

CCMC NEWS

CCMC: Canada's National Evaluation Service for Building Products

"I am more and more reluctant to base conformance decisions on self-accrediting manufacturers' statements."

Specifiers, designers and building officials who use the publications and services of the Canadian Construction Materials Centre (CCMC) agree: "CCMC makes the job easier!"

CCMC – a national service for evaluating building products – provides an expert opinion on their uses, limitations and performance. Building officials and specifiers use the CCMC opinions in determining product suitability.

Said one building official: "I am more and more reluctant to base conformance decisions on self-accrediting manufacturers' statements. It is very valuable to have the objective evaluations that CCMC publishes."

CCMC evaluates products to existing codes and standards or to unique technical criteria. For products or systems for which no standards exist, CCMC develops tests and evaluation criteria with the aid of a network of scientific and engineering experts, both from the Institute for Research in Construction (IRC), Canada's largest research organization dedicated to

servicing the construction industry, and from other research organizations throughout Canada. Tests on random samples are carried out by accredited, or otherwise recognized, laboratories.

For innovative products such as prefabricated wooden I joists, plastic sheathing membranes, and Exterior Insulation Finish Systems (EIFS) cladding, CCMC assesses whether the products perform as well as similar products already acknowledged in the National Building Code (NBC) or provincial codes based on the NBC. If CCMC finds that the products do, in fact, meet the intent of the codes, building officials may use that information as a basis to deem the product acceptable under the 'equivalents' provision of the code. If a standard, 330 of which are referenced in the NBC, is applicable, CCMC verifies product compliance to that standard.

Every product that CCMC reviews receives an evaluation report or an evaluation listing. Products covered by a standard receive a listing; others are discussed in the more-extensive report. The Centre has published over 800 listings and 80 reports. Another 60 or so reports will be added in the spring of 1992. Listings are printed in two volumes that are updated every six months. Reports are issued as they become available.

Building specifiers and designers use CCMC reports to help select the right product for the job. Building officials concerned with ensuring code compliance rely on the opinions contained in CCMC evaluations to verify the conformance of materials or systems specified.

For more information on obtaining CCMC publications, please contact:

IRC Client Services
Institute for Research in Construction
National Research Council of Canada
Ottawa, Ontario K1A 0R6
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CCMC Evaluates Plastic Sheathing Membranes

Bruno Di Lenardo

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CCMC developed performance criteria which verify the equivalency of the plastic material to the NBC requirement

Plastic sheathing membranes have greatly changed the face of wood-frame construction. The white or grey plastic is increasingly replacing the tar-impregnated felt paper of the past.

In spite of the popularity of plastic membranes, no national standard yet exists by which to evaluate these products for performance reliability. The 1990 National Building Code (NBC), Subsection 9.23.17., outlines the requirements for installing sheathing paper. This requirement includes conformance to the product standard CGSB-51.32-M77 "Sheathing Membrane, Breather-Type." However, this standard covers only paper sheathing membranes.

To evaluate plastic sheathing membranes, CCMC has developed performance criteria which verify the equivalency of the plastic material to the intent of the NBC requirement. CCMC has been evaluating plastic sheathing membranes since the late 1980's and providing building officials with the only aid in determining whether a particular product is acceptable. The properties of plastic sheathing membrane subject to CCMC evaluation include:

- pliability,
- tensile strength of original material and after accelerated aging,
- water vapour permeance of original material and after accelerated aging.

A sheathing membrane performs well if it allows the passage of water vapour to the exterior and provides a secondary protection against water infiltration. During evaluation, the products are first subjected to a water vapour permeance (WVP) test to determine whether water vapour passes through. Next, the product undergoes freeze-thaw cycling. During this test, the fabric of plastic sheathing membranes usually becomes more porous and the water vapour permeance increases. An increase in WVP is acceptable, as long as it does not lead to water infiltration. A water ponding test, developed expressly for evaluating sheathing membranes, helps assess water infiltration characteristics. The aged sample is subjected to 25.4 mm head of water for five days. To be acceptable, the membrane must prevent any passage of water.

To verify durability, the plastic sheathing membrane is subjected to ultraviolet (UV) radiation and heat aging. The accelerated aging by UV exposure and heat simulates plastic degradation. CCMC requires that the UV-exposed and heat-aged products retain at least 85% of their original tensile strength. They must also resist water infiltration during the water ponding test. Only products which contain adequate UV inhibitors and antioxidants will successfully meet these criteria.

To date, CCMC has evaluated four different plastic sheathing membranes, however, only one has undergone UV and heat-age testing. The other three are scheduled for re-evaluation soon. Evaluation reports on plastic sheathing membranes are available from CCMC, Institute for Research in Construction, National Research Council of Canada, Ottawa, Ontario K1A 0R6. ♦

Are Sheathing Membranes Air Barriers?

At present, plastic sheathing membranes have been evaluated only as secondary protection systems against water infiltration behind the cladding, the primary protection for the wall assembly. Although some consider plastic sheathing membranes air barriers, CCMC has yet to receive a request to evaluate any plastic sheathing membranes for this function.

To qualify as an air barrier, the plastic sheathing would have to form an impermeable, structurally adequate barrier to air infiltration. As an air barrier, it would also have to display continuity throughout the building envelope and be durable. These properties would form the basis for CCMC's evaluation criteria in considering plastic sheathing membranes as air barriers.

