Saskatchewan
Corrections and
Public Safety

Building Officials Newsletter

Building Standards
January 2004

Mould in Buildings

Moulds are everywhere, indoors and out. Common indoor locations for mould are places that are moist such as bathroom walls, metal window frames and basements in houses. People are becoming more aware of possible concerns related to existence of mould in their environments, and frequently turn to municipal building officials for help with identification and clean-up of mould.

For existing buildings, there are numerous sources of good information that people should be referred to:

- Saskatchewan Health has a fact sheet on moulds at www.health.gov.sk.ca/rr_moulds.html (contacts are provided at the bottom of the page).
- Saskatchewan Labour has the same fact sheet in pdf format at www.labour.gov.sk.ca/safety/moulds/Moulds.pdf.
- CMHC has several documents about mould, linked from www.cmhc-schl.gc.ca/en/burema/gesein/Momo/index.cfm.

For buildings during construction, it is a good idea for building officials to put some emphasis on inspecting building code compliance of known moisture sources. Moisture content of materials can be examined by checking site storage of materials, moisture content, and ventilation during construction. Infiltration of moisture into a building can be examined by checking joints and breaks in the building envelope, such as at corners and windows.

Although building code enforcement covers all the provisions of the building code, it is reasonable for building officials to focus on problematic areas when the problems come to light. For example, when a building official discovers (by inspection, by complaint, or through public concern) that a nonconforming product or method is being used in their jurisdiction, it is reasonable to check this feature regularly to determine if this is a common deficiency in their area, and then, if it is, to identify this problem to builders and to continue to check this feature regularly until the deficiencies no longer occur.

Because we know that mould is an increasing concern, and because mould growth is related to the availability of moisture (and existence of other favourable conditions), building officials may want to increase the emphasis for some time on inspecting for moisture control through building code compliant storage of materials on site, drainage away from buildings and foundations, building envelope (penetration, condensation, air leakage, thermal bridging), and ventilation. During construction, a building official who observes wet materials (rain/snow exposure or condensation) or existence of

(continued on page 6)

What's Inside ...

Attached to this Issue ...

Saskatchewan's Proposed 2004 Amendments to the NBC 1995
Provincial Action Plan for Fire Sprinkler Systems in Residential Care Homes
Building Officials Newsletter Index

Employment Trends and Outlooks
Other Technical Inspectors and Regulatory Officers in Saskatchewan

Saskatchewan JobFutures, supported by Human Resources Development Canada, Saskatchewan Region and Saskatchewan Learning, classifies work into 10 skill categories and 233 occupational profiles. Education and training requirements, work duties, wage information, and employment trends for hundreds of Saskatchewan occupations are shown on their website at www.saskjobfutures.ca.

Building officials appear to be a small subset of the profile titled Other Technical Inspectors and Regulatory Officers. This profile includes:

- *nondestructive testers and inspectors,*
- *engineering inspectors and regulatory officers,*
- *inspectors in public and environmental health and occupational health and safety, and*
- *construction inspectors.*

The following paragraphs describe the trends and outlook for this profile.

"According to Saskatchewan Job Futures-Job Chart, there will be limited employment opportunities in Saskatchewan for technical inspectors and regulatory officers in the next five years. In fact, a below average rate of job openings is expected in these fields between 2002 and 2007. In fact, only one occupation covered in this group—inspectors in public and environmental health and occupational health and safety—is expected to grow significantly during this period. The employment forecast remains poor for nondestructive testers and inspectors, engineering inspectors and regulatory officers and construction inspectors. Most job openings will occur in the manufacturing; mining, oil and gas; and scientific and technical services industries.

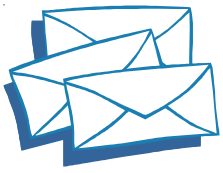
Technical inspectors and regulatory officers are well paid in Saskatchewan. In 2000, the average full-time income in this occupational group was $48,380 per year. This is well above the provincial full-time average for all occupations that year ($35,252 per year) and marks a increase of 11% from the 1995 average.

There is, however, a wide range of incomes in this occupational group. Inspectors in public and environmental health—on average, the highest paid professionals in this occupational group—earned as much as $70,703 and as little as $28,992 in 2000. Annual incomes for construction estimators—on average, the lowest paid professionals in this group—ranged from $22,989 to $77,850 that same year. Incomes in this group are fairly consistent throughout the province.

