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CCMC NEWS

CCMC Services, Alliances and Partnerships

CCMC is being asked by Canadian manufacturers to act as an intermediary in verifying performance criteria set in other countries.

As part of the National Research Council, CCMC benefits from a high level of recognition, both nationally and internationally. This enables us to bring together interested parties to review a wide range of construction issues related to product development, code interpretation and materials evaluation. The following are only some of the undertakings and consultations recently pursued by CCMC on behalf of our users:

Building Officials

Building officials across Canada have come to rely on the support offered by CCMC. Telephone calls and faxes to CCMC from building officials have increased steadily, with questions ranging from specific product information to building science concepts, as they might apply to an evaluated product. At the same time, CCMC welcomes comments and concerns from building officials on experiences in the field that affect our approach to conformity assessment.

In one situation, CCMC facilitated the resolution of a code interpretation on the combustible cladding requirements as they apply to Exterior Insulation Finish Systems (EIFS). (See CCMC News, Issue No. 4.) To resolve this matter of interpretation, provincial building authorities were consulted to help clarify the intent of the code requirements. The resolution of this matter benefitted building officials and manufacturers alike.

Another major difficulty for building officials has been the assessment of air barrier systems and their conformance to code requirements. In this case, CCMC raised funding for the development of a Technical Guide containing the criteria to assess air barrier system performance. A consortium of 17 manufacturers has been established for contributions to the project. The balance of the funds came from the Industrial Research Assistance Program (IRAP) and IRC's code development activity. IRAP has an interest in assisting the technological advancement of the construction industry, while the Canadian Codes Centre supports the development of performance criteria and methodology for conformance to Code requirements (see article on CCMC's Connection with IRAP and CCA, page 4). This project is being coordinated through the Canadian Home Builder's Association, which also would like to see the evaluation of air barrier systems formalized.

Designers

It goes without saying that the above-mentioned projects also make the designer's/specifier's task much easier in identifying materials which have demonstrated performance to established criteria. CCMC maintains a link with Canada's structural design codes to ensure that once material properties are defined, the subsequent design (e.g., pre-engineered systems) is in accordance with accepted methodology in Canada. A project being facilitated in this area by CCMC covers the development of design criteria for joist hangers in 'limit states design.' Once again CCMC established a consortium of manufacturers and public funding through IRAP for the advancement of this industry's technological base.

continued on page 4

Latest CCMC Product Evaluations

Beginning with this Issue, *CCMC News* will list recently completed product evaluations. Although the Registry of Product Evaluations is updated every six months, evaluation activity at CCMC is continuous. Thus, even though they may not appear in the latest Registry publication, certain products have successfully been evaluated and regulatory authorities, specification writers and designers should be aware that they are suitable construction products.

The list in this issue of *CCMC News* (page 3) includes product evaluations that have been completed since the publication of the Summer 1993 Issue of the Registry. Future News lists will cover evaluations completed since the last previous issue of the News. ✦

Evaluation of Vinyl Siding

The most significant degradation of plastics occurs during exposure to the service environment.

Vinyl siding, although well accepted by the building industry, remains a relatively new building material. Building officials and users need to understand its characteristics in order to ensure a proper level of performance.

Vinyl siding was first manufactured in the early 1960s, when it was promoted for its advantages over metal siding: resistance to paint failure, denting and corrosion, and ease of handling.

In its early stages, its disadvantages lay in its cost versus metal siding and the installation knowledge required regarding the contraction and expansion of the siding. In the 1970's a breakthrough in cost and in installation knowledge took place, and since then vinyl has overtaken all the other well established siding materials. While it was initially perceived as a remodelling prduct, almost one third of the vinyl siding produced is now installed in new construction.

The quality of the finished product and its successful performance depend heavily on its physical, mechanical and chemical characteristics, as well as on the proper installation techniques. In Canada, CGSB 41-GP-24Ma (1983) "Siding, Soffits and Fascia, Rigid Vinyl," is the recognized standard for quality of vinyl siding, while ASTM D3679-88 "Specification for Rigid Poly(Vinyl Chloride) (PVC) Siding," is the recognized standard in the U.S.

As with any of the polymeric materials, PVC polymer resin is relatively vulnerable to heat and light; as stabilizers are invariably used in its matrix, a marked change in properties can impair or even render the plastic component unsuitable for service. The CGSB standard requires that the base resin used in the manufacturing of vinyl siding meet ASTM classification 13444 or 14334. This requires the use of homopolymer polyvinyl chloride resin having either of the following sets of characteristics: Impact strength of 80.1 J/m, tensile strength of 48.3 MPa, modulous of elasticity of 2482 MPa, deflection temperature under load of 70 MPa, **or** Impact strength of 266.9 J/m, tensile strength of 41.4 MPa, modulous of elasticity of 2206 MPa, and deflection temperature under load of 70 MPa.

The difference in shape or profile, size and environmental conditions could alter dramatically the performance of vinyl siding, consequently, the CGSB standard also regulates other characteristics such as colour, specular gloss, shrinkage, warp, weatherability, thickness, impact resistance, surface distortion, and low temperature flexibility.

