Constructive Technology: Carbon Fiber Masonry

What it is:

- Patent pending technology.
- A way to prefabricate masonry building elements (lintels, walls, corners, arches, etc.), laying them indoors, under ideal conditions, while the site is being prepared, then transporting the elements to the site for assembly into a completed building.
- A path to a new means and method of construction, which requires no change to or exemption from existing building codes.
- A system compatible with all types of masonry products; conventional CMUs, AAC, split-faced and other decorative masonry products, bricks, etc.

How It Works:

- Carbon fiber reinforcement supplies the tensile strength necessary to prevent failure of masonry elements when they are moved.
- The carbon fiber is not intended to supplant steel reinforcement, and serves only to permit remote fabrication, transport and assembly.
- The fiber is, however, so strong, that lintels can be transported as hollow bond beams, whose steel and grout are added after they are placed, permitting them to be constructed integrally with the columns or walls on which they bear.
- In larger assemblies (wall panels or gable ends), the element is further stabilized through post tensioning, which becomes vertical reinforcement when the element is incorporated into the structure.

Why It Is Better:

- The manufacture of lintels, walls, etc. can be started as soon as the construction documents are available, making these elements ready for installation whenever the site is ready to receive them. More of the building's construction runs in parallel. Time for delivery of a building is thereby reduced, and with it, the cost of construction.
- Integration of these elements into a building is straightforward and fast. For example, Constructive lintels are lifted into place, set on a mortar bed, and given simple support (typically, ordinary screw jacks, placed at intervals of 4 to 7 feet). At that point, the lintel is ready to receive steel, grout, and the courses to be laid on the lintel. After a few days the jacks can be removed.
- In the past, conventional construction of a wall has been slowed by the complications attending spanning of openings in the wall. Constructive technology eliminates these difficulties.
- Installation is vastly faster, and is accomplished with far higher quality, than is possible with built-in-place lintels, and is done without the risk of trades less than fully qualified for such work.
- Responsibility is focused on a single contractor, and on trades with skills matched to the task.
- Traditional shoring, requiring carpentry skills that are not a mason's strength, becomes unnecessary.
- Masons, not trained as steel workers, need no longer struggle to place steel lintels.
- Conflicts over different tolerances (steel vs. masonry) have sometimes been discovered late, causing delays. Use of Constructive lintels avoids the problem.
- Quality and fit are enhanced. The plates associated with other types of lintels, and the time necessary to fit, anchor and finish them, are unnecessary. The pre-manufactured element is fully integrated into the on-site construction.
- Field adjustments are readily made; no special equipment or techniques are necessary.
- Long spans are achievable. Constructive lintels can be made in lengths in excess of twenty feet.
- Any designed wall thickness can be matched.
- Any wall material and finish can be duplicated. Soaps, and the time it takes to install them, are no longer required.
- In steel framed and hybrid structures, coordination with steel erectors can greatly accelerate construction. Completed wall panels can be ready to be lifted into place as soon as the steel frame is ready to receive them. Wall panels can add to the strength of the structure, permitting reduction of steel and further cost savings.
- Constructive elements are fabricated indoors, under perfect conditions. Quality is greatly enhanced. Appearance is uniform. Winter conditions are never encountered.
- Tight building sites are more easily managed. Less materials need be stored on site. Fewer operation need be conducted there. Completed wall panels can be driven to the site, craned into position and set.
- Overall, the quality, speed and affordability of masonry construction are significantly improved.

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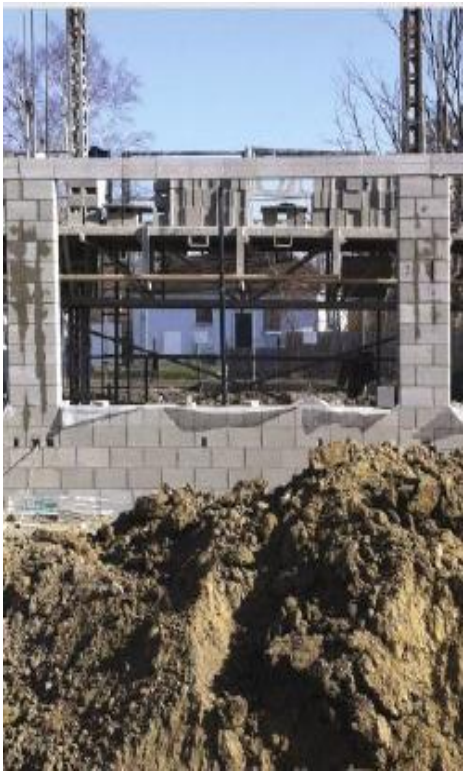

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