

From the Desk of Sasha Kisin...

At the start of the pandemic almost two years ago, no one could have predicted the situation the masonry trade, and the construction industry as a whole, would be in for the majority of 2021. Production shutdowns at international manufacturing facilities, unprecedented global logistics complications, and a busy American construction market has resulted in numerous shortages and corresponding price increases for building materials. Fortunately, these price increases and shipping delays have not affected most masonry materials. This has caused designers and owners of numerous projects to expand the use of masonry or even completely abandoning alternative construction methods for masonry-centric wall systems. As a result, the majority of SMI contractors had full employment for their crews throughout 2021 after several lean years. SMI members are now awaiting the numerous institutional eagerly projects that were announced by all three levels of government to go to tender.

With the increased construction activity within the masonry trade, the industry was able to enroll



enough first year apprentices into the Bricklayer Apprenticeship Program to hold a Level 1 course for the first time in three years. The Bricklayer Apprenticeship Program is based in Saskatche-Polytechnic's wan Ontario Avenue Campus and features a dedicated, state of the art laboratory for

apprentices to gain hands-on practice under the supervision of an experienced instructor. This facility, along with the individuals who work hard to make the program successful, are one of the fundamental building blocks to ensuring the Masonry trade remains viable in Saskatchewan for future generations. With the promise of consistent institutional projects in the pipeline, the masonry industry is cautiously optimistic that there will be a steady supply of apprentices to keep this vital program sustainable for years to come.

SMI continues to represent the interests of the local masonry industry and promote the use of masonry wall systems. Representatives continue to lobby the provincial government on the benefits of masonry construction in public infrastructure. Although we have encountered some setbacks gaining access into public buildings to preform third-party lifecycle inspections, we remain optimistic that decision makers within the provincial government are beginning to see the benefits that masonry wall systems bring in terms of long-term durability, resiliency, and the local economy.

Unfortunately, the uncertainty behind Covid restrictions this summer resulted in the cancelation of everyone's favorite event, the Annual SMI Golf Tournament, but the planning committee is confident that we will be able to bring the event back in 2022. Keep your eyes peeled in the Spring 2022 newsletter for an official announcement and make sure to get your registration in ASAP because it has sold out quickly in the past.

Speaking of SMI events, planning for the next Saskatchewan Masonry Design Awards taking place at Casino Regina on **Friday, September 16th, 2022** have kicked into high gear. The deadline for project submissions has passed and SMI staff are busy categorizing the entries so they can be reviewed by an expert panel of judges. Given the quality of projects submitted, the judges will have some tough choices ahead of them. Anyone who has attended previous iterations of the awards gala know it is not an event you want to miss! Invitations will be sent to SMI members and and design teams of submitted projects in the new year. Seating will be limited so make



sure you RSVP when the time comes to ensure your spot!

This year marked my 10th anniversary with the masonry industry in Saskatchewan: 3 years as a M.Sc. student with the Saskatchewan Centre for Masonry Design and 7 years as the Masonry Design Engineer in the Saskatchewan office of the SMI-Canada Masonry Design Centre (CMDC) partnership.

The CMDC continues to bridge the gap between the design community and the masonry construction industry by providing masonry-related technical support to design professionals and advancing the state of the art in Masonry Design. In addition to our primary role of answering masonry-related technical questions from the design industry across Canada as well as continued work supporting and developing MASS[™] software, CMDC staff have been hard at work on several important initiatives:



- Writing the next edition of the Masonry Structures Behaviour and Design Textbook and features major overhauls of almost every chapter
 - The first 8 chapters have been completed and released to several universities, including Bruce Sparling at the U of S to help with course development
 - Chapter 8 was a major undertaking as it started from a clean sheet and focuses on modern masonry earthquake design practices
 - Chapter 9 is an overhaul of masonry column design and is currently almost ready for final review
 - Chapter 10 covers supplemental wall analysis and design techniques. It is currently in 50% draft form
- Successful execution of a virtual 13th Canadian Masonry Symposium
 - Despite the symposium moving to a virtualonly format, attendance to the technical sessions was high and participants were able to interact with the presenters
 - Attendance to The Design of Multi-Storey Masonry Building Course presented virtually on a Sunday by CMDC staff attracted a record number of participants – over 100 engineers from across Canada tuned in live for this 3hour Continuing Education Course (250 designers representing 135 companies registered for the CMS with over 100 taking the course after the CMS)
 - If you are interested in watching a recording of this course, contact the CMDC for more information
- Publishing a new series of articles on the CMDC highlighting some of the most common cases where masonry specifications can be improved in project documents
 - More information on page 6 of the newsletter
 - If you have an example of a masonry specification that you would like us to highlight, please send it our way!



