



NECB Roadmap - Part 3

To Assist in the Review of Proposed Changes to the National Energy Code for Buildings

November 2010

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Note: This Roadmap had been prepared for the use of CHBA members. It is intended to assist members in compiling information to support comments they may wish to submit on proposed changes to the NECB. The Roadmap has not been prepared to solicit information from members.

I. Introductory Information

1. Status of the NECB, Major Concerns and the Need for Your Input

Note: This section is the same as provided in the Roadmap – Part 2.

Status of the NECB

The provinces and territories are supporting the up-dating of the National Energy Code for Buildings (NECB) with a view to adoption. The Code is scheduled to be published later in 2011.

Proposed changes relative to the 1997 edition of the Code have been published for public comment. See www.nationalcodes.ca/eng/public_review/2010/proposed_changes.shtml.

Major Concerns

In the development of the proposed changes, there has been no comprehensive compilation of data or analysis that would allow our industry to understand what the overall **construction and cost impacts** will be.

The Need for Input from Builders of Larger Residential Buildings

If you build larger residential buildings, the NECB could have a big impact on your business.

Only by providing comments during the fall public review can builders influence the requirements in this Code. **This is effectively the last opportunity to improve the clarity and practicality of the new Code.**

Comments coming directly from builders and developers, who can best determine how they will be affected, can make a substantial and significant difference. The CHBA is encouraging members to review the proposed changes, and let the Canadian Commission on Building and Fire Codes (CCBFC) know how they will affect you and your customers.

2. Background - Application and Scope of the Code, and Options for Compliance

Note: This section is the same as provided in the Roadmap – Part 1 and Part 2

Application of the NECB

The NECB applies to all buildings that do not fall within the application of Part 9 of the National Building Code. For residential buildings, this means all buildings that are

- more than 600 m² in building area,
OR
- more than 3 storeys in building height.

The Code also applies to energy-consuming elements on the building property, such as landscape lighting.

Scope of the Code

The NECB provides requirements that address:

- heat loss (thermal transmission and air leakage through the building envelope),
- lighting,
- heating, ventilating and air-conditioning systems and equipment,
- service water heating,
- electrical systems and motors.

Options for Compliance

Aside from alternative solutions that may always be proposed for compliance with national model codes, the NECB provides three approaches to compliance:

- Prescriptive Path – “simple” prescriptive requirements (Division B, Parts 1 to 7)
- Trade-Offs – allowed between related building elements (e.g., higher roof insulation levels may be traded off against lower wall insulation levels)
- Performance Compliance Paths – full-building energy-use modeling

The prescriptive path is the simplest approach to complying with the Code but some requirements may prove to be overly restrictive in terms of constructability, cost or market acceptability. In these cases, a different approach will need to be followed.

3. Why a Roadmap, Scope of Roadmap - Part 3

Why a Roadmap

Reviewing the new Code is a large undertaking that will require significant time and effort. CHBA has developed this Roadmap to assist in this process.

Scope of Roadmap – Part 3

Roadmap – Part 1 and Part 2 identified a number of proposed changes to the prescriptive requirements of the NECB that are considered to potentially present significant implications for builders, and identified information that could be useful in preparing comments on those proposed changes. Provisions proposed for inclusion in the trade-off and performance compliance paths are beyond the scope of the Roadmap.

The proposed changes have been published on the web and the public review is web-based. Roadmap – Part 3:

- describes how specific proposed change forms (PCFs) can be found on the public review web site and where to find the comment forms
- provides information on how to prepare comments and where more detailed information can be found on the web
- provides information on how to submit comments and where more detailed information can be found on the web
- describes what happens to your comments
- provides corrections and clarifications of information provided in Roadmaps Part 1 and Part 2.

Annex A shows how to navigate the public review web site to find particular proposed changes.

II. The Roadmap - Part 3

1. Finding Proposed Changes and Comment Forms on the Public Review Web Site

The public review of proposed changes to the NECB is web-based. All the information related to the public review can be found at

www.nationalcodes.ca/eng/public_review/2010/proposed_changes.shtml.

Only comments submitted through the web site will be considered. Links to the forms for submitting comments are embedded in the proposed change forms (PCFs). To comment on a particular PCF, one must first locate the PCF on the web site. Annex A describes how to navigate the public review web site to find a particular PCF.

