

W. H. GRACE & CO. 162 WHITTEMORE AVENUE, CAMBRIDGE, MASSACHUSETTS 02140

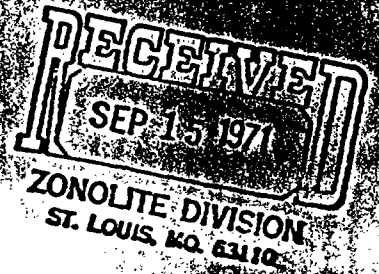
GRACE

ADVERTISING and PUBLICITY BULLETIN

September, 1971

ADVERTISING AND PUBLICITY BULLETIN #88

SUBJECT: Publicity Items for April through June, 1971



Gentlemen:

Enclosed is a listing of CPD publicity references in the period April through June, 1971.

A long-range plan to place feature articles in prominent trade publications is bearing fruit. Reprints are attached on two such articles:

June, 1971 - BUILDING DESIGN & CONSTRUCTION - "Waterproofing System Is 'Pressure-Sensitive'" (Bituthene)

June, 1971 - PROGRESSIVE ARCHITECTURE - "Understanding Spray-Fireproofing", by Thomas F. Egan (Zonolite Mono-Kote)

The first installment of an article by-lined by Frank Mardulier and Dave Wightman of Rock Processing Chemicals appeared in the June issue of ROCK PRODUCTS magazine, and a second installment ran in July.

Articles have been accepted for future publication in several additional books, and will be reported as they appear.

A syndicated newspaper mat release on Panelfoam is to be sent to 4,000 weekly papers in September.

Very truly yours,

A handwritten signature in dark ink, reading "Philip R. Strand". The signature is written in a cursive, flowing style.

Philip R. Strand
Director of Advertising
& Public Relations

PRS/lmf

Attachments

PLAINTIFF'S
EXHIBIT
WRG-618A

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APRIL 1971

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I. BUILDING CONSTRUCTION METHODS AND MATERIALS

Athletic Journal	Vermiculite In Track Surfaces
Airconditioning & Refrigeration Business	Insulation - Low Temperature
American Building Supplies	Dyfoam Key Lok
Architectural Products	"Athletic Track Surface" (verm)
Civil Engineering	"Tough Fireproofing Problems Solved In Newark's New Air Terminal Facilities" (Mono-Kote)
College Management	"Track Surface System" (verm)
Concrete Products	"Editor's Page - Vermiculite Is Vindicated" (verm)
Industrial Construction Product News	"Space Age Cooling Towers" (Darex AEA, Daratard HC)
Veterinary Economics	"Do-It-Yourself Style Crematory" (Zonolite concrete)

Newspapers

Chicago Heights Star Chicago, Illinois	"Bituthene Distributor Appointment"
Daily Journal Of Commerce Portland	"Fire Resisting Structures Topic of Rating Engineer At Producer's Council" (Mono-Kote)
Homewood-Flossmoor Star Homewood, Illinois	"Bituthene Distributor Appointment"
Park Forest Star Park Forest, Illinois	"Bituthene Distributor Appointment"

II. CORPORATE AND PERSONNEL NEWS

American Building Supplies	"ABS News-Makers" (Frank Strauss)
American Building Supplies	"Darex Admixturers" (Frank Strauss)
Bay State Business World	"J. F. Schroeder"
Building Supply News	"Grace & Co. Opens New Atlanta Plant" (Atlanta Plant Opening)
Chemical Engineering	"Offices" (Atlanta Plant Opening)

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AD News

Florida Contractor & Builder

Florist & Nursery Exchange

The Lumber Co-operator

Mississippi Valley Lumberman

New England Construction Magazine

Rock Products

Roofing/Siding/Insulation

Seed World

Industry Transitions (Frank Strauss)

Tampa (Commercial) Roof Decks of Tampa, Inc. - Job-Of-The-Year

J. F. Schroeder Named Sales Manager

"Job-Of-The-Year - Commercial Roof Decks of Tampa, Inc."