- Publishing the final report on the harmonization of Masonry standards between Canada and the U.S.
 - This work is also supported by CSA, for which CMDC was able to successfully apply for a \$50,000 grant towards this harmonization project
 - Executive summary of the report can be found here: <u>https://www.csagroup.org/</u> <u>article/research/towards-the-harmonization-</u> <u>of-canadian-and-american-masonry-</u> <u>structures-design-standards/</u>
- Collaborating with researchers and the CSA to publish a report on Adapting Masonry Codes and Standards to Climate Change

- Report can be found here: <u>https://</u> www.csagroup.org/article/research/climatechange-adaptation-of-masonry-materialsdesign-and-construction/
- Continued support of masonry research across Canada in partnership with CCMPA and our local masonry associations
- Continuing to provide complimentary copies of Masonry Structures Behaviour and Design and MASS[™] software to students enrolled in the Masonry Design Class at the U of S
- Leveraging the previously completed initial cost study for multistorey condominiums in Atlantic Canada to switch multiple mid-rise condominium projects to loadbearing masonry construction

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CORRECTION

The Spring 2021 Edition of the SMI newsletter featured an article highlighting local architect, Maurice Soulodre's illustrious career. Following the publication of the article, it was brought to the attention of the SMI staff that it contained several errors. One of these errors included an incorrect depiction of project Maurice worked on. The original article referenced and depicted the Ukrainian Museum of Canada. In reality Maurice was responsible for the design of the Musée Ukraina Museum on Avenue M in Saskatoon, pictured below.

We apologize for any confusion the errors may have caused and we will work harder to avoid such mistakes in the future.





Saskatchewan Centre for Masonry Design

Research at the Saskatchewan Centre for Masonry Design (SCMD) continues at a fever pitch with multiple students nearing the end of their programs, one entering the testing phase, and new project just getting started. The following is a short update on the status of each student's project.



Olga's masonry prisms during their 28-day curing period awaiting testing at the Saskatchewan Centre for Masonry Design's structures lab at the U of S

Over the past couple years, Jawdat, under the supervision of Dr. Boulfiza and Dr. Wegner, has been progressing the SCMD's cold weather research program with the goal of demonstrating technologies that would reduce the need to heat and hoard masonry construction in northern climates. Breakthroughs in this research would not only reduce the cost of masonry construction but also reduce the carbon footprint of masonry construction. Earlier this year concrete brick prisms were constructed with various admixtures to determine if they were able to lower the freezing point of the mortar while maintaining the compressive and bond strengths of the mortar. Jawdat has since analyzed the data and submitted the first draft of his thesis for review as well as written a paper discussing the results. Trends in the data suggest that some of the tested admixtures are successfully lowering the freezing point of the mortar without significant loss in the structural properties. These are very exciting results and we hope to continue research in this area with the ultimate goal of

applying what was learned on to real local construction projects.

Olga Savkina is now in her second year of her graduate studies at the SCMD. Her project is examining the reduced web thickness of concrete masonry units (CMUs) that conform to the American ASTM C90 standard but not yet certified for use in CSA A165. The picture below highlights the different cross sections of the two units. The results of her research will be used by the committees working on the 2024 CSA masonry standards with the hope that the CMUs with reduced web thicknesses will also be allowed in future Canadian masonry construction. Approval of the reduced web thickness units will help reduce the carbon footprint of masonry as these units use less material and their lower weight allows for more of them to be shipped per pallet. In addition, their reduced weight and thinner central



Top: Current CSA Approved CMU cross-section (25 mm minimum web width for 200 mm units)
Bottom: Unit cross-section geometry allowed by American ASTM standards (19mm minimum web width for 200 mm units)

web makes them easier for masons to handle. After a successful pilot phase in the spring where Olga and Cindercrete were able to validate the custom mould for the block machine, Olga constructed over 50 masonry prisms with the help of a certified bricklayer in September. She is now in the middle of testing those specimens before construction of the phase two



specimens, which will feature 300 mm units, commences later this fall.