This Roadmap highlights only a few proposed changes where the implications may be significant. Other proposed changes may also be of interest and have a significant impact on design, construction and cost. If you would like to find PCFs for changes other than those described in the Roadmap, CHBA can assist. Contact CHBA at chba@chba.ca.

2. Preparing Comments

Guidelines for drafting comments can be found at

http://www.nationalcodes.ca/eng/public_review/2010/guidelines.shtml

For comments to have any impact on decisions on the proposed changes, they must provide substantive information. The following bullets highlight a few of the points provided on the web site. Information you have compiled based on guidance provided in Roadmaps Part 1 and Part 2 will help to respond in a substantive manner to these points.

- Negative comments must be accompanied by explanations.
- Comments must be technically supportable.
- Potential economic impact was considered in the development of the proposed changes. However, a detailed cost/benefit analysis may not have been conducted. In reviewing them, you are encouraged to consider the economic implications as well as the technical aspects.

3. Submitting Comments

Instructions for submitting comments can be found at

http://www.nationalcodes.ca/eng/public_review/2010/instructions.shtml

It is a good idea to prepare comments in a word processing application. Once a comment has been finalized, it can be copied into the comment form. The web site does not allow you to save comment forms so this approach also allows you to keep a copy of your comments.

4. What Happens to Your Comments

The final meeting of the Standing Committee on Energy Efficiency on Buildings (SC-EEB) before publication of the 2011 NECB will be held in January 2011. Every comment submitted during public review will be considered by the Committee.

- Where a comment does not relate to specific text that is being proposed for change, the comment may be ruled non-germane.
- Where a comment provides information that has already been considered by the Committee in developing the proposed change, it may be ruled non-persuasive
- Where your comments provide new information and your arguments to change or withdraw a proposed change are persuasive, the Committee must act on that information or provide reasons for not acting.

In response to comments, standing committees normally have five options:

1. accept the proposed change as published for public review
2. accept the proposed change with editorial revision
3. accept the proposed change with minor technical revision where such revision is not expected to result in adverse reaction
4. pull back the proposed change for further consideration in the next code cycle
5. withdraw the proposed change.

Because of the extent of the proposed changes to the Code and the interconnectedness of many requirements, the SC-EEB may also recommend significant technical revisions to proposed changes. These may be accepted subject to review by the Canadian Commission on Building and Fire Codes.

You will not be informed automatically of decisions on your comments. If you wish to find out how the Committee has responded to your comments, you will need to write to staff at the Canadian Codes Centre. Refer to the contact information at <https://www.nationalcodes.ca/eng/contact.shtml>.

5. Corrections and Clarifications

Corrections to Roadmap Part 1

Roadmap - Part 1 was prepared before the proposed changes were published on the public review web site. The information provided in Roadmap - Part 1 was based on draft proposed changes. Two of the final published proposed changes differ from the drafts. These are identified as mark-ups below.

<p>3.2.1.4. Allowable Areas of Fenestration and Doors</p>	<p>The total area for vertical fenestration (windows) and doors must not exceed a certain percentage of the gross wall area.</p> <ul style="list-style-type: none"> • In locations with fewer than 4,000 heating degree days (HDD), the maximum is 40% – a ratio of 0.40. • In locations with more than 7,000 HDD, the maximum is 20% – a ratio of 0.20. • For other locations, the ratio is determined according to a quadratic equation based on heating degree days (HDD): $FWR = 2.590E^{-8} * DD^2 - 3.516E^{-4} * DD + 1.392$
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Requirements	Critical Aspects of the Requirements
3.2.3.3. (Thermal Characteristics of Building Assemblies in Contact with the Ground) Floors	Maximum overall thermal transmittance of floors on ground must not exceed the values shown in the table above where the floor is less than 0.6 m below ground level.

