



J-M Manufacturing
Company, Inc.

1001 SPERRY ROAD, STOCKTON, CALIFORNIA 95208

(209) 953-1100

In case you might have missed it, I am attaching a reprint of the first corporate ad run by J-M Pipe in the June issues of the following key trade magazines:

- ENGINEERING NEWS RECORD (June 2nd Issue)
- CONSULTING ENGINEER
- PUBLIC WORKS MANUAL (1983 Edition)
- JOURNAL - WATER POLLUTION CONTROL FEDERATION
- JOURNAL - AMERICAN WATER WORKS ASSOCIATION
- THE NATIONAL UTILITY CONTRACTOR
- WATER ENGINEERING AND MANAGEMENT

As you can see from the ad, we mean business; we are in the pipe business to stay. We realize that in order to do so, we must earn your business through better products, service and technical assistance. We are committed to doing just that and to making J-M Pipe the "only name you need to know in pipe".

Sincerely,


Alan A. Verploegh
Vice President, Marketing

AAV/st

Attachment

Olsen
EXHIBIT NO. 2
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8832

SC-JMM-2390

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Introducing...

A brand new Company that is
54 Years old at birth!

J-M Manufacturing Company, Inc.

Brand New

But already, the largest producer of pipe in the U.S. and one of the largest in the world. On January 1, 1983, J-M Manufacturing Company, Inc. and its sister-company, J-M A/C Pipe Corporation purchased all of the domestic pipe-producing plants and assets of the Johns-Manville Sales Corporation.

Since 1929 "J-M" has symbolized technological leadership, innovation and product superiority in the manufacture of the widest range of non-metallic pipes - pipes that will not rust, corrode or tuberculate; pipes that are immune to sewer gases, sulfuric acid and the fluids found in ordinary sewage and many industrial wastes; pipes that are lighter in weight than concrete and iron and are easier and less expensive to ship, handle and install. The J-M family of pipe includes Transite® A/C pipe, Blue Brute® and GreenTite™ P.V.C. pipe, Permastran® glass-fiber reinforced pipe and the latest, most advanced, revolutionary concept in pipe - spiral-wound, large diameter PERMA-LOC®.

Best of both Worlds - The Old and the New

The new J-M Pipe (as we will call it for short) has the best of the old world - a great tradition, a well-deserved reputation for reliability, dependability, innovation and superior quality. Plus the best of the new - an expanded line of improved products; an even more intense R&D effort aimed at continuing innovation; a motivated, aggressive sales, marketing and merchandising team, all with a "new lease on life," and a supportive management dedicated to making J-M an even stronger symbol of pre-eminence.

What's in it for You?

J-M will be able to supply all your pipe needs better, faster, more competitively. We will specialize in, concentrate on, and dedicate ourselves to the pipe industry. We will be closer to the market, our customers, specifiers, market influences, owners and end-users than ever before. We have flexibility and responsivity, but instead of merely responding, we hope to anticipate your needs and propose solutions. We will move faster and work even harder than in the past.

Our manufacturing facilities, strategically located all over the United States (and in proximity to key ports of embarkation), can provide prompt shipment of quality products. And remember - J-M is the only pipe producer that can offer you alternatives - a full line of non-metallic pipes that give you a choice; not just the one pipe most producers offer - but the one you need for the job, soil, service and cost requirements of the project you have at hand.

Our Promise to You

You have our assurance that we will make every effort to continue to earn your confidence and your business. We have dedicated ourselves to perpetuating the excellence, quality and superiority that J-M has symbolized in pipe for the last 54 years.

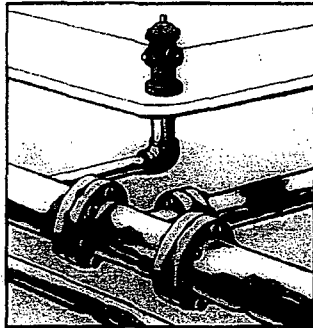
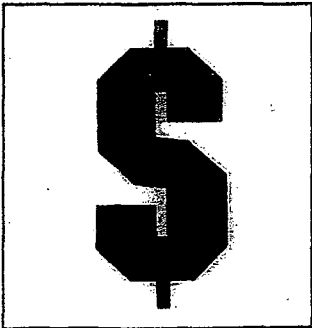
J-M Pipe

THE ONLY NAME
YOU NEED TO KNOW IN PIPE

ENR



SOLUTIONS FOR TRANSPORTATION



THE
MAGAZINE
OF
THE
CONSTRUCTION
INDUSTRY

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the Final Word on Value

Caterpillar Engine Power. For more than 50 years, Cat has been the leader in design, development and manufacture of diesel and natural gas engines and power packages, with an earned reputation for durability and reliability that results in the lowest lifetime cost available today.

Caterpillar engines are available at a variety of ratings to match your stationary, vehicular or marine power needs. Diesels from 85 to 1600 hp (63 to 1194 kW). Natural gas engines from 85 to 930 hp (63 to 694 kW). And generator sets from 50 to 1400 kW.

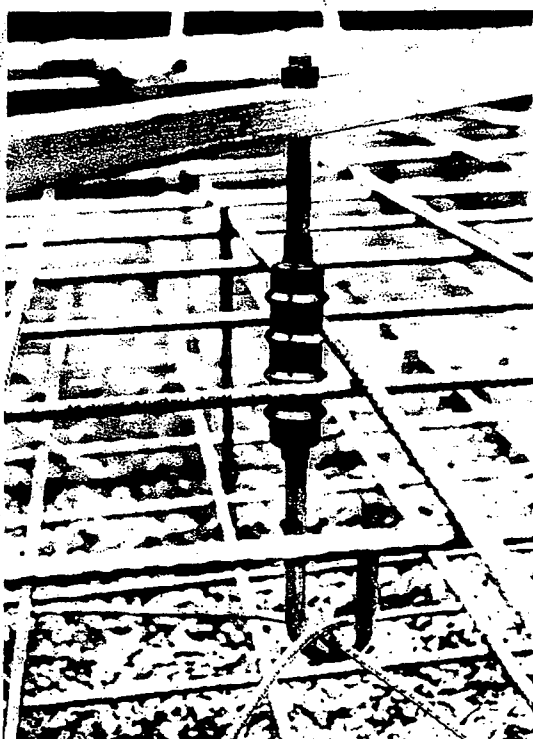
Fuel efficient Cat engines combine high torque rise and excellent weight-to-power ratios to provide the performance you expect from a Caterpillar product. Additionally, all engines are designed for minimum maintenance to help keep service time and costs low. Over 1000 Cat dealer outlets and 2200 other equipment dealers worldwide, provide engine parts and expert service support when and where you need them.

Cat Engines—Setting the Standard of Excellence.

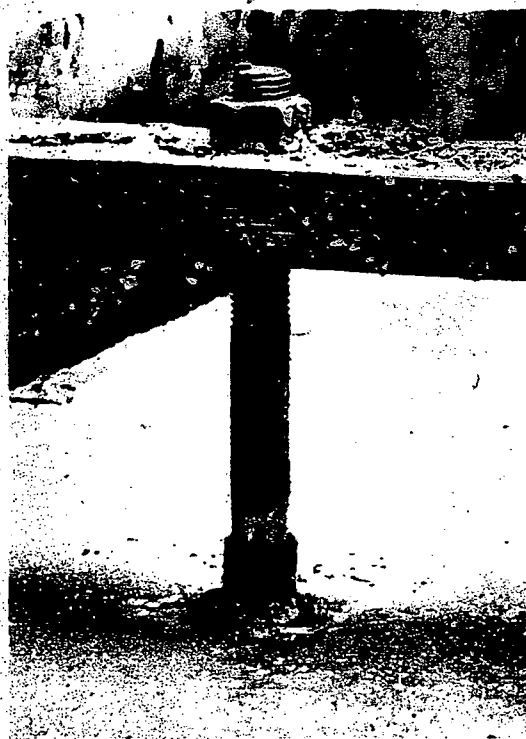
For more information on Caterpillar engine value write to Caterpillar Marketing, P.O. Box 3900, Peoria, IL 61614.



Align anchor bolts easily with SINCO plastic Anchor Bolt Sleeves



Anchor bolt and sleeve in place prior to pouring.



Sleeve provides clean grout pocket after pouring.

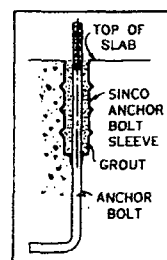
SINCO* Anchor Bolt Sleeves:

- save labor — quick and easy to install
- save money — low cost, lightweight plastic sleeves
- save time — closed ends keep concrete out of grout pocket during pouring
- are non-corrosive, non-conductive even in wet areas
- provide strong mechanical keys in concrete

*Formerly Wilson Anchor Bolt Sleeves

SINCO Anchor Bolt Sleeves are high-density polyethylene plastic sleeves that provide a void around the upper end of anchor bolts. The void provides play for easy final alignment of the bolt.

SINCO Anchor Bolt Sleeves are easy to install. They are positioned and held in place by the anchor bolt. The bolt cuts its own thread through the top of the sleeve, keeps out concrete during the pour and keeps the hole clean. When the anchor bolt is needed, the top of the sleeve is easily cut away and the anchor bolt positioned precisely. Then, the cavity is filled with grout.



Other concrete accessories from SINCO:

Diamond Blades • Abrasive Wheels • Diamond Core Bits • Wall/Slab Sleeves

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Call TOLL FREE 1-800-243-6753 (AK, CT, HI call collect 203-267-2545)



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1983

UMI

The computer that engineers build on.

JOB NO.

DATE

SCALE

Many engineering offices build their practices around an IBM computer.

When it comes to problem solving, there is a wealth of well-established software available from IBM and other sources. For standard applications such as structural analysis and coordinate geometry. And for a long list of more specialized work.

If your interest is in graphics or drafting, IBM offers an array of systems that boost productivity enormously. Smaller offices or departments of larger companies can use the IBM 7361 Fastdraft System: low in cost, extremely easy to use and capable of producing isometric views.

For a more complete graphic resource, you have a choice of three IBM full-function computer-aided design and drafting systems.

Estimating is a task you'll finish sooner, and your results will be more accurate, with an IBM computer. For pricing information at your fingertips, there is the IBM Datamaster Unit Price Estimating System and three R.S. Means Cost Data files for general, mechanical, and electrical construction.

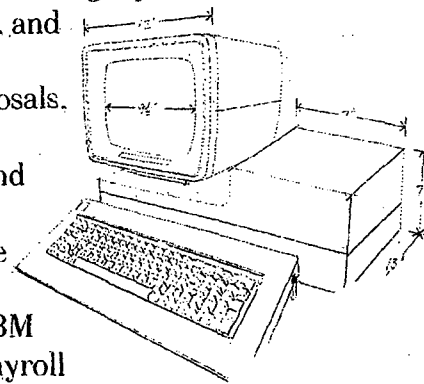
To help you create specifications and proposals, IBM has software that speeds up the work and produces a handsomely finished document. And from specification data bases available from a number of sources, you'll have fully up-to-date material standards available online.

Then, once projects are under way, your IBM computer makes quick work of accounting: payroll and billing, payables and receivables, project costing, and general ledger.

When you make an IBM computer the foundation of your engineering practice, profit gets in on the ground floor.



See these IBM products
at the A&E-Systems '83,
in Dallas.



IBM DRAC
Dept. 1W4/113
400 Parson's Pond Drive
Franklin Lakes, N.J. 07417

I'd like to learn more about
building profit into an engineering
practice with an IBM computer.

Name _____

Title _____

Company _____

Address _____

City _____ State _____ Zip _____

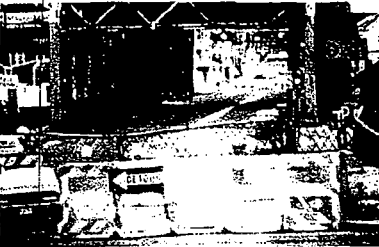
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Not a service industry
... and while we're defining
A tough test of trust

Next week in ENR: Kellogg Rust's Robert W. Page

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UMI

CHEVY OFFERS TOUGH DIESEL POWER IN ALL ITS FULL-SIZE 1/2-TON AND 3/4-TON PICKUPS.

Ford doesn't offer a diesel in its 1/2-ton pickups—or in any 3/4-ton pickup under 8500 lbs. GVWR. But Chevy does. That's significant, considering that 95% of all pickups bought in America today are 1/2-ton or 3/4-ton. Chevy, not Ford, offers a diesel option for the type of pickup you'll most likely be looking at, as well as diesel power for 1-ton pickups.

America's most popular truck diesel. Already a highly accepted powerplant, the optional 6.2 Liter (379 Cu. In.) V8 Diesel is now in service in well over 100,000 Chevy full-size Pickups, Vans, Suburbans and Blazers. That says a lot about the 6.2's popularity among light-duty truck owners.

Rugged power for moving up to 13,500 lbs. The 6.2 has plenty of brawn for hefty hauling and the day-to-day grind. This engine was specifically designed and built for truck use. So it packs plenty of torque. A properly equipped full-size Chevy Pickup with the available 6.2

Diesel can move up to 13,500 lbs., including itself, trailer, passengers, cargo and equipment.

3-Year/50,000-Mile Power-Protection-Plus Limited Warranty on Diesel Engines. Subject to deductible after first 12 months/12,000 miles. See your Chevy dealer for full details.

Beats the ratings of Ford's and Dodge's most fuel-efficient gas-powered V8 pickups by 7 EPA Est. MPG. This kind of EPA mileage estimate is bound to get people thinking "Diesel Chevy Pickup." Ask your Chevy dealer for full details on his Diesel Pickups soon.

31 23
EST. HWY. EPA EST. MPG

2WD C10-20 Pickup with Optional 6.2L V8 Diesel and 4-speed manual O.D.

Use estimated MPG for comparisons. Your mileage may differ depending on speed, distance, weather. Actual highway mileage lower. Some Chevrolet trucks are equipped with engines produced by other GM divisions, subsidiaries, or affiliated companies worldwide. See your dealer for details. Let's get it together... buckle up.



C10 Diesel Chevy Pickup



TOUGH CHEVY TRUCKS ARE TAKING CHARGE

WPPSS unit three may on the way out—

The Washington Public Power Supply System board last Friday gave itself one more month to seek new sources of financing before deciding whether to shut down work on a fourth nuclear plant. The reprieve follows a recommendation by the Bonneville Power Administration to mothball unit three, being built by Ebasco Services, Inc., New York City. Bonneville backs \$1.6 billion in bonds sold by the financially battered supply system for construction of the 75% completed plant. Four private utilities, which hold a 30% share in the project, have threatened to sue if WPPSS stops the project. That would leave only unit two of the original five-plant program still under construction.

Washington State fuel tax sets record—

To cope with growing highway maintenance demands, Washington State motorists face a six-cents-a-gal increase in their motor-fuel tax, the largest rise in the state's history. Drivers will find the present 12-cent tax boosted to 16 cents a gal July 1 and to 18 cents a year later under a measure passed by the legislature and signed by Gov. John Spellman. When the full increase becomes effective next year, Washington State's fuel tax will be the nation's highest.

Bid-riggers to pay state \$9.6 million—

In the largest state bid-rigging settlement reached thus far, Hardaway Co., Columbus Ga., and a number of its subsidiaries have agreed to pay Florida \$9.6 million in cash and property. The payment ends a civil suit brought by the state last year over the firms' alleged bid-rigging activities and restores the contractors to the state's bid list. The settlement was reached under a state bid-rigging statute passed earlier this year that allows the debarring of all firms

affiliated with a convicted firm. Two of Hardaway's companies earlier had pleaded guilty to rigging bids on state road and bridge projects. So far, the state has recovered \$14.7 million from seven firms.

More support for wage-law changes—

A study team for President Reagan's private-sector survey on cost control recommends changes to the Davis-Bacon Act and other laws that it says could save \$3.7 billion over the next three fiscal years. Among other things, the panel suggests raising the contract threshold for Davis-Bacon coverage to \$25,000 and reducing the reporting requirements for small contractors. The group, cochaired by four businessmen, also recommends amending the Walsh-Healey Act to eliminate the requirement that overtime be paid on government contracts whenever more than eight hours are worked per day. The 40-hour week would be retained. That change alone, the group contends, would save more than \$1 billion over three years.

Inspectors won't be criminally charged—

No criminal charges will be filed against the 18 Kansas City, Mo., building inspectors who were either suspended or fired as a result of loafing on taxpayers' time or lying on daily work reports. Jackson County Prosecutor Albert Riederer says a police investigation of complaints and allegations of wrongdoing disclosed no evidence of criminal violations. "While the police report gives no evidence of wrongdoing, it is replete with examples of poor supervision, bad morale and questionable practices that need to be addressed by the city," Riederer says. "We originally got into the situation because of allegations of bribery and payoffs, and there was no evidence of this. Being a lousy employee is not yet a crime."

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1983

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Introducing...

**A brand new Company that is
54 Years old at birth!**

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Brand New

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J-M Pipe

**THE ONLY NAME
YOU NEED TO KNOW IN PIPE**

**National industrial policy
a key to Dem's '84 strategy**

After an unusual May 14 strategy meeting, Democrats of both congressional houses are planning to make national industrial policy a key element of the 1984 campaign. House Democrats expect to write bills later this year setting up a national bank to support business modernization and development and creating an Economic Cooperation Council (ECC) aimed at stimulating revival of ailing industries.

One proposal already introduced would establish a development bank and allocate \$12 billion over four years to begin needed industrial development.

A subcommittee of the House Banking Committee will start a series of hearings June 9 focusing not only on the proposed ECC and industrial bank but also on the Reagan administration's proposal to set up urban enterprise zones to stimulate business development. Senate Democrats, under the direction of a task force headed by Sen. Edward M. Kennedy (D-Mass.), are expected to report later this summer on their proposal to create a national development bank. And a group of 150 liberal House Democrats, led by Rep. Richard L. Ottinger (D-N.Y.) have proposed their own version of a "high-production" industrial strategy. The Ottinger-led group would force a reduction of interest rates by the Federal Reserve, create a federal capital budget with sufficient funds to begin massive infrastructure development and create both a national finance bank and an ECC.

**Outlook fades for user fees
to finance port deepening**

Senate and House committees continue to go through the motions of seeking a funding mechanism for deepening the nation's major coal ports for super colliers. But even if they settle on legislation, it will have little chance of passage. The major stumbling block appears to be that the ports oppose user fees to pay for channel dredging. Contrary to the wishes of the administration, particularly the Office of Management and Budget, industry groups such as the Philadelphia Port Corp. and the Georgia Port Authority maintain that the federal government should continue to pay all channel operating and maintenance costs.

Also contributing to the negative outlook is the recent testimony by Erich Evered, Department of Energy assistant secretary for the Energy Information Administration. Deepening port channels to 55 ft is not necessary at this time and won't increase coal exports to Europe, he says.

Consequently, coal-industry representatives and officials of three key federal agencies have abandoned hope of seeing legislation passed this year. Next year may not be any better. Since it will be an election year, odds are that port officials will choose to wait the year out in hopes of striking a better bargain with a new administration.

**Nuke licensing reform
unlikely this year**

Time appears to be running out in this congressional session for any substantive action on reforming the licensing of nuclear powerplants. However, the increasing support for proposed reform legislation, backed by both the Department of Energy and the Nuclear Regulatory Commission, could lead to action next year.

The Senate Environment Committee's nuclear-regulation subcommittee finally held long-promised hearings on the proposed legislation May 25. One key portion of both of the bills pending would implement use of standardized designs and is strongly advocated by NRC Chairman Nunzio J. Palladino. "From a safety standpoint, repeated use of standard designs could materially improve construction practices and quality assurance," he told the panel. Palladino notes that the licensing process has not changed in the past 29 years.

With the maturing of the industry, it is now possible to evaluate standardized plant designs, essentially to complete designs prior to plant construction, and to evaluate proposed plant sites without plant design details, Palladino says. He also reiterated his earlier support of simplified licensing and hearing procedures.

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1983

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ARTHUR
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Presents a seminar: **Contract Administration**

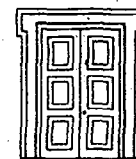
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Contract administration is a difficult task. Large scale construction and engineering projects are becoming more difficult to control. Many projects are experiencing significant cost overruns and delays. That's why Arthur Andersen & Co. developed this seminar . . . to help contractors, owners and engineers in the effective business management of construction projects.

This three day seminar presents the "how to" of managing your construction projects. Professionals with practical construction experience, will discuss management techniques used in contract planning, packaging and scheduling, risk sharing, pricing and the bidding process . . . providing the basic groundwork on which to build your business.

July 18-20	Denver, Colorado
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September 14-16	Dallas, Texas
September 28-30	Seattle, Washington
October 24-26	Chicago, Illinois

To find out how this seminar can aid you in managing your construction projects contact Gail Innes at Arthur Andersen & Co., 33 W. Monroe Street, Chicago, Illinois 60603 - (312) 580-0033 extension 7884.



Sham arrangements

Regarding your article, "MBE compliance investigated" (ENR 4/21 p. 59), if every contract requiring MBE participation was investigated by a grand jury, few would prove to be other than sham arrangements to satisfy the quotas imposed.

Anyone who believes otherwise is naive and uninformed and it is time that regulation writers, such as those at the general counsel's office of the Department of Transportation, leave their offices and venture out into the real world for a look at what is going on.

BURR ALLEGAERT
Newport, Calif.

Tricky trusses

You bet the trusses at the Thomas Mack Center in Las Vegas were "tricky to install" (ENR 2/3 p. 17). The site logistics,

concrete support framing and sequencing of the project schedule all have low tolerance. They are under the control of Perini's Mardian Construction Co. subsidiary as general contractor.

RAY C. SIMMS
Perini Corp.
Framingham, Mass.

No comment

In a recent issue (ENR 3/24 p. 10) you published a letter, under the heading "Hydroelectric comparisons" which took issue with an article, "Small hydro—Fords to Cadillacs" (ENR 11/11/82 p. 52). The letter, unfortunately, ignored the well-known economy of scale

which makes most kinds of powerplant costs vary in proportion to the 0.6 to 0.8 power of the capacity. Our experience indicates that a small-hydro plant going on the line in the early 80s, all other things being equal, should cost about 10 million times the Mw to the 0.7 power times the head in ft to the -0.35 power. This excludes, of course, any costs for the dam or the penstock.

Using this formula, the small plant should cost about \$2.7 million, almost exactly the cost quoted in your November, 1982, article. The larger plant, on the other hand, "should cost" about \$27 million, versus the actual cost of \$50 million. Looks like it's a Cadillac after all!

A. J. BUTLER
Director of energy projects
Schuchart & Associates, Inc.
Seattle, Wash.

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ENR News

The McGraw-Hill Construction Weekly
June 2, 1983

Making the case for infrastructure

The derailment of a sweeping infrastructure repair plan in a Senate committee late last month points up the numerous obstacles that industry lobbyists and their allies must hurdle if they are to turn more of their legislative hopes into laws.

The Senate bill (S. 724) proposed by Environment and Public Works Committee Chairman Robert T. Stafford (R-Vt.)—and dubbed the "Stafford memorial catch-all bill" by an industry lobbyist—would have provided \$50 billion for infrastructure projects of all types over 10 years. When the committee was to mark up the bill, members who have taken a front seat in the drive to reduce the federal deficit were nowhere to be found (ENR 5/26 p. 7). Neither were many industry supporters.

"When you put a lot of time and energy into something that you believe will be of benefit to the country, at the very least you expect the industry that would reap the benefits to get in there and help you," grouses a committee aide.

A spokesman for the National Construction Industry Council (NCIC), an umbrella group of major associations, explains construction lobbyists' low profile: "There was a perception the bill was not going anywhere so nobody was pushing very hard."

Besides competing for exceedingly scarce resources, advocates of infrastructure repair faced two additional problems with the Stafford bill that typify many legislative fights. The bill lacked the well-defined focus that helped make last year's push for additional highway funding a success. And there were provisions in S. 724 that industry was eager to block at the same time it sought the funding. Says David F. McDermitt, director of government relations for the National Utility Contractors Association, "The problem was there was no long-range plan on the part of the Senate—there were too many bills, too many ideas."

Formula for success. Industry groups—from the Associated General Contractors to the American Road and Transportation Builders Association—have shown they can lobby with the best of them. They blitz legislators with visits, phone calls and telegrams; package



slick educational materials that help state their case; combine forces with labor and other interests; and target political contributions to supporters engaged in close election contests. It was just such a combination—with strong leadership from former Transportation Secretary Drew Lewis—that persuaded a reluctant President Reagan to drop his opposition to the five-cent motor-fuel tax increase and higher spending for the highway program.

"We called everybody we could to contact their congressman," recalls Daniel J. Hanson, Sr., ARTBA president. "Now in some parts of the country, materials people have more influence. The results did show."

Similar broad-based efforts recently led to motor-fuels tax increases in several states and are considered likely to push through increased highway user fees in Illinois.

But such powerful coalitions are rare, very seldom to be found working on other aspects of the infrastructure issue, such as wastewater treatment.

