Masonry Product

Technical Manual

Double Bullnose 20 cm CMU

Actual Dimensions (mm)

STD	Half	Half High
Width(W): 190	Width(W): 190	Width(W): 190
Height(H): 190	Height(H): 190	Height(H): 90
Length(L): 390	Length(L): 190	Length(L): 390
Radius: 40	Radius: 40	Radius: 40

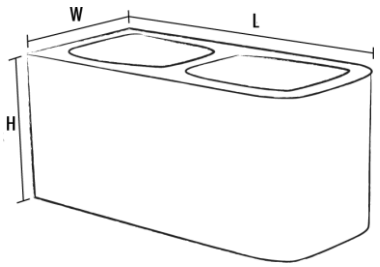

TABLE 1 - Standard 20 cm Physical Properties

Standard Metric Configuration		Hollow
CSA Designation	"Four-Facet" System	H/15/A/M
Dimensions (mm)	Min. Face Shell Thickness Min. Web Thickness Equivalent Thickness	32 26 106
Area (mm^2)	Gross Area Net Area	74,100 41,500
Volume (mm^3) x 10^6	Gross Volume Net Volume	14.08 7.88
Percent Solid (%)	Net Volume/Gross Volume	56%
Unit Mass (kg)	Normal Weight CSA "A"	18.2
Wall Mass (kg/m^2)	Normal Weight CSA "A"	228
Compressive Strength Minimum (Mpa)	Based on Net Area	15
Fire Performance Rating (Hours)	CSA "A" & "B" (Type S. Conc.) U.L.C. Rating U.L.C No. CSA "C" (Type $L_2$20s Conc.) U.L.C. Rating U.L.C. No.	1.5 2.0 U905 2.5 4.0 U901
Sound Properties (Decibels) (Painted Wall)	Sound Transmission Class (STC) CSA "A" CSA "B"	 50 47
Thermal Properties (m^2 . °C/W)	RSI Factors CSA "A" RSI Factors CSA "B"	0.38 0.43
Moment of Inertia (mm^4) x 10^6	Per Block I Per Meter I_m	194.2 498.0
Section Modulus (mm^3) x 10^6	Per Block S Per Meter S_m	2.045 5.242

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TABLE 1 Explanatory Notes

1. Compressive strength units noted * are available in 15, 20, 25, 30, and 35 Mpa

2. Standard weight units ("A") have an oven dry density of concrete of over 2000 kg/m^3. The aggregate is sand and gravel. In Table 1 a density of 2100 kg/m^3 has been used.

3. Semi light weight units ("B") have an oven dry density of concrete of between 1700-2000 kg/m^3. The aggregate is natural sand and light weight material. A density of 1800 kg/m^3 has been used in Table 1.

4. Lightweight units ("C") have an oven dry density of concrete of less than 1700 kg/m^3. Light weight units are produced with aggregates being natural sand and light weight material. In Table 1 a density of 1700 kg/m^3 has been used.

5. Wall mass totals are estimated and do not include an allowance for grout or reinforcing steel.

TABLE 2 - Physical Properties Concrete Masonry Units

Facet	Symbol	Property		
1st		**Solid content**		
	H	Hollow		
	S	Solid		
2nd		**Minimum compressive strength calculated on net area in MPA**		
		Average of 5 units	**Individual unit**	
	15 20 25 30 35	15 Mpa, standard inventory	The compressive strength of any individual unit shall be not less than 85% of that of the specific average of 5 units.	
3rd		**Oven dry mass density of concrete, kg/m^3**	**Maximum water absorption, kg/m^3**	
	A	Over 2000	175	
	B	1700-2000	225	
	C	Less than 1700	300	
	N	No limits	No limits	
4th		**Maximum moisture content, percent of total absorption - average of 5 units**		
			Moisture content	
		Linear Shrinkage, percent	**RH over 75%**	**RH under 75%**
	M	Less than 0.03	45	40
		0.03-0.045	40	35
		Over 0.045	35	30
	O	No limits	No limits	
		(Where drying shrinkage is not of importance)		

TABLE 2 Explanatory Notes

Concrete Block Specification CAN3-A165.1-04

The basic physical properties of concrete masonry units are described by means of the CSA Standard A165.1-04 - Table 2, employing a four-facet identification system. Each facet represents a specific physical property and is maintained in a left to right designation.

1st facet indicates a hollow or solid block. Hollow blocks are designated by the letter H and solid blocks by the letter S.

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2nd facet indicates the minimum compressive strength based on an average of five units and calculated on the net area.

3rd facet describes the density (oven dry) and water absorption capacity of the concrete unit.

4th facet represent the maximum moisture content at time of shipment, expressed as a percentage of total absorption to the climatic relative humidity and the linear shrinkage properties of the block.

Example: H/15/A/M is a hollow unit with a strength of 15MPa (5 units), a density over 2000 kg/m^3, a maximum water absorption of 175 kg/m^3, and a specific moisture content at the time of shipment. Refer to Table 2 for symbols.

Hollow concrete masonry unit means a unit having a net area in any horizontal plane of less than 75% of its gross area.

Net area means the gross cross sectional area minus the area of voids (cellular spaces).

Solid concrete masonry unit means a unit having a net area in all horizontal planes of 75% or more of its gross area.

Reference Publications

1. ASTM International, "Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units", ASTM C 140, ASTM, Philadelphia, USA, 2003.

2. Canadian Standards Association, CSA A 165.1 "Concrete Block Masonry Units", CSA A165 Series, CSA, Mississauga, Ontario, Canada, 2004.

3. Canadian Standards Association, CSA A371, "Masonry Construction for Buildings", CSA, Mississauga, Ontario, Canada, 2004.