

## Thermal, Sound and Condensation Control in One Application



### ThermoCon Spray-On System/CSI 07210

ThermoCon is a complete spray-on system consisting of specially milled cellulose fibers treated with fire retardant chemicals, high performance adhesive and proven application methods.

ThermoCon is applied by a national and international network of trained applicators using approved equipment and spray methods.

ThermoCon provides a monolithic coating that is tough with an attractive carpet-like texture that follows the contour of the architect's design to provide exceptional noise reduction, condensation control, and outstanding thermal control in one application.

ThermoCon out performs prefabricated insulation products because it is spray applied, eliminating voids and compression areas that reduce thermal efficiency.

ThermoCon can be applied to virtually any properly prepared surface. Typical applications are sprayed on wood, steel, concrete, gypsum board, brick, glass, plaster, sprayed and rigid board polyurethane foam and other foam insulation.

ThermoCon is available in six colors; White, Beige, Light Grey, Dark Grey, Tan and Black. Specially matched custom colors are also available.

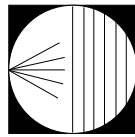
### ThermoCon has been tested under the following ASTM Standard Tests and other laboratory tests listed in this catalog

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|--|---|
| <b>ASTM E 605</b><br>Thickness & Density of Sprayed Fire-Resistive Materials                                 | <b>ASTM E 423</b><br>Sound Absorption Coefficients                        |
| <b>ASTM E 119</b><br>Fire Test of Building Construction Materials  | <b>ASTM E 413</b><br>Classification For Rating Sound Insulation           |
| <b>ASTM E 736</b><br>Cohesion/Adhesion of Sprayed Fire-Resistive Materials                                   | <b>ASTM C 523</b><br>Light Reflectance of Acoustical Materials            |
| <b>ASTM E 759</b><br>Effect of Deflection of Fire Resistive Materials  | <b>ASTM E 1042</b><br>Classification of Acoustically Absorbent Materials  |
| <b>ASTM E 90</b><br>Laboratory Measurements of Airborne Sound Transmissions Loss of Building Partitions      | <b>ASTM C 518</b><br>Thermal Transmission Properties                      |
| <b>ASTM C 1149-90</b><br>Self-Supported Spray Applied Cellulose Thermal/Acoustic Insulation Type I & Type II | <b>ASTM E 84</b><br>Surface Burning Characteristics of Building Materials |
| <b>ASTM C 739</b><br>Cellulose Fiber Loose Fill Thermal Insulation   | <b>ASTM E 859</b><br>Air Erosion of Sprayed Fire-Resistive Materials      |

### Typical Projects

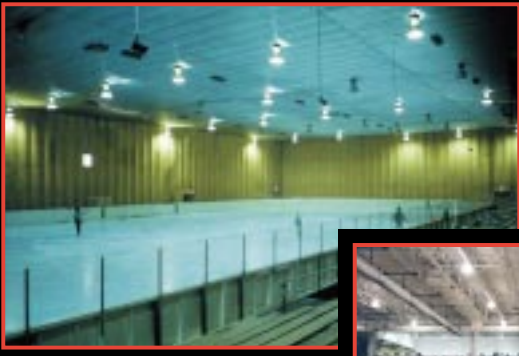
- Schools
- Gymnasiums
- Auditoriums
- Churches
- Hotels
- Libraries
- Detention Centers
- Parking Garages
- Office Buildings
- Theaters
- Convention Centers
- Television Studios
- Restaurants
- Apartment Buildings
- Shopping Malls
- Warehouses
- Airports
- Condominiums
- Climate Controlled Storage Facilities
- Pre-Engineered Metal Buildings for Various Uses





# ThermoCon

Sprayed Thermal & Acoustic Insulation  
Division of Applegate LA, LLC



## Thermal Barrier

ThermoCon Sprayed Thermal & Acoustical Insulation has been tested by a NAVLAP accredited laboratory that is code accepted and found to be suitable as an approved thermal barrier over sprayed polyurethane foam, rigid polyurethane foam and other plastic insulation materials.

