

**ADDENDUM NUMBER 3**  
**PROJECT CODE: A0122-21-492426 and A0135-22-511452**  
**IFB# 154542103**

**November 12, 2021**

PROJECT: Virginia Tech  
New Baseball Pitching Lab  
Blacksburg, Virginia

**TO ALL BIDDERS:**

**GENERAL:** Addenda are part of the Contract Documents and are issued to amend or interpret the Drawings and Specifications. **The Addenda shall be acknowledged in the Bid Form** in the space provided for addenda acknowledgement.

Addenda list items by Drawings and Specifications. However, only specification items are referenced to Sections. Drawing changes, as well as Specification changes, described in Addenda shall include all Work required by the various trades involved to effect the changes described.

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**CHANGES AND CLARIFICATIONS – GENERAL**

1. The **Bid Due Date and Time** has been changed to **NOVEMBER 22, 2021 AT 2 P.M.**
2. The **Remote Bid Opening** has been changed to **NOVEMBER 23, 2021 AT 2 P.M.**

**CHANGES AND CLARIFICATIONS – PROJECT MANUAL**

**03 45 00 ARCHITECTURAL PRECAST CONCRETE**

See attached revised section 03 45 00.

**CHANGES AND CLARIFICATIONS - DRAWINGS**

The following changes shall be clouded and marked with **REVISION NUMBER 3:**

**A0.1, MOCK-UP DRAWING:**

**REVISE** MOCK-UP NOTES to be:

1. BUILDING MOCK-UP SHOULD BE CONSTRUCTED PER VIRGINIA TECH DESIGN AND CONSTRUCTION STANDARDS, CURRENT EDITION, AND HOKIE STONE DESIGN AND CONSTRUCTION PROCEDURES.
2. THE BUILDING MOCK-UP MAY BE CONSTRUCTED IN PLACE.
3. NOTIFY ARCHITECT 14 DAYS IN ADVANCE OF THE DATES AND TIMES WHEN MOCK-UPS WILL BE PREPARED.
4. MOCK-UP SHOULD EMPHASIZE MATERIAL JOINING, CONDITIONS, FLASHING, ETC. CONSTRUCT MOCK-UPS IN ACCORDANCE WITH THE PROJECT DRAWINGS AND WITH MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE SPECIFICATIONS.
5. APPROVED MOCK-UPS SHALL REMAIN AVAILABLE FOR REFERENCE/REVIEW DURING CONSTRUCTION AND MAY BE USED AS PART OF THE FINISHED WORK.
6. FOUNDATIONS TO BE PER STRUCTURAL DRAWINGS FOR LOCATION INDICATED ON MOCK-UP PLAN. FOUNDATIONS AT THIS CORNER TO BE INSTALLED SUCH THAT THEY EXTEND A MINIMUM OF 4'-0" BEYOND MOCK-UP WALL EXTENTS.
7. REFER TO STRUCTURAL DRAWINGS S0.2, MASONRY NOTE G FOR REQUIRED BRACING OF MASONRY – IT WOULD APPLY TO MOCKUP.

**A6.1, FINISH SCHEDULE & NOTES:**

**REVISE MATERIAL FINISH NOTES, A. RUBBER (RBR) TILE #1 to be:**

1. TRIUMPH MULTI-FUNCTIONAL AND SPORTS RUBBER TILE SMH BY TARKETT: 24" X 24" X 3/8" TILE -OR- NORAMENT 992 GRANO BY NORA SYSTEMS: 1M X 1M X 9MM TILE. COLOR TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.

**REVISE MATERIAL FINISH NOTES, B. RUBBER (RBR) BASE #1 to be:**

1. BASEWORKS THERMOSET RUBBER WALL BASE BY TARKETT, PINNACLE RUBBER BASE BY ROPPE, OR NORA WALL BASE BY NORA SYSTEMS, 4" W/ TOE. COLOR TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.
  - a. PROVIDE PRE-FORMED INSIDE AND OUTSIDE CORNERS.

**ATTACHMENTS**

1. 03 45 00 ARCHITECTURAL PRECAST CONCRETE
2. Prebid Questions

**THE BID DUE DATE AND TIME IS NOW NOVEMBER 22, 2021 AT 2 P.M. AND THE REMOTE BID OPENING IS NOW NOVEMBER 23, 2021 AT 2 P.M. ALL OTHER TERMS, CONDITIONS, AND DESCRIPTIONS REMAIN THE SAME.**

**END OF ADDENDUM NUMBER 3**

**SECTION 03 45 00**

**ARCHITECTURAL PRECAST CONCRETE**

**PART 1 – GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This section includes the performance criteria, materials, design, production, and erection of architectural precast concrete for the entire project. The work performed under this Section includes all labor, material, equipment, related services, and supervision required for the manufacture and erection of the architectural precast concrete work shown on the Contract Drawings.
- B. This Section includes the following:
  - 1. Architectural precast concrete cladding units.
- C. Related Sections include the following:
  - 1. Section 07620 "Sheet Metal Flashing and Trim" for flashing receivers and reglets.
  - 2. Section 07920 "Joint Sealants" for elastomeric joint sealants and sealant backings.
  - 3. Section 08520 "Aluminum Windows" for windows set into architectural precast concrete units.

**1.3 DEFINITION**

- A. Design Reference Sample: Sample of approved architectural precast concrete color, finish and texture, preapproved by Architect.

**1.4 PERFORMANCE REQUIREMENTS**

- A. Structural Performance: Provide architectural precast concrete units and connections capable of withstanding the following design loads within limits and under conditions indicated:
  - 1. Loads: As indicated on drawings.
- B. Structural Performance: Provide architectural precast concrete units and connections capable of withstanding the following design loads within limits and under conditions indicated:
  - 1. Dead Loads: Self weight + items indicated on drawings.
  - 2. Wind Loads: Refer to S000 including components & cladding chart.

3. Seismic Loads: Refer to S000.
4. Design precast concrete units and connections to maintain clearances at openings, to allow for fabrication and construction tolerances, to accommodate live-load deflection, shrinkage and creep of primary building structure, and other building movements as follows:
  - a. Upward and downward movement of 1/2 in. (13 mm).
5. Thermal Movements: Provide for in-plane thermal movements resulting from annual ambient temperature changes of 80 °F (26 °C).