Building Assemblies in Contact with the Ground

	Heating Degree-Days of Building Location, Celsius degree-days						Note: R-values are equivalent imperial thermal resistance values
	Zone 4: Less than 3000	Zone 5: 3000 to 3999	Zone 6: 4000 to 4999	Zone 7A: 5000 to 5999	Zone 7B: 6000 to 6999	Zone 8: Greater than or equal to 7000	
	Maximum Overall Thermal Transmittance (W/m ² ·K)						
Walls	0.568 (R10)	0.379 (R15)	0.284 (R20)	0.284 (R20)	0.284 (R20)	0.210 (R27)	
Roofs	0.568 (R10)	0.379 (R15)	0.284 (R20)	0.284 (R20)	0.284 (R20)	0.210 (R27)	
Floors	0.757 (R7.5) for 1.2 m	0.757 (R7.5) for 1.2 m	0.757 (R7.5) for 1.2 m	0.757 (R7.5) for 1.2 m	0.757 (R7.5) for 1.2 m	0.379 (R15) full area	

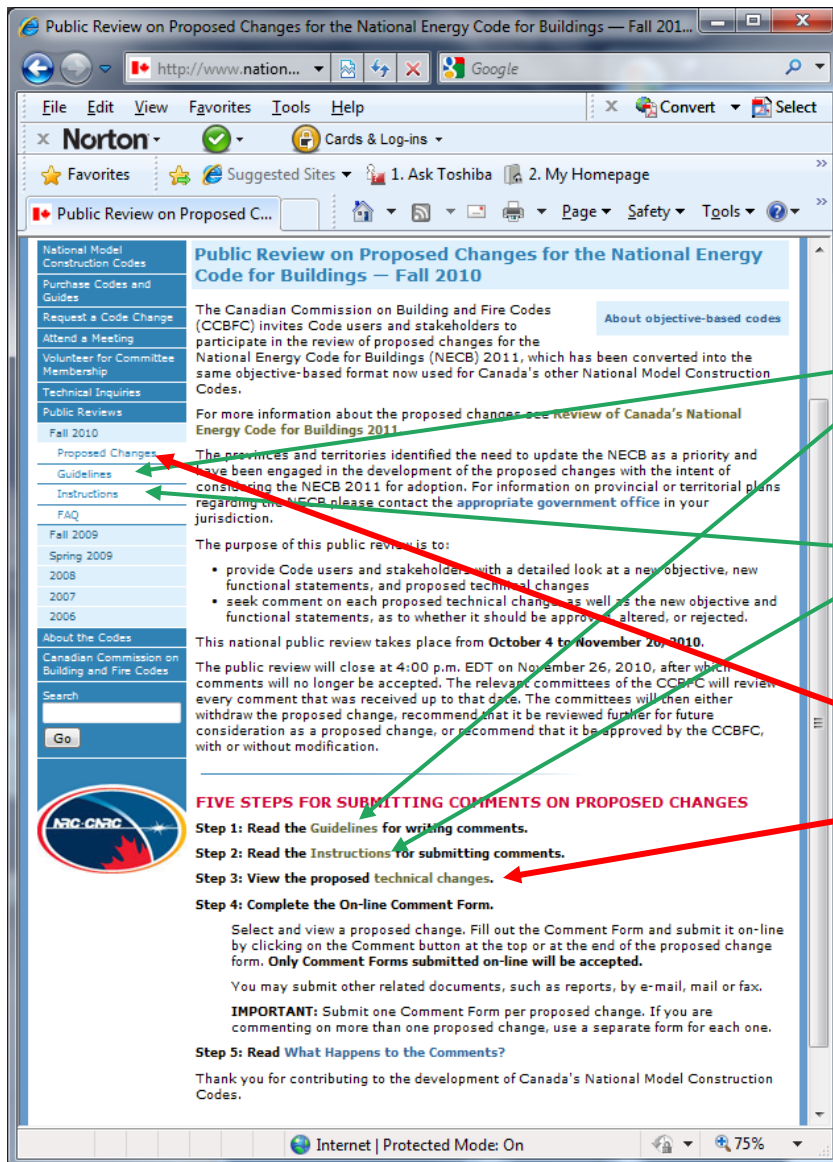
Clarifications

Requirements	Critical Aspects of the Requirements	Clarification
<p>5.2.10.1. Heat Recovery Systems (General)</p>	<p>Except where an air exhaust is used to remove smoke or toxic/flammable/corrosive vapours, etc., heat recovery must be installed on all systems that exhaust air to the outside of a building when the sensible heat content of the exhaust air system exceeds 150 kW. Heat recovery must be a minimum of 50%.</p> <p>Sensible heat is calculated in kW as: Recoverable Heat = 0.00123 . Q . (Te – To) where te= temperature of exhaust air before heat recovery (°C), to= outdoor 2.5% January design temperature (°C), and Q = rated capacity of exhaust system at normal exhaust air temperature (L/s).</p>	<ul style="list-style-type: none"> • For the purpose of this requirement, latent heat is not considered in determining recoverable heat. Thus sensible heat = recoverable heat. • Though not immediately apparent, the unit for heat (kW) can be derived from the units for capacity of the exhaust system (L/s) and temperature units (°C).

