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**Canadian  
Home Builders'  
Association**



**Association canadienne  
des constructeurs  
d'habitations**

June 29, 2010

Bruce Clemmensen, Chair  
Canadian Commission on Building and Fire Codes  
c/o Anne Gribbon, Secretary  
Canadian Codes Centre / National Research Council  
Building M-23A , 1200 Montreal Road  
Ottawa, Ontario K1A 0R6

**Re: Policy Direction on Energy Efficiency Requirements**

Dear Mr. Clemmensen:

I am writing further to the CCBFC meeting of June 10, 2010. CHBA appreciated the opportunity to comment on the key policy issues regarding energy efficiency requirements for both large and small buildings. Our recommendations are provided in the presentation notes that are attached to this letter.

CHBA believes that its recommendations would help to protect the quality of the future building stock while avoiding unnecessary disruption to the industry. They would also lead to a more fully informed public review and would help in the development of new energy efficiency requirements for houses and small buildings. However, it is CHBA's understanding that, except for the recommendation concerning the cost impact analysis, the CCBFC chose not to accept the recommendations that the CHBA put forward for consideration with respect to the National Energy Code for Buildings.

The CHBA recognizes that the prime driver of change is improvement in energy performance and, as the CCBFC policy paper states, that this must be informed by several factors, including costs. The Commission was advised by staff that the proposed changes would result in a significant improvement in energy performance measured against the 1997 edition of the Energy Code. However, the corresponding information regarding associated costs of these changes was not provided.

After extensive discussion at the CCBFC meeting on cost impact analysis, there was broad agreement that the cumulative incremental cost of the revised Code was an important factor. It was noted that the incremental cost for most of the changes measured the difference between the proposals and the current edition of the Model National Energy Code for Buildings (MNECB'97). The exception was the incremental cost of the thermal transmittance requirements that used a baseline meant to represent current practice.

Some members of the Commission felt that the only cost information of importance is the comparison with current construction practices. They did not want to provide information to the public on the incremental increase compared to the minimum requirements in the MNECB'97.

Others agreed with the position put forward by the CHBA that it was important to know the incremental cost of the proposals compared to the MNECB'97. The points in support of this position would be as follows:

- The baseline used by the Standing Committee was not credible since it was derived without a comprehensive survey of current practice and appears unrelated to current construction practices.
- It is normally the practice of standing committees to compare changes to the requirements that are being replaced. (The thermal transmittance requirements in the MNECB'97 were in place in Ontario until as recently as 2008).
- Since the percentage improvement in energy performance is measured from the MNECB'97, it would be inconsistent and even misleading to measure the cost from a higher starting point, as proposed by the Standing Committee.

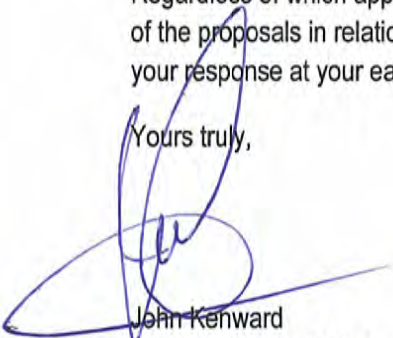
One member suggested that the incremental costs should be provided from both starting points and there seemed to be support for this position amongst other members.

**Will the CCBFC prepare an estimate of the cumulative cost of the entire set of proposals and if so, will it use as its point of comparison, the MNECB'97, the baseline proposed by the Standing Committee, or both reference points?**

**Or alternatively, will the CCBFC direct staff to develop a new baseline that more accurately reflects actual current construction practice?**

Regardless of which approach is used, it is important that the CCBFC and affected parties know the incremental cost of the proposals in relation to current construction practices prior to the public consultation. I look forward to receiving your response at your earliest opportunity.

Yours truly,



John Kenward  
Chief Operating Officer

cc. CHBA Executive Board

# **Policy Direction for Energy Efficiency Requirements CHBA Presentation to the CCBFC**

**June 10, 2010**

**Don Johnston, Senior Director, Technology and Policy  
Canadian Home Builders' Association**

## **Introduction**

My purpose in speaking to you today is to ask you to consider 8 recommendations regarding your policy direction to the committees working on energy efficiency requirements.

First I'd like to reaffirm CHBA's support for the CCBFC in addressing energy efficiency. This will help to accelerate the adoption of energy efficient practices and will lead to more uniformity in regulation across the country.

