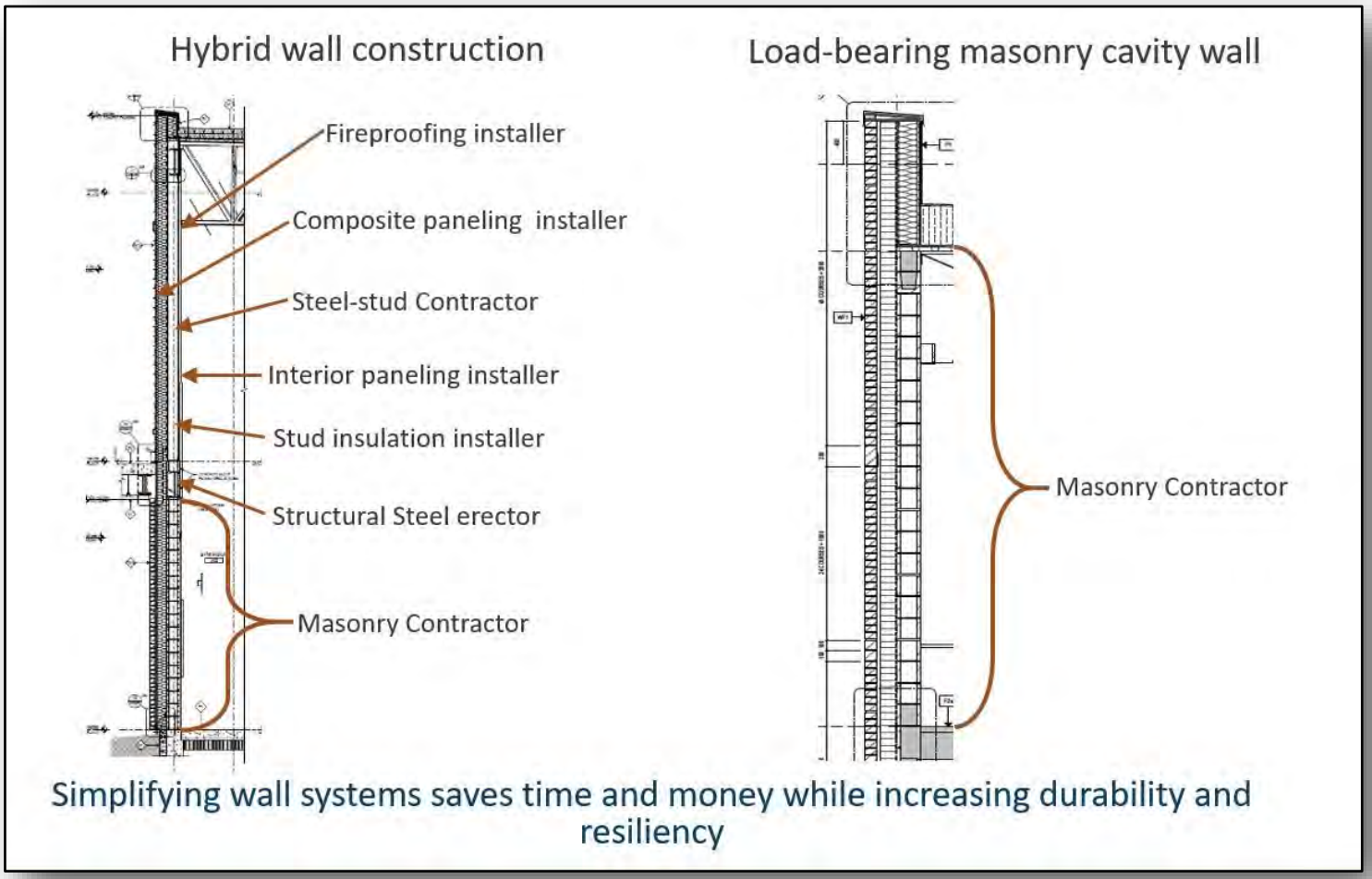
From the Desk of Sasha Kisin...

The masonry industry continues to navigate the new landscape brought on by the global pandemic and the current realties that no one could have predicted this time last year. Current employment within the masonry industry remains below ideal; however, there is reason to be hopeful: the skyrocketing costs and shipping backlogs of competing materials such as wood and steel has resulted in masonry construction, with its locally manufactured and price-stable products, being viewed as an even more compelling building method. Combined the number of infrastructure projects, including over a dozen schools and hospitals throughout the province, announced by various levels of government over the past year, the industry is anticipating a return to full employment in the second half of 2021 and to stay busy throughout 2022.