In 2000, 67% of all technical inspectors and regulatory officers in Saskatchewan worked full time. This marked a slight decrease from 1995. These fields of work are moderately seasonal but not very sensitive to overall economic conditions.

In 2001, 15% of the work force in these fields was female, up 6% from 1996. Roughly 55% of all technical inspectors and regulatory officers in Saskatchewan were employed in or around Saskatoon and Regina in 2001. This is a relatively young work force, with over 55% of all inspectors and officers in Saskatchewan younger than 45 in 2001. While not unheard of, self-employment is rare in these fields.

The increase of industry self-regulation in environment and public health areas may impact professionals who work in these fields. While employment in Public Administration is expected to increase, inspectors and officers in these fields may find increasing employment opportunities in private industry." §



Readers' Letters

If you wish to comment on anything you've read in the Building Officials Newsletter, please send your letter to us by fax, e-mail or post-mail at the addresses listed on the last page.

A Straw Bale House Inquiry

"Hi: I'm very curious as to what seems to be your orginizations [sic] problem with srraw [sic] bale homes? There are examples of these homes still being used in the states (same climate as us) for over a hundred years. Show me a stick frame house that can compare. The R-value exceeds R-2000 homes. They don't rot away like homes now a days that are built so airtight that they need a air exchanger. They are cheaper to build. They give revenue to farmers that typically have to burn their straw. There is a very low embodied energy in their construction. They look better than stick frames. The list goes on, but I think you get my point. When is this province going to get its head out of the sand? Talking to your inspectors is like talking to some one out of the stone age when it comes to buildings other than overpriced, energy guzzling ones. Are there any positive changes going to be made to address these building methods?"

Thank you for your questions about acceptance of straw bale homes. Use of straw bales in the construction of buildings is not prohibited by the province.

The province adopts and slightly amends the National Building Code of Canada (NBC) 1995 under *The Uniform Building and Accessibility Standards Act* as the standard that applies to building construction throughout the province. Owners are required to ensure that all buildings constructed in the province, except farm buildings and farm houses, comply with the building code. Local governments, such as urban municipalities, rural municipalities and regional parks, are required to administer and enforce the building code.

Since the NBC 1995 does not include specific prescriptive requirements that could be applied to straw bale construction, compliance with the NBC 1995 must be based on demonstration of equivalence, as described below.

"**2.5.Equivalents**
2.5.1. General
2.5.1.1. Alternate Materials, Appliances, Systems and Equipment Permitted
1) The provisions of this Code are not intended to limit the appropriate use of materials, appliances, systems, equipment, methods of design or construction procedures not specifically described herein.
2.5.1.2. Evidence of Equivalent Performance
1) Any person desirous of providing an equivalent to satisfy one or more of the requirements of this Code shall submit sufficient evidence to demonstrate that the proposed equivalent will provide the level of performance required by this Code.
2.5.1.3. Equivalence Demonstrated by Past Performance, Test or Evaluation
1) Materials, appliances, systems, equipment, methods of design and construction procedures not specifically described herein, or which vary from the specific requirements in this Code, are permitted to be used if it can be shown that these alternatives are suitable on the basis of past performance, tests or evaluations.
2.5.2. Structural Equivalents (See Appendix A.)
2.5.2.1. Structural Equivalents
1) Provided the design is carried out by a person especially qualified in the specific methods applied and provided it demonstrates a level of safety and performance in accordance with the requirements of Part 4, buildings and their structural components falling within the scope of Part 4 which are not amenable to analysis using a generally established theory may be designed by
a) evaluation of a full-scale structure or a prototype by a loading test, or
b) studies of model analogues.
2.5.3. Equivalent Test Standards
2.5.3.1. Acceptance
1) The results of tests based on test standards other than as described in this Code are permitted to be used provided such alternative test standards will provide comparable results."

If a proposal to build with straw bale construction is supported by sufficient evidence to demonstrate equivalent performance, there is no reason why straw bale construction could not be used. The key to this, of course, is determining what is sufficient evidence. In general terms, this would mean that evidence regarding any function of the straw bale construction (i.e., structure, thermal insulation, environmental separation, condensation control, cladding, interior finish, fire-resistance rating, resistance to deterioration, etc.) would have to show that it is at least as good as the systems and materials that are prescribed in the NBC 1995. In practice, it is difficult or impossible to obtain this type of information without the assistance of a professional designer. In Saskatchewan, local governments and their appointed building officials have the authority to decide what evidence they require.