## **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Retain quality control records and certificates of compliance for 5 years after completion of structure.
- B. Design Mixtures: For each precast concrete mixture. Include results of compressive strength and water-absorption tests.
- C. Shop (Erection) Drawing:
  1. Detail fabrication and installation of architectural precast concrete units.
  2. Indicate locations, plan views, elevations, dimensions, shapes, and cross-sections of each unit.
  3. Indicate aesthetic intent including joints, drips, chamfers, rustications or reveals, and extent and location of each surface finish.
  4. Indicate details at building corners.
  5. Indicate separate face and backup mixture locations and thicknesses.
  6. Indicate welded connections by AWS standard symbols and show size, length, and type of each weld.
  7. Indicate locations, tolerances, and details of anchorage devices to be embedded in or attached to structure or other construction.
  8. Indicate locations, extent, and treatment of dry joints if two-stage casting is proposed.
  9. Indicate plan views and elevations showing unit location and dimensions, erection sequences, and bracing plan for special conditions.
  10. Indicate location of each architectural precast concrete unit by same identification mark placed on unit.
  11. Indicate relationship of architectural precast concrete units to adjacent materials.
  12. Indicate locations and details of clay product units, including corner units and special shapes with dimensions, and joint treatment.
  15. Coordinate and indicate openings and inserts required by other trades.
  16. Design Modifications: If design modifications are proposed to meet performance requirements and field conditions, notify the Architect and submit design calculations and Shop Drawings. Do not adversely affect the appearance, durability, or strength of units when modifying details or materials and maintain the general design concept.
  17. Comprehensive engineering design signed and sealed by qualified professional engineer responsible for its preparation licensed in the jurisdiction in which the project is located. Show governing panel types, connections, concrete cover and reinforcement types, including special reinforcement such as epoxy coated carbon fiber grid. Indicate location, type, magnitude, and direction of loads imposed on the building structural frame by the architectural precast concrete.

- D. Samples: Design reference samples for initial verification of design intent, approximately 12 x 12 x 2 in. (300 x 300 x 50 mm), representative of finishes, color, and textures of exposed surfaces of architectural precast concrete units.
1. When back face of precast concrete unit is to be exposed, include Samples illustrating workmanship, color, and texture of the backup concrete as well as facing concrete.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For installer, fabricator, testing agency, and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include list of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Welding Certificates: Copies of certificates for welding procedure specifications (WPS) and personnel certification.
- C. Material Test Reports for aggregates: From an accredited testing agency, indicating and interpreting test results for compliance with requirements indicated:
- D. Material Certificates. For the following items signed by manufacturers:
1. Cementitious materials.
  2. Reinforcing materials including prestressing tendons.
  3. Admixtures.
  4. Bearing pads.
  5. Structural-steel shapes and hollow structural steel sections.
  6. Other components specified in Contract Documents with applicable standards.
- E. Field quality-control test and special inspection reports.

## 1.7 QUALITY ASSURANCE

### A. Erector Qualifications:

A.1. A precast concrete erector with all erecting crews Qualified and designated, prior to beginning work at project site, by PCI's Certificate of Compliance to erect Category A (Architectural Systems) for non-load and S2 (Complex Structural Systems) for load-bearing members; or-

B.2. A precast concrete erector who has retained a "PCI-Certified Field Auditor", at erector's expense, to conduct a field audit of a project in the same category as this Project prior to start of precast concrete erection and -who can produce an Erector's Post Audit Declaration.

C.B. Fabricator Qualifications: A firm that complies with the following requirements and is experienced in producing architectural precast concrete units similar to those indicated for this Project and with a record of successful in-service performance.

1. Assumes responsibility for engineering architectural precast concrete units to comply with performance requirements. This responsibility includes preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
2. Professional Engineer Qualifications: A professional engineer who is licensed in the jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of architectural precast concrete that are similar to those indicated for this Project in material, design, and extent.
3. Participates in PCI's Plant Certification program at the time of bidding and is designated a PCI-Certified plant for Group A, Category A1- Architectural Cladding and Loadbearing Units or designated as an APA certified plant for production of architectural precast concrete products.
4. Has sufficient production capacity to produce required units without delaying the Work.
5. Certification shall be maintained throughout the production of the precast concrete units. Production shall immediately stop if at any time the fabricator's certification is revoked, regardless of the status of completion of contracted work. Production will not be allowed to re-start until the necessary corrections are made and certification has been re-established. In the event certification(s) cannot be re-established in a timely manner, causing project delays, the fabricator, at no additional cost, will contract out the remainder of the units to be manufactured at a PCI certified plant or APA certified plant.
6. Is registered with and approved by authorities having jurisdiction.

D.C. Testing Agency Qualifications: An independent accredited testing agency acceptable to authorities having jurisdiction, qualified according to ASTM C 1077, ASTM E 329 and ASTM E 543 to conduct the testing indicated.

E.D. Design Standards: Comply with ACI 318 (ACI 318M) and design recommendations of PCI MNL 120, PCI Design Handbook - Precast and Prestressed Concrete, applicable to types of architectural precast concrete units indicated.

F.E. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations, and dimensional tolerances for types of units required, comply with PCI MNL 117, Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products.

G.F. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code – Steel"; AWS D1.4/D1.4M, "Structural Welding Code - Reinforcing Steel" and AWS D1.6/D1.6M Structural Welding Code-Stainless".

H.G. Mockups: After sample approval but before production of architectural precast concrete units, construct full-sized mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution. Mockups to be representative of the finished work including aluminum framing, glass, Hokie Stone, sealants, and architectural precast concrete complete with anchors, connections, flashings, and joint fillers as accepted on the final Shop Drawings. Build mockups to comply with the following requirements, using materials indicated for the completed work:

1. Build mockups in the location and of the size indicated in Contract Documents or, if not indicated, as directed by Architect.
2. As a minimum, the mockup must consist of a corner and horizontal and vertical butt joint.
3. Notify Architect in advance of dates and times when mockups will be constructed.

4. Obtain Architect's approval of mockups before starting fabrication of precast concrete units.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demonstrate patch and repair methods on mockup, as directed and to the satisfaction of the Architect.
7. Demolish and remove mockups when directed.
8. Approval of mockups does not constitute approval of deviations from the Contract Documents unless such deviations are specifically approved by Architect in writing.