Over the past couple months, SMI Board members, Ryan Leech, Dominic Iula, and Ron Chelak, along with myself have been working hard to develop a new presentation to emphasize the benefits of masonry construction in public infrastructure.



continued on page 2...

The industry's lobbying efforts have resulted in this presentation being delivered to several high-profile officials within Priority Saskatchewan, Sask Builds, and the Ministries of Health and Education. This has resulted in a continued dialog with these organizations to develop requirements for future public infrastructure to use proven durable building materials in wall system to ensure lifecycles of at least 75-100 years. We are hopeful that these meetings will result in increased masonry wall share which will not only benefit our industry but also taxpayers in general who will enjoy the benefits of long lifespan infrastructure.

SMI has also started a new initiative to collect information from all of our supplier members on their upcoming webinars and aggregate them into one list. This will make it easier for the local design community to select which masonry-related topics they would like to learn more about. The inaugural mailout was emailed to the design community in March and we plan to distribute an updated list in May. If you did not receive the email please contact Jamie and she will place you on the mailout list. SMI supplier members: if you have any webinars planned in the next 4 months, please send us the information so we can feature it on our next mailout.

The Canada Masonry Design Centre 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.

One of the biggest initiatives the CMDC is currently involved in is the planning of the 14th Canadian Masonry Symposium scheduled to take place virtually on May 16th – 20th, 2021. This is being done in partnership with Khaled Galal from Concordia University in Montreal. Despite the worldwide pandemic, 97 papers from 17 countries have been submitted! Thanks to the incredible sponsorship and support from a range of associations, manufacturers and suppliers, **registration to the symposium will be free to everyone from the research and design communities!** For more information follow the link: **https://www.canadianmasonrysymposium.com/.**

These sort of events cannot be held without help from the masonry industry. If you are interested in sponsoring, please contact Daniela Webb dwebb@canadamasonrycentre.com.

In addition to the main Symposium program, a **free course is being targeted to practicing engineers** only as there is no EMDC being run and is being covered by industry sponsorship. The course will be held **virtually on the afternoon of May 16th** (it will also be recorded for those who want to take it a different day) and will cover **the design of multi-storey masonry buildings**. Please contact Sasha (skisin@canadamasonrycentre.com) for more information. It is our hope to reach record number of designers for the CMS this year!

continued on page 3...

Other notable projects the CMDC staff are currently undertaking include:

- The release of MASS™ software Version 4.0 which has the ability to design masonry shear walls to comply with the S304-14 new seismic standards and allow for the design of boundary elements. It also features a completely new module for multi-story masonry shear walls

- Developing the next edition of the Masonry Structures Behaviour and Design Textbook

    - The first 7 chapters have been released to several universities including Bruce Sparling at the University of Saskatchewan to help with course development

- Creating a new online resource detailing proper masonry specifications

- Working with Saskatchewan Polytechnic's Architectural Technology and Interior Design programs to develop masonry-specific lectures presented by CMDC staff

- Working with counterparts in the United States (NCMA) to harmonize our masonry design standards

    - 5 papers resulting from this research will be presented at the Canadian Masonry Symposium

- Continued support masonry research across Canada in partnership with CCMPA and our local masonry associations

- Continuing to provide complimentary digital copies of Masonry Structures Behaviour and Design and MASS™ software to students enrolled in the Masonry Design Class at the U of S

Upcoming Important Dates

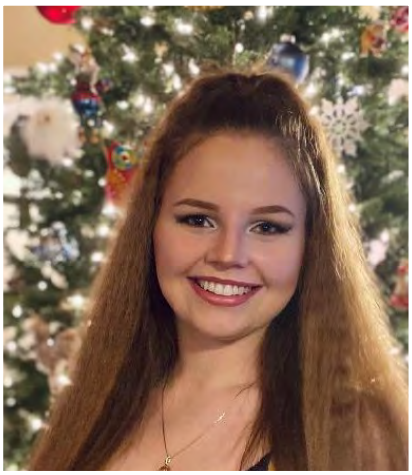
* 14th Canadian Masonry Symposium, May 16—20, 2021 (Virtual)
* May 31, 2021 - Submission deadline for 2022 Design Awards
* 2022 Saskatchewan Masonry Design Awards, September 16, 2022

Gunnar Hagblom Scholarship

Nitesh Chhetri

Congratulations to the 2021 recipients of the Gunnar Hagblom Scholarships: Nitesh Chhetri and Olga Savkina! Both are M.Sc. students conducting research at the University's Saskatchewan Centre for Masonry Design. Olga is a recent graduate of the College's Undergraduate Engineering Program while Nitesh is already into the second year of his research. Nitesh and Olga are testing the new CMU designs that comply with the latest American ASTM C90 standard. Olga's work focuses on concrete masonry units featuring the reduced web thickness while Nitesh is researching units with reduced web heights. Their results will be used to establish a database that will be used to potentially amend the next edition of CSA A165 to also include these new unit geometries.

