PRECAST PRESTRESSED BUILDING SYSTEM CUTS ERECTION TIME OF WAREHOUSE/OFFICE

An all precast prestressed concrete building system permitted a 10-day erection period for a 22,400 sq ft warehouse/office in Vineland, New Jersey. More importantly, the new facility has built-in economy, practicality, adaptability, and good looks.

Built on a 10-acre site, this fire-resistant structure stores household furniture and furnishings, computers, and other costly business equipment. It has enough space to hold 408,000 cu ft of storage goods and features a fully-heated and ventilated warehouse, fluorescent lighting, ample parking space for staff and visitors, modern sprinkler system, enclosed platforms for more protective loading and unloading, 50-ton electronic platform scale, burglar-alarm system, chain-link fence, and lounges for both warehouse and office personnel.

The warehouse portion has a roof using 24-in. prestressed double-tee members 52 ft long, side walls made of 24-in. load-bearing double-tee panels 31 ft high, and front and rear walls of 24-in. double-tee curtain panels. These components are framed by columns measuring 14 x 14 in. x 31 ft and beams 36 x 24 in. x 32 ft. Altogether, the warehouse is 160 ft long and 104 ft wide with two 160 x 52-ft storage bays.

The office, measuring 60 x 90 ft, is completely free of interior columns. It has a roof erected with 24-in. prestressed double-tee members 59 ft long and a connecting link to the warehouse using 4-in. solid flat slabs 14 ft long. Its walls are custom-made 4-in. solid flat slab panels 7 ft wide and 9 ft high, with an exposed-aggregate finish. It has sill beams measuring 36 in. x 12 in. x 28 ft, ledger beams 36 x 18 in. x 30 ft, and columns 14 x 14 in. x 12 ft.

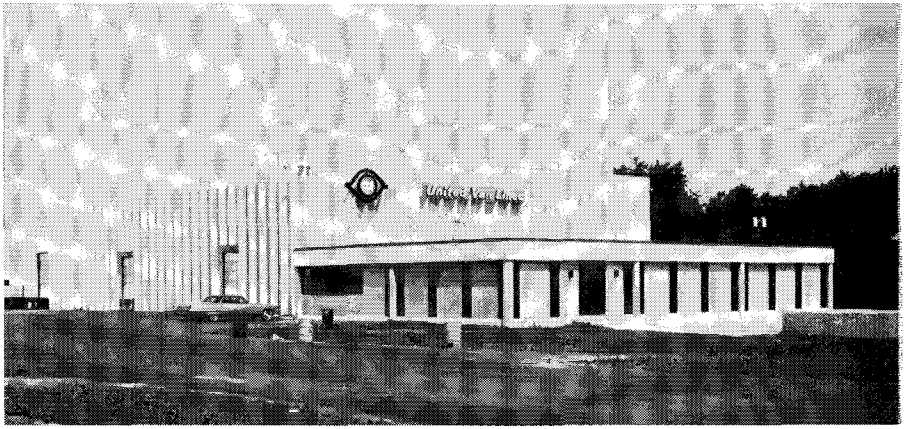
TOTAL BUILDING SYSTEM

As an all precast concrete system, the building is fire resistant. This property is vital to a firm specializing in storage. Fire resistance tests have shown consistently that precast prestressed concrete has comparatively better fire resistive properties than other structural building materials. Thus, the warehouse/office has a continuous built-in protection which assures the safety of the employees and the valuable property being stored.

The use of long double-tee roof spans and wall panels in the warehouse kept the number of interior columns down to four and boosted the ceiling clear height to 24½ ft from floor to sprinkler system.

The high ceiling and fewer columns provide far more usable space and great latitude in laying out the floor plan for maximum efficiency. Using the facility as an easy-access clear-span warehouse, the storage firm now stacks its pallet vaults three tiers high and encounters no obstacles in getting to or from vaults in any part of the bay.

The double-tee members hold the lines of the sprinkler system along the ceiling, keeping them neatly out of the way of pallet vaults and the stacking



New office and warehouse for Wares' Van & Storage Co., Vineland, New Jersey. This economic, practical, and good looking facility was erected in only 10 days using precast prestressed concrete building components. The warehouse has four interior columns, the office none.

operation. The installers of the sprinkler system said that:

"Through careful planning, the integration of sprinkler and structural systems was simple and efficient. We ran the main water trunks parallel with the stems and installed the water nozzles perpendicular to them. In putting up the entire pipe system, we had no trouble at all."

The double-tee panels, durable and strong, enable forklifts to maneuver into tight, hard-to-reach spaces and reduce the danger of damage to walls or storage goods. They also create an atmosphere of extreme cleanliness by eliminating dirt-catching ledges and open joints and by making cleanup easy.

HELPING PAY FOR ITSELF

The owners say that the building is helping to pay for itself through lower fire-insurance rates, lifelong freedom from maintenance, and advantageous financing.

By using an all precast system, the storage company was able to qualify for a longer-term mortgage, lowering its mortgage payments by spreading them out over a longer period of time. The system also aided the owners in obtaining fire insurance at rates substantially lower than those of an earlier policy.

In addition, other savings will come from the building's maintenance freedom because with precast concrete the structure will not have to be painted, waterproofed or protected from corrosion.

