2.2 Appropriate locations for vertical greening systems in interior and exterior environments

2.2.1 Climatic conditions

Indoor locations we must be naturally well lit, or there must be the possibility of installing artificial lighting. Damp and draughty places should be avoided, as these will hinder the development of the plants and allow diseases to establish and spread, as should places near doors which have low temperatures in the winter and high temperatures in the summer. Indoor living walls need stable climatic conditions and good air circulation. When conditions are less than ideal, it will be necessary to choose more resilient and robust plants.

For external living walls, local climate characteristics are among the most critical factors affecting the choice of location. Air temperature, relative humidity, wind speed, solar radiation, cloud cover and monthly precipitation will all affect the viability of different types of living wall and the plant species selected. Climatic conditions define the plant hardiness zones (see Chapter 3.1) which classify the ability of plants to withstand the typical minimum temperatures in that zone. The amount of daylight and solar radiation will also affect plant choices and wall orientation. While all plants need daylight and some sunshine, too much direct solar radiation can be destructive for many plants. Another important consideration is average wind speed at the location, and the living wall's exposure to wind. Plants are generally susceptible to wind and can be permamnently damaged by wind stress, especially at height, where wind speeds tend to accelerate. A building's orientation with respect to the path of the sun and prevailing wind conditions may be the single largest factor in determining the location of a living wall on any given facade. A facade facing an alley plunged into darkness for most of the day would be a poor choice for a living wall. The facade with the greatest exposure to sunlight for the longest period of time (west and south in the northern hemisphere) will support the widest range of plants. However, external living walls in southern Europe should not receive constant sunshine during the day, while in northern Europe south-facing positions are preferable. Where possible, orientation should also be chosen that protects the living wall from strong winds.

2.2.2 Construction conditions

In both interior and exterior environments, the supporting wall must have a load-bearing capacity of at least 100 kg/m^2, otherwise the supporting structure will need to be reinforced. Living walls need easy access for maintenance purposes, as well as a water and power supply, and provision for

drainage runoff. For external living walls additional awareness is needed of snow, plant and wind load-bearing, and hydro and thermal insulation behind the living wall.

2.2.3 Visual Conditions

Scale is a critical factor when planning to install a living wall. Different living wall systems have the adaptability to be included on projects ranging from small vignettes to massive installations that include entire building elevations. Installing a living wall needs to take into consideration the context of the building in question and the character of the surrounding buildings.

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