The Gunnar Hagblom Scholarship was established approximately 30 years ago by the SMI to honor longtime member, Gunnar Hagblom of Hagblom Masonry, who was fundamental in shaping the masonry industry in Saskatchewan for a large portion of the 20th century. Several years ago, the Saskatchewan Masonry Institute has increased value of the annual Gunnar Hagblom Scholarship from a single $1,000 award to the opportunity for Awards Committee to grant up to two recipients $5,000 each. This move further solidifies SMI's continued commitment to supporting the world-class masonry research conducted at the Saskatchewan Centre for Masonry Design at the University of Saskatchewan.

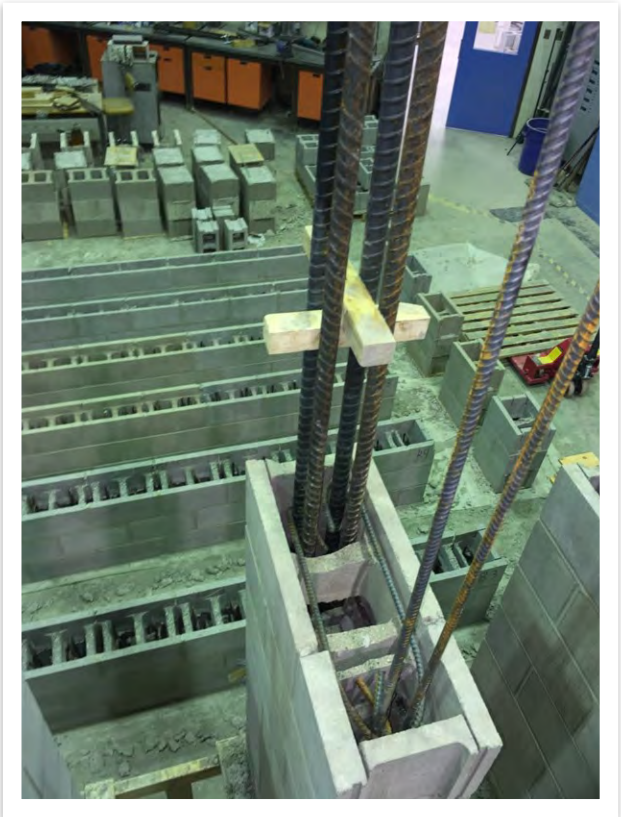


Olga Savkina

Saskatchewan Centre for Masonry Design

Despite the pandemic, the Saskatchewan Centre for Masonry Design's (SCMD) Structure lab at the U of S is busier than ever with multiple projects currently in the construction and testing phases. As a departure from previous SCMD update articles, we thought it would be more interesting to format this one as a photocollage to better illustrate all the interesting research currently being conducted by the graduate students.

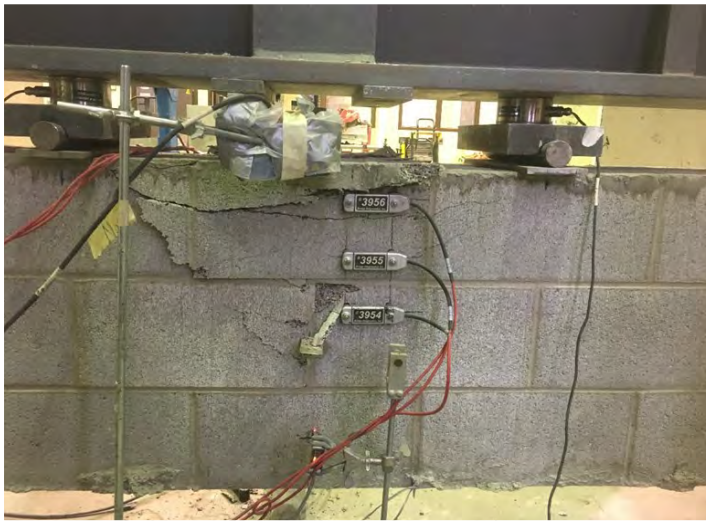
U of S Structure's Laboratory full of masonry test specimens.