The current basic criteria for assessing air barriers are contained in the Proceedings of Building Science Insight '86, An Air Barrier for the Building Envelope. The Commentary on Part 5 of the 1990 National Building Code, expected to be published in 1992, elaborates further on the requirements for installing effective air barriers. ♦

New Head for CCMC

John Berndt has been appointed the new head for CCMC, Canada's national evaluation service for construction materials, systems and products.

Former Head of the IRC Codes Section, Mr. Berndt was involved in revisions of the National Building Code (NBC) from 1977 to the most recent 1990 edition of the NBC. He has also worked closely with the provinces and territories to ensure that building code requirements are consistent across the country. This experience has allowed him to understand building



regulation issues from national, provincial and territorial perspectives.

Before joining IRC in 1975, Mr. Berndt worked as a fire protection inspector for Factory Mutual Engineering and as an architectural plans examiner for the Building Inspection Department of the City of Ottawa. A professional engineer, Mr. Berndt is a member of the Society of Fire Protection Engineers. He also chairs the Committee on Fire Tests for Underwriters Laboratories of Canada.

Mr. Berndt replaces Gordon Walt, the founding general manager of CCMC, who has taken on new assignments as Senior Advisor to IRC. ♦

Independent Commission Helps CCMC in its Work

The collective experience of 21 experts in building design, specification, and regulation is helping CCMC meet the varied needs of the construction industry. These experts make up the Canadian Commission on Construction Materials Evaluation (CCCME), an independent organization set up to ensure that construction materials are adequately and appropriately evaluated.

CCCME provides the general policy direction and technical advice for CCMC. The Commission was established by the National Research Council to develop and maintain a system for evaluating construction products. To that end, CCCME develops the checks and balances that confirm CCMC's services meet the needs of both its direct clients – the suppliers of building products – and the regulatory community at large.

Members of CCCME include provincial and municipal regulators, product specifiers, manufacturers and users, engineers, architects, contractors and researchers. The current chairman is Fred Nicholson, chief building official for the City of Winnipeg.

"A fundamental goal," explains Mr. Nicholson, "is to ensure the reliability and quality of CCMC activities. It is up to us as a commission to respond to the needs of all the organizations in each jurisdiction affected by CCMC evaluations."

A key source of input to CCCME is the Provincial/Territorial Committee on Building Standards. This independent Committee represents the provincial and territorial governments and works with CCCME to ease compliance with national and provincial codes. Although building regulation is a provincial jurisdiction, nation-wide consistency allows developers, contractors, designers and manufacturers who operate nationally to save time and money.

CCCME commissioners meet twice each year. Their first meeting was held in December 1991 in Ottawa. (See Key Decisions by CCCME at First Meeting, in the next issue of CCMC News.) ♦

CCMC News – A New Publication

This is the first issue of CCMC News, a newsletter prepared by the Canadian Construction Materials Centre (CCMC) and published by the Institute for Research in Construction.

CCMC News, which will appear four times a year, will contain articles on CCMC evaluation activities and highlights of changing design codes, specifications and

standards on which the evaluations are based. We will also feature new and innovative products or product lines evaluated by the Centre.

By publishing CCMC News, we aim to help our readers better understand and use the evaluation reports and product listings developed by the Centre. ♦

NRC to Host CIB'92 – World Building Congress

Researchers and practitioners from around the world can discuss the complex and urgent issues facing the building industry

Canada will welcome the **CIB'92 – World Building Congress**, in Montreal from 18 to 22 May 1992. The Congress, considered one of the major events in the building research calendar worldwide, is hosted jointly by the National Research Council of Canada and the International Council for Building Research, Studies and Documentation (CIB). Mr. George Seaden, Director General of IRC, is currently President of CIB.

CIB is the world's foremost international organization for construction researchers and professionals. Since 1953 CIB has been a unifying force in construction worldwide, fostering innovation and the creation of workable solutions to technical, economic and social problems. Virtually every major building research institute and many universities, professional associations, government agencies and private practices in over 70 countries are members of CIB.

CIB'92 – World Building Congress will provide a forum where researchers and practitioners from around the world can discuss the complex and urgent issues facing the building industry. The Congress encompasses five themes:

- new materials and systems
- rehabilitation and restoration
- environment
- globalization
- computers and robotics

In order to facilitate exchanges between researchers and practitioners, the five themes can be explored from three complementary viewpoints:

- research
- its applications
- technology transfer and communication

For more information, contact

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New Listings Evaluate Hundreds of Building Products

The Fall edition of CCMC Evaluation Listings, Volume 2 has been published. Among the more than 200 products listed are:

- brick unit masonry
- adhesives
- vapour retarders
- expanded-polystyrene insulation board
- faced urethane and isocyanurate insulation board
- aluminum siding
- hot-applied rubberized-asphalt roofing
- PVC sheet-applied roofing
- skylights
- resilient flooring

The Winter 1992 edition of Volume 1 is also available. The new version lists over 660 windows and doors conforming to current building standards.

CCMC Evaluation Listings provide building officials and specifiers with a national evaluation of building materials and verification that the products meet standards referenced in national and provincial building codes. ♦



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CCMC News is a quarterly publication of the National Research Council of Canada and is produced by the Canadian Construction Materials Centre of the Institute for Research in Construction. Enquiries or comments should be addressed to Mr. Bruno Di Lenardo, CCMC News, Institute for Research in Construction, National Research Council of Canada, Ottawa, Ontario K1A 0R6. (613) 993-7769, Facsimile (613) 952-0268

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