Micah Heide is the newest student at the SCMD, having started this fall. His project will be a continuation of Olga's thin-web CMU project where he will test masonry wall specimens constructed out of the proposed thin-web units and compared them to walls constructed out of CSA-approved CMU to determine if similar behavior is occurring under out of plane loading. Micah is also spending one day each week in the SMI office as part of his MITACs grant where he can work on his project while having the ability to work with Sasha to help procure materials and ensure his project remains relevant to industry needs.

Last but not least, Gordon, Nitesh, and Thomas are in the advanced stages of writing their Theses and they hope to get into the workforce in the near future. Their published work will help shape the next edition of CSA masonry standards due out in 2024.

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Masonry Specification Examples

Errors in construction specifications lead to lost time and money for all parties involved. Errors can occur due to references to outdated standards, contradictory/conflicting requirements throughout a specification, general omissions of important information, or a misunderstanding of what is present in masonry standards. The following are examples of some of the typical issues the CMDC engineering staff have encountered. The purpose of these pages are to provide a general resource to help inform mason contractors, specification writers, architects, engineers, and masonry designers in general on what types of specifications can often lead to issues on a masonry job.

Presented below is a list of the currently available articles. Click on each to be taken to the associated page:

- <u>Tying a Veneer to a Structural Backing</u>
- Bond Beams in Partition Walls
- <u>Specifying Mortar for Loadbearing Masonry</u>

- Specifying Mortar for Non-Loadbearing Masonry
- Workmanship: Unit Appearance
- Workmanship: Mortar Joints
- Workmanship: Wall Surfaces
- Movement Joints
- Reinforcing Acoustic Block

Each page includes full description of the topics seen listed below, which includes:

- How the specification typically appears
- Discussion points explaining any possible issues with the specification
- Suggested changes to the specification

New articles are being uploaded regularity so make sure to check back regularly. If you've come across a masonry specification which you think can be improved or want a more in-depth explanation, send in your ideas to the CMDC and we will put it in our queue!



ACEC-SK Annual Golf Tournament

SMI was proud to sponsor both the men's and women's longest drive competitions at the 2021 Association of Consulting Engineering Companies' (ACEC-SK) golf tournament on August 20th with TJ Reeve and Katelyn Sebastian taking home the longest drive honors.

In addition, Sasha was out enjoying the beautiful summer weather and chatting with the golfers and giving away custom SMI ProV1 golf balls at the long-

est drive before they took their big shots. SMI also donated a Yeti cooler that golfers could enter their names to win. Congratulations to Brett LaRoche from Catterall & Wright Consulting Engineers on taking home this awesome prize!

SMI is an Associate Member of the ACEC-SK and a proud long-time supporter of their golf tournaments and Awards of Distinction.



Women's longest drive winner -Katelyn Sebastian.





Men's longest drive winner -TJ Reeve.



Yeti cooler donated by SMI.



A golfer entering his name for the Yeti cooler draw.



SMI's set up at the longest drive.



Masonry Webinars



Join our upcoming webinars. Earn LUs/HSWs and learn with us.

Here's what's on the schedule:

- 11/10: Practical Detailing of Structural Concrete Masonry Design
- 11/16: Creative & Cost-Effective Masonry Options
- 11/30: Stone Veneer Assemblies: Design & Detailing Considerations





I-XL Building Products has developed accredited seminar programs for the specification community that cover a number of topics relevant to masonry products. Our courses are registered with AIA, AAA and AIBC continuing education programs. Participants will earn one learning unit per hour-long course.



Thin Brick—Design, Detail & Applications



Book a Lunch & Learn

DESIGNING COMMERCIAL PROJECTS



Designing Commercial Projects with Manufactured Masonry



Designing with Clay Brick

Book a Lunch & Learn



2022 Design Awards

The Saskatchewan Masonry Design Awards are held every four years to recognize architects, engineers, designers, builders and owners for substantial, imaginative and/or creative use of masonry in building design and construction in the province. The next iteration was to be held in September 2021, but due to the uncertainties around COVID-19, the awards will be held on <u>September 16, 2022 in Regina, SK</u>. Below is a list of current entries.

