5.4.5. Glass Floors and Staircases

5.4.5.1. The use of glass in floors or staircases shall be limited to pedestrian foot traffic only. (see GGF data sheet 7.3: Guidelines for the use of glass in floors and stairs)

5.4.5.2. For the specification of the design floor loads for the specific use of the building the following standard shall be used.

a. EN 1991-1-1: 2002: Eurocode 1 –Actions on structures –General actions –densities, self-weight, imposed loads for buildings.

b. Glass required to be walkable shall be designed in accordance with CWCT TN66 using the following standard in relation to the danger of slippage and minimum coefficients of friction. Slip resistance shall not depend on the use of specialized footwear.

c. BS 5395-1: 2010 Stairs. Code of practice for the design of stairs with straight flights and winders.

5.4.5.3. The strength of the supports shall be calculated by a competent structural engineer, with the deflection of the frame limited to an appropriate value for the glass type.

5.4.5.4. Consideration shall be given to the complete design process. The following list comprises a number of topics that shall be considered alongside the regulatory requirements. The list is not exhaustive but relates to the common considerations:

a. Imposed loadings from design code
b. Surface finish
c. Strength of supporting glazing system
d. Impact by falling or thrown objects
e. Exposure to solar radiation and water
f. Post-fracture behavior
g. Deflection

5.4.5.5. A risk analysis shall be based on the following:

a. Frequency of use
b. Potential for exposure to water and slipping
c. Potential for glazing breakage from impacts
d. Consequences of glazing failure, i.e. Post-breakage behavior of the glazing material.

5.4.5.6. The ability of a broken pane to remain in situ is dependent upon the loads being applied, the glass type, the temperature, the number of fractured plies and the type of interlayer considered in the construction.