BECOR
Building Envelope Council Ottawa Region

Lunch and Learn Technical Seminar

Wednesday, May 15, 2024
Noon to 3:00 PM

Sala San Marco, 215 Preston Street

Lunch & Networking: Noon – 1:00
Presentation: 1:00 – 3:00

Passive House Guidelines and Design; Rammed Earth Technology For Cold Climates

The first Passive House was designed and built in the 1970's by the Saskatchewan Research Council under the direction of Harold Orr as a research project for energy conservation. German Passivhaus guidelines utilized this Canadian research work and have been around for over four decades. These guidelines eventually found their way back to North America. Passive Houses are super insulated, air tight homes with few thermal bridges and efficient heat recovery ventilators to ensure proper indoor air quality. Orientation of windows are site specific to deal with summer heat gain and winter heat storage. Solar panels can be used to augment energy supply. Normal homes generally require an architect working along with a contractor or developer. A Passive House Certification requires a certified Passive House 'designer' (energy analyst) to calculate suitable insulation values in enclosure assemblies, configure proper surface to volume ratios, run calculations to determine the projected energy consumption and carry out air tightness testing to ensure energy consumption is kept to proper Passive House thresholds. Passive House Certification is an additional cost that many owners shy away from provided that the analysis work is carried out and verified by post occupancy evalution.

Super insulated house design for many decades employed the use of extra thick wood stud wall construction to accommodate the added thickness of insulation. Heavy mass walls were incorporated inside and out to retain heat and moderate living environments. Aerecura's Rammed Earth Technology was featured in a Globe & Mail article a few months ago and it highlighted the Boyd house in Prince Edward County as an example of both Passive House design and state-of-the-art Rammed Earth Construction Technology developed in Ontario over the past two decades. Jane Wilson was the architect charged with the design of the project, she hired energy analysts and mechanical engineers to ensure compliance with Passive House guidelines and standards. Aerecura Sustainable Builders were the contractors overseeing the Rammed Earth Wall Design and construction. The Boyd House was designed to Passive House standards but was not certified as one.