TC-417

SPRAY APPLIED THERMAL AND ACOUSTIC INSULATION SYSTEM

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ThermaCoustic

www.thermacoustics.com

TC-417 SPRAY APPLIED THERMAL & ACOUSTIC SYSTEM

PRODUCT DESCRIPTION

- TC-4I7 is a glass fibre based spray-applied thermal and acoustic insulation;
- Its major uses are within the multi-unit residential, institutional, commercial and industrial markets for installation in both new construction and retrofit applications.

MATERIALS:

- TC-417 is comprised of pure white, inorganic, non-combustible glass fibres (minimum 40% recycled glass) and a non-hazardous, water-based synthetic emulsion adhesive;
- These components are combined during application on the job site;

BENEFITS:

- **Green Product- LEED Credits available**
- When installed, TC-417 produces a monolithic, non-combustible insulation blanket that resists heat flow, air circulation and moisture migration to the substrate;
- TC-417 is equally effective in retarding heat flow into or out of the structure as required;
- TC-417 can be applied to most sound, grease and oil-free substrates such as concrete, steel, sealed gypsum board, sealed wood and rigid insulation;
- It also adheres to Sprayed Fire Resistive Material (SFRM)
- The single-step, spray-applied process allows the most complex surface configurations to be covered easily and efficiently with no seams or voids;
- TC-417 can be left exposed as a heavily textured surface or it can be covered, depending on the design and type of application.

FIRE RESISTANCE

Listed product

Classified Product

- Non-Combustible
- Class A Flame Spread & Smoke Developed
- The major component of TC-417 is inorganic glass fibre, and the installed product has been tested to CAN/ULC S114 and ASTM E-136 and rated as non-combustible.
- Since TC-417 is non-combustible it can be applied to any fire rated assembly or Sprayed Fire Resistive Material (SFRM) without any impact on the rating.
- TC-417 is listed in 18 UL Fire Resistance Rating Designs for use over SFRMs.

THERMAL FEATURES

The high thermal values achieved by TC-417 make it a cost-effective way to help comply with today's energy codes.

In addition, it is very effective in helping combat rising energy costs.

TC-417 exhibits the following thermal attributes:

- Thermal resistance:
  R = 4.17/inch; RSI = 0.73/25 mm
- Thermal conductivity:
  K = 0.24; I= 0.0346
- Application thickness without mechanical support.
  i) Overhead (horizontal) –
  5" (125 mm) = > R20/RSI3.5
  ii) Wall (vertical) –
  7" (175 mm) = > R28/RSI4.9

NOTE:

If greater thermal resistances are required, a pin, mesh and clip system may be used.

CONDENSATION CONTROL

TC-417 helps control condensation under many different circumstances in both conditioned and unconditioned buildings;

NOTE:

The subject of condensation control is broad. Therefore, before specifying TC-417 for use where condensation control is a factor, please check our catalogue or website (www.thermacoustics.com) or contact us directly at 1 866 460 1474.

SOFFIT AND PARKING GARAGE APPLICATIONS

Concrete parking garage ceilings and soffits (see diagrams) provide strong challenges to the design professional intent on insulating them effectively. Their surface is often penetrated by service pipes and ducts, which run tight, or in close proximity to, the ceiling surface. In addition, they are broken by frequent columns and beams needed to support the building.

The most practical method of insulating them is by the use of a high efficiency spray-in-place thermal material. TC-417 is ideal for this purpose. It provides a monolithic blanket that is non-

TC-417 PRODUCT PERFORMANCE

Test Standard	Test	Requirement	Result
Thermal Conductance	ASTM C 518	Report Value	I= 0.0346 W / (m2•°C) K = 0.24 Btu in / (hr•ft2•°F)
Thermal Resistance	ASTM C 518	Report Value	SI = 29.32m °C / W R = 4.17 (hr•ft2•°F) / Btu
Non-Combustibility **Intertek – Spec ID 51429** **UL - Product IQ 40200**	ASTM E 136 CAN/ULC S-114	Non-Combustible Non-Combustible	Non-Combustible Non-Combustible
Surface Burning Characteristics **Intertek – Spec ID 51429**	ASTM E 184 CAN/ULC S-102	Flame Spread <25 Smoke Developed <50	Flame Spread <25 Smoke Developed <50
Adhesion/ Cohesion	ASTM E 736	>1.7 kPa	Passed
Noise Reduction	ASTM C 423 ISO 354	Report Value	50mm / 2" = 1.00 ISO 354 50mm / 2" = 0.95
Fungal Resistance	MIL0STD 810E Method 508.4	Report Value	No growth
Deflection	ASTM E759	1/120	No delamination - Passed

