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U.P.I. PICTORIAL RESEARCH REPORT
for
ZONOLITE DIVISION / W. R. GRACE & COMPANY

SUBJECT: Zonolite MONO-KOTE Spray-On Fireproofing Operations
LOCATION: Bank of America Building Project
San Francisco, California
DATE: June - 1968

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It's the tallest skyscraper in San Francisco, a city generally credited with maintaining the nation's toughest fire prevention provisions in its building laws. This is the 52-story Bank of America World Headquarters Building, due for completion in 1969 on a square block bounded by California, Montgomery, Pine and Kearny Streets. It represents the biggest single job yet for Zonolite MONO-KOTE spray-on fireproofing -- nearly five million board feet of material.

A gigantic structure that will dominate San Francisco's downtown skyline, the Bank of America Building is hulking enough as it is -- but it would be twice as heavy were it not for MONO-KOTE's happy combination of sought-after properties. It's a tough, effective fire retardent, and amazingly light-weight at the same time.

"We selected steel framing for the building," said John Fisher, job captain for architects Wurster Bernardi & Emmons. "This means the framing system consists of a steel deck instead of concrete. The steel frames must be fireproofed. But with concrete, the building would have been twice as heavy."

As evidence, consider the contrasting densities -- 150 pounds for normal concrete, as opposed to a mere 20 pounds for Zonolite MONO-KOTE.

Economy in weight was important to the planners, because the Bank of America Building contains 50 million pounds of steel, rises 770 feet above the city, with a foundation excavation that occupies two acres and is believed to be the largest in the West. Statisticians figure it would take one man, shoveling dirt eight hours a day, 51 years to fill it again.

MONO-KOTE entered the picture early, soon after architects Hurster Bernardi & Emmons, together with their colleagues, Skidmore Owings & Merrill, posted specifications for the job. They listed three potential suppliers for the fireproofing material. "We usually mention three acceptable products," said job captain Fisher, "never less than that."

As it happened, the successful fireproofing subcontractor, Structural Fireproofing, Inc. of San Francisco, announced its intention to use MONO-KOTE. The reasons, according to a survey of participants in the decision, are widely varied:

"Ease of application was a big factor," said Fisher, "and, of course, price was extremely important. And we knew that there would be few problems in delivery." (One of some 50 plants manufacturing MONO-KOTE is located in nearby Newark). "I guess you could sum up our attitude toward MONO-KOTE by saying it works well, is competitive in price, and is trouble-free," Fisher concluded.

Robert F. Chaney, California Zonolite Company field representative, had a simpler answer: "PRICE." Chaney added, "When you have three products that will do the job, if the price is right, the contractor

will use MONO-KOTE." There are indications, however, that Chaney may have been too modest in his appraisal.

"Why did we select MONO-KOTE?" mused Gene Connell, owner of Structural Fireproofing, Inc. "That's not hard to answer. It's because of Bob Chaney. Chaney's an outstanding representative, and he's mastered the three aspects of merchandising in this business -- at the architect's level, the contractor's level, and at the final level. We've seen a lot of representatives, and Zonolite's Chaney is really excellent. Why? I'd say it's because he works harder and really applies himself. Basically, his job is converting builders from the use of concrete fireproofing to light frame and light fireproofing. He isn't involved with a lot of other materials, like many in his field. He's been able to concentrate in this one specific area, and he's become an expert in it.

"I know, for instance," Connell continued, "that Chaney will advise me properly when I'm bidding, and if I'm successful, he'll be around when the job's being done, and when the problems arise. That's the time that a lot of other guys suddenly seem to disappear."

Connell wants it understood, however, that he's not discounting the effectiveness of MONO-KOTE itself: "The Zonolite Company has been turning out very fine material," said the contractor, who is a fourth-generation proprietor of a plastering business (Frank Connell & Son) along with his fireproofing enterprise. "But when you have three or four very similar products, the sales effort becomes particularly important in my judgement. And Chaney really sells MONO-KOTE."

Connell has been particularly appreciative of Chaney's help on the Bank of America job, which the Zonolite representative characterizes as "the biggest direct-to-steel fireproofing job our firm has ever done."

