Part 1 General

1.1 SECTION INCLUDES

.1 Low conductivity, window and door attachment embed for precast concrete.

.2 Low conductivity, fire-rated window and door attachment embed for precast concrete.

.3 Fasteners and Adhesive.

1.2 RELATED SECTIONS

.1 [Section 03 11 00 - Concrete Forming: Formwork and accessories.]

.2 [Section 03 20 00 - Concrete Reinforcing].

.3 [Section 03 30 00 – Cast-In-Place Concrete: Concrete products and placement.]

.4 [Section 03 41 00 - Structural Precast Concrete: Building structural frame.]

.5 [Section 03 45 00 - Architectural Precast Concrete.]

.6 [Section 03 47 13 - Site Cast Tilt-up Concrete: Building structural frame.]

.7 [Section 07 92 00 – Joint sealants.]

.8 [Section 08 11 13 – Hollow Metal Doors and Frames]

1.3 DEFINITIONS

.1 Embed: A component, typically made of durable material, that is placed within formwork before concrete placement, serving as a fixed anchor point for connections, attachments, or reinforcements.

1.4 REFERENCES

.1 [CSA-A23.1-09/A23.2-09 - Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.]

.2 [CAN/CSA-A23.3-04 (R2010) - Design of Concrete Structures.]

.3 [CSA-A23.4-09 - Precast Concrete - Materials and construction.]

.4 ASTM C518 - 10 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

.5 ASTM D570 – 98(2010)E1 - Standard Test Method for Water Absorption of Plastics.

.6 ASTM C794 – 18 (2022) - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants

.7 ASTM D1761 - 12 - Standard Test Methods for Mechanical Fasteners in Wood.

.8 ASTM E119 - 24 - Standard Test Methods for Fire Tests of Building Construction and Materials.

.9 ASTM E84 – 15A - Standard Test Method for Surface Burning Characteristics of Building Materials.

.10 [ASTM E330/E330M - 14 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.]

.11 NFPA 285 – 23 – Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components.

1.5 PERFORMANCE REQUIREMENTS

.1 Design units to withstand design loads [as calculated in accordance with applicable code] and erection forces. Calculate structural properties of units in accordance with [CSA-A23.4] [CAN/CSA-A23.3].

.2 Design units to withstand actual loads such as wind, suction, deflection, and thermal movement loads.

.3 Fire Regulations: Comply with regional and local requirements to maintain [NFPA 285][ASTM-E84] rating on all components of the assembly.

1.6 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Pre-installation Meetings: Convene [one (1) week] [[____] weeks] before starting work of this section.

1.7 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide data on materials and application requirements.

.3 Shop Drawings:

.1 Indicate layout, connection details, dimensions, and relationship to adjacent materials.

.4 Samples: Submit [two (2)] samples of connectors with permanent anchors, [<[_____] mm><<[_____] inch>> in length].

1.8 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Test Reports: Submit copy of third party testing data supporting material performance prior to application of Work.

.3 Installation Data: Manufacturer's special installation requirements.

1.9 QUALITY ASSURANCE

.1 Perform Work in accordance with:

.1 [CSA-A23.1/A23.2] [CAN/CSA-A23.3].

.2 [CPCI Architectural Precast Concrete Technical Brochure].

.2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum [three (3)] years [documented] experience.

.3 Installer Qualifications: Company specializing in performing the work of this section with minimum [three (3)] years documented experience [and approved by the manufacturer].

.4 Provide materials of this section from single manufacturer.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01 61 00: Transport, handle, store, and protect products.

.2 Protect materials from sunlight, water or excessive humidity and damage.

.3 Store materials [off the ground, covered with weatherproof tarps] [indoors in dry, well-ventilated area].

Part 2 Products

2.1 MANUFACTURERS

.1 Acceptable manufacturer: JK Worldwide Enterprises Inc., 8369 River Way, Delta, BC V4G 1G2 Canada. Phone 604-946-6003. www.jkthermal.com. Email: jeff@jkthermal.com.