Holding back. In many states, industry lobbyists are holding back on pushes for funding. In Texas, anticipated increases in federal highway funding "made a lot of legislators say, 'Let's wait and see what that does for us before we increase state taxes,'" says a spokesman for roadbuilders there.

California is tackling its crumbling facilities one step at a time. A proposal to establish a council to assess needs and solutions is considered certain to pass. Pundits observe wryly that legislators will gain by putting off major financing decisions until next year, when most will be up for election.

And in Georgia, highway contractors are so spooked by what one called the "raping and pillaging" of the state's continuing bid-rigging investigation that they are doing very little—if any—lobbying. The Department of Transportation "is

heaven and hell," says a contractor source who asked not to be identified. "There's nobody I'd rather have chasing money for me than DOT and there's nobody I'd less like to have persecuting me than DOT.... Right now the industry is just trying to hold on."

United front? On all legislative battlegrounds, perhaps the industry's most pervasive problem is to get construction's myriad interests behind a united front. NCIC last week took a small first step in that direction. It passed a resolution urging Congress and the President to "provide stable and reliable funding" for infrastructure work, to seek "expedient completion of a national inventory of public works needs," and to "systematically compile" proposed capital expenditures within a special section of the federal budget.

Although the resolution is far from sweeping, observers consider any such agreement an accomplishment. Says one contractor association executive, "We're lucky we all can agree tomorrow's Friday."

Box girders raise questions

A disagreement over whether three of the four concrete box girder bridges in Florida's Keys, opened only a year ago, may require costly repairs and unexpected maintenance is simmering down. The fourth opened last September and has not been evaluated yet.



Long Key Bridge has suffered some cracks in V-piers.

recent evaluation of the concrete box bridges "may be low key." Miller wrote that "at least one of our segmental bridges is in a state of distress"—the Long Key Bridge. On a visit to three of the Keys bridges, Miller said he found ruptured bearing pads, spalling columns, deck cracking and concrete shrinkage caused by post-tensioning.

Roberts replied that he also visited the bridges and "found it difficult to arrive at your [Miller's] opinion.... Generally throughout these structures the quality of construction is as good as we normally obtain for other types of bridges and in many cases... better."

W.M. Hilliard, director of the DOT maintenance division and Roberts' boss, agrees with that finding, based on his own visit to the Keys. "We found no reason for alarm," Hilliard says. Miller, however, says he found plenty that alarmed him. In addition to cracking, spalling and creep, he says, he found evidence that "Florida aggregates are more plastic than estimated when used in this construction technique."

The matter originated with what Roberts calls a "draft review" to determine where maintenance problems might arise and what design refinements might be appropriate to avoid them in the future on concrete box girder bridges, which are new to Florida. The report by a team of DOT engineers was the first step in preparing a maintenance manual, he says, and did not identify specific deficiencies. "The whole thing has gotten blown out of proportion," says Roberts.

The issues raised in the report include whether some elastomeric bearing pads that deformed during construction would require replacement and how that could be carried out; whether use of relatively soft and porous Florida limestone aggregate caused excessive concrete shrinkage resulting in reduction of post-tensioning tendon forces and how they might be replaced or re-tensioned; and whether failure to use adhesive between precast superstructure segments has caused interior spalling.

The report also pointed out that V-piers at Long Key Bridge have cracked and where deck slabs are reinforced in-

stead of prestressed they exhibit "minor but consistent" cracking.

Easily manageable: F&M's Muller acknowledges that there has been cracking at the bottom of the V-walls of Long Key's piers where they were designed to flex under superstructure expansion joints, occurring every eight spans. He attributes that to a water main installed in the bridge, which the firm was not involved with.

Roberts' memo to Miller says, "expansion joints of the pipe... apparently were not installed in accordance with the manufacturers recommendation," which may have induced unintended stresses. The problem has been corrected by bolting steel plates and neoprene pads to the V-walls.

Muller says that any bearing deformation is within allowable limits and F&M is now advising DOT on methods to reset or replace the pads if necessary. Hair-line cracking of Seven Mile's nonprestressed deck is normal, according to Muller, and localized spalling at the top of some pier columns poses no danger.

Concrete shrinkage has been only 60% of that expected, he says. Finally, Muller says that more tensioning tendons could be added rather simply if needed to accommodate greater loads. ■

AWWA disputes need for big water infiafix

A survey of 50 of the country's largest water utilities taken by the American Water Works Association, the industry's scientific and educational society, shows that the infrastructure problem "has been blown far out of proportion" for drinking-water systems.

In a statement filed with the Senate Committee on Environment and Public Works, the Denver-based association claims, "Water service charges by public and investor-owned utilities can, in all but a very few instances, be increased within the users' ability to pay." Water rate increases averaging "only 27% would provide all the financing necessary to refurbish water facilities," the association says. Hence, a new national grant program is neither needed nor desirable.

Of the 33 respondents to the survey, 14 or 42%, say they had no problems keeping their systems in good repair and needed no assistance at all. The public and private water authorities responding to the survey included those serving Boston, Cleveland, Detroit, Indianapolis, Los Angeles, Memphis, St. Louis, and Pittsburgh.

The survey indicates that about \$27 billion spread over 10 years—not the \$110 billion to \$150 billion suggested in

And the major consultant on the bridges, who inspected them last week, finds no basis for apparent criticism that surfaced in a draft report by Florida Department of Transportation engineers. "I don't see anything revealing rapid deterioration," says Jean Muller, chairman of Figg and Muller Engineers, Inc. (F&M), Tallahassee. "The structures behaved better than we thought."

The firm designed the Seven Mile Bridge and the 2.3-mile Long Key Bridge, built for a total of \$60 million. It also prepared original plans for the two shorter box girder crossings, costing \$21 million, but DOT had them redetailed.

Internal disagreement. DOT engineers divided sharply in the controversy. No one, however, questions the safety of all four bridges.

The controversy began when state transportation engineer W. W. Miller sent a memo to state maintenance engineer Jack W. Roberts suggesting that a

other studies—would be needed to fund deferred maintenance on water systems. Rate increases—from a low of 6% to a high of 36% over that period—would support sales of revenue bonds to cover repair needs, AWWA says. The increases would raise the average water bill to \$145 a year. ■

U.S. fading overseas

Congress urged to act on export disincentives

U.S. contractors' share of overseas business, which stood at nearly 50% in the mid-1970s, plummeted to less than 30% by 1981, a House foreign affairs subcommittee was told last week.

In the first of a new series of hearings on the international competitiveness of major U.S. industries, spokesmen testifying for the International Engineering & Construction Industries Council (IECIC) told the international economic policy subcommittee that Americans are losing ground, not because of a lack of technical capability, but because foreign competitors are being supported by their governments. Dollarwise, the group said U.S. work overseas declined 16% to \$15.3 billion in 1982, from \$53.6 billion in 1981.

"We battle self-inflicted problems at home [and] compete in third-country markets against foreign firms that are heavily subsidized and supported by their governments," testified IECIC Chairman David B. Perini, chief executive officer of Perini Corp., Framingham, Mass.

Specifically, Perini urged Congress to:

- Reauthorize the Export-Import Bank to competitively finance service exports.

- Support increased funding for the U.S. Trade and Development Program.

- Pass H.R. 2157, which would resolve ambiguities in the Foreign Corrupt Practices Act.

- Extend the Export Administration Act with changes to balance foreign-policy objectives against export-promotion goals (H.R. 2971).

- Repeal regulations that deny tax benefits to companies complying with the Arab boycott of Israel.

- Support legislation (H.R. 1609) to relieve international double taxation on U.S. construction services.

"We are clearly not seeking any subsidies," said Michael R. Stephenson, Washington-based vice president of Bechtel National, Inc. "We only ask that those U.S. government-imposed disincentives on the export of our services be removed" so that we can regain our international competitiveness, he explained. ■

Bridge's birthday a bash

In a blaze of pyrotechnic glory reminiscent of its opening day, the Brooklyn Bridge entered its second century as a symbol to many of how well man can build something.

Probably no public structure has generated as much interest and enthusiasm as the Brooklyn Bridge, and over 2 million well-wishers last Tuesday jammed into boats on New York's East River and onto any spot of solid ground affording a view of the bridge. The bridge itself was the base for the half-hour fireworks show which capped weeks of celebrations.

Among the observers with more than sentimental ties to the bridge was Henry P. Handwerker, principal of Steinman, Boynton, Gronquist & Birdsall, New York City, who says that while the bridge celebration has helped people become more

aware of the problems with aging public structures, he still feels that the public isn't aware of the costs of solving these problems. Steinman is a consulting firm working on a \$112-million Brooklyn Bridge rehabilitation program.

In the same vein, Edith Sable, director for economic development for New York City for the League of Women



Brooklyn Bridge celebrated with over \$200,000 worth of fireworks.

Voters, says that the attention to the bridge was "enormous and wonderful." She feels, though, that the "bread-and-butter issues" relating to the bridge and infrastructure in general weren't emphasized and that lay persons are still ignorant of the problems with obtaining funds for something as seemingly simple as painting the bridge. ■

AIA to study profits, pay

The American Institute of Architects, gathered in near-record number for a generally upbeat convention in New Orleans last week, heard mixed signals on the profession's future.

Executive Vice President David O. Mecker, Jr., told delegates, "Things are beginning to look up." But he also stressed a drop in income of architectural firms in the 70s. He said architects' share of the work continues to drop.

President Robert Broshar announced formation of an Architects' economic and compensation task force for AIA to look at the economics of the construction industry and the profitability of architectural firms. Broshar told ENR he wants the task force to look at the selection process and the fees paid architectural firms, and at efficiencies achievable in practice. Also a concern is the com-



President Broshar goes to work on economics.

pensation of individual architects, particularly at the entry level.

Speaking to the convention on Monday, Broshar urged members to keep phoning and wiring their congressmen to oppose extension and support restoration of the west front of the Capitol. At midweek the House voted, settling the issue in favor of restoration, which AIA favored (see story p. 13).

With its large registration in New Orleans, AIA also saw a large growth in its commercial exhibits, to 310 booths, about a third of which were computer-related. A speaker in a session discussing quality of design deplored the fact that there was a larger audience next door hearing about "buying and selling computer-aided design services."

West front restoration prevails in House vote

Both houses of Congress appear now to agree substantially on the 20-year-old issue of what to do about the Capitol's crumbling west front.

The House of Representatives, in a startling repudiation of its own Appropriations Committee and the Architect of the Capitol, and in line with the Senate's stance, finally voted 325 to 86 to restore rather than extend the western facade.

The vote came after hours of what was at times an acrimonious floor debate. Then, the House voted \$49 million for simple restoration, an amount that may not be enough to do the job. George M. White, Architect of the Capitol, has estimated the restoration job would cost \$66 million compared to \$73 million for extension, resulting in additional office space (ENR 5/12 p. 46).

Elliott Carroll, White's executive assistant, called the vote "historic" but cautioned against regarding it as final "until the President signs [the bill]."

The funds are part of a \$4.8-billion supplementary appropriations bill covering continued Pershing 2 missile production, funds to identify the cause and cure of acquired immune deficiency syndrome and other equally diverse items. A presidential veto is at least a theoretical possibility.

Though there are no specific plans for restoring the west front, many say the wall may have to be encased in marble. This is a possibility full of irony. One of the rallying cries of the restorationists, led by the American Institute of Architects, has been the need to retain the last visible parts of the original sandstone wall.

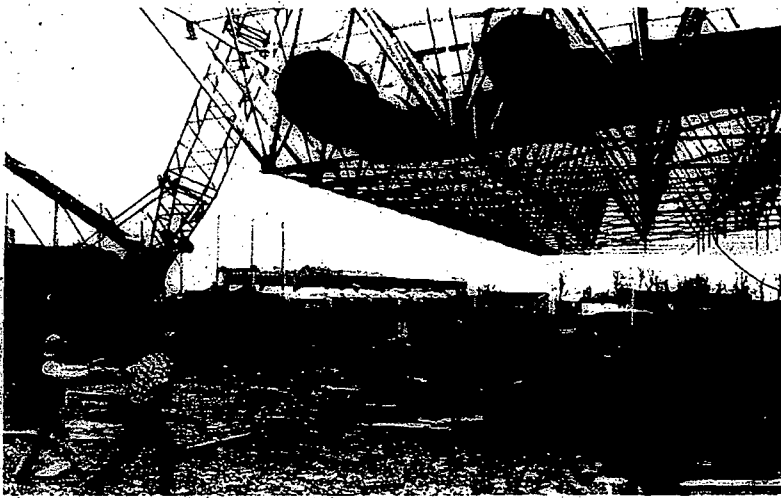
The Senate still has to vote on the matter, but it is expected to quickly and overwhelmingly support restoration. ■

Flying frame covers odors

Spectators at a sewage plant retrofit job in Amherst, N.Y., recently had a close encounter with space-age design when a 22,400-sq-ft aluminum roof was picked, rotated and floated in one piece onto 40

ods of lifting the frame, selected the final design and had the factory-fabricated parts on trailers by March.

The 390 extruded aluminum hubs and 1,918 tubular struts, 10 ft long,



Spaceframe enclosure for Amherst, N.Y., sewage plant tanks was floated onto 40 columns.

columns to enclose a pair of odorous equalization tanks in their backyard.

Final touches are being completed this week on the aluminum-clad enclosure, designed and fabricated by Space Structures International Corp., Plainville, N.Y. The \$2-million backfit at the 24-mgd treatment plant, located in a residential area, was needed because operators have chosen to use the equalization tanks as primary tanks since startup in 1980 to cut costs. The original design by Charles R. Velzy Associates, Inc., Carle Place, N.Y., envisioned using the tanks only during excessive flows and, therefore, did not call for enclosing them. All other process areas are covered to prevent odors from bothering neighbors.

The 50-ton spaceframe, assembled in 10 days next to the tanks, was lifted April 14 from 18 pick points using a 400-ton crane with a 236-ft boom to place it atop the 24-ft-high columns. Because of unstable soils at the ends of the tanks, the columns supporting the 112 x 200-ft frame are located only along the sides of the 100 x 200-ft tanks.

Design of the spaceframe started in early December following a go-ahead from Velzy, the town's consulting engineer. Using a computer-aided design system based on Space Structures' software, the engineering team ran through a number of configurations and meth-

were assembled by a joint venture of M. Falgiano Construction Co., Inc., and Rod Placing, Inc., both of Buffalo, and placed by Higgins Erectors & Haulers, Inc., Buffalo. ■

Legal hurdles cleared for major refuse plant

After 10 years of planning, ground has been broken for a \$197-million resource recovery plant financed under individual contracts with 21 communities surrounding Boston. The 1,500-ton-per-day mass-burn plant at North Andover will handle solid waste from an area of about one-half million people surrounding, but not within, the city limits. Signal RESCO, a subsidiary of UOP, Inc., Des Plaines, Ill., is building the plant using technology licensed from the Josef Martin Co., Munich, West Germany.

UOP is guaranteeing electrical production of 480 kw-hr per ton, as well as environmental compliance. Electricity produced will be sold to New England Power Co. at 90% of the cost of the most expensive power the utility is producing at the time and adjusted by peak vs. off-peak rate multipliers, says W. John Phillips, senior marketing engineer for Signal RESCO.

Communities will be billed on a "put-

or-pay" basis, and will get 89.5% of revenues returned to them as credits against debt service and operating costs. Net costs are expected to be \$15 to \$20 per ton of refuse, about the same the towns are paying now for use of landfills and dumps, says Phillips.

About 900 tons per day has already been committed and more towns are expected to sign on during the three-year construction and startup period. With help from the state Office of Envi-

ronmental Affairs, UOP signed 20-year contracts with each participating community. The plant is funded by two industrial revenue bond issues: a \$160-million sale of tax-exempts, and a \$37-million sale of privately placed taxable bonds. "The revenues from the sale of electricity are the front-line credits for the bonds," says Phillips, "but the communities themselves are the ultimate guarantors." Annual revenue is expected to be in the range of \$12 million to

\$15 million the first year, and more if the price of oil shoots up again.

Phillips says UOP had a particularly tough time getting through the legalities with each municipality. The project was proposed in the mid-70s, and once UOP negotiated the project, it had to contract separately with officials of each town, and then only after approval of the annual town meeting. "If we missed it, we had to wait for another year," says Phillips. ■

Building opens after fire

The top 22 floors of a 28-story office tower in San Francisco were found free from contamination and reopened last week, 10 days after toxic chemicals were released during a transformer fire.



Smoke from transformer contained toxics.

The lower floors of One Market Plaza will remain closed to tenants until further cleanup operations and additional testing can be completed, says the city.

In the Sunday morning fire in the underground vault containing three Pacific Gas & Electric Co. transformers handling 34,000 volts, about 50 gal of insulating oil containing polychlorinated biphenyls (PCBs) leaked from one of the transformers, reports Ronald R. Rutkowski, a spokesman for the utility. Billowing smoke deposited oily residues on building walls and in the air conditioning equipment that ventilates the lower six floors. The equipment had been turned off for the weekend.

The utility found that ash from the fire contained 100 to 200 ppm of PCBs, above the 50-ppm temporary standard

set by the Environmental Protection Agency. Readings half a block away, however, were negligible, says Rutkowski. California Occupational Safety and Health Administration inspectors found "almost zero" contamination, and now consider the entire building to be decontaminated. The One Market Plaza episode appears unlike a transformer fire two years ago in a Binghamton, N.Y., office building. There toxic chemicals were released and distributed through the ventilation system. The building is still unoccupied (1/17 p. 5).

The cause of the One Market Plaza fire may have been smoldering insulation on a nearby cable, causing flash-over. The transformer that leaked PCBs has been replaced.

In 1980, PG&E started a voluntary program to replace PCBs used in its transformers. The utility estimates that fewer than 10% in service now contain PCBs. ■

Retroactive codes studied

The way to get building owners to adopt retroactive building and fire-safety codes may not be through financial incentives, an approach under consideration in various localities. According to a recent study, the best way is by "reasonable enforcement practices" over a "reasonable amount of time," with the help of insurance cost breaks.

The study was done by Building Technology, Inc., (BTI), a research and engineering firm in Silver Spring, Md. BTI conducted the \$100,000, six-month analysis for the Office of Fire Prevention and Control, a New York State government agency. New York, which is drafting a state-wide fire prevention and building code, had the study done to analyze the code's economic impact.

"The findings are significant in view of possible plans by all three major model-code organizations to develop such retroactive codes, according to David Hattis, BTI executive vice president.

The basic strategy recommended includes an extensive public information

campaign; the award of a fire-safety seal of approval; or the posting of a certificate of noncompliance; and income-tax penalties for noncompliance at the end of a five-year period. BTI does not recommend state-funded financial incentives for compliance at first, but calls for

a possible reconsideration of financial incentives after five years.

The insurance companies should also inform policyholders of potential savings through installation of fire-safety measures. Hattis says state-regulated insurance companies should be called on to assist because "those who invest in fire prevention and protection disproportionately bear the cost of insuring against fire losses." ■

British copy U.S. action grants

Britain's version of the U.S. urban development action grant program is gathering momentum with the announcement of a third batch of projects that marry public and private financing.

In the first two batches, the U.K. Department of the Environment is giving \$24 million in 57 so-called "urban development grants." The grants are designed to encourage private investment in 43 designated inner-city areas. Developers' input so far totals \$120 million.

The program was launched last year by the then Secretary of State for the

Environment, Michael Heseltine, after getting good feedback on UDAGs from a team of British financiers he had sent to the U.S. on a study tour. Heseltine invited 50 local authorities to bid for slices of grants totaling \$105 million to be allotted through April, 1984.

About 300 projects valued at over \$1 billion were submitted through authorities by developers and financiers.

Although generally welcome, the program is criticized as not being immune to local politics. "A well-thought-out bid might take second place to one from an

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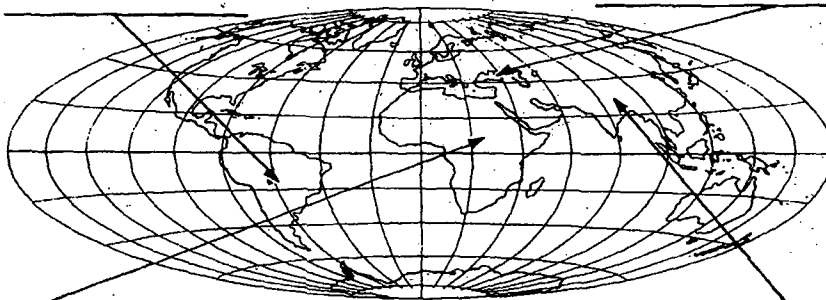
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area that has more clout," says Elizabeth Bradley of the U.K.'s House Builders Federation.

A wide scope of work was suggested—such as building new factories, converting offices to apartments and

revitalizing abandoned warehouses. A \$6.7-million grant, the largest to date, is for a \$47-million hotel and office complex in Birmingham. The project had been in limbo for two years before receiving the grant.

Petroleum reserve job hit for lax controls

In yet another attack on the management of the strategic petroleum reserve project—the first-line defense against the economic dislocation that could be caused by another oil embargo—Rep. Michael L. Synar, chairman of the House government operations energy and natural resources subcommittee charges that the seven-year-old effort is "plagued by mismanagement, poor planning and loose financial controls."

In a hearing May 24, Synar roundly attacked the Department of Energy's lack of oversight of the contractors working on the Gulf Coast project. DOE, as of Jan. 1, had awarded contracts valued at about \$1.7 billion for architect-engineer services, construction and operations and maintenance of the storage sites, including \$1.2 billion allocated for cost-reimbursable contracts. Synar particularly criticized the use of letters-of-credit enabling contractors to draw on government funds to meet expenses and then submit vouchers as evidence of expenditures.

Many of those testifying agreed the reserve program is plagued by poor accounting, procurement and management practices. The General Accounting Office was especially critical of problems in developing an automated control system for the storage sites to monitor and control the flow of crude oil, brine and water in and out of the salt-dome caverns. Since 1979, DOE has committed about \$100 million in contracts for engineering and design work, but DOE still does not have a centrally controlled instrumentation system at all sites.

While SPR sites can be manually operated, the lack of automatic controls raises some concern about DOE's ability to successfully sustain a major draw-down of the oil reserve.

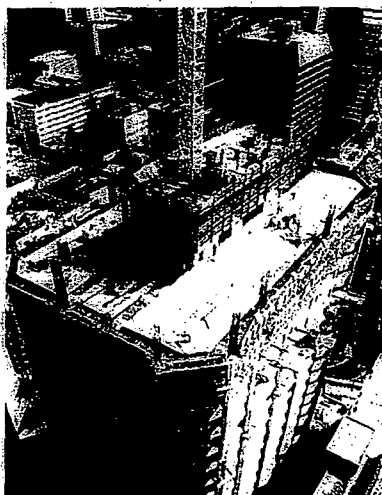
Stripping scheme eases job

The contractor on a 28-story building in Honolulu is using two custom techniques to ease construction—a scheme to strip flying forms and a method of precasting marble veneer and concrete columns on site.

The \$60-million, concrete-framed office building is owned by Northwest Mutual Life Insurance Co., Milwaukee, and was designed by Chapman, Cohen, Desai, and Sakata, Inc., Honolulu. Pacific Construction Co., Honolulu, chose a flying-beam-and-slab-forming system and developed a five-day-per floor cycle. Pacific used pumped concrete and converted a truck-mounted placing boom to a tower crane-supported placing boom, says Andrew Vidal, project manager.

George Powers, project superintendent, says it can be difficult to strip the concrete from the flying forms after it's in place. "But we found a way to do this easily," he says. Workers placed a deflated 3-in.-dia compressed air hose in beam-bottom pockets of the 25-ft-long flying forms. There were 48 forms, each with its own hose. After the concrete set, the end of a hose was connected to a 600-cfm electric motor, mounted on the working deck for the core wall jump forms. The compressor inflated the embedded hose to 100 psi, and the forms popped off the concrete.

The building's columns are faced with 60,000 sq ft of bronze travertine Italian marble veneer. Instead of having work-



Honolulu building has marble-faced columns.

ers on scaffolding install the marble piece by piece, a marble consultant directed precasting of column sections with marble as a unit on site.

The marble cladding was set in five V-shaped steel forms, 4 ft wide and 13.5 ft high. Three courses of marble, pre-cut and predrilled for anchors, were set in each form. The day after the concrete was poured, the forms were stripped and the column sections were lifted into place by crane.

Building from both ends

A client's wish to move into part of its new headquarters early prompted a contractor to work on a building from both ends toward the middle. The game plan requires precise field engineering to ensure that the two ends will fit together.

The general contractor for the Washington, D.C., world headquarters of the International Telecommunications Satellite Organization knew that INTELSAT wanted to move its electronic equipment into one end of the building about three months before completion of the rest of the structure. The problem was

that the area needed first is the area that will take the longest to complete—the part that digs into the top of a hill. The building, which forms a series of 90 x 90-ft octagonal elements, each four or five stories high and arranged around a line of connected atriums, is on a slope. Project architect John Andrews International Pty., Ltd., Sydney, won an international design competition for the commission. Structural engineer is the Sydney office of London-based Ove Arup & Partners.

