

QUICK FACTS - SUSTAINABLE BUILDING SERIES

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WOOD and Building Occupants

BACKGROUND

Buildings can significantly influence the well being of people. There is evidence that suggests that the incorporation of natural elements, such as wood and sunlight, can have a positive impact on worker productivity and patient recovery. Because of its warmth and natural attributes, wood generates positive feelings. This, in turn, contributes to a person's overall sense of well being resulting in better performance outcomes.

ISSUE

In the Thunder Bay Regional Health Sciences Centre and the Credit Valley Hospital, both located in Ontario, wood was used extensively in the public spaces to create warm, people-oriented environments with a non-institutional character. The project teams used innovative design to transform the buildings, paving the way for a prominent use of wood in future Canadian hospitals.

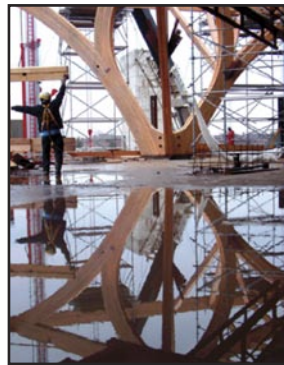
WHAT YOU NEED TO KNOW

The Thunder Bay Regional Health Sciences Centre is the first hospital in Canada to gain approval for the use of wood as a primary structural element. The design team added safeguards to ensure that the building met structural and fire safety requirements. Tye Farrow, the architect responsible for the Centre's design, notes the connection between the structure's wood aesthetic and nature. He also draws attention to the principles of "Evidence Based Design," a growing field that studies the effects of building design on client outcomes such as staff effectiveness and efficiency. In hospitals, wood not only provides a warm, calming environment for patients but also for hospital workers and visitors. Additional outcomes may also include accelerated patient recovery, which can result in shorter wait times.

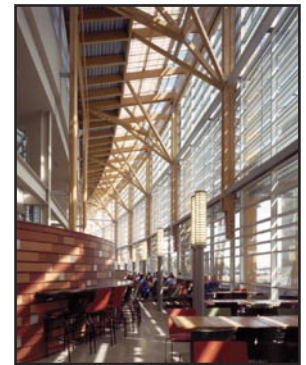
"Beyond the project's functional aspects, at the heart of the design philosophy is a confidence in the value of humanism – a methodology rooted in the notion that respect for human values is of utmost importance to the care of the sick. Architecturally, humanism can manifest itself in places evoking images and sentiment through the use of natural materials and access to sunlight, and through the union of architecture and landscape." – Sean Stanwick, Humanism & Healthcare - September 2004 issue of Construction Canada.

The Thunder Bay Regional Health Sciences Centre represents a significant advance in the provision of quality health care. The 18,600 m² (200,000 ft²) main public corridor, built entirely with heavy timber frames, celebrates the vernacular of the region by drawing on its historic and continuing ties to the forest industry. The gently curving wooden arcade follows the path of the sun to provide natural light penetration throughout the day for patients, staff and visitors, as well as access to the outside healing garden.

The Thunder Bay Regional Health Sciences Centre is also one of the first hospitals in the province to consider sustainable design concepts. "Thunder Bay uses wood not only for its warmth, non-institutional character, and environmental appeal, but also for its cost-effectiveness. Contractors will be seeing a lot more use of wood in commercial and institutional construction following its successful use in this hospital and the pioneer use in Canada of a mist fire suppression system at the Credit Valley Hospital in Mississauga, Ontario." – Tye Farrow, Farrow Partnership Architects Inc.



Credit Valley Hospital,
Mississauga, Ontario



Thunder Bay (Ontario) Regional
Health Sciences Centre. Glulam
provides a bright, roomy
atmosphere for the main public
corridor.

Wood also helps moderate indoor humidity. In peak moisture conditions, wood absorbs moisture and relieves excess humidity; in dry periods, it releases moisture to the air and relieves excess dryness. Wood has a large capacity as a moisture "sink." This is particularly important for occupants that are sensitive to the effects of moisture extremes.

A recent study sponsored by Forintek Canada Corp. showed that interior wood paneling can reduce peak moisture loads in a typical Canadian house by 10-25%, leading to improved occupant comfort and reduced need for air conditioning and ventilation. Wood researchers are also working on other issues related to health of occupants. Particleboard products used in furniture and cabinetry have been modified to reduce formaldehyde emissions by 80-90% from the levels of 1980. Structural glued wood products use adhesives having even lower emissions.

FOR MORE INFORMATION

The Canadian Wood Council offers building professionals (architects, engineers, technologists, builders, manufacturers) free technical support services throughout Canada. Please visit the Canadian Wood Council's web site at www.cwc.ca. A copy of the *Outstanding Wood Building* case studies can also be found on the CWC website.