## Thermal Control

ThermoCon provides superior thermal resistance by creating a monolithic seal with the use of hollow interlaced fibers sprayed in place with no seams or voids. Our seamless application provides an R-Value of 3.7 per inch and is a significant barrier to air infiltration, convection and radiation in both hot and cold environments, thereby reducing heating and cooling costs.

## Sound Control

ThermoCon has the ability to absorb sound instead of reflecting it thereby reducing the reverberation time. A one inch application of ThermoCon will absorb up to 75% of the sound caused by the reverberations from hard surfaces such as walls, ceilings and floors. ThermoCon is effective over a broad range of frequencies at varied thickness. Acoustical consultants and architects know that unwanted noise affects comfort, concentration and behavior. Buildings insulated with ThermoCon are quieter, creating a more relaxed atmosphere for the occupants.

## Sound Absorption Characteristics- Reference ASTM C423

ThermoCon Sprayed Thermal & Acoustical Insulation ASTM C 423 on Solid Backing

Depth	125 HZ	250 HZ	500 HZ	1000 HZ	2000 HZ	4000 HZ	NRC
1/2"	0.04	0.15	0.40	0.73	0.80	0.82	.50
3/4"	0.07	0.20	0.53	0.83	0.89	0.94	.60
1"	0.10	0.29	0.70	0.98	1.01	0.98	.75
1 1/2"	0.19	0.51	0.88	1.06	1.08	1.00	.90
2"	0.33	0.64	0.98	1.10	1.12	1.00	.95
2 1/2"	0.51	0.84	0.98	1.07	1.11	1.01	1.00
3"	0.59	0.99	1.03	1.02	1.02	1.01	1.00

\*Some values interpolated.

## Approvals & Specifications

### UNDERWRITERS LABORATORIES

#### REFERENCE # 9408

Flame Spread 5 Smoke Developed 0

Applied at a maximum thickness of 5"

Must be applied with ThermoBond adhesive.

### FEDERAL SPECIFICATION SS-S-111C

### HUD / FHA USE OF MATERIALS BULLETIN # 80

### MEETS CALIFORNIA BUREAU OF HOME FURNISHINGS STANDARDS CA-T-282 (LA)

### TOXICITY TEST:

University of Pittsburgh Test (*No more toxic than wood*)

### Complete Testing:

ThermoCon has been tested by independent laboratories in accordance with ASTM C 1149-90 Self Supported Spray-Applied Cellulosic Thermal-Acoustical Insulation, Type I. The following was determined:

### Physical Properties:

**Density** - 2.7 lb. cu. ft.

**Thermal Conductivity** - R-Value 3.7 per in. = K-value 0.27

**Surface Burning Characteristics** - Flame Spread 5, Smoke Developed 0

**Cohesion / Adhesion Strength** - 37 times the weight

**Smoldering Combustion** - Less than 1% weight loss

**Fungi Resistance** - No fungal growth

**Corrosion** - No corrosion on copper aluminum or steel

**Moisture Vapor Absorption** - 1.43%

**Odor** - No offensive odor

**Substrate Deflection** - No cracking or delamination occurred

**Air Erosion** - Pass 0.14 g / sq.ft.

BASED ON THE ABOVE PHYSICAL PROPERTIES, THERMOCON IS IN COMPLIANCE WITH THE REQUIREMENTS OF THE INSULATION SECTION OF CABO MODEL ENERGY CODE, BOCA, ICBO AND SBCCI BUILDING CODES

**Product Description**

Tex-Ceil is a spray applied acoustical treatment that provides a coating that is attractive, is unaffected by normal temperature and humidity levels, will withstand minor abrasion abuse and is a Class I building material. Tex-Ceil may be applied to most surfaces that require excellent acoustical values along with an attractive appearance typically needed on projects such as churches, schools, auditoriums, detention facilities, retail sales areas, and many others.