To accommodate INTELSAT, the Landover, Md., office of the Gilbane Build-

ing Co., Providence, decided to build the end sections—the lowest and highest portions—first, and then splice in the middle. "To make sure the three match up, we are paying close attention to the lines and grades from benchmarks and control points," says Thomas N. Comella, Gilbane's project manager.

"The different trades, which would ordinarily follow each other through the project, are also working on a segmented basis," says Comella. "Care is being taken to make sure the final connections of duct work and other mechanical-electrical systems match up." The building will have heat recovery and heat storage, a cogenerator, passive solar cooling and a computerized energy management system.

Crews walk off Moscow job

Soviet workers at the U.S. embassy construction site in Moscow have been told not to come to work pending resolution of a "contract dispute." The dispute arose when U.S. officials started using nondestructive testing equipment to check the building for electronic listening devices.

The 300 employees of the Soviet contractor, Soyuzvnyeshstroyimport, left the site last week and have been told by guards at the site entrance, wearing red armbands, that they are not to report to work.

The chief of the USA section of the Soviet foreign ministry summoned the U.S. charge d'affaires to explain that the workers would not continue to work in "hazardous conditions." Soviet sources say the work crews will not come to the site for fear of being irradiated by non-destructive testing equipment being used at the site to check solid structures that are about half finished. The testing procedures, which began recently, are in fact being used to seek listening devices that the Americans believe have been implanted during the construction of the building.

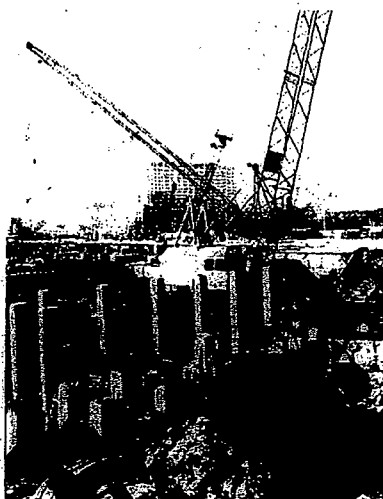
American and Soviet officials in the USSR refuse to comment on the dispute, citing fears that the disagreement would have to be litigated, presumably in a Soviet court.

The current "sweeps" are scheduled to end in June, and U.S. officials hope the workers will return at that time. The delay may further set back the timetable for the embassy, which was originally slated for completion in 1982. The official scheduled completion date is now 1985.

When questioned on the issue, U.S. State Department officials in Washington, D.C., said, "We believe that such a

walkoff is unjustified under the terms of our construction agreement. Since discussions are under way to resolve this dispute, further comment on the issues involved would be inappropriate at the time."

Responding to the charge that X-ray



U.S. embassy foundation work was 90% complete in 1981; all work is to be done by 1985.

equipment presented a health hazard, the state department says. "The charge is unfounded. As far as we are concerned there are no health hazards at the site."

The 10-acre embassy complex will include a main office building, apartments for more than 100 American families, a school, a Marine guardhouse, and recreational facilities such as a swimming pool (ENR 4/9/81 p. 20).

making U.S. coal more expensive than that from other countries. Moreover, South Africa is now selling coal to Japan for \$20 below the breakeven price for U.S. coal producers exporting from Los Angeles-Long Beach.

In addition to Dravo, two Oregon subcontractors have filed liens against PCC: Farwest Rebar Co., Eugene, and Oregon Iron Works, Inc., Clackamas, filed for \$141,593 and \$271,879, respectively.

The port had notified PCC that the order to cancel the lease would be given unless the lien payments were made within 30 days. PCC failed to comply.

PCC recently reached a financial agreement with stock holders of American Guaranty Financial Corp., Portland, that was expected to get the stalled project moving again (ENR 5/5 p. 13).

Despite the cancellation of PCC's lease "the Portland project is not out," says Darrel Buttice, a port spokesman.

However, he declines to speculate about completion of the terminal, now about 85% finished. There have been very preliminary discussions about alternatives," says Buttice, "and it is still a viable project."

New EPA grant rules aim at accountability

New Environmental Protection Agency construction grant guidelines will include "flexible" rules aimed at making plant designers more accountable for performance of wastewater treatment systems financed with federal grants.

The agency is circulating a draft of proposed project performance program guidelines. Intended to clarify Section 204 (d) of the Clean Water Act, the rules describe project performance requirements and related activities of construction grant regulations. Final guidelines will be issued in October, says Walter Brodman, chief of EPA's western construction branch.

While EPA regulations now put final responsibility on the owner, the new regulations could put more pressure on design firms to make sure of proper project performance. The new regs say consulting engineers must "direct" operations for the first year after startup, while the current wording says designers must "supervise" operations.

But municipal officials question the proposed accountability efforts. "A one-year period just may not be enough," says Charles J. Vasulka, chief engineer of the North East Ohio Regional Sewer District. "A thermal conditioning unit may take a few years to work out," he says.

He also wants to know who pays for

Coal terminal plans go awry

Two West Coast coal export terminals—one under construction in Oregon, the other planned in Washington—have foundered. The Port of Portland canceled the lease of an almost completed \$60-million terminal in that city because of an \$11-million lien filed by Dravo Corp., Pittsburgh, against the Portland-based developer, Pacific Coal Corp. (PCC). Dravo, the design-constructor, halted work last March because it was not being paid.

In the other coal-export project, Westmoreland Resources, Inc., Billings, Mont., canceled an agreement dealing

with construction of a \$30-million terminal in Vancouver. Construction was to have started last fall, but it was delayed as the demand for coal eased. Plans had called for coal mined in the western states to be shipped to countries around the Pacific rim.

Among reasons cited for the cancellation by Joseph Presley, Westmoreland's president, were the worldwide recession and the drop in oil prices that caused Japan, Korea and Taiwan to cancel construction of new facilities or delay proposed conversions to coal. Also, the dollar has appreciated significantly,

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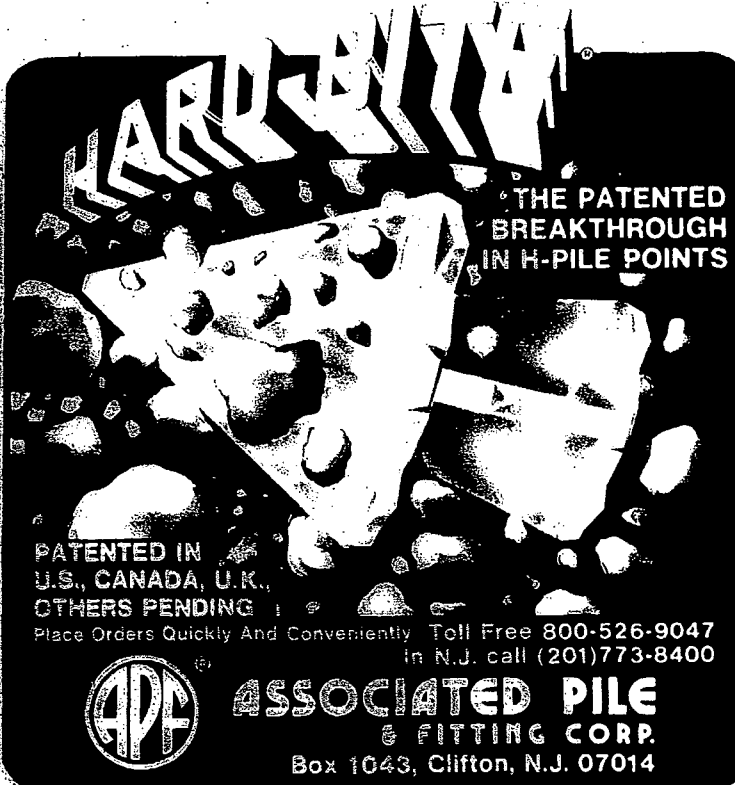
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that delay in certification. "We see nothing but a lot of finger pointing. Is an adversary relationship [between the owner and engineer] going to make the project work or feed the lawyers?" he asks.

Brodman remains optimistic. "Actually, where we are now may not be too far off. Flexibility is the key." Some municipal officials agree. "We approve of the concept of consulting engineers being active in startup," says George Walkenshaw, assistant superintendent for sewers and drainage in Columbus, Ohio. "It could minimize unpleasant surprises."

France moves to enter American train market

The French are launching a campaign to market their high-speed passenger train in the U.S. Besides promotion, the Washington, D.C.-based venture will finance two or three feasibility studies in Florida, Texas, the Northeast and Ohio. However, not only must the French sell Americans on their train, they must also out-sell the Japanese.

French rail interests, both industrial and governmental, are giving themselves about three years to meet those challenges.

Their effort, headed by former Federal Railroad Administrator Robert Blanche, is a joint venture of the industrialists responsible for the "Train a Grande Vitesse" (TGV)—Alstom Atlantique and Francorail MTE. Support is provided by S.N.C.F., the French national railway. A budget of \$4.2 million will cover costs of promoting TGV over three years. In addition, it provides for the feasibility studies at a cost of about \$500,000 each, according to Francis Blanc, senior vice president of the rail division of Alstom Atlantique.

Blanc says TGV can compete with air travel on intercity routes ranging from 125 to 375 miles. Los Angeles-San Diego is one of many possibilities, he notes, adding that it has been a focal point of Japanese promotion of the Bullet Train because residents of the two cities have demonstrated a "taste" for train travel.

"The first task of our office in the U.S. will be to focus in on one or two corridors, where we will do ridership surveys and feasibility studies, to see whether a project can be realized profitably," says Blanc. In addition to Los Angeles-San Diego, he lists as possibilities: Dallas-Austin-San Antonio, Chicago-Indianapolis, Chicago-St. Louis, Columbus-Cleveland-Cincinnati, Washington-New York City-Boston, Philadelphia-Pittsburgh, Miami-Orlando-Tampa, and Montreal-New York City.

ENR News in Brief

Philippine power—A \$200-million pumped-storage powerplant—the first phase of a planned six-stage project that will bring peaking capacity in the Philippines from 300 to 2,000 Mw—has been completed. The National Power Corp. expects the plant to remedy the numerous brownouts in the Manila area. It is the first pumped-storage plant in the country. Construction of the remaining stages depends on the availability of financing.

Quebec plans wind turbine—Hydro-Quebec is planning to build the world's largest vertical-axis, wind-powered generator, a 4-Mw unit costing about \$35.2 million (Canadian). Fabrication and commissioning will take place in 1984 or 1985 in Quebec's Gaspé region, at Cap-Chat on the Gulf of St. Lawrence. The project will be a joint venture of Canada's National Research Council and Hydro-Quebec's research center.

Suspension upheld—Florida's first district Court of Appeal has upheld the 10-year license suspension and \$1,000 fine levied against architect William Juhn in connection with design work he did at the Harbor Cay condominium that collapsed in 1981, killing 11 construction workers. The Florida Department of Professional Regulation charged Juhn with negligence and sought to revoke his license, but a state hearing officer ordered the suspension and fine to be followed by two years of probation.

Boiler, pressure code—The American Society of Mechanical Engineers will publish the 1983 edition of the ASME Boiler and Pressure Vessel Code July 1 and a metric edition in October. More than 8,500 pages long, the code will remain in effect until 1986 when the next edition is published.

Golan reservoirs—Israel's Tahal Consulting Engineers, Ltd., is conducting a study for the country's water commission that calls for construction of 16 reservoirs in the Golan Heights. Water accumulated from rain and snow would be used for irrigation, drinking and hydroelectricity. Cost is estimated at \$50 million. The commission plans to spend \$2 million this year to investigate the idea.

Another one bites the dust—Directors of Duke Power Co., Charlotte, N.C., approved the cancellation of unit one of

the Cherokee nuclear station in Cherokee County after investing \$565 million. The company has said it will request recovery of the investment through rate increases. In the past 14 months, Duke has canceled units two and three at Cherokee plus all three units at its Perkins nuclear station in Davie County.

New Guinea bids sought—The Papua New Guinea electricity commission is prequalifying bidders by June 15 for the Rouna 4 hydroelectric project near Port Moresby. Bids for civil works, gates and screens, welded steel penstocks and the powerplant are expected to be opened in mid-October and contracts to be awarded in mid-January. Prequalification documents are available from project consultant Sir William Halcrow and Partners Ltd. and from Preece, Cardew and Rider, Brighton, England.

Merwin to municipalities—A Federal Energy Regulatory Commission administrative law judge has agreed with a recommendation by the FERC staff in ruling that two Washington public-utility districts should be allowed to take over the expired federal license for Merwin Dam from Pacific Power and Light Co., the builder and operator of the 53-year-old, 136-Mw project (ENR 2/10 p. 28). PPL said it would appeal the ruling by Jon G. Lötis to the full commission. Lötis established a method for calculating the take-over price, which would cost the two PUDs about \$9.4 million.

Rio builder loses money—Brazil's National Housing Bank will receive \$1.3 million in insurance to cover the financing lost in the 1982 collapse of an apartment building near Rio de Janeiro, and the buyers of apartments in the unfinished building will receive \$203,000. Owner-builder Construtora E.P. Vieira will lose the value of the unsold units and probably will not be reimbursed. An investigation of the collapse has cited flaws in Vieira's construction (ENR 4/21 p. 20).

Repository design—The Advanced Technology Division of Fluor Engineers, Inc., Irvine, Calif., will provide \$35 million to \$50 million in engineering services for conceptual design of a nuclear-waste repository for the U.S. Department of Energy. Design of the salt-formation repository is part of DOE's program for isolation of commercial nuclear waste.

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Slow recovery for foreign firms

A turnaround in the international construction community is starting very gradually. The economic indexes are, however, moving ahead. Last week, Canada's index was growing at an annual rate of 9%, the United Kingdom's, France's and West Germany's at 4 to 5%, but Japan's was declining by 2%.

In the U.K., an April survey of 211 members of the U.K.'s Federation of Civil Engineering Contractors showed order books slightly better than in the previous quarter, with big firms (over 1,000 employees) doing best.

A quote from the annual report of one of the large French contractors sums up the woes of most of the others: "The depressed state of the French market for public works and housing, combined with price-freeze measures and an increase in the value added tax, have had a greater effect on company results than originally envisaged."

Abroad, the Bank of France reports, activity is being maintained, but order books are not being filled at the same rate and some large contracts, already signed, may be postponed or canceled.

West German construction stocks improved following the reelection of the conservative government three months ago. However, the Construction Industry Federation president, Günther Herion, warns that the public sector will have to reinforce the improving housing market. Prospects for foreign demand look less rosy after export orders dropped by 30% in 1982.

Deutsche Babcock's dip in stock price and loss over the past year are blamed in part on trouble securing payment for large projects in the third world.

Dutch firms are generally optimistic but Bos Kalis and Volker Stevin, like Deutsche Babcock, are unsure of payments from abroad, especially Nigeria and Argentina.

In spite of the slow Japanese economy, construction firms there are in a statistical upturn. Since the last report (ENR 3/3 p. 33), the average price of the six firms is up 5.8% and 6.6% for the past 12 months. Part of this rise may be traceable to increased revenues, which are up 16.4% for the year.

Similarly, the Canadian list is also moving up. The average price rose 11.5% in the past three months.

Companies	Price				Revenue		Earnings		Ratios			
	Latest Closing	Percent Change Last 52 Weeks	52 Week High	52 Week Low	Latest 12 Months	Percent Change Latest 12 Months	Latest 12 Months	Percent Change Latest 12 Months	Current P/E Ratio	Profit Margin	Common Equity	Return on Capital Employed
	\$	%	\$	\$	\$M	%	\$M	%		%	%	%
United Kingdom												
Costain Group (1)	3.36	-8	3.98	2.74	782	38	25.2	13	12.3	6.9	8.7	18.7
Davy Corp. (2)	0.90	-56	2.13	0.75	1362	31	15.5	3	6.7	2.0	10.0	21.3
Leung, John (3)	1.97	63	1.97	0.81	1068	14	4.9	181	23.4	0.9	4.4	10.3
Mowlem, John	3.68	24	3.85	2.69	392	14	5.3	27	11.5	3.1	7.4	16.6
Taylor Woodrow (4)	6.62	9	9.32	7.46	738	8	17.5	3	12.9	4.7	4.6	9.8
Tilling, Thomas (5)	3.57	66	3.59	1.72	3477	9	24.1	-55	42.6	1.4	3.5	10.4
Wimpey (George)	2.08	23	2.50	1.52	1548	-11	32.9	-21	15.5	2.9	5.2	11.9
France												
Audière d'Entreprises (6)	131.40	11	136.5	111.9	1510	40	28.4	26	7.8	1.9	-	-
Bouygues	91.90	28	106.8	70.5	1860	31	39.2	24	9.0	2.1	-	-
Dumez (7)	103.40	-28	152.7	86.8	1160	35	36.5	20	6.6	3.2	-	-
Gen. Enterprises	17.70	-	39.2	16.5	1930	10	12.2	-	8.7	0.6	-	-
S.O.R.E.G.	16.90	34	18.5	13.4	1620	19	10.8	7	5.4	0.7	-	-
Spie Batignolles	25.53	1	31.9	20.6	1926	33	16.9	1	-	0.9	-	-
West Germany												
Bilfinger & Berger	106.38	-3	118.1	90.6	1213	24	17.8	5	7.3	1.5	18.6	9.0
Dr. Babcock (8)	65.93	-17	79.7	51.0	2188	8	-	0	7.9	2.1	12.0	7.1
Dyckerhoff & Widmann	107.19	24	124.4	76.5	506	-	10.5	0	7.9	2.1	12.0	7.1
Hochtief	212.36	56	219.6	190.3	1901	-6	97.1	-9	6.6	-5.1	44.2	22.8
Holmann, Ph. (9)	111.18	30	224.5	158.6	1578	2	45.7	4	8.4	2.9	28.3	13.3
Strabag	104.76	23	117.3	72.6	890	12	18.2	-	7.4	2.0	16.7	10.0
Netherlands												
Balfast-Nedam	31.32	17	35.01	26.67	922	59	10.5	2	4.6	1.0	9.3	-
Bos Kalis	16.74	60	19.35	10.42	915	-6	9.3	27	6.0	1.0	5.2	-
Hol. Beton Groep	35.08	16	42.13	30.31	1160	0	21.3	7	4.4	1.7	12.3	-
Volker Stevin (10)	13.20	57	14.50	8.39	1080	-3	3.6	-	17.9	0.3	22.0	-
Japan												
Aoki Constr. Co.	1.43	29	1.47	0.99	698	10	9.1	3	22.6	1.3	4.4	1.9
Chiyoda Chem. Eng.	3.93	47	4.12	2.14	1575	36	11.4	136	53.1	0.7	1.9	1.9
Kajima	1.41	-8	1.64	1.32	3693	6	81.7	19	13.2	2.2	7.6	2.2
Nippon Constr.	2.25	-9	2.57	2.13	1263	18	32.9	10	11.1	2.6	9.0	3.3
Obayashi-Gumi	1.03	-8	1.20	0.88	2942	9	47.3	15	11.8	1.6	6.5	2.3
Taisei Corp.	1.02	-11	1.22	0.90	3552	2	59.2	14	13.4	1.7	7.5	2.8
Canada												
AMCA International (11)	20.28	51	22.11	12.48	1458	-7	47.8	-32	22.3	3.3	11.5	3.7
ATCO (12)	7.81	35	9.33	4.06	1395	12	35.6	-19	8.6	2.6	13.1	0.8
Benister Const'l (13)	7.50	27	8.52	4.87	238	54	7.5	-	4.2	3.1	23.5	8.3
Bird Construct.	12.17	0	12.17	12.17	71	8	-0.7	-	-	-	-	-
Cadillac Fairview (14)	7.50	28	8.22	4.26	217	-	-4.0	-	-	-	-	-
Canadian Foundation	5.88	81	6.08	2.43	102	54	1.1	173.1	7.8	1.0	20.0	4.5
Dixon Development	2.00	-10	2.84	0.57	619	17	-69.3	-	-	-	-	-
Genstar (15)	24.44	136	25.05	7.20	1428	-18	-68.4	-	-	-	-	-
Monenco	9.94	-35	11.36	7.30	147	3	4.1	-20.4	7.7	2.8	12.2	4.9
Nu-West (16)	1.74	-17	2.60	0.94	728	-14	-207.0	-	-	-	-	-
Sandwell	4.87	-30	6.60	3.24	43	-12	-2.2	-	-	-	-	-
Sintra	14.20	0	14.20	14.20	-	-	-	-	-	-	-	-
Trimac	5.58	15	8.31	3.29	300	-18	12.1	-58.4	25.5	4.0	9.7	2.7
Trizec (17)	26.97	77	27.18	11.56	350	16	29.2	7.4	43.1	8.4	8.3	1.1

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Rock, rain slow Malaysia hydro

But tight bids bring 400-Mw job in for under \$250 million

Malaysia's \$250-million Trengganu hydroelectric project and its centerpiece, the 508-ft-high Kenyir rockfill dam, will be finished a year late because of rock, labor and organizational problems. But actual startup will depend more on nature than on any site difficulties. If this winter's rains are not sufficient to fill the reservoir, lagging construction of the powerhouse at the base of the dam could still be finished in time for the originally scheduled startup after the 1984-85 monsoon.

The good news about the job, designed to produce 400-Mw from the River Trengganu in the rural east—largely for the populous west—is the cost. The entire project, which includes eight saddle dams, is likely to come in only marginally higher than the original \$220-million estimate made for the National Electricity Board in 1975 by its consultant, Snowy Mountains Engineering Corp. (SMEC), Cooma, North, Australia.

This is chiefly due to competitive bidding on five main civil contracts and 11 equipment contracts awarded since 1978. The main dam and powerhouse contractor, Hyundai Engineering and Construction Co. Ltd., Seoul, underbid three Japanese rivals in 1979 by about \$50 million to get the \$97.4-million contract, for example.

The final price may increase, however, because the South Koreans can expect extra payments for additional spillway and foundation excavation, and they are also negotiating millions of dollars of claims for change orders.

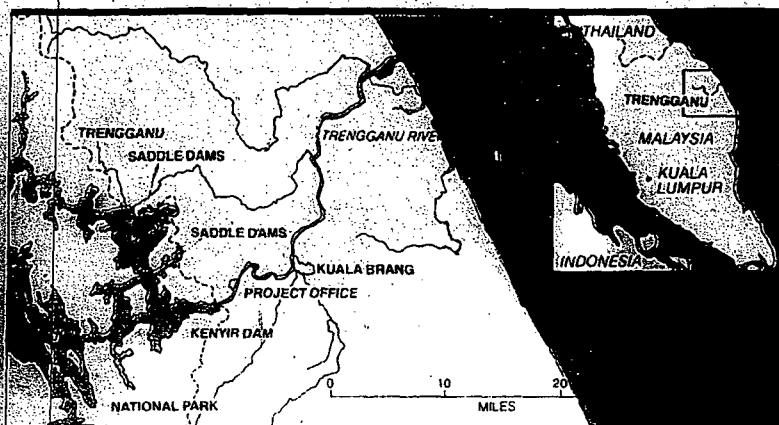
Delayed diversion. Work at Kenyir got under way in 1978 when Kumagai Gumi Co. Ltd., Tokyo, won a \$16-mil-



Trengganu diversion was a year late because of labor shortages and flash flooding of tunnels.



Spillway/channel excavation ran into unstable rock, slowing powerhouse construction.



neer about construction planning and job safety—13 workers have been killed on the job—led to other delays. The resident engineer was replaced at the end of last year.

Excavation for the dam and powerhouse is completed and the 24-million-cu-yd rockfill is more than half finished. The plans called for 21.8 million cu yd of fill but extensive foundation excavation was required to reach competent rock. Granite filter material and rock for the shells are obtained from spillway and powerhouse excavations and from a left-bank quarry about a half mile upstream. The clay core, made up of decomposed granite, is trucked in from deposits on the right bank upstream.



Inlet structure will feed four pressure tunnels to turbines.



Plastic sheeting used to protect core during daily monsoon rains.

In the dry season, the core material can be found at roughly the correct moisture content. But at other times—particularly during the monsoon from November to February—borrow areas and the compacted core material already placed are protected with plastic sheeting during the daily showers.

Bad spillway rock. The most troublesome part of the project has been the side-channel spillway, an open cut on the right abutment, 165 ft wide and about 2,500 ft long, which has affected progress on the powerhouse next to it and below the dam. SMEC's design counted on being able to blast down in benches and leave a rock wall for the entire length of the channel. But poor granite prevented this. Hyundai had trouble making the cuts on the abutment and also in retaining enough monolithic rock to form the opposite wall. Extensive rock bolting and anchoring were required. And a portion of the jointed granite near the powerhouse was removed and replaced with a reinforced concrete wall, 16 to 30 ft high.

The difficulty with the ungated spillway, 460 ft wide at the crest and having a design discharge of 247,000 cfs, is contributing to the delay in completion of the powerhouse. Excavations for both are completed now and work is progressing on the powerhouse, inlet structure and steel-lined penstocks. The four 14-ft-dia pressure tunnels are being concreted and plates are being welded into place now.

