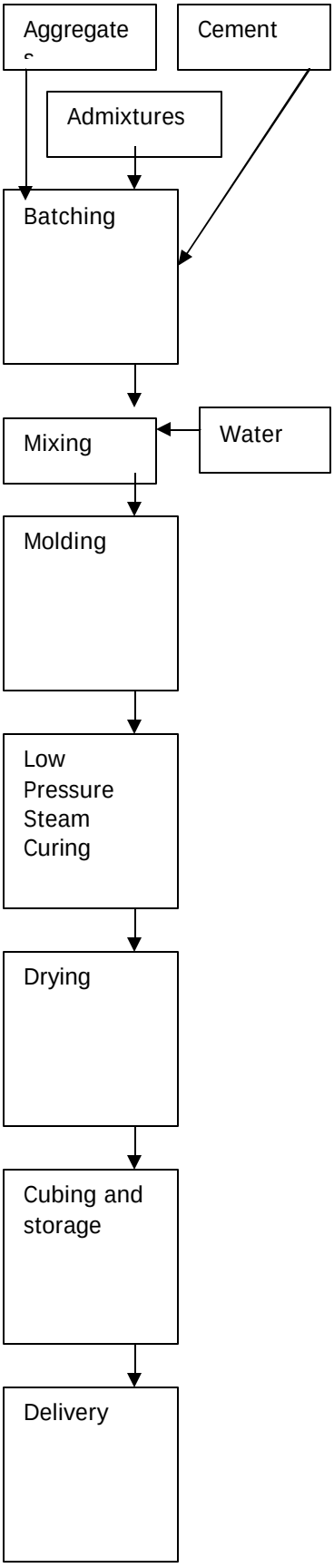

Most specification writers, architects, engineers and builders, commonly refer to concrete masonry units as CMU's or concrete block.

The units are formed in a block machine, which uses vibration and pressure to form the blocks from a relatively dry mix with a low water/cement ratio. The basic ingredients are Portland cement, graded aggregates and water; although lightweight aggregates, plasticizers, pozzolans, colouring pigments and water repellants may also be used. After forming, the units are given an accelerated cure in low-pressure steam kilns and are available for use within 48 hours of manufacture.

Concrete masonry provides a cost effective answer to a variety of essential building needs, including: structure, fire separation, architectural finish, thermal mass, sound control, and low maintenance.

The properties of concrete block can provide a total system to address this broad range of building requirements.

The most common unit manufactured today is the 190x190x390mm unit (200x200x400mm nominal with a 10mm joint). It is manufactured with two cores to accommodate vertical reinforcement and to provide a balanced, lighter weight unit for the mason. A wide variety of architectural profiles, textures and colours are available to offer the designer a broad range of surface treatment options. See Section 2.2.4.

PRODUCTS

Concrete masonry units are designed and specified as follows:

Concrete block CSA A165.1-04

Concrete brick CSA A165.2-04

Sample Spec: Concrete masonry units: To CSA A165.1-04

Classification H/15/A/M

Where

H = Hollow
15 = compressive strength in MPa
A = density over 2000 kg/m^3, max. absorption of 175 kg/m^3.
M = moisture controlled - cured, dried, wrapped

You can specify different physical properties for the block according to the following table:

	Solid Content	
H	Hollow (net area is less than 75% of gross area)	
S	Solid	
	Compressive Strength in MPa	
15	15 MPa, standard inventory.	
20	Higher strengths available to order at slight premium.	
25	(See *section 1.2.3 - Cost Guide*)	
30		
35		
	Oven dry density (kg/m^3)	**Maximum water absorption (kg/m^3)**
A	Over 2000	175
B	1800-2000	200
C	1700-1800	225
D	Less than 1700	300
N	No limits	No limits
	Linear Shrinkage (%)	**Moisture Content (% total absorption)**
M	0.045	45
O	No Limits	No Limits

(See *section 3.1 – Masonry Standards Commentary* for more information)

STANDARD WEIGHT / SEMI-LIGHTWEIGHT / LIGHTWEIGHT

Concrete masonry units are made with either standard weight or lightweight aggregates, or a combination of the two.

A loadbearing concrete block of 200x200x400mm nominal size will weigh approximately 18kg when made with standard weight aggregates, and 15kg when made with semi-lightweight aggregate. In British Columbia, structural units are usually standard weight, which typically consist of 100% sand and gravel aggregates, with a density of 2200kg/m^3.

Semi-lightweight (medium weight) units are typically made up with 50% sand and 50% pumice aggregate, with a density of approximately 1800kg/m^3. Full Lightweight units are primarily pumice aggregate with a density of 1300kg/m^3 and are usually used for interior 4-hour fire-rated walls.

(See *section 2.7.1 – Fire Ratings* for more information)