TC-417 SPRAY APPLIED THERMAL & ACOUSTIC SYSTEM

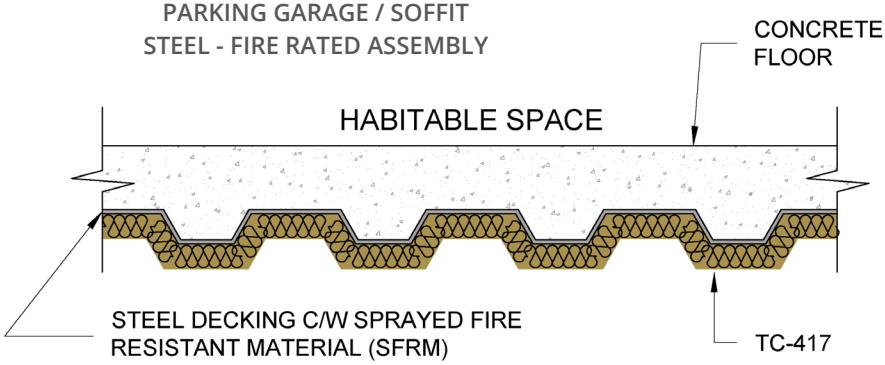
combustible, Class A flame spread rating and has the highest R (RSI) value (R = 4.17/inch; RSI = 0.73/25mm) of the sprayed fibre products.

Generally speaking, parking garage ceilings comprised of steel decking with concrete topping produce a greater insulation challenge.

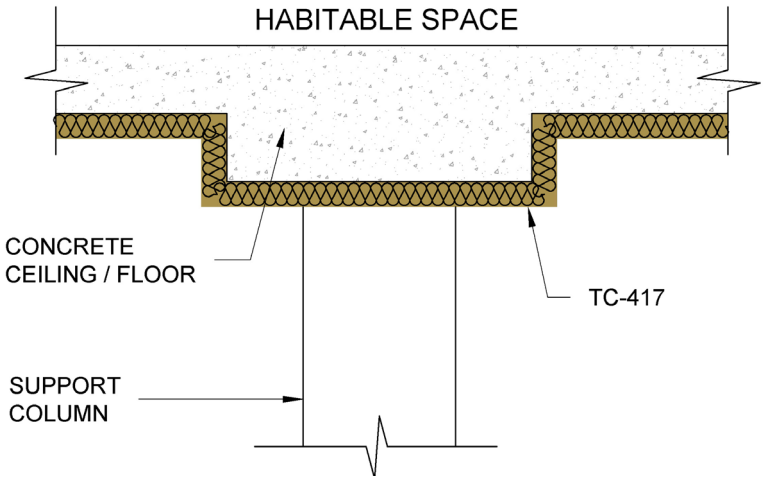
In some garage and most soffit applications, a drop ceiling may be desirable to protect the piping, ductwork, etc., and insulation from damage, or for esthetic reasons.

Provision of a drop ceiling, either permanent or removable, does not impair the performance of TC-417.

PARKING GARAGE / SOFFIT
STEEL - FIRE RATED ASSEMBLY



PARKING GARAGE / SOFFIT
DROP CEILING



ROOF APPLICATIONS

TC-417 can be used on any new roof construction, or as retrofit to any existing sound, watertight roof assembly. Its ease of installation, regardless of the complexity of the substrate, together with its monolithic application makes it an ideal choice.

