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Fast-Track Building Solutions

**Approved by Federal Green Construction Guide for Specifiers as a green building product**

Whole Building Design Guide  
Federal Green Construction Guide for Specifiers

This is a guidance document with sample specification language intended to be inserted into project specifications on this subject as appropriate to the agency's environmental goals. Certain provisions, where indicated, are required for U.S. federal agency projects. Sample specification language is numbered to clearly distinguish it from advisory or discussion material. Each sample is preceded by identification of the typical location in a specification section where it would appear using the SectionFormat™ of the Construction Specifications Institute; the six digit section number cited is per CSI Masterformat™ 2004 and the five digit section number cited parenthetically is per CSI Masterformat™ 1995.

**SECTION 03 40 00 (SECTION 03400) - PRECAST CONCRETE**

**SPECIFIER NOTE:**

*resource management:* Plant fabrication handles raw materials and by-products at a single location that typically allows greater efficiency and better pollution prevention than job site fabrication.

Aggregates for use in concrete include normal sand and gravel, crushed stone, expanded clay, expanded shale, expanded slate, pelletized or extruded fly ash, expanded slag, perlite, vermiculite, expanded polystyrene beads, or processed clay, diatomite, pumice, scoria, or tuff.

Architectural items (planters, lintels, bollards) fabricated from lightweight and recycled content aggregates are available. The quantity and type of recycled materials vary from manufacturer to manufacturer and include: cellulose, fiberglass, polystyrene, and rubber.

Autoclaved aerated concrete (AAC) is a type of lightweight precast concrete prevalent in Europe, Asia, and the Middle East and recently available through manufacturing facilities in the United States. It is made with portland cement, silica sand or fly ash, lime, water, and aluminum powder or paste. The aluminum reacts with the products of hydration to release millions of tiny hydrogen gas bubbles that expand the mix to approximately five times the normal volume. When set, the AAC is cut into blocks or slabs and steam-cured in an autoclave.

*toxicity/IEQ:* Refer to Section 03 30 00 (03300) - Cast-In-Place Concrete. Precast concrete generally requires less portland cement per volume of concrete for similar performance due to better quality control.

*performance:* Performance is more predictable in precast operations since more exact dimensions, placement of reinforcing, and surface finishing can be obtained. Precast concrete can be fabricated with continuous insulation. AAC is significantly lighter (about 1/5th the weight of traditional concrete) than normal concrete and can be formed into blocks or panels. Lighter weight concretes generally have greater fire and thermal resistance but less strength than traditional normal weight concrete. A full range of lightweight concretes are available and their strength and weight is determined by the aggregates used.