It begins with delivery of a van-load of MONO-KOTE sacks on a small alley in the Bank of America's block. The open back of the van forms one wall of Structural Fireproofing's mixing shack. Here Sidney Hines, a longtime employee of Connell, mixes the fireproofing substance in a large hopper. There are four sacks -- each of which produces 30 board feet of fireproofing -- in each batch. Hines mixes approximately 40 gallons of water in each batch, and is careful never to let the delivery hopper become empty "because it'll suck air."

At the application point, somewhere on one of the 52 floors above, a two-man crew sprays the MONO-KOTE directly onto the skyscraper's steel superstructure. While one workman takes care of the scaffolding and clean-up work, another handles the nozzle.

"They're always glad to see us get through with a floor," chuckled Chaney. "I have to admit, we're a little bit messy." Messy, maybe, but also very touchy, this job of applying the MONO-KOTE in precisely the correct amounts. "There are three different thicknesses throughout the building," explained architects' job captain Fisher. "They range from 2-$\frac{1}{2}$ inches to 1-$\frac{1}{4}$ inches."

"The trick is to apply minimum thicknesses without going over the prescribed amount," Chaney said. "If you put on too much, you get

in the way of ducts and plumbing work. And, of course, you run out of material before you're supposed to." One spray gun can apply 12,000 board feet of MONO-KOTE per day. "If it were desired, we could do a floor per day," said Chaney, "but the work has to be dovetailed with a lot of other specialists, so it's unlikely that would happen."

Once MONO-KOTE is applied, however, contractors Dinwiddie-Fuller-Cahill are assured of meeting San Francisco's stringent fire safety codes. Continuous inspection by fire underwriters at the Newark plant earns each bag (which weighs a little less than 50 pounds) the label that certifies the contents meet fire retardant standards. Once in place, the MONO-KOTE will hold the steel inside it below critical temperatures, should a fire break out, for up to four hours.

The building that MONO-KOTE will protect is impressive, by any standards. While it will serve as the nerve center for the world's largest bank -- Bank of America -- only a third of the structure will be devoted to Bank of America activities in the early stages of occupancy. An adjacent two-story building will house the bank's Main Office branch at the corner of California and Montgomery Streets. By the year 2000, it is estimated, banking activities will occupy two-thirds of the skyscraper, with another third still available for tenancy by other firms. The average individual floor will contain 31,000 square feet. There will be 34 elevators, parking for 420 cars, and the building will house 7,500 workers when wholly occupied.

Fully as fascinating as the building's size are the concepts employed

by its architects. The narrow side of the tower (143 feet wide) will face toward San Francisco's famous Nob Hill, with the least possible obstruction of views from the hill. The tower will be set back 140 feet from California Street, with a spacious open plaza in the foreground. Bay windows, a San Francisco tradition, are used as an architectural element to impart scale to the building, to provide a strong vertical sense, and to multiply the views from the building offices. They'll contain bronze-tinted solar glass.

The tower's exterior walls will consist of polished granite -- some 350,000 square feet of it -- in carnelian color, quarried in South Dakota. The granite will be carried out in the floors of the main lobby and in the main banking office. Coupled with the rugged surface material is an irregular set-back design to give definition and variety, and to add to the tower's sculptural quality. The architects conceived the effect as a "romantic concept, recalling the towering rock formations found in California's High Sierra."

About 50 percent of the building site will be open space, in the form of a spacious plaza. It will be, according to the architects, "akin to the great urban plazas of Europe." It will be a formal, granite-paved area 290 by 140 feet. Landscaping will be formal, with planters containing bright flowers and other seasonal planting. A major piece of abstract sculpture is planned for the west end of the plaza, balanced by a granite fountain at the east end. Assorted shops, a 200-seat auditorium and a fine restaurant are planned for the building.

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Recalling the famous tremblor of 1906, San Franciscans are always curious about the earthquake provisions in their skyscrapers, and two of the building's consulting engineers are recognized specialists in earthquake problems. They have determined, bank officials state, "that the building design will be adequately protected against even the severest earthquakes."

So much for one potential hazard. But if fire should strike somewhere in the Bank of America building's 52 stories sometime in the future, there are provisions, too, for more than adequate protection. Zonolite's MONO-KOTE will see to that, just as long as San Francisco's newest and largest skyscraper dominates the dramatic profile of the City by the Golden Gate.

* * *

PHOTO IDENTIFICATIONS:

159 - Overall view of the Bank of America's 31st floor shows beams sprayed with Zonolite MONO-KOTE.