121 Greenbryre Cres - Residence	Cornwall Centre H&M
135 Greenbryre St - Residence	Darke Hall
203 Greenbryre Cres - Residence	Ecole Connaught Community School
318 Greenbryre Lane - Residence	Evergreen Joint Use Facility
334 SK Cres W - Residence	Friesen Residence
734 SK Cres W - Residence	Hampton Joint Use Facility
802 Queen St	Harbour Landing P3 School
2326 College Ave	Humboldt Post Office
2805 23rd Ave - Residence (garage)	James Cabin - Candle Lake, SK
Affinity Credit Union	Jim Pattison - Children's Hospital of Saskatchewan
Ahtahkakoop Health Centre	Kakisiwew School
Argyle Street Strip Mall	KC Columbian Centre
Bank of Montreal	Kopahawakenum Elementary School
Becker Residence - Kindersley	Lakeside Medical Clinic
Blackstrap Service Centre	Landmark Cinema
Blessed Sacrament Parish	Long Term Care Facility
Brighton Marketplace Bldg A, B & E	Lumsden WWTP Upgrades
Buffalo Pound Provincial Park Pool	Marquis Waste Hauler Station
Buffalo Pound WTP & Electrical Substation	Martensville Joint Use Facility
Candle Lake Visitor Reception Centre	Merlis Belsher Place
Cathedral Court	Midtown Plaza
Chief Kahkewistahaw Community School	Motion Fitness Lawson Heights Mall
Chief Sabitawasis School	North Central Shared Facility - mamaweyatitan
Collaborative Science Building	PACC Food Services Addition
College Avenue Campus	Pelican Narrows WTS Upgrade
College Quarter Hotel	Penner Doors
Compass Point Condos	Prairie Sun Brewery
Co-op C Store & Car Wash	RCMP Onion Lake Detachment

List of Entries



List of Entries - con't

Red Earth First Nation Health Centre Regina Minor Football Headquarters Remai Arts Centre Revera Greens on Gardiner River Street Reservoir Riverlanding East Tower Rosewood Joint Use School Rosthern School Safeway Lawson Heights Mall SAMA Office Building Sandy Beach Service Centre Saskatchewan Hospital North Battleford Saskatoon Civic Operations Saskatoon Fire Hall No. 3 Saskatoon Pediatric Dentistry SaskTel - 2121 SK Dr - 10th Flr Scotiabank Lawson Heights Sherwood Industrial Park WTP & Auxiliary Works St. Brieux School Addition & Renovation St. Matthew's Church - Exterior St. Matthew's Church - Interior St. Thomas More Cafeteria Expansion Starbucks - Idylwyld Dr Stonebridge Joint Use Facility Teachers Credit Union The Bentley The Williston Harbour Landing U of S Health Science A/C Wing Warman Joint Use School WCVM Pet CT & Oncology Centre





You Never Looked So Young

By Martin Charlton Communications

One hundred and eight years old never looked so youthful.

The University of Regina's College Avenue campus recently experienced a \$65-million facelift that involved demolishing existing structures, preserving others and erecting new buildings that are expected to have the same lasting effect.



Three structures in particular - the College Building and Tower and the Conservatory, – were the primary targets of this project. These buildings date back as far as 1912.

James Youck, principal architect at Regina's P3Architecture Partnership (P3A), was the principal in charge of design for this challenging project. Difficult decisions had to made when it came to knocking down historic buildings and constructing new ones. Heritage guidelines require the new construction to be something that is subservient and sympathetic but does not overwhelm the existing structure.

"It's a matter of old technology versus new technology," Youck explained. "Marrying those two approaches took a lot of time and effort to understand how we could design a system that would allow us to have an energy-efficient building but still allow the existing building to perform the way it always

had."

The team began with an investigation of the existing buildings on site, including a 3-D scan of the building envelopes. They were able to track every stone and brick within a couple millimetres to get a better understanding of what the condition of the exterior envelope was.

Some of the buildings were interconnected. For example, the College Building and Tower Building attached to the Conservatory Building.

As these buildings were constructed over different periods of time, there were significant technical issues with the Conservatory Building. The south end of the Conservatory was condemned and deemed unsafe.

The Conservatory had to be demolished as its settlement was inducing stresses on the adjacent college building, threatening to topple the Tower.



"We salvaged a lot of bricks from that building and when we were doing the demolition of it and when the exterior brick was removed, you could see what was happening to the backup masonry," Youck recalled. "It was what looked to be a ladder crack on the outside – the building had separated by four to



six inches and the whole south end of the building was in danger of coming down."

Youck said they wanted to maintain the façade of the original College Building and retain the heritage College Avenue façade. The colour of the new building matches one of the bricks on the old structure. They used just one colour so the addition can be clearly differentiated by its geometry, its colour and its patterning.

