



**TREMCO**<sup>®</sup>  
Commercial Sealants & Waterproofing

**T3** BUILDING SOLUTIONS



**T3**Solutions  
AIR • THERMAL • MOISTURE

# MANAGING THE WINDOW-TO-WALL CONNECTION: A Three-Level Solution From Tremco

# 3

AIR • THERMAL • MOISTURE

Tremco's T3 Building Solutions System introduces a foolproof method for window installation in commercial construction, taking the risk out of the highest risk connection on the building envelope.

A **three-level** solution to manage **air flow**, control **moisture** and provide **thermal** resistance, the T3 System provides a secure seal while accommodating projects with large variance in window type, size and geometry, as well as changes of plane with the bonding surface as with proud-sitting windows. T3 offers a continuous tie-in with the AVB system to promote connectivity and compatibility throughout the building envelope. This includes not only window-to-wall transitions, but also curtain wall connections, control joints, building fasteners, penetrations and transitions such as roof to wall and foundation to wall. T3 Solutions can accommodate movement caused by thermal expansion and contraction, vertical displacement and lateral shear, as well as seismic conditions.

## What is the T3 System?

T3 Building Solutions encompass high-performance products that are used alone or in combination, depending on project design and performance requirements, to create **airtight, watertight, thermally efficient** seals around windows and doors, as well as a broad range of other connection types on the building envelope. Some T3 products offer acoustical attributes as well. Products include:

- Pre-compressed, self-expanding, flexible, polyurethane foam tapes
- Breathable flashing materials
- Mechanically fastened, engineered transition assemblies
- Single-component, gun-grade polyurethane foams

## A Cost-Effective, Simple Solution

The T3 System is easy to use, with clean installation in a fraction of the time required by traditional methods, and:

- Helps ensure projects stay on schedule and finish on time
- Reduces labor costs
- Prevents typical application errors like poor seals in corners
- Eliminates failures common to traditional methods due to product limitations and compatibility issues
- Allows for quick visual inspection, making application errors easy to see and correct on the spot
- Diminishes likelihood of contractor call-backs due to leaks
- Requires minimal surface prep

## Structure Longevity and Peace of Mind

An economical choice for architects and building owners, T3 offers true peace of mind, addressing problems plaguing commercial construction the most: structural deterioration, occupant discomfort and energy loss.

It also:

- Prevents mold and mildew growth caused by moisture infiltration
- Promotes longer lifespan weatherseals, extending the building life cycle
- Helps reduce energy consumption

T3 Solutions are always backed by a Tremco guarantee. Ask your local representative for details regarding warranty of the system, a critical component to providing building owners with true protection and peace of mind.

## Healthier Indoor Environments

Rigorously tested by the UL GREENGUARD Environmental Institute, T3 products have earned indoor air quality (IAQ) certification to the stringent GREENGUARD Gold standard, which includes safety factors to account for sensitive individuals and helps ensure that a product is acceptable for use in environments such as schools and healthcare facilities.

GREENGUARD Gold Certification gives assurance that products affecting indoor spaces meet some of the world's most rigorous, third-party chemical emissions standards—helping reduce indoor air pollution and the risk of chemical exposure while aiding in the creation of healthier indoor environments.

## Thermal bridges lead to energy loss

Thermal bridges – created when materials that are poor thermal insulators come into contact, which allows heat to flow through the path of least thermal resistance – contribute up to 15% of the heat loss in a traditional building while air infiltration and leakage contribute about 35% more. To ensure that heat and energy generated in a building are not wasted, all penetrations and connections must be sealed securely, designed appropriately and perform throughout the life of the building. T3 Solutions help reduce thermal bridging as part of a continuous, compatible, high-performance building envelope.

The T3 System of products can be used for a broad range of connection types and applications, reducing risk and installation time. These include:

- Window to wall
- Curtain wall to rough opening
- Window wall to slab
- Door to wall
- Sill pan conditions (sealant replacement)
- Threshold to wall
- Roof to wall
- EIFS/Panel joints
- Expansion joints including wide joints (>1 inch)



### ExoAir® Trio

- Expands into rough opening, creating an airtight, thermally efficient and vapor-permeable seal
- Three-in-one solution for outer, middle and inner sealing of windows, making it ideal for rough openings in stud walls
- Installation on green and damp substrates in most weather conditions

### ExoAir® Eco

- Expands into the exterior of the rough opening, creating a vapor-permeable seal
- Installation on green and damp substrates in most weather conditions



