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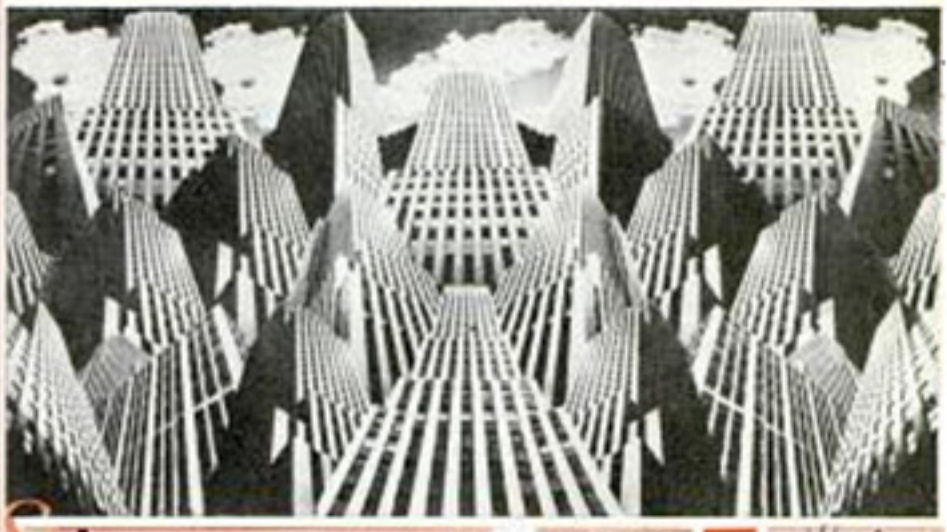

Skyscraper

By D. H. BURNHAM

Director of Works, Century of Progress

THE president of a big corporation emerges from a meeting at which a new home for his company had been discussed.

"We have decided," he announces casually, "to erect a seventy-five story office building. It will be ready in six months. In twenty years we will salvage the material and build another one."

Such an announcement today would seem preposterous, and it would be if the building were constructed of the same materials and by the same methods used in the past. However, in a few years, or perhaps even in a few months, we may expect skyscrapers to go up in 180 days and be replaced in two decades.

These structures will have their inception in the laboratory rather than the stone quarry and the lumber pile, for they will be composed almost entirely of synthetic materials new to the building industry. They will be built to last just so long as their elevators, plumbing and other mechanical fixtures may be expected to remain serviceable, and no longer.

Visitors to Chicago's Century of Progress exposition next summer will see groups of buildings not only unusual in appearance but unique in construction. Because human nature is opposed to change, many will consider them flamboyant in appearance and too angular in line. As a matter of fact, they are the result of economic necessity and not of a desire to construct something spectacular. Through the sale of display space, these structures must pay for themselves during the 150

The Synthetic Skyscraper

IT will be built for thirty cents a cubic foot, compared to seventy-five cents today.

It will be erected in half the time now required.

Its useful life will be limited to twenty years, after which it will be salvaged.

Walls will be only three or four inches thick, the outer ones enameled, the inner of composition material with insulation between.

It will be virtually windowless, illumination coming from neon hidden in portable torcheres.

Its heating plant will purify and humidify the air, and maintain a cool temperature in summer.

It will bring about stabilization of present property values and tend to break up shifting of business areas.

days the fair lasts. For [illegible] reason, we [illegible] forced to resort to new methods of building and have found, somewhat to our surprise, that many of these methods and short cuts are applicable likewise to permanent structures. Nearly every world's fair leaves its impression on architecture for the next generation. Whether the coming exposition will do so, time alone can tell, but it seems likely that our experience will teach an economic lesson of importance, at least.

Planes and surfaces characterize this architecture instead of classical lines or a parade of plaster, ornamentation and decoration. Instead of expensive exteriors, we are depending on the dramatic effects of lights and bright colors to furnish a background both new and inspiring. As a result, we are building for less than fourteen cents a cubic foot of space.

We are using some new building materials and making new uses of old ones. Nearly everything is factory-made. Wall materials, for instance, are pre-fabricated in shops, cut into standard shapes and sizes, and arrive ready to be put in place. These sections are applied with clips and screws, instead of nails and rivets. The materials are light in weight and easy to handle. They require less steel for support and less labor to install. The framework for these structures is of light steel, bolted together to enable easy demolition. The outer walls of one building are composed entirely of asbestos-cement board, hitherto used principally in small units for interior insulation. The space between

Top, Waterfall Effect for One of Chicago Fair Buildings; Below, Interior of Hall of Science

outer walls and inner ones of plaster board is filled with insulating material made of waste paper and emulsified asphalt. Such insulation in these three-inch walls is equivalent to that provided by a seventeen-inch brick wall.

