PLATFORM LEVELS IN THE LANDSCAPE

What is "platform level"?

The platform level usually refers to the proposed final finished or ground level of a usually relatively flat paved area or earth bed for turf, planting and other landscaping.

Determining platform levels

Determining the platform levels of a development site is usually one of the first technical exercises following the allocation of sites for various different functional uses.

Often, the platform levels of key areas of interfaces with adjacent properties or existing facilities and amenities will be determined early as these represent areas with the least flexibility in terms of platform level changes. The new development must connect with adjacent spaces seamlessly.

Defining spaces with platform level changes

The spatial intent of the landscape design will set important parameters for the detailed design of platform levels. Changes of levels in the landscape are often perceived and experienced spatially. A depressed plane and an elevated plane both define a space but with very different spatial effect for the person in the space defined. While an elevated plane may give a sense of prospect over the surrounding spaces and the objects therein, a depressed plane gives a sense of intimacy, seclusion and protection. The height and depth of elevation and depression alter the senses of prospect and/or seclusion respectively. Some general guidelines on the effects of level changes on physical connectivity and on the visual field are given below:

Box-up Note 1:
Minimum Platform Level

The minimum platform level of a development site as specified by the Public Utilities Board is the required minimum ground level of that proposed development.

The minimum platform level shall not be lower than:-

i) 750 mm above the highest tide level in the vicinity. For this purpose, the highest tide level shall, unless otherwise specified, be taken as follows :-
   along the southern coast of Singapore Island from Tuas to Changi:
   RL 101.75m
   along the north-eastern coast of Singapore Island from Changi to Causeway:
   RL 102.05m
   along the north-western coast of Singapore Island from Tuas to Causeway:
   RL 102.35m
ii) the adjacent road/ground level

Knee level – approximately 420mm

This is a height which is suitable for sitting. Changes in elevation up to this height affect spatial flow marginally and connectivity between spaces separated by a height of 420mm or less involves steps of less than three steps or a ramp of less than 5m. Visual field is usually not very affected by level change of less than 420mm.

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Waist level – approximately 700mm to 900mm

The height of a table is usually 700mm whereas that of a railing is usually 900mm. Changes in elevation above 420mm affect spatial flow significantly and connectivity between spaces separated by a height above 420mm involves a minimum of three steps or a ramp of over 5m. At about waist height, the number of steps or ramp required will double, i.e. 5 to 7 steps and 10m to 12m of ramps. Visual field is also affected by level change of 700mm to 900mm.

Underarm level – approximately 1200mm

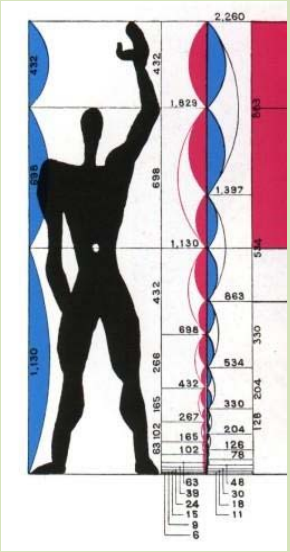
This is the height where a person of average height can comfortably rests his whole arms and hands on. Physical connectivity is severely affected, and 10 steps or 15m of ramps will be required to bridge the level differences. Visual field is severely affected by level change of between 900mm to 1200mm. Full visual connectivity is usually only possible at the edge of the level change. The further a person is from this edge of level change, the higher is the visual obstruction experienced. However, on the elevated levels, visual connectivity to the distance might be enhanced.

Eye level – approximately 1600mm

12 or more steps and 20m of ramps are required to bridge level changes of 1600mm. Beyond this height, the visual field is totally blocked for a person in a depressed plane.

Box-up Note 2:

Le Corbusier's Spatial Standards
(An example of spatial standards based on the proportion and dimension of the human body.)



Psychologically, the spatial barrier is also most pronounced at level changes above eye level. A person in a depressed plane of this depth might begin to feel uncomfortable, especially if the area of such a depressed plane is small.

For a person on an elevated plane, the visual field is more restricted the further the person is away from the edge of level change. However, visual connectivity to the distance might be enhanced and the sense of enhanced prospect could improve the psychological sense of space.

The diagrams that follows illustrates the various effects of level changes on the visual field.

While the above levels serve minimally as a general guide for the spatial effects of different level changes, visual field studies as well as staircase and ramp studies should be done for a better understanding of the proposed spatial effects of platform level designs.

