with renovation limitations because

the system installs on the interior of the existing window. This type of installation was quicker and more cost-effective than traditional window replacement. The bank building tenants reported very favorable results in terms of the lack of disruption to their workdays during the installation, as well as observed daily comfort and reduced need for temperature control afterwards.



Federal Reserve Annex

- No disruptions in operations
- Improved security function
- Increased comfort levels

20%

Average energy savings

Security Window Options for Banks

Some of the security options for banks that Thermolite has to offer include:

- BlastWAL™ blast windows
- StormWAL™ hurricane resistance windows
- CyberWAL™ signal defense and cyber protection windows



Marriner S. Eccles Federal Reserve Board in Washington DC

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**NFRC U-FACTOR, SHGC, VT, &
CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

**Rendered to:
THERM-O-LITE, INC.**

**SERIES/MODEL:
Curtain Wall with Window Attachment Lite**

**Report Number: D9625.01-116-45
Report Date: 07/25/14**



**NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

Rendered to:
THERM-O-LITE, INC.
635 South Lafayette Boulevard
South Bend, Indiana 46601

Report Number: D9625.01-116-45
Simulation Date: 07/25/14
Report Date: 07/25/14

Project Summary:

Architectural Testing, Inc. was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed below.

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

NFRC 100-2014: Procedure for Determining Fenestration Product U-Factors
NFRC 200-2014: Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence
NFRC 500-2014: Procedure for Determining Fenestration Product Condensation Resistance Values

Software:

Frame and Edge Modeling: THERM 6.3.46
Center-of-Glass Modeling: WINDOW 6.3.74
Total Product Calculations: WINDOW 6.3.74
Spectral Data Library: IGDB 36.0

Simulations Specimen Description:

Series/Model: Curtain Wall with Window Attachment Lite
Type: Fixed, 4-Sided
Frame Material: AU Thermally Improved
Sash Material: AL Aluminum (Non-thermally broken)
Standard Size: 1200mm x 1500mm

Modeling Assumptions/Technical Interpretations:

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.

Specialty Products Table:

The specialty products method allow the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 6.3.74. The method gives overall product SHGC and VT indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

Existing Curtainwall

	No Dividers	Dividers < 1	Dividers > 1
SHGC0	0.006109	0.008952	0.011635
SHGC1	0.817921	0.734529	0.655817
VT0	0.000000	0.000000	0.000000
VT1	0.811812	0.725578	0.644182

Existing Curtainwall + Silver Attachment Lite

	No Dividers	Dividers < 1	Dividers > 1
SHGC0	0.008096	0.010808	0.013362
SHGC1	0.757622	0.677577	0.602212
VT0	0.000000	0.000000	0.000000
VT1	0.749526	0.666769	0.588850

Existing Curtainwall + Gold Attachment Lite

	No Dividers	Dividers < 1	Dividers > 1
SHGC0	0.003944	0.006737	0.009372
SHGC1	0.807800	0.724773	0.646427
VT0	0.000000	0.000000	0.000000
VT1	0.803855	0.718036	0.637056

$$SHGC = SHGC0 + SHGCc (SHGC1 - SHGC0)$$

$$VT = VT0 + VTc (VT1 - VT0)$$

Validation Matrix:

The following products are part of a validation matrix. Only one is required for validation testing.

<i>Product Line</i>	<i>Report Number</i>
None	-

Spacer Option Description

<i>Spacer Type</i>	<i>Sealant</i>		<i>Code</i>
	<i>Primary</i>	<i>Secondary</i>	
Aluminum Spacer	Butyl Rubber	Butyl Rubber	A1-D

Grid Option Description

<i>Grid Size</i>	<i>Grid Type</i>	<i>Grid Pattern</i>
None	-	-

Reinforcement Option Description

<i>Location</i>	<i>Material</i>
None	-

Gas Filling Technique Description

<i>Fill Type</i>	<i>Method</i>
Air	

Edge-of-Glass Construction

<i>Interior Condition</i>	EPDM gasket between glass and sash or frame
<i>Exterior Condition</i>	EPDM gasket between glass and sash or frame