Choose ThermoCon Tex-Ceil when you require a durable textured seamless finish for interior applications in new or existing buildings. Tex-Ceil with fire resistive fiber and ThermoBond adhesive provides a cost effective noise reduction coating while providing a finish with beauty and durability. Tex-Ceil is available in white, black and specially matched custom colors. Tex-Ceil can be applied to most substrates such as gypsum board, wood, concrete, metal and plaster. Most surfaces require priming with a sealer/stain blocker.

Tex-Ceil can be applied at various thickness to achieve high noise reduction coefficients from .65 to .90 while providing excellent light reflectivity for any environment.

Tex-Ceil is an economical alternative to materials such as acoustical plaster, suspended acoustical ceilings, acoustical tile, paint and other unidimensional products. If a tougher more abrasion resistant finish is required, ThermoTuff Over-Spray may be applied to further improve Tex-Ceil's durability.



**Features**

- Attractive seamless textured finish
- Applicable to virtually any substrate
- Conforms to any surface configuration
- Provides superior acoustical values
- Durable surface
- High level of light reflectivity
- Suitable for new or existing projects
- Impact and abrasion resistant without cracking

**Typical Installation**

Offices, churches, schools, detention facilities, restaurants, cafeterias, libraries, gymnasiums, auditoriums, theaters, airports, TV studios and many more.

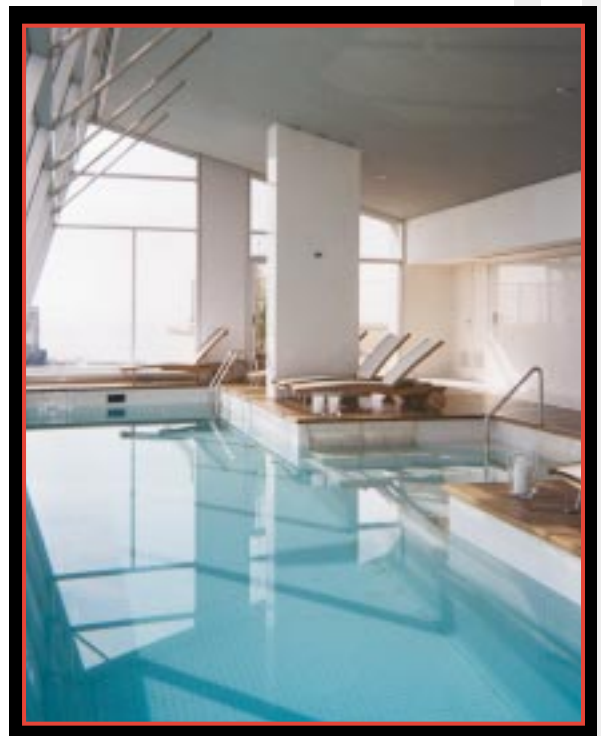
**Acoustical Performance**

ThermoCon Tex-Ceil has been tested by a NAVLAP code accepted acoustical testing agency and found to provide exceptional noise reduction coefficients. A typical application of 1/2" of Tex-Ceil provides an NRC of .65.

**Sound Absorption Characteristics  
Reference ASTM C423 On Solid Backing**

Depth	125 HZ	250HZ	500HZ	1000HZ	2000HZ	4000HZ	NRC
1/2"	0.09	0.17	0.48	0.88	1.08	1.13	.65
5/8"	0.01	0.21	0.60	0.99	1.05	1.06	.70
3/4"	0.16	0.26	0.67	1.03	1.12	1.13	.75
1"	0.12	0.38	0.89	1.18	1.16	1.16	.90

\*Some values interpolated.



