Access Floor Potential is Growing

This year alone, some 10 million square feet of steel access flooring will be installed in office-type buildings and office areas in the U.S. and Canada, according to leading firms in the $40 million-a-year industry.

Recent years saw installations weighted heavily toward new construction. Producers now envisage an even larger market for the raised flooring in renovation of existing office areas.

Says one prime producer of the elevated flooring: “Not long ago, our industry considered itself fortunate to capture a few big jobs a year. Now, major contracts are frequent, as witness the 5½-acre job we recently completed for a Wisconsin insurance firm, the Aid Association for Lutherans.”

Another leading manufacturer, comments: “Our one million-square-foot installation for the United States Automobile Association, in San Antonio, is just one evidence of a growing trend. What was originally developed to meet the exacting needs of the computer room has evolved into the most promising new flooring concept for overall office space, including office sections of plants.”

Both companies report that the trend to access floors covers every type of office. Illustrating this diversity, these are a few of the commercial, governmental and other organizations which now use the flooring: American Express, Bankers Trust, Bell Laboratories, Exxon, Federal Home Loan Bank, Internal Revenue Service, Johns Hopkins Hospital, Metropolitan Life, N.Y. Telephone, Ohio State University, Pennsylvania Power & Light, RCA, Sears, U.S. Treasury Dept., Western Electric and Xerox.

Access flooring is a basically-simple concept. Resting on a building’s concrete floor slab, a network of steel pedestals supports a raised floor of modular sheet steel panels that are usually surfaced with carpet. The space between the concrete slab and finished floor panels, normally 6 to 15 inches, holds all (Continued on page 38)
electrical, telephone, communications and mechanical services, including heating and air conditioning ducts. Any panel can be lifted in seconds to provide instant access (hence the flooring name) to any of the services underneath. The system satisfies any area requirement. And it offers infinite flexibility for service changes, virtually unlimited capacity for service needs.

Similar to Plenum

Some liken the concept to the reverse of a ceiling plenum, with services contained more conveniently under the floor rather than over the ceiling. Others see it as a miniature version of the interstitial technique, used frequently in hospitals, to alternate mechanical services with patient floors.

Sold through installing distributors or interior contractors, cost will fluctuate with the specifics of each installation. The installed office cost average ranges from $3.00 to $4.00 per square foot, an economy made possible by the lower loading requirements of office flooring, in contrast with the heavier load ratings of computer floors. Carpet or other surfacing is extra and can be approximately $1 to $2 per square foot.

Citing an actual example—the 250,000 square feet of office space in the Federal Home Loan Bank Board Bldg., Washington, D.C. — the General Services Administration estimated a savings of $900,000, or $3.60 per square foot, in selecting raised steel floor electrical distribution over a competitive system.

Tax-wise, access floors are often classified as personal property or equipment, and not considered an integral part of a building’s structure. The building owner is then entitled to the current ten percent investment credit as well as faster depreciation rates.


The system’s components will vary somewhat by producer, but these are the primary elements. Pedestals normally average eight inches in height, and are vertically adjustable so that the access floor is dead level regardless of sub-floor irregularities. The standard 2’ x 2’ painted floor panel generally consists of a die-formed steel bottom pan and a flat top steel sheet, in a welded construction. The pan, about 1½” deep, is the strength member, carrying the load and distributing it to the pedestals. Pans are usually fabricated of cold-rolled sheet steel .060” thick. The top, cold-rolled sheet ranges from .060” to .075” in thickness. (The system, panels and pedestals, uses approximately six to eight pounds of steel per square foot.)

In the access floor just described, four pedestals support the corners of each panel. There is also a variation, in which bolted or snap-on, zinc-coated steel “stringers” lock all four pedestals together for greater lateral stability and additional panel edge strength. Office floors generally have the capability of supporting 150 pounds per square foot, with a 400 pound concentrated load possible.