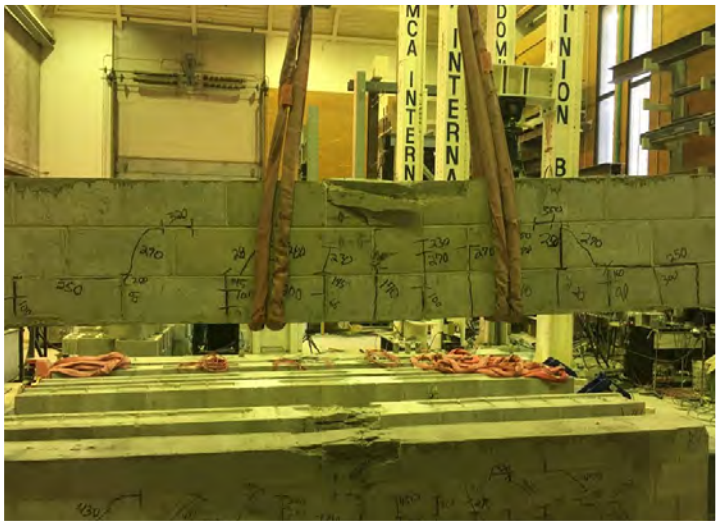
The objective of Thomas Vachon's research project is to re-evaluate the χ-factor that currently being used in the CSA S304 flexural design equation for masonry beams. If the results prove favourable, it may result in an increased structural capacity for masonry beams and lintels in future CSA masonry design standards.

To test the hypothesis, beam rebar cages needed to be constructed within wall specimens. (Sasha's Note: please do not attempt to put this many vertical bars in a wall!) These were then compared to identical rebar cages which were placed in a more traditional bond beam configuration.

Splicing of the Reinforcing bars was not allowed so after the first grout lift (6 courses high), the remaining concrete blocks, some of which were the 390 mm units, had to be strung over the protruding bars for the remaining 14 courses. Needless to say, production rates decreased as a result!



Specimens were tested under 4-point loading while being instrumented with strain and deflection gauges as well as being monitored by a Digital Image Correlation system that could track thousands of points on the white painted surface at the mid-span of the specimen.



Crack propagation was also tracked throughout the course of the test. The numbers represent the crack tip location at a given applied load in Kilonewtons.

Nitesh Chhetri is testing the new CMU designs with reduced web heights that comply with the American ASTM C90. Nitesh's results will be used to establish a database that will be used to potentially amend the next edition of CSA A165 to also include these new unit geometries.

The vast majority of masonry specimens tested at the SCMD are constructed by experienced Red Seal Bricklayers from SMI member contractors. Without them, the tight tolerances and high quality of workmanship required for research specimen could not be achieved.

The three course-high, running bond prisms with knocked out webs in the foreground will be compression tested and compared to the standard 3 course high prisms in the background.

~~~~~~~~~~~~~~~~~~~~~~~~

Formwork was constructed for the knock-out web prisms prior to grouting them solid. Both grouted and ungrouted prisms were tested in this project. ·


~~~~~~~~~~~~~~~~~~~~~~~~

Nitesh applying a white paint and speckle pattern so that the Digital Image Correlation equipment can track the deformation of the prisms under load.

Moment of failure caught on highspeed camera.

Gordon is comparing testing standards for masonry prisms between the Canadian CSA S304 and American ASTM C1314 by testing various prism configurations.

Dozens of prims were constructed for this research program with varying geometries, block patterns, widths, and heights. These were only the phase two specimens, the first phase had 3 and 4 course-high specimens.

Two actuators, capable of exerting 1000kN each (about 225 000lb-f) had to be coupled together in order to have the necessary capacity to test the prisms.

Strips of particle board placed on the face shells of the prisms to concentrate the loading to those two regions. These results were compared to prisms which were loaded over the entire cross-sectional area.

Prism specimens post test.

~~~~~~~~~~~~~~~~~~~~~~~~

Olga's project is a continuation of Nitesh's work where she will focus on the reduced web thicknesses that are allowed by the current ASTM C90. The results of her research will also impact the provisions in future CSA A165 standards.

The CMU at the top is an example of a standard unit that conforms to the current CSA masonry standards in terms of web thickness. The bottom is a prototype CMU has had its webs reduced down to 19 mm in width which is what is allowed by the current American Masonry Standard. The represents an approximate 10% material savings for a 190 mm unit which would have numerous benefits if it were approved for Canadian Masonry Construction. Following a successful pilot test phase additional 190 mm prototype units will be manufactured for a larger testing program to validate their performance. A 290 mm mould is currently being manufactured to ensure these new thin-webbed units behave similarly to the existing CSA-approved designs across all size ranges. A special thanks goes out to Cindercrete Building Products who are working closely with the SCMD to manufacture these prototype units.
~~~~~~~~~~~~~~~~~~~~~~~~

Jawdat's project is a continuation of the SCMD's research into cold weather masonry construction with the ultimate goal of reducing the need for heating and hoarding during the spring and fall. Concrete brick prisms have been constructed with various admixtures to determine if they are able to lower the freezing point of the mortar and how it effects the compressive strength and tensile bond of the units. In order to test this, some of the units were constructed in the University's large freezers where the sub-zero temperatures could be closely controlled and monitored.