Since the province adopts the model national building code with as few amendments as possible, you may wish to propose a change that would include prescriptive requirements for straw bale construction. You can find information about requesting a change on the national codes website at www.nationalcodes.ca/request_contact_e.shtml. §

Installation of Asphalt Shingles on Low Sloped Roofs

Historically, Canadian low sloped roofs were shingled with a triple coverage two-tab "low pitch" shingle product. These shingles are not manufactured in Canada today, so the industry has developed alternate procedures using standard three-tab shingles. Article 9.26.1.2. of the National Building Code of Canada 1995 recognizes these alternate installation methods, with a reference to CSA A123.52 "Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3." However, because of their lower slope, these roofs are more susceptible to water entry, primarily by two mechanisms: severe ice dams and wind driven rain.

The Canadian Asphalt Shingle Manufacturers' Association (CASMA) was established in 1989 to serve and promote the best interests of stakeholders in the Canadian asphalt shingle industry, namely manufacturers, consumers, suppliers, distributors and employees. Their website www.casma.ca includes valuable information about performance and installation of asphalt shingles. Technical Bulletin #16 provides advice on low slope applications of asphalt shingles. Some pertinent excerpts from the bulletin include:

- Asphalt shingles can be successfully applied to lower slopes providing a few special application procedures are followed.
- Asphalt shingles should never be applied to roof slopes below 2:12 (8.5°).
- All of the application steps used for shingles on steeper, standard roof slopes should also be followed when installing shingles on low slopes. Quality materials must be used and they must be installed properly, following the manufacturer's application instructions.
- Ice dams can form easily, and grow to a much larger size than on standard slopes. The best way to protect your roof from the damage due to ice dams is to prevent their occurrence. The optimum way to accomplish this is to provide complete, open and adequate attic ventilation, at an increase from the standard 1/300th to a minimum of 1/150th of the attic floor area. Approximately half of the vent openings should be at or near the soffits, with the other half as close to the ridge as practical.
- CASMA recommends the use of self-adhering modified asphalt membranes for secondary ice dam protection on low sloped roofs. The membrane should extend a minimum of 900 mm (36 in.) beyond the interior wall line of the inside wall.
- For the remainder of the roof, enhanced water shedding is also required to protect against water entry due to wind-driven rain. This can be addressed either by improving the underlay beneath the shingles (two plies of asphalt saturated felt, or one ply of self-adhering modified asphalt membrane) or by special shingle application (with a reduced shingle exposure).
- In Canadian latitudes and climates, shingles on low slope roofs typically age more rapidly than steeper roofs, and rarely last longer than fifteen years.

It is also interesting to note that CASMA recommends installation of underlayment under fibreglass shingles, even on roof slopes of 1:3 and greater. All North American manufacturers specify that their respective warranties will not apply when proper application instructions are not followed, specifically when there is no underlayment under fibreglass shingles. §

In response to requests from a number of members, the Association of Professional Engineers and Geoscientists of Saskatchewan has made arrangements with their manufacturer to provide for smaller professional seals that can be used in place of members' existing seals. The self-inking smaller seals are 23 mm in diameter, as compared to the 43 mm diameter of the regular seals. *The Engineering and Geoscience Professions Act* requires that all seals be acquired from the Association. For more information, call 525-9547 (Regina) or 1-800-500-9547 (elsewhere in North America), or visit www.apegs.sk.ca. §

Trademark Enforcement

Underwriters Laboratories of Canada (ULC) and Underwriters Laboratories Inc. (UL) have implemented Trademark Enforcement Programs to protect the integrity of their trademarks and listing marks found on products throughout the world. Manufacturers, consumers, and authorities having jurisdiction have all come to rely upon ULC and UL to assure them that a product bearing its mark reduces the risk of fire, shock, and/or personal injury hazards. Counterfeit and forged marks on products threaten to undermine the integrity of the mark, and can present unknown safety hazards to the end user.

In 1995, UL embarked on a strategic approach to combat the counterfeiting of its marks. This strategy primarily focused on enlisting the enforcement arm of the United States Customs Service to protect the intellectual property rights of UL certification marks. By providing Customs personnel with the necessary training and materials, UL helped that agency's efforts to target and intercept product shipments bearing counterfeit UL marks. When counterfeit UL marks are found on products or packaging, Customs seizes the shipment under the appropriate U.S. statutes. The importer is notified that the shipment will be destroyed unless permission to release the shipment is provided by the trademark holder.