**ASTM Standards & Specifications/Tex-Ceil**

ASTM E 84/UL 723	Flame Spread	5
ASTM E 84/ UL 723	Smoke Developed	0
ASTM E 736	Bond Strength	900 psi
ASTM E 761	Compression Strength	1200 psi
ASTM C 523	Reflectivity	81%

# ThermoForm Cellulose Insulation System

## Product Description

ThermoForm Cellulose Insulation is a field proven advanced insulation system designed for use in wall cavity, attic and between floor applications. ThermoForm is formulated from cellulose fibers and treated for fire resistance to produce a product with lasting thermal performance and reassuring safety properties.

With a self contained dry adhesive ThermoForm is specifically designed to completely occupy and insulate wall and attic voids by forming a unique structure conforming seamless blanket to significantly reduce sound transmission and virtually eliminates air infiltration.

## Sound Transmission Control

ThermoForm is a field proven noise control insulation, absorbing substantial levels of unwanted sound. The sprayed-in-place ThermoForm blanket creates a sound deadening wall as it seals off potential sound transmission openings. Voids around pipes and wiring are also eliminated. ThermoForm's natural high density provides an excellent STC rating. Higher STC values equate to less noise transmitted through the wall and attic.

## Air Infiltration Control

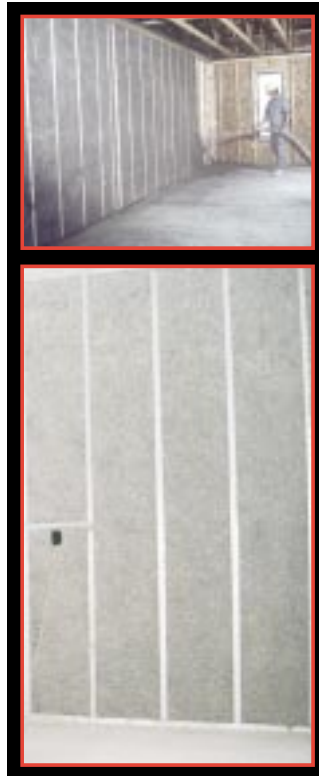
High R-Values equate to favorable insulation performance, but performance can be drastically reduced by air infiltration. Air infiltration is the costly uncontrolled leakage of air penetrating both in and out of a structure, inflating both heating and cooling costs. ThermoForm resolves the problem of air infiltration by blocking this uncontrolled leakage.

## Control of Heat Loss/Gain

ThermoForm possesses greater density when compared to fiberglass batts and therefore has the ability to virtually eliminate air infiltration. An improperly installed fiberglass batt with as little as 4% void area translates into as much as a 50% increase in heat loss/gain through infiltration, resulting in excessive energy expenditures. In contrast, ThermoForm completely fills all voids and seals around conduit, pipe, and electrical boxes, thus eliminating these energy loss channels.

## Typical Installation

Perimeter walls, partition walls and attics using metal or wood framing in almost any commercial or residential application such as hotels, condominiums, apartment houses, offices, hospitals, single family dwellings and many more.



## Steel Stud Wall Assemblies

STC	Construction Detail
49	2 1/2" steel studs, 24" OC, 1 + 1 layers of 5/8" gypsum board 2 1/2" of ThermoForm, 1 hour fire rating
58	2 1/2" steel studs, 24" OC, 2 + 2 layers of 5/8" gypsum board 2 1/2" of ThermoForm, 2 hour fire rating
49	3 5/8" steel studs, 24" OC, 1 + 1 layers of 5/8" gypsum board 1" of ThermoForm, 1 hour fire rating
52	3 5/8" steel studs, 24" OC, 2 + 1 layers of 5/8" gypsum board 1" of ThermoForm, 1 hour fire rating
54	3 5/8" steel studs, 24" OC, 2 + 2 layers of 5/8" gypsum board 1" of ThermoForm, 2 hour fire rating

Increasing the thickness of the ThermoForm Cellulose Insulation application by 1/2" will add a calculated average of 4.5 db to each STC rating shown in the charts. STC db ratings shown are from actual and calculated test data.