Below the left bank, work is under way on an island that will support a gas-insulated substation. Eight earthfill saddle dams, being built by Japan Development and Construction Co. Ltd., Tokyo, are due to be completed by the end of 1983. By that time, the main dam is scheduled to reach its full height and four turbine-generator sets installed in the powerhouse. Then, it will only remain to see how the monsoon behaves, and whether the delays really matter. ■

lion contract to drive two 2,800-ft diversion tunnels through the left abutment. The unlined tunnels, 49 x 39 ft, are good granite; only limited rock bolting was required. The rock at the upstream portals required reinforcing with 3½ in. of concrete to withstand the full reservoir head. A shortage of skilled labor and a severe flash flood at the end of 1979 led to a one-year delay in the diversion, however.

Hyundai was awarded the 30-month civil works contract for the dam, powerhouse and substation at the beginning of 1980, although it was unable to begin work until the river was diverted in early 1981. The late start and some friction between Hyundai and SMEC's 63-year-old chief resident engi-

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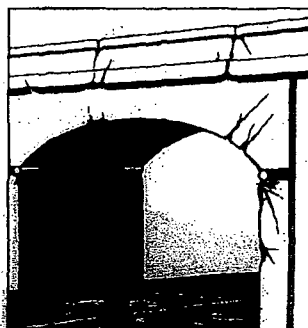
Authorities charged with keeping America's transportation infrastructure functioning are taking a variety of approaches to resolve the nation's maintenance and repair problems. Spurred by money and personnel shortages, they are selectively choosing where and how their limited dollars will be spent.

For many, current infrastructure work is a holding action to gain time until funds are available for more permanent type jobs. The payoff is expected to come in the anticipated flow of federal, state and local funds triggered by a growing public and legislative awareness of the infrastructure problem. Meanwhile, difficulties in coping with America's crumbling transportation infrastructure range nationwide, affecting even the most highly rated of states.

Washington State, for example, considers its highway system "one of the best in the country" in that it is efficiently designed, better built and well-maintained compared to those in many other states. But even with the high ranking it claims, Washington is afflicted by infrastructure money problems.

Of the 7,000 miles of highways in Washington's system, only half are described as in good condition while 1,200 miles of surface are classified as poor and in need of immediate resurfacing. According to the state's transportation department, well-maintained highways require resurfacing about every 12 years at an average cost of \$125,000 a mile. When resurfacing is postponed, structural damage eventually requires reconstruction at three to five times the cost of timely resurfacing. Unless current revenue sources are increased, only about 950 of the 1,200 miles needing it in Washington State will be resurfaced.

In Denver, a program financed by seven bond issues includes \$39 million to replace and repair bridges and viaducts and \$10 million to fix streets over a five-year period. Nevertheless, John Stamm, city director of design engineering, says, "We, like everyone else, are waiting for what we might get from the federal gas tax and the state gas tax. If I could finish everything we've got designed for our bridge system, we would be in excellent shape. Right now, we're probably \$10 million short." Stamm says the current program is the first



major reconstruction of Denver's infrastructure since 1955.

Robert Albee, associate civil engineer for Boston's public works department, cites lack of funds for restricting the city's roadway and rehabilitation programs. Boston has 800 miles of streets. But rehabilitation advances an average of 15 miles a year. Until funding is forthcoming, Albee says the city will have to continue with remedial asphalt overlays, which he calls "Band-aids." Some have held up well, reports Albee, "but it's like a paint job without scraping first."

Carl F. Stewart, an applied research engineer for California's transportation department (Caltrans), says it has also performed quick-fix type repairs on bridge decks because of the large costs of complete replacement. "We evaluated the overall long-term cost and tried to pick the scenario that promised the best return," he says. "Frequently, that was the Band-aid type repair."

Gordon K. Ray, director of the public works division of the Portland Cement Association, Skokie, Ill., points out that a lot of the transportation infrastructure has reached its design life. And roads, for example, have carried greater traffic volumes and heavier loads than they were first expected to handle. However, he says, "We see the states as not really being realistic about the performance of their pavements. Most do not realistically evaluate their life-cycle costs. They look at first costs instead. A lot of states assumed their highways were going to last forever. And many were so busy building highways they didn't develop a maintenance program."

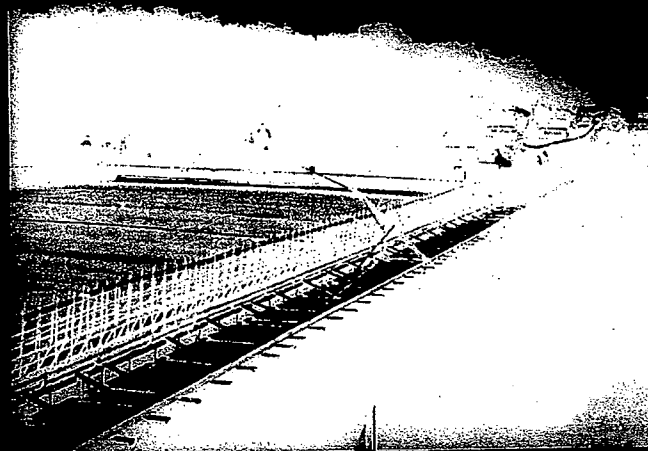
Decision-making. With the need for infrastructure projects so frequently outpacing available funds, choices must be made as to which jobs get priority. Los Angeles County has a two-pronged method for determining where and in what order its roads will be repaired. A supervisor drives over his territory each month and makes a visual inspection. Also, a road-rating program carried out by machine inspection determines the condition of the pavement.

Based on subjective input provided by the supervisors and objective input produced by the machine operation, estimates are developed of what needs resurfacing, sealing, reconstruction

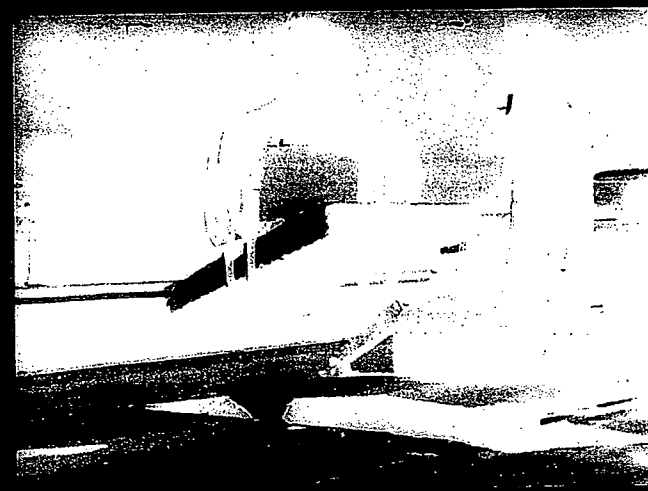
STRUCTURE



Working as traffic rolls is important part of road job



Bridge work, construction, maintenance



Fast pavement restoration

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Geotextile fabric provides way to overlay existing streets.



Cold-recycling planer operation rehabilitates pavement in place.

tion or other work. Also determined is which jobs rate priority.

Computers are also expanding their transportation infrastructure role. One system is designed to establish pavement maintenance priorities and budget improvements. Called Paver, it will become available nationwide on a time-sharing basis. It includes programs that process road surface data, make economic analyses, present budget options and forecast results based on different plans of action.

Originally developed by the Corps of Engineers Construction Engineering Laboratory (CERL), Champaign, Ill., it has been adapted for civilian use by the American Public Works Association (APWA), Chicago, which set up the time-sharing concept. APWA will make Paver available in October to any consultant or community that wants to use it on a fee or shared-cost basis, says Christine M. Johnson, research director.

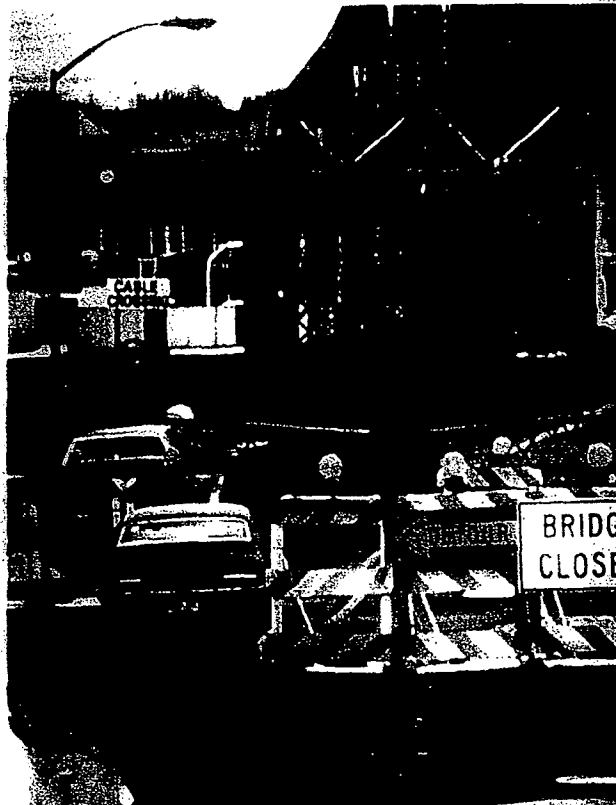
Robert Becker, director of New Orleans' planning commission, says the commission receives up to 400 requests yearly for infrastructure funds—a number it can't possibly accommodate. To deal with the demand, commission officials working with consultants from Peat, Marwick Mitchell & Co., Austin, Tex., developed a system for establishing priorities for the city's projects. Using a series of 17 criteria with various weights assigned to each, the "new matrix," as Becker calls it, helps sort out the complexities of dealing with 400 potential projects. The system is operated manually but software is being developed to perform the tasks on a micro-computer.

The City of Los Angeles is also scheduled to convert to a system soon in which all maintenance information will be stored in a computer. The computer will then develop programs that provide location, cost and type of work needed for each street in the city.

Recycling. Raymond A. Forsyth, acting chief of Caltrans' transportation laboratory in Sacramento, says that California, along with other states, is increasingly using hot and cold-mix recycled asphalt. He points out that it not only conserves resources but it becomes increasingly cost effective as contractors become better equipped to handle it. "Within the next 10 years, recycling of asphalt concrete will become the rule rather than the exception," he predicts.

Recycling concrete pavement and using the material in new mixes provides another effective weapon in the infrastructure battle. One such recycling job of record-proportions took place on Chicago's Eden Expressway. There, a contractor-combine, led by the Springfield, Ill., office of S.J. Groves & Sons Co., rebuilt 15 miles of dual, three-lane roadways. In all, more than 200,000 cu yd of recycled concrete recovered from the old pavement went into the base of new roadways.

In another area of technology applicable to transportation



Closed bridges are costly to motorists in both time and money.

infrastructure, Robert M. Sangrey, chief of the Federal Highway Administration's Pittsburgh office, says that the agency is now testing a new method of reinforcing concrete. The method involves checks the condition of the concrete, transmits the information to a computer, and now, we couldn't tell if the reinforcing rods popped through," says Dwight Sangrey, head of the civil engineering department. "Decisions on whether to repave over the existing base with risk," he says. "Now we will be able to move over the surface and determine quantity immediately." Cost of the robot is \$100,000. But Sangrey

predicts a considerably lower price when it is placed in production.

In the past a concrete pavement overlayed with asphalt would ultimately result in faults in the original pavement showing through, most notably at the joints, according to a spokesman for the National Asphalt Pavement Association (NAPA), Riverdale, Md. But a new technique of cracking and seating is expected to eliminate that problem. It involves breaking the concrete pavement slab into predetermined-sized chunks, compacting them and then overlaying conventionally with asphalt. There is no need to remove the original roadway and rebuild the entire structure.

According to Charles Miller, West Virginia's highway commissioner, the method will be used on its Interstate system. He says it's a way to stretch the maintenance dollar. California also uses the method, doing the work at night and usually completing it before the morning rush hour. Other states using the method include Kentucky, Minnesota and Michigan.

Georgia's Department of Transportation has been in the

Association, Oak Brook, Ill. General Electric Engineered Materials Group, Columbus, Ohio, hosted the event. Federal Highway Administration officials also participated.

Detecting. The Carnegie-Mellon University researchers are also working on a project to improve detection of bridge deterioration. By using a system of sensors and motion-inducing devices placed at various points on a bridge they are able to measure vibration levels and pinpoint problem areas. The technique has proved especially effective in monitoring Pittsburgh's older steel bridges, according to Sangrey.

Those bridges and others in Pittsburgh will be the focal point of infrastructure repairs for the rest of the 1980s, says Gerald Johnson, district bridge engineer for the Pennsylvania Department of Transportation (PennDOT).

Work on the crossings received a big boost with the passage by the state of a \$1.4-billion bridge bill late last year. The bill, the first bridges-only legislation in the nation, provides money for repair of 125 bridges in the greater Pittsburgh area plus other bridges throughout Pennsylvania.



Precast replacement members lowered into place speed rebuilding.

forefront in helping to develop a concrete pavement restoration (CPR) system aimed at extending existing concrete life without an overlay. The system features grinding the concrete's surface with manufactured diamonds. The grinding that levels the concrete is part of a sequence that may include other steps: slab stabilization; slab replacement where necessary; spall repair; shoulder restoration where necessary; and resawing and resealing joints.

Last month in a demonstration, the CPR system leveled a 1,500-ft section of Mount Vernon Memorial Parkway in Alexandria, Va. The highway is scheduled for full repair in the fall. The showing was part of a CPR seminar sponsored by the National Park Service and the American Concrete Paving

Association. Construction techniques to be used on the bridges include epoxy-coated reinforcement steel to prevent rust. PennDOT will also be experimenting with precast deck sections on some of its bridges. "We will also be trying some precast, post-tensioned segments for longer-span bridges," says Johnson. "And we'll be using new kinds of paint—vinyl and epoxy blends that have a long life and greater durability."

Precast and prefabricated deck panels are proving an effective way to replace bridge decks. Currently, the 5,905-ft Woodrow Wilson Memorial Bridge over the Potomac River between Maryland and Virginia is being rebuilt with precast 12 x 42-ft panels. In California, San Francisco's Golden Gate Bridge is going to be redecked with prefabricated orthotropic steel sections. The new deck members will replace 800 existing 15 x 50-ft slabs.

With an increasing part of infrastructure work being done on in-service structures emphasis is on methods that speed repairs while minimizing disruptions to traffic. West Virginia's highway commissioner, Harold C. King, points out that precast concrete patches that can be set in place provide one such method. Also night operations are proving effective.

Sigmund Ziejewski, Illinois Department of Transportation district engineer, is in charge of state-maintained highways in a six-county area. To achieve productivity with a severely reduced maintenance force that has declined from 2,450 to 1,650 members, he also uses night shifts on road repair proj-

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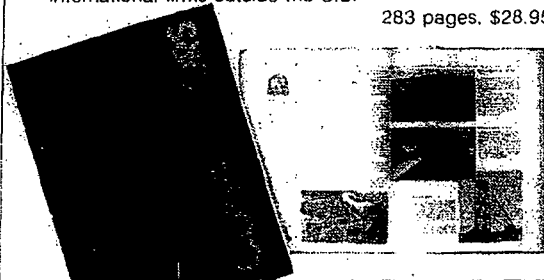
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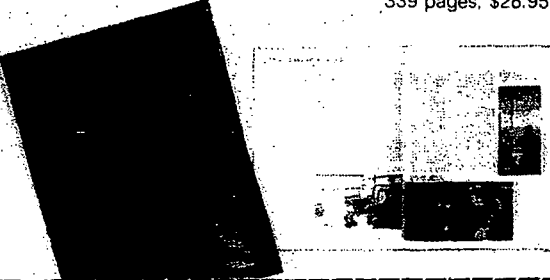
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ects. Caltrans workers carry out crack-and-seal pavement repair assignments during night hours, too.

C.V. Wootan, director of the Texas Transportation Institute at Texas A&M University, College Station, says that Texas is taking the lead in developing one type of rehabilitation that raises the service level: when a major freeway comes up for reworking, lanes for high-occupancy vehicles (buses and van pools) will be added to the median as part of the upgrading of that facility. Houston has two such lanes under way and a third is in design for construction north of the city. Similar lanes are planned for Dallas.

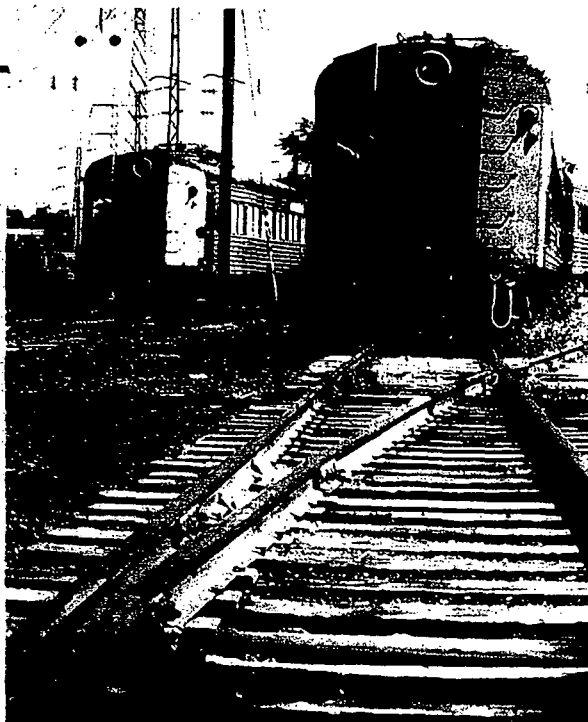
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Aging. In the waterborne phase of transportation infrastructure, lock and dam systems on the country's inland waterways are aging and need repair or replacement. A spokesman for the Waterways Association in Pittsburgh sums it up when he says, "Some of our locks are literally falling in the river." However, moves are under way to overcome that situation. Currently, a

\$30-million renovation project is under way on one of the most heavily used of the 23 locks and dams in the Pittsburgh area. A study is also being made to determine whether to renovate or replace two other area locks.

In other moves, legislation has been introduced in the Senate to appropriate about \$1 billion for lock and dam work in Ohio, West Virginia, Oregon, Alabama and on the Mississippi River.

Interest in building new high-speed rail lines around the country continues to grow. Such service is under consideration in Florida, California, Nevada, Texas, Pennsylvania and the midwest. Meanwhile the rehabilitation needs of existing railroad lines are critical. Long-deferred maintenance makes



Neglected maintenance makes track a prime infrastructure target.



Congested ports require upgrading to handle demands of modern-day shipping traffic.

neglected track and roadbed a critical infrastructure target.

In one project aimed at reducing railroad track maintenance costs, NAPA initiated a test program involving track bed sections of hot-mix asphalt. The sections, which are designed to replace conventional track bed, have been in service under traffic for almost two years on Louisville and Nashville Railroad line in Kentucky. According to NAPA, the results of the testing demonstrate the feasibility of the asphalt and the association is now working to carry out track bed projects with other railroads.

In another railroad application, a mile-long reinforced concrete roadbed slab installed on Long Island Rail Road mainline almost four years ago is performing well. According to John R. Donahue, assistant chief engineer design and construction, the track has required no maintenance and it has successfully met instrumented tests conducted by the Portland Cement Association.

Gearing up. Seaports that are gearing up with terminals to handle large-volume coal and container traffic often find that basic remedial measures are necessary.

At San Francisco, the port's expansion program over the next 10 years includes construction of a \$70-million container berth. Built on landfill, the port is

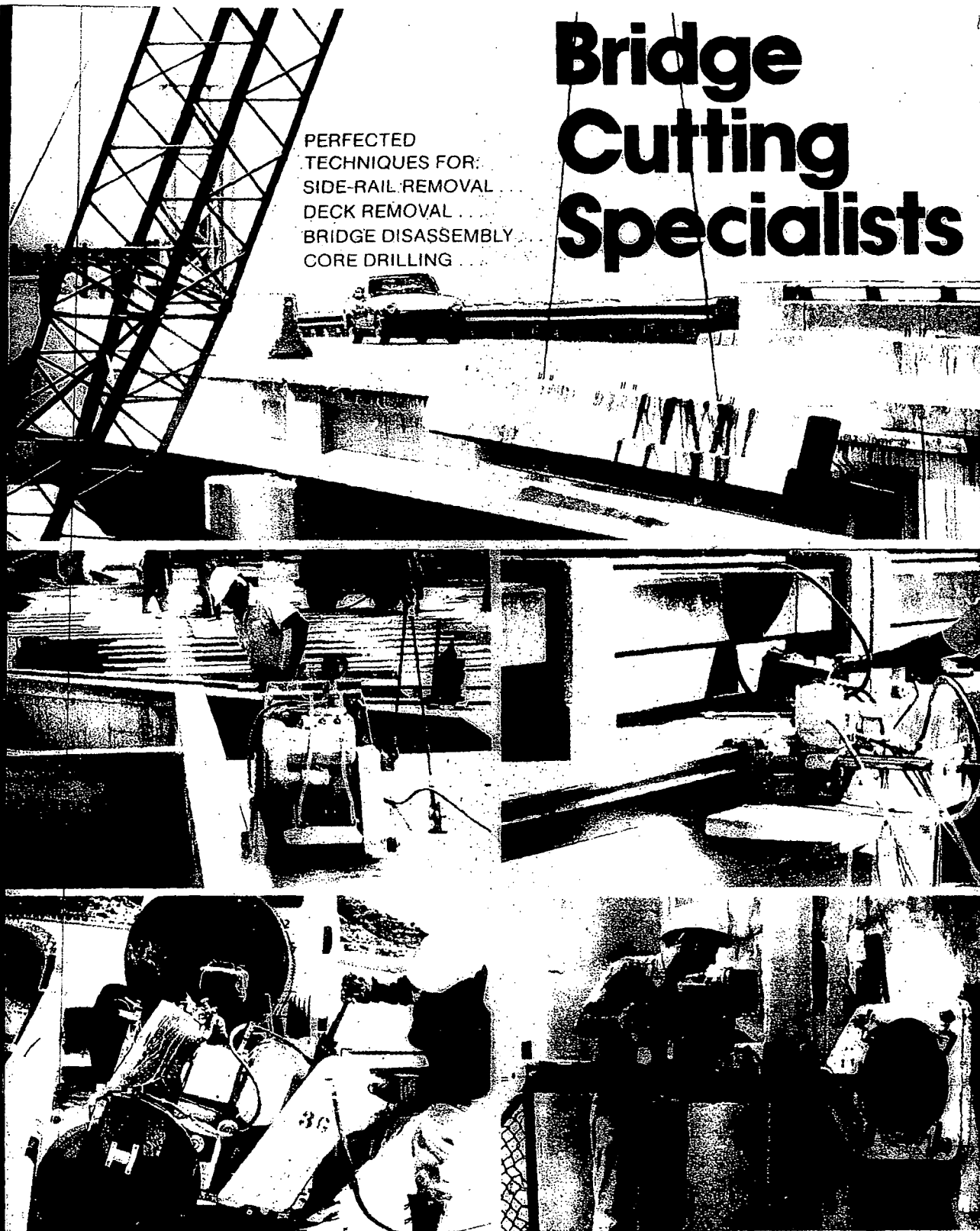
encountering foundation problems. To stabilize the existing berths, port officials are considering vertical drain installations. In addition, the port may also begin using geotextiles in place of asphalt or concrete

base for new berths.

Expansion to meet anticipated growths includes new airside work—jobs on both old and new runways, taxiways and parking areas. Making the airport more efficient is the frequent need for the airport to remain open during construction or upgrading proceeds. That is particularly true at Los Angeles International Airport where a \$700-million expansion project is under way. ■

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Plans, bid calls, low bids and contracts

Maryland—Dewberry & Davis, 8901 Shady Grove Court, Gaithersburg 20877, is preparing master plans for Washington Center, to consist of 2.5 to 3-million-sq-ft of office space, 1,500 multi-family residential units, 800-room hotel, to include convention, day care and communications centers, shopping mall, and indoor/outdoor athletic complex, intersection of I-270 and Shady Grove Rd., Montgomery County, planned by Ackerman & Co., 100 S. Charles St., Baltimore 21201. Current estimated cost for 10-year project, \$380 million. Construction starting date not disclosed.

California—Acmex Corp., 485 Clyde Ave., Mountain View 94043, is the engineer for photovoltaic powerplant, (10 phases), to be built adjacent to Rancho Seco generating plant, Sacramento County, near Clac, planned by Sacramento Municipal Utility District, 6201 S St., Sacramento 95813. The current total cost is estimated at \$320 million for the 10-year project.

New Jersey—Ferrenz, Taylor & Clark, 149 Fifth Ave., New York City 10010, is preparing schematics for hospital addition and renovation, planned by St. Joseph's Hospital & Medical Center, 703 Main St., Paterson 07503. Total estimated project cost, \$78 million. Pending certificate of need approval.

Arizona—John Carollo Engineers, 1314 N. Third St., Phoenix 85004, is the consulting engineer for 30-mgd plant 3A expansion, (S-811695), 91st Avenue wastewater treatment plant, planned by City of Phoenix, 125 E. Washington St., 85004. Current estimated construction cost for this project, \$68 million.

