

# Detailed Design Assessment for Fume Cupboards

## Case study

**EASL were selected to provide stress and structural analysis expertise to fill identified knowledge gaps within our client's team. With historic expertise in assessments for a wide variety of high safety duty structures, EASL were an ideal candidate to provide the client with a detailed design assessment for their fume cupboards, augmenting their existing in-house capabilities.**

## The solution

The fume cupboards were designed to be constructed in "flat pack" style on site so they can be delivered through an 800mm wide x 2000mm high doorway and assembled within a laboratory floor space of 1500mm x 2200mm. The fume cupboard design was assessed against the requirements of the structural steelwork code BS 5950.

The assessment used classic strength of materials force, bending moment and stress calculations.

Conditions assessed included not just the normal operation in its final position but also a variety of conditions relating to overturning whilst being moved due to braked castors and instability due to incorrect levelling or uneven floor whilst moving and stationary.

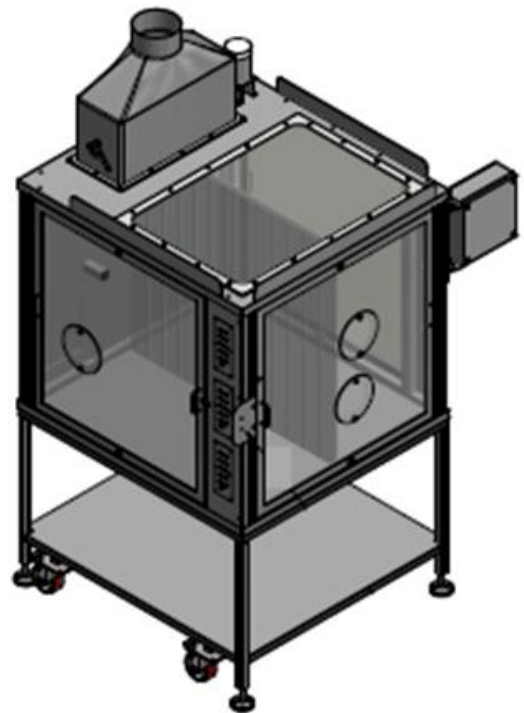


Figure 1 Fume cupboard design

## The outcome

EASL were able to successfully show that, given the assembly restrictions above, the proposed design would be acceptable under the requirements of the structural steelwork code BS 5950, applying conventional dead and imposed (live) load factors. This code was suggested by EASL given our expertise, and its ability to present accurate and realistic assessment of load factors and allowable stresses.

## Value delivered

**This comprehensive assessment provided our client with assurance of their designs, allowing a successful delivery of service to their client.**

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