



K-13
spray-on systems®

**Thermal &
Acoustic
Insulation**

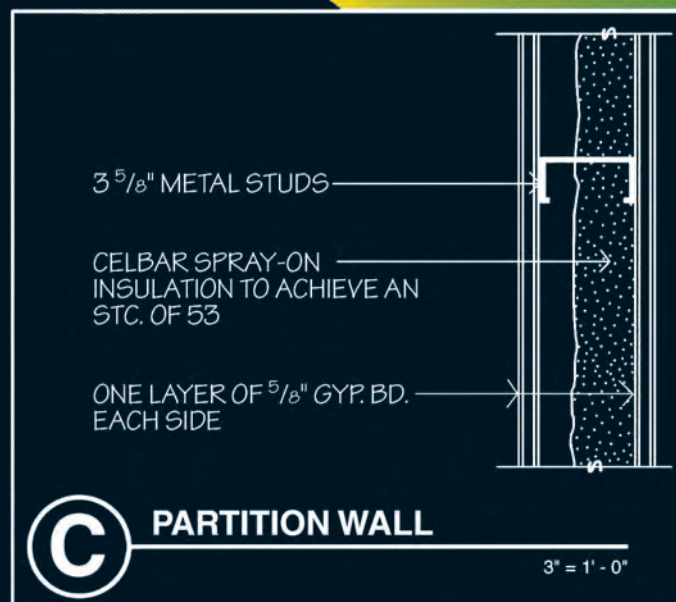
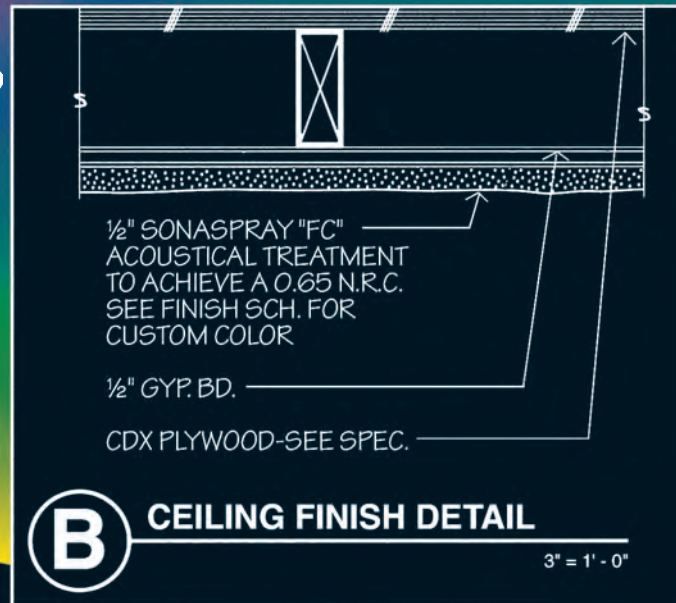
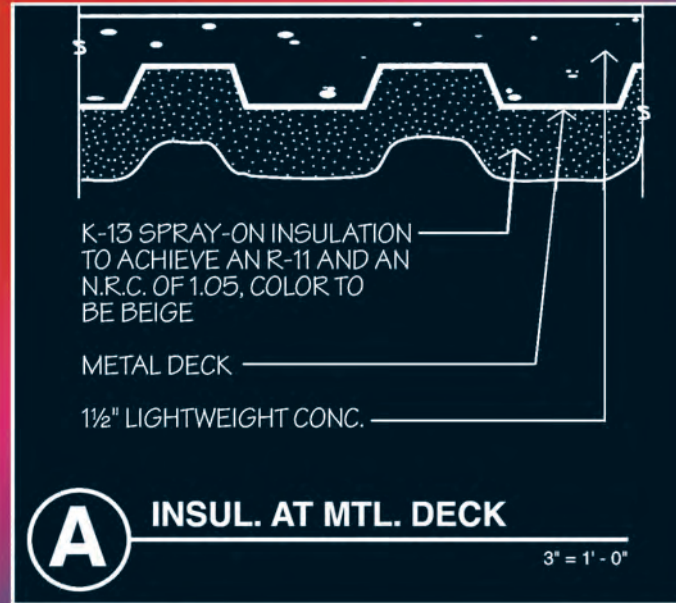
SonaSpray® "fc"
Acoustical treatment