Another means of protecting the integrity of their marks adopted by UL and ULC involves the composition of its listing marks. In 1993, UL switched from issuing its listing marks for decorative lighting-type products from paper labels to specialized holographic labels. These labels contain both overt and covert security features that make them expensive and difficult to duplicate. So successful was the implementation of these labels at deterring the amount of would-be counterfeiters that UL and ULC continue to institute holographic labels for additional products.

The ULC mark does not have an accompanying Registered Mark ® symbol, unlike all the numerous UL registered marks. Since 2000, the only form of the ULC trademark that is used is shown below.

For more information about ULC and UL marks please visit their websites at www.ulc.ca/marks.asp and www.ul.com/mark/index.html. §

SPAG News

by Tim Macaulay, Saskatchewan Health

There is no current news to report from the Saskatchewan Plumbing Advisory Group (SPAG). Those who have questions regarding SPAG should contact Tim Macaulay, Saskatchewan Health at (306) 787–7128, fax (306) 787–3237, or e-mail tmacaulay@health.gov.sk.ca.

Poly-B Piping Systems

by Tim Macaulay, Saskatchewan Health

Recently the Regina Leader-Post and Maclean's magazine published an article entitled "Legal Notice of Proposed Settlement to Owners of Certain Plastic Plumbing and Heating Systems Sometimes Referred to as Polybutylene Plumbing and Heating Systems." (See www.pbsettlement.ca for further information.) A similar class-action suit was initiated in the United States which resulted in an $850M industry funded settlement program to pay repair costs, property damage costs and retrofits.

The claim is that polybutylene (commonly referred to as PB or poly-B) pipes and fittings may deteriorate, corrode and fail when exposed to hot water over 82°C (180°F) and high chlorine residuals in water. Poly-B pipe is a flexible, grey pipe used in residential plumbing systems and hot water heating systems. Poly-B products continue to be recognized by the National Plumbing Code of Canada as an acceptable material for installation in a plumbing system. However, production of the piping was voluntarily suspended in 1996.

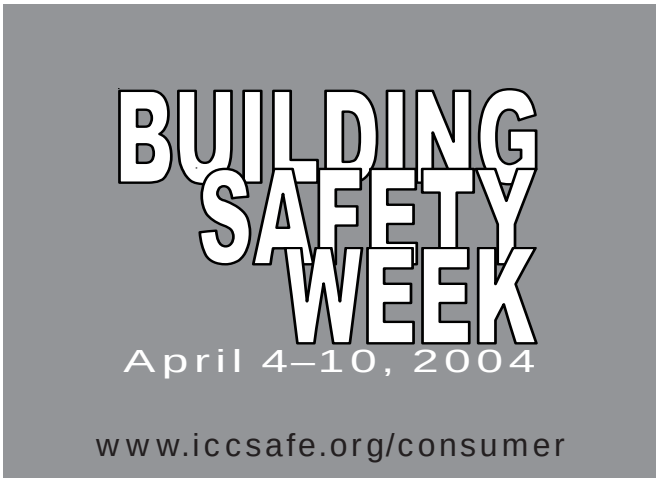
In Saskatchewan, poly-B pipes and fittings were used in the 1980s and up until around 1995. Saskatchewan Health is not aware of piping failures in this province. It has been reported that the piping that was being installed in Saskatchewan used copper or brass metal insert fittings and soft copper crimping rings, rather than plastic inserts with aluminum bands which apparently failed in the United States and possibly other parts of Canada.

For more information about requirements for and use of poly-B products, a CSA consumer fact sheet can be found by going to the CSA website www.csa.ca and following the links Home > Consumers > Consumer Tips > Polybutylene (PB) Pipe. §

(continued from page 1 — Mould in Buildings)

mould on materials should take appropriate action to direct the builder to remedy the problem before continuing construction.

However, building officials can only play a small part in mould prevention. Not all moulds create health concerns and not all moulds are caused by construction practices or building design. Operation and maintenance of the building after construction can also be the cause of moisture problems and mould growth. The Canadian Home Builders' Association, Canada Mortgage and Housing Corporation, National Research Council Canada's Institute for Research in Construction, and the Health Indoors Partnership all have national initiatives underway to gather information, conduct research and disseminate information about mould to assist builders, renovators, and owners. §



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