Box-up Note 3:

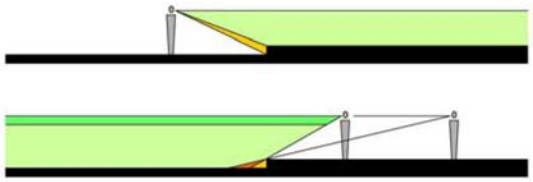
Slopes versus retaining walls

Very often, changes in levels between flat areas within a site occur over a tilted plane such as over a turfed or planted slope. In a more built-up environment and under space constraints, vertical retaining walls and other built structures may separate the areas of different platform levels.

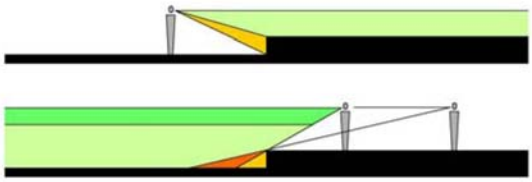
DIAGRAMS ILLUSTRATING VISUAL FIELD EFFECTS OF PLATFORM LEVEL CHANGES

Visual field
Increased visual field
Impeded visual field
Impeded visual field further from edge

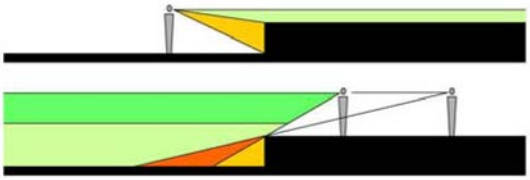
Knee level – approximately 420mm



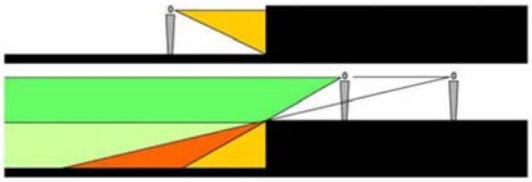
Waist level – approximately 700mm



Underarm level – approximately 1200mm



Eye level – approximately 1600mm



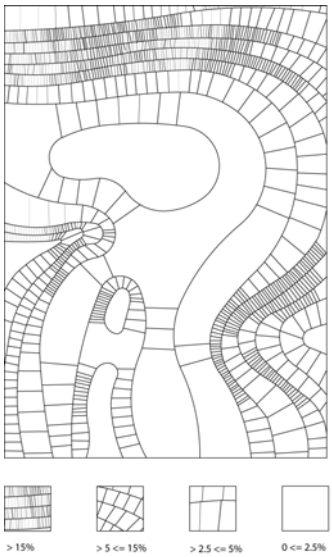
(The vertical level change is for schematic illustration purposes only. In a landscape situation, the platform levels may change over a slope)

Connecting different platform levels

Physical connectivity between areas of different platform levels can be achieved via steps or ramps. Whilst ramps are more universally accessible to people of different physical abilities, the distance that would need to be traversed increase quite substantially with the use of ramps to bridge platform level differences. As such, fairly able users might find it cumbersome to walk along extended lengths of ramps. A well-designed flight of steps could serve as a good alternative in such instances and prevent the creation of “short-cuts” across slopes.

Hence, the design of steps and ramps should be integrated to achieve the best results.

To this end, a slope analysis that enables a study of the different steepness of a slope within the site will be useful for the identification of possible locations for steps and ramps. A slope analysis also allows the identification of flatter areas in the site for functional spaces.



A Slope Analysis Diagram

Case studies

The ACM Green in front of the ACM (Asian Civilisations Museum) showcases the use of different platform levels to create spaces of different character and identity.

Terraces of various platform levels were designed to fit in with the site condition as well as to achieve intended spatial effects.

A combination of ramps and steps provide alternative modes of connecting between the various terraces.

The picture on the right shows the use of subtle differences in the platform levels to create amphitheatre style terraces oriented towards the river.

The picture below shows the use of knee level platform level differences to create an edge condition between the spaces that allow users to sit and people-watch as passer-bys make use of the main path that links the Asian Civilisations Museum across the Cavenagh bridge to Raffles Place.

Ramps and steps connecting the various terraces of Asian Civilisations Museum.

At the river edge, underarm platform level differences create a more intimate zone oriented towards the river, with knee height planters creating smaller spaces conducive for sitting and gathering.

The picture below of the Tanglin Core of the Singapore Botanic Gardens show the use of above eye-level platform level differences to create very intimate space for the outdoor refreshment area or al-fresco dining area of the food court.