Weatherstripping

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
None		

Frame/Sash Materials Finish

<i>Interior</i>	Painted Aluminum
<i>Exterior</i>	Painted Aluminum

**NFRC 100/200/500 Summary Sheet
Curtain Wall with Window Attachment Lite**

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type
	U-Factor			Solar Heat Gain Coefficient (SHGC) <small>Grids (None / <1 / >=1)</small>				Visible Transmittance (VT) <small>Grids (None / <1 / >=1)</small>			Condensation Resistance	
1	CLR (6MM)											
	0.223									CL	N	N
	U-Factor 0.90			SHGC (N) 0.67				VT (N) 0.72			CR	13
2	CLR (6MM) // S500 (6MM) ATTACHMENT LITE											
	0.223	2.000	0.223					AIR	0.215(#3)	CL	N	N
	U-Factor 0.37			SHGC (N) 0.50				VT (N) 0.55			CR	56
3	CLR (6MM) // S500/AIR/SB60 (6MM/6MM) ATTACHMENT LITE											
	0.223	2.000	0.223	0.500	0.223			AIR	0.215(#3) / 0.035(#5)	CL	A1-D	N
	U-Factor 0.21			SHGC (N) 0.36				VT (N) 0.47			CR	68

The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy.

Architectural Testing, Inc. is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The NFRC procedure requires that the computational results be verified through actual test results.

Architectural Testing will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Architectural Testing, Inc. for the entire test record retention period. The test record retention end date for this report is July 25, 2018.

Results obtained are simulated values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the product simulated. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

SIMULATED BY:



Digitally Signed by: Megan Yingst

Megan M. Yingst
Simulation Technician

REVIEWED BY:



Digitally Signed by: Kristen Louder

Kristen L. Louder
Senior Simulation Technician
Simulator-In-Responsible-Charge

MMY:mmy

D9625.01-116-45

Attachments (pages):

Appendix A: Drawings and Bills of Material (3)

This report is complete only when all attachments listed are included.

**AAMA 1801 SOUND TRANSMISSION LOSS
TEST REPORT**

Rendered to:

THERM-O-LITE INC.

SERIES/MODEL: RetroWAL™ Silver

TYPE: Two-Lite Curtain Wall System

Summary of Test Results					
Data File No.	Glazing Option (Nominal Dimensions)	Air Infiltration (cfm/ft²)		STC	OITC
		1.57 psf	6.24 psf		
D5569.01A	1/4" Annealed	0.12	0.28	31	28
D5569.01B	Primary 1/4" annealed, Interior panel 1/4" laminated, Glass temperature 75°F	0.08	0.17	43	33

Reference should be made to Architectural Testing, Inc. Report No. D5569.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

THERM-O-LITE INC.
635 South Lafayette Boulevard
South Bend, Indiana 46601

Report No: D5569.01-113-11
Test Date: 03/17/14
Report Date: 03/27/14
Record Retention End Date: 03/17/18

Test Sample Identification:

Series/Model: RetroWAL™ Silver

Type: Two-Lite Curtain Wall System

Overall Size: 78-3/4" by 78-3/4"

Glazing (Nominal Dimensions):

Option A: 1/4" Annealed

Option B: Primary 1/4" Annealed, Interior Panel 1/4" Laminated, Glass Temperature 75°F

Project Scope: Architectural Testing, Inc. was contracted by Therm-O-Lite Inc. to conduct air leakage and sound transmission loss tests on a Series/Model RetroWAL™ Silver, two-lite curtain wall system. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The sample was provided by the client.

Test Methods: The acoustical test was conducted in accordance with the following:

AAMA 1801-11, Voluntary Specification for the *Acoustical Rating of Windows, Doors, and Glazed Wall Sections*.

ASTM E 1425-07, *Standard Practice for Determining the Acoustical Performance of Exterior Windows and Doors*.

ASTM E 90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*.

ASTM E 413-10, *Classification for Rating Sound Insulation*.

ASTM E 1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation*.

Test Methods: (Continued)

ASTM E 283-04 (Reapproved 2012), *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.*

ASTM E 2235-04 (Reapproved 2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

Test Equipment: The equipment used to conduct this test meets the requirements of ASTM E 90. The microphones were calibrated before conducting the sound transmission loss test. The test equipment and test chamber descriptions are listed in Appendix A.

Sample Installation: Sound transmission loss tests were initially performed on a filler wall that was designed to test 40" by 86" and 80" by 86" specimens. The filler wall achieved an STC rating of 68.

The specimen plug was removed from the filler wall assembly. The test specimen was placed on a foam isolation pad in the test opening. Duct seal was used to seal the perimeter of the test specimen to the test opening on both sides. The interior side of the specimen frame, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing.

