



# GUIDELINES FOR APPROVAL OF DESIGN SCAFFOLDING 2016



**Jabatan Keselamatan dan Kesihatan Pekerjaan Malaysia**  
*Department of Occupational Safety and Health Malaysia*

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## 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 -

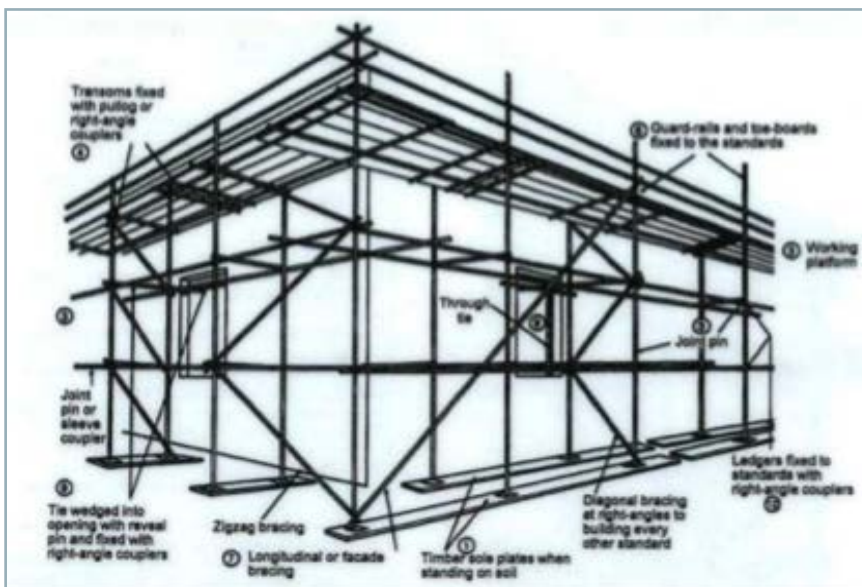


Figure 1: Independent scaffold

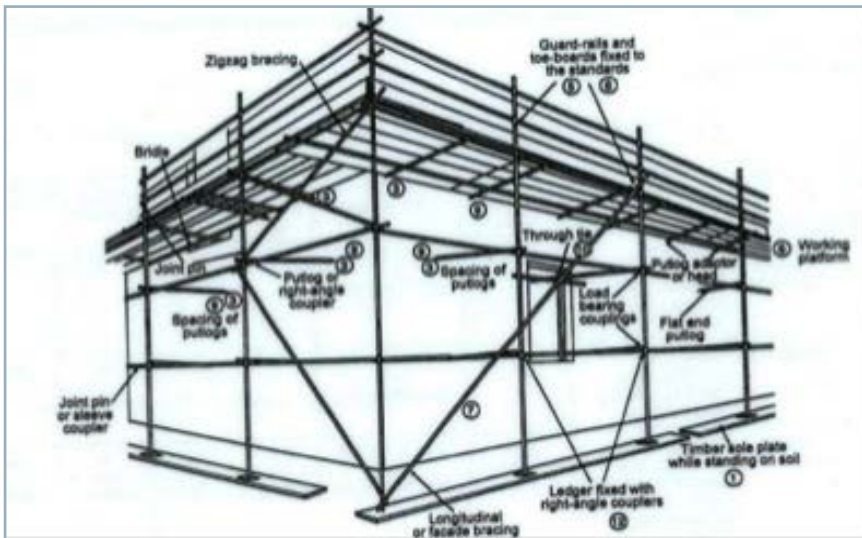


Figure 2: Putlog scaffold

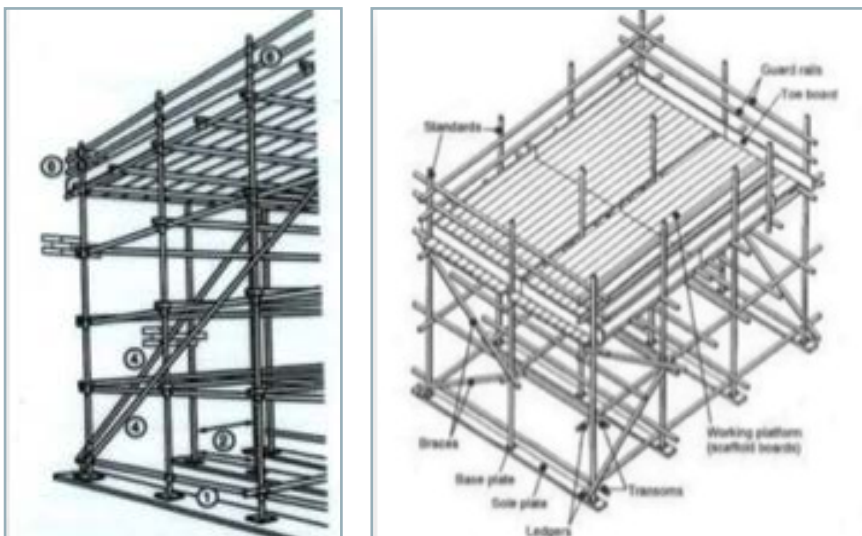


Figure 3: Bird cage tower scaffold



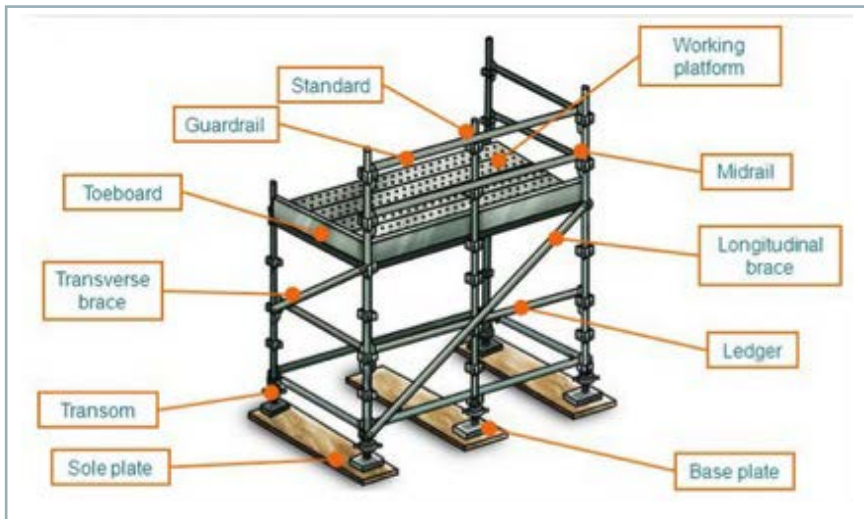


Figure 4: Basic part of modular scaffold

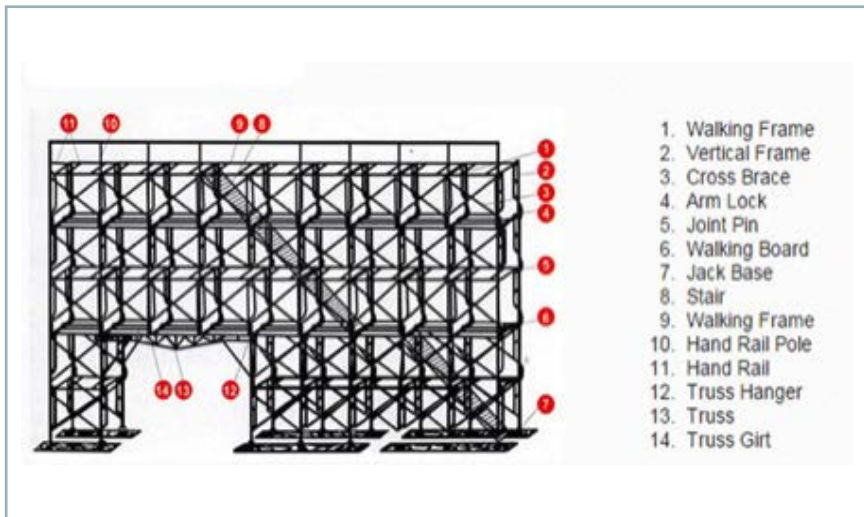


Figure 5: Sample basic assembly of scaffolding

## 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

1. Factories and Machinery (Building Operations and Works of Engineering Construction) (Safety) Regulations 1986.
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
6. MS 1462-2-3:2011 - Metal Scaffolding – Part 2: Tubular (Tube and coupler) Scaffold – Section 3: Specification for steel and aluminium couplers, fitting and accessories.
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			
Duty	Use of platform	Distributed load on platform	Concentrated load to be applied on plan over any square with a 300mm side and at the end portion of a cantilever
Inspection and very light duty	Inspection, painting, stone cleaning, light cleaning and access	0.75 kN/m <sup>2</sup>	2 kN
Light duty	Plastering, painting, stone cleaning, glazing and pointing	1.5 kN/m <sup>2</sup>	2 kN
General purpose	General building including brickwork, window and mullion, fixing, rendering, plastering	2 kN/m <sup>2</sup>	2 kN
Heavy duty	Blockwork, brickwork, heavy cladding	2.5 kN/m <sup>2</sup>	2 kN
Masonry or special duty	Masonry work, concrete blockwork and very heavy cladding	3 kN/m <sup>2</sup>	2 kN

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

