**SECTION: 033000 – CAST-IN-PLACE CONCRETE**

**PART 1 – GENERAL**

* 1. **RELATED DOCUMENTS**
  2. **DESCRIPTION OF WORK**
  3. **RELATED WORK**
  4. **REFERENCE STANDARDS**
  5. **SUBMITTALS**

1. Shop Drawings:
2. Product Data:
3. Mix Design:
4. Test Reports:
5. Field quality control and special inspection reports:
6. Cold and hot weather concreting procedures:
7. Environmental Product Declaration (EPD): Submit in accordance with the following.
   * + 1. Critically reviewed life cycle analysis having at least a cradle-to-gate scope with the below criteria:
          1. Commercial-product-specific; compliant with ISO 21930, or with ISO 14044, ISO 14040, ISO 14025, and EN 15804; Type III third-party certification with external verification, in which the manufacturer is recognized as the program operator.
       2. Submit a Type -3 EPD for each unique mix design.
       3. Submit a Type -3 EPD for each Supplemental Cementitious Material (SCM).
       4. For products delivered in multiple shipments to the jobsite, a Type-3 EPD must be provided for each separate shipment from a different point of production, or from a different supplier.
       5. Global Warming Potential (GWP):
          1. For concrete mixes, all GWP information submitted shall be in the form of kgCO2eq per cubic yard.
          2. For SCM, all GWP information submitted shall be in the form of kgCO2eq per metric ton and shall not exceed 60 kgCO2eq per metric ton.
8. Bill of Materials:

**PART 2 – PRODUCTS**

**2.1 FORMWORK**

**2.2 REINFORCEMENT MATERIALS**

**2.3 CONCRETE MATERIALS**

1. Cement:
2. Fine and Coarse Aggregates:
3. Lightweight Aggregate:
4. Ground Glass Pozzolan (GGP): ASTM C1866

Available: Urban Mining CT, LLC 105A Breault Road, Beacon Falls, CT 06403 (203)632-6980

1. Fly ash:
2. Ground Granulated Blast-Furnace Slag:
3. Water and Water Used to Make Ice:
4. Structural Fiber Reinforcement:
   1. **SUPPLEMENTAL CEMENTITIOUS MATERIALS (SCM)**
   2. Regional Materials: All SCM shall conform to **LEED™ v4, Regional Materials** such that the extraction of raw materials, manufacture, and distribution locations of SCM must be within 100 miles of the project site.
   3. **ADMIXTURES**
   4. **ACCESSORY MATERIALS**
   5. **BONDING AND JOINTING PRODUCTS**
   6. **CURING MATERIALS**
   7. **CONCRETE MIX DESIGN**
5. Recycled Content: Provide cast-in-place concrete such that the total weight of cementitious material is comprised of 15% - 50% post-consumer recycled content by using SCM.
6. The cement replacement rate will be at the discretion of the concrete supplier and approved by the engineer based on the following:
   1. Seasonal temperatures
   2. Performance requirements of the hardened concrete
   3. Maximum allowable GWP of the concrete
7. For cement replacement exceeding 30%, consideration shall be given to allow for 56-day strength acceptance when the project schedule permits.
   1. **MIXING**