"Atlanta Plant Opening"

New General Sales Manager Appointment (Frank Strauss)

"Frank Strauss"

"Grace Opens Atlanta Plant"

"J. F. Schroeder Named Grace Horticultural Sales Manager"

Newspapers

The Hartford Courant
Hartford, Connecticut

Journal of Commerce
New York

The Trentonian
Trenton, New Jersey

"Job-Of-The-Year" (Gypsum Constructors of New England)

"J. F. Schroeder As Manager"

"Looking At Industry" (W. R. Grace)

III. AGRICULTURAL-HORTICULTURAL AND INDUSTRIAL APPLICATIONS AND FLOTATION APPLICATIONS

The American Home

Flower & Garden Magazine

Grounds Maintenance

Home Garden

Home Garden

Soap & Chemical Specialties

"Containers For Easy Patio Gardening" (verm)

"Gardening This Month" (verm)

"New Tips, Soil Mixes For Growing Tropicals" (Cornell Mix)

"Home Greenhouse" (verm, perlite)

"Humidify For Healthier House Plants" (verm, perlite)

"Aerosol and Pressurized Space Spray Insecticide Test Method For Flying Insects" (Terra-Lite)

Soil & Chemical Specialists

"The Root-Gravy Method" (Terra-Lite)

Newspapers

The Arizona Daily Star
Phoenix, Arizona

Purdue Agriculturist Grass Grows
Under Arizona's Feet (verm)

The Daily Free Press
Shakertown, Pennsylvania

Green Thumb Tips (verm, perlite)

The Evansville Press
Evansville, Indiana

Heldt-Monroe Co., Incorporated
Tri-State Horticulture Supply House
(Terra-Lite, verm)

The Great Lakes Vegetable
Grower's News

Ohio Greenhouse Tomato Growers
Abandon Pots Switch To 'Bare-Root'
Mechanized Transplants" (verm)

The Indianapolis Star
Indianapolis, Indiana

"Tropical-Type Plants Can Be Started
Indoors" (Terra-Lite, perlite)

The Journal-Gazette
Ft. Wayne, Indiana

"How To Start Seeds Indoors" (verm,
Terra-Lite)

Plain Dealer
Cleveland, Ohio

"Dirt Without Soil" (Redi-Earth)

The Republic
Columbus, Ohio

"Mow Your Lawn Properly" (verm)

The Sun
Baltimore, Maryland

"Indoor Plant Water Problem" (verm,
perlite)

Vineland Times Journal
Vineland, New Jersey

"New Techniques Produce Good Plants"
(Redi-Earth)

IV. LITERATURE, FILMS, SALES AIDS, ETC.

American Building Supplies

"Polystyrene Insulates Masonry"
(Key Lok)

Building Materials Merchandizer

"Counter Unit Offers Paneling
Insulation" (Panelfoam)

Canadian Architect

"Product Binder"

Canadian Architect

"Concrete Joints"

Canadian Consulting Engineer

"Product Binder"

Canadian Consulting Engineer

"Concrete Joints"

Florida Contractor & Builder

"Masonry Insulation Brochure" (Masonry
Fill)

Membrane Waterproofing

Available For Showings From M. R. Grace
(Bituthene)

Masonry Concrete

Masonry Fill

MAY, 1971

I. BUILDING CONSTRUCTION METHODS & MATERIALS

American Metal Market

"Neybery Energy Corp." (Mohawk-Grace
Construction Supplies Distributor)

Arizona Farmer-Ranchman

"Concrete, Properly Mixed and Cured"

Batiment (Canadian)

"Materiav d'etancheite de toitures"
(Bituthene)

Building Design & Construction

"Masonry Fill Insulation" (verm)

College & Univeristy Business

"Track Surface" (verm)

Fire Journal

"Fire - Tests of Poke - Through
Assemblies" (Mono-Kote)

National Safety News

"Vermiculite"

Roofing/Siding/Insulation

"The Pace Quickens" (Bituthene)

Western Plasterer

"Following The Jobs" (Zono-Coustic)

Newspapers

The Cincinnati Enquirer
Cincinnati, Ohio

"Showplace: Concrete For Moderns"
(Insulation)

