

Better Schools Through Use of Steel

Steelmen in Torrance Aid US Classroom Shortage

Steelmen in Torrance—the Southland's oldest steel-making center—take justifiable pride in the role their industry is playing in helping solve the nation's classroom shortage.

For since 1957 more than 550 classroom units have been built of modular steel construction in Southern California by one firm alone—the Calcor Building Division of Rheem Manufacturing Company.

Of this total number, 133 steel classrooms have been fabricated and erected for the Torrance Unified School District.

All-steel classrooms are now completed on 17 school sites here.

Long studied by school officials throughout the country, modular steel construction once again is being top educators at the annual brought to the attention of national convention of the American Association of School Administrators in San Francisco where exhibits of Torrance steel schools are on display through Tuesday, Feb. 28, 1961.

Included is a rendering of the Madison Elementary School shown by Calcor, its builder. A complete elementary school, Madison was opened last September with 16 classrooms, kindergarten, administration and multipurpose buildings and extensive interconnecting arcades.

PORTABLE SCHOOLS

The Madison school was designed and built so it can be picked up and moved to follow population shifts, if necessary. Each classroom can be moved as a unit, and the larger buildings can be moved in sections.

Also in the display are full-scale wall sections, showing utilities, suspended ceiling system, paint finishes and acoustical and insulation qualities.

Roy Donley, A.I.A. & Associates, architect for many schools here, also is exhibiting Torrance schools he has designed.

"In recent years, Torrance Unified School District has built its schools based upon a policy of constructing a permanent core of fixed buildings," Donley said.

"In this way flexibility is built into each school so classrooms can be easily added when enrollment increases. Conversely, classrooms can be picked up and moved to other locations, as needed."

About four years ago steel portable classrooms were tried on an experimental basis. They proved to have several advantages over former techniques, including permanency and portability, lightweight and easy movement, since classrooms are designed to be lifted at four points of structural support, Donley explained.

PIONEER

As a pioneer in steel school construction, Calcor developed many techniques employed in the Torrance and other steel school projects. In pointing out some of the advantages of steel construction, Bernard Perlin, vice president-manager, noted that permanent modular all-steel classrooms, because of their durability, will require less maintenance and reflect a good long-term investment.

The structure incorporates a certain type double steel wall panel, consisting of insulated inner and outer layers which combine to form a

3½-inch wall equal in insulating value to a 12-inch masonry wall, Perlin said.

Tests conducted by the University of California and by local testing laboratories on fire resistivity and structural, thermal and acoustical properties proved the construction system sound and functional.

The external surface is a heavy gauge galvanized sheet, with the interior surface a lighter gauge sheet.

The two panels are joined by screws at the stiffeners.

For sound-proofing and thermal insulation, a ½-inch thickness of gypsum board is attached to the interior sheets and a 1-inch-thick layer of fiberglass material, plus another ½-inch layer of gypsum board, is laminated to the exterior panel.

After assembly, the insulating materials become the core of a sandwich panel. The roof is a standing seam steel deck with interlocking ribs on 16-inch centers and a 12-foot clear span. The ceiling is acoustical board suspended from the decking.

FABRICATED

Framing members, roof, decking and wall panel components are fabricated for steel schools under assembly line conditions in Calcor's Huntington Park plant. Raw material enters directly into one end of the plant where it is stored until it is needed. The material is then cut or sheared to length and fabricated. Each manufacturing step follows consecutively so that a straight assembly line is established from the storage of material to the final packaging and loading.

Normal production capacity is 30-40 all-steel classroom buildings a week. Principal products include all-steel classrooms, school buildings, arcades, gasoline service stations, commercial buildings and other special purpose steel structures.

After light structural steel sections and steel sheets are shop prefabricated under assembly line conditions to meet architect's specifications, components for a complete classroom are loaded on a single truck. Fabrication is performed to a maximum tolerance of 1/16 of an inch.