**Spray-On
Acoustical
Treatment**



celbar
spray-on systems®

**Sound
Transmission
Control**





Compatible, versatile and economical multifunction insulation system

CSI 07218

(800) 444-1252

The Custom Spray System

K-13 is the spray-applied insulation tailored to your specific project requirements for insulation (R value), noise reduction (NRC), color, durability, condensation control, texture, and aesthetics. In addition, it usually provides these features at lower installed prices than many common systems such as rigid board and batt insulations, sprayed plasters, and acoustical ceilings.

It is applied to virtually any properly prepared surface configuration of wood, steel, concrete, glass and other common construction surfaces. K-13 can be sprayed up to five inches thick overhead in one application without mechanical support. Additionally, K-13 serves as the exposed finish requiring no additional materials.

A Total System: Fiber, Binder, Application

K-13 is a total system of recycled natural fibers, chemical treatment, binding system and application method. The K-13 system begins with specially prepared cellulose fibers which are chemically treated to add resistance to fire, mold and mildew. K-13 is produced in a strict, quality controlled manufacturing process.

K-13 is applied by an international network of licensed applicators through approved fiber machines and nozzles for control of the fiber/binder ratio. During application, the K-13 fibers are combined with a patented adhesive. The finished product is a strong, durable monolithic coating of a predetermined thickness. Some surfaces will require priming prior to being sprayed.

Naturally Tough – Naturally Attractive

With its texture and wide variety of colors, K-13 is especially attractive as a surface finish in new construction as well as renovation projects. Available in six standard colors, K-13 can also be specified in specially matched custom colors.



Color selection will affect the final price

Thermal Performance

K-13 insulates by creating dead air spaces between and within its hollow fibers. Because K-13 fibers are sprayed-in-place, they fill cracks, seams and voids, forming a monolithic coating over the substrate which reduces air infiltration. Unlike prefabricated insulations, K-13 has no voids or compressed areas to reduce thermal efficiency. The result is a more effective in-place product with exceptionally low heat transfer characteristics.

The patented adhesive utilized in the installation of K-13 adheres to virtually all common construction materials including: metal, wood, concrete, urethane, styrofoam and glass. Some surfaces may require pretreatment prior to installing K-13. This unique adhesive provides unequalled strength allowing applications of 3/4 inch to over 5 inches without mechanical support. This capability provides R-values from 3 to over 19.

Condensation Control

For areas such as indoor pools and ice arenas, K-13 aids in condensation control. The proper combination of K-13 and ventilation prevents condensation on metal, concrete and other surfaces. K-13 actually reduces ventilation requirements, saving in both the ventilation equipment investment and operating costs.



This manufacturing facility utilized K-13 for acoustical control and much needed thermal control.



The appealing textures and colors of K-13 provide renovation projects with attractive exposed ceilings.



By reducing ambient noise and reverberation, K-13 creates a more accommodating facility.

Acoustical Performance

The resilient fibers of K-13 absorb sound energy instead of reflecting it, reducing reverberation time and making speech and music more intelligible. Excessive noise is eliminated with the application of K-13 while greatly improving ambient sound quality in a wide variety of building projects including auditoriums, sports facilities, detention facilities, television and sound studios, convention centers and parking garages.

