

Green (Area) Factor GAF

Green Area Factor (GAF; also known as Green Space Factor and Biotope Area Factor) is an urban site sustainability metric and a tool to enhance green infrastructure on private properties. The tool has been used in Berlin since 1997 after which several cities have developed their own version.

Why: The Green Factor method can be used to address several urban challenges, such as the urban heat island effect, air pollution or increased stormwater run-off. A lack of tools to control and encourage the use of green infrastructure techniques in detailed planning renders this tool very relevant and worth considering.

How: The GAF expresses the ratio of the ecologically effective surface area to the total land area. Different GAF target and minimum values can be set to different land-use areas. During the site design process, the GAF value is usually calculated with the help of an Excel calculation sheet; this calculation requires knowing the areas covered with different green elements.

$$\text{Green factor} = \frac{\text{Total effective green area}}{\text{Total site area}}$$

The GAF target values can be set for larger areas or individual plots during the land-use planning process. In some cities, the fulfilment of the green factor target value has been used as a requirement to acquire a building permit.

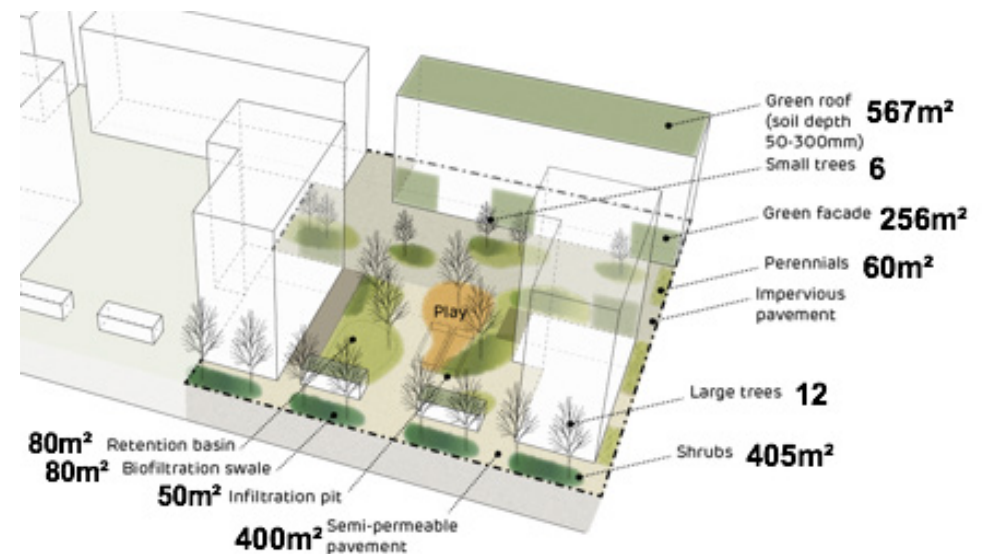
Good to know: The GAF is a very flexible tool. Although it sets a numeric target, it enables the target being met in several different ways through implementing different green elements. However, this flexibility might also limit the ability to require the utilisation of solutions that would best address site-specific concerns, for example, storm water solutions.

Challenges: The tool does not address public areas. The target values have to be carefully set, as targets set too low or high might undermine the environmental benefits and public acceptability of the instrument.

POINT 1
URBAN
RESILIENCE

POINT 2
TECHNICAL
OPTIMI-
ZATION

POINT 3
DAY-TO-DAY
VALUES



Detailed information is needed to calculate the GAF value (picture copyright M. Ariluoma).

More information:

Berlin's Biotope Area Factor (BAF) (Biotopflächenfaktor in German):
www.stadtentwicklung.berlin.de/umwelt/landschaftsplanung/bff/en/bff_berechnung.shtml

Gustafsson, M. Grönare städer med grönytefaktor. 2012.
<http://hallbarstad.se/urbio/gronare-stader-med-gronytefaktor/>

Developing a green factor tool for the city of Helsinki:
<http://ilmastotyokalut.fi/developing-a-green-factor-tool-for-city-of-helsinki/>