Our industry places great value on maintaining alignment between the national model codes and provincial codes. This national system supports a rational code environment and contributes to a more competitive economy.

CHBA is very concerned about the growing fragmentation that is emerging between the National Building Code and provincial codes. We believe this fragmentation is ill-advised, and that it threatens the integrity of Canada's code system.

CHBA is very pleased that the Commission Executive has provided policy direction to the Standing Committee on Energy Efficiency in Buildings. I will be focusing mainly on that policy paper in the agenda package.

## **Issue No. 1 – Energy Performance Levels**

The first policy matter concerns Energy Performance Levels. The Policy paper says that while a 25% improvement in energy performance is the main driver of change, it is informed by many other elements including constructability. It is this element, constructability, that needs further attention.

There has been little or no examination of the practicality of the wall sections that would result from the proposed requirements.

The proposed building envelope requirements were established by setting a baseline representing current practice and then adding 35%. So, in Calgary for example, the existing national energy code would require R-12 walls, the baseline is pegged at R-21 and the proposed new minimum is R-27.

There are very few buildings in Canada with these levels of thermal resistance. NRCan has confirmed that their CBIP buildings qualified mainly through improvements to building services, not the building envelope. Larger projects will use the trade-off path but those using the prescriptive requirements will be forced to use unproven technologies.

**Recommendation No. 1 - Set the prescriptive thermal requirements so as to permit the use of wall sections that have proven to be constructable.**

**Issue No. 2 – Air Barrier Systems**

The second item is the industry's readiness to use only air barrier systems that have been tested to the appropriate standard. The industry isn't ready and neither are the standards. Even so, the Standing Committee has recommended adoption. Adaire Chown will be addressing this issue.

**Recommendation No. 2 - Refer the air barrier testing issue to the Standing Committee on Environmental Separation for possible inclusion in Part 5 of the 2015 National Building Code.**

**Issue No. 3 – Assembly Constructions**

The third policy issue involves assembly constructions and the choice of having one set of requirements regardless of construction type. CHBA is concerned that this will lead to the increased use of less durable wall assemblies. It is far easier to achieve R-27 using an EIFS wall than to do so with brick veneer or curtain wall. Moreover, designing a brick veneer wall to meet R-27 requires insulation in the stud space, making it more prone to failure.

**Recommendation No. 3 - Provide different prescriptive thermal requirements for different construction assemblies.**

**Issue No. 4 – Cost Impact Analysis**

The fourth item concerns the cost impact analysis. There has been a lot of debate about payback and the merits of the different methods of calculation. Life Cycle Analysis was the key factor used to develop the requirements in the 1997 edition. However, by choosing to be fuel neutral and no longer linked to market areas, the payback calculation becomes a very blunt instrument at best. All that the studies really show is that cost recovery is a long way off. What we don't know, but should know, is the impact on construction cost. A measure can be both very cost-effective and very expensive at the same time. Sometimes we "can't afford to save that much money". So, initial costs matter.

The cost analysis done for the Standing Committee deals with the incremental cost of various proposed requirements. It is very difficult, perhaps impossible, to translate this into cumulative cost impacts on the building. More importantly, the incremental component costs that are provided are in relation to the baseline rather than to the existing requirements.

There are at least two reasons why the comparison needs to be done with the requirements in the existing Energy Code for Buildings:

First, it is what is done for all code changes. Not to do so will be seen as obfuscation. The argument that the Code is not relevant doesn't stand scrutiny. This Code was in place in Ontario until 2008 and is a legitimate reference point.

Secondly, the baseline is just the opinion of the building envelope task group. There was no substantive survey done of current practice. An investigation done for CHBA in Calgary, albeit limited, raises questions about the accuracy of the baseline in that climate zone at least. The baseline is simply not a credible basis for comparison.

The percentage improvement in energy efficiency of the proposals compared to the existing Energy Code for Buildings has been done and we see no justification for not doing the same thing for construction costs. It is essential to the credibility of the process that this be done.

**Recommendation No. 4 - Compare the construction cost of the proposed changes with the requirements in the existing Energy Code for Buildings.**

#### **Issue No. 5 - Occupancies**

The fifth item concerns Occupancies and specifically the choice of having a single category of requirements. The prescriptive thermal requirements for walls and roofs are the same for supermarkets as they are for offices or arenas or apartment buildings.

