



Architectural Precast • Architectural Cast Stone • GFRC



STORAGE AREAS

Observations of storage areas are conducted to ensure proper blocking methods are used for prevention of chipping, warpage, cracking, or contamination. A final review of the product is made during loading to detect defects caused by handling. If needed, proper repair procedures are witnessed.

RECORD KEEPING

Inspectors check all files to verify that quality control procedures take place daily. Typical files which are checked include but are not limited to:

- Samples
- Finishes
- Mix Designs
- Drawings
- Mill Test Reports
- Special Items
- ASTM Certificates of Compliance
- Calibration Reports

PLANT FACILITIES

Quality production of Architectural Precast Concrete requires plant facilities which are clean, safe, and reflect current concrete technology.

Material Storage

Proper cement and aggregate storage is inspected and verified. Contamination is minimized for enduring strength and a lasting finish.

Batch Plant & Batching Operations

Concrete batching operations are inspected to ensure consistency and specified tolerance adherence. Scales are certified annually. It is determined that all mixing equipment is of a capacity and type to produce thoroughly mixed concrete of a uniform consistency. Admixture Dispensing is also checked.

Casting Area Inspections Include:

- Placing Concrete
- Consolidation
- Curing
- Stripping
- Finishing
- Storage
- Shipping
- Safety
- Reinforcement
- Subassemblies



Dedicated Solely To The Advancement Of Architectural Precast Concrete

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www.archprecast.org

For detailed information about the APA Plant Certification Program or for free technical assistance contact the Architectural Precast Association.



ARCHITECTURAL PRECAST • ARCHITECTURAL CAST STONE • GFRC

ARCHITECTURAL CAST STONE



The APA Plant Certification Program addresses the differences between wet and dry cast production procedures for Architectural Cast Stone. Dry Cast products are formed from a 0-slump concrete mix that requires the use of pneumatic rammers to compact the concrete into molds. Wet Cast products use a measurable slump concrete mix that is poured into molds and properly consolidated. Both methods produce high quality architectural precast building units that simulate natural cut stone and are typically treated as handset masonry units during installation.

Architectural Cast Stone units are generally used for ornamental design purposes where the architect requires a finer detail in

the precast concrete treatment. The APA certification process therefore expands its criteria for finish, durability, and quality control to meet the special requirements of this product.

Choose an APA Certified Cast Stone Plant for assured quality.



GFRC • GLASS FIBER REINFORCED CONCRETE

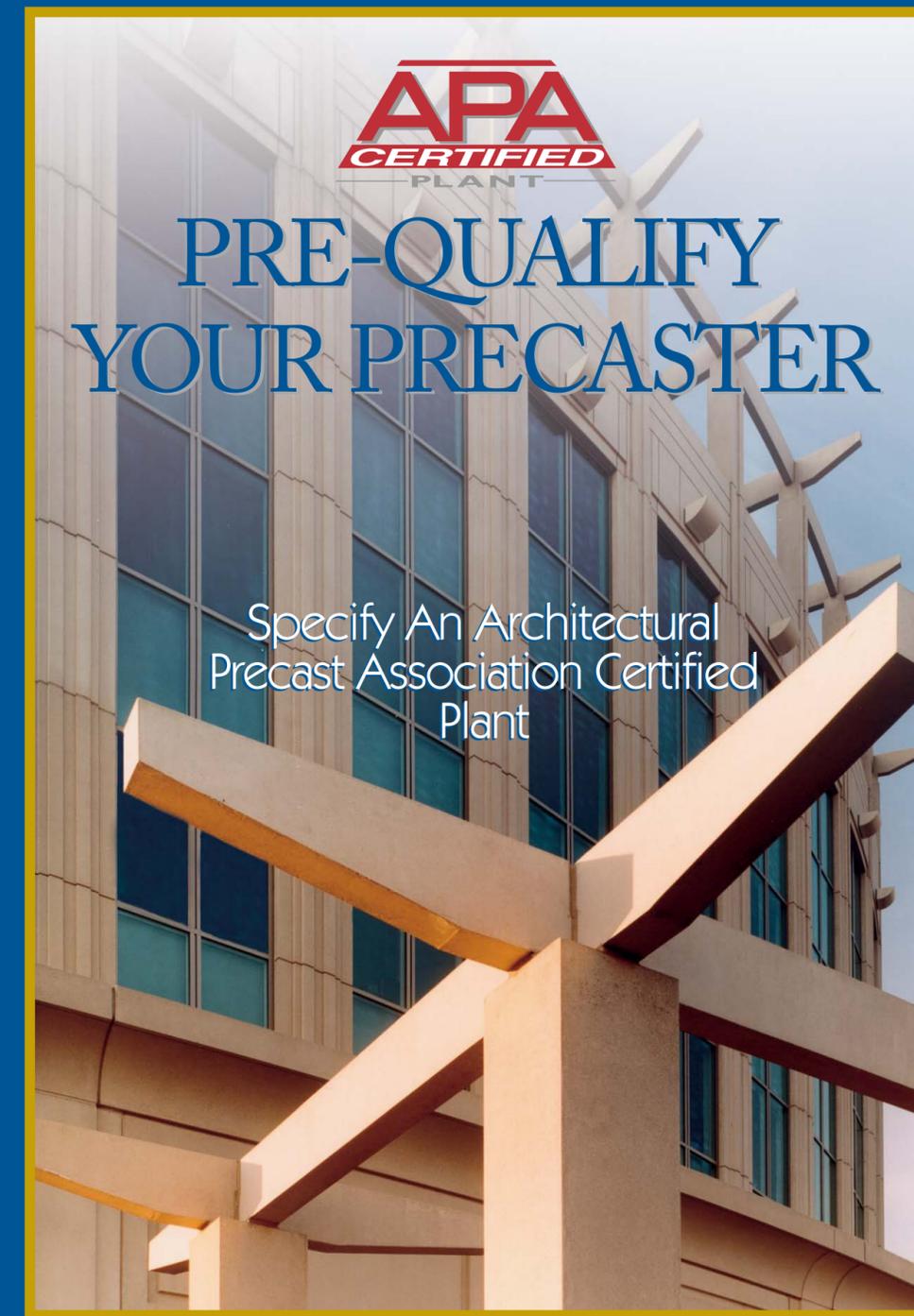
Special aesthetic needs are satisfied with GFRC. Its light weight, durable character makes it ideal for precast applications that do not require the strength of architectural panels or cast stone. Special fiberglass reinforced high slump concrete is sprayed on to forms then hand compacted to achieve the