Journal Of Commerce
New York

"Public Bulk Terminal Handles Many
Items" (verm)

Las Vegas Review-Journal
Las Vegas, Nevada

"Top Pros Built New Plant" (Zonolite
concrete)

Wilmington Morning News
Wilmington, Delaware

"Mineral Base Cushions Pool"
(Pool Cushion)

II. CORPORATE AND PERSONNEL NEWS

American Building Supplies

"Specialist From Tampa Rates Zonolite
Award" (Commercial Roof Decks of Tampa,
Inc., - Job-Of-The-Year)

American Road Builder

Concrete Architect

Building Official and Code Administrator

Engineering News-Record

Journal of the American Concrete Institute

Journal of the American Concrete Institute

Journal of the American Concrete Institute

Local Construction

Materials Research & Standards

Materials Research & Standards

Seed Trade News

Walls & Ceilings

Walls & Ceilings

Urban Mass Transportation (R. I. Morris)

P-C Hears Cement Road Discussion (R. Burnham)

Construction Products Division Joins BOCA

Reader Comment: Correcting An Impression (P. E. Strand)

Concrete Conference Held At U. S. U. (S. D. Burks)

1971 Annual Convention Review (S. D. Burks)

Will Concrete Be The Leading Material Of The Future? (S. D. Burks)

Architectural News (W. J. Bourke)

The Signing of the Correlahan Coefficient For Analyzing Engineering Data (F. J. Mardulier)

Northern California District (S. D. Burks)

Grace Division Names Sales Manager (J. F. Schroeder)

New Darex Appointments (Arthur Winfield, Leslie Daniels)

Frank Strauss

Newspapers

Southern California Industrial News

Tough Job Wins Award (Job-Of-The-Year - Boron, Calif)

III. AGRICULTURAL-HORTICULTURAL AND INDUSTRIAL APPLICATIONS AND FLOTATION APPLICATIONS

Agricultural Engineering

How Seed Tablets May Solve Planting/Harvesting Problems (verm)

American Vegetable Grower

Bedding Plants (verm)

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Monthly Review

National Safety News

Oregon Purchaser

Southern Hardware

Western Grower & Shipper

Vines & Vines

The Use of Hardwood Bark and Sawdust
As Soilless Media For Production of
Cyclamen Indicum Arizona Flower Pot
Plants (verm)

Vermiculite

Kenneth A. Ford (verm)

Plant-Growing Mix (verm)

Precision Planting Research
Advances (verm)

The Big Break-Through: Mist Propa-
gation (verm)

Newspapers

The Dallas Morning News
Dallas, Texas

The Indianapolis Star
Indianapolis, Indiana

Hartford Times
Hartford, Connecticut

Portland Press Herald
Portland, Maine

Providence Journal

"Holding Water Is Advantage of
Vermiculite" (verm, perlite)

"Tough Annual Sowing May Be Done
Soon" (Terra-Lite)

"Water Holder" (verm)

"Some Seeds Take Special Sowing"
(verm)

"Apartment Dweller Can Have A Garden"
(verm)

IV. LITERATURE, FILMS SALES AIDS, ETC.

American Building Supplies

Architectural Forum

Roofing/Siding/Insulation

"Major Product Display" (Attic
Insulation - Lepley Lumber)

"Waterproofing" (Bituthene)

"Construction Products Division -
W. R. Grace & Co."

JUNE, 1971

I. BUILDING CONSTRUCTION METHODS AND MATERIALS

Bay State Business World

Building Design & Construction

"Materials" (Mono-Kote)

"Waterproofing System Is 'Pressure
Sensitive'" (Bituthene)

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Building Products Guide

Building Supply Dealer

Canadian Industrial Equipment

Electrical Comfort Conditioning
Journal

Engineering & Contract Record

Hospitality Food & Lodging Edition

Metal Building Review

The Oil & Gas Journal

Progressive Architecture

Western Plasterer

Masonry Fill

Weldwood Distributor Zonolite Attic
Fill

Set Retarder For Concrete "Gres"
(Daratard)

