GUIDELINES FOR APPROVAL OF DESIGN SCAFFOLDING 2016

Jabatan Keselamatan dan Kesihatan Pekerjaan Malaysia
Department of Occupational Safety and Health Malaysia
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<td>Appendix 6</td>
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<td>Appendix 7</td>
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</table>
1.0 INTRODUCTION

The purpose of this guideline is to provide a comprehensive approach on scaffolding design approval for three (3) meter and above in height and assist those with responsibilities under the Factories and Machinery Act 1967 (Act 139). It is intended to Factories and Machinery (Building Operations and Works of Engineering Construction) (Safety) Regulations 1986) (BOWEC 1986) - [P.U. (A) 328/86].

Based on the provisions under the BOWEC 1986, there are eleven (11) types of installation or erection of scaffold -

(i) Independent scaffold;
(ii) Ladder jack scaffold;
(iii) Outrigger scaffold;
(iv) Plasterers inside scaffold;
(v) Single line scaffold;
(vi) Suspended scaffold or slung scaffold;
(vii) Swinging scaffold;
(viii) Trestles scaffold;
(ix) Window jack scaffold;
(x) Mobile scaffold or scaffold on wheels or skids; and
(xi) Cantilever, jib, figure or bracket scaffolds.

Sample of types of installation or erection of scaffold -

Figure 1: Independent scaffold
Figure 2: Putlog scaffold

Figure 3: Bird cage tower scaffold
Figure 4: Basic part of modular scaffold

Figure 5: Sample basic assembly of scaffolding
2.0 PURPOSE

This guideline has been prepared to provide practical guidance for the compliance with the requirements set out in regulation 75 of the BOWEC 1986 regarding the approval of scaffold design and drawing. In this guideline, approval of scaffolding refers to erection of and subsequent use of scaffolding for work carried out three (3) metres and above. It has been prepared for the scaffolding industry in particular and the construction industry in general. This guideline is intended to the BOWEC 1986 -

- Provide requirements on provision 75(1) under the BOWEC 1986.
- Be used to establish a framework on scaffolding design approval.
- Provide requirements regarding duration of scaffold installed at the construction site or building construction work.
- Give homogeneous information on scaffold design and diversification of the use of scaffold.

Citation from provision 75(1) of the BOWEC 1986:

75(1) Every metal tube scaffold exceeding 40 metres in height and every other scaffold exceeding 15 metres in height shall be constructed in accordance with the design and drawings of a Professional Engineer.

(i) Metal tube scaffold exceeding 40 metres in height -
   - Non-prefabricated metal tube scaffold (tube and coupler scaffold): steel tubing complying with BS 1139.

(ii) Other scaffold exceeding 15 metres in height -
   - Prefabricated metal tube scaffold: modular/system scaffold, frame scaffold.
   - Non-prefabricated metal tube scaffold (tube and coupler scaffold): (aluminium tubing complying with BS 1139).
   - Non-prefabricated metal tube scaffold (tube and coupler scaffold): any metal complying with other standards (other than BS 1139).
   - Non-metal tube scaffold.

All other metal tube scaffolds shall have their designs and drawings approved by the Chief Inspector.

(i) Metal tube scaffold equivalent to or less than 40 metres in height -
   - Non-prefabricated metal tube scaffold (tube and coupler scaffold): steel tubing complying with BS 1139.

The scaffold members of steel tubing shall be complying with BS 1139 / EN 74 “Metal Scaffolding”.
3.0 SCOPE

These guidelines apply to building operations and works of engineering construction in Malaysia covered by Factories and Machinery Act 1967.

These guidelines are primarily aimed at the building operation and work of an engineering construction, in relation to the design of scaffolding.

These guidelines should be used by Inspector who has a duty to ensure the safe working of scaffolding including employers, employees, self-employed persons, architects, engineers, designers, erector, scaffolding inspector, scaffolding erector, manufacturers, suppliers and safety and health officer (SHO).

This part covers standing scaffolds which are supported wholly or partly from their base. The scaffolds may be either free-standing or held sideways by ties, rakers or other means. The scaffold is use as working platform access and egress.

Regarding the loads on working platforms, all decking units of working platforms should have adequate strength to meet the recommendations for the appropriate duty of that specified in the following table (BS 1139:Part 5:1990, Table 1. Service loads for working platform, BS 1139: Part 5: 1990) as in Appendix 1.