While most of the requirements of the CGSB and ASTM standards are similar, differences exist in the requirements for impact resistance, surface distortion and thickness. Significant changes in extrusion techniques, surfacing materials, and equipment, and greater demand for darker earthtone colours and shades, will probably lead to considerable technical updates of both of these standards.

In its Preface for the evaluation of Vinyl Siding, CCMC's Registry of Product Evaluations describes its testing program to assess products manufactured in different profile designs, shapes and colours. This assures building officials and users that the different designs and shapes of the product conform to the standard and avoids duplicate testing on the part of the manufacturer.

Weathering resistance remains the most important characteristic to investigate. Natural weathering includes most of the variables that induce deterioration in plastics: sunlight, humidity, temperature changes and oxygen. Detrimental changes resulting from weathering include chemical degradation, discoloration, surface cracking, crazing, loss of compounding ingredient (exudation, leaching), impairment of mechanical properties, loss of gloss, pitting and scratching.

The CGSB standard requires weathering the vinyl siding according to ASTM D1435 "Recommended Practice for Outdoor Weathering of Plastics," in three widely different climatological areas of North America: Pheonix, Arizona; Miami, Florida; and an industrial atmosphere, through which these detrimental changes could be identified.

Proper installation is still important for successful performance. Careful application of the product and its accessories, such as starter strips and corner trim, remains essential. A space should always be allowed where the siding is connected to a rigid surface to accomodate contraction and expansion due to temperature variations. Proper nailing is also essential to successful installation. Panels should not be fastened too tightly or too loosely in order to accommodate contraction and expansion and to avoid a rattling effect during high winds.

CCMC presently has 20 vinyl siding evaluations; these are published under Masterformat Section 07465.1 and should be consulted for product-specific designs and colours.

Information: Fadi Nabhan ✦

Evaluation Officer: Fadi Nabhan

Fadi Nabhan has been an Evaluation Officer since the beginning of CCMC's operation in 1988. His areas of specialization are cladding systems, exterior insulation and finish systems (EIFS), roofing, waterproofing, siding, vapour retarders, drainage systems, modular concrete forms, and sheathing tape.

He graduated in 1985 from the University of Moncton with a Bachelor of Applied Science degree in civil engineering.

Before joining IRC, Mr. Nabhan worked with the Materials Evaluation Department at CMHC and Defence Construction Canada.

Mr. Nabhan is a member of several CSA and CGSB Technical Committees. ✦

New Product Evaluations

CCMC is pleased to announce the following new product evaluations that have been completed between the publication of the Summer issue of the Registry of Product Evaluations and 30 September 1993. Due to pre-determined publication schedules, these evaluations may or may not appear in the subsequent issue of the Registry.

Manufacturer	Product Name	Product Type	Eval No.
ABP Products Inc./Produits ABP inc.	Fenêtre à battant, S-2000 @ 3 1/4"	Aluminum Window	12510L
ABP Products Inc./Produits ABP inc.	Fenêtre à battant, S-2000 @ 3 7/8"	Aluminum Window	12509L
Alcoa Building Products	Alcoa Home Crest Shingles/Country Cedar Shakes	Metal Roofing Tiles/Shingles	12543R
AluminArt Products Limited	50 mm Triple Track	Aluminum Sliding Glass Door	12538L
Benjamin Obdyke Inc.	Roll Vent	Metal Vent	12523R
CFI Industries	CFI - Blowing Wool No. 1	Loose Fill Mineral Fibre Insulation	12513L
Deceuninck Plastics Industries N.V. S.A.	Casement	Vinyl Window	12533R
Deceuninck Plastics Industries N.V. S.A.	Fixed Picture Window	Vinyl Window	12531R
Deceuninck Plastics Industries N.V. S.A.	Tilt and Turn	Vinyl Window	12532R
Dow Chemical Canada Inc.	Styrofoam™ Perimate™	Polystyrene Insulation	12544L
Emco Window and Door Centre	3-1/4" Awning Window (Truth Multi-Point Sash Locks)	Vinyl Window	12542L
Emco Window and Door Centre	P.V.C. Casement Window	Vinyl Window	12541L
Emco Window and Door Centre	Single Tilt Sliding Window	Vinyl Window	12540L
Everlast Aluminum Products Inc.	Everlast 50 mm Aluminum Storm Door	Aluminum Storm Door	12524L
Farley Windows Inc.	302V-Fixed Window	Vinyl Window	12519L
Farley Windows Inc.	810 Vinyl Casement/811 Vinyl Awning	Vinyl Window	12521L
Farley Windows Inc.	812V-Fixed Window	Vinyl Window	12520L
Fenêtres Montmagny inc.	Grizzly Vertical Slider	Vinyl/Wood Window	12537L
Fenêtres Montmagny inc.	Panda	Vinyl Window	12506L
Fiberglas Canada Inc.	Fiberglas Resol Foam Insulation/ Home-clad/Perma-Therm/ Perma Series 20	Phenolic Insulation	12508L
Général fibre de verre enr.	Balcons et marches en fibre de verre	Glass Fiber Steps and Decks	12534R
Independent Mirror Industries Inc.	Safety Backed Vinyl Mirror	Film Reinforced Mirror Glass	12522L
Iso-Sand Inc.	Pan-Isox 122	Manufactured Building Panel	12539R
Jim Walter International Sales Corp.	CDN Sheathing	Urethane and Isocyanurate Insulation	12526L
Les produits d'aluminium Wilton ltée	Aluminum Sliding Window Series 560	Aluminum Window	12518L
Les produits de bâtiment Alcan	Model 8900	Aluminum Window	12527L
Louisiana-Pacific Canada Ltd.	FiberBond™	Gypsum Panel-Type Flooring Underlay	12525R
Manville Canada, Inc.	1 1/2" Insul Shield 300	Mineral Fibre Batt Insulation	12517L
P.H.-Tech inc.	Fenêtre à guillotine 1450	Vinyl Window	12529L
P.H.-Tech inc.	Fenêtre coulissante 1400	Vinyl Window	12528L
Panneaux Chambord inc.	Panneaux à fibres orientées Chambord	Waferboard	12535L
Prinsco, Inc.	Goldline	Utility Piping Material	12546L
Regal Industries, Inc.	Ultra-Light, Professional Brand Series, Regal, Royal, Regency	Loose Fill Cellulose Insulation	12530L
Royal Building Systems (Cdn.) Limited	Royal Building System	Plastic Building System	12536R
Sinki Elastomers Inc.	Sinoprene MS 2000 (Norme), DH 2000 (Résistance à l'abrasion), UV 2000 (Résistance aux UV)	Elastomeric Coating	12545R
Turkstra Lumber	Turkstra Wood Casement	Wood Window	12511L
Veka Inc.	Series PD2MW/AL Vinyl Sliding Glass Door	Vinyl Sliding Glass Door	12512L
Wasco Products Inc.	Wasco Skydome Model DDCA1	Aluminum and Vinyl Skylight	12507L
Wasco Products Inc.	Wasco Skywindow Model E-Class	Aluminum and Vinyl Skylight	12515L