Three-Pipe System Provides Four-
Season Climate Control (Zonolite)

Waterproof Membrane (Bituthene)

The 37-Year Career of U-Sella
(Masonry Fill)

"Products" (Dyfoam Turfide)

"Pollution Control Cleans Up Oil
Spills" (Petro Pak)

"Understanding Sprayed Fireproofing"
(verm, perlite)

"Following The Jobs" (Mono-Kote)

Newspapers

New York Times
New York, New York

The Standard Times
New Bedford, Massachusetts

"Cities Are Acting To Regular
Spraying of Asbestos" (Asbestos
Substitutes In Cement Products)

"Particleboard Made From Unlikely
Recipe" (verm)

II. CORPORATE AND PERSONNEL NEWS

American Paint Journal

Bay State Business World

Rock Products

Western Plasterer

"W. R. Grace Appoints Feit, Kazimer
To New Posts"

"T. P. Feit, R. M. Kazimer"

"Efficient Determination of Mill
Retention Time, Part I: (F. J. Mar-
dulier, D. L. Wightman)

"Plasterama Attracts California
Construction Industry" (Zonolite
Construction Products)

Newspapers

The Atlanta Journal
Atlanta, Georgia

Concrete Division Bought - New
Now Established (S. B. Grace & Co.
Concrete Products, Inc.)

ETC. AGRICULTURAL-HORTICULTURAL AND INDUSTRIAL APPLICATIONS AND FLOTATION
APPLICATIONS

Florida Grower & Rancher

Soiless Planting Material Boosts
Ported Plant Sales (Zonolite)

Florist & Nursery Exchange

Great Gardens - For Apartment's
Sale (verm)

Glamour Incorporating Charm

5 House Plants That Cost Nothing
(verm)

Home Garden & Flower Grower

New Plants From Old (verm)

Newspapers

The Ann Arbor News
Ann Arbor, Michigan

"Overwatering" (verm, perlite)

Cincinnati Post and Times-Star
Cincinnati, Ohio

"Perennials From Scratch" (verm,
perlite)

Las Vegas Review Journal
Las Vegas, Nevada

"Corn On The Cob and Other Things"
(verm)

IV. LITERATURE, FILMS, SALES AIDS, ETC.

ABC American Roofer & Building
Contractor

"Movie On Bituthene Waterproofing"

American Building Supplies

"Grace Has Waterproofing Movie"
(Bituthene)

Constructioneer

"Black Magic" (Bituthene)

Modern Concrete

"Masonry Fill"

Remodeling Contractor

"Waterproofing Film Offered To
Associations" (Bituthene)

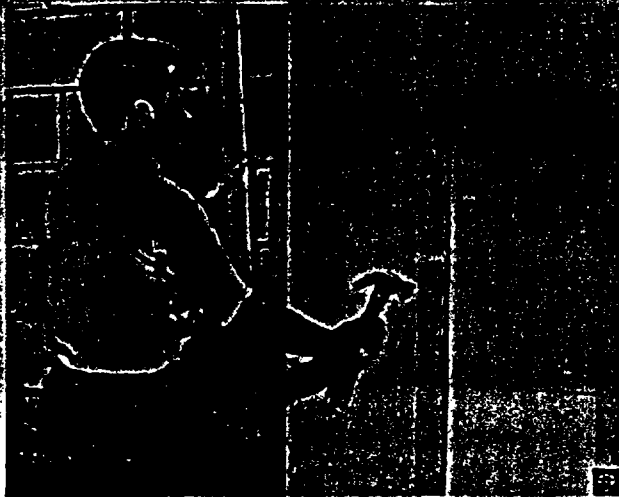
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ALP RELEASES

171 WEST MADISON STREET
CHICAGO, ILLINOIS 60602

FOR IMMEDIATE RELEASE

New Way To Basement Comfort



If you're planning a paneling job in your basement—the fun kind of do-it-yourself project that converts drab masonry walls to a warm, homey playroom or family-room—a new, pre-cut insulation board called Panelfoam will add a lot of creature comfort at very little cost.

