905-282-0073 info@masonryworks.ca Masonry Works Ontario masonryworks_on

ISSUE 55

MASONRY WORKS
Council Of Ontario

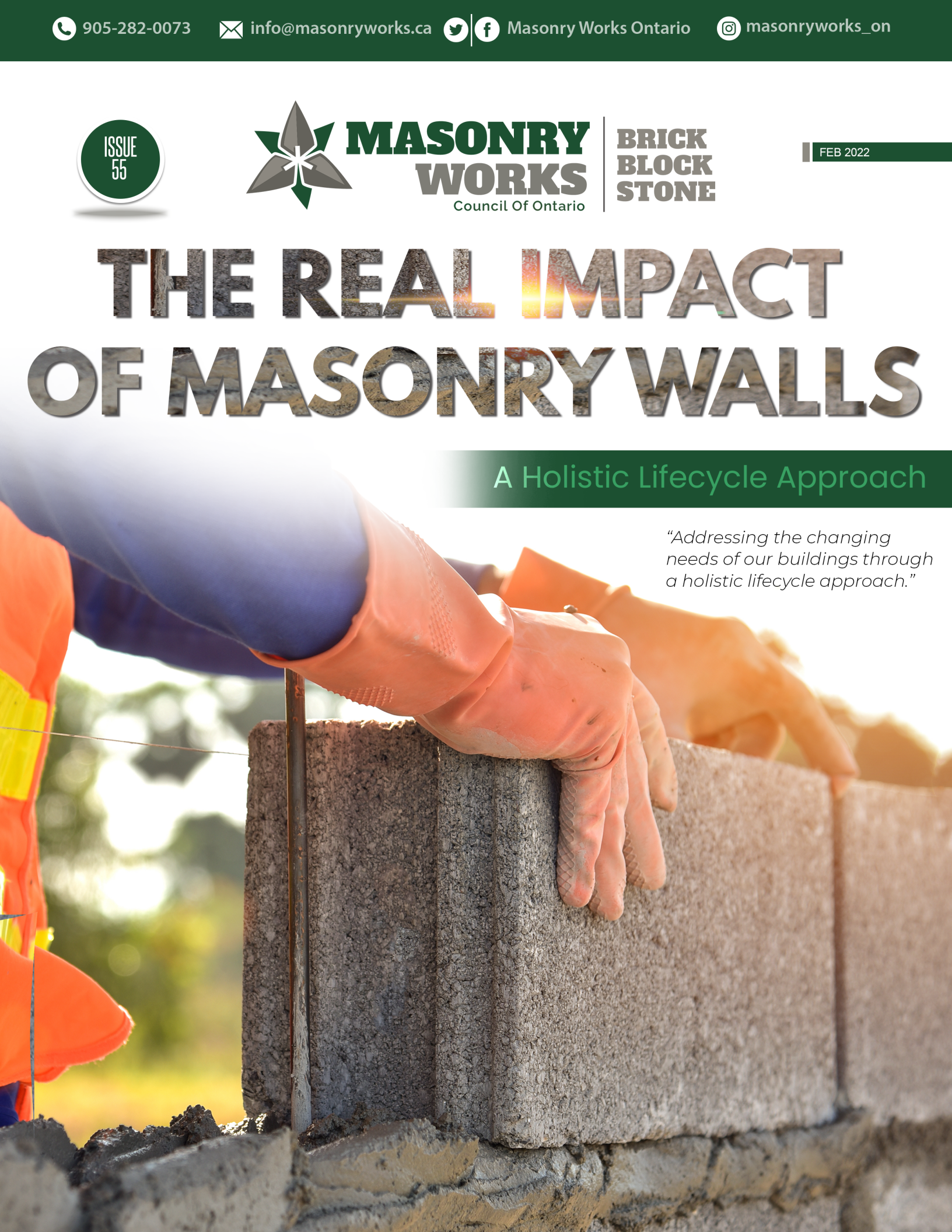
BRICK BLOCK STONE

FEB 2022

THE REAL IMPACT OF MASONRY WALLS

A Holistic Lifecycle Approach

"Addressing the changing needs of our buildings through a holistic lifecycle approach."



