Panelization shows appeal

If interest counts, this could be the hottest new product to hit the marketplace since building blocks were introduced.

If attendance for a special seminar is any indicator, the process of panelization proved its appeal during AWCI’s convention short course, which was held prior to the association’s annual convention in Phoenix, Arizona last March.

More than 160 interested contractors, suppliers, architects and manufacturers turned out for the two-day affair, which included both a classroom and field instruction setting.

What resulted was one of the most comprehensive programs ever to be presented for the purpose of defining the specifics of panelization as it applies to the construction of exterior walls.

Panelization, as it was discussed for the short course purposes, is the advanced fabrication of steel frames in combination with the advanced finishing of the exterior surface, prior to positioning of an exterior wall section onto a building.

The individual pieces of the wall are combined and assembled, usually on the ground, prior to the installation of the panel. This includes the studs, sheathing, lath, insulation board and the exterior finish.

Under normal circumstances, the prefabricated panel would be assembled with the panel in a horizontal position. The primary difference between panelization and more conventional forms of construction is that the major part of the panelization work is performed away from the building site, usually at a well-organized plant that is set up to receive, store and work with the various materials that make up a panel.

Put another way, the process of panelization is used to build sections, rather than pieces of a wall construction.

THE MARKET

You don’t have to look very far to find that panelization has an enormous market potential. According
They came to see panels . . . and panels they saw

to FW Dodge's Construction Outlook, total construction is expected to be slower in 1980 than it was during 1979. Nevertheless, that construction will total an estimated $60 billion in new construction in the areas of commercial, institutional and multi-family buildings.

Those figures do not include the massive markets of manufacturing construction and the rapidly-growing retrofit market. The Dodge figures do include, however, the basis for estimating that construction in commercial, institutional and multi-family housing will involve about 500 million square feet of exterior wall space in 1980.

The average price for that wall space, which is between seven and eight dollars per square foot, yields a market potential in the $4 billion range. And, there is reason to expect that contractors within the wall and ceiling industries, utilizing panelization, could pull down at least half of that market.

Why? Largely because a wall and ceiling contractor is set up for an economical exterior wall system when he diversifies into panelized construction.

Some experts project the growth of panelization markets could top 1000 percent in 1980.

COST EFFECTIVE

The reason for the growth of panelization opportunities is threefold. One, the process is cost effective. Two, it offers terminal efficiency. And, thirdly, it has a low Continued on page 12

Steel framing and its role in panelization

This graphic from Wheeling Corrugating Company’s “Steel Framing Technical Manual and Design Details” booklet shows steel framing’s relation to panelized walls using synthetic plaster for exterior finishing. In the most common panelized applications, the prefabricated wall unit would be constructed from its framing and exterior materials, with the interior wall board to be added after hoisting and installation. In this application, the exterior components consist of the steel stud frame, exterior gypsum sheathing, expanded polystyrene insulation, reinforcing fabric and the synthetic plaster.
The interest in panelizing is consistently high

Life-of-project (life cycle) cost. The big question on panelization is not how much it can grow, but how much its growth will be inhibited by the numbers of contractors available to do work in the field.

Analysts say, however, that no market in construction traditionally remains unfilled. When the demand goes up, the supply is never long to follow. It is likely that much of the initial new panelization work will be snapped up by diversifying wall and ceiling contractors. It is also likely that continued development of panelized construction opportunities will touch off the formation of several new companies to join the field.

It is also likely that the market will continue to grow as the process gains acceptance and as products are refined and improved. Already, although it is a relatively “new” system when compared to more conventional construction methods, panelization has shown itself to be in an advantageous position when it is cost compared to its sister construction methods.

A few examples to compare to panelization’s estimated cost of $7-$8 per square foot:

- Tilt up, precast concrete with no finish runs up to $4 per square foot. It is a system often used in the construction of warehouses and manufacturing buildings.
- Solid precast concrete runs from $5.50 to $10 per square foot, plus interior finishing costs. Those figures, however, are for low-rise construction. They move up to $6 to $12 per square foot when you go to high-rise construction.
- Furring with poured insulation on the inside, has an average cost of $6.50 to $13 per square foot.
- Brick and block runs from $6.50 to $9 per square foot, plus an additional $1 a foot for interior finishing and insulation.
- Prefinished metal wall panels that include pre-insulation run $5 to $8 per foot, but also require backups, structural support or steel stud backups, and insulation finishing. Those additions move the system’s cost up into the $7.50 to $10 per foot range.
- Glass curtain wall can run $11 to $20 per square foot.
- Without panelization, the building of a finished wall from studs, sheathing, lath, R11 insula-
A ‘general’ endorsement

“Light gauge steel framing and synthetic plaster. Over exterior insulation. These make panelization and outsulation the best weapons we could have to help achieve energy independence.

“Double digit inflation, OPEC oil pricing and soaring interest rates have created a challenge and by an opportunity

“Our country has the finest manufacturers, materials and systems... the spirit, the best lathers, plasterers and carpenters in the world.”

“As American contractors, I know what you’ll do.

“You know, by God, I actually pity those poor (expletive deleted) who have only pre-cast and glass to sell, but God I do.

“We’re not just going to expose them for what they are doing to building costs—we’re going to kick their (expletive deleted) off every job in this country by the bushel.

“We’ll outspec, outsell and outbid them as fast as (expletive deleted) through a goose!

“I know that some of you men are wondering if you’ll chicken out under fire on the construction battlefield. Don’t worry about it. I can assure you... you’ll all do your duty.

“When you see public buildings and schools using the enemy’s products, that waste energy, your tax dollars and take money from your family, you’ll know what to do!

“Now, there’s one thing you’ll be able to say when you get back home, and you may thank God for it. 20 years from now when you are sitting around your fireside, with your grandson your knee, and asks you—what did you do in the great energy war of 1980? You won’t have to say... well, I shoveled (expletive deleted) in Louisiana.

“Alright, you (expletive deleted), you know how I feel... Uh, I’ll be proud to lead you wonderful guys into battle, any time, any where.”
The savings in building costs are obvious

system, if for no other reason than the fact weight, energy and structural considerations hit the building owner’s hot button in today’s marketplace.

SPEEDY RECOVERY

There is, of course, another construction dimension that should not be overlooked in rating panelization as an exterior wall building system: speed.

Even where some exterior wall systems have cost advantages over panelization, those advantages can be offset by considering the differential in speed of construction. Conventional, piece-at-a-time methods can often prove to be slower than panelization.

Also contributing to panelization’s marketability are the twin problems of on-site cost overruns and a general shortage of skilled labor. Panelization, by its nature, moves the process into the area of assembly-line production, which gives a contractor closer control over materials and use of the available labor force.

Even the “little things” add up to big pluses for panelization. Since the assembly is done in a jig, or fixed frame, each component of assembly will be repetitious. That means a stud can be located in mere seconds, and in most cases, stock items like lath and sheathing can be precut to fit the assembly, which eliminates a lot of material wastes. And, finally, since an assembly plant can be set up under cover, weather conditions are reduced as a factor of construction.

To be sure, panelization has yet to prove itself to be the next great building system. Although it has established itself as a valid (and valuable) construction method, panelization still has its largest dollar value tied up in its potential.

Says one interior system contractor who has used panelization for a major move outside of the walls: “Light gage steel framing systems in conjunction with portland cement or the new exterior insulation finish systems offer our industry the most significant growth opportunity to come along in many, many, many years. It’s the wave of the future, and it is a system of the present. When we get into mandated energy consumption levels for building construction, we’re going to find panelized construction one of the most exciting and dynamic products in the market. Yes, the hottest thing going.”