Walls of the Travel and Transport building are made of sections of sheet metal, clipped or welded to the steel frame. The Electrical group utilizes standard gypsum board for its walls with a coating of metallic paint. The walls of the Hall of Science are nothing more than a veneer of five thicknesses of plywood. Virtually all buildings are without windows, which

Top, Workmen Clipping on Walls of World's Fair Building; Below, Lines and Angles of the Hall of Science

are expensive, while sunshine is variable, so artificial lighting will give better illumination than nature can offer, and the interior exhibits will be brilliantly lighted even on dark rainy days; also these buildings, because of their artificial ventilation, will be cool on the hottest summer days.

The buildings are only temporary structures, but by utilizing new materials, we suggest a way to lower costs for permanent structures. Office buildings of the past were erected to last a century. The interior mechanical equipment is usually out of date or worn out in fifteen or twenty years, and the cost of wrecking such a structure when it is obviously obsolete is not only high but takes months to accomplish.

We, therefore, must now erect

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our buildings at less cost and design them to last only just as long as their interior equipment will last. Lowered cost and more frequent replacement may point the way for the building industry to adjust its production costs in line with other business.

Science, mechanization and factory methods are entering the building industry. There has been more advance in the past eighteen months through the use of new materials and new methods than in any previous hundred years in the history of the world. If we change our obsolete building laws, I am convinced that the tall buildings of the future, intended to last only two decades, will be built for 30 cents a cubic foot, compared with 60 cents to $1 per cubic foot of space for structures built in the post-war period up to 1930.

Think of what construction such as this will mean to business in general. The business section of any city fluctuates and moves in a few years. The hotel of today may be the financial institution of tomorrow and the warehouse of the day after. Remodeling present-day structures as their environment and usefulness change is expensive, and, at best, results in only a makeshift.

These new construction methods will tend to check the tendency to shift established business centers. In the past it has cost the same to build in one place as another, so the promoter, in order to compete, had a tendency to build on fringe locations where a cheaper ground value could be obtained. Now he can afford to build on property of high ground value right next to old established downtown structures, and because of the new construction costs, can afford to rent his building at cheaper rates per square foot than his neighbor, and this leads one to believe that many commercial structures built prior to 1930 are today competitively obsolete.

Tomorrow's skyscraper probably will not be a skyscraper at all in the ordinary sense of heavy steel and masonry. It will be a building of light-weight synthetic materials, which can be salvaged in large part when it is razed, and it will have a

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comparatively light metal frame because the load it must support will be reduced. For this reason there will be no need to go so deep for a foundation. The metal frame may not be steel. It may be an alloy that is rustproof, and it may contain aluminum to lighten the weight.

Its walls may be of enameled metal or similar material. Certainly they will not be more than three or four inches thick and they will be made at a factory and come ready to be attached to the frame. Two inches of insulation between outer and inner surfaces will afford as much protection as a masonry wall today.

Interior walls may be of metal, plaster or composition material, with partitions so arranged as to be readily changeable, thus making rearrangement of rooms and offices easy. If plaster is used, it will come in sheets, pre-painted with a substance like that used as a finish on automobile bodies.

There will be virtually no windows, all illumination originating from gaseous tubing or similar cold light in torcheres free-standing on the floor, and light fixtures attached to wall and ceilings may be relegated to the ash heap. Wiring will be contained in metal bases and troughs, so arranged as to be easily accessible without tearing up metal flooring covered with cork or rubber.

The heating plant will not only warm the building in winter and cool it in summer, but there will be provision for washing and humidifying the air. The accessories will be the most modern obtainable when the building is erected, and will be designed to last the life of the building without alteration or replacement.

I feel that the occupants of such a structure, whether it be of fifteen stories or a hundred and fifty, will live in more healthful and comfortable surroundings than are possible in the most luxurious office buildings today. For I know that what we are going to see in the next ten years in the building industry will make our heads swim. And nearly all of the development is coming from the scientist in his laboratory, whose magic touch the building industry is just beginning to feel.

Pompeii, the Italian city destroyed by a volcano in 79 A. D., had a one-way street.