GENERAL MISTAKES IN GBI SUBMISSION

Ar Michael Ching
GENERAL MISTAKES IN GBI SUBMISSION

▶ Boundary Demarcation
▶ Virtual Boundary - Applicable to building without podium
GENERAL MISTAKES IN GBI SUBMISSION

▶ Boundary Demarcation
▶ Virtual Boundary - Applicable to building without podium
  ▶ All criteria to be assessed separately, except
GENERAL MISTAKES IN GBI SUBMISSION

- Boundary Demarcation

- Virtual Boundary - Applicable to building without podium
  - All criteria to be assessed separately, except
    - Site Selection & Planning
    - Re-habitation of Brownfield Sites OR Re-development of Existing Building
    - Earthwork
    - Workers’ Site Amenities
    - Stormwater Design
    - Greenscape (including composting) and Water Bodies AND Hardscape
    - Public Transportation AND Community Connectivity
GENERAL MISTAKES IN GBI SUBMISSION

- Boundary Demarcation
- Virtual Boundary - Applicable to building with podium
GENERAL MISTAKES IN GBI SUBMISSION

▶ Boundary Demarcation
▶ Virtual Boundary - Applicable to building with podium
▶ All criteria to be assessed separately, except
  ▶ Site Selection & Planning
  ▶ Re-habitation of Brownfield Sites OR Re-development of Existing Building
  ▶ Earthwork
  ▶ Workers’ Site Amenities
  ▶ Stormwater Design
  ▶ Greenscape and Water Bodies AND Hardscape
  ▶ Public Transportation AND Community Connectivity (if share entry points)
  ▶ Dedicated Cycling Network
GENERAL MISTAKES IN GBI SUBMISSION

- Boundary Demarcation
- Virtual Boundary - Carpark
GENERAL MISTAKES IN GBI SUBMISSION

- Boundary Demarcation
- Virtual Boundary - Carpark
- Criteria to be assessed separately, if boundary if clearly define
GENERAL MISTAKES IN GBI SUBMISSION

- Contradiction Information
- Occupancy Load
  - Different occupancy load used in NRNC EE5 and WE1
GENERAL MISTAKES IN GBI SUBMISSION

- Contradiction Information
- Glass Specification
  - Glass specified different from MR2 and MR3
  - VLT percentage not used in Daylighting calculation
GENERAL MISTAKES IN GBI SUBMISSION

- Contradiction Information
- Other Materials Specification
  - Low VOC material specified different from MR2 and MR3
  - Non-Formaldehyde material specified different from MR2 and MR3
GENERAL MISTAKES IN GBI SUBMISSION

- Contradiction Information
- Area Calculation
  - Landscape area different from WE3
DA
DESIGN ASSESSMENT
MISTAKES IN EE (PASSIVE) SUBMISSION

▶ OTTV

▶ GENERAL
  ▶ Submission of Location Plan
  ▶ Site Plan indication of Orientation
  ▶ Complete GA Drawings, including Roof Plan
  ▶ Submission of Blow-up Sections illustrating SC2 calculation (R1 & R2)
  ▶ Submission of Perspective
MISTAKES IN EE (PASSIVE) SUBMISSION

▶ OTTV

▶ BUILDING DEMARCATION
  ▶ Include all external façades
  ▶ NEW - Use of local shading coefficient, Rv and Rh calculation for complex external façade and internal courtyard
MISTAKES IN EE (PASSIVE) SUBMISSION

- OTTV
- BUILDING DEMARCATION

Example of a U-shaped Building
MISTAKES IN EE (PASSIVE) SUBMISSION

- OTTV
- BUILDING DEMARCATION

\[ Rh = \frac{y}{x} \]

\( x \) = opening width of U-shaped building
\( y \) = distance from the unshaded surface due to horizontal depth
MISTAKES IN EE (PASSIVE) SUBMISSION

- OTTV
- BUILDING DEMARCATION

\[ R_v = \frac{z}{x} \]

\( x \) = opening width U-shaped building
\( z \) = distance from the unshaded surface due to vertical depth
MISTAKES IN EE (PASSIVE) SUBMISSION

OTTV

BUILDING DEMARCATION

- Horizontal Shading of U-shape Building,
  - $\text{Rh} < 1$, No local shading; shading coefficient = 1. To include all the internal façades in the OTTV calculation.
  - $\text{Rh} \geq 1$, Local shading peaked; shading coefficient range from 0.35 to 0.5 depending on orientation and facing. To assume all the affected internal façades as wall in the OTTV calculation.
MISTAKES IN EE (PASSIVE) SUBMISSION