The control group of specimens curing at room temperature following their construction.

A concrete brick prism about to be subjected to an axial compression test. Future research will use full-scale concrete masonry units in an effort to closely model typical local masonry construction practices.

Concrete brick prism following a compression test.

Concrete brick prism following the bond wrench test. This test measures the tensile strength of the unit which is typically a function of the bond strength at the interface between the mortar and masonry unit.

The Importance of Requiring the Masonry Contractor on Your Next Project to be a Member in Good Standing With the SMI

SMI contractor members' proven track record of superior workmanship and accountability. In addition, SMI has invested a significant amount of our members' dues back into the local community including the initial $1.25 million donation to the U of S to open the Saskatchewan Centre for Masonry design as well as supporting the architectural technology course at Saskatchewan Polytechnic. Furthermore, the Canada Masonry Design Centre, which is also funded by SMI contractor members and their equivalents in the other provinces, continues to provide free technical support to designers as well as procuring research and development that goes to developing the CSA masonry standards.

For these reasons, more developers, owner groups, and members of the design community are explicitly requiring that proponents bidding on their projects must be members in good standing of the SMI and the CMDC. If you are interested in doing the same for your next project, below is an example of this specification:

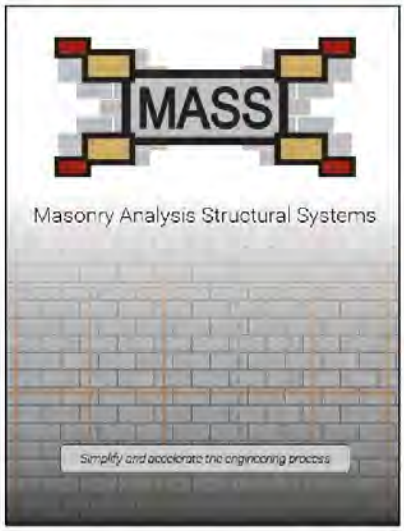
"Masonry Contractors shall be members in good standing with the Saskatchewan Masonry Institute and the Canada Masonry Design Centre."

~~~~~~

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 **September 16, 2022 in Regina, SK**. If you'd like to have your project entered and professionally photographed, contact the SMI office for an entry form. All requests must be submitted by May 31, 2021.


~~~~~~



Masonry Analysis Structural Systems

Version 4.0

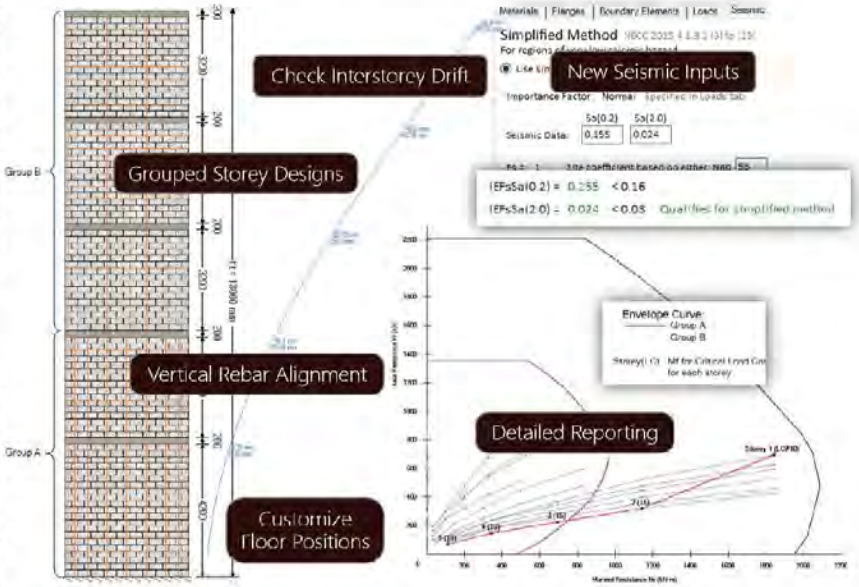
Simplify and accelerate the masonry engineering process

Masonry Analysis Structural Systems (MASS) is a powerful software package that analyzes and designs masonry Beams, Out-of-Plane Walls and Shear Walls in accordance with the CSA Masonry Standards. This program dramatically simplifies and accelerates the masonry design process and is specifically tailored to Canadian Engineers.

