Steel Beams, Metal decking and Slab deflections

Typical Steel frame with Primary and Secondary beams.

The extent of concrete slab deflection is dependant upon 3 factors:-
- Slab deflections
- Secondary beam deflection
- Primary beam deflection

The total amount of deflection can be a combination of all of these factors and can result in a total deflection relative to datum in excess of 40mm

1. Slab Deflection (Fig.1)
Depending on the total deck span between supports, slab thickness and any ponding of concrete the slab will deflect relative to the supporting beams. The extent of this deflection will be calculated using a combination of the factors listed above. Please refer to the SMD Technical Department for more information.

2. Primary and Secondary Beam Deflection (Fig.2+3)
Depending on the beam design, the secondary beam will deflect under the imposed load of the slab. Please consult beam designer / engineer for expected deflection.

Summary
Slab deflections are measured relative to the supporting structure. The amount of slab deflection should be measured from the underside of the slab at the midpoint and referenced relative to the supporting beams either side.
Delfections can be seen more clearly when standing water is on the top of the cured slab.

Fig.4

Fig.5