H.H. Preinstallation Conference: Conduct conference at Project site.

## **1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver architectural precast concrete units in such quantities and at such times to ensure compliance with the agreed upon project schedule and setting sequence and also to limit unloading units temporarily on the ground or other rehandling.
- B. Support units during shipment on non-staining shock-absorbing material.
- C. Store units with adequate dunnage and bracing, and protect units to prevent contact with soil, to prevent staining, and to prevent cracking, distortion, warping, or other physical damage.
- D. Place stored units so identification marks are clearly visible, and units can be inspected.
- E. Handle and transport units in a manner to avoid excessive stresses which could cause cracking or damage.
- F. Lift and support units only at designated points indicated on Shop Drawings.

## **1.9 SEQUENCING**

- A. Furnish loose connection hardware and anchorage items to be embedded in or attached to other construction without delaying the Work. Provide locations, setting diagrams, templates, instructions, and directions, as required, for installation.

## **PART 2 – PRODUCTS**

### **2.1 FABRICATORS**

- A. Fabricators: Subject to compliance with requirements, fabricators offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Fabricators: Subject to compliance with requirements, provide products by one of the following:
  1. Basis of design: American Stone Virginia LLC, Ladysmith, Virginia
  2. Arban and Carosi; matching basis of design.
  3. Gate Precast Company; matching basis of design.

4. High Concrete; matching basis of design.
5. Metromont Precast; matching basis of design.
6. Shockekey Precast; matching basis of design.

## **2.2 MOLD MATERIALS**

- A. Molds: Rigid, dimensionally stable, non-absorptive material, warp and buckle free, that will provide continuous and true precast concrete surfaces within fabrication tolerances indicated; nonreactive with concrete and suitable for producing required finishes.
  1. Form-Release Agent: Commercially produced form-release agent that will not bond with, stain, or affect hardening of precast concrete surfaces and will not impair subsequent surface or joint treatments of precast concrete.
- B. Form Liners: Units of face design, texture, arrangement, and configuration indicated. Provide solid backing and form supports to ensure that form liners remain in place during concrete placement. Use manufacturer's recommended form-release agent that will not bond with, stain, or adversely affect hardening of precast concrete surfaces and will not impair subsequent surface or joint treatments of precast concrete.
  1. Form liners to be seamless; panels to appear uniform in finish.
- C. Surface Retarder: Chemical set retarder, capable of temporarily delaying final hardening of newly placed concrete to depth of reveal specified.

## **2.3 REINFORCING MATERIALS**

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
- C. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60 (Grade 420) deformed bars, assembled with clips.
- D. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from galvanized and chromate wash treated steel wire into flat sheets.
- E. Deformed Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.
- F. Supports: Suspend reinforcement from back of mold or use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place according to PCI MNL 117.

## **2.5 CONCRETE MATERIALS**

- A. Portland Cement: ASTM C150, Type I or III.
  1. For surfaces exposed to view in finished structure, use white, of same type, brand, and mill source throughout the precast concrete production.
  2. Standard gray portland cement may be used for non-exposed backup concrete.



- B. Supplementary Cementitious Materials.
  - 1. Fly Ash: ASTM C 618, Class C or F with maximum loss on ignition of 3 percent.
  - 2. Ground Granulated Blast Furnace Slag: ASTM C 989, Grade 100 or 120.
- C. Normal weight Aggregates: Except as modified by PCI MNL 117, ASTM C 33, with coarse aggregates complying with Class 5S. Stockpile fine and coarse aggregates for each type of exposed finish from a single source (pit or quarry) for Project.
  - 1. Face-Mixture Coarse Aggregates: Selected, hard, and durable; free of material that reacts with cement or causes staining; to match selected finish sample.
    - a. Gradation: Uniformly graded to match design reference sample.
  - 2. Face-Mixture Fine Aggregates: Selected, natural, or manufactured sand of a material compatible with coarse aggregate to match selected Sample finish.
  - 3. Backup Concrete Aggregates: ASTM C 33 or C 330.
- D. Lightweight Aggregates: Except as modified by PCI MNL 117, ASTM C 330 with absorption less than 11 percent.
- E. Coloring Admixture: ASTM C 979, synthetic or natural mineral-oxide pigments or colored water-reducing admixtures, temperature stable, and nonfading.
- F. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 117.
- G. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
- H. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and to not contain calcium chloride, or more than 0.15 percent chloride ions or other salts by weight of admixture.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 3. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 4. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 5. Plasticizing Admixture for Flowable Concrete: ASTM C 1017/C 1017M.

## 2.6 STEEL CONNECTION MATERIALS

- A. Carbon-Steel Shapes and Plates: ASTM A 36/A 36M.
- B. Carbon-Steel Headed Studs: ASTM A 108, Grades 1010 through 1020, cold finished, AWS D1.1/ D1.1 M, Type A or B, with arc shields and with minimum mechanical properties of PCI MNL 117, Table 3.2.3.
- C. Carbon-Steel Plate: ASTM A 283/A 283M, Grade C.
- D. Malleable Iron Castings: ASTM A 47/A 47M, Grade 32510 or 35028.

- E. Carbon-Steel Castings: ASTM A 27/A 27M, Grade 60-30 (Grade 415-205).
- F. High-Strength, Low-Alloy Structural Steel: ASTM A 572/A 572M.
- G. Carbon-Steel Structural Tubing: ASTM A 500/A 500M, Grade B or C.
- H. Wrought Carbon-Steel Bars: ASTM A 675/A 675M, Grade 65 (Grade 450).
- I. Deformed-Steel Wire or Bar Anchors: ASTM A 496/A 496 M or ASTM A 706/A 706M.
- J. Carbon-Steel Bolts and Studs: ASTM A 307, Grade A or C (ASTM F 568M, Property Class 4.6) carbon-steel, hex-head bolts and studs; carbon-steel nuts (ASTM A 563/A 563M, Grade A); and flat, unhardened steel washers, ASTM F 844.
- K. High-Strength Bolts and Nuts: ASTM A 193/A 198M, Grade B5 or B7, ASTM A 325/A 325M, or ASTM A 490/A 490M, Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, (ASTM A 563/A 563M) and hardened carbon-steel washers (ASTM F 436/F 436M).
- L. Zinc-Coated Finish: For steel items in exterior walls and items indicated for galvanizing, apply zinc coating by hot-dip process according to ASTM A 123/A 123M, after fabrication, ASTM A 153/A 153M, or ASTM F 2329 as applicable.
  - 1. For steel shapes, plates, and tubing to be galvanized, limit silicon content of steel to less than 0.03 percent or to between 0.15 and 0.25 percent or limit sum of silicon content and 2.5 times phosphorous content to 0.09 percent.
  - 2. Galvanizing Repair Paint: Zinc paint with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035B or SSPC-Paint 20. Comply with manufacturer's requirements for surface preparation.