Masonry Analysis Structural Systems (MASS) is a visual, user friendly and dynamic structural software design package. MASS designs beams, out of plane walls, and shear walls for Moment, Shear, and Deflection. The newest version adds seismic considerations as well as a dedicated module for quickly designing multi-storey shear walls. *Everyone with a MASS™ license can be upgraded to Version 4.0 at no additional cost.*

In a low seismic region?
MASS Version 4.0 has a new seismic input tab specifically tailored to areas deemed by the 2015 National Building Code of Canada as having relatively low seismic risk. Simply input site data and the software detects the method being used between the simplified approach in NBCC 2015: 4.1.8.1 or the equivalent static procedure.

Designing Post-Disaster?
The higher ductility requirements for projects classified as being a Post-Disaster level of importance now require additional seismic considerations such as the ductility verification and the detailing of a plastic hinge region. MASS is able to perform these calculations and also check a shear wall against inter-storey drift limits.



New to MASS?

Join more than 450 engineers across Canada in using MASS™ to save you valuable time on your next project. If you have not yet used the software, why not give it a try with a free trial copy? Simply contact support to request your trial

NMDP would like to thank the following organizations:

To order MASS™ please contact NMDP's authorized service provider, the Canada Masonry Design Centre (CMDC) at:
360 Superior Blvd
Mississauga ON L5T 2N7
Tel: 888-338-3336 Fax: 905-564-5744
mass@canadamasonrycentre.com

Using Masonry to Leave His Mark

Working with his hands was a natural progression for Maurice Soulodre.

He started with Lego blocks to construct basic concepts like towers or square houses. From there, a young Soulodre moved on to Meccano toys that incorporated metal nuts and bolts and electric motors into its designs.

Growing up in the rugged Peace River region of northern Alberta, Soulodre became adept at inventing and forming forts made of tree branches and other loose materials.

It's no wonder he eventually graduated from the University of Manitoba after four years of studying architecture.

"Lego and Meccano blocks … and I always enjoyed building forts in the bush as a kid. Those are the things I did growing up," Soulodre recalled. "That's where I learned how to use my hands and build things with my own hands."

"I didn't realize until I was older that I really wanted to be an architect. I liked building my own things, but I also liked to watch buildings being built and the construction process."

Soulodre, of Maurice Soulodre Architect Ltd., in Saskatoon, recently retired from the profession after a 40-year career. In doing so, he found a wealth of free time to continue his worldly travels and marvel at architecture on other continents.

But to say Soulodre enjoyed buildings things himself would be an understatement. He thrived on it. In fact, of the three cities he has called home – Winnipeg, Calgary and Saskatoon – each house he and his wife have lived in have been designed and built by Soulodre.

"I was involved in every aspect. I even pounded the nails," he said. "I was very particular and had difficulty trusting anyone else to carry it through how I wanted. I had helpers, but I had to be very hands-on for everything just so I could be satisfied that it was done properly."

The home he built in Manitoba was slightly south of Winnipeg in St. Adolphe. In Calgary, the home he built there was in the Woodbine neighbourhood. His current home, built in 1985, is found on an acreage south of Saskatoon. All were what Soulodre described as "conventional homes" and used cedar siding and were modern in shape.

Soulodre even designed and constructed the building that housed his architecture firm on Lorne Avenue in Saskatoon, where they have operated since 2005.

The Saddledome - Calgary, AB

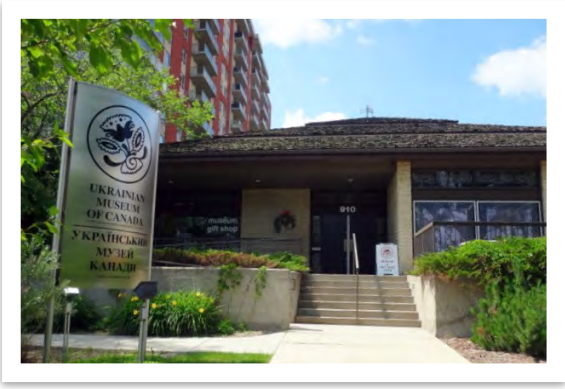
Saskatoon has been home to Soulodre since 1985. He landed there after he literally helped Calgary grow its downtown core with several high rise office towers during the boom in the early 1980s.

In Calgary, he worked for a large firm that specialized in high rise towers, many of them built with masonry materials like clay brick. One of his colleagues at this firm drew the specifications for the popular and unique Saddledome, a prominent structure in the city's skyline and home to the NHL's Calgary Flames.

continued on page 14...