Panelfoam—a clean, lightweight, expanded polystyrene material, is supplied in six-board packages; exactly sized to fit between standard furring strips behind any type of four by eight foot wall panel. Each package insulates one full 4' x 8' panel.

Because expanded polystyrene is one of the most effective of the modern thermal insulating materials, it assures a warmer, drier basement. It markedly reduces heat loss through cold masonry, and eliminates a major cause of moisture condensation. Result: a more comfortable room through all four seasons.

There are other benefits. Panelfoam helps protect panels against moisture damage—which could cause warping or delaminating in extreme cases. Sound absorbent, it creates a quieter environment. (The reduced noise transmission is especially noticeable when the young fry take over the new playroom.) And it cushions wall panels against impact damage.

The new insulation is about as easy to handle as anything ever produced for the home handyman. Just nail the first furring strip in place with masonry nails and place a Panelfoam board snugly against it to locate the next strip. Nail the second furring strip in place, and fill out the space between the strips with another Panelfoam board. Repeat the procedure across the entire wall. The material cuts easily with a knife or saw to fit odd-sized areas.

Manufactured by the W. R. Grace & Co. Construction Products Division, the product is available through local building supplies dealers. Each package includes complete installation instructions.

25055721

Waterproofing system is 'pressure sensitive'

A new concept in membrane waterproofing has been developed by W. R. Grace & Co. Called Bituthene (from bitumen and polyethylene), it is a combination of ten-mil polyethylene film coated on one side with 60 mils of rubberized asphalt in a mastic-like formulation.

As every architect and engineer knows—often from bitter experience—waterproofing failures can ruin the effect of an otherwise perfectly designed and engineered building. The cost of repairs is usually astronomical—many times that of the original waterproofing installation.

For many years, the principal preventives for slab and foundation leaks were applications of asphaltic and pitch products. Within the last decade, sheet rubber and plastic—mainly butyl, neoprene and polyvinyl chloride—became popular waterproofing materials. A more recent development is the cured-in-place liquid rubber membrane, either a one or two-part polymer system, usually applied by spray, squeegee, or trowel.

Experts agree the optimum waterproofing material should have the following characteristics: impermeability, durability, flexibility, simplicity of application. It must stay intact and pliable over a long life span—should be engineered for at least a five-decade service life.

Grace says its Bituthene combines the strong points of all known membrane systems while avoiding most of their weaknesses. It has, the company says, strong adhesive properties and the tensile strength and flexibility of heavy-duty polyethylene film. The major differences between this new product and any other waterproofing material are the adhesive and elastic qualities of the rubberized asphalt. As it unrolls,

Bituthene bonds tightly to the substrate. It is, literally, the first "pressure-sensitive" waterproofing system.

Application can be easily handled by two or three men on most horizontal surfaces; walls and other vertical areas need another man for best results.

Although the adhesive surface of the membrane is extremely sticky, it unrolls easily because interlayers of silicone-coated paper permit easy release from the roll. The release paper is then discarded.

For optimum adhesion to horizontal surfaces, pre-treatment of the substrate with a special primer is recommended. A single coat is applied by brush, spray or roller at the rate of 200 to 400-sf per gal. The primer seals the surface and gives a tight bond with the membrane even when dust is present on the substrate. Use of the primer is mandatory on all vertical surfaces.

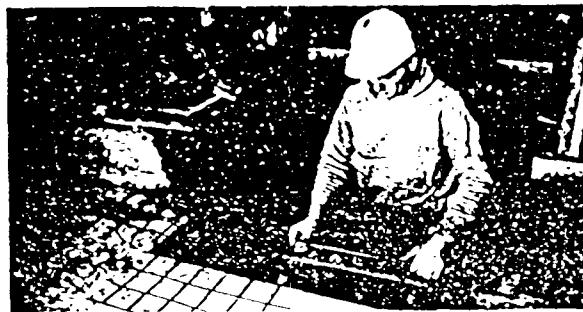
Bituthene comes in rolls 36-in. wide and 60-ft long. In waterproofing jobs (as opposed to simple damp-proofing), adjacent strips of the membrane are overlapped 2½ in., and a thin bead of special mastic is gunned about ½-in. in from the exposed edge. The next sheet is then laid with a 2½-in. overlap.