proper thickness and consolidation. These special casting procedures require unique quality control considerations that wet or dry cast operations do not employ. The APA Plant Certification Program assures that additional GFRC quality control procedures are followed by your manufacturer.



PRE-QUALIFY YOUR PRECASTER

Specify An Architectural Precast Association Certified Plant



SPECIFY QUALITY



Specify An APA Certified Plant for Architectural Precast • Architectural Cast Stone • GFRC



ARCHITECTURAL PRECAST

Architectural Precast Concrete has grown in popularity as a building product

because of its economy, flexibility, durability, and universal availability. With its increased use, a highly specialized industry has developed which requires an equally specialized system of quality control procedures.

The successful use of Architectural Precast Concrete is dependent not only on the designers' understanding of the product, but on the ability of manufacturers to produce products which meet the desired intent of the project. To this end, the Architectural Precast Association constructed a Plant Certification Program which provides designers that essential assurance of a manufacturer's ability to produce quality precast concrete products. By concentrating on Architectural Precast Concrete as its single inspection priority, APA can offer a level of quality assurance which only specialization can provide.

STRINGENT REQUIREMENTS FOR PLANT INSPECTORS

Only the most qualified inspectors are chosen.

To provide a specifier the quality assurance he demands, inspection criteria must be supported by inspectors who have the knowledge to properly evaluate precasting procedures. This is why APA requires that every inspector be a seasoned Registered Professional Engineer with in-depth knowledge of Precast Concrete and its quality control requirements. Ten years experience in the Precast Concrete Industry is the minimum APA will accept. Individual inspector credentials are verified by APA before any inspection begins.

REGIONALLY BASED INSPECTORS REDUCE YOUR PROJECT COSTS

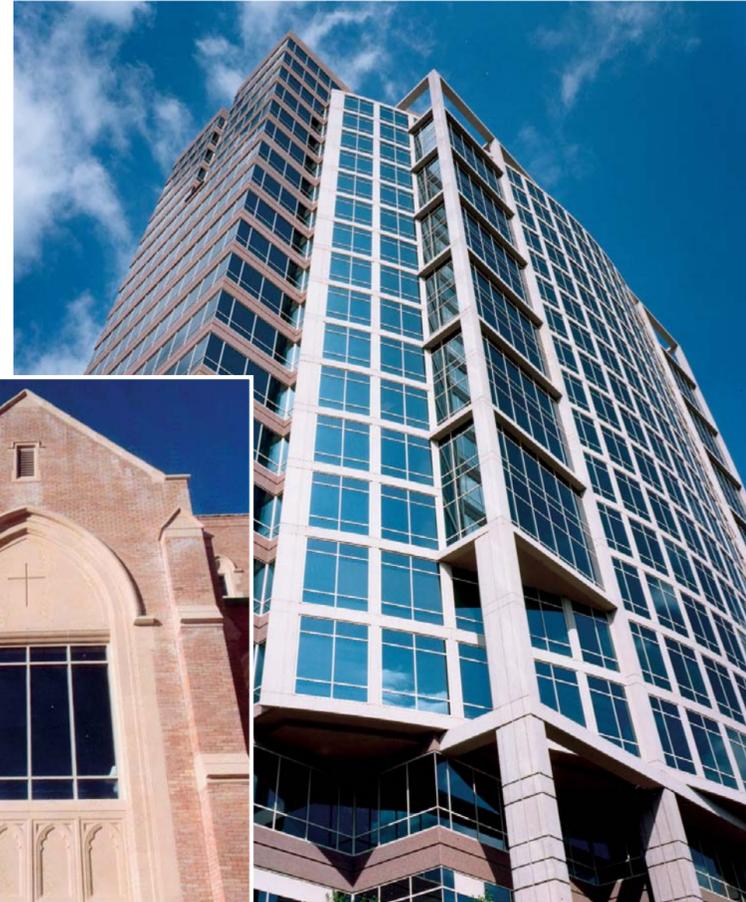
APA inspectors are dispersed throughout all regions of the country; therefore, travel costs are kept to a minimum which further reduces inspection fees. The APA Plant Certification Program is non-profit based. The extremely affordable nature of the certification program allows a precaster to become certified without having to include high inspection fees in your job costs.