160-61 - Jimmie Smith sprays beams with MONO-KOTE. Hod carrier, John Manning, is shown in photo 160.

162 - Bare beams are shown against MONO-KOTE-sprayed portholes.

163-64 - Views of Jimmie Smith spraying the MONO-KOTE fire protection material.

165A-B-C - Exterior views of the Bank of America Building in San Francisco.

166-67 - Sidney Hines is shown in various stages of mixing the MONO-KOTE.

168-69-70 - Stacks of MONO-KOTE sacks in the storage area, with Sidney Hines appearing in some photos.

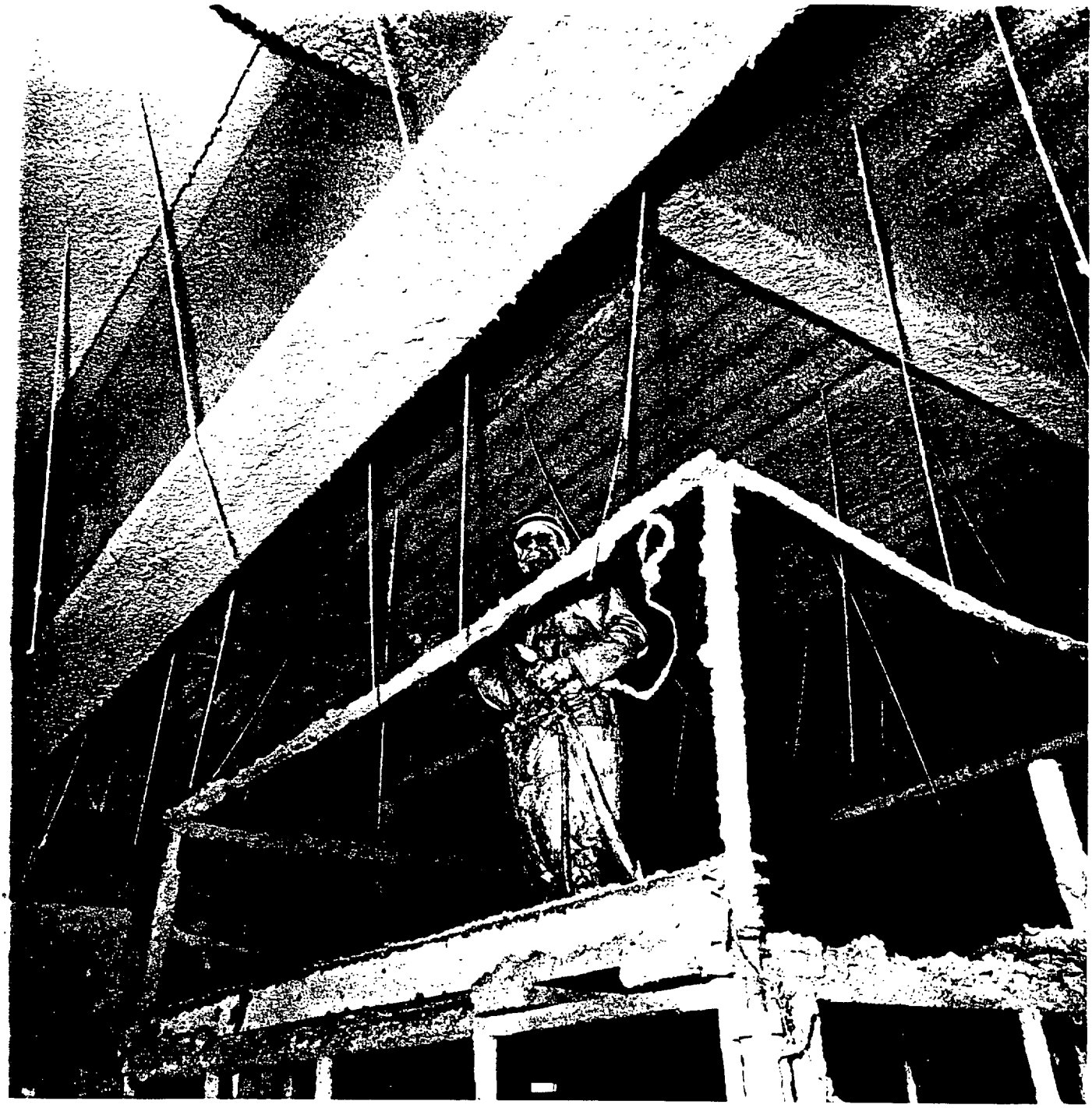
171 - Overall view shows some finished beams on the 31st Floor. Coit Tower, a San Francisco landmark, can be seen in the background.