- **OTTV**

- **BUILDING DEMARCATION**
  - Vertical Shading of U-shaped Building,
    - \( R_v < 3 \), No local shading; shading coefficient = 1.
      To include all the internal façades in the OTTV calculation.
    - \( R_v \geq 3 \), Local shading peaked; shading coefficient range from 0.35 to 0.5 depending on orientation and facing. To assume all the affected internal façades as wall in the OTTV calculation.
MISTAKES IN EE (PASSIVE) SUBMISSION

▶ OTTV

▶ MINIMUM REQUIREMENT AND AVERAGING
  ▶ NRNC and RNC EE1 - All buildings must meet MS1525 minimum requirement. Score base on highest OTTV value
  ▶ RNC EE2 - Averaging is permitted provided EE1 is score
MISTAKES IN EE (PASSIVE) SUBMISSION

- OTTV
- GLASS U-VALUE AND SC VALUE
  - Use NFRC U-Value & Solae Gain Coefficient (SHGC) Value
MISTAKES IN EE (PASSIVE) SUBMISSION

► ROOF U-VALUE

► MINIMUM REQUIREMENT AND AVERAGING
  ► NRNC and RNC EE1 - All roofs must meet MS1525 minimum requirement. Score base on highest U-Value
  ► RNC EE2 - Averaging is permitted provided EE1 scored
MISTAKES IN EE (PASSIVE) SUBMISSION

► ROOF U-VALUE

► R-VALUE OF RADIANT BARRIER INSULATION
  ► Discussion with Reflective Insulation Manufacturers of Malaysia (RIMM) on-going
  ► Apply a Reduction Coefficient to Air Gap R-value, due to:
    ► Angle of Roof
    ► Varies Attic (Air Gap below the reflective foil) dimension
    ► Imperfect installation (sagging) occur during construction
    ► Dusty condition at site, which affect the emissivity
MISTAKES IN EE (PASSIVE) SUBMISSION

▶ ROOF U-VALUE

▶ R-VALUE OF RADIANT BARRIER INSULATION
MISTAKES IN EE (PASSIVE) SUBMISSION

► ROOF U-VALUE
► PRIMARY ROOF

► Mechanical plant, equipment (including PV) and water tank, which exposed to the sky, the Roof U-value are calculated on the Primary Roof construction
MISTAKES IN EE (PASSIVE) SUBMISSION

- ROOF U-VALUE
- PRIMARY ROOF

Habitable or non-habitable space

Primary Roof

Roof U-value applies here

Habitable space, Res, Non-Res, AC, Non-AC

Section
MISTAKES IN EE (PASSIVE) SUBMISSION

- **ROOF U-VALUE**

- **SECONDARY ROOF - EXEMPTION**
  - Exempt from Roof U-value calculation if the following 2 conditions are met:-
    - Urban Heat Island (UHI)
    - Ventilation (ACH) and Height of Secondary Roof
MISTAKES IN EE (PASSIVE) SUBMISSION

▶ ROOF U-VALUE

▶ SECONDARY ROOF - URBAN HEAT ISLAND (UHI)
  ▶ UHI is about reflecting away Solar Radiation to achieve a cooler micro-climate
  ▶ Secondary Roof like horizontal pergolas or screens can be used to be part of the calculation to reduce UHI
MISTAKES IN EE (PASSIVE) SUBMISSION

- ROOF U-VALUE
- SECONDARY ROOF - EXEMPTION
MISTAKES IN EE (PASSIVE) SUBMISSION

► ROOF U-VALUE
► SECONDARY ROOF - EXEMPTION
MISTAKES IN EE (PASSIVE) SUBMISSION

- ROOF U-VALUE
- SECONDARY ROOF - VENTILATION AND HEIGHT OF SECONDARY ROOF
Secondary Roofs

Air space (m)

Air Changes per Hour (ACH)

Uninsulated Secondary Roof type

Concrete

Metal Deck
MISTAKES IN EE (PASSIVE) SUBMISSION

- **ROOF U-VALUE**
- **EXISTING BUILDING**
- For renovation works, where the original roof is not replaced, insulation below rc slab in the ceiling space is considered
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- RTTV

- Applies if the roof is provided with skylight, and the entire enclosure below is fully air-conditioned
CVA

COMPLETION & VERIFICATION ASSESSMENT
MISTAKES IN EE (PASSIVE) SUBMISSION

- EVIDENCE OF MATERIALS USED

  Submit either one of the following:
  - Purchase Order (PO) from the Main Contractor
  - Letter of Confirmation from Principle Supplier
  - Copy of PCP Material Approval Form
MISTAKES IN EE (PASSIVE) SUBMISSION

- **DATA COLLECTION - RNC3**
- GBIF to propose location of the Thermal Couples for GBI consideration
- Minimum 3 conservative days record
THANK YOU