## **2.7 BEARING PADS AND OTHER ACCESSORIES**

- A. Provide one of the following bearing pads for architectural precast concrete units as recommended by precast concrete fabricator for application:
  - 1. Elastomeric Pads: AASHTO M 251, plain, vulcanized, 100 percent polychloroprene (neoprene) elastomer, molded to size or cut from a molded sheet, 50 to 70 Shore A durometer according to ASTM D 2240, minimum tensile strength 2250 psi (15.5 MPa) per ASTM D 412.
  - 2. Random-Oriented, Fiber-Reinforced Elastomeric Pads: Preformed, randomly oriented synthetic fibers set in elastomer. Surface hardness of 70 to 90 Shore A durometer according to ASTM D 2240. Capable of supporting a compressive stress of 3000 psi (20.7 MPa) with no cracking, splitting, or delaminating in the internal portions of the pad. Test one specimen for each 200 pads used in Project.
  - 3. Cotton-Duck-Fabric-Reinforced Elastomeric Pads: Preformed, horizontally layered cotton-duck fabric bonded to an elastomer. Surface hardness of 80 to 100 Shore A durometer according to ASTM D 2240. Conforming to Division II, Section 18.10.2 of AASHTO LRFD Bridge Design Specifications, or Military Specification, MIL-C-882E.
  - 4. Frictionless Pads: Tetrafluoroethylene (Teflon), glass-fiber reinforced, bonded to stainless or mild-steel plates, or random-oriented, fiber-reinforced elastomeric pads, of type required for in-service stress.

5. High-Density Plastic: Multimonomer, nonleaching, plastic strip capable of supporting loads with no visible overall expansion.
- B. Reglets: Stainless steel, Type 304 felt- or fiber-filled or face opening of slots covered.
- C. Erection Accessories: Provide clips, hangers, high-density plastic or steel shims, and other accessories required to install architectural precast concrete units.
- D. Welding Electrodes: Comply with AWS standards for steel type and/or alloy being welded.

## 2.8 GROUT MATERIALS

- A. Nonmetallic, Nonshrink Grout: Premixed, prepackaged non-ferrous aggregate, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing admixtures, complying with ASTM C 1107, Grade A for drypack and Grades B and C for flowable grout and of consistency suitable for application within a 30-minute working time. Water-soluble chloride ion content of grout with less than 0.06 percent chloride ion by weight of cement when tested in accordance with ASTM C 1218/C 1218M.
- B. Epoxy-Resin Grout: Two-component, mineral-filled epoxy-resin: ASTM C 881/C 881M of type, grade, and class to suit requirements.

## 2.9 CONCRETE MIXTURES

- A. Prepare design mixtures to match Architect's sample or for each type of precast concrete required.
  1. Permissible use of fly ash is between 15 to 20 percent replacement of portland cement by weight; ground granulated blast furnace slag is between 15 to 20 percent of portland cement by weight; and metakaolin and silica fume is between 5 to 10 percent of portland cement by weight.
- B. Design mixtures may be prepared by a qualified independent testing agency or by qualified precast concrete plant personnel at architectural precast concrete fabricator's option.
- C. Limit water-soluble chloride ions to the maximum percentage by weight of cement permitted by ACI 318 (ACI 318M) or PCI MNL 117 when tested in accordance with ASTM C 1218/C 1218M.
- D. Normal\_weight Concrete Face and Backup Mixtures: Proportion mixtures by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normal\_weight concrete with the following properties:
  1. Compressive Strength (28 Days): 5000 psi (34.5 MPa) minimum.
  2. Release Strength: As required by design.
  3. Maximum Water-Cementitious Materials Ratio: 0.45.

- E. Water Absorption: 6 percent by weight or 14 percent by volume, tested according to ASTM C 642, except for boiling requirement.
- F. Lightweight Concrete Backup Mixtures: Proportion mixtures by either laboratory trial batch or field test data methods according to ACI 211.2, with materials to be used on Project, to provide lightweight concrete with the following properties:
  - 1. Compressive Strength (28 Days): 5000 psi (34.5 MPa) minimum.
  - 2. Release Strength: As required by design.
  - 3. Unit Weight: Calculated equilibrium unit weight of 115 lb/ft<sup>3</sup> (1842 kg/m<sup>3</sup>), where variations exceed plus or minus 5 lb/ft<sup>3</sup> (80 kg/m<sup>3</sup>) adjust to plus or minus 3 lb/ft<sup>3</sup> (48 kg/m<sup>3</sup>), according to ASTM C 567.
- G. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 117.
- H. When included in design mixtures, add other admixtures to concrete according to manufacturer's written instructions.

## **2.10 MOLD FABRICATION**

- A. Molds: Accurately construct molds, mortar tight, of sufficient strength to withstand pressures due to concrete placement and vibration operations and temperature changes, and for prestressing and detensioning operations. Coat contact surfaces of molds with release agent before reinforcement is placed. Avoid contamination of reinforcement and prestressing tendons by release agent.
  - 1. Place form liners accurately to provide finished surface texture indicated. Provide solid backing and supports to maintain stability of liners during concrete placement. Coat form liner with form-release agent.
- B. Maintain molds to provide completed architectural precast concrete units of shapes, lines, and dimensions indicated in Contract Documents, within fabrication tolerances specified.
  - 1. Form joints are not permitted on faces exposed to view in the finished work.
  - 2. Edge and Corner Treatment: Uniformly chamfered.