Texas—Voters of Collin County, Commissioners Court, 200 Chestnut St., McKinney 75069, approved a bond issue for municipal improvements. Estimated project cost, \$59.1 million. Architects-engineers not yet selected.

Illinois—Joint venture of Crawford, Murphy & Tilly, Inc., 2750 W. Washington St., Springfield 62702, and Bannbridge, Gee, Mikulski & Associates, Inc., 1999 W. Grand Ave., Decatur 62522, is preparing design for sewerage treatment plant improvements, (Phases I and II), planned by Sanitary District of Decatur, 501 Dipper Lane, Decatur 62522. Estimated cost, \$59 million.

Virginia—Georgia-Pacific Corp., 133 Peachtree St. N.E., Atlanta, Ga. 30303, is planning oriented-strandboard plant, 300-acre site, 10 miles south of the plywood plant at Emporia.

Wisconsin—Flad & Associates, Inc., 110 W. Wisconsin Ave., Milwaukee 53201, is architect, and Oscar J. Boldt Construction Co., P.O. Box 3119, Appleton 54912, is construction manager for headquarter's building annex addition, including 550-car parking garage, between Third and Fourth sts. and W. Everett and W. Clybourn, Milwaukee.

ENR Materials Prices**WAGE RATES FOR KEY BUILDING CONSTRUCTION TRADES** Total of union base rate plus fringes

Classification	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans
COMMON LABOR														
Heavy const.	11.30	10.78	9.56	15.05	15.84	15.32	17.18R	11.41	13.39	15.34	15.42	20.01	16.25	12.07
Building	11.05	10.70	9.54	15.05	15.84	16.74	21.00	11.41	13.39	15.34	15.31	20.01	16.80	11.97
SKILLED BUILDING														
Bricklayer	16.24	16.30	14.37	18.68	19.78	18.53	22.81	18.00	20.00	21.26	18.39	22.54	16.60	16.71
Carpenter	16.12	15.90	13.51	18.08	19.90	18.76	22.85	18.48	19.56	20.66	18.72	22.70	19.48	17.16
Struct. Ironworker	16.03	16.66	15.33	20.90	22.53	19.51	22.78	18.51	21.31	23.00	20.55	25.33	20.45	17.43
Plasterer	15.92	16.10	12.46	20.05	18.36	18.15R	22.74	18.48	14.19	19.75	17.35	24.05	19.90	13.64
Electrician	18.36	19.10	15.43	22.13	20.08	21.06R	23.12	19.61	22.22	20.46	20.51	22.25	22.95	18.37
Steamfitter	16.93	20.27	16.26	22.00	22.88	21.47R	22.93a	19.11	21.20	21.57a	20.76	20.82	21.89	19.34
EQUIPMENT OPERATORS														
Haul, 1 drum	13.87	16.12	13.80	21.02	21.30	19.57	20.15	17.91	18.30	20.42	19.01	22.48	19.23	14.84
Tractor, incl. dozer	15.62	16.12	13.80	20.90	20.00	19.93	20.15	18.31	18.30	20.42	19.11	22.48	19.23	17.58
Tractor scraper														
15-16 cu. yd.	15.52	15.41	13.80	20.90	21.30	19.93b	20.08	18.31	18.50	20.42	19.11	17.24	17.22	17.58
Power crane	17.87	15.43	13.80	21.02	21.30	20.11R	20.08	18.31	18.50	20.82	19.11	23.59	17.50	17.58
Motor grader	14.87	16.05	13.80	20.90R	21.30	19.93	20.08	18.31	18.35	20.42	18.76	17.41	17.50	17.58
Air compressor	13.00	15.43	13.80	18.19	18.40	18.72R	18.58	17.91	17.55	18.15	16.15	22.55	16.60	14.84
for tool	11.30	11.20	11.84	15.30	16.40	16.46	.....	11.59	.....	16.59	15.36	20.36	16.75	11.97
TRUCK DRIVERS														
Pickup, under 1 1/2 tons	11.18	13.89	9.67	14.51	17.21	.....	15.27	.....	17.55	15.77	17.19	21.05	16.50	12.09
Dump, under 4 cu. yd.	11.30	13.64	10.15	14.68	17.46	.....	15.27	.....	17.65	15.72	17.24d	21.25	16.50	12.09
Dump, 4 cu. yd. & up	11.30	13.64	10.53	14.75	17.46	.....	15.32	.....	17.65	15.77	17.26c	21.25	16.50	14.84

BUILDING BOARD, LATH AND INSULATION Quoted in trucklots, delivered to job

Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans
GYPSUM BOARD & LATH														
Plaster board, 1/2"	Msf	142.00A	115.00	112.00A	170.00A	108.00	137.50AD	140.00	94.00	125.00	130.00N	100.00C	102.00c	98.00
4"		141.00P	112.00	108.00A	170.00A	115.00	131.25AD	135.00	82.00	.....	120.00	109.00C	101.00c	97.00
Board lath 4"		109.00	142.50	112.00A	215.00A	.....	.....	140.00a	.....	.....	140.00	168.00C	3.85	.....
SHEATHING														
Gypsum T & G		185.00C	150.00	145.00A	227.00A	.....	.....	180.00kk	133.00	.....	200.00	.....	.....	142.00
Fiber board, 1/2" sq. ed.		127.00P	100.00	.....	250.00A	.....	.....	160.00	.....	.....	.....	155.00C	117.00	.....
25/32 1/8"		.....	.....	.....	.....	.....	.....	225.00	.....	.....	.....	145.00C	.....	.....
INSULATION														
Fiber board, sq. ed., 1/2"		150.00	.....	235.00A	.....	.....	.....	.....	.....	.....	.....	205.00C	167.00	.....
Min. wool, loose	40 lb bag	.....	6.50mm	8.00A	3.20p	.....	16.59	.....	.....	7.70P	.....	.....	.....	.....
batts, 3"	Msf	.....	.....	240.00A	109.00	15.70AEG	245.58	.....	.....	.....	.....	137.75	.....	.....
Glassfiber, loose	40 lb bag	.....	.....	8.00A	.....	.....	16.59	.....	.....	.....	.....	3.50C	5.00C	.....
Al. fed, 1-side, 1"	Msf	.....	.....	.....	.....	69.43CFH	204.89	.....	.....	.....	.....	.....	.....	.....
3 1/2"	.....	17.950gg	164.59C	240.00A	168.00	197.60C	245.58	203.77L	168.70	209.00C	1030Cmm	172.65	.....	178.67L
6"	.....	16,260hh	275.83P	345.00A	290.00lb	322.28C	425.11	332.00M	.....	480.75D	21.70U	281.65	.....	283.05M
FRK, 1-side, 1"	.....	.....	.....	.....	185.00cc	.....	.....	.....	.....	.....	.....	.....	.....	.....
Asph. old. Kraft, 1-side, 3 1/2"	.....	169.50	164.59	240.00A	185.00	.....	268.98	.....	.....	270.00C	10.57OT	158.10	.....	.....
6"	.....	169.50	275.63	245.00A	282.00	.....	449.15	.....	.....	452.00C	20.71OU	264.70	.....	.....

planned by Wisconsin Electric Power Co., 231 W. Michigan St., Milwaukee 53201. Estimated cost, \$49 million.

New York—Iffland, Kavanagh & Waterbury, 1501 Broadway, New York City 10036, is design architect-structural engineer for bus facility, W. 30th St. Westway, opposite New York Convention Center, Manhattan, planned by New York State, Department of Transportation, Westway Division, 1250 Broadway, New York City 10001. Estimated cost, \$30 million.

Missouri—Fujikawa, Conterato, Lohan & Associates, Inc., One Illinois Center, Chicago 60601, is architect for 12-to-16-story, 350,000 to 450,000-sq-ft office building, north of 23rd and Grand, Kansas City, planned by Mutual Benefit Life Insurance Co., 2345 Grand Ave., Kansas City 64108. Estimated cost, in excess of \$30 million.

Illinois—Kenneth A. Schroeder & Associates, 714 S. Dearborn, Chicago 60605, is completing working drawings for apartment building, (257 units), including 70,000-sq-ft of retail space (conversion of Dr. Scholls office and warehouse), Schiller and Wells, Chicago, planned by Cobble Square Development, Inc., Two N. Riverside Plaza, Chicago 60606. Estimated cost, \$25 million.

Virginia—Clark, Tribble, Harris & Li, 1010 Wisconsin Ave. N.W., Washington, D.C. 20007, is preparing design for two parking garages, and one office building, (two phases), Westpark Dr., McLean, planned by Spaceplex, Inc., 7900 Westpark Dr., McLean 22102. Estimated cost, \$23 million to \$25 million.

Maryland—American Motor Inns, Inc., P.O. Box 14100, Roanoke, VA 24022, is preparing preliminary plans for Holiday Inn 200-room hotel addition, including parking garage, Howard and Lombard sts., Baltimore. Pending urban development action grant approval.

New Jersey—Philip Brotherton Associates, P.O. Box 697, Bala Cynwyd, Pa. 19004, is preparing schematic design for The Meadows at Cranbury Crossing, a life care facility, (275 units), including 90 hospital beds, Monroe Township, Middlesex County, planned by B R B H Partnership, c/o architect. Estimated cost, \$20 million.

North Carolina—Peterson Associates, 119 W. Eighth St., P.O. Box 30307, Charlotte 28230, is architect for hospital expansion, to include replacing operating room, renovating elevator tower and 16-bed intensive care unit addition, planned by Forsyth Memorial

Hospital, 3333 Silas Creek Parkway, Winston-Salem 27103. Estimated cost, \$17.3 million. Pending state approval.

Georgia—Sy Richards Architect, Inc., 2159 Greensward Dr., Atlanta 30345, is preparing preliminary plans for high-rise apartments for the elderly, Oakvalley Rd. off Peachtree Rd., Atlanta, planned by unnamed owner, c/o architect. Estimated cost, \$16 million to \$18 million.

New Mexico—Little & Associates, 400 Park Rd., Charlotte, N.C. 28209, is preparing preliminary plans for 141-room Ruidoso Royce hotel, including swimming pool, Highway 37 (Snowflake Ridge), Ruidoso, planned by joint venture of AVC Development Corp., Service, Inc., and David F. Morris, Jr., 279 Shadow Mountain Dr., El Paso, Tex. 79912. Estimated cost, \$16 million. (ENR 4/14 p. 35).

Wisconsin—Camp Dresser & McKee, Inc., 6132 W. Fond Du Lac Ave., Milwaukee 53218, is preparing final preliminary design for city incinerator expansion, planned by Waukesha County Solid Waste Management Board, c/o engineer.

New Mexico—The Northrise Hospital, Inc., 2900 Hillrise Dr., Las Cruces 88001, is

effective April 28, 1983

	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
Hvy lab	17.56	+15.38	14.48	16.13R	19.48	18.12	13.07	+17.33
Bldg lab	17.56	+15.40	15.20	16.13R	19.60R	18.12	13.07	+18.40
Bricklayer	22.52	17.36	19.11	18.02R	24.85	21.81	16.93	+21.42
Carpenter	22.30	18.03	18.34	17.51R	26.23	19.40	16.60	+21.79
Ironworker	26.52	21.05	19.79	17.98R	24.62	21.84	17.42	+21.79
Plasterer	19.02	16.40	16.58	17.28R	25.00	20.70	16.30R	+19.25
Electrician	22.23	+22.43	19.73	21.56R	32.18	26.38	17.42	+22.40
Steamfitter	24.49	+22.45	19.48	19.17	24.75	25.57	17.42	+22.43
Holst	22.90	17.62	18.94	16.67R	22.24	20.11	16.09	+20.48
Tractor	21.07	17.62	18.14	17.97R	23.59	20.11	15.09	+20.31
Scraper	21.07	17.62	18.94	17.97R	23.62	20.47	15.53	+20.31
Crane	22.71	18.71	19.14	17.97R	24.39	20.47	16.09	+21.33
Grader	21.07	17.62	18.94	17.97R	23.62	20.47	15.09	+20.31
Comp	19.49	18.76	16.96	17.97R	21.17	19.81	14.85	+18.94
Air tool	19.07	+15.40	14.66	17.97R	20.46	18.12	14.85	+20.48
Truck	18.51	+15.17	14.97	18.39	19.94	20.49	13.35	+17.57
1W1	18.51	+15.27	15.17	18.59b	19.94	20.59f	14.58	+17.68
Under 4 cy	18.51	+15.37	15.33	16.69c	21.20	20.63g	15.09	+17.68

	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
GYPSUM								
Board, 1/2"	120.00	+150.00A	130.81YX	.....	152.00	123.00	172.30a	162.21d
1/4"	110.00	+150.00A	125.68XY	.....	152.00	.....	168.55b	158.77d
Lath, 1/2"	110.00	.....	3.96XZa	.....	.....	149.00pp	147.40s	163.99de
SHEATHING								
GYPI lag	180.00	+220.00A	154.50X	.....	209.00Q	.....	155.00r	.....
Fib bd 1/2"	110.00	.....	92.00XY	.....	.....	148.88	125.00s	.....
3/32"	135.00	.....	.....	104.00	.....	.....	149.50s	.....
INSUL								
Fib bd 1/2"	.....	.....	496.00Xb	108.00	.....	248.25f	110.00t	.....
Min. loose	3.00	.....	7.42X	3.75	.....	4.79v	8.25edd	.....
bat	.....	.....	144.16Xf	122.40	.....	.....	228.55s	.....
Glass loose	.....	.....	10.16X	5.35	5.81	.....	8.25edd	.....
Glass, AL, red, 1"	.....	.....	188.08CH	.....	.....	194.98Q	.....	.....
5/8"	.....	228.00Aq	155.72C	130.00	+182.70C	175.00Qw	.....	.....
5"	.....	335.00A	231.12Cf	228.00	+258.44C	285.00Cz	.....	.....
Glass, FRK 1"	.....	.....	179.77CH	.....	.....	.....	.....	.....
Glass, as. 1/2 3/4"	.....	185.00Aq	151.88C	.....	+143.00c	160.00Q	144.74s	.....
5"	.....	327.00A	241.57Cf	223.00	+229.00c	270.00Cz	261.65see	.....

See the following ENR issues for other prices:

- Cement, aggregate, ready mixed concrete, asphalt: Last May 5; Next June 9
- Iron and steel products, pipe: Last May 12; Next June 16
- Wood products, glass, explosives, chemicals: Last May 19; Next June 23

• a pipefitters • b 12-22 cy • c 22 cy & over • d under 10 cy • e over 10 cy • f under 6 cy • g over 5 cy • R revise

• A 2% disc., 10 days • B per square foot • C 1% disc., 10 days • D 32 of in bundle • E per square • F per roll • G 88 of folded back • H 1 1/2" thick • J 1 1/2" thick • K 2 inch down • L 90 of, 16" x 96" • M 90 of • N 2% disc., 20th following month • P net; 30 days • Q 2% disc., 10th prox. • R 3 1/2" thick • T 16" x 56" • U 23" x 39.2" / 75.07 of pipe • V 6 1/2" disc. for truckload • W 2% disc., 30 days • X 2% disc., 15th prox. • Y 4 1/2" • Z per bundle • a 3/8" x 18" x 48", 6 pcs./bundle • b 1" thick • c 1% disc., 10th prox. • d 5% disc., 30 days • e 3/8" x 16" • f in 10 kg bags • g in 25 kg bags • h 48 of per roll • i 26 lb bag • j 2% disc. cash w/m net • k 30 lb bag • l to be blown • m 200 of • n revise • o plus 5% provincial sales tax • p 1 lb. warehouse • q 3/8" x 16" x 48" • v in 18 lb bag • w 23 lb. rolls • x 75 of pipe • y R-5; 84x60, 420 of • z 23" x 22" sheets • aa coated • bb kraft • cc foil-faced • dd foam • ee 30 lb bag • ff 160 of pipe • gg 6 1/2" thick • hh 88 of per roll • ii 48 of per roll • jj 17 lb bag • kk 1 1/2" x 48" • mm 3 1/2" thick • nn 35 lb bag • pp 5/8" thick • t in 18 lb bags • tt per board foot

planning 100- to 120-bed **hospital**, Las Cruces. Estimated cost, \$15 million to \$16 million. Architect-engineer not yet selected.

California—Reynolds & McCulloch & Associates, 4475 Mission Blvd., 92109, is completing plans, and Burkett & Wong Engineers & Planners, 3434 Fourth Ave., 92103, is structural engineer, both San Diego, for **children's conservatory**, to include 700-seat theater, classrooms, dormitory wing, etc., Mission Valley, San Diego, planned by Children's Conservatory Theater, 4464 1/2 30th Ave., San Diego 92104. Estimated cost, in excess of \$15 million.

Maryland—Greenhome & O'Mara, Inc., 9001 Edmonston Rd., Greenbelt 20770, is reportedly preparing working drawings for replacement of Frederick wastewater treatment plant, off Gashouse Pike near Carol Creek on Monocacy River, planned by City of Frederick, City Hall, 21701. Estimated cost, \$15 million.

California—Liton Industries, Inc., 360 N. Crescent Dr., Beverly Hills 90210, is planning a 130,000-sq-ft facility, to house operations of the Aero Products division, 16-acre site, Moorpark, 40 miles northwest of Los Angeles. Estimated cost, \$14 million. Completion scheduled for summer of '84. Awaiting building permit.

California—Hellmuth, Obata & Kassabaum, Inc., One Lombard St., San Francisco 94111, is preparing early studies for **office building**, Contra Costa Blvd. and Monument Plaza, Pleasant Hill, planned by Burke Properties, 2111 Business Center Dr., Irvine 92664. Estimated cost, \$14 million.

Illinois—Joint venture of Crawford, Murphy & Tilly, Inc., 2750 W. Washington St., Springfield 62702, and Baumbridge, Gee, Milanski & Associates, Inc., 1999 W. Grand Ave., Decatur 62522, is completing design for **sludge stabilization and disposal facilities** (four divisions), planned by Sanitary District of Decatur, 501 Dipper Lane, Decatur 62522. Estimated cost, \$13 million.

Arizona—Philip Graham Combs, 1010 E. Missouri Ave., Phoenix 85014, is preparing preliminary plans for two **apartment buildings**, 215 units at E. Speedway and N. Camino, and 250 units at E. 22nd St. and S. Pantano, both Tucson, planned by Western Devcor, 6900 E. Indian School Rd., Scottsdale 85251. Estimated cost, \$6 million and \$7 million, respectively.

Ohio—Health Facilities Planning, 21403 Chagrin Blvd., Cleveland 44122, is preparing preliminary plans for **hospital addition and remodeling**, south building, planned by Cleveland Metropolitan General Hospital, a unit of Cuyahoga County Hospital Systems, 3395 Scranton Rd., Cleveland 44109. Estimated cost, \$12 million to \$14 million.

Texas—William Wortham, Inc., 2727 Saint St., 77027, is completing working drawings, and Gerald S. Prickett, 10497 Town & Country Way, 77024, is structural engineer, both Houston, for 13-story **condominium**, (54 units), Breakers of Galveston, planned by Tri Star Development Co., 5718 Westheimer, Houston 77057. Cost, \$12.4 million.

Texas—Harvey Scheffer & Associates, Inc., 515 Mitchelldale, Houston 77092, is revising design for **wastewater treatment plant, trunk sewer lines and rehabilitate** existing sewerage system, planned by City of Conroe, City Hall, 77301. Cost, \$12.3 million.

Virginia—Marcellus, Wright, Cox & Smith, 5501 Patterson Ave., 23226, is completing schematics, and Harris, Norman & Giles, 3403 Hermitage Rd., 23227, is engineer, both Richmond, for eight-story, 225-suite Granada Royale **hotel**, Emerywood Parkway off W. Broad St., Henrico County, planned by Midwestern Land Development Corp., 815 Superior Ave. N.E., Cleveland, Ohio 44114. Estimated cost, \$12 million.

District of Columbia—Weihe, Black, Jeffries, Strassman & Dove, is preparing working drawings, and Clifton & Associates, is structural engineer, both 1101 17th St. N.W., Washington, D.C. 20036, for 12-story **office building**, including three levels of underground parking, 1225 Eye St. N.W., planned by The John Ackridge Co., 1015 15th St. N.W., Washington, D.C. 20006.

Oklahoma—BCMC, 10703 N. Broadway, Oklahoma City 73116, or by mail: P.O. Box 14998, Oklahoma City 73113, is architect for 10-story **office building**, Waterwood complex, 1000 E. Second St., Edmond, planned by Waterwood Associates, P.O. Box 1806, Edmond 73083. Estimated cost, \$12 million.

Michigan—Graheek, Bell, Kline & Brown, 521 Randolph, 49684, completed working drawings, William Paxton & Associates, 413 N. Division, 49684, is structural consultant, both Traverse City, and McBRO Planning & Development Co., 1341 N. Rock Hill Rd., St. Louis, Mo. 63124-1498, is construction manager for **hospital addition and renovations**, planned by Traverse City Osteopathic Hospital, 550 Munson Ave., Traverse City 49684. Estimated cost, \$10.6 million.

Virginia—Wright, Jones & Wilkerson, Inc., 22 E. Cary St., Richmond 23219, is reportedly preparing sketches for two **college dormitory buildings**, on campus, planned by George Mason University, 4400 University Dr., Fairfax 22030. Cost, \$10.6 million.

Texas—O'Brien, O'Brien, Nyfeler & Callaway Corp., Three Northpark East, Dallas 75225, is preparing studies for a five-story **office building**, Addison, planned by Randy Heady & Co., 4144 N. Central Expressway, Dallas 75206. Cost, \$8.7 million.

JOBS ABROAD

Egypt—Arab Swiss Engineering Co. (ASEC), 43 Kasr el Nil St., Cairo, a member of the Swiss Holderbank Group, will design, prepare tender documents, and supervise construction of a 1-million-ton-per-year **dry process cement mill**, to be built at Beni-Souf, 200 km south of Cairo, planned by National Cement Co., 1 Oziris St., Garden City, Cairo. Prequalified contractors will be invited by July to bid on the \$150 million project.

India—U.S. companies interested in construction of the Tehri **multipurpose project**, on the Bhagirathi River, 320 km from Delhi, in Uttar Pradesh State, may contact: the Office of the Executive Engineer, Tehri Dam Division No. 13, Rishikesh, Dehra Dun. Phase I includes construction of an earth-and-rockfill dam, a 1,000-Mw underground power station and appurtenant works. Phase II to consist of a second 1,000-Mw underground power station. Prequalification deadline for Phase I, July 25th.

Netherland Antilles—Karp Associates, Inc., 9041 Executive Park Dr., 37923, is preparing preliminary design, and Fanco Engineering, Inc., 208 Linford Rd., 37920, is structural engineer, both Knoxville, Tenn., for a one-story 15,000-sq-ft **casino**, to be built on St. Martin Island, West Indies, planned by unnamed owner, c/o architect, Island Construction, Inc., St. Martin, is general contractor for the \$2.2 million project.

CONTRACTS AND LOW BIDS

New York—Pennsylvania Engineering Corp., 32nd and AVRR, P.O., Box 4023, Pittsburgh, Pa. 15201, will design and construct **resources recovery plant**, tentative site area next to IBM, Poughkeepsie, for Dutchess County Department of Solid Waste Management, Dutchess County Office Building, 22 Market St., Poughkeepsie 12610. Estimated project cost, \$28.9 million.

California—Williams & Burrows, Inc., 500 Harbor Blvd., Belmont 94003, was awarded a general contract for Saint Francis Place, five-tower **condominium and commercial complex**, (396 units), including townhouses and underground parking, Yerba Buena Center, bounded by Folsom, Hawthorne, Harrison and Third sts., San Francisco, by Taysan-Lincoln Associates, P.O. Box 4288, Foster City 94404. Estimated project cost, \$25 million.

Texas—B.B. Andersen Construction Co., Inc., P.O. Box 1692, Topeka, Kan. 66601, was awarded a general contract for a 150-bed Women's **hospital**, 8109 Fredericksburg, San Antonio, by Humana, Inc., One Riverfront Plaza, P.O. Box 1438, Louisville, Ky. 40201. Current estimated cost for this project, \$25 million.

END DATES

Washington, June 15, 1984

Dear Sirs:

I am pleased to inform you that

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ENR Unit Prices

Michigan freeway draws 11

Holloway Construction Co., Wixom, Mich., was the lowest of 11 bidders on a Michigan Department of Transportation (MDOT) project to construct a new highway section. The firm's \$7,314,619 bid was 2% below the runner-up, John Carlo, Inc., Mt. Clemens, Mich., and 7% below the engineer's estimate.

Holloway will construct a 2.3-mile section of Michigan Route 24, a four-lane, divided highway, near Attica Township. The work includes grading, installation of drainage structures and concrete paving.

In addition, Holloway will construct four bridges. One pair of bridges will carry the eastbound and westbound lanes of the new freeway over Newark Road. Both of those bridges will be single-span steel plate girder structures. They will be approximately 148 ft long,

and will have a clear roadway width of 44 ft.

