FASET Bulletin SN23 (Revision 4)
Clearance Distances Beneath Safety Nets

Safety nets are designed to deform or stretch when someone falls into them. It is therefore imperative that there is sufficient clearance below the safety net for the net to deflect into when under dynamic loading. This ensures that the faller cannot strike objects or the ground beneath the net as it deflects.

The Work at Height Regs 2005 states in Schedule 4.c "in the case of a safeguard which distorts in arresting a fall, afford sufficient clearance distance". This means that in the case of a safety net system there must be sufficient clearance distance beneath the net.

The clearance distance required will depend on the free fall height and the span of the net (Figure 3). The graph shown in (Figure 1) shows the deflection of the safety net when the net sag is set at 10% as per the requirements of BS EN 1263-2: 2014 *Temporary works equipment. Safety nets – Safety requirements for the positioning limits*. Working in compliance with BS 8411: 2019 *Safety nets on construction sites and other works – Code of practice* the Safety Net System must be installed as close as possible to the working surface and never greater than 2m. Clearance distance is always measured from the anchor point along the nets longest side as sag is set across the span of the net which is its shortest side (see Figure 2).

Figure 1. Deflection distance chart.

It is important to remember that the clearance distance relates to objects or the ground below that may be struck by the faller prior to the net arresting the fall, and the clearance distance should always be maintained where reasonably practicable. In some circumstances, immovable objects such as structural steelwork, like wind braces and/or structural elements may be present. Refurbishment projects require special attention, in that there are often immovable objects such as storage racking that cannot be moved and will pose a serious risk to those working above. A suitable and sufficient risk assessment should be completed to minimise this risk.
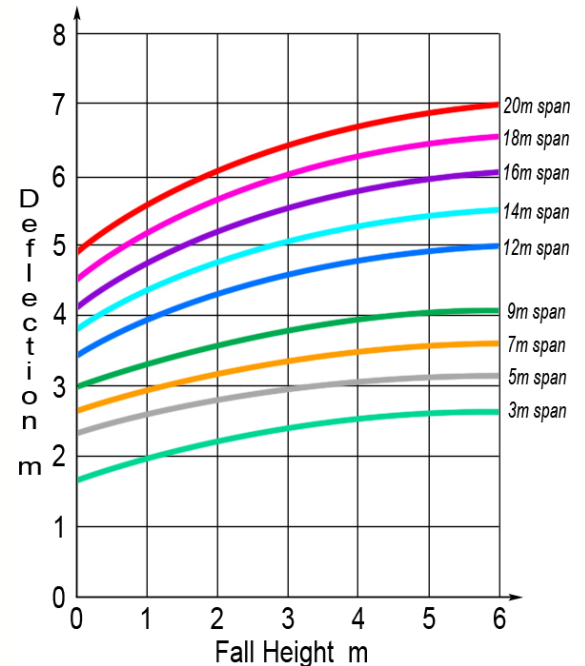
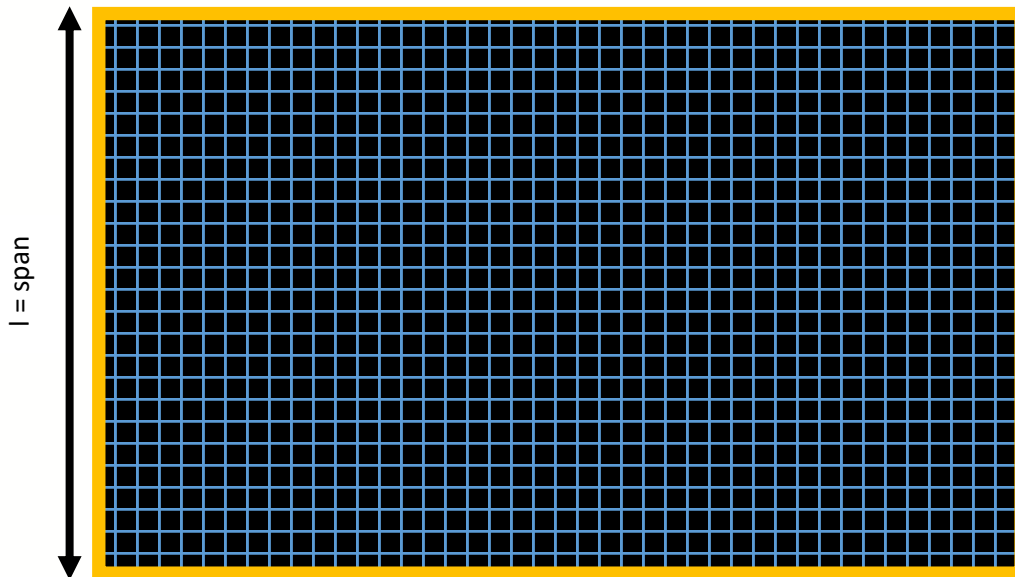FASET
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Figure 2. Diagram showing the shortest side of the net, referred to as the span. Clearance distance is measured from the anchor points along the longest side.
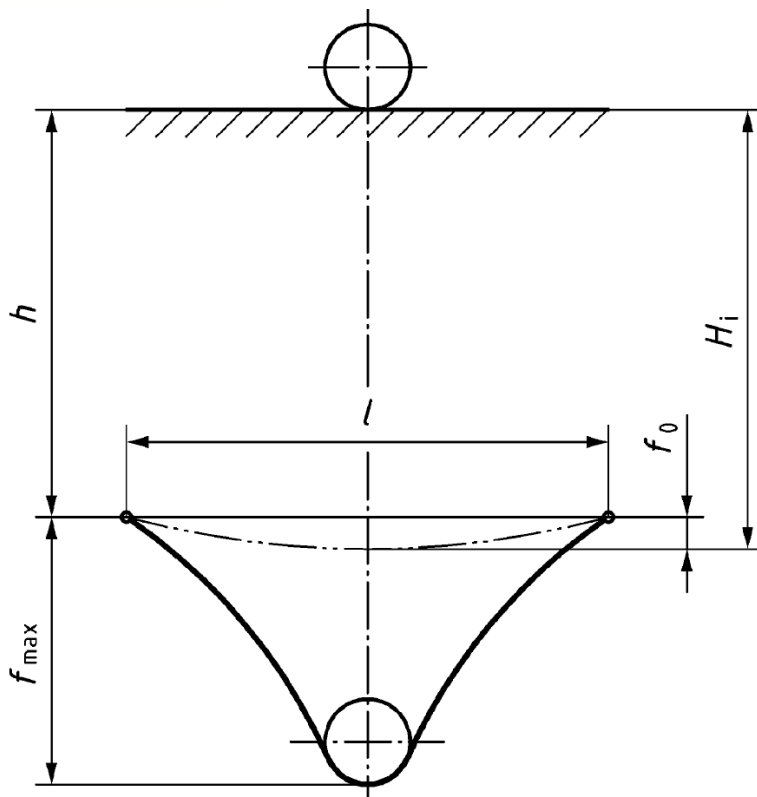
l = span