## **2.11 FABRICATION**

- A. Cast-in Anchors, Inserts, Plates, Angles, and Other Anchorage Hardware: Fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware and secure in place during precasting operations. Locate anchorage hardware where it does not affect position of main reinforcement or concrete placement.
  - 1. Weld headed studs and deformed bar anchors used for anchorage according to AWS D1.1/D1.1M and AWS C5.4, "Recommended Practices for Stud Welding."

- B. Furnish loose hardware items including steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other hardware shapes for securing architectural precast concrete units to supporting and adjacent construction.
- C. Cast in reglets, slots, holes, and other accessories in architectural precast concrete units as indicated on Contract Drawings.
- D. Cast in openings larger than 10 in. (250 mm) in any dimension. Do not drill or cut openings or prestressing strand without Architect's approval.
- E. Reinforcement: Comply with recommendations in PCI MNL 117 for fabrication, placing, and supporting reinforcement.
  - 1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete. When damage to epoxy-coated reinforcing exceeds limits specified in ASTM A 775/A 775M, repair with patching material compatible with coating material and epoxy coat bar ends after cutting.
  - 2. Accurately position, support, and secure reinforcement against displacement during concrete- placement and consolidation operations. Completely conceal plastic tipped or corrosion resistant metal or plastic chair support devices to prevent exposure on finished surfaces.
  - 3. Place reinforcing steel and prestressing tendon to maintain at least 3/4 in. (19 mm) minimum concrete cover. Increase cover requirements for reinforcing steel to 1 1/2 in. (38 mm) when units are exposed to corrosive environment or severe exposure conditions. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Direct wire tie ends away from finished, exposed concrete surfaces.
  - 4. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh spacing and wire tie laps, where required by design. Offset laps of adjoining widths to prevent continuous laps in either direction.
- F. Reinforce architectural precast concrete units to resist handling, transportation and erection stresses, and specified in-place loads, whichever governs.
- G. Prestress tendons for architectural precast concrete units by pretensioning or post-tensioning methods. Comply with PCI MNL 117.
  - 1. Delay detensioning or post-tensioning of precast, prestressed architectural precast concrete units until concrete has reached its indicated minimum design release compressive strength as established by test cylinders cured under the same conditions as concrete unit.
  - 2. Detension pretensioned tendons either by gradually releasing tensioning jacks or by heat-cutting tendons, using a sequence and pattern to prevent shock or unbalanced loading.
  - 3. If concrete has been heat cured, detension while concrete is still warm and moist to avoid dimensional changes that may cause cracking or undesirable stresses.
  - 5. Protect strand ends and anchorages with bituminous, zinc-rich, or epoxy paint to avoid corrosion and possible rust spots.
- H. Comply with requirements in PCI MNL 117 and requirements in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.

- I. Place face mixture to a minimum thickness after consolidation of the greater of 1 in. (25 mm) or 1.5 times the nominal maximum aggregate size, but not less than the minimum reinforcing cover as indicated on Contract Drawings.
  - 1. Use a single design mixture for those units in which more than one major face (edge) is exposed.
  - 2. Where only one face of unit is exposed, at the fabricator's option, either of the following mixture design/casting techniques may be used:
    - a. A single design mixture throughout the entire thickness of panel.
    - b. Separate mixtures for face and backup concrete; using cement and aggregates for each type as appropriate, for consecutive placement in the mold. Use cement and aggregate specified for face mixture. Use cement and aggregate for backup mixture complying with specified criteria or as selected by the fabricator.
- J. Place concrete in a continuous operation to prevent cold joints or planes of weakness from forming in precast concrete units.
  - 1. Place backup concrete to ensure bond with face-mixture concrete.
- K. Thoroughly consolidate placed concrete by internal and/or external vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air voids on surfaces. Use equipment and procedures complying with PCI MNL 117.
  - 1. Place self-consolidating concrete without vibration in accordance with PCI TR-6 "Interim Guidelines for the Use of Self-Consolidating Concrete." If face and backup concrete is used, ensure adequate bond between concrete mixtures.
- L. Comply with PCI MNL 117 procedures for hot- and cold-weather concrete placement.
- M. Identify pickup points of architectural precast concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each architectural precast concrete unit on a surface that will not show in finished structure.
- N. Cure concrete, according to requirements in PCI MNL 117, by moisture retention without heat or by accelerated heat curing using low-pressure live steam or radiant heat and moisture. Cure units until the compressive strength is high enough to ensure that stripping does not have an effect on the performance or appearance of final product.
- O. Repair damaged architectural precast concrete units to meet acceptability requirements in PCI MNL 117 and Architect's approval.

## **2.12 FABRICATION TOLERANCES**

- A. Fabricate architectural precast concrete units of shapes, lines and dimensions indicated, so each finished unit complies with PCI MNL 117 product tolerances as well as position tolerances for cast-in items.

- B. Fabricate architectural precast concrete units of shapes, lines and dimensions indicated, so each finished unit complies with the following product tolerances.

