3. DEFINITIONS

Thermal Opening Area: The area of the TDD/HTDD product at the interior-most plane of the building's thermal envelope.

4. GENERAL

4.1.2 Testing Alternative

If an individual product listed in Section 2.1 cannot be simulated in accordance with Section 4.3.1, the test procedure found in Section 4.3.2.1 shall be used to determine the U-factors of the individual fenestration product(s) for the size defined in Table 4-3.

Currently the following products cannot be simulated:

a) Non-planar products including but not limited to:
   1) Greenhouse/garden windows
   2) Tubular daylighting devices
   3) Hybrid tubular daylighting devices
   4) Domed skylights without frames or flashing

b) Complex glazed products other than the following:
   1) Vertical products with between-glass venetian blinds
   2) Products with outdoor woven shades
   3) Products with fritted glazing

The test specimen size shall be the size with the lowest deviation determined from Equation 4-2. If the test specimen cannot be fabricated at the Table 4-3 size, the tested U-factor shall be adjusted to the model size using the following, unless other provisions for specific products have been made in ANSI/NFRC 100:

$$U_{mod} = \frac{(U_{rep} A_{rep})}{A_{mod}} \qquad \text{Equation 4-1}$$

Where:

U_{mod} = U-factor at model size
U_{rep} = U-factor at representative size (test size)
A_{rep} = Area at representative size
A_{mod} = Area of model size

5.4.4.1.1 Insulation at Ceiling Configuration

The diffuser is attached to the insulated ceiling. The tubular section is located in the attic space connecting the interior diffuser to the exterior dome. The exterior dome/flashing assembly is mounted to the roof deck.

5.4.4.1.2 Insulation at Roof Configuration

The diffuser is attached to the tubular section which is located in the interior space. The tubular section is connected to the exterior dome. The exterior dome/flashing assembly is mounted to the insulated roof deck.

5.4.4.2 Sizes

The standard TDD and HTDD sizes listed in Table 4-3 areeais based on the Thermal Opening Area, as defined in Section 3. For the purpose of testing, this is the interior side of the 254mm (10 in.) foam panel. The TDD size is based on a standardized 350 mm +/- 30mm (14 in +/- 1 in) diameter tube opening. The hybrid tubular daylighting device (HTDD) sizelisted is based on a standardized 530 mm +/- 30 mm (21 in +/- 1.2 in) diameter upper tube opening, with a round-to-square transition to and a 600530 mm +/- 30mm (2441 in +/- 1.2 in) square lower opening. For products of non-circular shape, the product shall use an opening area equivalent to a standard size round product. be tested using a tube opening area of 0.096m^2 +/- 0.014 m^2 (154 in^2 +/- 23 in^2). The closest production size to the standard size shall be tested. In the event that the device is not manufactured in the standard model size, the production size with the closest area (as defined in 5.4.4.3) shall be used and the result for that unit shall be the product's rating. Equation 4-1 shall be used to determine the rating. for the model size. Equation 4-1 shall not be used to adjust the results to model size.

5.4.4.3 Tubular Daylighting Device Area

The U-factor for all TDDs shall beis based on the upper tube diameter Thermal Opening Area, as defined in Section 3. and the corresponding area associated with that diameter [0.1 m^2 (1 ft^2) for the standard TDD and 0.22 m^2 (2.4 ft^2) for the HTDD], and the diffuser area [0.1 m^2 (1 ft^2) for the standard

~~TDD and 0.28 m^2 (3 ft^2) for the HTDD]. These~~ This area~~s~~ shall be used when calculating the total product U-factor.