Test Procedure:

Air Leakage Test: A negative pressure of 1.57 psf was applied inside the chamber that was placed around the interior side of the test specimen. The total air leakage and extraneous air leakage measurements were used to calculate the specimen air leakage. Barometric pressure corrections were applied to the air leakage calculations.

The procedure above was repeated with a negative pressure of 6.24 psf applied to the inside of the chamber.

Sound Transmission Loss Test: The sound transmission loss tests were conducted in accordance with the ASTM E 90 test method using a single direction of measurement. One background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms at each of five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Primary Frame Construction:

		Frame
Size		78-3/4" by 78-3/4"
Thickness		5-1/4"
Corners		Butted
	Fasteners	Screws
	Seal Method	None
Material		Aluminum
	Thermal Break Material	None
	Reinforcement	N/A
Daylight Opening Size (X2)		35-3/16" by 73-3/8"

Interior Panel Frame Construction:

		Frame
Size		35-3/8" by 72-11/16"
Thickness		1/2"
Corners		Mitered
	Fasteners	Screws
	Seal Method	None
Material		Aluminum
	Thermal Break Material	None
	Reinforcement	N/A
Daylight Opening Size (X2)		33-7/16" by 70-11/16"

N/A-Non Applicable

Sample Descriptions: (Continued)

Primary Glazing:

	Exterior Sheet
Measured Thickness	0.223"
Muntin Pattern	N/A
Material	Annealed
Laminate Material	N/A
Glazing Method	Pressure glazed

Interior Panel Glazing:

	Exterior Sheet
Measured Thickness	0.240"
Muntin Pattern	N/A
Material	Laminated
Laminate Material	PVB
Glazing Method	Channel

Components:

	TYPE	QUANTITY	LOCATION
Weatherstrip			
	No weatherstrip		
Hardware			
	No hardware		
Drainage			
	5/16" Diameter weep hole	8	Bottom of snap covers

N/A-Non Applicable

Sample Descriptions: (Continued)

Sample Weights:

Overall Sample Area:	m ²	ft ²
	4	43.06

Sample Identification:	Total Weight		Weight Per Unit Area	
	kg	lbs	kg / m ²	lbs / ft ²
D5569.01A	102.5	226	25.63	5.25
D5569.01B	158.75	350	39.69	8.13

Comments: The design drawings (included in Appendix C) supplied by the client, accurately describe the Series/Model RetroWAL™ Silver, two-lite curtain wall system. The dimensions on the drawings that are circled and/or checked were verified against the test specimen. The two-lite curtain wall system was disassembled, and the components will be retained by Architectural Testing for four years. Photographs of the test specimen are included in Appendix D.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model RetroWAL™ Silver, two-lite curtain wall system is listed below.

Summary of Test Results					
Data File No.	Glazing Option (Nominal Dimensions)	Air Infiltration (cfm/ft²)		STC	OITC
		1.57 psf	6.24 psf		
D5569.01A	1/4" Annealed	0.12	0.28	31	28
D5569.01B	Primary 1/4" annealed, Interior panel 1/4" laminated, Glass temperature 75°F	0.08	0.17	43	33

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Architectural Testing will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:


Digitally Signed by: Kurt A. Golden

Kurt A. Golden
Senior Technician - Acoustical Testing


Digitally Signed by: Eric J. Miller

Eric J. Miller
Director - Acoustical Testing

KAG:jmc

Attachments (pages): This report is complete only when all attachments listed are included.

- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (8)
- Appendix-C: Design drawings (2)
- Appendix-D: Photographs (1)



MANUFACTURER'S LIMITED WARRANTY

Therm-O-Lite, Inc., the manufacturer of this product, warrants to the original retail purchaser that such product will be free from defects in materials and workmanship for a period of one (1) year from substantial completion as evidenced by purchaser's proof of purchase. Purchaser shall mean the person for whom the product is originally installed. Therm-O-Lite, Inc. will repair or replace, in its sole discretion, any defects in materials or workmanship in the product occurring during the one-year warranty period. The cost of installation and shipping of a replacement product shall be born by the purchaser. **SUCH REPAIR SHALL BE THE ONLY REMEDY AVAILABLE TO THE PURCHASER UNDER THIS LIMITED WARRANTY.**

This limited warranty gives you specific legal rights, and you may have other rights which vary from state to state. **THIS LIMITED WARRANTY IS MADE IN LIEU OF ANY OTHER EXPRESS WARRANTIES. ANY IMPLIED WARRANTIES ARISING IN CONNECTION WITH THE SALE OF THIS PRODUCT, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE TERM OF THIS WARRANTY.** No employee, dealer, agent or other person is authorized to make any warranty or representation with respect to this product, other than is expressly contained herein. **IN NO EVENT SHALL THERM-O-LITE, INC. BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

Any claims arising under the foregoing must be reported to Therm-O-Lite, Inc. in writing within a period of one (1) year and ten (10) days from the date of substantial completion.

