The Masonry Society

Sustainability E-News

Resilient Construction

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From The Editor

Resilient construction can have many meanings depending on who you are talking to. For the city official, it might refer to how neighborhoods respond to stressors ranging from earthquakes to wildfires. For the civil engineer, it may be infrastructure that can adapt to flooding or other hazards. For an architect, it is more likely how a specific building can respond and adapt to its environment. This edition explores a number of the hazards our built environment faces and strategies to deal with them, and in the <u>EDUCATIONAL NEWS</u> section you'll find some free resources for learning more about resilient construction.

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GREEN BUILDING NEWS

I included the first article below for 2 reasons: first, because I think it's cool! And second, because it also notes how this ancient construction technique has lower environmental impacts than how we would typically do the same work today. There is so much we can learn from history to benefit us today. ~Tina

Double helix of masonry—researchers uncover the secret of Italian renaissance domes PRINCETON ENGINEERING

The construction of the Florentine Duomo by Filippo Brunelleschi has been an engineering marvel for more than 500 years, showcasing ancient techniques that still hold valuable insights for modern engineering. In a collaborative study in the July 2020 issue of Engineering Structures, researchers at Princeton University and the University of Bergamo revealed the engineering techniques behind self-supporting masonry domes inherent to the Italian renaissance. Read more <u>here</u>. Read how masons worked with Massimo Ricci, a

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Concrete Masonry Association of California & Nevada *** professor of Architecture at the University of Florence, on a scale model <u>here</u>.

Natural Hazard Mitigation Saves: 2019 Report NCMA.ORG

Natural disasters are growing in frequency and strength. Thankfully, there are measures that communities, local governments, land owners, developers, and tenants can take to reduce the impact of these hazards. Mitigation protects lives, improves safety, prevents property loss, and decreases disruption of daily life. The <u>Natural Hazard Mitigation Saves: 2019 Report</u> represents the most exhaustive benefit-cost analysis of natural hazard mitigation, from adopting up-to-date building codes and exceeding codes to addressing the retrofit of existing buildings and utility and transportation infrastructure. The report shows that investments in building to- and above-code provide real cost savings for buildings and communities.

Wooden high-rises don't guarantee reduced emissions CROSSCUT.COM

The use of wood products, and cross-laminated timber (CLT) in particular, is a hot topic in the design community based on the promise of reduced carbon emissions. But CLT is lacking in one crucial element: proof that it will really help slow climate change. Some forest scientists, climate modelers, and materials experts are raising tough questions about the wisdom of boosting wood harvests. They argue that forestry's carbon footprint is far more complex than the "wood is good" message pushed by CLT's supporters. Materials experts say more comprehensive life-cycle assessments are needed to more carefully account for biogenic carbon flows in forests — methods that can tally the carbon debt incurred when a forest is harvested and track repayment on that debt as forests regrow. Read more.

CODES and STANDARDS NEWS

Resilience continues to be an important topic. The links below provide resources for resilient design. ~Tina

LEED Measuring Resilience Guide

USGBC.ORG

This guide to measuring community resilience with LEED v4.1 for Cities and Communities is designed for local leaders seeking guidance on how to use LEED v4.1 to measure and improve existing community resiliency. Use this guide to measure local resilience, recognize connections among community systems, learn about best practices, and set your path towards becoming a more resilient and sustainable community. It includes corresponding LEED credits relating to resilience. You can also <u>download the 2019 LEED</u> <u>Resilient Cities Summit Report</u>.

5 standards that support resilience

ASTM INTERNATIONAL

The issue of resilience and how to construct an ecosystem of buildings and infrastructure that will withstand increasingly violent weather events is a hot-button topic in our world. <u>Here</u> are five standards that will be critical to building a more resilient future.

Living Future Institute seeks to grow global footprint ENGINEERING-NEWS RECORD

The International Living Future Institute (ILFI) can now boast 134 certified and 686 registered projects in 34 countries for its sustainable-building programs. ILFI plans to expand and include



International Masonry Institute***



Mason Contractors Association of America **



Western States Clay Products Association ***

Gold Level



Masonry Institute of America



Portland Cement Association **

Silver Level



Southeast Concrete Masonry Association *



Spec Mix ** Bronze Level larger structures by adding programs that are less imposing than its original Living certification. <u>Read more</u>.

St. Louis ordinance cracks down on building emissions

ST. LOUIS PUBLIC RADIO

St. Louis is one of four cities in the US to implement a building energy performance standard to curb greenhouse gas emissions. The city's ordinance takes effect in 2025 and applies energy-usage requirements to all buildings with at least 50,000 square feet. Read the <u>full story</u>.

EDUCATIONAL NEWS

In keeping with our resiliency theme, there are two webinars on June 2 on this topic. ASTM International is offering a series of webinars on resilience in construction, and the International Masonry Institute is offering one on resiliency and masonry. You can sign up at the links below. ~Tina

Reducing the vulnerability of buildings to wildfire ASTM INTERNATIONAL

Join Dr. Stephen Quarles, University of California Cooperative Extension Advisor Emeritus, on June 2, 2020 at 2pm ET for this <u>free</u> <u>webinar</u> as he discusses the three basic exposures that buildings threatened by wildfire must resist, the meaning of a "coupled approach" as related to building survival during wildfires, and the available basic building code options and relevant standard test methods available in the United States.

Setting the Course for Resilience with Masonry

World green building trends highlight resilience or resilient design as an important new horizon. <u>This free course</u> will give the audience a methodology for reviewing resilient design principles along with material selection highlighting masonry as a durable smart choice. Tune in at 12pm ET on June 2, 2020.

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