This forms a watertight joint between strips. Because each new strip adheres tightly to its neighbor, as well as to the substrate, joints do not require taping. The gunned bead of mastic is faster and easier to apply than the tape-plus-adhesive normally required for conventional waterproofing membranes.

The product has demonstrated its waterproofing capabilities in a variety of applications such as split-slab plaza and garage decks, foundations, pools, planters, floors of kitchens, bathrooms and mechanical rooms, shower pans and tunnels.



A. C.



B.

A. Bituthene waterproofing membrane is simply unrolled against substrate. It's 60-mil coating of adhesive-consistency rubberized asphalt adheres tightly, holding 10-mil polyethylene sheeting firmly in position while topping or backfill is placed.

B. A thin bead of special mastic is gunned about ½-in. from the exposed edge. The next sheet is laid into the mastic with a 2½-in. overlap. Joints do not require taping.

C. Self-adhesive feature is especially helpful on vertical surfaces. Here workman fits reinforcing steel directly over membrane. Topping can be installed as soon as Bituthene is in place.

25055722

Understanding sprayed fireproofing

THOMAS F. EGAN

Proper specification, application and on-site sampling to insure proper density of sprayed fireproofing provide long-term fire protection and pollution control

Recent business publications, medical journals, newspapers and civic agencies, have reported the dangers of pollution caused by sprayed fireproofing materials as used in building construction. The incredible quality of asbestos, particularly when related to fire, has led to its use in thousands of products. All available data tends to confirm that this quality is beneficial as long as the fibers are bound to other materials, but creates a danger when the fiber becomes airborne.

One of the major applications of loose asbestos is in the use of sprayed fiber fireproofing applied to the steel floor and frame of skyscrapers. In the last decade, while medical and industrial experts were becoming concerned about asbestos pollution, the use of sprayed fireproofing materials grew

Pollution considerations

While much has been written and spoken about asbestos pollution from sprayed fireproofing in the last year, little or nothing had been stated about the materials, methods of application and the standards for their proper performance by the people in position to force change. That was until tragic and costly fires in New York City alarmed some insurance officials enough to intensify their inspection of actual jobs. What they saw in New York caused evident concern, because they issued a statement that steel-framed structures with spray fireproofing be considered unprotected.

It is important to note that these officials reacted to conditions of the application of sprayed fiber type of fireproofing in New York. For years the attention of construction authorities has been almost totally focused on lower in-place costs. The need for proper application was relegated to a minor role. The relatively small number of contractors applying fibers in New York on major office building work had few guidelines by legislation or code. Also, those few regulations were seldom, if ever, enforced. Therefore, the rules of conduct were: "How

fast and how cheap?" As long as standards were not defined or not enforced, there was little incentive to improve performance in the placement of spray fireproofing materials. Also, little notice was taken of what other cases required for placement of fireproofing. There are two basic types of direct-to-steel fireproofing currently used in high-rise office building construction. They are (1) cementitious (plaster) and (2) sprayed fiber. There are major differences in these products, and it is important that they be noted.

Cementitious

This material is mill-mixed, and at the job site water is added in a plaster mixer and pumped and sprayed wet. Cementitious materials contain gypsum—which takes a set—plus lightweight aggregates such as vermiculite or perlite, and other proprietary materials. One of the cementitious products now on the market is formulated without asbestos.

Sprayed fibers

These materials are mill-mixed, and at the job site are fluffed or mixed dry, pumped dry, and wetted at the nozzle. The material is a blend of virgin asbestos fibers, white mineral wool fibers and inorganic binders. Some spray fiber formulations have no asbestos fiber. Market data show that, except for the east coast, a majority of buildings are sprayed with cementitious materials. The total in-place costs of cementitious vs. sprayed fibers are very competitive, and, indeed, will show savings with cementitious when proper application of fibers is required.

