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14 June 2011

Ms Connie Szeto  
Clerk to Panel on Development  
Legislative Council Secretariat  
Legislative Council Building  
8 Jackson Road  
Central

Dear Ms Szeto,

**Assessment on Energy Use of Buildings  
under BEAM Plus Environmental Assessment Scheme**

At the meeting of the Panel on Development on 29 March 2011, Members requested the Administration to provide information about saving in energy consumption in buildings graded Platinum, Gold, Silver and Bronze under the "Building Environmental Assessment Method Plus" (BEAM Plus) of the Hong Kong Green Building Council (HKGBC) in comparison with buildings without gradings. The Administration is pleased to provide below information in relation to the matter for which Members requested.

*BEAM Plus*

BEAM Plus, a comprehensive environmental assessment scheme recognized by the HKGBC, has been officially launched since 1 April 2010. The current BEAM Plus Version 1.1 provides comprehensive assessment details and methodology for both new buildings and existing buildings. The grading hierarchy includes Platinum (the highest), Gold, Silver and then Bronze.

BEAM Plus covers mainly the following five environmental performance categories for new buildings:-

- site aspects (SA);
- materials aspects (MA);
- energy use (EU);
- water use (WU); and
- indoor environmental quality (IEQ)

For existing buildings, extra emphasis is put on the assessment of operation and maintenance in order to reflect their importance in energy conservation for inhabitants.

In general, buildings with a higher assessment grade have higher energy performance and lower carbon emissions, higher resources and water efficiency and lower waste generations, and better outdoor and indoor environmental quality.

Energy Use and Energy Saving

Generally speaking, BEAM Plus assigns weightings (in the form of “credits”) to the environmental performance categories in accordance with the significance of their impact on the environment. Similar to other international and overseas green building rating schemes, EU accounts for the highest weighting. The weightings for the various categories are summarized in the table below:

**Table 1** Weightings of environment performance categories

| Environmental Performance Category  | Weighting under BEAM Plus for New Buildings | Weighting under BEAM Plus for Existing Buildings |
|-------------------------------------|---|--|
| *Energy Use (EU)                    | 35%   | 30%  |
| *Site Aspects (SA)                  | 25%   | 18%  |
| *Indoor Environmental Quality (IEQ) | 20%   | 25%  |
| Water Use (WU)                      | 12%   | 15%  |
| Materials Aspects (MA)              | 8%  | 12%  |
| Total                               | 100%  | 100%   |

(\* There is a minimum standard of achievement for these categories in order to qualify for an overall assessment grade)

As regards the EU category, there are a number of energy use considerations which would attract credits, including reduction in CO<sub>2</sub> emission (or annual energy consumption), adoption of renewable energy system, use of energy efficient system

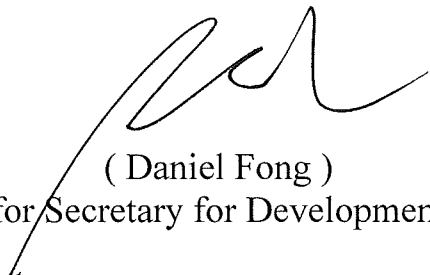
and equipment/appliance, proper measurement and monitoring of energy use and due environmental considerations to planning and architectural designs. Being one of the major foci of the BEAM Plus assessment, there is a minimum standard of achievement for the EU category. In other words, on top of the overall credits obtained under all categories, it is a pre-requisite for a building to obtain a specified level of credits in this particular category for meeting the standard of a certain grading. The minimum percentages of credits under the EU category are 70%, 60%, 50% or 40% for a building to be awarded with a Platinum, Gold, Silver or Bronze grading respectively.

There is no simple and agreed method to quantitatively link up the assessment grade with energy reduction, which is one of the various factors under the EU category. As a matter of fact, according to the BEAM Plus assessment, a maximum of 15 out of 42 credits under the EU category may be obtained if the building can achieve a certain percentage of reduction of CO<sub>2</sub> emission (or annual energy consumption). However, upon the request of the Members, based on the minimum percentages of credits obtained under the EU category as described above (and an broad assumption that the same percentage of credits can be scored under the criterion for reduction of CO<sub>2</sub> emission), we provide below a very rough comparison between the expected energy saving of a new building and the baseline case that just meets the basic requirements of the mandatory Building Energy Codes.

**Table 2** Possible percentage of reduction in CO<sub>2</sub> emission (or annual energy consumption) that may be achieved for buildings graded under BEAM Plus

|              | <b><u>Possible Reduction of CO<sub>2</sub> Emission<br/>(or Annual Energy Consumption)<br/>Compared with a Baseline Case</u></b> |   |
|--------------|--|---|
| <b>Grade</b> | <b>New private residential<br/>buildings</b>   | <b>New private commercial<br/>buildings</b> |
| Platinum     | 13%  | 29%   |
| Gold         | 11%  | 23%   |
| Silver       | 10%  | 20%   |
| Bronze       | 8%   | 14%   |

Yours sincerely,



( Daniel Fong )  
for Secretary for Development

c.c.

Hong Kong Green Building Council (Attention: Dr Andrew Chan)

Secretary for the Environment (Attention: Mr Philip Har)

Director of Buildings (Attention: Mr K K Yeung)