But it's in Saskatchewan where Soulodre really found his groove. It's here where some of Soulodre's proudest career achievements took place.

He fondly recalls his first major project in Saskatchewan. Soulodre and his architecture partner at the time designed and constructed Ecole Mathieu in Gravelbourg, a town in the southwest quadrant of the province.



Ukrainian Museum of Canada - Saskatoon, SK

The existing building was destroyed by fire and the town decided to rebuild. Several connecting structures like boys' and girls' residences, a cafeteria, gymnasium and auditorium comprised the lot. At the time, it was one of the largest school projects in the province.

The structures were steel with masonry bearing walls and a clay brick veneer on the entire exterior. As is the case with most every building of this kind, it's still standing today.

"It's quite easy to nail down your dimensions, not only of the plan but also of the heights and elevations," Soulodre said. "Masonry materials have always been easy to work with because of how they're made and the durability of the materials."

"That's why I loved working with masonry because it was helpful to know that brick was a certain size and if you wanted your wall a certain height you had to use so many bricks. There was always something you could work with. You were never really starting from scratch."

From educational institutions to places of worships, Soulodre's work was coveted by many. He was approached in Saskatoon by a group of nuns who operated a nursing care home. They wanted a monastery built in the city and requested Soulodre's expertise. Using tyndall stone, Soulodre designed and built a monastery, chapel and utility building. All are unique and highly visible and can be found on Avenue M in that city.

Among Soulodre's proudest structures are the Ukrainian Museum in Saskatoon, where he used insulated concrete forms and added masonry materials.

As well, he's fond of the Duck Lake Regional Interpretive Centre. The cluster of buildings is visible thanks to the tower that stands in the middle and allows visitors a higher vantage point of the area.

"The more rewarding projects were when a client would allow you to come up with something from scratch," Soulodre said. "It was certainly satisfying to start from scratch and design the whole building.

Duck Lake Interpretive Centre - Duck Lake, SK

Not only the concept of it, but also the technical portions as well."

Soulodre says it's difficult for him to travel throughout Saskatchewan and not see a building where he hasn't played a role in its design or construction.

continued on page 15...

His intention now is to step away from the profession and do more travelling. He envisions a warmer climate and a beach among his first destinations.

"I've been at it long enough. I've put in my time and I think I've accomplished a fair amount," he said.

"We've travelled to many places around the world – Tahiti, South Africa, countries in Europe - and there are still many more to see. We have always wanted to visit Australia and haven't been there yet."

He has the time now.

Shrine of Blessed Nun Martyrs Olympia & Laurentia - Saskatoon, SK

Highlights from our Instagram Account

@saskmasonry








SupplierLink Saskatchewan: Industry collaboration to Lead to Saskatchewan's first-ever automated vendor engagement system

SupplierLink Saskatchewan will be industry's first automated vendor engagement tool to showcase vendor experience, capabilities, and qualifications, while connecting them to those who hire across industry by adding them to their bid lists. Developed by industry, for industry, with a focus on the Saskatchewan supplier base, SupplierLink Saskatchewan will broaden engagement with government and contractors of all sizes.

Background: The Problem

Increasing demand for contractor qualification documentation has presented a significant burden for industry for a long time. Third party so-called 'safety verifiers' (TPSVs) that exist today are simply consulting firms that target hiring companies with the promise of standardizing contractor management, with the intent of decreasing incidents and increasing compliance. However, in reality these TPSVs are a significant burden for contractors due to their onerous processes, time consumption to maintain, and high costs both in terms of fees and administrative resources. In short, TPSVs are at best a hurdle for larger contractors and at worst a barrier to entry for smaller contractors who do not have the time or resources to dedicate to these systems. The process of winning work risks becoming a confusing and expensive mess – one that the oil and gas industry now finds themselves in.

The Solution

The Saskatchewan Construction Association (SKCA) Board of Directors decided that the time had come for the SKCA to facilitate a simpler way of assisting general contractors and infrastructure owners discovering and pre-qualifying excellent suppliers, subtrades, and contractors. President Mark Cooper held consultations across industry as well as with government agencies including SaskBuilds, SaskTel, SaskPower, SaskEnergy and gained meaningful direction; If one system could be created it would eliminate duplication of paperwork and provide greater dependability of the information provided.

Mark's next challenge was to make the system a reality. Mark says: "The system we had conceptualized just didn't exist, so we needed to seek out a partner."

EHS Analytics, a technology company working closely with developing a new platform for SKCA's sister organization, already had the infrastructure in place to custom design such a system in the amount of time needed.