Therm-O-Lite, Inc.
3502 West Sample Street
South Bend, IN 46619
574-234-4004

Therm-O-Lite TERMS AND CONDITIONS OF SALE

All sales are expressly limited to, and made conditional upon, the acceptance by the purchaser indicated on this Invoice ("Purchaser") of the exact terms and conditions contained in these Terms and Conditions. The terms and conditions of purchase and/or sale contained on any request for quotation, purchase order or other business document received from Purchaser are expressly superseded hereby and shall not be construed as part of the agreement indicated on this Invoice between Therm-O-Lite Inc. (TOL) and Purchaser. This document, the Credit Application, if any, completed by Purchaser, TOL's glazing instructions, if any, and TOL's limited warranties, if any, given on selected products, if given in writing, and referencing this Invoice (the "Limited Warranties"), constitute the complete and exclusive statement of the terms of the agreement between TOL and Purchaser with respect to the subject matter hereof and supersedes any writing, document or agreement of Purchaser. TOL and Purchaser acknowledge that all of the terms and conditions herein are commercially fair and reasonable and reflect an acceptable allocation of the rights and obligations of the parties of the sale contemplated herein. Sales by TOL are commercial, business to business sales and are not for direct personal, home or consumer use. EXCEPT FOR THE LIMITED WARRANTIES (AS HEREIN DEFINED), TOL MAKES NO OTHER, AND HEREBY DISCLAIMS ANY, REPRESENTATIONS OR WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR WARRANTY THAT THE MATERIAL SHALL BE FIT FOR A PARTICULAR PURPOSE OR USE. No affiliate, stockholder, subsidiary, director, officer or employee of TOL shall be in any way liable in connection with the products which are the subject of this Invoice (the "Product"), whether under any warranty, representation or condition or otherwise.

1. INSPECTION: ACCEPTANCE OR REJECTION

(a) **Inspection at Plant.** Purchaser may, and if TOL so requests, Purchaser shall, inspect the Products at TOL's manufacturing site referenced on this Invoice (the "Plant"). Such inspection shall be conducted so as not to unreasonably interfere with TOL's operations. Purchaser's approval or rejection of the Products resulting from such inspection must be communicated to TOL in writing prior to completion of the production run for the Products, if possible, or, at a minimum, prior to shipment of the Products to Purchaser, and failure of Purchaser to communicate a rejection of the Products before shipment shall be deemed an approval of the Products by the Purchaser.

(b) **Inspection Upon Delivery.** If not inspected as set forth in (a) above, the Products shall be inspected by Purchaser upon receipt, and failure of Purchaser to notify TOL of defects or nonconformities in writing within 24 hours (for loose lites) and 10 days (for case goods delivery by TOL truck) of receipt of the Products by Purchaser shall be deemed an acceptance of the Products and a waiver of all claims for damages based on any defect or nonconformity of the Products, except claims for breach of express limited warranties as set forth in any applicable Limited Warranty (and subject to the provisions, limitations, conditions, exceptions and procedures contained therein). If Purchaser has approved the Products prior to delivery pursuant to (a) above, then the Products delivered shall not be defective or nonconforming if they conform to the Products so inspected or to the specifications set forth in this Invoice. Purchaser shall have no right to revoke acceptance of the Products.

(c) **Rejection.** If Purchaser does not accept the Products, then Purchaser shall provide proof of purchase to TOL and shall afford TOL a reasonable opportunity to inspect the Products. Purchaser shall hold such Products in a safe place and shall protect them from damage or destruction. Purchaser shall not return any Products without the prior written consent of TOL. If TOL determines that the Products are defective or nonconforming, TOL shall furnish instructions for their disposition.