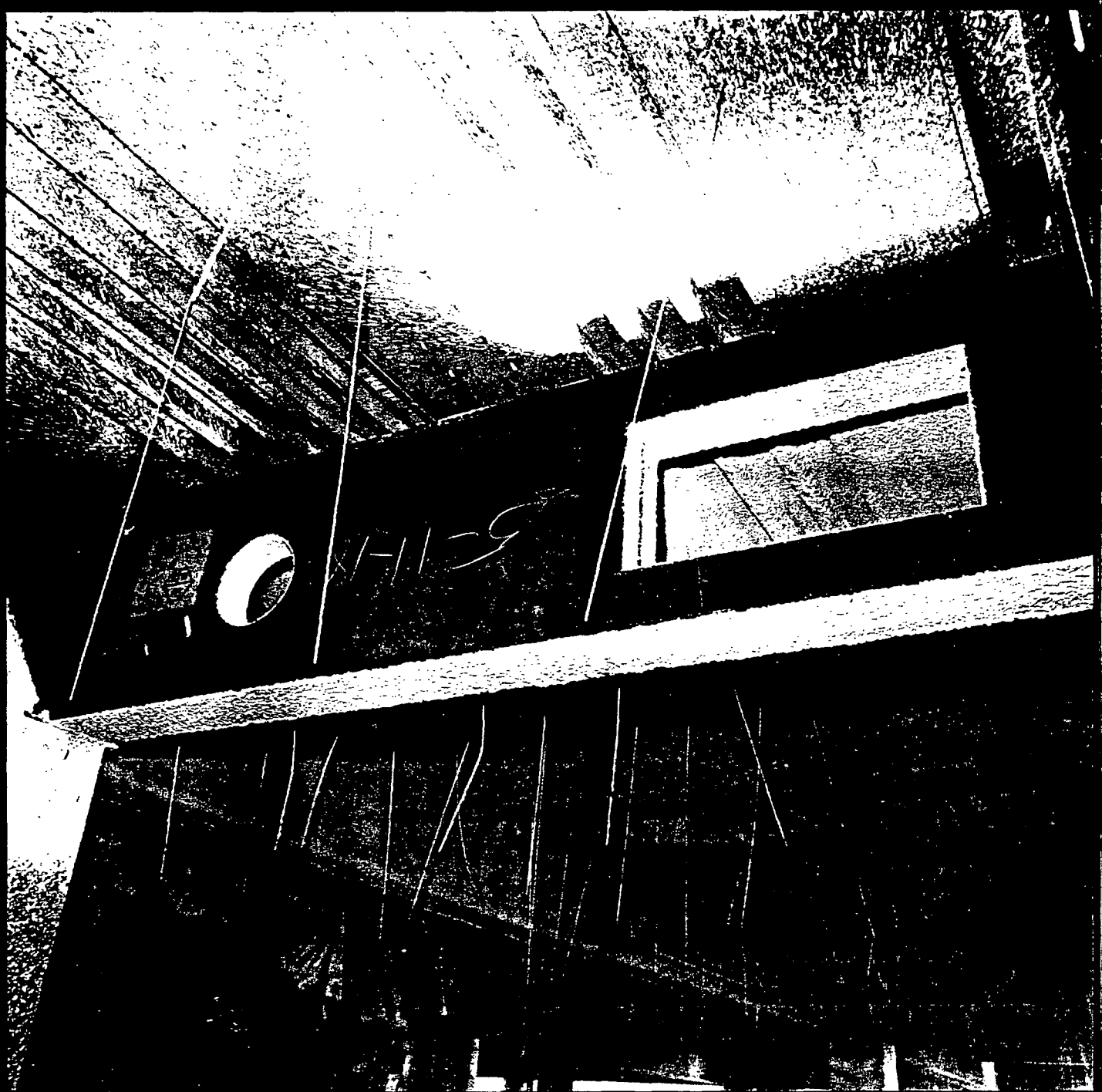
172 - Dave Brancoli, Bank of America Public Relations representative, checks depth of MONO-KOTE layer.