CCA Recognizes Importance of R & D Link for the Construction Industry

Effective and quality construction R & D must be delivered to its users.

The Canadian Construction Association (CCA) recognizes that there are many obstacles to technological innovation and productivity-enhancing changes in the construction industry. They originate from the industry's highly fragmented and disjointed material and project delivery systems; the inability of small undercapitalized firms to exploit promising technologies; the uncertainty resulting from the cyclical nature of the industry; varying labour quality and constraints to innovation posed by unions; and the formidable institutional barriers imposed by government regulations. They also result from the apparent reluctance of construction firms to adopt new technologies and practices and the difficulties faced by research institutions in effectively diffusing technologies that reduce cost or increase quality.

One of CCA's responses to these issues is its participation as an Integral Network Member of the National Research Council's (NRC) Industrial Research Assistance Program (IRAP). As part of this strategic alliance, CCA has located an IRAP Industrial Technology Advisor (ITA) at the CCMC.

IRAP's mandate is to work pro-actively with industrial users to increase their skills, and awareness and to develop and apply appropriate technology to improve products and processes, and enhance business and commercialization opportunities. IRAP provides advice and assistance in the fields of science, engineering and technology. Technical counseling is the foundation of the IRAP program and is augmented, when necessary, by financial assistance. Contribution funding is available from the IRAP program and/or other programs that are delivered or accessed through its Network.

The use of such resources is co-ordinated through the ITA's to meet the requirements of each industry user.

CCMC benefits from the IRAP national program and its field advisory services because it can build and maintain close contact with manufacturers at the leading edge of technology development and with R & D agencies across the country.

Clients of the CCMC and IRAP services have an opportunity to develop and exploit innovative construction technology and build upon the technical synergy that will be part of reshaping the industry.

The construction industry is being challenged, as never before, to accept a leadership role in the area of R & D, with a focus to higher productivity. In this difficult period, the construction industry needs to participate aggressively in a progressive restructuring. To maintain a viable and vibrant Canada, effective and quality construction R & D must be delivered to its users.

Information: Helm Eckhardt, P. Eng.
Industrial Technology Advisor
Canadian Construction Assoc.
Industrial Research Assistance Program✦

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CCMC Services, Alliances and Partnerships... *continued from page 1*

Manufacturers

In the end, all the assistance CCMC provides for building officials and designers augments the smooth flow of conforming construction products to sites across Canada. Specific manufacturer assistance takes the form of consultations on product performance, both before and during the evaluation process. Unique approaches are also being taken. Recently CCMC was asked to provide an evaluation of a building system to the Standard Building Code (southeastern U.S.). The manufacturer sought this evaluation to assist in his marketing efforts for the system in Central and South American countries. More and more, CCMC is being asked by Canadian manufacturers to act as an intermediary in verifying performance criteria set in other countries. CCMC is prepared to assume this role to assist them as they strive to be more competitive in an era of globalization. ✦

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