(d) **Purchaser's Sole Remedies.** (i) Nonconforming or Defective Products. Upon validation and verification by TOL of any Product nonconformity or breach, TOL shall, at its option either (1) furnish Purchaser with a replacement Product or if the Product is no longer made, a replacement Product, which, in the sole discretion of TOL, is comparable to the original Product, F.O.B. the Plant, freight collect, or (2) refund the original purchase price (less freight and other charges) which the Purchaser paid for the failed portion of the Product. A COMPARABLE REPLACEMENT, WHETHER FABRICATED BY TOL OR A PARTY CHOSEN BY TOL IN ITS SOLE DISCRETION, MAY HAVE CHARACTERISTICS INCLUDING, BUT NOT LIMITED TO, COLOR, SHADING, CO-EFFICIENT, U-VALUE AND/OR SURFACE APPEARANCE, WHICH VARY FROM THE ORIGINAL PRODUCT BUT SHALL, NONETHELESS SATISFY TOL'S OBLIGATION TO REPLACE THE PRODUCT. If TOL elects to supply a replacement Product, any Limited Warranty on the replacement Product shall extend only for the balance of the original Limited Warranty period of the failed Product. In no event shall TOL be liable for removal of defective Product or replacement or reinstallment of the Product or the cost thereof. At TOL's request, all defective Product which is replaced pursuant hereto shall be returned to TOL, at Purchaser's expense, within thirty (30) days after such replacement. In no event shall TOL be responsible for any costs attendant to replacing

nonconforming or defective Products (including, but not limited to, labor costs), other than as specified in subsections (1) or (2) of this subsection (d)(i).

2. DISCLAIMERS AND REMEDIES THE PROVISIONS OUTLINED IN THESE TERMS AND CONDITIONS AND IN ANY APPLICABLE LIMITED WARRANTY CONSTITUTE PURCHASER'S SOLE AND EXCLUSIVE REMEDY UNDER ANY CLAIM OR THEORY OF LIABILITY, INCLUDING CLAIMS BASED UPON FAILURE OF, OR DEFECT IN, PRODUCTS SOLD HEREUNDER, WHETHER THE FAILURE OR DEFECT ARISES BEFORE OR DURING ANY LIMITED WARRANTY PERIOD AND WHETHER A CLAIM, HOWEVER INSTITUTED, IS BASED UPON CONTRACT, INDEMNITY, LIMITED WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE. TOL SHALL NOT BE LIABLE FOR CONSEQUENTIAL, DIRECT, INDIRECT, INCIDENTAL, PUNITIVE OR EXEMPLARY DAMAGES, CLAIMS OR COSTS OF ANY NATURE INCLUDING, WITHOUT LIMITATION, LABOR COSTS OF ANY KIND RELATING TO THE REMOVAL OF FAILED PRODUCTS AND/OR REINSTALLATION OF REPLACEMENT PRODUCTS THEREFOR OR DAMAGES, CLAIMS, OR COSTS OTHERWISE ARISING FROM, OR IN CONNECTION WITH, ALLEGED BREACH OF ANY LIMITED WARRANTY OR NEGLIGENCE ON THE PART, OR STRICT LIABILITY, OF TOL. TOL RESERVES THE RIGHT TO CHANGE, ALTER OR AMEND, IN ANY FASHION, WITHOUT NOTICE, THE PROVISIONS OF ITS WARRANTIES FOR ANY OR ALL OF ITS PRODUCTS. THE FOREGOING NOTWITHSTANDING, NO EXTENSION OR EXPANSION OF ANY LIMITED WARRANTY SHALL BE EFFECTIVE UNLESS IN WRITING AND SIGNED BY TOL'S PRESIDENT.

3. PERMISSABLE VARIATIONS, STANDARDS AND TOLERANCES Except for the particulars specified by Purchaser and expressly agreed to in writing by TOL, all Products shall be produced in accordance with TOL's standard practices. All Products, including goods produced to meet exact specifications, shall be subject to tolerances and variations (concerning dimension, weight, straightness, bow, warp, section, composition, and mechanical properties, normal variations in surface, internal conditions, and quality) consistent with custom and usage in TOL's industry. Glass products are produced to ASTM standard C 1172-09.

4. DELAY All orders are accepted by TOL upon the express understanding by Purchaser that, if a specific shipping date is designated on this Invoice, or any Quotation or other written or oral communication, TOL shall not be liable for delays in delivery of the Products, all such shipping dates to be considered non-binding estimated shipping dates. Without limiting the foregoing, in no event shall TOL be liable for any delays caused by inability to obtain transportation, equipment, labor or material; insurrection, fires, floods, storms or embargoes; actions of any military or civil authorities, whether legal or de facto; strikes, lock outs and other labor difficulties; riots; acts of God, delay in delivery of specifications or additional specifications or changes in the specifications; or other circumstances beyond the control of TOL.

