CONCRETE ALBERTA MEMBER INDUSTRY-WIDE EPD FOR CANADIAN READY-MIXED CONCRETE LEED V4.1 CREDITS

Environmental Product Declaration (EPD) (1 point)
Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria below. (10 different permanently installed products from three different manufacturers for CS and Warehouses & Distribution Centers).

- Life-cycle assessment and environmental product declarations.
    - Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation.
    - Product-specific Type III EPD -- Internally Reviewed. Products with an internally critically reviewed LCA in accordance with ISO 14071. Products with product specific internal EPDs which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation.
    - **Industry-wide Type III EPD -- Products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. Products with industry wide EPDs, which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation**
- Environmental Product Declarations which conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
    - Product-specific Type III EPD -- Products with third-party certification (Type III), including external verification and external critical review are valued as 1.5 products for the purposes of credit achievement calculation.

The Concrete Alberta Member Industry-Wide EPD report pertaining to the outlined bullet point in green above, is available to all Concrete Alberta members for meeting the requirements of this LEED Credit. It contains 126 mix designs chosen by the CRMCA to represent the most common types of concrete utilized across the province. For each of these mixes, impact assessment testing was completed, and the output can be found in Tables 5 to 25.

LEED Consultants will require members to supply documentation regarding LEED v4.1, and the following information is needed to complete an EPD declaration letter, which outlines the LEED EPD associated mix designs that were used on the project:

1. Your Approved Mix Designs and their corresponding Industry Averaged Equivalents.
2. Concrete Alberta Member Industry-Wide EPD for Ready-Mixed Concrete report in which the Industry Averaged Equivalents are listed.

Description of Product
The Concrete Alberta Member Industry-Wide EPD report presents results for the range of products that are available across Alberta. For each specified mix, variations were developed based on the use of GU/HS and GUL/HSL cement as well as different SCM replacement levels. For each mix, a "baseline" was determined that represents the average product mix within Alberta. The mixes presented in this EPD utilize the following naming convention:

Mix Name: Identify the 28-day specified compressive strength of the proposed product by type of cement unless otherwise specified.

The name of the mix also notes whether it is “air entrained” and includes other specifications of the mix recognized in the marketplace. For instance, mixes may also be tagged with an exposure class – (C) classes pertain to chloride exposure; (F) classes pertain to freezing and thawing (F/T) exposure without chlorides; (N) class is exposed to neither chlorides nor freezing and thawing. For more information concerning exposure class see CSA standard A23.1.

SCM Replacement: Identifies the supplementary cementing material (SCM) percentage. Fly ash is labeled in the mix designs as “FA". For example, a mix with 20% fly ash is denoted in the mix identifier as “20 FA”.

To determine the corresponding Industry Averaged Equivalents to your approved mixed designs:

Step 1: Identify the 28-day specified compressive strength of the approved concrete mix and whether it is “with air” or “without air”.

Step 2: Identify the cementing materials that will be used in the mix including the cement type and the % replacement level of the cement with fly ash. The fly ash replacement level must be rounded down to the nearest replacement level provided in the tables.

***Illustrative Example**: For a proposed 25 MPa air entrained mix design employing GUL cement and incorporating 22% fly ash, with no other exposure conditions identified specifically,*
*select **Table 7: 25 MPa concrete with air GU.***
*Scan across the top row until you reach **25 MPa concrete with air GUL/HSL 20 FA.** This would be your industry averaged equivalent noting that the fly ash content is always rounded down to the nearest 10% (i.e., 22%->20%)*.

Once all approved mix designs have been associated with mixes from the corresponding tables in the Concrete Alberta Industry-Wide EPD report, they can be included in a summary letter to the LEED Consultant.

If you have any questions, please contact Dan Hanson (780) 436-5645.