Note: This document was last updated on December 1, 2025.

WINNIPEG - ENGINEERED MASONRY DESIGN COURSE (EMDC)

Location:

Winnipeg Construction Association, 1447 Waverly St., Winnipeg, MB

What is it?

The Engineered Masonry Design Course (EMDC) is a professional course offered to practicing engineers in the local design community. It equips you with the tools and knowledge to design masonry confidently, effectively, and efficiently. This course has been offered to more than 500 practicing engineers in Canada and is **roughly equivalent to a 4th year engineering undergraduate university course** in both scope and workload (there is a significant amount of homework required so please consider this before registering). The materials covered reflect Canadian design practice and are taught to the 2014 editions of masonry CSA Standards as well as the 2020 edition of the National Building Code of Canada.

> *The intention of the course is beyond simple professional development hours; you gain the skills necessary to properly analyze and design with masonry in new construction in Canada. This is the equivalent to the level of knowledge gained from a 4th year design course in a university undergraduate program and involves approximately 40 hours of in person and virtual guided learning time as well as graded assignments, a take home design project, and a take home final exam. Participants will be provided detailed feedback as well as a final grade.*

What topics are covered?

The course content will follow the textbook *Masonry Structures: Behaviour and Design – 2nd Canadian edition* (**each registrant will receive a copy of the textbook with registration**). The following topics are covered reflecting the Chapters within the textbook:

- Masonry Materials and Assemblages (Chapters 3 and 4)
- Design of Masonry Beams (Chapter 5)
- Design of Masonry Out-of-Plane Walls (Chapter 6)
- Design of Masonry Shear Walls (Chapter 7)
- Seismic Design of Masonry (Chapter 8)
- Design of Masonry Columns and Pilasters (Chapter 9)
- Design of Veneers and Partition Walls (Chapters 10 & 11)
- Construction, Workmanship, and Specifications (Chapter 12)
- Design Project: Single Storey Loadbearing Post-Disaster Structure (Chapter 13)

What is the course format?

The course is being run using a **hybrid of both in-person and virtual platforms**. There will be four in-person days of lecture content (8:30-3:00) with virtual lectures and tutorials in weeks between. As part of the course, one half-day will be dedicated to a hands-on demonstration of bricklaying during which time you will have a chance to learn how to build with masonry and lay bricks and blocks on mortar. This will be run as a standalone event after the conclusion of lectures and will be communicated to registrants. The

course will take place over approximately 3 months. The tentative course schedule is appended to this outline.

In-Person Lectures

Four full days (8:30-3:00) are scheduled to cover material through in-person lectures. This will give you an opportunity to receive your copy of the textbook as well as other course materials and meaningful engagement with our staff and other students face-to-face. **It is critical that registrants can attend these in-person sessions.** For convenience, we will be recording these in-person virtual lectures for students to access and review after. Attendance at the in-person lectures is worth 5% of the final grade.

Meals

Each in-person session will provide participants with a light breakfast, lunch, snacks, and coffee/refreshment breaks. Registrants must indicate any dietary restrictions during registration.

Virtual Lectures

Some course content will be delivered through online virtual lectures. All virtual lectures will be pre-recorded and posted for viewing at your convenience following the course schedule appended. It is strongly suggested that these virtual lectures be viewed in the order specified in the course schedule and are done so in a timely manner as content presented via recorded lecture builds on and leads to the subsequent in-person lecture on the following week. Viewing these recorded lectures is also worth 5% of the final grade (i.e., to receive the attendance marks you must ensure you watch these in the proper order and timing synced to the in-person lecture content, watching them all at the end of the course will not count towards the attendance mark).

Virtual Platform

All course materials will be posted to the course website at LearnMasonry.ca.

Virtual Tutorials

There will be four LIVE virtual tutorial sessions run on Tuesday Evenings as indicated in the course calendar. These tutorials will utilize group work involving virtual breakout rooms. Live attendance of the tutorials is worth 5% of the final grade. Materials related to the tutorials will be posted online, however, no recordings will be made given the nature of the collaborative work. If you are unable to attend the tutorials you must let the course instructor know at the start of the course so that accommodations can be made.

Virtual Assignment Solutions

Assignment solutions will be provided in written form as well as a separate recorded walk-through. These will be posted along with the written solution. This content is optional and has no grade assigned to it.

Virtual MASS Tutorials

A series of MASS design software tutorial videos will also be posted to the course website for registrants looking for a greater level of information related to the use of the MASS software. This content is optional and has no grade assigned to it.

Office Hours and Drop-in Help

Each Friday afternoon CMDC staff will be available for virtual drop-in sessions where registrants are free to log on and discuss any aspect of the course, masonry design, standards, or any masonry-related technical question they have about their professional work. These are non-mandatory optional virtual office hours.

Hands-On Session

There will be an in-person hands-on session for registrants to learn how to lay block and brick as well as gain some firsthand knowledge about masonry construction, inspection, and workmanship. This is always

a crowd pleaser and an important part of any engineer's training to see how designs are translated into real life. The specific date and time will be communicated when the class is running and may not align with an in-person lecture date.