ACOUSTIC FEATURES

When noise reduction within a building is required TC-417 is an excellent choice. It exhibits the following acoustic attributes:

- NRC (noise reduction coefficient): ASTM C-423 90a 1.00 @ 2"/50mm
  ISO 354 0.95 @ 2"/50mm

NOTE:

Effective acoustic control in any building is primarily based on a thorough understanding of its particular acoustic problems and the methods and materials needed to control them. Therefore, we strongly emphasise that no decision to use TC-417 thermal and acoustic insulation as an acoustic installation in any building be made until:

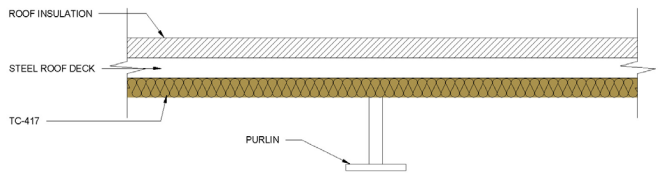
a) Our relevant test data is obtained (see below);

b) A qualified, local acoustic consultant, familiar with the project, be retained to interpret our data and to make recommendations concerning the use of our material.

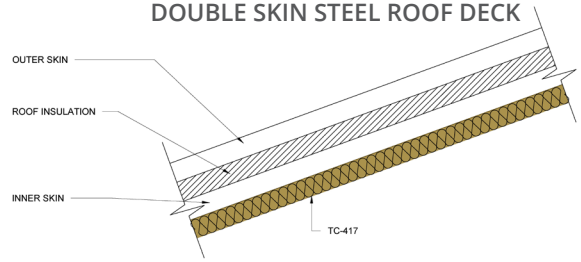
COLOUR OPTIONS

We supply colour additives for our adhesive to produce dark grey or light grey finishes. If other colours are desired, the finished installation must be painted with the required colour.

SINGLE SKIN STEEL ROOF DECK



DOUBLE SKIN STEEL ROOF DECK



ThermaCoustic TC-417

Spray Applied Thermal and Acoustic Solutions

Division 07 2100 • Division 09 8000

SPECIFICATION GUIDE

PART 1 GENERAL

1.1 Related Works and Sections

1.1.1 Division 07 2100 - Building Insulation
Division 09 8000 - Acoustic insulation

1.2 Work Included

1.2.1 Provide all materials, labour, equipment and services necessary for, and incidental to, the complete and correct installation of all TC-417 and related work as shown on the drawings or where specified herein, and in accordance with all applicable requirements of the Contract documents.

1.2.2 All material and installation shall conform to the applicable and/or other code requirements of all authorities having jurisdiction.

1.3 Quality Assurance

1.3.1 If requested, provide samples of minimum size 90mm x 121mm (3.5" x 4.75") of sprayed TC-417 on a rigid backing appropriate to the installation.

1.3.2 Work shall be performed by a firm with a minimum 3 years experience in the sprayed insulation and/or fireproofing business and shall possess expertise in the installation of TC-417 and shall be currently registered as an approved Applicator by ThermaCoustic Industries International Limited.

1.3.3 Before proceeding with the application of TC-417 thermal and acoustic insulation, approval of the proposed material thickness shall be obtained from the architect and other applicable authorities.

1.4 Manufacturer's Literature

1.4.1 Copies of the manufacturer's literature, clearly indicating conditions of acceptance and method of application, shall be available on site before and during period of performance of related work and product installation.

1.5 Material Delivery and Storage

1.5.1 All material to be delivered to the site in original, undamaged and unopened packages clearly labelled as TC-417.

1.5.2 All materials to be stored on site in a warm, dry location on either a concrete floor or raised platform. Material must not get damp or wet.

1.5.3 TC-417 adhesive must not freeze.

1.6 Project Conditions

1.6.1 TC-417 shall only be installed under the conditions as stated in the manufacturer's published application instructions.

1.6.2 When the prevailing outdoor temperature at the site is less than 4°C (40°F), a minimum substrate and ambient temperature of 4°C (40°F) shall be maintained for 24h before, during and until the applied product is completely cured (dry) through to the substrate. If necessary for job progress, the General Contractor shall provide enclosures with dry heat to maintain temperature.

1.6.3 General Contractor shall provide ventilation to allow proper drying of the installed TC-417 during and after its application.