4.0 TERM AND DEFINITIONS

“designated person” means a person who holds any of the classes certificates of competency listed in the Appendix 2.

5.0 APPLICATION FOR APPROVAL OF SCAFFOLD DESIGN AND DRAWING

According to provision 4 and sub-provision 75(1) under the BOWEC 1986, any person who undertakes any scaffold operation or works shall obtain approval from the Chief Inspector.

5.1 Metal tube scaffold

- Metal tube scaffold equivalent to or less than forty (40) metres in height.
- Non-prefabricated metal tube scaffold (tube and coupler scaffold): steel tubing complying with BS 1139.

(i) Application must be made in writing to the state DOSH office fortnight (14 days) prior to the construction of the scaffolds.
(ii) The applicant shall furnish the following –

(a) Letter of undertaking from person who will undertake the scaffold work.
(b) Design calculation and drawing of the scaffolds.
(c) Specification of material.
(d) Method of statement, not limited to erection, dismantling, maintenance, inspection for the safe use of scaffolds.
(e) List of competent person involve with the scaffold work.

(iii) The Director of DOSH state office may issue approval letter when he find the application is complete and satisfactory.

6.0 RELATED INFORMATION

6.1 Application letter

Application letter shall be submitted together with the details and purpose of the scaffold to be installed.

6.2 Checklist

Applicant is required to comply with item listed in checklist as Appendix 3.

6.3 Calculation and drawing

All the calculating and drawing for metal tube scaffold prepared by the designated person.

6.3.1 Drawing

The scaffold drawing shall include site layout plan and detail the elevations and sections the scaffold. It is to be made available for inspection at the construction site. The scaffold drawing is required to address the following issues, but not limited to these:

(i) Dimension include transom and ledger in Standard International (SI) unit;
(ii) Foundation;
(iii) Ties - Type and location (Mark on the drawing);
(iv) Bracing;
(v) Raker / Outrigger;
(vi) Access & Egress;
(vii) Working platform;
(viii) Edge protection.
6.3.2 Calculation

(i) Calculation in detail which consists, but not limited to these:

(a) List of components;
(b) New scaffold refer to manufacturer specification;
(c) Load reduction for used scaffold at least 25% from manufacturer specification including performance test by certification bodies;
(d) Type of duty;
   *(Note: Refer Appendix 2)*
(e) Total of dead load;
(f) Total of live load;
(g) Total of imposed load;
(h) Safety factor;
(i) Safe working load;
(j) References Standard.

7.0 GENERAL REQUIREMENT

The requirements of these guidelines should be in addition to, and not in derogation of, the provisions of any other written law relating to occupational safety and health. The flow chart of the process for approval of scaffold design and drawing specify under Appendix 4.

8.0 DURATION OF PERIOD

The Department is required to give feedback in written within fortnight (14) working days, after receive application from the contractor.

9.0 SCAFFOLD ALTERATION

The contractor has to resubmit the calculation, drawing and method of statement for the construction of scaffolds to state DOSH branch before making any alterations.
REFERENCES

2. Factories and Machinery Act 1967
3. Occupational Safety and Health Act 1994
4. MS 1462-2-1:2010 - Metal Scaffolding – Part 2: Tubular (Tube and coupler) Scaffold – Section 1: Specification for steel tubes
5. MS 1462-2-2:2010 – Metal Scaffolding - Part 2: Tubular (Tube and coupler) Scaffold Section 2: Specification for aluminum tubes
7. MS 1462-3-1: 2011- Metal Scaffolding – Part 3: Prefabricated scaffolds – Section 1: Specification for steel and aluminium modular system scaffolding
8. MS 1462-3-2: 2011- Metal Scaffolding – Part 3: Prefabricated scaffoldings – Section 2: Particular methods of structural design for steel and aluminium modular system scaffoldings
9. MS 1462-4-2:2013 - Metal Scaffolding – Part 4: Temporary works equipment- Section 2: Information on materials
10. BS 1139 Tube scaffolds
APPENDIX
## TABLE 1: SERVICE LOADS FOR WORKING PLATFORM, BS 1139: PART 5:1990