K-13 Sprayed Thermal and Acoustical Insulation ASTM C-423 on Solid Backing*

Inches	125 HZ	250 HZ	500 HZ	1000 HZ	2000 HZ	4000 HZ	NRC
0.63	0.05	0.16	0.44	0.79	0.90	0.91	.55
1.00	0.08	0.29	0.75	0.98	0.93	0.96	.75
1.00**	0.47	0.90	1.10	1.03	1.05	1.03	1.00
1.50	0.15	0.51	0.95	1.06	0.99	0.98	.90
2.00	0.26	0.68	1.05	1.10	1.03	0.98	.95
2.50	0.41	0.84	1.05	1.07	1.02	0.99	1.00
3.00	0.57	0.99	1.04	1.03	1.00	1.00	1.00

K-13 Sprayed Thermal and Acoustical Insulation Applied at 1.5" Ribbed Metal Deck*

Inches	125 HZ	250 HZ	500 HZ	1000 HZ	2000 HZ	4000 HZ	NRC
1.50	0.36	0.89	1.26	1.07	1.01	1.00	1.05
2.00	0.56	0.94	1.22	1.04	0.99	0.99	1.05
2.50	0.77	0.99	1.17	1.02	0.97	0.99	1.05
3.00	0.97	1.04	1.13	0.99	0.95	0.98	1.05

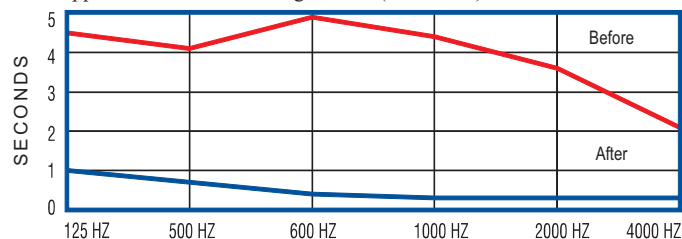
K-13 Sprayed Thermal and Acoustical Insulation Applied to 3" Fluted Metal Deck

Inches	125 HZ	250 HZ	500 HZ	1000 HZ	2000 HZ	4000 HZ	NRC
1.50	0.55	0.92	1.11	1.02	0.95	0.99	1.00
2.75	0.69	0.98	1.17	1.03	0.97	1.04	1.05

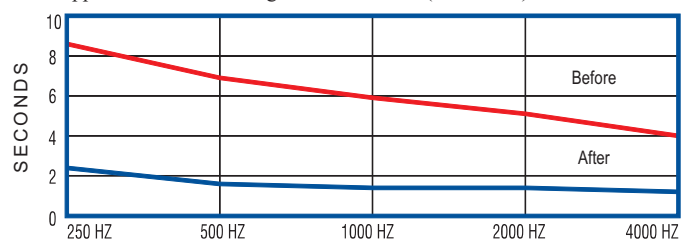
*Some values interpolated **On lath

Sound Results

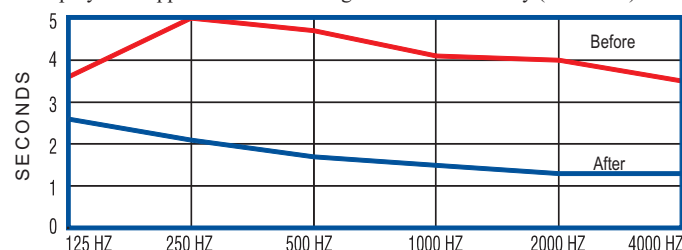
K-13 Applied at 3" to Recording Studio (Field Test)



K-13 Applied at 1" to Ceiling in Indoor Pool (Field Test)



SonaSpray "fc" Applied at 1/2" to Ceiling in Detention Facility (Field Test)



Approvals and Ratings

CSI 07218

www.spray-on.com

These fire ratings are derived from product tests per ASTM standards and are used solely to measure and describe properties of materials and products in response to heat and flame under controlled laboratory conditions. They are not intended to reflect hazards presented by these or any other materials under actual fire conditions.