1. Overall Height and Width of Units, Measured at the Face Exposed to View: As follows:
  - a. 10 ft (3 m) or under, Plus or Minus 1/8 in. ( $\pm 3$  mm).
  - b. 10 to 20 ft (3 to 6 m), Plus 1/8 in. (+3 mm), Minus 3/16 in. (-5 mm).
  - c. 20 to 40 ft (6 to 12 m), Plus or Minus 1/4 in. ( $\pm 6$  mm).
  - d. Each additional 10 ft (3 m), add Plus or Minus 1/16 in. ( $\pm 1.6$  mm).
2. Overall Height and Width of Units, Measured at the Face Not Exposed to View: As follows:
  - a. 10 ft (3 m) or under, Plus or Minus 1/4 in. ( $\pm 6$  mm).
  - b. 10 to 20 ft (3 to 6 m), Plus 1/4 in. (+6 mm), Minus 3/8 in. (-10 mm).
  - c. 20 to 40 ft (6 to 12 m), Plus or Minus 3/8 in. ( $\pm 10$  mm).
  - d. Each additional 10 ft (3 m), add Plus or Minus 1/8 in. ( $\pm 3$  mm).
3. Total Thickness or Flange Thickness: Plus 1/4 in. (+6 mm), Minus 1/8 in. (-3 mm).
4. Rib Width: Plus or Minus 1/8 in. ( $\pm 3$  mm).
5. Rib to Edge of Flange: Plus or Minus 1/8 in. ( $\pm 3$  mm).
6. Distance between Ribs: Plus or Minus 1/8 in. ( $\pm 3$  mm).
7. Variation from Square or Designated Skew (Difference in Length of the Two Diagonal Measurements): Plus or Minus 1/8 in. per 72 in. ( $\pm 3$  mm per 2 m) or 1/2 in. (13 mm) total, whichever is greater.
8. Length and Width of Blockouts and Openings within One Unit: Plus or Minus 1/4 in. ( $\pm 6$  mm).
9. Location and Dimensions of Blockouts Hidden from View and Used for HVAC and Utility Penetrations: Plus or Minus 3/4 in. ( $\pm 19$  mm).
10. Dimensions of Haunches: Plus or Minus 1/4 in. ( $\pm 6$  mm).
11. Haunch Bearing Surface Deviation from Specified Plane: Plus or Minus 1/8 in. ( $\pm 3$  mm).
12. Difference in Relative Position of Adjacent Haunch Bearing Surfaces from Specified Relative Position: Plus or Minus 1/4 in. ( $\pm 6$  mm).
13. Bowing: Plus or Minus L/360, maximum 1 in. (25 mm).
14. Local Smoothness: 1/4 in. per 10 ft (6 mm per 3 m).
15. Warping: 1/16 in. per 12 in. (1.6 mm per 300 mm) of distance from the nearest adjacent corner.
16. Tipping and Flushness of Plates: Plus or Minus 1/4 in. ( $\pm 6$  mm).
17. Dimensions of Architectural Features and Rustications: Plus or Minus 1/8 in. ( $\pm 3$  mm).

- C. Position Tolerances: For cast-in items measured from datum line location, as indicated on Shop Drawings.

1. Weld Plates: Plus or Minus 1 in. ( $\pm 25$  mm).
2. Inserts: Plus or Minus 1/2 in. ( $\pm 13$  mm).
3. Handling Devices: Plus or Minus 3 in. ( $\pm 75$  mm).
4. Reinforcing Steel and Welded Wire Reinforcement: Plus or Minus 1/4 in. ( $\pm 6$  mm) where position has structural implications or affects concrete cover; otherwise, Plus or Minus 1/2 in. ( $\pm 13$  mm).

5. Reinforcing Steel Extending out of Member: Plus or Minus 1/2 in. ( $\pm 13$  mm) of plan dimensions.
6. Tendons: Plus or Minus 1/4 in. ( $\pm 6$  mm), perpendicular to panel; Plus or Minus 1 in. ( $\pm 25$  mm), parallel to panel.
7. Location of Rustication Joints: Plus or Minus 1/8 in. ( $\pm 3$  mm).
8. Location of Opening within Panel: Plus or Minus 1/4 in. ( $\pm 6$  mm).
9. Location of Flashing Reglets: Plus or Minus 1/4 in. ( $\pm 6$  mm).
10. Location of Flashing Reglets at Edge of Panel: Plus or Minus 1/8 in. ( $\pm 3$  mm).
11. Reglets for Glazing Gaskets: Plus or Minus 1/8 in. ( $\pm 3$  mm).
12. Electrical Outlets, Hose Bibs: Plus or Minus 1/2 in. ( $\pm 13$  mm).
13. Location of Bearing Surface from End of Member: Plus or Minus 1/4 in. ( $\pm 6$  mm).
14. Allowable Rotation of Plate, Channel Inserts, Electrical Boxes: 2-degree rotation or 1/4 in. (6mm) maximum measured at perimeter of insert.
15. Position of Sleeve: Plus or Minus 1/2 in. ( $\pm 13$  mm).
16. Location of Window Washer Track or Buttons: Plus or Minus 1/8 in. ( $\pm 3$  mm).

## **2.13 FINISHES**

- A. Exposed panel faces shall be free of joint marks, grain, and other obvious defects. Corners, including false joints shall be uniform and straight. Finish exposed-face surfaces of architectural precast concrete units to match approved design reference sample, mockups, and as follows:
1. Design Reference Sample: American Stone Virginia, LLC sample #3168A.

REFERENCE	MATERIAL	SOURCE	QUANTITY (lb./cu. yd.)
ASTM C33	Texas #7 Gravel	Lafarge	1678
ASTM C33	Texan C33 Sand	Lafarge	1570
ASTM C150	White Cement	Federal	658
ASTM C979-82	Yellow 50908 Pigment	Davis	10
ASTM C494	Sika 4100 water reducer	Sika	39 oz. +/-
ASTM C260	Sika AEA-14 air entrainment	Sika	5% +/- 1.5%
POTABLE	Water		

2. As an alternative to using the above referenced mix design supplier may match a physical sample provided by Virginia Tech OUP.
  3. Acid-Etched Finish: Use acid and hot-water solution, equipment, application techniques, and cleaning procedures to expose aggregate and surrounding matrix surfaces to match accepted sample or mockup units. Protect hardware, connections, and insulation from acid attack.
  4. Air holes and pockets over 1/4 inch diameter filled with sand-cement paste, with form offsets or fins over 1/8 inch ground smooth.
- B. Finish exposed surfaces of architectural precast concrete units to match face-surface finish.
- C. Finish unexposed surfaces of architectural precast concrete units with float finish.

## **2.14 SOURCE QUALITY CONTROL**



~~Always retain paragraph below because it establishes a minimum standard of plant testing and inspecting. PCI MNL 117 mandates source testing requirements and a plant "Quality Systems Manual." PCI certification also ensures periodic auditing of plants for compliance with requirements in PCI MNL 117.~~

A. Quality-Control Testing: Test and inspect precast concrete according to PCI MNL 117 requirements. If using self-consolidating concrete also test and inspect according to PCI TR-6 "Interim Guidelines for the Use of Self-Consolidating Concrete" and ASTM C 1611/C 1611M, ASTM C 1712, ASTM C 1610/1610M, and ASTM C 1621/C 1621M.

