

# STA advice notes

## Recommended construction tolerances for timber structures



No. 4 - January 2014

## Part 1 - Foundation tolerances

### Introduction

Timber framed buildings are prefabricated to a high level of quality within controlled factory conditions and delivered to site for assembly into a structure which can achieve excellent levels of accuracy.

STA membership requires that all manufacturers operate a minimum standard of quality control which ensures the continuation of high standard within the industry. This advice note is for timber structure providers, foundation contractors and site quality control persons.

### Scope of this advice note

This document explains the tolerances required for any foundation structures that support the timber frame structure. Examples are masonry foundation walls, concrete slabs and steel support beams. This guidance does not address steel column support foundations details.

This advice note is based on good practice and current standards. The project design team may require different tolerances. The structural timber engineers specification for support conditions will override the advice given in this guidance. For podium structures and beam structural support systems, the specific advice note on design of podium structures should be followed.

This is Part 1 of the recommended tolerances for structural timber construction. Other parts in this series are:

Part 1	Foundation tolerances (this document)
Part 2	Sole plate tolerances
Part 3	Timber frame wall panel erection tolerances
Part 4	Roof tolerances
Part 5	Floor tolerances



# Recommended foundation tolerances

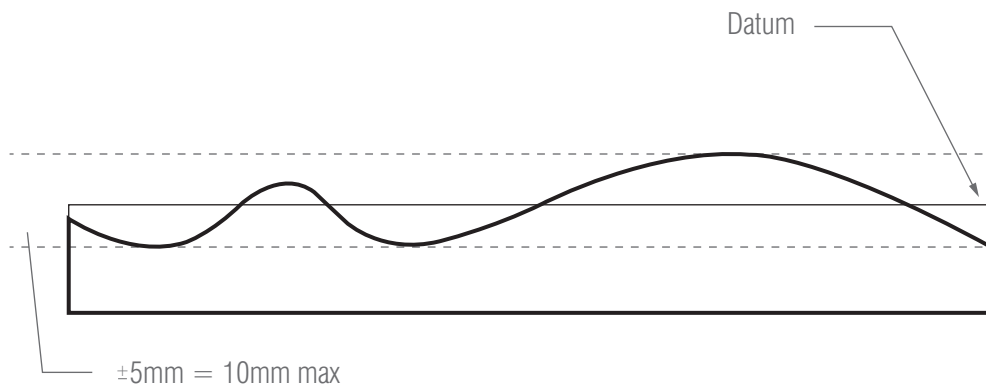
Concrete slabs, steel support frames and foundation walls should be set out accurately by the main contractor, using a laser level and steel tape or equivalent.

Acceptable tolerances of foundations required to support structural timber such as sole plates, panels and columns are as follows:

## Foundation support level (flatness)

Variability in surface level can be expressed in two ways according to BS5606: either variation from a target plane or 'flatness' of the surface.

Variation from a target plane will not affect sole plate setting out but may affect the overall building height and masonry cladding coursing levels. See Part 3 for overall building height tolerances.



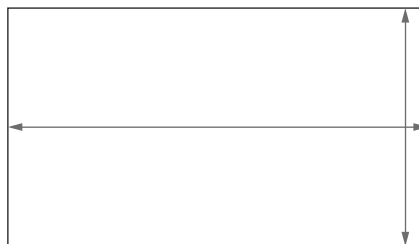
Flatness of the surface by which a structure is supported, for example a sole plate on a transfer slab, should be controlled such that the variation is not greater than:

$\pm 5\text{mm}$  in level of foundation when measured over a 3m straight edge.

Over the whole slab, the level should not vary by more than 10mm.

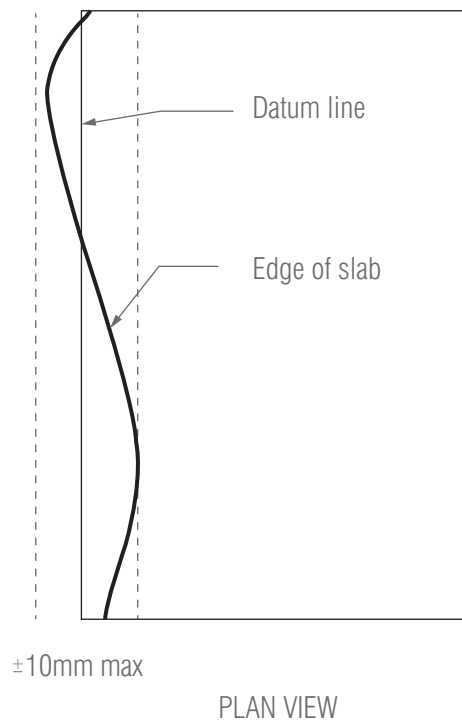
## Foundation support line and length

$\pm 10\text{mm}$  in length or width of foundation



## Foundation support edges

The edge must be within  $\pm 10\text{mm}$  of the intended line in length or width of foundation