h

H_i

l

f_0

f_{max}

Figure 3. Dimensions involved in calculating the deformation of a safety net and therefore the required clearance distance.

l = Span of the net (smallest side)

h = Vertical distance between the anchor point of the net and the working level above (structure depth)

H_i = Vertical distance between the safety net and the working level above

f_0 = The sag in the net

f_{max} = Deflection caused by dynamic loading

To use the graph in figure 1 you need to know the Span (l) and the fall height including the structure depth (h) plus the sag in the net (f_0). The calculation is as follows: (h) + (f_0) = (h_i) Falling Height. (l) is the span of the net.

Worked Example

To identify the span of the net (*I*):

Although the net size is 16m x 10m, the bay size if 15m x 9m making the **span 9m**

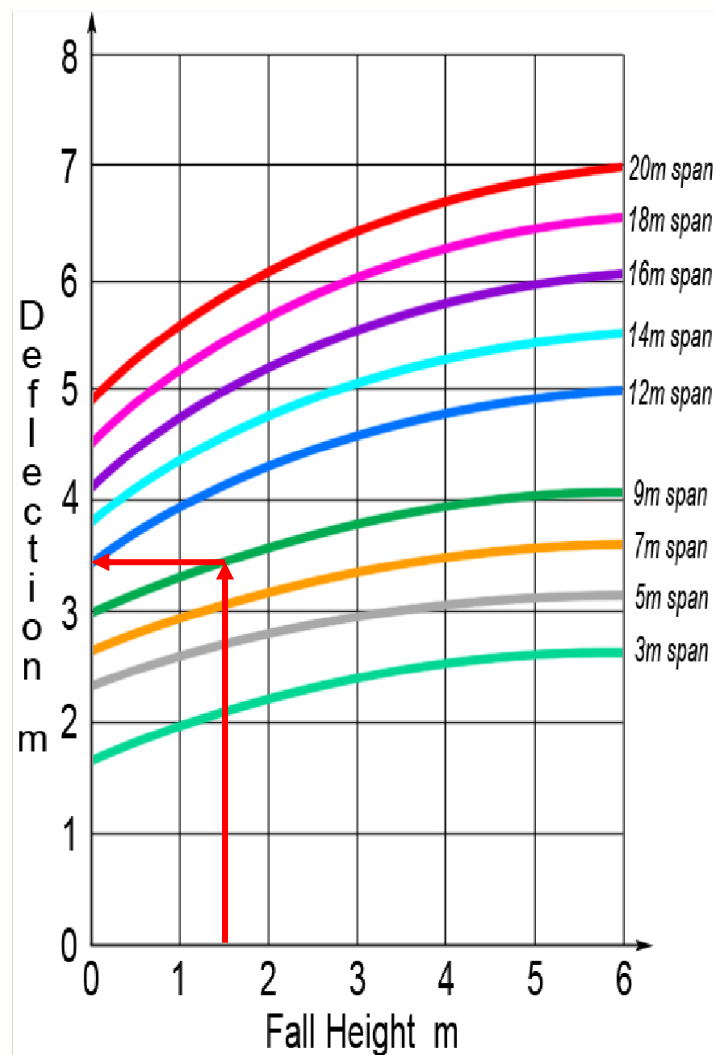To calculate the fall height (*Hᵢ*) in meters: $H_i = h + f_0$

Where: Sag of net (*f₀*) = 10% of the span = 0.9m

Where: Structure depth (*h*) = 0.6m

$H_i = 0.9 + 0.6$ therefore *Hᵢ* = **1.5m**

Using the clearance distance chart from Figure 2, we can calculate the clearance distance required is 3.5m.

References:

The Work at Height Regulations 2005, SI 2005/735.

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