The other two bridges will carry secondary roads over the new freeway. Both will be two-span continuous steel girder bridges with a clear roadway width of 42 ft. The first, on Lake George Road, will be 304 ft long, and the second, on Pleasant Lake Road, will be about 273 ft long.

The project is the first of several to be put under contract on the 12.5-mile stretch of freeway between routes 24 and 53, in Lapeer County. When completed the freeway will extend from Flint to Port Huron. Three other projects to complete the western end of the highway were scheduled for bid-taking this spring. MDOT expects the entire project to be completed by December, 1984.

1 Holloway Construction Co., Wixom, Mich.	\$7,314,619
2 John Carlo Inc., Mt. Clemens, Mich.	\$7,464,338
11 Greenfield Construction, Livonia, Mich.	\$8,881,855
EE Michigan Department of Transportation	\$7,902,002

Bids: April 6, 1983		Unit		Quantity		Unit Price	
Items						1	2
clear	acre	17	1.050	1.375			
rem sidewalk	cy	40	1.000	5.30			
excav, earth	cy	679,856	0.85	1.27			
peat	cy	99,125	1.95	2.00			
subgrade manipulation	sy	6,000	0.60	0.30			
embankment	cy	831,886	1.00	0.74			
swamp backfill	cy	164,614	1.63	0.84			
hydraulic consolidation	ls	1	8,000	8,000			
test rolling	cy	60	50.00	61.00			
subgrade undercutting	cy	5,000	2.00	2.80			
type II	cy	7,000	2.00	2.80			
type III	cy	2,500	2.00	1.78			
geotextile blanket	cy	500	3.00	10.00			
subbase	cy	77,808	2.86	1.00			
oblit road	acre	3	200	185			
check dam	lf	1,024	3.00	5.00			
streambed protect	cy	103	10.00	10.00			
sandbag	ea	960	5.00	5.00			
sediment basin excav	cy	385	2.00	5.00			
sediment excav, maint	cy	181	2.00	8.00			
tiller fabric	sf	720	1.00	0.80			
aggr base, bitum, 6"	sy	4,421	1.85	1.92			
9"	sy	21,351	2.05	2.07			
aggr base, conc, 4"	sy	22,400	1.06	1.39			
open-graded drain, 4"	sy	64,064	3.20	3.24			
aggr surf, crse	ton	991	4.00	5.00			
shoulders, class A	ton	10,756	3.50	5.00			
approach, class A	ton	401	4.00	5.00			
class AA	ton	39	9.00	5.00			
bitum mix	ton	1,504	23.00	25.00			
type 2	ton	4,317	25.00	27.50			
bit approach	ton	15	40.00	45.00			
conc shoulders	sy	29,757	10.10	10.10			
ramp	sy	10,436	15.00	15.00			
conc pmt, reinf, 9"	sy	64,052	14.20	14.20			
misc, 8"	sy	17,089	12.70	13.70			
misc, 9"	sy	3,016	17.30	17.30			
load trans easy	lf	15,559	5.10	5.10			
contraction joint	lf	2,857	7.60	7.60			
expansion joint	lf	69	2.80	2.80			
plane-of-weakness I	lf	85,472	1.30	1.30			
external long pmt I	lf	64,052	0.75	0.75			
pmt riding quality	lf	0.73	2.05	2.05			
hot poured sealant	lf	18,177	3.50	3.50			
preformed lead, 1 1/4"	cy	10	300	325			
conc grade 3SS	lbs	480	1.00	1.00			
sf reinf, curb/headwall	lf	222	13.00	10.00			
culv, class A, 12"	lf	72	15.00	13.00			
18"	lf	674	13.50	11.00			
Class B, 12"	lf						

Bids: April 6, 1983		Unit		Quantity		Unit Price	
Items						1	2
15"	lf	226	14.50	13.00			
18"	lf	740	15.00	15.00			
24"	lf	60	20.50	21.00			
Class C, 12"	lf	164	13.50	11.00			
24"	lf	700	22.00	21.00			
Class D, 24"	lf	150	22.00	27.00			
Class B, conc, 36"	lf	310	44.00	37.00			
Class C, conc, 20"	lf	280	37.00	31.00			
48"	lf	288	68.00	54.00			
Class D, conc, 30"	lf	308	38.00	33.00			
Class E, conc, 36"	lf	398	54.00	48.00			
underdrain, 4"	lf	180	38.00	28.00			
Class F, conc, 30"	lf	72	38.00	28.00			
Class A, 12"	lf	749	13.00	17.00			
bedding	cy	267	10.00	2.00			
slope protect, riprap	sy	100	25.00	35.00			
edge drains, 6"	lf	6,000	4.00	4.50			
bank drains, 6"	lf	1,000	4.00	6.50			
underdrain, 4"	lf	40,370	3.91	2.50			
wire fence, wood posts	lf	1,728	1.60	1.40			
steel posts	lf	27,515	1.30	1.40			
barbed wire	lf	27,382	0.10	0.10			
sodding, class B	sy	16,808	1.30	1.00			
water	unit	18	40.00	25.00			
roadside seeding	lbs	7,884	1.50	1.40			
fertilizer	lbs	18,922	0.90	0.80			
topsoil surf, 3"	sy	381,600	0.13	0.10			
mulch	ton	236	130	120			
earth excav	cy	4,572	1.50	1.97			
struct embankment	cy	13,670	1.75	4.41			
struct backfill	cy	13,542	3.50	4.41			
rip conc pile, 1/2m	lf	3,390	15.00	15.00			
and drive, 12"	ea	6	2,000	2,000			
test piles, 12"	ea	78	0.01	0.01			
splice, steel shell, 12"	ea	71	100	100			
pile point	cy	1,782	20.00	20.00			
conc substruct	cy	1,121	75.00	75.00			
superstruct	lbs	127,477	0.40	0.40			
steel reinf	lbs	258,505	0.50	0.50			
epoxy coated	sf	2,510	2.00	2.00			
protect seal coat	sf	23,976	0.50	0.50			
treatment bridge decks	sf	1,200	15.00	15.00			
construct bridge deck surf	sy	1,372,600	0.575	0.59			
struct sit, turn/lab	lbs	1,372,600	0.04	0.04			
erect	lf	1,541	5.00	5.00			
joint waterproof	cy	50	200	200			
surf mixture	sy	1,432	28.00	28.00			
slope paving, conc	sy	998	26.00	26.00			
protect headers	lf	1,781	45.00	45.00			
conc barrier, bridge	lf	894	9.00	9.00			
conc curb and gutter	lf	549	15.00	14.00			
on bridge approach	lf	2,275	9.00	8.75			
gavi beam guardrail	sy	42,111	0.80	0.70			
excav mulch blanket	sy						
Completion time: n.a.							
Liquidated damages: n.a.							

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Structural Engineer and/or draftsman for structural engineering office. Must have minimum 3 yrs. U.S. experience in building construction utilizing steel and reinforced concrete design. Send resume to P.O. Box 527 Oaklawn, IL 60453.

Mechanical Engineer with sales experience. Manufacturer of oil field tanks and production equipment has need for ASME certified engineer to handle custom engineer phase and quotations with customers and trouble shoot problems within the field. Location in Kansas. Some travel. Experience in pressure vessels preferred. Reply P-7823, Engineering News Record.

Structural Steel Fabrication — Experienced person for operations, sales and management. Growing firm needs aggressive, take charge person; salary commensurate with experience. Please reply in confidence with resume, references and salary requirements to P-7819, Engineering News Record.

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Construction Educator — Fall 1983. Construction degree desirable, related disciplines welcome; Grad. degree preferred. Construction experience most desirable. Teach Mech/Elec Systems and their installation; Const. Equip. and Methods; other Const. related courses incl. Lab and Computer. ACCE accredited program. Eval. begins July 1, 1983, appl. accepted until position filled. Contact Prof. F.M. Anklam, Chairman, Dept. of Const., Bradley Univ., Peoria, IL 61625. (309) 676-7611 Ext. 261. Bradley University is an Equal Opportunity, Affirmative Action Employer.

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Construction Superintendent/Estimator for general contracting firm in Maryland. Must be experienced in all phases of construction from estimating through final completion with background in sewer, water, storm drains, pumping stations and treatment plants. Reply to: P-7805, Engineering News Record.

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Construction Consulting Firm has immediate openings for planner/scheduler, estimator and claims consultants. Home office and job site assignments. Entry level and senior positions available. Opportunity and challenge: Rush resume to: Contract Management Corp. Suite 512, 2101 Ferry Avenue, Camden, NJ 08104. EOE, M/F.

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Director of Facility Planning and Construction — Texas Tech University is seeking a Director of Facility Planning and Construction to administer new construction and major renovation projects. The duties include: coordinating the activities of hired architects and University personnel, providing for construction inspection, administering construction contracts, and supervising 4 architects, 2 interior designers, and 3 office staff. Texas Tech University is a state-supported university enrolling 23,000 students. The University is located on a campus of approximately 1,800 acres with 206 buildings representing a plant value of over \$250 million. The Facility Planning and Construction office administered construction projects totaling \$9,534,400 in 1981, \$4,813,830 in 1982, and anticipate \$6,734,600 in 1983. Factors to be considered in the evaluation of candidates include: educational preparation, registered architect, successful experience in construction including supervision and management, construction contract administration, physical facilities planning, and work experience in a university setting. The position reports to the Director of Planning. Salary Range: \$40,000 + Submit resume and names of references on or before June 17, 1983 to: Office of Planning, P.O. Box 4296, Texas Tech University, Lubbock, Texas 79409. Equal Employment Opportunity/Affirmative Action Employer.

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Project Engineers — ENR Top 400 Contractor has long term opportunity for 2 Civil Engineers with min. 5 yrs. experience working in field and field offices for heavy construction contractor. Relocation costs paid. Send inquiries to: P-7786, Engineering News-Record.

Senior Estimator/General Contractor, Houston, Texas. Challenging career opportunity with General Contractor for qualified person. A well rounded construction estimating background with ten years experience in competitive bid preparation is required. Send resume and salary history to P-7778, Engineering News-Record.

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Superintendents — ENR Top 400 Contractor has long term opportunity for 3 Superintendents with min. 10 yrs. experience supervising craft labor including 5 yrs. on heavy construction projects. Relocation costs paid. Send inquiries to: P-7785, Engineering News-Record.

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Civil Engineer — M.S., P.E., 20 yrs. in precast concrete industry wants position in management, sales, consulting or construction. Prefer mid-Atlantic area. No Agencies. Reply: PW-7707, Engineering News-Record.

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BSCE Construction Pro, 20 Years Experience With Completed Projects In Saudi Arabia, Iran, Indonesia seeks management position in South East Asia. Only those who want a top Man in general Construction, Contract Administration need reply. No Agencies Please. PW-7683, Engineering News-Record.

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Construction Management — Civil Engineer 12 years experience desires position with contractor in estimating or project management. Eastern, PA. PW-7795, Engineering News-Record.

Cost Engineer — English/Spanish; Two + Years Power Experience — Estimating, Budgeting Cost Control On Multi-\$Billion Project With Major Firms. Degreed. Richard P. Taylor, 3204 Lipscomb, Austin TX 78705.

Re-Steel, 22yrs. Degreed, Field Engineer Supervision of Detailing, Manager, Sales, Estimating Overseas Experience, Nuclear, Hydro, Commercial, Industrial — Seeks Challenge. PW-7767 Engineering News-Record.

Superintendent — Foreman 20 yrs. experience with earthwork, concrete paving, and utilities: State highways, commercial and industrial. Able to supervise many employees. (813) 747-8569. PW-7794, Engineering News-Record.

Excavation Superintendent — 25 yrs. experience. U.S. citizen, bilingual (Spanish & English). Extensive knowledge of earthmoving with scraper's, end dumps and Dragline's Marine Excavation and Pipeline experience; also overseas assignment preferred. For resume, references, please call 213-475-1356.

Civil Sanitary Engineer: BSCE, MSEE, P.E. Five years experience in water treatment pilot plant operation, strong computer background. Willing to relocate. PW-7771, Engineering News-Record.

Senior Estimator — twenty years foreign and domestic experience in refinery and chemical complexes. Special expertise in conceptual, Res. & Dev., and engineering estimating. Background includes major project experience in engineering, project controls, and design with E & C and Operating companies. PW-7791, Engineering News-Record.

40 years Extensive Construction Experience. General Contractor, Superintendent, Consultant Representative. Good Health. Competent. 4 Completed Foreign Contracts. Overseas Only. Don E. Knox P.O. Box 308 SU/EJA Nigeria Telex 20711 Net Kad. T.D.A. Box 005

Construction Products General Manager / Executive: national / international marketing experience with proprietary products sold to civil engineering / construction industry. Ivy league education combined with firm, shirt-sleeve management style. If you need successful / knowledgeable executive who really knows how to build / direct construction products organization then we should communicate. PW-7750, Engineering News-Record.

Project Controls / Contract Manager. BSCE, Purdue, 11 yrs. exp. in domestic and overseas projects to \$10 billion. Full range of experience from site supervision to management including negotiations and claims in power, process, industrial and commercial. Overseas or U.S. If you desire a man who thrives on responsibility and decision-making, reply: PW-7706, Engineering News-Record.

Piping Design/Principal Checker 30 Yrs. With All The West Coast Biggies. Want Job With Overtime. 63 Yrs Old Supporting Family Of 3 and Nine of Wives Relatives in Mexico. Will Go Where The Job Is Located. Write To: Frank Brougham, 8806 Highpine St. So. San Gabriel, CA 91770.

Area Manager — Highways/bridges/Heavy — Seeking aggressive company for developing new construction area in Florida and other growth states in the Southeast. Have key personnel for organizing a competitive and highly productive area. Reply: PW-7652 Engineering News-Record.

Attorney, MSCE, PE, 6 years Engineering Experience, 2 years Major Law Firm (Construction Law) Seeks Position with firm in Los Angeles Area. Reply: 300 Glenullen Drive, Pasadena, CA 91105 (213) 254-0034 After 6 p.m.

Project Manager/General Superintendent, BSCE, PE, 25 years experience in heavy construction. Desires responsible position with general contractor doing major bridges, and related work. PW-7780, Engineering News-Record.

• POSITIONS WANTED

Young Engineer, BSCE, E.I.T., five years domestic and overseas experience on power, transmission, housing, sewer, transportation and traffic projects seeks challenging position in project management in Rocky Mountain area, West Coast, Caribbean or Overseas. Reply to: PW-7829, Engineering News Record.

Project Manager/Estimator BSCE 10 yrs. exp: sewer, water, tunnel, and utility construction. PW-7821, Engineering News Record.

Warehouse material control supervisor and/or office manager fifteen years experience projects to \$50 million foreign or domestic available immediately. Bill Lankard (615) 357-8071.

Structural Engineer MSCE, EIT, desired position with established A/E firm in Southeast. 8 years design/construction experience domestic and overseas. Willing to relocate. PW-7820 Engineering News Record.

Engineering geologist/civil engineer, 25 years experience in engng., constn. geology, mining and consulting. Desires temp., contract or permanent affiliation with mining or engineering/contracting firm. PW-7808 Engineering News Record.

Const. Exec. Project Mgr. 28 years exp. in gaut. and ind. work. Expertise in contract mgmt., estimating, claims, preparation. Desires resp. position in Balt. Wash. area only. PW-7815 Engineering News Record.

Consulting engineer, international back-ground, language capability, seeks bidding/contract coordination position, overseas projects. Call (504) 887-1663.

Earthwork superintendent position wanted overseas; 28 years experience excavating, site preparation, equipment maintenance; supervision; overseas experience. Resume available: Ducey Johnson, Star RT, Box 73, Detroit Lakes, Minnesota 56501. Tel: 218-847-7344.

BSCE., PE., Exper.: Mngmt, Constr. & De-sign. Oper. & Maint. Military Bases. Passport will travel foreign and domestic. PW-7802 Engineering News Record.

Construction Manager/Estimator 20 yrs Experience. From Party Chief Through Area Management. Major Companies. Highways & Heavy. Excellent Background. Results and Profit Oriented. BSCE, PE Presently Estimating. Desire Opportunity Proportional to Performance with Dynamic Firm. PW-7744, Engineering News Record.

Wanted Ethical G.C. Needing Honest Proj. Mgr. — Est. 18 yrs. comm. indus. independent intelligent hardworking expensive individualist Northeast Loc. PW-7801 Engineering News Record.

Overseas Position Wanted/BSCE, EIT, 5 yrs. heavy field construction engineering experience incl. reinf. and precast concrete, testing, struct. steel, piping, hangers, turnover, nuclear or commercial. (216) 942-7077 or PW-7828; Engineering News Record.

ENGINEER MACHINE TOOL New Product Development

Hexcel is a leading manufacturer of advanced engineered materials. Our Casa Grande plant, located 35 miles south of Phoenix, is seeking a creative engineer to develop, coordinate and implement new production processes, procedures and tooling.

This position will support product development prototype manufacturing and production start-up. Requirements include BSME, strong manufacturing, tooling engineering and project supervisory experience. Air frame manufacturing experience is a definite plus.

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This challenging position offers career opportunities, competitive salary and benefits programs including relocation.

Interested persons should send resume and salary history to: J.T. Gulney, Hexcel Corporation, P.O. Box 2312, 11711 Dublin Boulevard, Dublin, CA 94568. An equal opportunity employer m/f.



Senior Estimator Project Manager

In support of our strategic plan, we have immediate opportunities available on our senior staff. The **SENIOR ESTIMATOR** must be a degreed engineer with a minimum of 10 years of varied heavy construction experience. The **PROJECT MANAGER** must have a minimum of 10 years of experience with a strong background in job planning, organization and cost control.

These are high visibility positions that carry a substantial amount of prestige and growth potential. Qualified candidates are requested to send detailed resumes and professional references, in confidence, to:

T.E. Doyle,
GREEN CONSTRUCTION COMPANY
2015 Grand Avenue
Des Moines, Iowa 50312

An EEO/AA Employer M/F



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Excellent benefits package. Life, health, dental, profit sharing. Relocation reimbursed. Send resume to Director of Human Resources, McBRO, 1341 North Rock Hill, St. Louis, MO 63124-1498.

**CONSTRUCTION ESTIMATOR
ELECTRICAL**

Qualified candidate must be capable of assembling total estimates. 2-4 years experience on lump sum commercial, industrial, power plant and treatment plant projects is preferred. Individual must have working knowledge of erection manhours for electrical construction.

This position offers competitive starting salary and excellent fringe benefits program. Office located in Central United States. If you feel that your experience is compatible with our requirements, please forward your resume with salary history in confidence to:

P,7644
Engineering News-Record
P.O. Box 900
New York, NY 10020

ELECTRICAL ESTIMATOR

Parsons Brinckerhoff/Tudor, the general engineering consultants to the Metropolitan Atlanta Rapid Transit Authority, has an immediate opening for an Electrical Estimator.

A progressive record of achievement in the electrical construction estimating field with 4 or more years experience on major commercial or industrial projects required. Engineering degree or certification desirable. Must be able to prepare locknut and bushing type estimates from conceptual information and bid level documents.

Competitive salary and benefit package. Send resume and salary requirements in confidence to:

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Personnel Department
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POST OFFICE BOX 900
NEW YORK, NY 10020**

**OFFICIAL PROPOSALS**

Bids June 21, 1983

Texas Highway Construction

Sealed proposals for constructing 3.916 miles of Grading, Drainage Facilities, Concrete Pavement, Asphaltic Concrete Pavement, Structures, Signing & Pavement Markings on SH 360 in Tarrant County, from 0.2 Mile N. of Trinity River to 0.1 Mile S. of Johnson Creek, covered by project F 112818, estimated at approx. 24 Million dollars, will be received at the State Department of Highways and Public Transportation, Austin, until 9:00 A.M., June 21, 1983, and then publicly opened and read.

The State Department of Highways and Public Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the U.S. Department of Transportation (45 C.F.R., Part 8), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the grounds of race, color or national origin, and further that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for an award. Plans and specifications including minimum wage rates as provided by Law are available for inspection at the office of J. R. Stone, District Engineer, Fort Worth, Texas, and at the State Department of Highways and Public Transportation, Austin, Texas. Bidding proposals are to be requested from the Construction Division, D. C. Greer State Highway Building, 11th and Brazos Streets, Austin, Texas 78701. Plans are available through commercial printers in Austin, Texas, at the expense of the bidder.

Usual rights reserved.

Plans are available from the printers listed below at their commercial rates:

Rapid Plans Company, 608 East Seventh St., Austin, Texas 78701, AC 512-476-0663.

Miller Blue Print Company, 501 West 6th St., Austin, Texas 78701, AC 512-478-8793.

Burton Duplicating Service, 207 Congress Ave., Austin, Texas 78701, AC 512-477-6775.

L. L. Ridgeway Co. Inc., 6555 Burnet Road, Austin, Texas 78757, AC 512-451-7318.

Austin Blueprint Co., 1111 Guadalupe Street, Austin, Texas 78701, AC 512-478-8711.

Burks Reproduction & Supply Co., 4402 N. Lamar Blvd., Austin, Texas 78756, AC 512-454-9651.

Bids June 17, 1983

**Connecticut Department
of Transportation**

The Connecticut Department of Transportation is seeking to engage a consulting engineering firm to perform construction engineering and inspection services for the reconstruction of CT 175 from 550' west of Maple Hill Avenue easterly to vicinity of Hawley Street in Newington. Any firm desiring to be considered for this assignment must submit a letter of interest together with general information on the firm, the firm's brochure, current Federal Standard Forms 254 and 255, along with a resume of key personnel and references, to Mr. P. J. Stark, Director of Construction, Department of Transportation, 24 Wolcott Hill Road, Wethersfield, CT 06109, no later than 4:30 p.m., June 17, 1983. Responses received after this time will not be considered.

OFFICIAL PROPOSALS

Bid: July 12, 1983

Furnishing and Installing Fans and Pumps, Structural Improvements, Water Remedy and Antenna Cable for The 14th Street Canarsie Line, From Eighth Avenue to Central Avenue, "B" Division (BMT) in the

Boroughs of Manhattan and Brooklyn

Sealed bids or proposals for Furnishing and Installing Fans and Pumps, Structural Improvements, Water Remedy and Antenna Cable for the 14th Street Canarsie Line, from Eighth Avenue to Central Avenue, "B" Division (BMT) in the Boroughs of Manhattan and Brooklyn, Contract C-33354, will be received by the New York City Transit Authority (hereinafter called the "Authority") on behalf of the City of New York, at No. 370 Jay Street (11th Floor Conference Room), Borough of Brooklyn, New York until July 12, 1983 at 10:00 o'clock A.M., at which time and place proposals will be publicly opened and read.

The work to be performed under this contract consists of furnishing and installing reversible axial flow fans for emergency ventilation at 2nd, 5th and 7th Avenues and Irving Place; rehabilitation of pumping facilities at Harrison Vandervoort and Central Piling; rehabilitation of Wilton Avenue Station; and replacement of antenna cable and associated communication equipment.

A fuller description of the work and other requirements, provisions, and specifications including qualification requirements of bidders, are given in the Information for Bidders, Contract Terms and Conditions, Forms of Bonds, Bidder's Proposal, in the Specifications, in the Addenda, if any, issued by the Authority, and on the Contract Drawings, all of which are to be deemed a part of this Invitation.

Contract Documents may be inspected and purchased, commencing May 31, 1983 at the office of the Authority, Room 640, Howard Building, 25 Chapel Street, Brooklyn, New York 11201, upon payment of \$1.00 for each copy of Specifications and \$5.00 for each set of Contract Drawings.

Prospective bidders are advised that a tour of inspection of the job site will be held on June 21, 1983 at 10:00 A.M. Prospective bidders who desire to attend shall notify the Construction Division office at 212-587-1671 not later than 4:30 P.M. on June 20, 1983.

The contract is subject to a financial assistance contract between the New York City Transit Authority and the United States of America, Department of Transportation, Urban Mass Transportation Administration, and in part to financial assistance from the New York State.

All bidders will be required to certify that they are not on the U.S. Comptroller General's list of ineligible contractors for Federally financed or assisted construction.

The New York City Transit Authority hereby notifies all bidders that in regard to any contract entered into pursuant to this Invitation to Bid, advertisement or solicitation, minority businesses will be afforded full opportunity to submit bids and/or proposals in response, and will not be subjected to discrimination on the basis of race, religion, color, sex or national origin in consideration for an award.

The Contractor will be required to comply with Federal equal employment opportunity regulations.

At the time the bidder appears to demonstrate his financial ability and to qualify as to skill and experience, he will be evaluated as to his ability to comply with the Federal equal opportunity requirements. This evaluation will include an examination of the bidder's past performance in the equal opportunity area and an evaluation of

OFFICIAL PROPOSALS

the bidder's ability and plans to obtain participation by minority employees and businesses in the performance of the work pursuant to the Federal requirements of the contract. The bidder's attention is directed to Article 10.03 and Article 14.11, entitled "No Discrimination" and "Bid Conditions-Affirmative Action Requirements-Equal Employment Opportunity", respectively, with which bidders, contractors and subcontractors must comply.