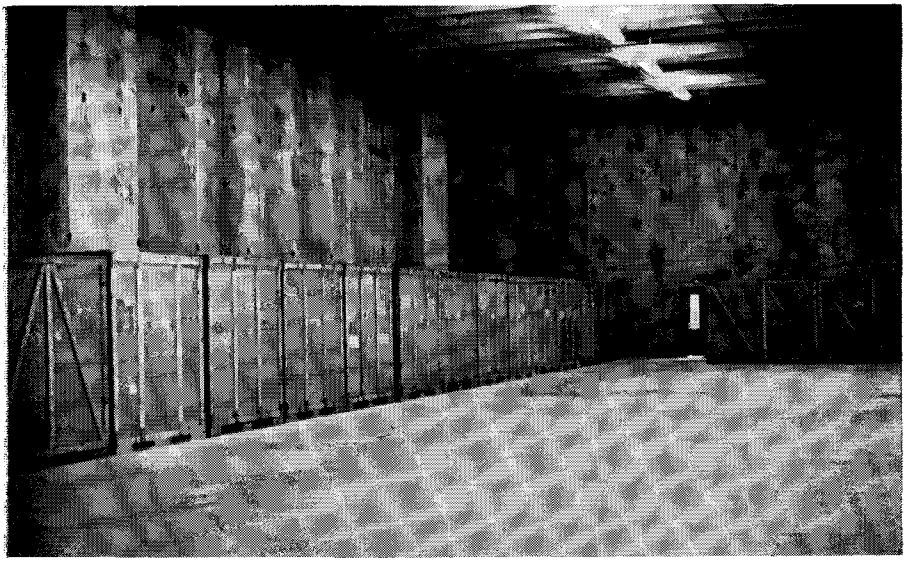
ADAPTABILITY AND GOOD LOOKS

Later, when expansion becomes necessary, the company will add other storage bays to the warehouse. These will be fast and easy to put up because the rear curtain wall panels were designed for expansion and reuse.

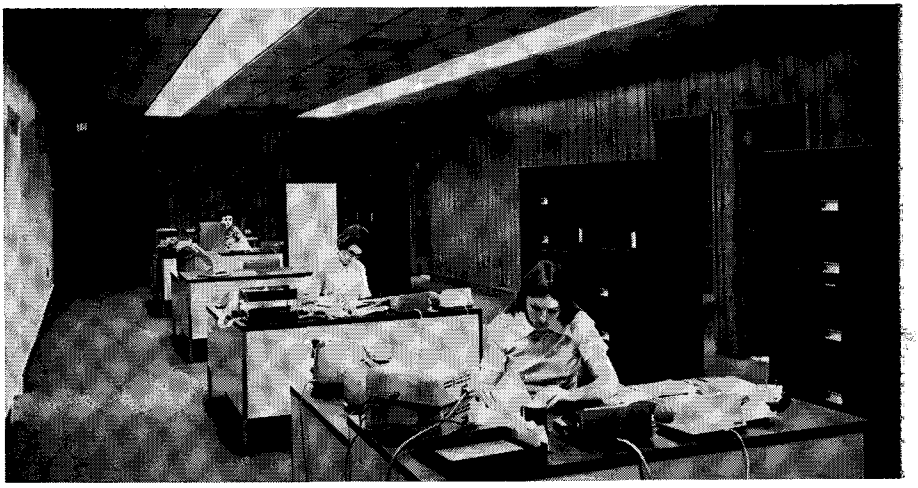
The building's two main parts are not just flexible in layout, but also complementary in looks.

The warehouse gets its prestige look from the clean beauty of vertically ribbed double tees, while the office—

Closeup of office building showing exposed aggregate precast wall panels.



Interior of warehouse. The high ceiling (24½ ft from floor to sprinkler system) and only four interior columns provide 408,000 cu ft of storage space and wide latitude in laying out the floor plan.



Interior of office is column free and esthetically pleasing.

through the architect's creative use of exposed aggregate wall panels—aesthetically sets it off and gives the building its own special flair.

MANAGED CONSTRUCTION

The precast company rendered another important service when it acted as manager of construction. In that role, the precast company put the architect's specifications out for bid and, after the awarding of contracts, oversaw the complicated job of construction, guiding the owner through all phases from clearing to landscaping.

While clearing and foundation work were being done, the precast concrete products were being fabricated. Then, coordinating delivery with construction schedules, the precast firm erected all the precast concrete components.

CONCLUSION

The use of the precast company's services thus gave the owners excellent overall control and coordination of construction activities while the use of a precast building system enabled erection to be done in only 10 days and the entire job to be completed in less than 4 months. The total cost for the precast work was about $5.00 per sq ft.

For the owners, speed prevented unnecessary costs and delays, kept the work on schedule, and had the building ready for occupancy on time. Because the building is an income-producing facility, quick occupancy meant that goods could be stored sooner and revenue could start coming in.

CREDITS

The United Precasting Corp., Buena, New Jersey, designed, produced, and erected all the building components from the footings up, including the precast prestressed concrete grade beams, columns, roof, and walls.

The architect was Ronald J. Angelo, Vineland, New Jersey.

The warehouse/office belongs to Wares' Van & Storage Company, Vineland, New Jersey, a moving and storage firm.