



## Lunch and Learn Topics

All topics count as a structured hour, certificates will be issued after each session and based on attendance.

### #1 Masonry Design Review & Winter Construction Code Update (English/French)

#### **Description:**

We will review the physical properties and best practices for specifying both clay and concrete masonry products.

Design details of individual wall components and the current rain screen wall assembly will be reviewed. Recently there were a few (minor) changes to the building code for masonry walls in winter conditions. We will review the new limits and discuss best practices for installing masonry in cold climates.

#### **Learning Objectives:**

- Review the physical properties and classifications of both clay and concrete masonry units to ensure proper specifications in the project manual.
- Discuss the difference in masonry unit classification – Type X vs Type S.
- We will examine the difference in masonry pricing and how size will affect the in the wall cost.
- Review design concepts and installation requirements for all components of the masonry wall assembly.
- Discuss the changes and current limits in the building code when considering winter masonry construction.

### #2 Clay and Concrete Masonry Plant Tour – “How it’s Made”

#### **Description:**

This presentation will take you through a plant tour for both a clay and concrete manufacturing facility. We will start by reviewing the raw material selection and refining process. Then we follow both materials as they make their way through both production lines.

At each critical point in the process we will discuss the standard procedures for manufacturing as well as inspection testing for both clay and concrete products. (Some will be illustrated by short video clips - Like a technical version of a “how it’s made” program.)

#### **Learning Objectives:**

- Raw materials, what they are and where they come from.
- How a manufacturer handles and inspects the raw materials.
- Learn all the steps for producing a clay and concrete masonry product. Each process will be explained from the refining of the raw material to the final masonry product.
- Review the strict requirements for Type X vs Type S clay brick production.
- Understand how and why we package each product.

### #3 Designing for Moisture Protection in Concrete Masonry Walls

**Description:**

Provides an overview of the means and effect of moisture ingress, and includes a discussion of design detail options and practical construction techniques for water repellent masonry structures that can be employed by architects and engineers.

**Learning Objectives:**

- Discuss the effect of water ingress on masonry structures
- State the material components of a water repellent masonry wall
- Explain how to design a water repellent masonry wall system
- Discuss the importance of proper job-site practices and workmanship
- Explain the Spray Bar Test Method used to confirm water repellency performance in CMU (Concrete Masonry Units)

### #4 Masonry Wall Construction

**Description:**

Construction of standard and lightweight concrete block walls will be reviewed. Individual concrete block components are explained in detail as well as how they fit together to complete a wall assembly. We will also cover how concrete block is connected to precast concrete during construction.

We will review the typical cross sectional details for clay and concrete masonry veneer walls. Rain screen design and continuous insulation details will be discussed.

The final portion will cover the installation of thin veneer products on exterior surfaces. Step by step illustrations as well as their limitations and tolerances are discussed.

**Learning Objectives:**

- Understand how the components of a masonry wall can influence the wall design.
- Learn all the components to a concrete block wall and how they fit together to complete the total wall assembly.
- Learn how to construct a masonry cavity wall and incorporate continuous insulation on the exterior of the wall.
- Tolerances and best practice for installation of thin veneer masonry products

## #5 Thin Brick In Today's Construction Environment

### **Description:**

The course will focus on the use of thin brick fired from clay or shale and how it is used to build masonry structures using systems that include thin veneer modular panel component systems, field applied thin and thick set adhesion techniques and precast concrete panel systems.

The course will present the use of various types of form liners to be used in these systems and how to choose and detail the appropriate product.

Discussions will also focus on ASTM and PCI specifications and how to apply them.

*(This presentation is also approved by AIA for those that wish to collect the credit)*

### **Learning Objectives:**

- Identify and understand various methods of using thin brick
- Understand how thin brick are made
- Understand the advantages and disadvantages of the various systems
- Understand the ASTM and PCI specifications and how to apply them
- Understand the use and selection of the various types of form liners

## #6 Enhanced Curing of Concrete Block Using Carbon Dioxide (English/French)

### **Description:**

Predicated on a growing evidential link between anthropogenic activity and climate change, the mitigation of carbon dioxide has become a collective global imperative.

The heightened urgency has fueled various disciplines to promote and develop alternative low-carbon technologies. The concept of utilizing carbon dioxide in the processing of concrete has gained increased traction in recent years. In fact, it's the topic of much ongoing research and also the driver behind efforts aimed at commercializing the approach.

This seminar will familiarize the mechanisms governing concrete curing via carbonation, and how this method presents a more sustainable alternative to incumbent curing practices. It will also demonstrate carbonation-curing's associated environmental, manufacturing, and product-performance benefits.

### **Learning Objectives:**

- Review the manufacturing process of concrete block.
- Review the Carboclave process.
- To understand the purpose and benefits of sequestering carbon dioxide in concrete products.

## #7 Masonry Aesthetics

### **Description:**

Learn how textures and colour affect the final appearance for both Clay and Concrete products.

Discuss the difference between surface coated colour and through body colour.

Learn how to incorporate blending colour and texture into your masonry projects

Review common colour and texture masonry issues

Break down the root cause of common Masonry Aesthetic issues.

### **Learning Objectives:**

- Better understand the manufacturing process for both clay and concrete products.
- See the type of equipment and overall process of how texture and colours are produced in masonry products.
- Discuss the limitations of colour and texture for both clay and concrete masonry.
- Gain the ability to properly diagnose and resolve many on site aesthetic issues for masonry

## #8 Masonry Coursing

### **Description:**

Coursing out your wall assemblies (not just for masonry) is an important decisions you will need to make early on in the design process.

Knowing where to start and stop with different materials is just as important digitally as it is on site.

We will review the most common masonry sizes for both Clay and Concrete, then discuss how you can incorporate different colours, textures and patterns into your projects and ensuring things line up properly.

View examples and diagrams of Vertical and Horizontal masonry coursing... both good and bad.

Last but not least, review the job site mock up process.

### **Learning Objectives:**

- Understand how certain products are manufactured and/or packaged to ensure proper product selection and coursing benchmarks are attained.
- Outline the differences and similarities between Canadian made to American made masonry products... for both Clay and Concrete products.
- Review the importance of coursing and view examples of how coursing can affect the overall project.
- Determine how to locate and properly use material coursing charts
- Discuss the use and importance of job site mock ups

## #9 Masonry Limits

### **Description:**

We will start by taking a look at the specific unit tolerances for a manufactured clay or concrete brick as well as concrete stone and block products

Then we will review the construction tolerances for completed masonry wall assembly and examine what would pass or fail inspection. We will also discuss a few common construction issues that are not really covered by the CSA.

We will review photos and discuss some common on site aesthetics concerns that we encounter in masonry walls

Finally, we will cover the tolerances for temperature when constructing a masonry wall. When is it too hot or cold to build a wall and what actions the mason may need to take to ensure proper adhesion of the masonry units.

### **Learning Objectives:**

- Learn the basic tolerances for masonry units, both clay and concrete manufactured products.
- Be able to assess workmanship and/or overall quality of a masonry wall assembly. Determine what could potentially pass or fail on a job site inspection when compared to the tolerances in the standard.
- Gain a better understanding for what aesthetic tolerances are for masonry, both the units and the assembly.
- Learn the acceptable temperature ranges for both cold weather and hot weather construction. What to do and what not to do when building a masonry wall assembly.