

Green wall

Plant selection for green facades is strongly influenced by the mode or method of climbing plant attachment. Most climbing plants attach themselves to a surface or structure in one of two ways:

- self-clinging – attachment through adhesive suckers, disks or adventitious roots. These climbers then form a self-supporting vegetation layer on a solid wall or surface.
- twining and tendrils – attachment by twining stems or by hooking and clasping tendrils (modified leaf/stem organs). These climbers require a specialised support system and can produce both upward and cascading (or trailing) stems.



Self clinging plant attaches with adhesive suckers

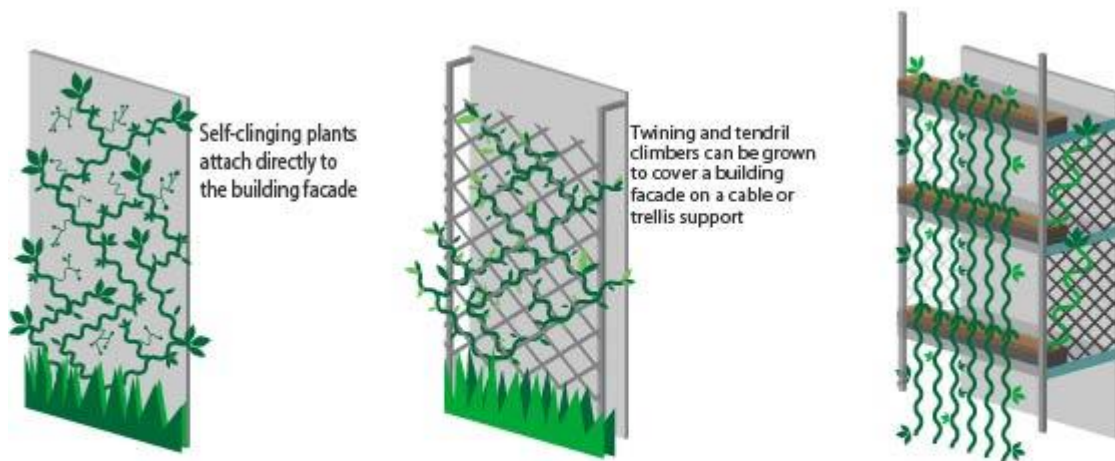


Some plants attach to structures via by twining stems or by hooking and clasping tendrils (Image Leanne Hanrahan)

Another group of climbing plants have a scrambling habit and are known as scandent shrubs. These have no direct means of attachment and need to be tied and managed onto the structure that supports them. They may be vigorous and woody in their growth habit, which can make them difficult to be sustained on a structure without significant pruning and maintenance.

Self-clinging climbers create green facades that can provide effective and long-term cover but may not be suited for buildings where the surface fabric is in poor repair. Many self-clinging climbers will mark a wall surface through their attachment, however this is rarely seen because of the foliage cover. Excessively vigorous species should be avoided and regular pruning will always be necessary to maintain suitable plant growth, form and size.

Twining climbers require a support system, such as cable or trellis, to support their growth habit. These supports may be attached to the building, or mounted independently. Plant selection needs to consider the available space for plant growth as the distance between the wall and the support structure will impact on plant performance and climate control.



Climatic factors

Species tolerant of low light are required for deeply shaded urban 'canyons' while high light tolerance is needed in exposed and elevated settings. Generally, full sun is considered to be four hours of sun per day and most species will require at least some direct sunlight to grow.

Facades can be established in areas of full shade, but the range of species that will grow in these conditions is limited. Facades at high elevation, in coastal areas or urban street canyons can be exposed to strong and frequent wind. Some plant species, twining climbers in particular, are more tolerant of wind and more mature plants tend to be more resilient in these environments. Self-clinging facades may be pulled away from the wall in very windy conditions. Small-leaved species with strongly attached foliage may be more suitable on sites prone to strong blasts of wind: large foliage may be stripped or shredded in these conditions.

Long-term maintenance

The plant's lifecycle and growth rate will affect the time it takes for the facade to establish and the amount of ongoing maintenance required. Consider the mature size of the species as well as the level of foliage coverage required. Many climbing species exhibit early rapid growth but slower mature growth rates. Some green facade plants, require rejuvenation pruning to ensure juvenile foliage is maintained. While this may provide effective shading and create an insulating layer of air between the foliage and the building, it is inherently unstable because this canopy is not directly attached to the building. Woody climbers need careful selection as maintenance needs often increase over time, as stems grow larger and thicker and the plant increases in size.

Climbing plant species ideal for screening will have multiple features including:

- retention of lower foliage
- high shoot density
- pendulous leading shoots
- tolerance of and recovery from severe pruning (rejuvenation)
- longevity
- reliable growth rate

These features contribute to the production of consistent and uniform vegetative cover.

In their natural habitat, many climbing plants grow upwards towards the light, by twining or scrambling, and over time, they lose foliage cover at their base.