



Commentary on the Specification of Richvale York Block Inc. Concrete Block Masonry

- **The basic physical properties of a concrete block unit are described in table 1 of the CSA Standard A 165 - 1M - 2004.** This standard employs a four facet identification system, each of which represents a specific physical property and is maintained in a left to right sequence.
- **The first facet** specifies the block to be either hollow, (H) or solid, (S). Solid is defined as that unit having solid content in 75% or more of its' gross cross sectional area.
The second facet specifies the minimum compressive strength and is calculated on the net cross sectional area of the unit.
The third facet specifies the density (oven dry) and water absorption capacity of the concrete.
The four facet represents the maximum moisture content at time of shipment, expressed as a percentage of total absorption to the climactic relative humidity and the linear shrinkage properties of the block.
- **Example:** The typical facets to specify the physical properties of Ultra Lite block are **H / 15 / D / M** - a hollow concrete block with minimum **Net** compressive strength of 15 mpa, a density that is less than 1700 kg/m³, and a known moisture content at time of delivery.
- **This four facet system** does not encompass other specific properties such as fire endurance, or sound transmission. The values of these attributes should be specified separately.
- **Aggregates** and the terms associated with them such as normal weight, mid lightweight, and full lightweight are derived form the densities of aggregates used in manufacture. Richvale York Block Inc. produce only two densities. Normal weight is produced with limestone and Ultra Lite is produced with a special mix design that utilizes expanded slag.

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- The selection of aggregate or weight class of particular importance since each has unique features that should be given full consideration by the specifying authority. The final selection has a direct bearing on architectural & structural design, wall finish, weight, absorption, texture, colour, acoustics, fire rating, thermal value, and in some cases compressive strength.
Ultra Lite units are used primarily for interior use, particularly in fire wall construction due to its 2 hour rating for 15cm and 4 hours for 25cm and 30cm units. Aggregates used in the production of **Ultra Lite** block conform to a type L₂ concrete specification. Due to the porosity of lightweight products, a suitable protection should be specified if they are exposed to an exterior wall condition.
- In the **CSA-A165-1M2004** standard, the third facet of the identification system specifies unit density. Normal weight concrete has a classification of A, mid weight concrete is classified as B & C, and **Ultra Lite** full lightweight is classified as D.
- A source of some confusion in the discussion of structural of masonry, is the use of the terms “Net” and “Gross” in the description of unit area and strength.
The gross area of unit is the area calculated from its exact length and width, whereas the net area is the gross area less the area of the voids.
The gross and net strengths of the units are those strengths based on these respective areas. To avoid confusion between these two strengths, the use of terminology such as “Net Strength” is encouraged for design and specification purposes. As a handy approximation, the net strength will be about twice the gross strength.
- **Architectural units** and units of a specific colour choice should be specified by name and as manufactured by Richvale York Block Inc. In addition all other control requisites should be specified as discussed earlier in this document.
- All Richvale York Block Inc. products comply with CSA Standard A-165-1M2004 and to the Canadian Concrete Masonry Producers Association, Quality Assurance Program.
- For further information regarding other issues of a technical nature, prices, or delivery please contact Richvale York Block Inc. at 416-213-744 or by fax at 416-213-7441 or email lteseo@richvaleYork.com



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