MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**PRECAST CONCRETE BUILDING**

TAY:PJS 1 of 3 APPR:MJF:NJM:05-23-24

**a. Description.** This work consists of designing, furnishing, and installing an above-grade precast concrete building. This work includes furnishing and preparing all base materials and miscellaneous accessories necessary for the installation of the precast concrete building. Complete this work in accordance with the standard specifications and this special provision.

**b. Materials.** Select one of the following manufacturers or an Engineer approved equal:

● Easi-Set by Norwalk Concrete Industries, Norwalk, OH, Phone: 800-733-3624

● Advance Concrete Products Company, Highland, MI, Phone: 800-824-8351

Ensure the precast concrete producer is certified by *NPCA* or *PCI* (for the product being fabricated) prior to and during production of products for this project.

Furnish materials for joint sealants as recommended by the Manufacturer.

1. System Description.

A. General.

(1) 8 foot by 10 foot building with a minimum inside clear height of 7 foot-6 inches.

(2) Standard heavy metal door(s) and frame with minimum dimensions of 3 foot-0 inches by 6 foot-8 inches with a latch to be secured by pad lock for security. Ensure the door is beige.

(3) Two fixed aluminum louver vents (one intake and one exhaust) located as shown on the plans. Each louver must have a polyvinylidene fluoride (PVDF) resin finish, manufactured by Kynar, Hylar, or Engineer approved equal. Exhaust louver to be same size as fan outlet and sized for a maximum free area velocity of 500 feet per minute with a maximum static pressure drop of 0.08 inches water column. Intake louver to be square and sized to have a maximum free area velocity of 500 feet per minute and maximum static pressure drop of 0.08 inches water column. Furnish 6 inch louver depth with drainable blades with vertical security bars. Furnish a rear mounted aluminum insect screen for the intake louver and exhaust louver. Include aluminum insulated, thermally broken parallel blade motorized control dampers for each louver, same size as louver, with 120 volt actuators. The damper frame to have replaceable silicone jamb seals and silicone blade seals. Verify wall opening sizes with equipment selections.

(4) Exhaust Fan and Motor. Ensure the fan is direct drive, by Greenheck, Loren Cook, or Engineer approved equal, capable of exhausting 500 cfm at 0.50 inches water column driven by a maximum of 1800 revolutions per minute, 1/4 horse power motor. Maximum of 70 dB sound power level at the inlet. Ensure all fan motors are totally enclosed fan cooled (TEFC). Ensure fan shrouds, motor and fan wheel are removable for service. Furnish *MIOSHA* approved guards and wall housing for flush exterior. Furnish manual motor starter at control room entrance. Furnish 120 V room temperature sensor for fan operation. Ensure fan is automatically controlled as shown in wiring diagram. Furnish Hi-Pro-Polyester coating on all fan components. Verify wall opening sizes with equipment selections.

(5) Electric Unit Heater. Ensure electric unit heater furnishes a minimum of 5 kilowatts of heat. Furnish wash down style, *AISI* 304 stainless steel case, *UL* listed, 316 stainless steel tubular elements, TEFC motor, *NEMA 4X* electrical enclosures, hi limit safety, integral 1 stage thermostat, disconnect, and stainless steel universal mounting bracket.

(6) Exterior Finish. Use smooth, custom formed elastomeric form liners to produce textured pattern on walls. Ensure textured pattern is Greenstreak Pattern #368; Fitzgerald Formliners #16961 or Engineer approved equal from Dayton-Superior, Scott Systems or approved equal. Place form liners vertically to produce a vertical striped pattern on the walls.

B. Concrete Roof. Overhang walls by a minimum of 2 inches.

C. Concrete Walls.

(1) Furnish door, pipe penetration and louver openings as detailed on the plans and required.

(2) Furnish weatherproof shield over door opening to divert rain and snow away from opening.

D. Concrete Floor Slab. Furnish openings as noted and required.

2. Design and Performance Requirements. Design the precast concrete building in accordance with *ACI 318* and local building codes, except as modified below.

A. Minimum Loads.

(1) Risk Category III.

(2) Roof Live Load. 20 psf.

(3) Roof Snow Load. 25 psf.

(4) Wind Load. Vult = 120 mph, Exposure C.

(5) Seismic:

Ss 9.3 percent

S1 4.7 percent

Site Class D

(6) Floor Live Load. 100 psf.

B. Design floor panel as a slab on grade.

C. Design wall panels individually to withstand the design loads.

D. Design overall structure to withstand all loads, including lateral loads.

E. Design connections to transfer floor, wall, or roof panel reactions.

**c. Construction.** Furnish and prepare base per Manufacturer’s recommendations. Coordinate and install piping and equipment as required prior to installation of the building. Install building in accordance with manufacturer’s instructions and approved shop drawings. Seal joints between panels, between panels and doors, and around louvers after erection per Manufacturer’s recommendations. Remove lifting hooks and patch concrete after erection. Furnish clear and uninterrupted access to the building site.

1. Submittals. Do not use any materials in the work until approved by the Engineer. Ensure all submittals are in electronic PDF. Allot a minimum of 15 work days for review and approval.

Review and approval of submittals are only to determine compliance with information given on the plans, in the specifications and details and conformance with the design concept of the completed project as a functioning whole. The Contractor is responsible for all matters relating to fabrication, shipping, handling, storage, assembly, installation, and construction, for all safety aspects of performing the work, and for coordinating the work.

Submit the following information for review and approval by the Engineer:

A. Shop Drawings. Complete working drawings showing dimensions, plans, elevations, sections, joint details, reinforcing details, finishes and locations and sizes of holes and cast in devices.

B. Catalog Cuts and/or Product Data. Furnish for standard manufactured items and standard manufactured equipment. Catalog cuts and/or product data must include installation instructions and pertinent information such as physical dimensions, materials and finishes, and performance criteria showing that selected item or equipment meets the minimum requirements shown on the drawings or specifications.

C. Design Calculations. Complete design calculations signed and sealed by a Professional Engineer licensed in the State of Michigan.

**d. Measurement and Payment.** The completed work, as described, will be measured as a lump sum and paid for at the contract price using the following pay item:

**Pay Item Pay Unit**

Precast Conc Building Lump Sum