



Ruling No. 06-13-1083
Application No. 2005-66

BUILDING CODE COMMISSION

IN THE MATTER OF Subsection 24(1) of the *Building Code Act*, S.O. 1992, c. 23, as amended.

AND IN THE MATTER OF Parts 4 and 9 of Regulation 403, as amended, (the Building Code).

AND IN THE MATTER OF an application by Chris Stegehuis, homeowner, for the resolution of a dispute with Gord Allison, Chief Building Official, City of Barrie, to determine whether the proposed use of a composite lumber product, referred to as Life Long Decking System, for the exterior walking surface of the proposed deck serving a residential dwelling provides sufficiency of compliance with Parts 4 and 9 of the Building Code at 10 Brookwood Drive, City of Barrie, Ontario.

APPLICANT	Chris Stegehuis Homeowner Barrie, ON
RESPONDENT	Gord Allison Chief Building Official City of Barrie
PANEL	Len King, Vice-Chair Gerry Egberts Neal Barkhurst
PLACE	Toronto, Ontario
DATE OF HEARING	March 23, 2006
DATE OF RULING	March 23, 2006
APPEARANCES	Andrew Rush Brite Manufacturing Inc. Bolton, ON Agent for the Applicant Stephen Barks Manager of Permits City of Barrie Designate for the Respondent

RULING

1. Particulars of Dispute

The Applicant is the owner of a Group C, residential dwelling and has applied for a permit under the *Building Code Act, 1992*, to construct a backyard deck at 10 Brookwood Drive, City of Barrie, Ontario.

The subject dwelling is comprised of combustible construction material and is not equipped with standpipe and hose, fire alarm or sprinkler systems. The proposed deck is intended to be a 17.6 m² (190 sq. ft.) free standing deck and will not be connected to the dwelling. The deck will not be equipped with guards as it will be approximately 460 mm (18 in.) in height and, therefore, a guard would not be required. The deck is to be constructed on deck blocks attached to wooden joists. The substructure of the deck will be constructed using pressure treated dimensional lumber.

The construction in dispute involves the proposal to use a composite lumber product in place of conventional lumber for the walking surface of the subject deck. The walking surface of the deck is to be constructed using 5/4 inch hollow deck board product, referred to as Life Long Decking, manufactured by Brite Manufacturing Inc. Life Long Decking Material is a manufactured composite product that consists of approximately 50% wood fibre and 50% polyethylene.

The issue at dispute between the parties is whether the proposed use of "Life Long Decking" provides sufficiency of compliance with Parts 4 and 9 of the Building Code. The material proposed to be used for the walking surface of the subject deck has undergone testing by Intertek Testing Services. However, the material is not recognized by the Building Code nor has the product received approval from either the Canadian Construction Materials Centre (CCMC) or the Building Materials Evaluation Commission (BMEC).

2. Provisions of the Building Code in Dispute

Part 4 – Structural Design

(Please see Part 4 of the Building Code)

Part 9 – Housing and Small Buildings

(Please see Part 9 of the Building Code)

3. Applicant's Position

The Agent for the Applicant stated that Brite Manufacturing (Brite) has spent two years in research and development of the subject composite decking material and has been manufacturing and selling this product for seven years. He indicated that Brite is currently undergoing an evaluation of this product with the Canadian Construction Materials Centre (CCMC). He stated that the CCMC process is quite lengthy, having taken approximately 18 months to two years so far with the process not yet complete. He added that there are a couple of tests, such as the 4000 hour weathering test, which are not yet finalized.

The Agent noted that the composite decking material has a good balance of properties. He indicated that the material typically outperforms construction grade softwood lumber in hardness, side compression, fastening strength, dimensional stability and durability but is weaker in

bending strength, stiffness, toughness and creep performance.

The Agent submitted that Intertek Testing Services has performed extensive testing on the composite decking material. He further submitted that other municipalities have accepted this product, based on stamped engineering drawings, as being equivalent to the Code requirements. As part of the Agent's presentation it was noted that the material has been tested for, among other things, fungi and decay; flame spread; resistance to termites; structural load, to determine deck board span; creep relaxation; mechanical fasteners; freeze-thaw resistance; durability; coefficient of friction; and moisture effect. Intertek Testing Services summarized their testing and indicated that, in the opinion of Intertek, the deck board in question sufficiently complies with the requirements of the Building Code.