UNANNOUNCED INSPECTIONS PROVIDE ACCURATE RESULTS—DE-CERTIFICATION IS IMMEDIATE

Every inspection is unannounced. A plant must be prepared for an inspection at all times. The APA office orders inspections randomly so all data is reflective of the daily status of the plant.

Every certified plant inspection spans an entire casting cycle and covers well over one hundred check points. Each check point is graded as pass/fail. Either the item inspected meets the high APA standard or it does not. APA does not recognize partial credit. In fact, a plant will immediately fail if it cannot pass each of more than twenty mandatory items which encompass highly critical areas of personnel, record keeping, and shop drawings.

A plant which falls below the standards set by the APA Certification Program has its Certificate of Certification withdrawn immediately. There is no grace period; therefore, a plant cannot continue to function as a certified plant. The modifications to its quality control procedures must be accomplished and verified by another inspection before certification status is re-instated.



QC manual is reviewed by a committee consisting of professional engineers and production experts before it is approved. Failure to maintain this manual will constitute suspension of the plant's approved status.

THE CERTIFICATION PROCESS

Quality control begins with the dedication of each company to produce a fabricated product which conforms to the requirements specified in the contract documents; one that is in compliance with appropriate codes and the recommended standards and practices of the industry and the requirements established in this plant certification program.

QUALITY CONTROL ZONES

Architectural Precast manufacturing facilities are divided into quality control zones. These are the areas in which each phase of manufacturing takes place. Each zone is then further broken down into its quality control components. More than 100

quality control components are thoroughly inspected and individually graded pass/fail.

ENGINEERING

A Certified Architectural Precast manufacturer is required to have on staff qualified engineering professionals. These individuals are responsible for forming, manufacturing, and installation procedures. Finished projects must conform within tolerances to the specified quality standards. The engineering department must review the design of the Precast Concrete products with respect to layout, connections, and handling stresses. Layout considerations include jointing, manufacturing and installation tolerances, product sizing and finishes. Form design, shop drawings, connections and reinforcing design are also inspected.

TESTING

Material Testing

Testing is the primary method of determining conformance to design and specification requirements. Testing procedures are assigned to the produced product, material to be incorporated in the product, and to machinery or equipment used in the manufacturing process. The specified properties of all materials used in the manufacturing process are to be determined by appropriate testing according to ASTM Standards.



Strict testing compliance is assured for elements integral to quality production. Key elements include:

- Cement
- Aggregates
- Water
- Reinforcing
- Reinforcing Admixtures
- Hardware
- Pigments
- Inserts
- Embeds
- Mix Designs

Concrete Testing

Product testing maintains production uniformity to ensure conformity to established criteria of reported data. Mix specimens are made and tested for:

- Compressive Strength
- Slump
- Spread
- Air Content

Other tests as required by specification will be performed according to established methods and standards.



Equipment Testing

Proper testing and calibration of:

- Scales
- Jacks
- Testing Machines

Other applicable equipment is also verified.

ALL QUALITY CONTROL PROCEDURES ARE CAREFULLY REVIEWED

The scope of quality control reviews which are performed in Architectural Precast Concrete plants include but are not limited to:

- Aggregates
- Reinforcing
- Cement
- Embeds
- Hardware

CONCRETE

Concrete is checked for mix consistency throughout the project. The consistency of temperature, slump and curing conditions are important in the final product finish. Weighing, dispensing, sequencing and



mixing of materials are certified to be accurate and consistent to maintain acceptable panel finishes.



PREPARATION OF FORMS

Forms are meticulously inspected to assure compliance to specified tolerances. Changes involving blockouts, reveals, cast-in items, position and amount of reinforcing are rechecked following initial positioning and prior to concrete placement.

SAMPLES

Precast Concrete samples are key to ensuring that the proposed architectural treatment will be consistent in color and finish throughout the project. Related to specific projects, they are used to show the type of material, the quality of the concrete, and the type of finish. Sample acceptability and proper storage is noted.

SHOP DETAILS

Items inspected include :

- How finished products compare to shop drawing details
- Surface Finishes
- Dimensions
- Location of Embeds
- Conformance to Shape
- Detailing