## Wood Stud Wall Assemblies

STC	Construction Detail
44	2" x 4" plate, 2" x 4" wood studs, 16 OC", 1 + 1 layers of 1/2" gypsum board 1" of ThermoForm, 1 hour fire rating
47	2" x 4" plate, 2" x 4" wood studs, 24" OC, 2 + 2 layers of 5/8" type X gypsum board 1" of ThermoForm, 2 hour fire rating
52	2" x 6" plate, 2" x 4" staggered wood studs, 16" OC, 1 + 1 layers of 5/8" gypsum board 1" of ThermoForm, 1 hour fire rating
55	2" x 6" plate, 2" x 4" staggered wood studs, 16" OC, 2 + 1 layers of 5/8" gypsum board 1" of ThermoForm, 1 hour fire rating
57	2" x 6" plate, 2" x 4" staggered wood studs, 16" OC, 2 + 2 layers of 5/8" gypsum board 1" of ThermoForm, 2 hour fire rating

## Approvals, Specifications & Physical Properties/CSI 07210

ThermoForm Cellulose Insulation as tested by independent laboratories complies with: CPSC Safety Act of 1978, P.L. 95-319, ASTM C 739, HUD Use of Materials Bulletin # 80, HH 1 515D, FHA, VA.

ThermoForm Cellulose Insulation also complies with the requirements of the insulation section of: CABO Model Energy Code, BOCA, ICBO, and SBCCI building codes.

ThermoForm Cellulose Insulation has been tested in accordance with ASTM C 1149-90, Type II, materials containing a dry adhesive that is activated by water during installation and intended only for enclosed or covered applications.

**Fire Wall Test:** ASTM E 119 Accepted for use in fire rated assemblies.  
**Gross Calorific Value of Solid Fuel:** ASTM D 2015, 785  
**Aging:** ASTM D 1499 Five Years no change  
**Noise Reduction:** ASTM C 423 NRC .75  
**Corrosiveness:** ASTM C 739, ASTM C 1149  
**Starch:** ASTM D 5911 None  
**Soundwall Test:** ASTM E 90, ASTM C 423  
**Surface Burning Characteristics:** ASTM E 84, Flame 15, Smoke 0  
**Thermal Efficiency Test:** ASTM C 518, R-Value 3.8 per inch.  
**Resistant to Vermin:** Report # 8499-3  
**Underwriters Laboratories:** Reference # R-9408, Flame 15, Smoke 0

## Product Warnings / Limitations

ThermoCon and ThermoForm Insulation products should not be used in areas where there is prolonged exposure to water or heat in excess of 150 degrees F (85 degrees C) nor should it be applied in areas requiring a washable surface, or where contaminants such as dust, oil, paint vapors, fumes or mist exist. Accumulations of these contaminants may become hazards to the insulation. These contaminants will provide a fuel source and will burn when ignited and fire may spread. If a fire has occurred, the fire retardant chemicals are greatly reduced. Removal of the damaged insulation must be completed before reapplication. In high humidity applications, swimming pools, ice rinks ect. ThermoCon will consider application approval on an individual job basis.

ThermoCon and Applegate LA. LLC cannot be held responsible for misapplication of the product. Appearance and workmanship depend on proper application according to ThermoCon specifications. ThermoCon and Applegate LA. LLC warrants ThermoCon and ThermoForm Insulation against defects in material for a period of one year from the date of purchase of the material from ThermoCon if stored, handled and installed in accordance with ThermoCon and ThermoForm instructions.

ThermoCon and Applegate LA. LLC makes no expressed warranties except in writing. All implied warranties of fitness and/or merchantability are expressly excluded. No sales agent, representative or employee is empowered to change, alter or amend this provision.

Please read insulation package and separate instructions before installation. Pay particular attention to caution label.



# ThermoCon

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Division of Applegate LA. LLC

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ThermoCon, Tex-Ceil and ThermoForm Cellulose Insulation are manufactured from recycled fibers.