### MINIMUM IMPOSED LOADS

<table>
<thead>
<tr>
<th>Duty</th>
<th>Use of platform</th>
<th>Distributed load on platform</th>
<th>Concentrated load to be applied on plan over any square with a 300mm side and at the end portion of a cantilever</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inspection and very light duty</strong></td>
<td>Inspection, painting, stone cleaning, light cleaning and access</td>
<td>0.75 kN/m²</td>
<td>2 kN</td>
</tr>
<tr>
<td><strong>Light duty</strong></td>
<td>Plastering, painting, stone cleaning, glazing and pointing</td>
<td>1.5 kN/m²</td>
<td>2 kN</td>
</tr>
<tr>
<td><strong>General purpose</strong></td>
<td>General building including brickwork, window and mullion, fixing, rendering, plastering</td>
<td>2 kN/m²</td>
<td>2 kN</td>
</tr>
<tr>
<td><strong>Heavy duty</strong></td>
<td>Blockwork, brickwork, heavy cladding</td>
<td>2.5 kN/m²</td>
<td>2 kN</td>
</tr>
<tr>
<td><strong>Masonry or special duty</strong></td>
<td>Masonry work, concrete blockwork and very heavy cladding</td>
<td>3 kN/m²</td>
<td>2 kN</td>
</tr>
</tbody>
</table>
### APPENDIX 2

#### TABLE 2: DESIGNATED PERSON (BASIC, INTERMEDIATE AND ADVANCED)

<table>
<thead>
<tr>
<th>No</th>
<th>Type of level</th>
<th>Type of scaffold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Basic</td>
<td>• Independent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mobile Tower Scaffold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Static Tower Scaffold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Birdcage Scaffold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Putlog / Single line Scaffold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Trestle Scaffold</td>
</tr>
<tr>
<td>2</td>
<td>Intermediate</td>
<td>• Truck Access/Gantry (Tension and Compression)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Truss-out (Spur)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Barrow Ramp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cantilever Scaffold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cantilever Catch Platform (Protective Fan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Outrigger Scaffold</td>
</tr>
<tr>
<td>3</td>
<td>Advanced</td>
<td>• Hung Scaffold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Slung Scaffold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Suspended Scaffold</td>
</tr>
</tbody>
</table>
# CHECKLIST FOR APPROVAL OF DESIGN SCAFFOLDING

1. Name and address of applicant:

2. Telephone and fax number:

3. Project title and location:

4. Person in charge:

5. Related document:

<table>
<thead>
<tr>
<th>Bil</th>
<th>Description</th>
<th>Tick (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Types of scaffold -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) <strong>Metal tube scaffold</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Metal tube scaffold exceeding 40 metres in height</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) <strong>Other scaffold</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Other scaffold exceeding 15 metres in height</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) <strong>Metal tube scaffold equivalent to or less than 40 metres in height</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Non-prefabricated metal tube scaffold (tube and coupler scaffold): steel tubing complying with BS 1139</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>A copy of design drawing at least A3 size</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Plan;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Front view; and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) Side elevation.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Design calculation</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Method of statement for the construction of scaffolds</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>List of competent person</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Copy of scaffolder certificate</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Letter of undertaking from person who will undertake the scaffold work</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Catalogue (special requirement for other scaffold)</td>
<td></td>
</tr>
</tbody>
</table>

Date: ..................

(Signature of applicant)
GUIDELINES FOR APPROVAL OF DESIGN SCAFFOLDING

CARTA ALIR PEJABAT NEGERI

Terima Permohonan → Semak

- Lengkap
  - Kelulusan
    - Kelulusan Pejabat Negeri
      - Keluarkan Surat Kelulusan
        - Lulus
          - Keluarkan Surat Tidak Berjaya
            - Gagal
          - Keluarkan Surat Tidak Berjaya
            - Gagal
          - Keluarkan Surat Kelulusan
  - Tidak Lengkap
    - Minta Maklumat Tambahan

Pejabat negeri keluarkan surat kepada pemohon untuk merujuk kepada Ibu Pejabat bagi mendapatkan kelulusan

B

A

Minta Maklumat Tambahan

Lebih dari 7 hari permohonan ditolak

APPENDIX 4
1. Terima Permohonan

2. Pengarah Bahagian Keselamatan Tapak Bina (2 hari)
   - Ketua Seksyen/Pegawai (2 hari)
   - Semak
     - Lengkap
       - Lulus
         - Keluarkan Surat Kelulusan Khas kepada pemohon
         - 10 hari
         - Maklumkan kepada pejabat negeri
     - Gagal
         - Keluarkan Surat Tidak Berjaya kepada pemohon
         - Maklumkan kepada pejabat negeri
   - Tidak Lengkap
     - Minta Maklumat Tambahan
       - Lebih dari 7 hari permohonan ditolak

3. Tamat
Tuan,

PERMOHONAN KEBENARAN PEMASANGAN PERANCAH

NAMA PROJEK : ........................................................................................................