~~B. In addition to PCI Certification, Owner will employ an accredited independent testing agency to evaluate architectural precast concrete fabricator's quality control and testing methods.~~

~~1. Allow Owner's testing agency access to material storage areas, concrete production equipment, and concrete placement and curing facilities. Cooperate with Owner's testing agency and provide samples of materials and concrete mixtures as may be requested for additional testing and evaluation.~~

~~C.~~B. Strength of precast concrete units will be considered deficient if units fail to comply with ACI 318 (ACI 318M) concrete strength requirements.

~~D.~~C. Testing: If there is evidence that strength of precast concrete units may be deficient or may not comply with ACI 318 (ACI 318M) requirements, fabricator will employ an independent testing agency to obtain, prepare, and test cores drilled from hardened concrete to determine compressive strength according to ASTM C 42/C 42M and ACI 318/ACI 318M.

1. A minimum of three representative cores will be taken from units of suspect strength, from locations directed by Architect.
2. Cores will be tested in an air-dry condition.
3. Strength of concrete for each series of three cores will be considered satisfactory if the average compressive strength is equal to at least 85 percent of the 28-day design compressive strength and no single core is less than 75 percent of the 28-day design compressive strength.
4. Test results will be reported in writing on the same day that tests are performed, with copies to Architect, Contractor, and precast concrete fabricator. Test reports will include the following:
  - a. Project identification name and number.
  - b. Date when tests were performed.
  - c. Name of precast concrete fabricator.
  - d. Name of concrete testing agency.
  - e. Identification letter, name, and type of precast concrete unit(s) represented by core tests; design compressive strength; type of break; compressive strength at breaks, corrected for length-diameter ratio; and direction of applied load to core in relation to horizontal plane of concrete as placed.

~~E.~~D. Patching: If core test results are satisfactory and precast concrete units comply with requirements, clean and dampen core holes and solidly fill with precast concrete mixture that has no coarse aggregate, and finish to match adjacent precast concrete surfaces.

F.E. Acceptability: Architectural precast concrete units that do not comply with acceptability requirements in PCI MNL 117, including concrete strength, manufacturing tolerances, and color and texture range are unacceptable. Chipped, spalled, or cracked units may be repaired, if repaired units match the visual mock-up. The Architect reserves the right to reject any unit if it does not match the accepted sample panel or visual mock-up. Replace unacceptable units with precast concrete units that comply with requirements.

## **PART 3 – EXECUTION**

### **3.1 PREPARATION**

- A. Furnish anchorage devices for precast concrete units to be embedded in or attached to the building structural frame or foundation before start of such Work. Provide locations, setting diagrams, templates and instructions for the proper installation of each anchorage device.

### **3.2 EXAMINATION**

- A. Examine supporting structural frame or foundation and conditions for compliance with requirements for installation tolerances, bearing surface tolerances, and other conditions affecting precast concrete performance.
- B. Proceed with precast concrete installation only after unsatisfactory conditions have been corrected.
- C. Contractor shall notify precast concrete erector that supporting cast-in-place concrete foundation and building structural framing has attained minimum allowable design compressive strength or supporting steel or other structure is structurally ready to receive loads from precast concrete units prior to proceeding with installation.

### **3.3 ERECTION**

- A. Install loose clips, hangers, bearing pads, and other accessories required for connecting architectural precast concrete units to supporting members and backup materials.
- B. Precaster or erector to supply and install miscellaneous steel preweld connection hardware in the field.
- C. Erect architectural precast concrete level, plumb, and square within the specified allowable erection tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment of units until permanent connections are completed.
  - 1. Install temporary steel or plastic spacing shims as precast concrete units are being erected. Surface weld steel shims to each other to prevent shims from separating.
  - 2. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.
  - 3. Remove projecting lifting devices and use sand-cement grout to fill voids within recessed lifting devices flush with surface of adjacent precast concrete surfaces when recess is exposed.
  - 4. Unless otherwise indicated, provide for uniform joint widths of 3/4 in. (19 mm).

- D. Connect architectural precast concrete units in position by bolting, welding, grouting, or as otherwise indicated on Shop (Erection) Drawings. Remove temporary shims, wedges, and spacers as soon as practical after connecting and/or grouting are completed.
  - 1. Disruption of roof flashing continuity by connections is not permitted; concealment within roof insulation is acceptable.
- F. Welding: Comply with applicable AWS D1.1/D1.1M, AWS D1.4/D1.4M and D1.6/D1.6M requirements for welding, welding electrodes, appearance of welds, quality of welds, and methods used in correcting welding work.
  - 1. Protect architectural precast concrete units and bearing pads from damage during field welding or cutting operations and provide noncombustible shields as required.
  - 2. Welds not specified shall be continuous fillet welds, using not less than the minimum fillet as specified by AWS D 1.1/D 1.1M, D 1.4/D 1.4M or D1.6/D1.6M.
  - 4. For galvanized metal, clean weld-affected metal surfaces with chipping hammer followed by brushing or power tooling cleaning and then apply a minimum 0.004-in.-thick (4 mil) coat of galvanized repair paint to galvanized surfaces in conformance with ASTM A 780/A 780M.
  - 5. Visually inspect all welds critical to precast concrete connections. Visually check all welds for completion and remove, reweld or repair all defective welds, if services of AWS-certified welding inspector are not furnished by Owner.
- G. At bolted connections, use upset threads, thread locking compound or other approved means to prevent loosening of nuts after final adjustment.
  - 1. Where slotted connections are used, verify bolt position and tightness at installation. For sliding connections, properly secure bolt but allow bolt to move within connection slot.
  - 2. For slip critical connections, one of the following methods shall be used to assure proper bolt pretension:
    - a. Turn-of-Nut – in accordance with AISC.
    - b. Calibrated Wrench – in accordance with AISC.
    - c. Twist-off Tension Control Bolt – meeting ASTM F 1852.
    - d. Direct-Tension Control Bolt – meeting ASTM F 1852.
  - 3. For slip critical connections, the method to be used and the inspection procedure to be used shall be approved by the Architect and coordinated with the inspection agency.
- H. Grouting or Dry-Packing Connections and Joints: Indicate joints to be grouted and any critical grouting sequences on Shop (Erection) Drawings. Grout connections where required or indicated on Shop (Erection) Drawings. Retain flowable grout in place until it gains sufficient strength to support itself. Alternatively pack spaces with stiff dry pack grout material, tamping until voids are completely filled. Place grout and finish smooth, level, and plumb with adjacent concrete surfaces. Promptly remove grout material from exposed surfaces before it affects finishes or hardens. Keep grouted joints damp for at least 24 hours after initial set.