Award of contract shall be subject to the approval of Metropolitan Transportation Authority and the Urban Mass Transportation Administration.

New York City Transit Authority
Richard Ravitch
Chairman

Joan E. Hames
Assistant Secretary

Bid: June 30, 1983

Rehabilitation of the 100 Street Bus Depot and Flushing Bus Depot Boroughs of Manhattan and Queens Contract C-32932

Sealed bids or proposals for the above-named project will be received by the New York City Transit Authority and Manhattan and Bronx Surface Transit Operating Authority (hereinafter called the "Authorities") on behalf of the Contracting Party, at the office of the Authority at 370 Jay Street (11th floor conference room), Brooklyn, New York 11201, until June 30, 1983.

The work to be performed under this contract consists of the following:

For the 100 Street Bus Depot, temporary support work, replace exterior wall, roof work, new foundation, columns and beams, ramp, resurfacing part of floor and perform related work.

For the Flushing Bus Depot temporary support work, replace exterior wall, roofing work, pile work, grade beam, replace part of floor slab and rolling doors and perform related work.

A fuller description of the work and other requirements, provisions, and specifications including qualification requirements of bidders, are given in the Information for Bidders, Contract Terms and Conditions, Forms of Bonds, Bidder's Proposal, in the Specifications, in the Addenda, if any, issued by the Authorities, and on the Contract Drawings, all of which are to be deemed a part of this Invitation.

Contract Documents may be inspected and purchased, commencing May 26, 1983 at the office of the Authority, Room 640, Howard Bldg., 25 Chapel St. Brooklyn, N.Y. 11201, upon payment of \$1.00 for each copy of Specifications and \$5.00 for each set of Contract Drawings.

Prospective bidders are advised that a tour of inspection of the job site will be held on June 9, 1983 at 10:00 A.M. Prospective bidders who desire to attend shall notify the Construction Division office at 212-368-2750 not later than 4:30 P.M. on June 8, 1983.

Funds for this work are provided by the Metropolitan Transportation Authority bond funds.

All bidders will be required to certify that they are not on the U.S. Comptroller General's list of ineligible contractors for Federally financed or assisted construction.

The New York City Transit Authority and Manhattan Bronx Surface Transit Operating Authority hereby notify all bidders that in regard to any contract entered into pursuant to this Invitation to Bid, advertisement or solicitation, minority businesses will be afforded full opportunity to submit bids and/or proposals in response, and will not be subjected to discrimination on the basis of race, religion, color, sex or national origin in consideration for an award.

The Contractor will be required to comply with Federal equal employment opportunity regulations.

OFFICIAL PROPOSALS

At the time the bidder appears to demonstrate his financial ability and to qualify as to skill and experience, he will be evaluated as to his ability to comply with the Federal equal opportunity requirements. This evaluation will include an examination of the bidder's past performance in the equal opportunity area and an evaluation of the bidder's ability and plans to obtain participation by minority employees and businesses in the performance of the work pursuant to the Federal requirements of the contract. The bidder's attention is directed to Article 10.03 and Article 11.11, entitled "No Discrimination" and "Bid Conditions-Affirmative Action Requirements-Equal Employment Opportunity", respectively, with which bidders, contractors and subcontractors must comply.

Award of contract shall be subject to the approval of the Metropolitan Transportation Authority and the Urban Mass Transportation Administration.

New York City Transit Authority
and
Manhattan and Bronx Surface Transit
Operating Authority
Richard Ravitch
Chairman

Lewis J. Nehemias
Assistant Secretary



CONSTRUCTION OF AN ON-SHORE OUTFALL FOR THE MAYAGUEZ REGIONAL WASTEWATER TREATMENT PLANT MAYAGUEZ, PUERTO RICO

EPA PROJECT NO. C-72-78

ADVERTISEMENT

BID NO. 83-FBD-0078

Sealed bids will be received by the Puerto Rico Aqueduct and Sewer Authority, for the above reference bid, until one thirty (1:30) P.M. on July 5, 1983, at the Puerto Rico Aqueduct and Sewer Authority, 604 Barbosa Avenue, Hato Rey, Puerto Rico, for the above mentioned project.

All questions arising concerning this project shall be submitted seven (7) calendar days before June 14, 1983, date set for a pre-bid conference to be held at 9:00 A.M. in the Auditorium of the Authority.

The bids will be for the installation of 60 inch diameter reinforced concrete pipe; driving of concrete piles; construction of 96-inch diameter liner plates tunnel; installation of precast concrete manhole, etc.

Plans and specifications may be examined free of charge at the Specifications Section and may be obtained upon deposit by cash, postal money order or certified check in the amount of Eighty Two Dollars (\$82.00) until the date and time of the pre-bid conference.

The approximate net construction cost for this project ranges between \$3,591,200.00 and \$5,386,800.00.

Wilson M. Loubriel
WILSON M. LOUBRIEL
Executive Director

OFFICIAL PROPOSALS

Bids: July 21, 1983

**Washington Suburban Sanitary
Commission
Department of Engineering
Bureau of Design—Project
Management Division
312 Marshall Avenue,
Arbitron Bldg.
Laurel, Maryland 20707**

The Commission is soliciting proposals for technology to treat sludge from its 7.5 MGD Parkway Wastewater Treatment Plant located in Laurel, Maryland. The Commission is interested in proposals to: (a) retrofit, modify, or upgrade the existing solids handling system; (b) replace the existing unit processes and substitute a new solids treatment system with the Commission disposing of the end-product; or (c) replace the existing solids handling system and provide design, construction, and operating services for a new solids handling facility with complete disposal of the end-product. Firms having sludge processing technology that meets the criteria outlined below are invited to submit a detailed proposal containing written description of the technology, including data from previous experiences and sufficient information to demonstrate its ability to accomplish the above objective.

Technology that meets the following criteria will be examined: (1) Converts thickened sludge (4-6% solids) or dewatered sludge (20% solids) to a compost or a compost equivalent type material. In lieu of compost, any stabilization process that reduces the volume of sludge significantly and/or produces an end-product material that can be landfilled, landspread, or soil injected is of interest. (2) Processes that only digest sludge are not of interest. (3) Proven technology preferred, but others examined if convinced of its merit. (4) Unprocessed solid waste will not be considered as a bulking agent or any part of any process. (5) Incineration cannot be considered. (6) Strong emphasis on noise and odor prevention. Noise and odor generated by the processing system should not be detectable outside the plant perimeter. (7) WSSC will not support basic research into new processes. Any research efforts will be the responsibility of the proposer. (8) The process must not produce liquid side streams that will upset the sewage treatment plant or reduce its capacity. (9) Processes that can be prototyped at a production rate of 20 to 50 wet tons/day (20% solids) will be of special interest. (10) Processes that can handle the following types and approximate quantities of sludge will be considered:

Existing Plant—primary and waste activated sludge (combined with nitrification) current average flow 4.7 MGD, approximately 19,000 lbs/day of gravity thickened sludge.

Future Upgraded Plant—primary, waste activated sludge (combined with nitrification), with metal salt addition, denitrification, 7.5 MGD ultimate capacity, 25,000-43,000 lbs/day of thickened sludge (gravity and DAF).

A Sludge Management Task Force will review all proposals and interview firms presenting the most promising technologies. Firms proposing technology with the highest potential may be asked to pilot test or demonstrate its system. Cost proposals will be requested from firms demonstrating the best, technically sound, processing system.

Information packet available upon request—call 301/441-4164. Proposals must be received by close of business July 21, 1983.

OFFICIAL PROPOSALS

Bids: June 21, 1983

Texas Highway Construction

Sealed proposals for constructing 8.333 miles of Grading, Structures, Base, Asphaltic Concrete Pavement, Concrete Pavement, Safety Lighting, Signing, Pavement markings and Grade Separations on IH 27 in Swisher County Texas, from 1.6 Mile N. of Hale-Swisher Co. Line to N. of FM 928, covered by projects 1 27-7(38)362 and 1 27-7(13)362, estimated at approx. \$21,878,000.00, will be received at the State Department of Highways and Public Transportation, Austin, until 9:00 A.M., June 21, 1983, and then publicly opened and read. This contract is subject to the Work Hours Act of 1962, PL-87-581 and implementing regulations.

The State Department of Highways and Public Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the U.S. Department of Transportation (15 C.F.R., Part 8), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the grounds of race, color or national origin, and further that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for an award. Plans and specifications including minimum wage rates as provided by Law are available for inspection at the office of Ben Alley, District Engineer, Lubbock, Texas, and at the State Department of Highways and Public Transportation, Austin, Texas. Bidding proposals are to be requested from the Construction Division, D. C. Greer State Highway Building, 11th and Brazos Streets, Austin, Texas 78701. Plans are available through commercial printers in Austin, Texas, at the expense of the bidder.

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Plans are available from the printers listed below at their commercial rates:

Rapid Plans Company, 608 East Seventh St., Austin, Texas 78701, AC 512-476-0663.
Miller Blue Print Company, 501 West 6th St., Austin, Texas 78701, AC 512-478-8793.
Burton Duplicating Service, 207 Congress Ave., Austin, Texas 78701, AC 512-477-6775.
L. J. Ridgeway Co. Inc., 6555 Burnet Road, Austin, Texas 78757, AC 512-451-7318.
Austin Blueprint Co., 1111 Guadalupe Street, Austin, Texas 78701, AC 512-478-8711.
Burks Reproduction & Supply Co., 4402 N. Lamar Blvd., Austin, Texas 78756, AC 512-454-9651.

Bids: June 16, 1983

The City of Watertown, New York

The City of Watertown, New York is seeking proposals for professional engineering services in undertaking an in-depth study and design work necessary to implement a master plan for improvements to the domestic water treatment system until 11:00 A.M. on June 16, 1983.

Qualified firms may seek further information by contacting the City Engineer's office, Room 305, Municipal Building, 245 Washington Street, Watertown, New York 13601, phone number 315-788-2452.

Willard S. Abel
City Engineer

OFFICIAL PROPOSALS

Bids: June 22, 1983

Texas Highway Construction

Sealed proposals for constructing 4.846 miles of Grading, Structures, Base and Surface on US 77 in Victoria & Refugio Counties, from 1.481 mile S. of Victoria Co. Line to 3.3 mile N. of Refugio Co. Line covered by projects F 1025(12), BRF 1025(14) & F 1025(13), estimated at approx. \$10,782,000.00, will be received at the State Department of Highways and Public Transportation, Austin, until 9:00 A.M., June 22, 1983, and then publicly opened and read.

The State Department of Highways and Public Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the U.S. Department of Transportation (15 C.F.R., Part 8), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the grounds of race, color or national origin, and further that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for an award. Plans and specifications including minimum wage rates as provided by Law are available for inspection at the office of Secundino Gutierrez, District Engineer, Corpus Christi, Texas, and at the State Department of Highways and Public Transportation, Austin, Texas. Bidding proposals are to be requested from the Construction Division, D. C. Greer State Highway Building, 11th and Brazos Streets, Austin, Texas 78701. Plans are available through commercial printers in Austin, Texas, at the expense of the bidder.

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Plans are available from the printers listed below at their commercial rates:

Rapid Plans Company, 608 East Seventh St., Austin, Texas 78701, AC 512-476-0663.
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L. J. Ridgeway Co. Inc., 6555 Burnet Road, Austin, Texas 78757, AC 512-451-7318.
Austin Blueprint Co., 1111 Guadalupe Street, Austin, Texas 78701, AC 512-478-8711.
Burks Reproduction & Supply Co., 4402 N. Lamar Blvd., Austin, Texas 78756, AC 512-454-9651.

Bids: June 17, 1983

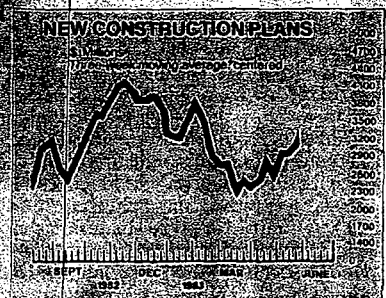
Connecticut Department of Transportation

The Connecticut Department of Transportation is seeking to engage a consulting engineering firm to perform construction engineering and inspection services for the minor widening of South Center Street from I-91 southbound off-ramp northerly to Conn. 140 in Windsor Locks. Any firm desiring to be considered for this assignment must submit a letter of interest together with general information on the firm, the firm's brochure, current Federal Standard Forms 254 and 255, along with a resume of key personnel and references, to Mr. P. J. Stark, Director of Construction, Department of Transportation, 24 Wolcott Hill Road, Wethersfield, CT 06109, no later than 4:30 p.m., June 17, 1983. Responses received after this time will not be considered.

ENR Market Trends

Latest Week

COST INDEXES	May 26	Change from last
ENR 20-cities	index	month year
1913 = 100	value	% %
Construction Cost	4,011.32	+0.2 +5.1
Building Cost	2,359.20	+0.4 +6.0
Common labor (CC)	7,854.61	0 -4.6
Skilled labor (BC)	3,511.44	0 +5.4
Materials	1,655.76	+0.8 +6.8



50-state totals	Week of	Cum. 22 weeks
ENR-reported	May 26	change
	\$ millions	%

BIDDING VOLUME			
Total construction*	1,472.4	29,910.3	- 4
Heavy & highway	669.5	11,109.7	- 2
Nonresidential bldg	651.0	14,291.3	- 8
Housing, multiunit	151.9	4,509.3	+ 5

NEW PLANS			
Total construction*	3,853.7	63,153.7	+ 1
Heavy & Highway, total	2,203.2	18,246.6	+12
Water use & control	353.2	7,764.3	+17
Waterworks	48.7	1,560.9	+11
Sewerage	135.9	4,064.6	+19
Treatment plants	107.6	2,073.5	+23
Earthwork, waterways	168.7	2,138.8	+18
Transportation	102.4	4,322.6	-16
Highways	75.5	1,739.4	- 4
Bridges	7.3	533.7	+ 5
Airports	18.1	1,688.3	-16
Terminals, hangars	5.3	982.0	-32
Elec. gas, comm.	1,662.5	4,116.0	+35
Other heavy const.	83.3	1,846.1	+38
Nonresidential bldg	1,127.9	32,383.5	- 3
Manufacturing	33.5	2,894.2	-23
Commercial	599.3	12,610.7	-17
Offices	328.5	7,722.4	-21
Stores, shopping ctrs	216.5	2,985.6	+13
Educational	126.5	3,161.3	- 6
College, university	42.9	1,213.7	-25
Medical	147.9	4,583.8	- 6
Hospital	113.4	3,445.2	-16
Other	220.7	9,126.5	+43
Housing, multiunit*	522.6	12,523.6	- 4
Apartments	313.8	7,852.4	- 6

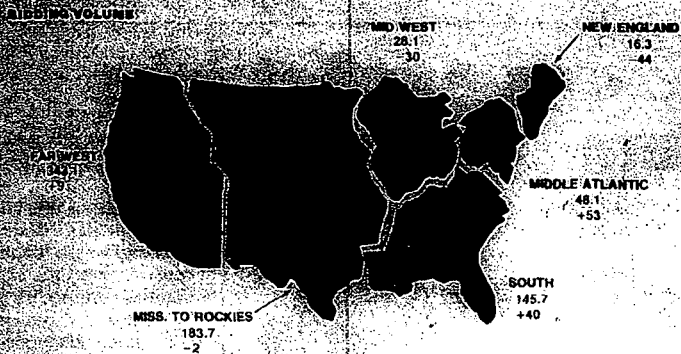
*Excludes 1-2 family houses. Minimum sizes included are: industrial plants heavy and highway construction, \$100,000; building, \$500,000.

NEW CONSTRUCTION CAPITAL

	Week of	Cum. 22 week
	May 26	change
	\$ millions	%
Total new capital	810.3	22,703.1 +20
Corporate securities	92.2	4,825.3 +54
State and municipal	718.1	17,877.8 +13
Housing	0	7,279.3 -12
Other bldg and heavy	718.1	10,598.5 +41

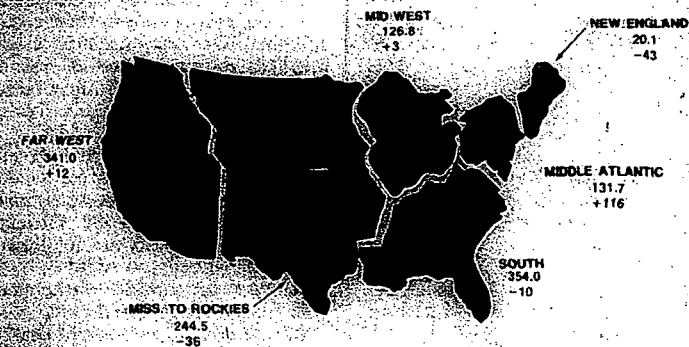
Latest Month

ENR regional markets: Airports*



Awards for airport projects are still strong...

NEW PLANS

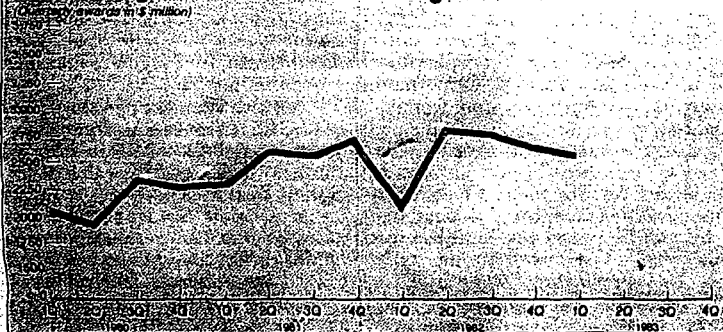


...but planning activity shows signs of weakening.

Source: ENR Construction Economics Dept.; \$ millions; four-month cumulative figures for public airports, both paving and terminals.

Trends to Watch

ENR bidding volume: multiunit housing



Multiunit housing awards declined slightly in the first quarter of 1983.

Unions expect jobs from contract changes

"If our union contractors can't sell their work with this labor agreement, they had better take a hard look at other cost factors in their shops."

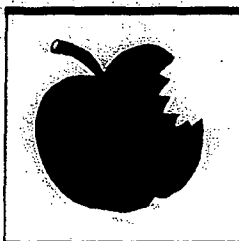
That is the response of contractors in two areas to recent collective-bargaining developments. In most of Georgia, plus parts of Alabama and

South Carolina, iron workers have rolled back their journeyman wage rate by 13% and revised several work rules. And in metropolitan Washington, D.C., plumbers and steamfitters have expanded special-labor agreements they negotiated in 1981—which allow liberal use of trainees—to cover all private work.

The 18-month agreement in Georgia between iron workers' Local 387 and the Association of Steel Erectors and Heavy Equipment Operators reduces journeymen's base wage \$2 per hour to \$12.95 until Dec. 31, 1984. Fringe-benefit payments, which totaled \$1.97 hourly, are not affected.

Other changes include a Saturday make-up day at the regular wage rate, a reduction of most overtime to time and a half, permission for contractors to request any worker from the hiring hall by name, a no-strike clause, elimination of all crew-size specifications and establishment of a preapprentice "starter" classification, whose workers will receive 45% of the journeyman rate. On reinforcing-steel work, contractors may use up to three apprentices or starters for each journeyman; for structural and other work, only one starter or apprentice may be used for each two journeymen.

Billy Ray Conner, an iron workers' organizer in the Southeast who helped negotiate the agreement, says it is designed to "put some of our out-of-work people back on jobs where we were not economically competitive," adding that in the past few years the local has lost about 50% of its work to the open shop. The agreement is being called a "light industrial and commercial" pact but there is no size limit on jobs where it can be used.



Association officials say the contract "makes a forthright statement to construction buyers and general contractors in the Southeast that the industry's union sector is alive and well."

Adrenaline shot. Management and labor officials in Washington hope to reach the same conclu-

sion once contractors have a chance to bid some new work with their expanded agreements. These formerly were confined to various types of residential work plus speculative office buildings, shopping centers and other light commercial structures.

"We had to expand the agreements to get employment for our people," says Francis M. Lucas, business manager of steamfitters' Local 602. He explains that construction activity in these categories has been too slow to produce much work for the 28% of the membership that is unemployed.

Local 602 and plumbers' Local 5 unilaterally chose to allow contractors to bid all new, private jobs using the special agreements until the end of the year. One contractor source estimates average crew costs could be reduced to about 65% of what would be paid under the regular collective-bargaining agreement. Also until year-end, the unions agreed to freeze wages at the published prevailing-wage rate for the duration of all new projects covered by the Davis-Bacon Act. The moves come on the heels of the unions' decision earlier this year to forego a \$1.50 increase scheduled for Sept. 1.

"Our management needed some kind of shot of adrenaline to show them that we do care," says Michael A. Collins, business manager of Local 5. "We recognize that what is good for management is good for employees in most cases when it comes to acquiring jobs."

Meanwhile, exceptions to the trend toward wage freezes and rollbacks are growing in number, particularly in mid-Atlantic states. Among them:

- A three-year settlement between

contractors and carpenters statewide in New Jersey, which raises a typical wage-fringe rate of \$19.29 by \$1.50 each year. "We thought we were pretty close to holding the line" on wages, says a management negotiator. He says, "It really hurt us" when electricians won a three-year pact for \$5, including a \$2 first-year raise.

- Three-year contracts between Delaware contractors and eight union locals in the basic trades for \$1.30 over the contract term (\$0 cents, 20 cents, 60 cents). A contractor spokesman says that large, visible jobs being performed by open shop contractors, including a \$15-million office building in Wilmington, "brought some of these people back to reality."

Court sets new rules in compensation cases

Morrison-Knudsen Construction Co., Inc., Boise, has convinced the U.S. Supreme Court to take a narrow reading of the meaning of the word "wages" in the Longshoremen's and Harbor Workers' Compensation Act. As a result of the court's 8-1 ruling, employers can make lower compensation payments.

Since 1927, the statute has treated as wages compensation payments made to workers by employers for items such as housing and board. But not until the 1980s have courts been asked to rule on whether contractually mandated payments to fringe-benefit trusts are included. Federal appeals courts in Washington, D.C., and San Francisco—the only two to rule on the issue—said that the cost of such trust-fund contributions must be called wages.

But the high court overruled those appellate decisions in a case involving an M-K employee who was killed by a truck during construction of the Washington, D.C., subway system. Workers' compensation in the capital is governed by LHWCA.

The history of the statute "provides abundant indication that Congress did not intend to include employer contributions to benefit plans within the concept of 'wages,'" explained Chief Justice Warren E. Burger. Pointing to a 1964 amendment to the Davis-Bacon Act that includes benefits within the definition of wages, Burger said that "Congress understands the increasing

importance of fringes to total pay and will specifically include them in legislation when it wants to.

In another case involving LHWCA, the high court clarified rules covering parties' right to sue. Under the act, an injured worker who wants to sue someone other than his employer for damages has only six months to file such an ac-

tion. After that time, the right automatically is assigned to the employer. But the court's unanimous ruling held that the provision applies only when an employer is ordered to make compensation payments to the worker. Voluntary payments made by the employer do not limit the employee's legal right to collect damages from others, it said. ■

Firm has right to work

Florida's right-to-work law—which prohibits discrimination in employment because of membership or nonmembership in a labor union—protects subcontractors as well as workers, according to a landmark state court decision.

State Circuit Court Judge Dick C.P. Lantz has ruled in favor of a right-to-work claim by Independent Enterprises International, Inc., Miami, a steel erection and rebar contractor. Independent filed a suit two years ago alleging violations of the law and contract breaches by Edward B. Fitzpatrick, Jr., Construction Corp., Williston Park, N.Y. (ENR 3/12/81 p. 83).

Fitzpatrick had listed Independent as a subcontractor on its winning bid to build columns for an elevated section of Dade County's mass-transit system. The general contractor later wrote to the county and received permission to replace Independent because the firm was nonunion.

The primary issue in the case—which now must go to trial for a determination of damages—was whether the subcontractor had standing to bring a suit under the right-to-work law that protects "any person" against employment discrimination based on union membership. Fitzpatrick argued that, if there

were any improper actions taken against Independent, they amounted to unfair labor practices, requiring the subcontractor to pursue its case through the National Labor Relations Board.

Lantz ruled in Independent's favor on both questions. He noted that the state law defines "person" to include corporations. And he explained that the complaint did not involve an unfair labor practice charge because it concerned an action taken by a general contractor against its sub, rather than an employer against its workers.

Regarding the merits of Independent's claim, Lantz said simply that the "uncontroverted facts" in the case indicated that Independent was faced "precisely" with the choice of "either violating the rights of its employees by requiring them to join a union ... or 'suffering economic hardship.'"

Gordon D. Rogers, an attorney for Fitzpatrick, told ENR the ruling will be appealed. "The judge applied the wrong law," he says, reasserting the general contractor's contention that the issue is one for NLRB—and not the state court—to address.

Courts in North Carolina and South Carolina have held previously that similar right-to-work laws in those states protect subcontractors. ■

Hurdle to training illegal?

Contractors in Washington State have filed an antitrust suit against the state's apprenticeship and training council, charging it with illegally blocking their attempts to establish open-shop training programs.