LOKASI : ................................................................................................................

2. Dimaklumkan bahawa Jabatan telah menyemak permohonan kebenaran pemasangan perancah bagi projek di atas. Kebenaran pemasangan tertakluk kepada butiran seperti berikut:

   Nama dan alamat Pemohon : 
   No. Telefon dan Faksimili : 
   Nama Projek dan Lokasi :

   Nombor Pendaftaran Tapak bina : 
   Jenis Perancah : 
   Ketinggian Perancah : 
   Tempoh Pemasangan Perancah :


Sekian, terima kasih.

‘BERKHIDMAT UNTUK NEGARA’

Saya yang menurut perintah,

(PENGARAH NEGERI)
Tuan,

PERMOHONAN KEBENARAN PEMASANGAN PERANCAH

NAMA PROJEK : .................................................................

LOKASI : .................................................................

Dengan hormatnya saya di arah merujuk kepada perkara tersebut di atas.

2. Dimaklumkan bahawa Jabatan memerlukan maklumat-maklumat berikut untuk tujuan pemprosesan permohonan tuan:

Dokumen yang diperlukan adalah seperti berikut:

<table>
<thead>
<tr>
<th>Bil</th>
<th>Description</th>
<th>Tick (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Type of scaffold</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>(a) Metal tube scaffold</em></td>
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<td>2</td>
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<td>A copy of design drawing at least A3 size</td>
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</tr>
<tr>
<td></td>
<td><em>(c) Side elevation.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*(d) Detail drawing consist of -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*(i) Dimension include transom and ledger in Standard International (SI) unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*(ii) Foundation</td>
<td></td>
</tr>
</tbody>
</table>
(iii) Ties  
   - Type and location  (Mark on the drawing)  
(iv) Bracing  
(v) Raker / Outrigger  
(vi) Access & Egress  
(vii) Base plate  

3 Design calculation  
(a) List of components  
(b) New scaffold refer to manufacturer specification  
(c) Load reduction for used scaffold at least 25% from manufacturer specification  
   Note: MS 1462 Part 2-1:2010 (New scaffold 100%; used scaffold 75%)  
(d) Type of duty (Refer Appendix 2)  
(e) Total of dead load  
(f) Total of live load  
(g) Total of imposed load  
(h) Safety factor  
(i) Safe working load  
(j) References Standard  

4 Method of statement for the construction of scaffolds including  
(a) Methodology of scaffolding installation  
(b) Hazard identification risk assessment and risk control (HIRARC)  
(c) Safe operating procedure (SOP)  

5 List and copy of scaffold certificate  

6 Letter of declaration between employer (Main contractor or sub contractor) and scaffold supplier  

7 Catalogue  
   Note: Special requirement for other scaffold  

4. Kerjasama daripada pihak Tuan amatlah diharapkan. Sebarang pertanyaan, sila berhubung dengan ................................................ di talian.........................

Sekian, terima kasih.

‘BERKHIDMAT UNTUK NEGARA’

Saya yang menurut perintah,

(b.p PENGARAH NEGERI)
Tuan,

KEPUTUSAN PERMOHONAN KEBENARAN PEMASANGAN PERANCAH

NAMA PROJEK : …………………………………………………………………………………

LOKASI : …………………………………………………………………………………

Dengan hormatnya saya di arah merujuk kepada perkara tersebut di atas.


3. Walau bagaimanapun, Tuan boleh membuat permohonan semula setelah memenuhi syarat-syarat yang ditetapkan.

Sekian terima kasih.

‘BERKHIDMAT UNTUK NEGARA’

Saya yang menurut perintah,

(PENGARAH NEGERI)
Jabatan Keselamatan dan Kesihatan Pekerjaan
Kementerian Sumber Manusia, Malaysia

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