Good Practice Guide for
Supports and Fixings

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Chair BESA Technical Committee
How has the industry historically operated....

- We use channel and threaded rod
- We fix to steelwork and purlins
- We mix and match products
- Site teams left to come up with the solution
What does this mean?

- We don’t know what the applied load is
- We don’t fully understand the application
- We rarely seek approval from the structural engineer
- We cannot prove that the selected supports and fixings systems are fit for purpose

......But why is any of that a problem?
The need for change

Getting supports and fixings wrong can be catastrophic.....
The need for change

Getting supports and fixings wrong can be catastrophic.....
The need for change

Cost & Reputation  BS 8539:2012  Due Diligence
Common problems
Design

Suspended services
Design

Roof plant
Specification

Loading

Base material fixing suitability

Environment
Specification

Fire Rating
Specification

Fire Rating

Power supplies to life safety systems
Specification

Fire Rating

Power supplies to life safety systems

Supports either side of a penetration seal
Specification

Fire Rating

Power supplies to life safety systems

Supports either side of penetration seals

Designated fire escape routes
Specification

Support Spacing

<table>
<thead>
<tr>
<th>Pipe size</th>
<th>Maximum support interval</th>
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<tbody>
<tr>
<td></td>
<td>Horizontal</td>
</tr>
<tr>
<td>mm</td>
<td>m</td>
</tr>
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</tr>
<tr>
<td>20</td>
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<td>9.5</td>
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<tr>
<td>250</td>
<td>10.5</td>
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</tbody>
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Thermal expansion

Approvals

Europ. Techn. Bewertung
European Technical Assessment
Structural Engineer Sign-off

The following information should be contained in the technical submission:

- Point loads
- Fixings into concrete
- Fixings into bison beams and hollow core slabs
- Fixings to purlins and steel beams
- Fixings to decking and composite metal floor systems
Installation - competence

Installer training completed at start of project

Concrete anchors installed by trained individuals working under supervision of CFA certified supervisors (or similar)
Installation – torque settings

Many of the supports and fixings systems used in building services are required to be torqued to a correct setting as specified by the manufacturer.
There are only 2 types of fixing test used and these are:

1. PROOF TEST
2. PRELIMINARY TEST

- The terms ‘pull test’ should no longer be used as it is too vague and is generally misunderstood.
A PROOF TEST is used to validate the quality of the installation.

They are not necessary if:

- ETA fixings are used
- Fixings into concrete are specified based on the application
- Fixings are installed by trained operatives working under supervision
A PRELIMINARY TEST is used to determine the allowable resistance.

It is only required for:

• Refurbishments

• Where the concrete / substrate performance is unknown

• Where the performance of the fixing in the substrate is unknown.
A few examples of good and bad practice

Fixings to purlins
A few examples of good and bad practice

Window brackets
A few examples of good and bad practice

Overloading of fixings
Recap / summary

**ESTABLISH WEIGHT**
Of suspended & roof mounted MEP services

**COLLABORATE**
With structural engineer & builder and obtain approvals

**SELECT PRODUCTS**
Based on weight, application & environment

**PROVIDE DETAILS**
Show bracket details on drawings

**TRAIN OPERATIVES**
On best practice installation techniques

**INSTALL**
Using correct tools and follow manufacturers instructions (torque)

**TEST FIXING**
Proof or Preliminary testing (BS 8539)

**IN CONCLUSION**
Supports & Fixings are not commodity items. They need to be designed and engineered from the outset and not left to those carrying out the install to come up with solutions.
Where to find it?

www.thebesa.com/knowledge
Questions

Q&A