Varied Coverings

Carpet, adhesively-applied to the flat steel top sheet, is by far the most popular surface. Also available are high-pressure laminates, vinyl asbestos, parquet flooring, terrazzo and ceramic tile.

The recent and anticipated growth of the access system has brought with it a host of new developments:

• One such innovation is magnetic carpet tile. This 24” square nylon face carpet combines with a magnetic backing that attaches,
without adhesive, to the panel’s steel top. It can be installed after all construction is complete, assuring cleanliness. The carpet alone can be selectively cleaned, replaced, even relocated to vary color schemes and extend wear life.

- For computer rooms and offices which require less in the way of underfloor services, there is now the Mini-Floor, where pedestals can be as short as two inches. Here, panels are 16" x 16", the steel bottom pan wraps around a core that is only one inch deep, yet this system can take loads of 250 pounds per square foot and concentrated loads up to 500 pounds.

- The weakest part of an access floor panel is at the mid-point of the edge. To counteract this, a new system has panel edges interlocked with adjacent edges by a bolter coupler. The result is lower edge deflection, higher load capability, and greater resistance to lateral forces.

- There are also “sandwich” panels which consist of a one-inch-thick particle-board core, totally encased by steel sheet. They are easier to cut at the job site, and are used primarily on projects with irregular perimeters, numerous columns and floor penetrations.

- A most important development is the electrified panel. It has built-in, flush-mounted service outlets to provide immediate electrical and telephone service at any desired location.

- Beyond the previous developments is an array of accessories which have evolved to fill specific needs. These include panel lifters, incline ramps, steps and handrails, grommet cutouts and caps, air conditioning grilles, and panels perforated for air flow-through.

Guidelines to Access Floor Efficiencies

Increasingly, office architects, space planners and building owners specify steel access floors when these conditions are present or anticipated: a fairly-high density of
desk workers; frequent changes in space functions and in locations of needed services; and often when the open landscape office is used. With the raised flooring system in an accelerating up-trend, industry specialists have formulated a series of tips for optimizing the system’s efficiency.

1. To save office design time, exact personnel locations and standard service accommodations do not have to be predetermined before construction. Services can be made available at any point on the floor surface, at any time before and after occupancy. The system has a built-in provision for unlimited change. It can handle any volume need for phones, electric typewriters, electronic business machines, calculators, CRT terminals, minicomputers and microprocessors, intercoms, security and fire signaling devices.

2. Remodeling can be done at minimum expense simply by utilizing the existing slab floor as a pedestal base, and putting all services atop the old floor and under the new one. Old, resilient floor covering and existing underfloor wiring need not be removed. Access floor versatility can even be used to bring sub-standard buildings up to code.

3. To take advantage of the system’s potential for life-cycle cost savings, a building’s own maintenance personnel can be employed for most minor changes. For example, in the average office, approximately 40 percent of the telephones are relocated each year. This relatively-simple, disconnect-and-connect job, and small electrical relocations, can often be done by the in-house staff.

4. Studies show that the average office floor gets 80 percent of its wear on only 30 percent of its area. Since carpeted access floor panels are removable, those in high traffic sites can be relocated and replaced with panels from other areas on a regular rotation plan. Such a program can stretch out schedules of carpet cleaning and extend useful carpet life as much as three times.

5. Those familiar with the system know that grid lines of the squares are sometimes visible. Where required, access flooring specialists can possibly eliminate or certainly minimize them. This is accomplished through selection of properly-laminated carpets and judiciously specifying the appropriate color, pile height, pattern and grain.

6. Technical experts can also assist in the proper grounding of the floor system and in dissipation of carpet static electricity problems. Strict static control is especially important in computer and minicomputer areas, since static can adversely affect performance of sensitive electronic equipment.

7. Energy conservation will surely become an important responsibility in office planning. One key method of dramatically reducing a building’s energy needs is more widespread utilization of task lighting, where illumination is provided primarily for the actual work area. Since steel access floor systems can supply electricity exactly where needed, they can be the means to provide lighting for an entire office without reliance on ceiling fixtures.