Annex A - Navigating the Public Review Web Site

This Annex describes how to find particular proposed change forms (PCFs) and comment forms on the public review web site.

The steps start from the Fall 2010 Public Review web page found at http://www.nationalcodes.ca/eng/public_review/2010/introduction.shtml

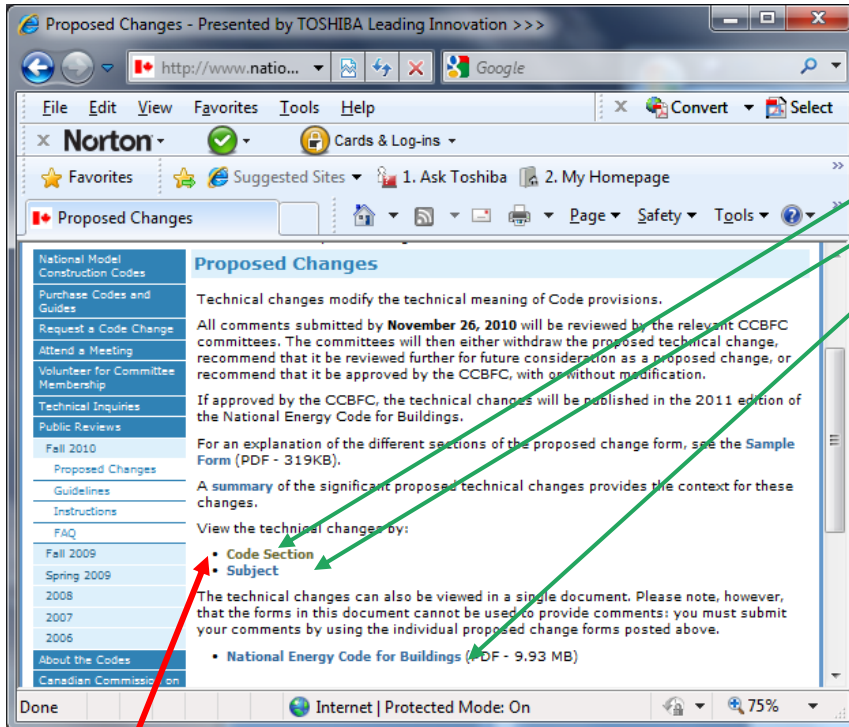


The first screen shot shows the main page for the Fall 2010 Public Review (without the NRC identifiers at the top)

To read the Guidelines for preparing comments, click on "Guidelines" in the side bar or the body of the text.

To read the Instructions for submitting comments, click on "Instructions" in the side bar or the body of the text.

To find the PCFs and the comment forms for these, click on "Proposed Changes" in the sidebar or "technical changes" in the body of the text.



The “Proposed Changes” screen provides the options of accessing the PCFs

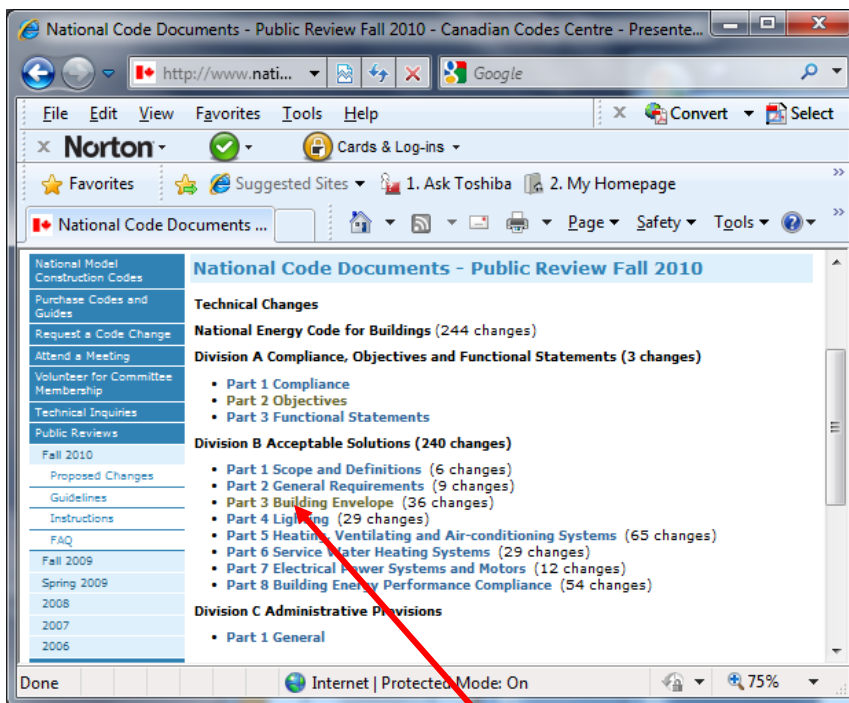
- by Code Section
- by code Subject, or
- all together in a single PDF document.