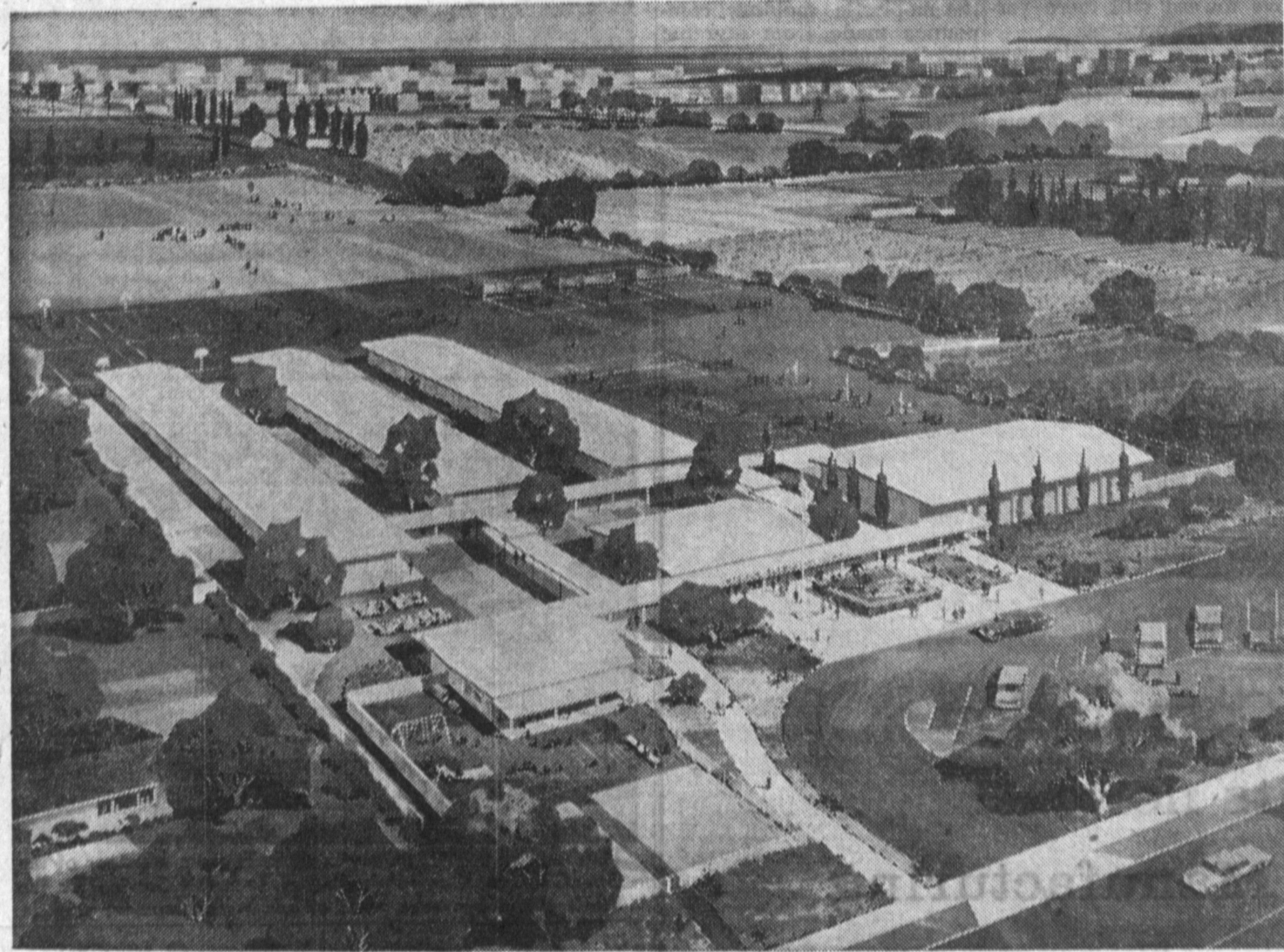
CONCRETE SLABS

The classroom buildings are built on concrete slabs. At the start of the concrete work, steel channel templates are delivered to the concrete contractor to insure correct dimensioning of slab and footing and proper location of all anchor bolts. After the concrete has cured properly, the structural columns, door frames and roof beams are bolted into place. (Absence of riveting, hammering and other noises associated with building construction, makes this type of construction so quiet that it can be carried on while classes are in session without disturbing pupils or teachers.) Initially, the roof decking and exterior sheets of the wall panels are attached to the frame.