The complaint stems from a 1980 council regulation that requires state-approved apprentice training programs to include wage scales at least equal to those established by existing (union) programs in the area. The Washington State Electrical Contractors Association, the Washington Plumbing-Heating-Cooling Contractors Association and two chapters of the Associated Builders and Contractors contend that this goes

beyond the scope of state law. The law requires only that apprenticeship plans contain a "statement of the progressively increasing scale of wages to be paid apprentices."

The contractors say no open-shop multiemployer apprentice program has been approved where a union program exists. Because of the wage requirement, such approval "is conditioned upon entering into an illegal price-fixing agreement between competitors to fix wages where no collective-bargaining agreement exists," they contend.

Neither the council nor those members who were named as defendants in the suit have answered the charges. ■

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OFFICIAL PROPOSALS

Bids: June 22, 1983

Texas Highway Construction

Sealed proposals for constructing 1.060 miles of Grading, Structures, Storm Sewer, Concrete Pavement and Pavement Marking from W. of Belt Line Rd. to E. of Belt Line Rd. and 2.405 Miles of Signing, Delineation, Illumination and Traffic Signals from W. of Esters Rd. to E. of Story Rd. on SH 183 in Dallas Co., covered by project F 634(31) & F 634(32), estimated at approx. \$17,300,000, will be received at the State Department of Highways and Public Transportation, Austin, until 9:00 A.M., June 22, 1983, and then publicly opened and read.

The State Department of Highways and Public Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the U.S. Department of Transportation (15 C.F.R. Part 8), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the grounds of race, color or national origin, and further that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for an award. Plans and specifications including minimum wage rates as provided by law are available for inspection at the office of R. L. Yielding, District Engineer, Dallas, Texas, and at the State Department of Highways and Public Transportation, Austin, Texas. Bidding proposals are to be requested from the Construction Division, D. C. Greer State Highway Building, 14th and Brazos Streets, Austin, Texas 78701. Plans are available through commercial printers in Austin, Texas, at the expense of the bidder.

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Plans are available from the printers listed below at their commercial rates:

Rapid Plans Company, 608 East Seventh St., Austin, Texas 78701, AC 512-476-0663.
Miller Blue Print Company, 501 West 6th St., Austin, Texas 78701, AC 512-478-8793.
Burton Duplicating Service, 207 Congress Ave., Austin, Texas 78701, AC 512-477-6775.
L. L. Ridgeway Co. Inc., 6555 Burnet Road, Austin, Texas 78757, AC 512-451-7318.
Austin Blueprint Co., 1111 Guadalupe Street, Austin, Texas 78701, AC 512-478-8711.
Barks Reproduction & Supply Co., 4402 N. Lamar Blvd., Austin, Texas 78756, AC 512-454-9651.

Bids: June 17, 1983

Connecticut
Dept. of Transportation

The Connecticut Department of Transportation is seeking to engage a consulting engineering firm to perform construction engineering and inspection services for the reconstruction of Post Office Road from U.S. 5 to Raffia Road in Enfield. Any firm desiring to be considered for this assignment must submit a letter of interest together with general information on the firm, the firm's brochure, current Federal Standard Forms 254 and 255, along with a resume of key personnel and references, to Mr. P. J. Stark, Director of Construction, Department of Transportation, 24 Wolcott Hill Road, Wethersfield, CT 06109, no later than 4:30 p.m., June 17, 1983. Responses received after this time will not be considered.

OFFICIAL PROPOSALS

Bids: June 24, 1983

City of San Antonio
Wastewater Facilities Integrated
Management
Program

The City of San Antonio is seeking professional services of consultants in three areas of expertise: (1) Administration, (2) Operation and Maintenance, (3) Training; all related to Development, Design and Implementation of an Integrated Management Program (IMP) for the San Antonio Wastewater Treatment Facilities Improvements Program.

The consultant/s will contract directly with the Joint Venture for the Development Phase and will perform the services under the coordination and direction of the City of San Antonio "201" Project Manager, the Joint Venture of Pape-Dawson, Inc., Vickrey and Associates, Inc., and Lockwood, Andrews & Newnam, Inc. For the Design and Implementation Phases, it is anticipated that the City of San Antonio will contract directly with the consultant/s.

Interested firms or associations should submit requests for the Scope of Services/Statement of Interest and Qualifications to IMP Consultants, c/o Lockwood, Andrews & Newnam, Inc., 4803 N.W. Loop 410, Suite 101, San Antonio, Texas 78229, (512) 680-3003. Prompt response will be advantageous since completed Statements of Interest and Qualifications must be received by 5:00 p.m. central daylight time June 24, 1983.

Bids: June 16, 1983

Connecticut
Dept. of Transportation

Legal Notice: The Connecticut Department of Transportation is seeking a Consulting Engineer/Architect for the design of Center Island Platforms at the Stamford Transportation Center and the associated design of the replacement and/or reconstruction of the railroad structures at Washington Boulevard and Atlantic Street in the town of Stamford (State Project No. 884-388), and other associated work as required.

Firms responding to this request should be of adequate size and sufficiently staffed with expertise in the fields of Highway, Structural and Railroad Design with Architectural, Mechanical and Electrical capabilities. Minority participation by Minority Business Enterprises and Women Business Enterprises will be required. Respondents are advised that fee proposals may be required from the short listed firms.

A letter of interest together with general information on the firm and proposed subconsultants, the firm's brochure, current Federal GSA Forms 254 and 255, experience of the firms, and a resume of key personnel should be addressed to Mr. Edwin J. Fijol, Manager of Design, Department of Transportation, 24 Wolcott Hill Road, Wethersfield, Connecticut 06109. Additionally, all interested firms must submit a detailed statement indicating the organizational structure under which the firm proposes to conduct business. Proposed subconsultants should be clearly identified. The relationship to any "parent" firm or subsidiary firm with any of the parties concerned must be clearly defined. Further, the firm shall provide a statement of any and all contracts with either the Department of Transportation or the Department of Administrative Services which are currently being performed and a statement whether the design professional consultant or firm performed services under any

OFFICIAL PROPOSALS

name other than the one appearing in the response. Personnel in responsible charge of the work will be required to possess and maintain a valid Connecticut Professional Engineer's License. All letters of interest must be postmarked by a U.S. Post Office (if mailed) or (if hand-delivered) in Mr. Fijol's Office, 160 Pascone Place, Newington, Connecticut 06111, no later than 4:00 p.m. on June 16, 1983. Responses received or postmarked after the above date will not be considered.

Edwin J. Fijol
Manager of Design
Bureau of Highways

Bids: June 16, 1983

D.C. Government
Dept. of Design & Engineering
Washington, D.C.

The DC Govt. solicits bids on IFB 0491-AA-02-03-CCC, modernization & addition (Gymnasium Bldg. & Equipment), to Coolidge St. H.S. 5th & Tuckerman Sts., N.W., Wash., D.C., consist. excav., ch. link fence, struc. steel, cut stone, carpentry/millwork, skylights, carpet, casework, cabinets & equip., compact kitchen, greenhouse constr., and stage acoustical shell, hyd. elev., plumbg., auditorium sound reinf. sys. A deposit required. A company check in the amt. of \$250.00 per set, payable to DC Treasurer. (Wage rates have been predetermined by the U.S. Labor Dept.) This solicitation is limited to sheltered market bidders in acc. w/DC Law 1-95. Only those business enterprises that have been issued a Certificate of Registration under this law prior to bid opening are authorized to submit bids. Bids will be considered non-responsive if bidder does not have a Cert. of Reg. Bid documents available and sealed bids will be read, at the Constr. Br. Bu. of Material Mgmt., 613 G St., N.W., Rm. 1003, Wash., DC. Phone: 727-0121. Sealed bids to be publicly opened and read on June 10, 1983, 3PM, in the Bid Opening Rm., #1011, 613 G St., N.W. cost range: \$7,500,000-\$10,000,000.

Bids See Advertisement

The Port Authority
New York and New Jersey

Sealed proposals for the following contracts will be received by the Chief Engineer, Room 725, One World Trade Center, New York, N.Y. 10048, until 2:30 P.M. on the date indicated and will then be opened and read in Room No. 725. Contract documents may be seen in Suite 5147, 51st Floor and will be furnished upon request (please call 212-466-7083 first for availability of Contracts). Questions by prospective bidders concerning any one of the contracts should be directed only to the person whose name and phone number is listed for the contract in question. No deposit is required.

Contract GWB-188 George Washington Bridge Administration Building Chiller Plant Replacement Bids Due Thursday, June 30, 1983 Direct Questions To Mr. V. Cespedes (212-466-7073) or (201-622-6600) Extension 7073).

Contract JFK-424 John F. Kennedy International Airport Building Nos. 84, 110 and 179 Reroofing Bids Due Thursday, June 16, 1983 Direct Questions To Mr. F. Williams (212-466-3268) or (201-622-6600) Extension 3268).

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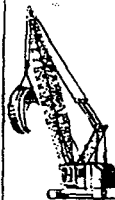
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ENR Editorials**Not a service industry**

The folks who invented rankings of publicly owned companies with their FORTUNE 500 gave us a pattern for our 18-year-old Top 400 contractors, our Top 500 design firms, specialty-contractor rankings and lists of international contractors and design firms.

FORTUNE, too, keeps adding lists. Its current issue has a new one in which its editors lose touch with reality. They put construction's leading public companies in a list of "diversified service companies" that mixes hotels, milk producers, etc. The ranking is ridiculous.

It might be nice for Dave Perini to see that his company is almost as big as Walt Disney Enterprises and Jim McMurren to see M-K ranked almost as high as Associated Milk Distributors, but such apples-and-oranges listing does little to define a given industrial segment.

Including construction companies among "diversified service companies" makes no sense for the simple reason that construction companies are not service companies. They produce a product—a home, a road, a dam, a bridge or a city. Construction is a productive industry just as are manufacturing, mining, agriculture and power generation.

Utilities, transportation, retailing, banking and insurance are properly listed as service industries. So, too, are broadcasting and hotels. But the basic interest of the Perinis and the M-Ks is construction. They build things.

...and while we're defining

As the American Institute of Architects (AIA) launches a look at the economics and compensation of its profession (see p. 12), it must recognize that there are architects and architects.

About 13% of the firms represented by AIA are sole proprietorships, the very smallest of businesses. And 92% employ five or fewer professionals, still very small. The 80-20 law may well prevail: 80% of the business done by 20% of the firms.

The 80% of the firms that are very small are one problem—some struggling for a living, others perhaps dropping out. The relatively few that do most of the work are another problem. They have payrolls to meet, mouths to feed.

The large firms are among the architectural and A-E firms of the Top 500 design firms (ENR 5/26 p.34). On that list the A-Es do 17% and the architects do 7% of the billings of the 500 listed. Larger portions are done by consulting engineers and those calling themselves engineer-architects. The architects report the largest billings per staff member, but they pass through 24% of their billings to engineers or other design or service firms.

Fluctuations in construction's economy move the very small architectural practices in and out of business and

cause hiring and firing in the larger firms. AIA needs to give attention also to the flood of graduates the architectural schools are putting out to be absorbed into the job market, the low entry-level salaries paid, the "somebody-will-always-do-it-cheaper" problem with fees charged, the fees available for pass-through to engineers and other professionals.

In sum, as they were told at last week's AIA convention, architects need to study their profession in relation to the construction industry with a concern for defining their true value and establishing it in the minds of their clients.

The value of good design transcends the cost of a service and impacts the worth of a project. As AIA studies architects large and small—their relationship to construction, their fees and their compensation—it should aim to define the profession as worth more than it is now commanding.

A tough test of trust

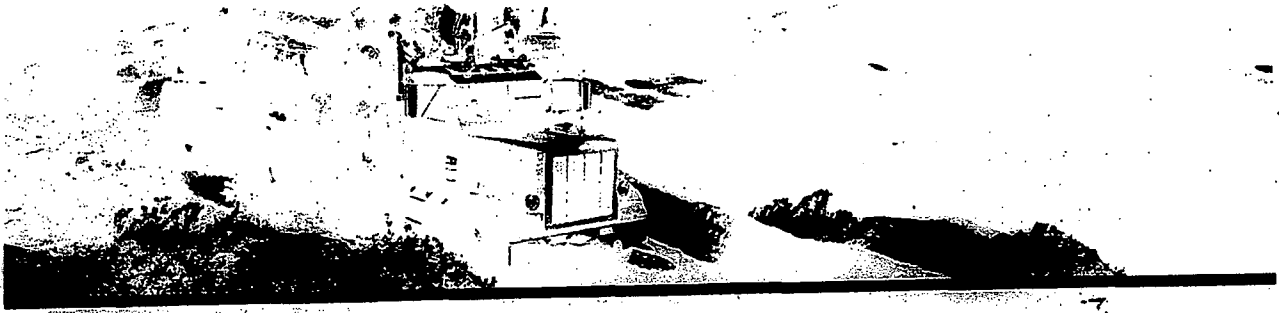
The next year should reveal a considerable amount about the level of importance that the industry's open-shop sector places on its role in training workers to be skilled craftsmen. And that answer, more than anything else, will determine whether nonunion construction's growth is to continue.

Training by nonunion employers has come a long way in the past few years. Curricula have been improved, program guidelines have been established and care has been exercised to improve the quality of instruction. Still, the battle is far from won. Only a relatively small proportion of employers shoulder a share of the responsibility for training. And contractor associations are failing to get the most out of their limited money because coordination of effort is minimal.

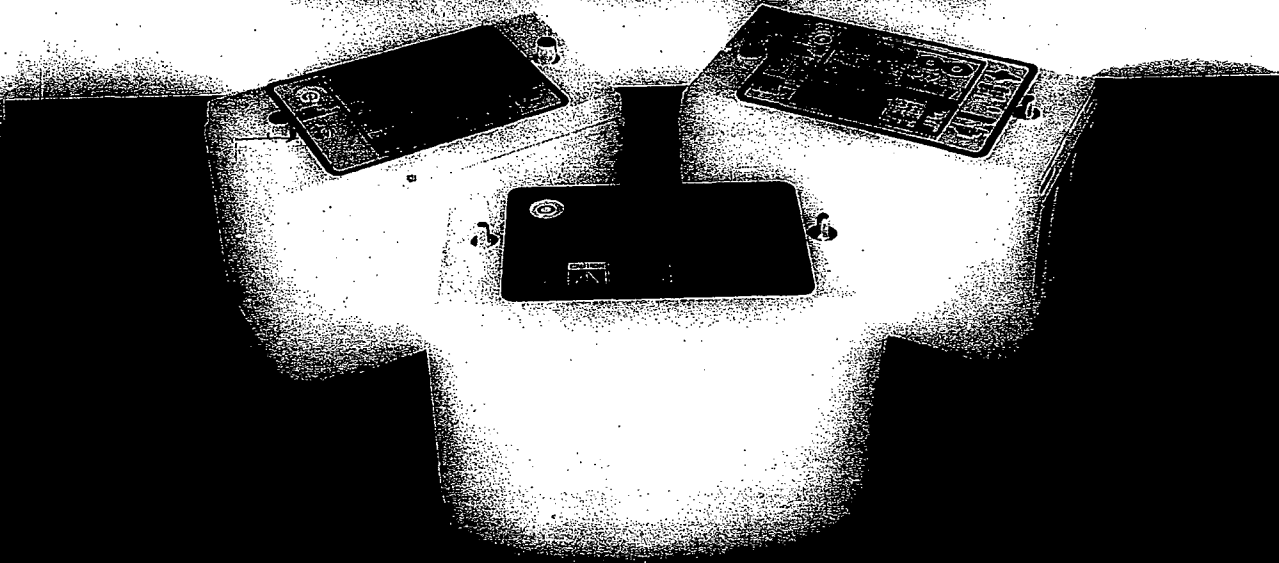
The Associated Builders and Contractors has approved the establishment of a trust that could become the primary vehicle to expand the amount of funding available for this critical function. A central collection mechanism that is widely accepted and used would solve numerous problems.

But before contractors and construction users agree to funnel contributions through the trust, a great many questions will have to be answered. Among these are what standards training programs will have to meet before they become eligible to receive contributions, whether the trust will finance development of curricula for multiple programs covering the same crafts, and how contributions will be channeled into local programs. For example, will money return to the area where it is generated or will it follow a contributing employer who performs one job in an area and then moves on?

These and other questions will be asked of ABC. But the industry as a whole must produce acceptable answers without becoming bogged down over pride of authorship—regarding either existing training programs or the trust fund concept. If ever there has been an industry issue allowing no excuse for senseless infighting, this is it.



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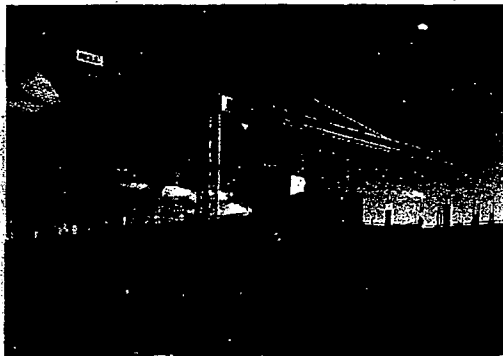
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I N D E X

INDEX OF WITNESS

PAGE LINE VOL

STANLEY JONES - Plf's Witness

DIRECT BY MR. PETERS1 20 1
CROSS BY MR. WHELAN4 25 1

INDEX OF EXHIBITS IDENTIFIED

EXH. NO. DESCRIPTION PAGE LINE VOL.

1033 ADVERTISEMENT 3 26 1
1034 PHOTOCOPY OF MAGAZINE 4 18 1

INDEX OF EXHIBITS RECEIVED

EXH. NO. PAGE LINE VOL.

1033 4 5 1

1 SAN DIEGO, CALIFORNIA WEDNESDAY, OCTOBER 7, 2009 3:30 P.M.

2 --oOo--

3 MR. PETERS: Thank you, Your Honor. At this
4 time the plaintiff would like to call Stan Jones to the
5 stand.

6 THE COURT: Very well.

7 STANLEY JONES,
8 Called as a witness on behalf of the plaintiff, having
9 been first duly sworn, testified as follows:

10 THE CLERK: Please state your full name and
11 spell your first and last name.

12 THE WITNESS: Stanley Coleman Jones,
13 S-T-A-N-L-E-Y J-O-N-E-S.

14 THE COURT REPORTER: And your middle name,
15 please?

16 THE WITNESS: C-O-L-E-M-A-N.

17 THE COURT: Please proceed when ready.

18 MR. PETERS: Thank you, Your Honor.

19 DIRECT EXAMINATION

20 BY MR. PETERS:

21 Q. Good afternoon, Mr. Jones.

22 A. Good afternoon.

23 Q. Do we work together?

24 A. We do.

25 Q. And what is your profession?

26 A. I'm an investigator.

27 Q. Did you investigate this case?

28 A. I did.

1 Q. We've had a number of witnesses who have come in
2 and they've talked about a guy named Stan. Is that you?

3 A. I think that was me.

4 Q. I want to ask you about a task that I asked you
5 to complete about finding an advertisement. Do you recall
6 that?

7 A. Yes, I do.

8 Q. And whose advertisement was that I asked you to
9 find?

10 A. It was for JM Manufacturing.

11 Q. And do you recall the name of the magazine that
12 I asked you to find that advertisement in?

13 A. Yes, Engineering News Record.

14 Q. Were you able to find that advertisement?

15 A. I was.

16 Q. Where did you go to find that advertisement?

17 A. I went to the San Diego Public Library.

18 Q. Right here?

19 A. Right here.

20 Q. When you went to the San Diego Public Library,
21 where did you find that magazine? Where was it actually
22 located?

23 A. It was located on -- They had converted all of
24 the magazines from the past onto microfilm, and so they
25 have a reel of the entire year for each year they possess,
26 and I requested 1983 and started there.

27 Q. Do you have with you the copies of that magazine
28 that contains the advertisement?

1 A. I do. There's one, and there's two.

2 Q. This is an entire copy from the San Diego Public
3 Library of the Engineering News Record?

4 A. That is correct.

5 Q. And this is the magazine that actually contained
6 that advertisement?

7 A. That is correct.

8 Q. And were you able to look at all these pages to
9 make sure they were printed out the way that you saw them
10 on the microfiche?

11 A. I checked each one as it was printed.

12 Q. I'm going to have you look at one of these pages
13 that in the bottom left-hand corner has the number 6. Do
14 you see that?

15 A. Yes, I do.

16 Q. Is that an accurate representation of the page
17 on which you found an advertisement for JM Manufacturing?

18 A. It is.

19 MR. PETERS: Your Honor, I'm going to ask this
20 page be marked as 1033, the actual copy that Mr. --

21 THE COURT: Mr. Jones, what is the date of the
22 magazine?

23 THE WITNESS: June 2nd, 1983.

24 MR. PETERS: I'm marking this as Exhibit 1033.
25 Your Honor, and I'd like to offer this 1033 into evidence.

26 (Exhibit No. 1033 marked for identification.)

27 MR. WHELAN: Your Honor, we object on the basis
28 of relevance, 352, foundation, and hearsay grounds.

1 THE COURT: Those are grounds that were
2 previously taken up in the previously submitted briefing
3 on which I rendered a ruling. Overruled. The document is
4 received.

5 (Exhibit No. 1033 received in evidence.)

6 MR. PETERS: Your Honor, this is the complete
7 copy of the magazine that I believe was previously marked
8 as 1034, and I'd ask to mark this entire packet as 1034 as
9 well and ask that it be moved into evidence.

10 THE COURT: What's the relevance of the rest of
11 the magazine?

12 MR. PETERS: It's just for the foundational
13 purposes.

14 THE COURT: Not necessary. The request to admit
15 Exhibit 1034 is denied.

16 MR. PETERS: I'm still going to mark this just
17 for the record.

18 (Exhibit No. 1034 marked for identification.)

19 THE COURT: Understood.

20 MR. PETERS: Thank you, Mr. Jones. I have no
21 further questions.

22 THE COURT: Any cross?

23 MR. WHELAN: Briefly, Your Honor.

24 CROSS EXAMINATION

25 BY MR. WHELAN:

26 Q. Mr. Jones, thank you for coming in this
27 afternoon. In finding this advertisement, did you have
28 an -- Did you read through the advertisement?

1 A. Yes, I did.

2 Q. You looked at it and read it for its content?

3 A. Not necessarily. I was just looking for the ad
4 that mentioned JM Manufacturing.

5 Q. Do you recall anything in the advertisement
6 that -- for example, a logo for JM Manufacturing Company?

7 A. No. The logo appears to be just some lettering
8 that, you know, could be produced by any computer, I
9 suppose.

10 Q. Do you recall --

11 THE COURT: In 1983?

12 THE WITNESS: Perhaps.

13 THE COURT: I don't think so.

14 THE WITNESS: I had an Apple 2 in 1982,
15 Your Honor.

16 THE COURT: Go ahead.

17 BY MR. WHELAN:

18 Q. Did you recall anything in the advertisement
19 that related who actually manufactured the pipe that JM
20 Manufacturing Company sold?

21 A. I don't understand the question, I'm sorry.

22 Q. Do you recall whether the advertisement
23 identified the company that manufactured the pipe that was
24 sold by JM Manufacturing Company?

25 A. I'm unclear on the question. Are you asking me
26 that the -- Does it reference another company besides JM
27 Manufacturing that made pipe?

28 Q. Well, no. Specifically, did it identify a

1 company that manufactured the pipe that my client, JM
2 Manufacturing Company, was going to sell? Do you recall
3 that?

4 A. I'd have to refer back to the document, but I
5 believe it said Johns-Manville sales.

6 Q. Do you recall the name JMAC Pipe Corporation in
7 the advertisement?

8 A. I don't recall that specific name.

9 Q. Do you recall any description in the
10 advertisement regarding the appearance of the JMAC Pipe
11 Corporation label that would have been on the pipe that
12 would have been sold by JM Manufacturing?

13 A. I don't recall that, either.

14 Q. Do you recall any description in the
15 advertisement of the label that would appear on the pipe
16 that had been manufactured and sold by Johns-Manville
17 Company?

18 A. Of the label, no.

19 Q. None of that appeared in that advertisement, did
20 it, sir?

21 A. I don't think so.

22 Q. Sir, in the course of your investigation in this
23 case, in your dealing with the witnesses, sir, have you
24 showed them any photographs of pipe sold by JM
25 Manufacturing Company?

26 A. Specifically I have not.

27 Q. Have you showed them any photographs of any pipe
28 labels of any pipe manufactured by JMAC Pipe Corporation?

1 A. I don't believe I have.

2 Q. Sir, have you showed them a photograph of what
3 has been identified in this case as Court's Exhibit
4 702.218?

5 A. May I see it, please?

6 Q. Of course.

7 A. I have not shown them that.

8 Q. Are you aware of where this exhibit came from?

9 A. I have no idea.

10 Q. Are you aware whether this exhibit was in fact
11 in your attorney's possession in this case?

12 A. I don't know that either.

13 MR. WHELAN: Thank you, sir. I have no further
14 questions.

15 MR. PETERS: I have nothing further.

16 --oOo--

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