Fire Performance Ratings

K-13 has been rated and approved by Factory Mutual Research Corporation for use in the following categories:

- **Category I:** As an interior finish material of low fire hazard (Class I Building Material) over noncombustible surfaces not requiring automatic sprinkler protection in and of itself.
- **Category II:** As a protective coating to delay the ignition and reduce the surface burning rate of combustible wood and cellulosic fiber building materials.
- **Category III:** As a protective coating to delay the ignition and reduce the surface burning rate of low melting, combustible cellular plastic building materials and to protect their dimensional stability for a brief period.
- **Category IV:** As a protective coating for building structural steel to supplement automatic sprinkler protection in preventing structural failure temperatures of the steel in high fire hazard occupancies.
- **Category V:** As a protective coating to the underside of Class II insulated steel roof deck construction to sufficiently lower the rate of fuel contribution from the Class II deck components to qualify the construction as Class I allowing automatic sprinkler protection to be omitted where permissible under Factory Mutual Standards.

Surface Burning Characteristics

K-13 has a Class 1, Class A flame spread rating per ASTM E-84, UL-723, NFPA-255 and UBC-42.

Flame Spread	5
Smoke Developed	5
Underwriters' Laboratories - Ref. #R5499	

ASTM Standards Compliance

ASTM-C-518	Thermal Conductivity
ASTM E-119	Full Scale Fire Wall Test, including Hose Stream Test
ASTM E-84	Surface Burning Characteristics
ASTM C-423	Noise Reduction Coefficients
ASTM C-523	Light Reflectance
ASTM E-736	Bond Strength
ASTM E-859	Air Erosion
ASTM C-739	Moisture Absorption
ASTM E-90	Sound Transmission Loss
ASTM E-413	Sound Transmission Loss
ASTM E-1042	Acoustical Absorption
ASTM C-1149	Spray-applied Cellulose Insulation

Test reports available upon request.

Miscellaneous Approvals and Specifications

ICC Evaluation Service, Inc -
ESR-2210
SBCCI - No. 9566
Underwriters Laboratories -
Ref. No. R5499
Los Angeles - RR 24311
New York - MEA 65-96-M
Dade County - 06-0501.03

Federal Defense Logistics
Agency Cage Code: ONJU2
Department of the Navy Guide
Specifications - NFGS-07218

Core of Engineers Guide
Specifications - CE-201.01
Federal Specification -
SS-S-111C
Factory Mutual Research -
Report Nos. 19678, 20399,
and 24703
Meets California Bureau of
Home Furnishings Standards
Resource Conservation and
Recovery Act
EPA 40 CFR Part 248



SonaSpray® "fc"

Acoustical treatment

- Attractive Textured Finish
- High NRC Rating: .65 @ 1/2"
- Light Reflective Finish
- Ideal for New Construction & Renovation

CSI 09212

(800) 444-1252

Product Description

SonaSpray "fc" is a spray-applied acoustical texture designed for a wide range of project types. SonaSpray "fc" provides an attractive, high performance solution to acoustical and lighting design objectives in both new construction and renovation projects. Typical installations include schools, churches, auditoriums, passenger terminals, libraries, detention facilities, cafeterias, offices, hotels and condominiums.

SonaSpray "fc" is available in White, Arctic White and specially matched colors.

Acoustical Performance

As tested by a NVLAP accredited acoustical laboratory per ASTM C-423, SonaSpray "fc" provides an exceptionally high noise reduction coefficient (NRC). A typical installation of 1/2" thick on solid backing has an unequalled NRC of .65.

Substrate Compatibility

SonaSpray "fc" conforms to any surface configuration such as barrel vaults, concrete "T", corrugated decks, pan construction and other complex surfaces. The high performance adhesive bonds to virtually all construction materials including gypsum board, plaster, wood, metal and concrete. Some surfaces (water-stained ceilings, wood and oxidized metal) require sealing to prevent migratory staining of the SonaSpray "fc".

Durability and Maintenance

The strong, resilient bond of the adhesive used to apply SonaSpray "fc" provides a remarkably durable surface. SonaSpray "fc" resists impact and abrasion without the cracking or spalling typical to many cementitious or plaster-based materials.