In summary, the Agent stated that he believes that sufficient information has been presented to indicate that composite decking material provides sufficiency of compliance with the requirements of the Building Code and, therefore, an approval should be granted.

4. Respondent's Position

The Designate for the Respondent submitted that the proposed composite decking material is not a recognized material prescribed in either Part 4 or Part 9 of the Building Code. He further submitted that the Applicant has not provided the municipality with any information to show that the material has been approved for use by either the Canadian Construction Materials Evaluation Centre or the Building Materials Evaluation Commission.

The Designate stated that the composite material in question is new and innovative and that there are currently no established standards for such a product. He submitted that without prescribed tests, the municipality is not able to determine the equivalency of the product under Section 2.7 of the Building Code. He further submitted that the test results provided do not compare the composite material to a known product approved for use as a decking material by the Building Code.

The Designate suggested that the product should be evaluated by a body, such as CCMC, as this organization is designed for the testing and approval of new and innovative products.

The Designate summarized the City's position by stating that there is no mention of the subject composite decking material in the Building Code and, therefore, there are no standards or criteria outlined to which the product must be tested. He indicated that the municipality did not approve the material as an equivalent material as it was not, in the opinion of the Chief Building Official, shown to provide an equivalent level of performance that would be achieved by conforming to the requirements of the Building Code. He further stated that there may be other criteria that should be taken into consideration in respect of this material in order to determine whether the product will possess the necessary characteristics to perform as an equivalent to conventional lumber. He reiterated that this product is not mentioned in the Building Code and, therefore, his position is that the product should be fully assessed by a body designed to test and evaluate new and innovative material.

5. Commission Ruling

It is the Decision of the Building Code Commission that the proposed use of a composite lumber product, referred to as Life Long Decking System, for the exterior walking surface of the proposed deck serving a residential dwelling does not provide sufficiency of compliance with Parts 4 and 9 of the Building Code at 10 Brookwood Drive, City of Barrie, Ontario.

6. Reasons

- i) The subject deck has been constructed using a new and innovative composite lumber material. Although the Commission recognizes that significant test data is available for this particular composite lumber product, and that the structural requirements of Part 4 of the Building Code may be satisfied through proper engineering, the Commission remains concerned with the performance of the subject decking in other areas.
- ii) The Commission is cognizant of other considerations in relation to the sufficiency of compliance of this innovative product with the Building Code. These considerations include, but may not be limited to, the toughness of the material, creep and bending. Evidence was presented to suggest that the material is weaker in these areas than lumber regulated by the Code. Furthermore, in respect of Canadian Construction Materials Centre (CCMC) there may be other limitations with respect to this product in terms of point loads or interaction with commonly used substances such as sun block or bug spray.
- iii) No documentation, drawings or specifications were submitted regarding the actual construction and installation of the subject deck. Furthermore, there was no evidence presented to suggest that the subject deck at 10 Brookwood Drive has been constructed in accordance with recommended manufacturer's guidelines or accepted engineering standards.
- iv) Evidence was presented to confirm that the Life Long Decking System is currently being evaluated by CCMC and much of the CCMC testing has been completed for this product. The CCMC evaluation, however, is not yet complete and a final evaluation has not been prepared. The Commission cannot be assured that any evaluation report produced by CCMC would not limit or restrict the use of this product. Furthermore, the Commission heard evidence that the CCMC technical guides for similar (i.e. thermoplastic wood decking) products deem the composite lumber material to be equivalent to a subfloor sheathing and not equivalent to lumber decking. For use as exterior decking each of these innovative products may, or may not, involve additional specific terms and conditions best defined following a comprehensive evaluation by a body such as CCMC.

Dated at Toronto this **23rd** day in the month of **March** in the year **2006** for application number **2005-66**.

Len King, Vice Chair

Gerry Egberts

Neal Barkhurst