### **3.4 ERECTION TOLERANCES**

- A. Erect architectural precast concrete units level, plumb, square, and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 117, Appendix I.

### **3.5 FIELD QUALITY CONTROL**

- A. Special Inspections: Owner will engage a qualified special inspector to perform the special inspections.
- B. Testing: Owner will engage accredited independent testing and inspecting agency to perform field tests and inspections and prepare reports.
  - 1. Field welds will be subject to visual inspections and dye penetrant or magnetic particle testing in accordance with ASTM E165 or ASTM E 1444 and ASTM E 709. Testing agency shall be qualified in accordance with ASTM E543.
  - 2. Testing agency will report test results promptly and in writing to Contractor and Architect.
- C. Repair or remove and replace work where tests and inspections indicate that it does not comply with specified requirements.
- D. Additional testing and inspecting, at Erector's expense, will be performed to determine compliance of corrected work with specified requirements.

### **3.6 REPAIRS**

- A. Repairs will be permitted provided structural adequacy of units and appearance are not impaired and as permitted by the Architect. The Architect reserves the right to reject repaired units that do not comply with requirements.
- B. Repair damaged units to meet acceptability requirements of PCI MNL 117.
- C. Mix patching materials and repair units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of 20 ft (6 m).
- D. Prepare and repair damaged galvanized coatings with galvanizing repair paint according to ASTM A 780/A 780M.
- E. Wire brush, clean, and paint damaged prime-painted components with same type of shop primer.
- F. Remove and replace damaged architectural precast concrete units when repairs do not comply with specified requirements.

### **3.7 CLEANING**

- A. Clean all surfaces of precast concrete to be exposed to view, as necessary, prior to shipping.

- B. Clean mortar, plaster, fireproofing, weld slag, and any other deleterious material from concrete surfaces and adjacent materials immediately.
- C. Clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, dirt, stains and other markings.
  - 1. Perform cleaning procedures, if necessary, according to precast concrete fabricator's recommendations. Protect adjacent work from staining or damage due to cleaning operations.
  - 2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

END OF SECTION 034500

**PREBID QUESTION FORM**

(Use separate Form for each question submitted.)

Date: 11-10-2021

Project Title: **VIRGINIA TECH ATHLETICS, NEW BASEBALL PITCHING LAB**

Project Code No.: A0122-21-492426 and A0135-22-511452

The following question concerns Drawing Sheet (number) A0.1:

Given the size of the project and overall short duration we are requesting that mockup be removed or modified. The mockup will be approximately 16'8" x 8'6" x 5'9". This mockup includes full architectural precast panels. These panels will need to be engineered, fabricated, erected on the jobsite, then reviewed for final approval before wall panels for the entire building can start fabrication. While we build mockups for most Virginia Tech projects and understand the importance of the mockup we would request reconsidering it for this project given the timeframe for construction.

The following question concerns Specifications Section (number)\_\_\_\_, page \_\_\_\_\_, paragraph \_\_\_\_\_:

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**All responses to questions will be made by Addendum.**

Question submitted by: Jaime English JaimeE@branchbuilds.com Branch Builds, Inc.  
Name Organization

Bidders shall submit form to: John Spence Virginia Tech  
Name Organization

Email address: jspenc@vt.edu

**DGS-30-272**

(Rev. 04/15)

**PREBID QUESTION FORM**

(Use separate Form for each question submitted.)

Date: 11-10-2021

Project Title: **VIRGINIA TECH ATHLETICS, NEW BASEBALL PITCHING LAB**

Project Code No.: A0122-21-492426 and A0135-22-511452

The following question concerns Drawing Sheet (number) A0.1:

**Please provide drawings for structural foundations and wall bracing for building mockup.**

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The following question concerns Specifications Section (number)\_\_\_\_, page \_\_\_\_\_, paragraph \_\_\_\_\_:

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**All responses to questions will be made by Addendum.**

Question submitted by: Jaime English JaimeE@branchbuilds.com Branch Builds, Inc.  
Name Organization

Bidders shall submit form to: John Spence Virginia Tech  
Name Organization

Email address: jspenc@vt.edu

**PREBID QUESTION FORM**

(Use separate Form for each question submitted.)

Date: 11-10-2021

Project Title: **VIRGINIA TECH ATHLETICS, NEW BASEBALL PITCHING LAB**

Project Code No.: A0122-21-492426 and A0135-22-511452

The following question concerns Drawing Sheet (number) \_\_\_\_\_:

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The following question concerns Specifications Section (number) 03 45 00 Arch. Precast Conc., page \_\_\_\_\_, paragraph \_\_\_\_\_:

The specifications for this section reference PCI in multiple locations. PCI is typically used for bridges or parking structures. Please consider removing all references to PCI from the specification. You could add to the spec that the product should come from an experienced manufacture with X amount of years of experience with architectural wall panels on similar projects.

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**All responses to questions will be made by Addendum.**

Question submitted by: Jaime English JaimeE@branchbuilds.com Branch Builds, Inc.  
Name Organization

Bidders shall submit form to: John Spence Virginia Tech  
Name Organization

Email address: jspenc@vt.edu



DGS-30-272

(Rev. 04/15)

**PREBID QUESTION FORM**

(Use separate Form for each question submitted.)

Date: 11-10-21

Project Title: **VIRGINIA TECH ATHLETICS, NEW BASEBALL PITCHING LAB**

Project Code No.: A0122-21-492426 and A0135-22-511452

The following question concerns Drawing Sheet (number) A-601 Material Finish Notes:

A. 1 Rubber Tile. A flooring subcontractor has indicated  
the PowerDeck Rubber Tile by Lanner Sports has been discontinued  
and is no longer available. Can an alternate selection  
be provided?

The following question concerns Specifications Section (number) \_\_\_\_\_, page \_\_\_\_\_, paragraph \_\_\_\_\_:

All responses to questions will be made by Addendum.

Question submitted by: Chris Smith  
Name

Clark Brothers Co.  
Organization

Bidders shall submit form to: John Spence  
Name

Virginia Tech  
Organization

Email address: jspenc@vt.edu