In areas where even higher abrasion resistance may be desirable, SonaSpray "fc" Dura-k may be specified. This product provides even greater bond and compressive strength without reducing the acoustical performance.

ASTM Standards Compliance

Flame Spread Index	5	ASTM E-84/UL 723
Smoke Developed	5	ASTM E-84/UL 723
Bond Strength		
SonaSpray "fc"	>600 psf	ASTM E-736
SonaSpray "fc" Dura-k	>900 psf	ASTM E-736
Compression Strength		
SonaSpray "fc"	>400 psf	ASTM E-761
SonaSpray "fc" Dura-k	>600 psf	ASTM E-761



SonaSpray "fc" provides an ideal finish for all types of educational facilities.



SonaSpray "fc" brings elegance and acoustic integrity to new or renovation projects.

Technical Information

NRC Values-ASTM C-423

Hertz	125	250	500	1000	2000	4000	NRC
On Solid Backing							
0.50"	.08	.16	.46	.87	1.07	1.12	.85
0.75"	.18	.27	.87	1.02	1.11	1.12	.75
1.00"	.12	.38	.88	1.16	1.15	1.15	.90
On Lath/Plaster							
0.75"	.25	.36	.74	.98	.99	.99	.75
On Ribbed Metal Deck							
0.75"	.17	.58	.91	.89	.87	.84	.80



CSI 09530

www.celbar.com

System Description

Celbar is a blend of specially prepared cellulose fibers, organic in nature, treated with adhesive and fire resistant chemicals. When sprayed in place, the interlocking fibers result in a mass which produces excellent sound and thermal properties.

Celbar is pneumatically spray-applied in wall and floor/ceiling cavities to form a monolithic coating. This process seals cracks and holes in the wallboard, around plumbing and electrical outlets, vent ducts and other irregularities. There are no compressed areas or voids to allow sound leaks, R value reductions, or air infiltration.

Performance Where It Counts

Celbar provides superior sound transfer control demanded by building designers, owners and occupants. Celbar assemblies perform closer to lab tested STC ratings in the field than do other conventional batt and sound board systems. This is due to the complete coverage and the sealing action of Celbar.

Laboratory tests have proven that Celbar produces significantly higher STC values than other identically constructed wall systems.

The base system and results are as follows:

2 1/2" Metal Studs With 1/2" Gypsum Wallboard - both sides.	
TEST	RESULT
A. No Sound Control material used	31 STC
B. 2 1/2" sound barrier batt	33 STC
C. 2 1/2" sound barrier batt and 1/2" cellutex board	37 STC
D. 1 1/2" Celbar Spray	49 STC

Physical Properties

Thermal Properties

Thickness	1.0"	2.5"	3.5"
R-Value	3.8	9.5	13.3

Fire Hazard Classification

Underwriters Laboratories;
Reference #R-5499.

- Listings**
- ICC Evaluation Service, Inc. – ESR-2210
 - Southern Building Code-Approval Number 9566
 - HUD-FHA-VA-Permits the use of Celbar in projects they finance-based on Celbar's compliance with UMB-80

ASTM E-119 Fire Rating - One Hour

Celbar has been tested in accordance with ASTM E-119 including hose stream test and is accepted for use in fire-rated wall assemblies as a one hour wall.

- Sound Transmission Control for Partition Walls & Plumbing
- Thermal Insulation
- Hourly Rated Partitions

STC RATING

Metal Stud Assemblies Construction Detail

55

2 1/2" metal studs, 2 layers 5/8" gypsum board on one side, 1 layer 5/8" gypsum board on the opposite side: 2 1/2" Celbar Spray.

53

3 5/8" metal studs, 1 layer 5/8" gypsum board on each side: 2" Celbar Spray.

51

2 1/2" metal stud 24" O.C. faced both sides with 5/8" gypsum wallboard: 1 1/2" Celbar Spray.