The Product

From the beginning of the development process, EHS and SKCA engaged with a range of stakeholders to ensure the system was useful, met important criteria for qualifying companies, and made it easier for companies to find work – something no existing process or system can do – and SupplierLink Saskatchewan was born.

continued on page 17...

Through the development process, it was determined that, where possible, SupplierLink needed to have direct-from-source data. As an example, one of the important evaluation components for a company is safety, and within safety it is clear that a Certificate of Recognition (COR) is a strong indicator of a safe company. The team worked with the SCSA and the Heavy Construction Safety Association (HCSAS) to bring COR certification data directly into SupplierLink.

Having COR certification data in SupplierLink means contractors don't need to update their COR certification status and buyers don't need to verify the certification status as accurate. As well, other attributes like WCB clearance status are brought in automatically, making independent verification of data unnecessary. Enter it once, and the system auto-renews everything by itself. No more administrative hours spent entering in information over and over again.

When asked about featuring COR certification status in SupplierLink, Collin Pullar, President of the SCSA said "we know that attaining COR makes workplaces safer. Featuring COR in SupplierLink will drive more firms to attain the certification which will, in-turn, improve safety in Saskatchewan." Al Goldstone, Executive Director of the HCSAS agreed, stating that "any tools that the associations can use like SupplierLink to improve the overall safety in our industries or make the required processes in place more efficient, we are all for it."

Beyond gathering qualifications and safety records, the most important element stakeholders told us was needed was the ability to find and connect qualified contractors and trades to general contractors, buyers, and agencies such as SaskBuilds and SaskEnergy.

SupplierLink will provide an opportunity for construction service providers to gain exposure to a large array of hiring firms and infrastructure owners and be marked as 'favorites' to end up on future bidding lists.

Once connected, buyers will be permitted to see detailed information about a company's qualifications. They will be able to find contractors by searching on things such as Saskatchewan presence, work scopes, skill sets, geographical areas of operation, and many other attributes. The system will even provide workforce demographics, safety certification, proof of insurance, bonding, and a way to demonstrate/ catalogue project experience.

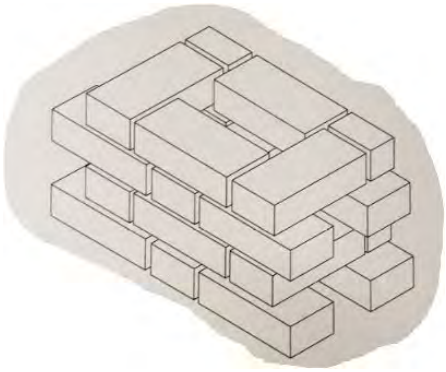
It has been exciting to see the results of industry collaboration become a reality. All stakeholders have done an excellent job coming together and solving a problem in a way that satisfies everyone's needs. The system is easy to navigate and will help owners find qualified contractors and make managing documentation simple, while fulfilling mandates of developing the Saskatchewan contractor base.

Stay tuned for more news on the launch of SupplierLink Saskatchewan in the coming months!

SupplierLink
SASKATCHEWAN

Time for some contests!

The first challenge is to email pictures of your 5 favourite masonry buildings in Saskatchewan as well as pictures of your 5 favourite international masonry buildings. All entries will be put into a draw and the winner will be chosen May 12, 2021.

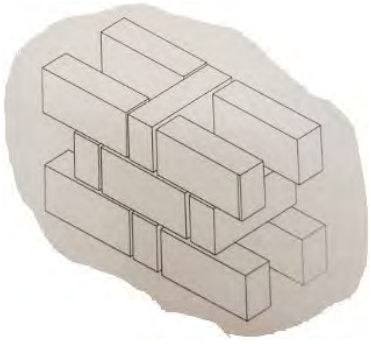


The second challenge is to name the masonry bond shown in the picture to the left. The first person to email the correct answer will be sent a prize! (Hint: it's not Flemish bond.)

Email your correct answers to: info@saskmasonry.ca

Deadline for both contests: May 12, 2021

Congratulations to the winner of our last contest, Wes Moore. The challenge was to locate the old Arcola Brick Plant site on Google maps and email a Google Satellite view screenshot of it into the SMI office. Congratulations, Wes!



The second challenge was to name the masonry bond shown in the picture to the left. Unfortunately, we didn't have any correct guesses. The name of the bond shown is Rat-trap Bond.

Thank you to those who entered the contests!

Saskatchewan Masonry Institute Inc.
300 - 701 Broadway Ave.
Saskatoon, SK S7N 1B3
Phone: (306) 665-0622 Fax: (306) 665-0621
info@saskmasonry.ca www.saskmasonry.ca

You can follow SMI on Social Media:

@saskmasonry saskmasonry