PNNL’s Recommendations on Changes to the VBEEC

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Buildings currently account for over 35% of Vietnam’s total energy consumption. Buildings codes could result in 30-40% buildings energy savings.

The Vietnam Building Energy Code (VBEEC) was introduced in 2013 and now scheduled for revision in 2016.

To support the revision process, PNNL has developed the document “Review of Vietnam Building Energy Efficiency Code” to recommend potential enhancements to the VBEEC.
Assess each section of the VBEEC in terms of improvements to energy efficiency and improvements to implementation;

Compare with codes elsewhere and against PNNL’s experience with building code development in other countries;

Provide recommendations on potential updates, deletions, or clarification for the next revision.
Goal: To make the code as simple and practical as possible to implement while maintaining a high level of energy efficiency.

The report provides a set of 34 recommendations on potential enhancements to the VBEEC:
- 11 high-priority recommendations;
- 23 lower-priority recommendations.

The remaining slides present the 11 high-priority recommendations:
- 4 recommendations on updates to increase stringency of the VBEEC;
- 5 recommendations on clarifications of the VBEEC;
- 2 recommendations on additions to the VBEEC.
Increasing Stringency of the VBEEC

1. Decreasing the size limit of buildings for which compliance with the VBEEC is required. (VBEEC 1.1)
   - The VBEEC currently requires compliance for buildings over 2500 square meters; most Vietnamese buildings are under this threshold.
   - A lower threshold will increase the number of buildings that the VBEEC applies to, thereby increasing the energy savings associated with the VBEEC.
   - Lowering the threshold gradually and in planned schedule will help adjust market expectation.

2. Addressing how (if) renovations, additions, operations, and maintenance are to be covered in the VBEEC. (VBEEC 1.2)
   - Renovations are typically very common in public and commercial buildings, so applying the VBEEC to renovations could lead to significant savings.
Increasing Stringency of the VBEEC

3 Revising the lighting equipment performance requirements to disallow incandescent lighting and magnetic ballasts. (VBEEC 2.3.2)

- Lighting technologies have greatly improved in recent years, leading to significant savings in energy if these newer technologies are used.

4 Revising the lighting controls section to expand the areas in which occupancy controls are required. (VBEEC 2.3.3)

- Lighting controls are a significant part of the energy savings in modern energy codes.
- MOC may want to expand requirements for occupancy sensors, e.g. in store rooms and restrooms.
Clarification of the VBEEC

1. Clarifying that the supplementary requirements for ventilation-air conditioning systems are really control requirements that must be addressed. (VBEEC 2.2.2)
   - HVAC controls are a significant part of the energy savings in modern energy codes.
   - HVAC control requirements are currently grouped with other supplementary requirements, and should be separated out in future revisions.

2. Defining “upscale” residential buildings explicitly. (VBEEC 2.5.1)
   - Table 2.18 (Maximum allowed installed power) specifies a limit for “upscale residential buildings” without defining “upscale.”
   - Without a clear definition, builders can claim that their buildings are not “upscale” and avoid some requirements.
Clarification of the VBEEC

3 Clarifying in the Regulatory Rulings section that construction of buildings is also covered in the VBEEC to ensure that field inspection of buildings can and does take place. (VBEEC 3.2)
   - VBEEC 3.2 focuses solely on review of building designs. Without review of the actual construction, contractors may substitute less energy-efficient approaches than those specified in the plans.

4 Defining the “prevailing rules” that must be used to review and assess buildings. (VBEEC 3.2)
   - VBEEC 3.2 directs code officials to use “prevailing rules” without referencing these rules.
   - Specifying a consistent set of rules to be applied will ensure consistent enforcement.
   - PNNL is developing a compliance checking protocol for Vietnam based on China’s Acceptance Code.
Clarification of the VBEEC

5 Clarifying the role of OTTV in the VBEEC. (VBEEC 4.1)

- The VBEEC User Guide (developed by the International Finance Cooperation) indicates that OTTV is optional, whereas the VBEEC seems to consider it a mandatory requirement.

- MOC should clarify whether OTTV is mandatory and provide reference to the User Guide in the VBEEC.

BE04 - Yêu cầu của Quy chuẩn có thể thay thế: Hệ số truyền nhiệt tổng (OTTV)

Nếu trong trường hợp yêu cầu này được tuân thủ theo, thì các yêu cầu BE01, BE02, và BE03 không cần thiết áp dụng.

Giá trị truyền nhiệt tổng (OTTV) của tường và mái đề tuân thủ Quy chuẩn. Giá trị OTTV cho phép tối đa như sau:
Tường: 60 W/m²
Mái: 25 W/m²
Giá trị OTTV phải được xác định bằng cách áp dụng các tiêu chuẩn hiện hành và hướng dẫn kỹ thuật của Việt Nam.
Additions to the VBEEC

1  Revising the lighting controls to include daylighting controls under skylights. (VBEEC 2.3.3)
   - Daylighting controls are another significant part of the energy savings in modern energy codes.

2  Adding guidance for whole building simulation in the Annex to the VBEEC. (VBEEC Annexes)
   - If MOC decides to add whole building compliance approach to VBEEC, it is necessary to define a clear set of rules, either in the annexes or as a separate chapter.
Questions and Discussion