### ExoAir® Duo

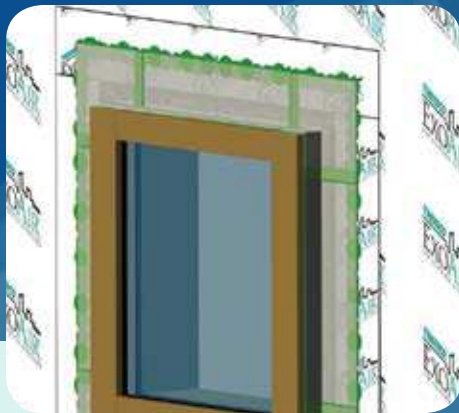
- Intelligent vapor barrier with properties that change based on relative humidity to prevent moisture from becoming trapped within structural elements
- Tear-resistant, woven fabric embedded into a polyethylene copolymer with large expansion pleat for variable joint sizes and absorption of movement
- Provides internal airtight seal and external weathertight seal





## ExoAir® ETA

- A patented engineered transition assembly composed of pre-engineered, finished aluminum and silicone materials mechanically attached to window and/or wall structural framing to ensure a durable connection and seal
- Used at junctions between other assemblies within the building envelope
- Absorbs thermal movement and wind-loading stresses and withstands seismic conditions
- Compatible with most window sealants and glazing materials



## ExoAir® Flex Foam/TremGlaze® Flex LEF

- The industry's only true flexible foam
- Single-component, moisture-curing, gun-grade polyurethane foam cures to a very fine and highly elastic foam structure
- Provides thermal insulation in demanding, high-movement joints around windows, doors and penetrations
- Absorbs up to 3 times more movement than other expandable foams
- Industry-leading movement range of +/- 15% or MAF (Movement Accommodation Factor) of 30%
- Can be installed around windows where sealant is used at window-to-air barrier connection points



## illmod® 600

- Pre-compressed, self-expanding, flexible, polyurethane joint seal that protects against wind-driven rain, sound, draft and dirt
- Exterior and interior seal impregnated with a flame-retardant, modified acrylic resin
- Pressure-sensitive adhesive on one side for easy installation
- Used in conjunction with a compatible sealant, provides a superior performing dual-sealed joint



## ExoAir® LEF/TremGlaze® LEF

- Single-component, moisture-curing, gun-grade polyurethane foam
- Provides thermal insulation and sound barrier while filling in gaps surrounding penetrations and in cavity walls
- Tack-free in 10 minutes and resistant to decay and heat
- Can be installed around windows and doors for thermal insulation





## Reducing Thermal Bridging

T3 Building Solutions not only protect the building from weather, moisture and air flow, but these solutions also provide a thermal transition from the window to the wall. This combination of thermal and weatherproofing protection is something a stand-alone, traditional sealant cannot provide.

## Tested, Proven Performance

Trials conducted at Tremco's state-of-the-art Sustainable Building Solutions Test Facility, designed for controlled testing of air and moisture infiltration/exfiltration in building enclosures, confirm the performance of T3's three-level solutions. For cavity wall applications, where compression is not possible, a window-to-wall assembly with ExoAir® Eco, ExoAir® LEF and ExoAir® Duo Membrane was tested; and for stud wall applications, ExoAir® Trio in combination with ExoAir® Duo membrane was tested. Assemblies were pushed beyond the regular ASTM test standards.

	*ASTM E283: Air Leakage
STUD WALL	0.029 cfm/ft <sup>2</sup> with an air exchange rate of 0.43/h @ 50 Pa
CAVITY WALL	0.005 cfm/ft <sup>2</sup> with an air exchange rate of 0.10/h @ 50 Pa

\* ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen

	*ASTM E331: Wind-Driven Rain	
STUD WALL	The assembly was tested at <b>300 Pa</b> (over standard 137 Pa) for 15 min. Pressure increased to 600 Pa, 750 Pa, 1000 Pa, 1250 Pa and finally <b>1500 Pa</b> over 5-min. intervals.	Both assemblies passed with <b>no water leakage</b> around the window penetration.
CAVITY WALL	The assembly was tested at <b>600 Pa</b> (instead of the standard 137).	

\* ASTM E331 - Standard Test Method for Water Penetration or Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference

Independent, third-party evaluation and Tremco's internal testing are ongoing to validate T3 System performance with other products and in other applications. The T3 System is tested under rigorous conditions to ensure complete, compatible, engineered solutions that provide long-term performance of the building enclosure.