Only in the first two cases are there links to the comment forms.

For a general overview of the proposed changes, viewing the PCFs in the PDF document provides faster access.

Because the various Parts of Division B are arranged by subject, there is no significant benefit to accessing the PCFs by “Subject”.

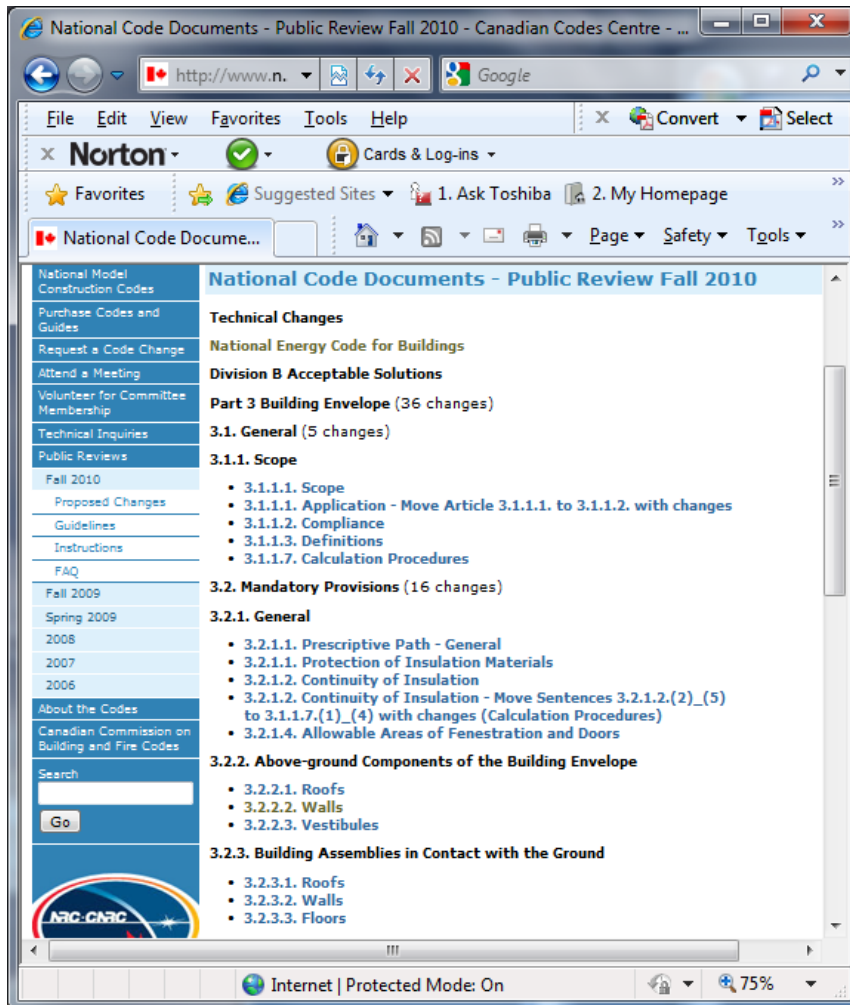
For this example, “Code Section” is selected.



Clicking on “Code Section” brings up a screen that shows the Division and Part structure of the 2011 NECB. Click on the Part heading corresponding to the subject of the PCF you are looking for.

If you are looking for a change that was described in the Roadmap – Part 1 or Part 2, the first number in the provision corresponds to the number of the Part in Division B.

For this example, “Part 3 Building Envelope” is selected.