There is much to consider in the application of these two product types, as it pertains to the wet pumping process. It has been well documented by medical authorities that asbestos or other hazardous materials when wet are not easily respirable and of less danger. It is important that this aspect of application not be overlooked when evaluating types of products for specification. When considering the problem of pollution, we are really talking about (1) the method of control of the application of a given product and (2) its in-place performance. These same criteria hold true for the original purpose of the product, which is to provide fire resistance ratings to the frame of the building.

There are three important facts in the choice of a direct-applied fireproofing material: (1) authoritative test data and en-

Author: Thomas F. Egan is Manager, Fireproofing Products Construction Prod. Div., W. R. Grace & Co., Cambridge, Mass.

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writers to be very accurate about the proper water measurement in the application of sprayed fibers. The problem is that by control of the water flow at the nozzle, water reduction will decrease density and increase coverage per pound of fiber. This matter, for example, is treated in detail in Construction Specification Institute Document No. 3, "Specifying Sprayed Fireproofing," June, 1965.

Proper density

Since it is important for long-term fire protection to have proper in-place density, likewise, for a long-term pollution control it is also vital that these materials be applied at the proper densities. A third factor which has gained notice is the need for materials providing the best bond strength, surface hardness and overall resistance to damage by other trades during construction and over the lifetime of occupancy from maintenance and renovation requirements. A review of the physical properties of both types show cementitious materials excel in all these areas, particularly with the permissible methods of application for fibers. One of the surest ways to guarantee proper density is to require an individual testing laboratory to verify in-place density of the applied architectural firms, but too few do so to date.

These controls assure the following: (1) proper fire resistance in conformance to test criteria, (2) control of dusting and erosion and the relation to long-term pollution within the building and (3) maximum control of maintenance and serviceability during the life of the structure. Some cities have regulations covering these matters. San Francisco has for some time required abrasion damageability tests on spray fireproofing materials. Also, it requires density tests by independent laboratories to correlate fire test figures and assure in-place density for maintenance, serviceability and erosion.

Recent approvals of sprayed fiber material in New York show more stringent requirements for application of the products. The Board of Standards and Appeals notes in Item 7 that Type III (Mineral Fiber) finished fireproofing shall be tamped to uniform thickness which shall be not less than that approved for the required fire resistance rating. Further, under item 9 it states: "The general contractor and the owner shall provide qualified personnel to supervise the application of the sprayed-on fireproofing. They shall certify to the Department of Buildings that the finished fireproofing of the completed building is in full compliance with requirements of the approval granted, these rules and the drawings approved by the Department of Buildings."

Approvals granted under the Material and Equipment Acceptance Division for sprayed fibers note tamping to obtain a minimum thickness and a minimum density. Also of great importance is that a specification for taking samples and testing to verify in-place density is included. Now that regulations are in effect, ways must be found to enforce them. One way is to demand that the general contractor and owner's certification include copies of the density tests. Insurance officials have commented that they want independent laboratory test reports on density taken from each floor as one requirement for recognition of proper installation of sprayed fireproofing. There is now a large group of concerned persons who are eager to correct this problem. A review of fundamentals often helps in understanding the cause and effects of any situation and removes much of the distortion of facts that can often lead to unrealistic solutions.

analysis to validate the performance of the product when subjected to fire. (2) proper thickness classification and (3) proper in-place density in conformance with the fire tested and rated assemblies. Most people involved in code work or in meeting the requirements of a code body are aware of the importance of items 1 and 2 noted above. However, it is rare to find people aware of the question or importance of density in proper applied fire-rated material. It should be noted that every listing of assemblies involving spray applied material in Underwriters' Laboratories, Inc. Building Materials List and the cards shows the minimum average and individual density of the fireproofing. Also, in these documents, Underwriters' Laboratories, Inc. describes suggested methods of testing for this in-place density. Rarely, if ever, are samples taken on the job to insure that densities on the job are consistent with the densities that prevailed when the assembly was fire tested.

Cementitious materials, since they are wet pumped and sprayed, are self-controlling and assure in-place density in conformance with the fire test. The same cannot be said for sprayed fibers. It is clearly noted in many specification documents that there is a problem and they caution specifications

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