5. DELIVERY Delivery of the Products by TOL via common carrier to the Purchaser shall constitute delivery of the Products to the Purchaser. Therefore, all risk of loss, damage or destruction and any incidental or consequential damages attendant thereto shall be Purchaser's sole responsibility. The full amount of this Invoice must be paid by Purchaser regardless of any such loss, damage, or destruction. ALL CLAIMS AND ALLOWANCES FOR DAMAGE TO THE PRODUCTS INCURRED IN TRANSIT MUST BE FILED AGAINST, AND BE PRESENTED TO, THE CARRIER OF PURCHASER. UNDER NO CIRCUMSTANCE MAY PURCHASER DEDUCT SUCH CLAIMS AND ALLOWANCES FROM AMOUNTS DUE TOL. Products sent by mail are insured at the cost of the Purchaser. TOL is not responsible for extra unloading time due to truck access and unloading conditions.

6. TAXES Any taxes which TOL may be required to pay or collect under any existing or future law, upon or with respect to the sale, purchase, delivery, storage, process, use or consumption of any Products covered hereby, including taxes upon or measured by the receipts from the sale of such Products, shall be for the account of the Purchaser, who shall promptly pay the amount thereof to TOL upon demand. Such amounts shall not be subject to any cash or other discounts.

7. COLLECTION In the event that affirmative action (including, without limitation, consultation with lawyers or collection efforts prior to the filing of any lawsuit) is required on the part of TOL to collect any amount owing to TOL by Purchaser, Purchaser shall pay to TOL all costs of collection including, but not limited to, legal fees

incurred by TOL and return check charges deemed appropriate by TOL, but in no event less than \$20 per returned check.

8. **WAIVER** A waiver by TOL of any breach by Purchaser of these Terms and Conditions must be in writing to be binding upon TOL and shall not constitute a waiver by TOL of any other breach by Purchaser.

9. **AMENDMENTS** These Terms and Conditions may not be modified, including pursuant to any order made by Purchaser or in any other document, unless such modification is made in writing and is executed on behalf of TOL by its President.

10. **CANCELLATION** No cancellation or change order shall be accepted by TOL once glass is fabricated or any activity has otherwise been undertaken by TOL to process window system units or other Products to be provided by TOL pursuant to this Invoice. For size changes after acknowledgement, TOL will charge appropriately, depending on the status of the glass at the time of said change. If changes are required increasing glass sizes, or orders are canceled, TOL shall determine charges based on salvage values and costs incurred for work done prior to the change order or cancellation order. In no event may Purchaser cancel all or any portion of any regularly entered order unless such cancellation is effected in writing and upon terms that will protect TOL against any and all costs and losses that TOL may suffer due to such cancellation, and Purchaser hereby affirmatively assumes responsibility for, and agrees to pay for, all such costs and losses.

11. **PURCHASER'S OBLIGATIONS** Purchaser agrees that (i) before using the goods Purchaser shall determine the suitability of the Product for Purchaser's intended use and shall assume all risk and liability whatsoever in connection with that determination; (ii) Purchaser shall use Products properly; and (iii) Purchaser shall install the Product in accordance with applicable Federal, State, and local laws and codes. Purchaser shall indemnify and hold harmless TOL, and if so requested defend TOL, from any and all costs, claims, damages, judgments, and expenses (including reasonable attorney's fees) suffered or incurred by TOL as a result of, or in connection with, any act, omission or use of the Product by Purchaser, its employees or customers or any breach by Purchaser of this agreement.

12. **APPLICABLE LAW** THIS INVOICE AND THESE TERMS AND CONDITIONS AND ALL ORDERS PLACED BY PURCHASER WITH TOL HEREUNDER, SHALL BE GOVERNED BY, AND CONTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF INDIANA AND ST JOSEPH COUNTY. All sales are expressly limited to, and made condition upon, the acceptance by Purchaser of these Terms and Conditions, the Credit Application, if any, and the Limited Warranties, if any. The terms and conditions of purchase and/or sale and/or limited or express warranties contained on any purchase order, request for quotation or other business document utilized by Purchaser, whether or not received by TOL from Purchaser, are expressly superseded hereby and shall not be construed as part of the agreement between TOL and Purchaser for the purchase of the Products.

Therm-O-Lite Inc.
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www.thermolitewindows.com