Erection of the steel is halted at this point until the electrical, heating and plumbing work is completed, thus permitting the conduit and piping to be located within the wall panels with connections made to utilities on the outside of the building. The interior panels are then attached to complete the structure.

CALCOR

Calcor compares the insulating qualities of its all-steel



MOVABLE SCHOOL—Designed by Roy Donley, A.I.A. & Associates, and fabricated and erected by the Calcor Building Division of Rheem Manufacturing Company, the all-steel Madison Elementary School of Torrance Unified School District shown in this sketch can be picked up and moved to follow population shifts. Each classroom can be moved as a unit and the larger buildings can be moved in sections.

Post Office Classifies City Following 1960 Tally

Classification by the postal department as one of the nation's "million dollar communities" was received by Torrance following the tallying up of post office revenues during 1960.

The city joined Downey, Hayward and Redwood City in the special classification for the year. Each of the four was listed for the first time in 1960 as gathering more than \$1,000,000 in postal receipts.

The year also was noted because the unit composed of California, Nevada, and Hawaii broke the \$300,000,000 barrier for the first time.

Regional postal authorities reported "the comparison of 1960 and 1959 figures provides a significant illustration of the extent of the tremendous economic development and population growth in the three states of the region during the past decade."

124 PER CENT GAIN

"For example, the \$308,000,000 in postal receipts for 1960 is a gain of 124.2 per cent over the \$137,402,000 in 1950.

Some of the 1960 million-dollar offices had receipts of less than \$200,000 in 1950 and showed gains of more than 500 per cent each. Examples are: Torrance with 530.2 per cent; Anaheim, 723.5 per cent; Downey, 572.2 per cent; and Fullerton, 641.3 per cent.

Los Angeles and San Francisco continued to head the list as the first and second largest post offices in the region. Los Angeles post office, which now ranks third in the nation, doubled its receipts between 1950 and 1960 for a gain of \$37,000,000, the largest dollar gain of any office in the region.

buildings to those of a stove or refrigerator. Like these appliances, the school's insulated walls and ceiling keep cold out in winter and heat in; conversely, they keep the heat out and interiors cool in the summer. There are facts and figures to prove these points.

Vinyl-coated steel sheets are used in lavatories. Fire-retardant paint, which covers galvanized steel of exterior walls, has proved a boon to school maintenance men. Occasional brushing and spraying with a garden hose keeps the outside walls spic-and-span.

Sprayed directly onto the steel under high pressure, the paint can't be chipped with a chisel, and even acid won't stain it.

A corollary advantage of the insulation is its sound proofing qualities. Rooms are so well insulated acoustically that there is no chance for student clamor to break the sound barrier between classrooms. In fact, rooms are so sound proof that some teachers have complained they can hardly hear the bells between classes. To rectify this situation, most schools have installed p.a. system outlets in all classrooms.

Low Cost Payroll Record for State Captured by Torrance

According to United States Census Bureau figures, the city of Torrance, with 105,551 residents, gets along with fewer employees and a smaller payroll than any other California city of more than 100,000.

Figures were disclosed today in a story from Washington.

Torrance Mayor Albert Isen greeted the news as a tribute to the effectiveness of the city government.

"We've been working for efficiency in government," he said, "and fighting hard to keep the staff from getting too big."

As a city grows each administrator wants an assistant, and then the assistant wants an assistant.

"Seventy per cent of our budget now goes into salaries. The taxpayers couldn't stand a heavier load."

Census figures show in 1960, Torrance had only 564 fulltime employees, including 101 policemen and 89 firemen.

The city had 82 part-time

workers and a total payroll of \$290,000 a month.

By comparison, Santa Monica, with 17,000 fewer residents, has 982 full-time employees and nearly 1000 part-time workers. It had 184 in its police department, 99 in its fire department, and a total payroll of \$551,400 a month, nearly twice that of Torrance.

Burbank, with only 90,155 population, had an even larger municipal payroll of \$664,200 a month.

Mayor Isen admitted the fact of Torrance's small manpower in police and fire departments, when compared with that of other cities might bear some review.

"No doubt at budget time," he said, "we'll add extra police, but only after careful study."

MORE FIRE STATIONS

"There's no point in adding extra firemen until we have more fire stations. Three stations are being developed now."

The mayor, while expressing (Continued on Page A-16)

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