Clicking on “Part 3 Building Envelope” brings up a screen that shows Section and Subsection headings in Part 3 and links to the PCFs for this Part. (The screen shot shows the top half of the page.)

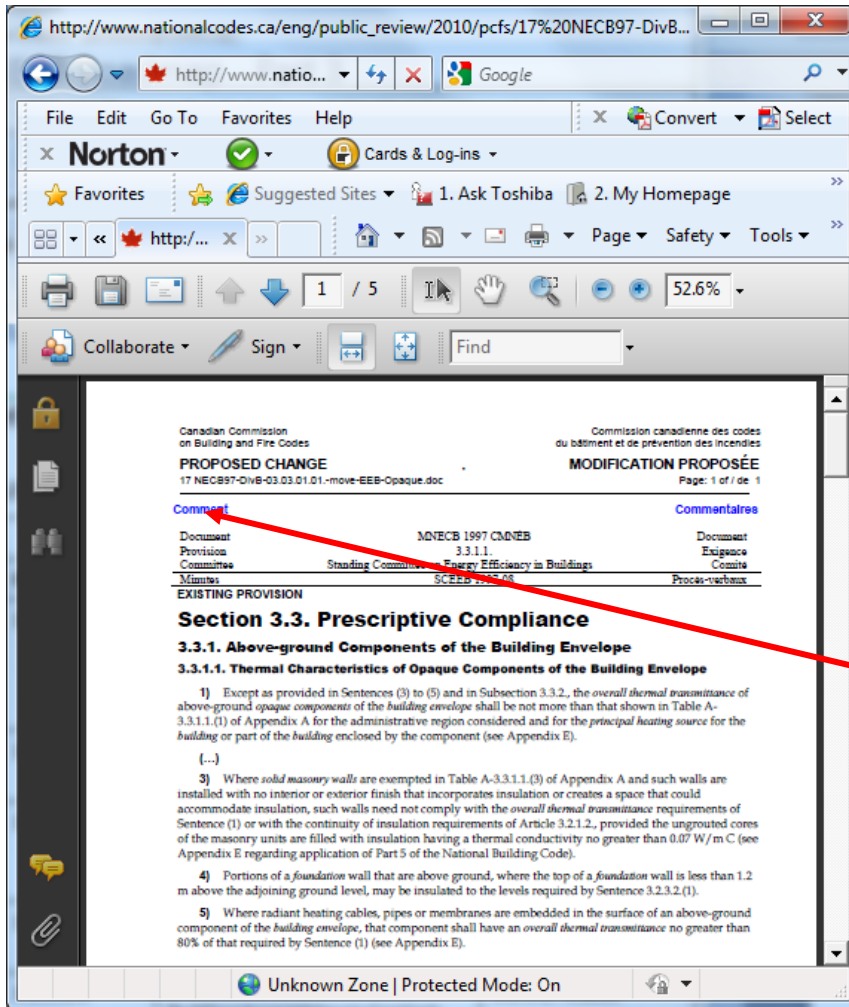
NOTE:

- The headings are a mix of headings from the 1997 and 2011 Codes.
- The PCF links refer to 1997 provisions where these exist and 2011 numbering where the provisions are new.

To find the PCF for a change described in the Roadmap – Part 1 or Part 2:

1. Identify the provision number from the Roadmap (left column in the Roadmap table); e.g. the change that addresses maximum overall thermal transmittance for opaque building envelope areas above ground is 3.2.2.2.
2. Look up this number in Annex C of Roadmap Part 2. An excerpt from that Annex is provided below. The table indicates that the link on the web page is “3.3.1.1. Thermal Characteristics of Opaque Components of the Building Envelope”.

Roadmap		Web	
Provision	Subject	Web Link	PCF Number
...
3.2.2.2.	Thermal Characteristics of Opaque Components of the Building Envelope	3.3.1.1. Thermal Characteristics of Opaque Components of the Building Envelope	NECB97-DivB-03.03.01.01.-move-EEB-Opaque.doc
...



Clicking on “3.3.1.1. Thermal Characteristics of Opaque Components of the Building Envelope” brings up the PCF. (This link is lower on the page in the previous screen shot.)

PCFs show the existing requirements first, followed by the proposed requirements. In this example, the proposed requirements begin on the second page.

Links to the Comment forms are provided at the top of the first page and bottom of the last page of the PCF.