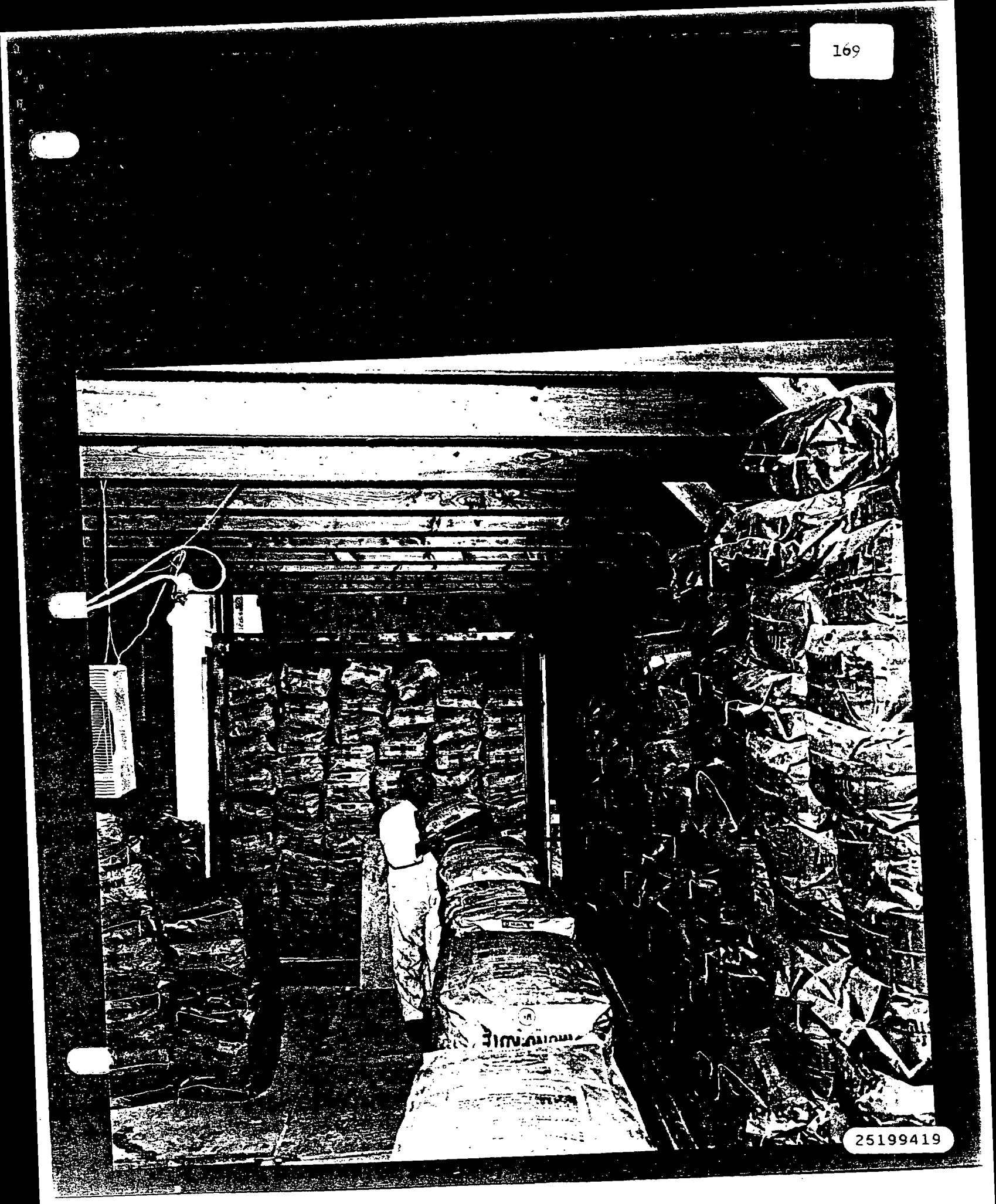
173 - Bob Chaney, MONO-KOTE representative, checks depth of Zonolite's spray-on fireproofing.

174 - Chaney and Brancoli both check thickness of MONO-KOTE.

175-76 - Jimmie Smith is shown spraying on MONO-KOTE from scaffolding.







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