



## Case Study

### Project

The Leadenhall Building,  
City of London EC3

### Main Contractor

Laing O'Rourke

### Precaster

Explore Manufacturing

### Architect

Richard Rogers

### Engineer

Arup

### Product(s) supplied

TSS 41



### About Invisible Connections

Invisible Connections is the registered trademark of SB Produksjon AS, Norwegian developer and manufacturer of the telescopic connectors range for nearly 30 years. In this time, hundreds of thousands of connectors have been used in construction projects around the world.

From a buildability perspective, our ETA approved products appeal typically to precast concrete manufacturers and in situ concrete frame contractors who appreciate the fuss free ease with which precast or in situ elements can be connected. Our products also provide design freedom for architects, who appreciate the aesthetic benefits of 'clean lines' wherever concrete elements are joined.

### Invisible Connections Ltd

Unit 6, Thame Forty  
Jane Morbey Road  
Thame, Oxfordshire OX9 3RR  
+44 (0)1844 266000  
sales@invisibleconnections.co.uk  
[invisibleconnections.co.uk](http://invisibleconnections.co.uk)



### Project description

The iconic Leadenhall Building in London gains its structural robustness from the steel lattice frame, which is visible from the outside. Therefore, unlike most tall structures, the internal concrete walls do not need to act as the stiff core. Nevertheless, they are still required to form staircases and lift shafts. To reduce weight on the foundations, the walls were made in precast concrete using lightweight aggregates.

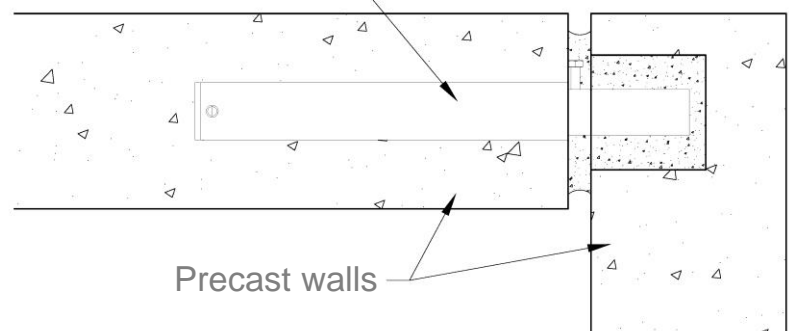
### Our role

We were asked by the Precaster and Engineer to provide a means of supporting large wall panels from adjacent wall panels, rather than imposing loads onto certain steel beams. Although made from lightweight concrete, the loads were significant, as some panels were over 7m tall. Our solution was to use TSS 41 telescopic connectors, on edge, in the ends of the panels. These located into recesses in the supporting walls, thus transferring the loads.

### Application

TSS 41 connector  
positioned edgeways

Plan on wall support



### Outcome

The use of TSS telescopic connectors meant that wall loads were kept off of the beams where specified.

In common with our entire telescopic connectors range, the wall connections, once grouted, became 'invisible' and fully fireproofed, thereby satisfying all practical and aesthetic requirements.

### Footnote

At the time of this project, Invisible Connections' products were supplied via J&P Building Systems Ltd. In 2014, Invisible Connections Ltd was formed to create specific focus on the telescopic connectors range.