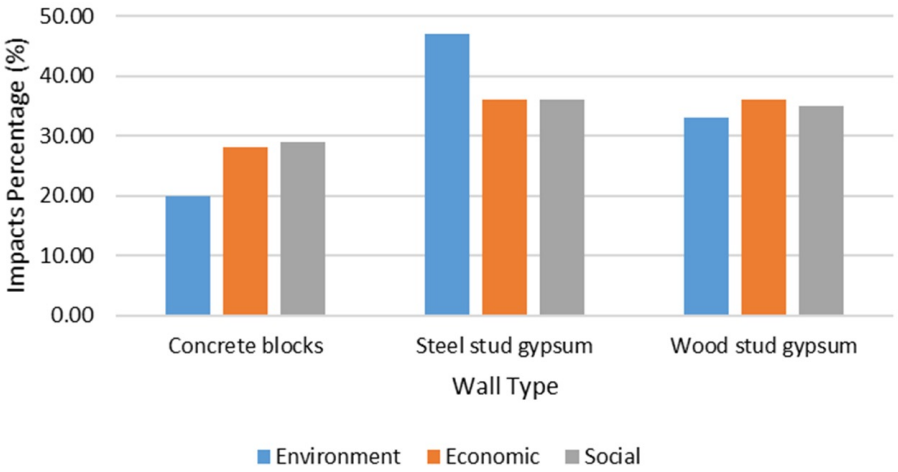
THE REAL IMPACT OF WALLS

A Holistic Approach

In 2014, The Weather Network reported that "Canadians love to talk about the weather more than anyone else in the world." As we come to better understand the effects of climate change, extreme weather events will continue to dominate the headlines and remain talking points for all Canadians coast to coast. Winter in Ontario is often a roller coaster of fluctuating temperatures and mixed precipitation. A simple 30km trip on any Ontario highway can present dramatic differences in weather patterns which have become more pronounced over the past decade as the effects of climate change happens more frequently. This means that the role that our buildings play in addressing the effects of the climate crisis becomes two-fold. The primary function of a building is to provide shelter and this will remain a constant need for society however, buildings must now be built considering increased climate loads and therefore must be resilient. The emerging consideration for the future of our building stock is how it can be optimized to mitigate climate impacts through sustainable design. These two building objectives should work harmoniously to create buildings which address the resiliency and sustainability requirements necessary to address the climate crisis. In order for this to occur all aspects of the industry must embrace a holistic lifecycle approach to design which fairly weighs the strengths and weaknesses of each material and component in the building stock of the future. This edition of our newsletter will focus on how masonry wall systems can play a role in addressing the changing needs of our buildings through a holistic lifecycle approach.

Building resiliency is not a new concept. In fact, the idea of building with a sense of permanence has existed for thousands of years. Civilizations throughout history have understood the impacts that the weather can have on the building stock, built cities and landmarks that still stands today such as the Roman Colosseum, the Great Pyramids and the Great Wall of China in which the building blocks of sustainability are rooted in resilience. When applying a holistic approach to the lifecycle analysis of a building designers should incorporate a material analysis through the lens of a cradle to grave or cradle to cradle approach. The most sustainable buildings are those which are built once and moreover, can be recycled at the end of their life. Masonry construction can have a lifecycle of over 100 years and is fully recyclable at the end of its life. This makes masonry an ideal choice for addressing the adaptation requirements of buildings as the climate changes and therefore sets a solid foundation for long term sustainability.

Building resilience is just the first step in applying a holistic lifecycle approach to the materials in structures. Research being conducted by the University of Windsor, Department of Engineering recognizes that a holistic lifecycle approach combines three assessments to make up a Lifecycle Sustainability Assessment. The three areas which are considered are *Lifecycle Assessment*; which considers the overall impact of a material or a building from cradle to cradle, *Lifecycle Costing*; which considers the initial cost of construction and maintenance over the entire life of the building and *Social Lifecycle Assessment*; which considers the broader impact of materials and buildings on society throughout the life of the building asset. Preliminary research results from the University of Windsor, Department of Engineering indicates that masonry wall assemblies have significantly less overall impact than steel and wood wall assemblies in each of the above mentioned assessment categories.



MASONRY IS ECO FRIENDLY

The next decade is critical for society in ensuring that the effects of climate change are mitigated. This means considering the environmental, economic and social impacts that our buildings have. Masonry construction can and will play a key role in contributing to a holistic lifecycle approach and in doing so will mitigate the impact that buildings have on our society.

+ + +

DIGITAL CLAY

Window installations of the "Digital Clay" project are now on display. The initiative undertaken by the University of Waterloo, Architectural students shows the objects produced from the design, research and development of an interior masonry screen wall and a series of light sculptures which examines the expressive and performative opportunities as well as the technical resolutions explored with the use of new fabrication method. The display is available for viewing at Gravitypope, 1010 Queen Street West, Toronto.