## Foundation support squareness

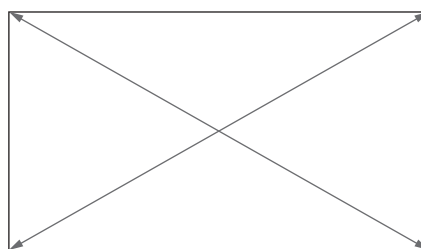
$\pm 15\text{mm}$  in any diagonal for buildings with a foot print in excess of  $1500\text{m}^2$

$\pm 10\text{mm}$  in any diagonal within a right angle for buildings up to  $1500\text{m}^2$  footprint

Buildings of plan area less than  $600\text{m}^2$  footprint:

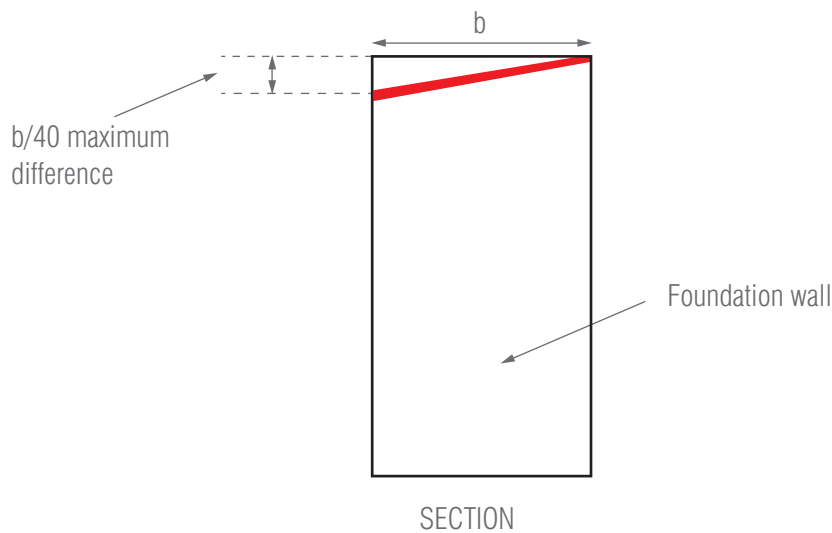
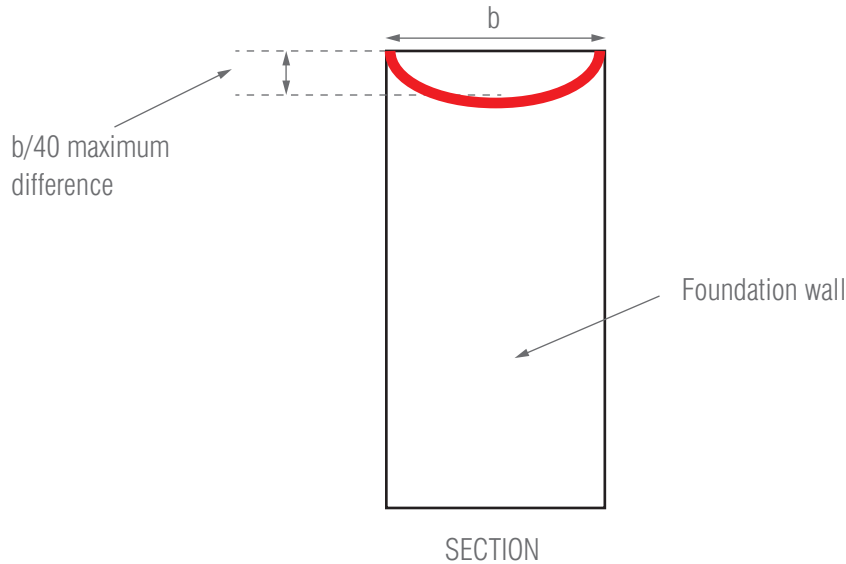
up to 10m:  $\pm 5\text{mm}$

more than 10m:  $\pm 10\text{mm}$



## 'Flatness' of the top of support walls

Where a sole plate can be installed and packed to be level and true



**Note:** Steel work support frames are to be level and flat to the structural timber designer's specification. Packing on steel work relies on solid packs making leveling of the superstructure more difficult if the support steels are not flat. Concrete and masonry support walls can be leveled by suitable mortar bedding. Depth of bedding to be to the project engineers specification. See Part 2 of this guidance