STC RATING

Wood Stud Assemblies Construction Detail

56

2"x4" stud 16" O.C. on two separate 2"x4" plates with 1" separation. Faced on one side with 5/8" gypsum wallboard and 1/2" gypsum wallboard other side: 1 1/2" Celbar Spray.

51

2"x4" wood studs, 1 layer 5/8" gypsum board on each side: 3 1/2" Celbar Spray.

50

2"x4" wood studs, 1 layer 5/8" gypsum board on each side: 2" Celbar Spray.

Typical Structures

Homes	Hotels/Motels	Theaters
Condominiums	Apartments	Restaurants
Townhouses	Shopping Malls	Office Buildings



Celbar completely and uniformly fills wall cavities

Other Typical Installations of our Products



SonaSpray "fc" helps prisons achieve optimum acoustics and lighting.



K-13 sprayed to this concrete parking deck provides thermal control to the conditioned spaces above.



SonaSpray "fc" furnishes this office with a pleasing ceiling finish.



K-13 reduces reverberation and sound transmission in this T.V. studio.



Celbar helps to control sound transmission between the walls of this Las Vegas hotel.



Three special colors of SonaSpray "fc" furnish this worship facility with excellent acoustics and aesthetics.



The St. Thomas Moore Catholic Church used SonaSpray "fc" for acoustical control and aesthetics.



By directly reducing noise and reverberation levels, K-13 provides this arena with superior acoustic performance.

Product Limitations

K-13, SonaSpray "fc", and Celbar Spray should not be used in areas where there is prolonged exposure to water or heat in excess of 150°F (65°C). Nor should it be applied in areas requiring a washable surface, or where combustible contaminants such as dust, oil, etc., exist. Accumulations of these contaminants may become hazardous to the insulation. These contaminants will provide a fuel source and will burn when ignited and fire may spread.

Special Precautions

The fire retardant chemicals used in K-13, SonaSpray"fc", and Celbar Spray are water soluble. When the insulation is used in areas where condensation will form or where it is in contact with water, a periodic fire retardant over-spray may be necessary.

Celbar is applied with water and should not be sprayed on laminated wood paneling as it could cause warping. Celbar should not be used in areas where vinyl or foil wall covering or other vapor barriers are used on both sides of the wallboard, unless Celbar is allowed to dry completely before closing up the wall.

Surfaces receiving K-13 and SonaSpray"fc" should be checked for possible contaminants, i.e., rust, dirt, water stains, etc. prior to application. These areas should be primed/sealed to prevent bleed through.

For further information on limitations and precautions see I.C.C. Warning Bulletin SF-387.

Warranty

International Cellulose Corporation (I.C.C.) warrants its products to be free from defects in materials and workmanship at the time of shipment. Application warranties are provided by the approved contractor.

It is the responsibility of the user to determine compliance of the product with local building codes and other regulatory bodies.

I.C.C. is herein publishing information and data based on specific and generic tests. I.C.C. believes this data is as reliable as the present state of the art in fire, thermal, and acoustical testing, and can be used only as a guide for design. I.C.C. is not responsible for building design, appearance, or workmanship and makes no guarantee of performance.

I.C.C. specifically disclaims any warranty of merchantability or fitness for a particular purpose. In no event shall I.C.C. be liable for special, indirect or consequential damage.

Call 800/444-1252

See and hear how K-13, SonaSpray "fc" and Celbar can improve your projects with our free videos.

Design assistance, specification sheets, technical data and test reports are available upon request.

ICC literature is also available in Spanish and German.

Internet Web Sites: <http://www.spray-on.com>
<http://www.celbar.com>



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K-13, SonaSpray "fc", and Celbar are manufactured from recycled fibers

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10%
TOTAL RECOVERED FIBER
ALL POST-CONSUMER FIBER



Mixed Sources
Product group from well-managed forests, controlled sources and recycled wood or fiber
www.fsc.org Cert no. SIB-COC-001530
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