"It was like cutting a cake," he said. "We removed everything behind the main façade, kept all of the masonry in place. We pulled the windows out and braced the building while the new building was constructed behind it."

The teams worked extensively with a heritage consultant, the university and the Wascana Centre Authority (now Provincial Capital Commission) to determine what type of expression in a new addition was appropriate to stand next to a heritage building. Youck said they had to follow national guidelines for preservation and restoration to historic places and ensure they didn't mimic the existing heritage architecture.



"Masonry was going to play a big role in the design and we wanted to make sure the architecture was clearly differentiated from the heritage buildings," Youck said. "We took design cues from the existing collegiate gothic buildings and one of those cues was the colour and proportion of the brick. We looked for a masonry product that would blend in, but the architecture and the expression of it would look different such that you knew there had been an addition to the building."



"We weren't trying to expropriate the heritage buildings of their quality to make the new building fit in."

"The only way we could do that was to take the masonry product and apply it as a brick veneer in the new construction. It's a cavity wall construction – there is a backup wall that is supporting a brick veneer with an air space and insulation."

"It's an extremely durable way of approaching a design – using all best practices in terms of what you need to do with a building envelope. The veneer, the fact it is brick, will last well past my lifespan and well into the future in the same way the existing heritage building has survived."

Working with historic buildings, Youck said, presented challenges. However, it also provided educational opportunities when it came to studying and observing the existing structures. There was no shortage of surprises.

He said the technology used by architects and masons more than 100 years ago included a concrete frame infilled with a monolithic brick wall on the exterior. The interior partitions were a combination of hollow clay tiles and leftover bricks.



As they took apart the old building to begin the restoration process, they noticed differences with how masons approached their work. One interior wall would be made with hollow clay tiles and plaster. Another interior used leftover bricks and plaster. The next room would have a different wall construction entirely.

"Depending on which mason was working in which area, you see a different approach to putting the building together," Youck said. "It all looks the same once the skin is on it, but there were subtle differences that we had to deal with."

"Today, when we look at modern drawings and design, we would have produced 80 or 100 sheets of drawings for the restoration and construction," he said. "The old building, they very much left it to the skilled tradesmen to put together the building. The architect would do a drawing showing what he wanted it to look like and the tradesmen and contractor would determine the best way to build it."

Technology used today, obviously, is dramatically different compared to the limitations of lumber and stone used pre-World War. As well, there was a lot less information provided to the masons back then compared to today. Specification books weren't available, the detailing was not as elaborate and the number of sheets of drawings were much simpler than today.

"Today, we still absolutely depend on the skill of the masons," Youck said. "But as architects and designers, we're providing more information around how the wall has to perform."

Many of the archways, main corridors and windows, and interior finishes in the heritage buildings were preserved with protective treatments.

On the west side of the College Building, the new structure was modernized to include boardrooms, classrooms, washrooms, fire exit stairs and an area for building electrical utilities that service the original

building as well as the addition.

Especially important was repointing the College Building's front brick and stone and restoring the front doors and windows.

The College Avenue campus is home to the University Centre for Continuing Education, the Lifelong Learning Centre, the Conservatory of Performing Arts and the Johnson Shoyama Graduate School of Public Policy.



This particular project isn't unique to Saskatchewan. Other examples of restoring heritage buildings include Regina's Viterra Inc. building on the corner of Victoria Avenue and Albert Street, Government House and many of the buildings on the University of Saskatchewan campus in Saskatoon.

"The addition, in a subtle and understated way but with beautiful detailing and craftsmanship, really shows a modern interpretation of a skillset that is hundreds or thousands of years old," Youck said. "It's not just brick. The addition has a granite base and there's beautifully cut stone that was integrated into the addition in the same way the stonework was integrated into the original architecture. It's a beautiful expression of that same skillset and that same timeless architecture that the original building was."





Time for some contests!

The first challenge is to email a picture of your favourite local Mid Century Modern masonry architecture. Below is an example of Sasha's favourites!

Email your correct answers to:

info@saskmasonry.ca



Residence in Varsity View in Saskatoon, SK



St. Philip Neri Perish in Saskatoon, SK



The second challenge is name the building in the picture to the right.





Congratulations to the winner of our last contest, Wes Moore. The challenge was to name the masonry bond in the picture to the left. The correct answer is Loudon's Hollow. Congratulations, Wes!

Thanks for playing along!



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