1.6.4 At all times during installation and drying of TC-417 ventilation in enclosed areas shall not be less that 3 complete air changes per hour.

1.6.5 All patching and repairing of installed TC- 417 required because of damage or cutting by other trades shall be performed under this Section and paid for by the trade(s) responsible.

1.6.6 The General Contractor shall allow the Manufacturer's representative full access to the site during normal working hours.

1.6.7 The Contractor shall co-operate in the co-ordination and scheduling of the insulation work to avoid delays in job progress.

PART 2 PRODUCTS

2.1.1 Materials: spray-applied material shall be TC-417 white glass fibre together with TC-417 synthetic emulsion adhesive conforming to CAN 4-S114 and ASTM E-136 as manufactured by ThermaCoustic Industries International Limited.

2.1.2 TC-417 shall not contain free crystalline silica, asbestos or combustible fibre, and shall exhibit the following qualities according to the test protocols quoted:
ASTM C-518: R = 4.17/in; RSI = 29.32/m
K = 0.24; I = 0.0346
CAN/ULC S-114: Non-combustible
ASTM E-136: Non-combustible
CAN/ULC S-102:
ASTM E-84: Flame spread = < 25;
Smoke development = < 50
ASTM C-423 90a: NRC = 1.00 (50mm/2 in.)
ISO 354: NRC = 0.95 (50mm/2 in.)

2.1.3 ThermaCoustic Industries TC-417 Adhesive shall be mixed with fresh, clean, potable water in the exact proportion as recommended by the manufacturer.

2.1.4 TC-417 adhesive must be kept from freezing at all times.

PART 3 EXECUTION

3.1 Preparation

3.1.1 All surfaces to receive TC-417 spray Insulation shall be free of all petroleum-based greases and oils, loose mill scale, rust, poorly adhered paint and other foreign materials that could impair bonding to the surface. Any required cleaning of the substrate to receive TC-417 shall be the responsibility of the General Contractor.

3.1.2 Remove dust, dirt or foreign material on surfaces to which the product is to be applied, that could otherwise create a false bond or surface staining of the product.

3.1.3 Verify compatibility and bond requirements of all surfaces to receive TC-417.

3.1.4 Ensure that all equipment, piping, ducts or other units that would interfere with the application of TC-417 are not positioned until application is complete.

3.1.5 Ensure that proper temperature and ventilation are maintained as specified in 1.6.2 through 1.6.4.

3.1.6 Provide and install masking, drop cloths or other suitable coverings to prevent overspray from coming into contact with unintended fixtures and surfaces.

3.2 Application

3.2.1 Mix and apply TC-417 in strict accordance with manufacturer's published recommendations.

3.2.2 Apply product in sufficient thickness to achieve the required thermal and/or acoustic value.

3.3 Clean-up

3.3.1 Remove overspray from equipment and surfaces not intended to be covered. Perform all removal work while installed product is still wet.

3.3.2 Ensure clean up is up to industry standards.

3.4 Options

3.4.1 The surface of TC-417 can be left untamped for basic finish, or can be board tamped and oversprayed for a flatter, more uniform finish.

3.4.2 For a more attractive finish in exposed areas we recommend the surface be board tamped and over-sprayed with TC-417 adhesive.

3.4.3 If a finish colour other than white is desired we suggest:
a) For dark grey (charcoal) or light grey use our colour additives for TC-417 adhesive;
b) Otherwise, paint the installed TC-417 with any good quality emulsion paint of the desired colour.

WARRANTY

ThermaCoustic Industries International Limited (TIIL) offers limited warranties against defects in materials and workmanship of its component products at time of shipment to the installing contractor. TIIL supplies components of a finished product only, and the finished product is site manufactured by an approved applicator. Consequently, TIIL has no control over installation design and/or workmanship, ancillary materials, or conditions and/or methods of installation. Therefore, although TIIL has tested its finished products to industry standards according to recognised protocols and in approved laboratories, it does not warrant the performance, or any other result, of any installation containing its products.

This warranty disclaimer includes all implied warranties and specifically disclaims any warranty of merchantability or suitability for any particular purpose. Under no circumstances shall TIIL be liable for indirect, consequential or circumstantial damage.

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