.2 Substitutions: [Refer to Section 01 62 00] [Not permitted].

2.2 MATERIALS

.1 TigerLoc®, Structural Thermal Break: Closed cell PVC rigid foam embed [, UV stabilized for exposed locations]; [[_____] colour].

.1 Thermal Conductivity (ASTM C518): 0.06 W/(m·K) +/- 0.01.

.2 Thermal Resistance (R) per <25 mm><<1 inch>> thickness (ASTM C518): 2.18.

.3 Water Absorption (ASTM D570): <1%.

.4 [Uniform Load Capacity (ASTM E330/E330M): [_____] units.]

.5 Surface Burning Characteristics:

.1 Flame Spread Index (ASTM E84): 15.

.2 Smoke Developed Index (ASTM E84): 350.

.6 Screw Holding Capability (ASTM D1761): <76 N•m><<680 lbf•in>>.

.7 Dimensions:

.1 Thickness: <25 mm><<1 inch>>.

.2 Width: [<25 mm><<1 inch>>][<50 mm><<2 inch>>][<75 mm><<3 inch>>][<102 mm><<4 inch>>][<127 mm><<5 inch>>][<152 mm><<6 inch>>][Refer to Drawings].

.3 Length: <2438 mm><<8 feet>>.

.2 TigerLoc+®, Fire Rated Structural Thermal Break: Closed cell PVC rigid foam embed, (NFPA 285), (ASTM E84) Class A fire rated [, UV stabilized for exposed locations]; [[_____] colour].

.1 Thermal Conductivity (ASTM C518): 0.06 W/(m·K) +/- 0.01.

.2 Thermal Resistance (R) per <25 mm><<1 inch>> thickness (ASTM C518): 2.84.

.3 Water Absorption (ASTM D5709 (2)): <1%.

.4 [Uniform Load Capacity (ASTM E330/E330M): [_____] units.]

.5 Surface Burning Characteristics:

.1 Flame Spread Index (ASTM E84): 10.

.2 Smoke Developed Index (ASTM E84): 25.

.6 Screw Holding Capability (ASTM D1761): <76 N•m><<680 lbf•in>>.

.7 Dimensions:

.1 Thickness: <25 mm><<1 inch>>.

.2 Width: [<25 mm><<1 inch>>][<50 mm><<2 inch>>][<75 mm><<3 inch>>][<102 mm><<4 inch>>][<127 mm><<5 inch>>][<152 mm><<6 inch>>][Refer to Drawings].

.3 Length: <2438 mm><<8 feet>>.

.3 Temporary Formwork Anchors: Galvanized brad nails; removable without damage to materials being fastened.

.4 Adhesive: Dow Chemical, DOWSIL 790 Silicon Building Sealant, (ASTM 794).

2.3 FABRICATION TOLERANCES

.1 Fabrication Tolerances:

.1 Maximum Out of Square: [<3 mm in 3 m><<1/8 inch in 10 ft>>], non-cumulative.

.2 Variation From Dimensions Indicated on [Drawings] [Shop Drawings]: Plus or minus [<3 mm><<1/8 inch>>].

Part 3 Execution

3.1 EXAMINATION

.1 Section 01 70 00: Verify existing conditions before starting work.

.2 Ensure surfaces are clean, dry and free of contaminants.

3.2 PREPARATION

.1 Clean substrate surfaces to manufacturer's written instructions.

3.3 INSTALLATION

.1 Install in accordance with manufacturer's written instructions.

.2 Install embeds as shown on Shop Drawings.

.3 Secure embeds to temporary formwork using removable [screws] [adhesive].

.4 Install [doors][window frames] to Section 08 11 13.

3.4 ERECTION TOLERANCES

.1 Section 01 73 00: Tolerances.

.2 Joint Tolerance: Provide [<6 mm><<1/4 inch>>] expansion gap between joints in thermal break.

END OF SECTION