Assignments

Assignments will be posted according to the schedule provided in the course calendar. Assignments are due approximately two weeks after they are posted and are to be submitted following the instructions provided in the assignment. Full solutions will be posted shortly after the due date. If you are unable to submit your assignment on time, please reach out to the course instructor. A total of 3 assignments will be posted and are worth 45% of the final grade (15% each).

Final Take Home Exam

A final take-home exam will be made available near the end of the course. The exam will be submitted online as with the assignments. The exam is worth 20% of the final grade.

Design Project

The design project will encompass each of the individual topics covered throughout the course. The design project is worth 20% of the final grade.

Submission Guidelines

Assignments, the exam, and the design project should all be either typed or handwritten and are to be submitted electronically through email. Instructions regarding the submission process will be provided. All work is meant to be completed individually; however, collaboration and group work are encouraged (except for the exam). Late submissions will receive a 5% deduction per day late. After solutions are posted, no submission will be accepted.

What do you get from the course?

Registrants will receive the following upon the first in-person lecture day:

- *A complimentary hardcover copy of the textbook: Masonry Structures Behaviour and Design, 2nd Canadian Edition which contains a copy of CSA S304-R2019*
- *A complimentary copy of the masonry design software MASS (Masonry Analysis Structural Systems) with a temporary license and discounted purchase price.*
- *Access to lecture video recordings for 2 months after course conclusion.*
- *A full set of lecture slides and example problems as downloadable PDF copies.*
- *Access to CMDC's team of masonry experts for any technical questions you may have on masonry design within the course (or within the scope of your own work too!).*

Passing the Course

Online tutorials, assignments and the final project are to be completed individually, however, collaborative help is acceptable. Cheating or copying is not acceptable, and you are asked to please submit your own work. The final exam is to be completed individually, collaboration of any kind is not acceptable, this should be treated as a final exam in university. A final grade of **60% or higher is required to pass the course**. Upon passing the course you will receive a certificate indicating you have completed the Engineered Masonry Design Course. Those who require letters indicating the completion of professional development hours may submit such requests by email upon completion of the course.

Grades

Course Component	Due by	Grade
Attendance: In-person lectures (5%), virtual lectures (5%), and tutorials (5%)	Ongoing	15%
Assignment #1 (Materials, Assemblages, Beams)	February 9	15%
Assignment #2 (Shear Walls, Lateral Load Distribution)	March 2	15%
Assignment #3 (Out-of-Plane Walls)	March 23	15%
Take Home Final Exam	April 6	20%
Design Project	April 6	20%

Contact Information

Course Instructors:

Bennett Banting bbanting@canadamasonrycentre.com
Brad Crumb bcrumb@canadamasonrycentre.com (Mississauga)
Adrien Sparling asparling@canadamasonrycentre.com (Winnipeg)
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Teaching Assistants

Gurparam Kang (Mississauga course) gkang@canadamasonrycentre.com
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Tentative Course Calander

January 2026						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4	5	6	6	7	8	9
10	11	12	13	14	16	17
18	19	20	21	22	23	24
		Pre-Class Lectures Posted Assignment #1 Posted				
		Topic: Design of masonry beams				
25	26	27	28	29	30	31
		Winnipeg In-person Lecture Day 1	Virtual Drop-in Office Hour			
		8:30 – 3:00 pm CST	Winnipeg **1:30-2:30 pm CST**			

February 2026

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
		Tutorial 1 Winnipeg **6:30-8:00 pm CST** Pre-Class Lectures Posted	Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**			
		Topic: Design of Masonry Beams				
8	9	10	11	12	13	14
	Assignment #1 Due Assignment #2 Posted	**Winnipeg In-person Lecture Day 2**	Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**			
	Topic: Design of Masonry Out-of-Plane Walls	8:30 – 3:00 pm CST				
15	16	17	18	19	20	21
	Family Day	Tutorial 2 Winnipeg **6:30-8:00 pm CST** Pre-Class Lectures Posted	Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**		Assignment #1 Marked and Returned	
		Topic: Design of Masonry Out-of-Plane Walls				
22	23	24	25	26	27	28
			Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**	**Winnipeg In-person Lecture Day 3**		
				8:30 – 3:00 pm CST		

March 2026

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	**2**	**3**	**4**	**5**	**6**	7
	Assignment # 2 Due Assignment #3 Posted	Tutorial 3 Winnipeg **6:30-8:00 pm CST** Pre-Class Lectures Posted	Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**			
	Topic: Design of Masonry Shear Walls	Topic: Design of Masonry Shear Walls				
8	**9**	**10**	**11**	**12**	**13**	**14**
	Design Project & Final Exam Posted		Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**	**Winnipeg** **In-person Lecture Day 4**		
				8:30 – 3:00 pm CST		
15	**16**	**17**	**18**	**19**	**20**	21
			Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**			
22	**23**	**24**	**25**	**26**	**27**	28
	Assignment # 3 Due	Tutorial 4 Winnipeg **6:30-8:00 pm CST**	Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**			
		Topic: Design of a Single Storey Post-Disaster Building				
29	**30**	**31**				

April 2026

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
			Virtual Drop-in Office Hour Winnipeg **1:30-2:30 pm CST**		Good Friday	
5	6	7	8	9	10	11
Easter Sunday	**Design Project Due** **Take Home Exam Due**					