Nevertheless, at its meeting in Saskatoon, the Commission decided to make an exception and deal with semi-heated warehouses separately from other building types. Another sensible exception to this rule has been proposed for lighting power density requirements that also vary depending on occupancy type. Greenhouses have also been excluded from the requirements. So, where it makes sense to do so, there is precedent to differentiate based on occupancy type.

**Recommendation No. 5 - Allow differentiation based on occupancy where it is the best way to achieve the intent without adversely affecting other occupancies.**

#### **Issue No. 6 - Fenestration to Wall Area Ratio**

There is a need to differentiate occupancies with the fenestration to wall area ratio. The Standing Committee wants to limit the scope for trading off thermal requirements in those occupancies that have a very low ratio, namely supermarkets and big box stores. The most effective way to do this would be to treat this occupancy type separately. However, the Standing Committee assumed that this would not be permitted by the Commission. So, they dealt with it in an indirect way by varying the Fenestration to Wall Area Ratio requirements by climate zone. This is over and above the thermal requirements that also vary by climate zone. The result is a sliding scale that sets the ratio at about 30% for most populated areas. Unfortunately, this causes problems for those other building types that require more windows, including apartment buildings.

Both the existing version of the Energy Code for Buildings and ASHRAE 90.1 use 40% as the maximum ratio for the prescriptive compliance path. A study done for Minto demonstrates that this could be a “make or break” factor for their current leading edge residential projects. After reviewing the Minto report, the Building Envelope Task Group recommended that the ratio be set at 40%. This became the working assumption until the big box store issue was raised on the last day of the last meeting of the Standing Committee, causing the current proposal to be cobbled together.

**Recommendation No. 6 - Set the Fenestration to Wall Area Ratio at 40% and deal with outliers separately as required.**

Before I go on to Part 9, I would like to address the notion that these matters are better dealt with in the public consultation. Normally, this would be the case. But the Energy Code for Buildings has been changed so fundamentally that the option of not proceeding with a proposed change doesn't exist in many cases. So, the only way to deal with persuasive comments is to rework the proposal in question and go out for another public consultation. Given the commitments to the provinces and the line up of work awaiting attention, this is not realistic. So, you've got to get it right before September.

Turning to houses and small buildings, policy direction from the Commission will help to keep the Task Group on track. The Executive Committee has recommended having a separate category for housing which CHBA whole-heartedly supports.

Unlike large buildings, there is a dominant construction type, namely wood frame, so having one set of requirements for all forms of construction is not a problem. By using climate zones rather than market areas, the method of calculating payback doesn't really matter since it will be a rough measure and useful only to compare alternatives.

We assume that the Commission will agree with the Executive Committee that the equivalent of ERS 80 should be used as the notional target for the new prescriptive requirements. What will remain important is to be able to determine the impact on construction costs.

**Issue No. 7 - Baseline Study**

A baseline study is required to gain a clear picture of standard practice and we are pleased that this study is finally underway. This will be straightforward in Alberta where there have been no recent changes to energy requirements. Nova Scotia changed its requirements at the end of December and so we'll need a picture of current practice in that province prior to 2010. Similarly, a date will have to be determined for Ontario and BC that precedes recent changes in those provinces. The alternative of doing a study that shows that there is no cost impact, or perhaps a savings because the provinces have recently adopted higher requirements, would be less than useful.

**Recommendation No. 7 - Select reference points for the baseline study to exclude recent changes in provincial requirements.**

**Issue No. 8 – Incremental Costs**

With the results of the baseline survey, it will be important to estimate the cost of moving to ERS 80 in each of the market areas studied. This should be provided to the Joint Task Group at their next meeting in the fall.

**Recommendation No. 8 - Estimate the cost of achieving ERS 80 in each of the market areas studied.**

So, to summarize, with regard to the Energy Code for Buildings, CHBA is advising the Commission to:

1. Set prescriptive requirements within industry experience
2. Refer air barrier testing to Part 5
3. Set minimums based on construction
4. Compare cost of proposals with existing requirements
5. Accept differences based on Occupancy
6. Maintain the Fenestration to Wall Area Ratio at 40%

With regard to Energy Efficiency for Houses and Small Buildings, CHBA is advising the Commission to:

7. Select reference points for the baseline study to exclude recent changes in provincial requirements
8. Estimate the cost of achieving ERS 80 in each of the market areas studied.

Each of these recommendations, if accepted, would require minor amendments to the policy papers in the agenda package.

Thank you.