DESIGNATED PERSON		
No	Type of level	Type of scaffold
1	Basic	<ul style="list-style-type: none"> <li>• Independent</li> <li>• Mobile Tower Scaffold</li> <li>• Static Tower Scaffold</li> <li>• Birdcage Scaffold</li> <li>• Putlog / Single line Scaffold</li> <li>• Trestle Scaffold</li> </ul>
2	Intermediate	<ul style="list-style-type: none"> <li>• Truck Access/Gantry (Tension and Compression)</li> <li>• Truss-out (Spur)</li> <li>• Barrow Ramp</li> <li>• Cantilever Scaffold</li> <li>• Cantilever Catch Platform (Protective Fan)</li> <li>• Outrigger Scaffold</li> </ul>
3	Advanced	<ul style="list-style-type: none"> <li>• Hung Scaffold</li> <li>• Slung Scaffold</li> <li>• Suspended Scaffold</li> </ul>



## 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 :

Bil	Description		Tick (✓)
1	Types of scaffold -  <b>(a) Metal tube scaffold</b> - Metal tube scaffold <b>exceeding 40 metres</b> in height  <b>(b) Other scaffold</b> - Other scaffold exceeding 15 metres in height  <b>(c) Metal tube scaffold equivalent to or less than 40 metres in height</b> -Non-prefabricated metal tube scaffold (tube and coupler scaffold); steel tubing complying with BS 1139		<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
2	A copy of design drawing at least A3 size  (a) Plan; (b) Front view; and (c) Side elevation.	<ul style="list-style-type: none"> <li>• Tubular</li> <li>• Frame and modular</li> <li>• Other scaffold</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3	Design calculation		<input type="checkbox"/>
4	Method of statement for the construction of scaffolds		<input type="checkbox"/>
5	List of competent person		<input type="checkbox"/>
6	Copy of scaffolder certificate		<input type="checkbox"/>
7	Letter of undertaking from person who will undertake the scaffold work		<input type="checkbox"/>
8	Catalogue (special requirement for other scaffold)		<input type="checkbox"/>

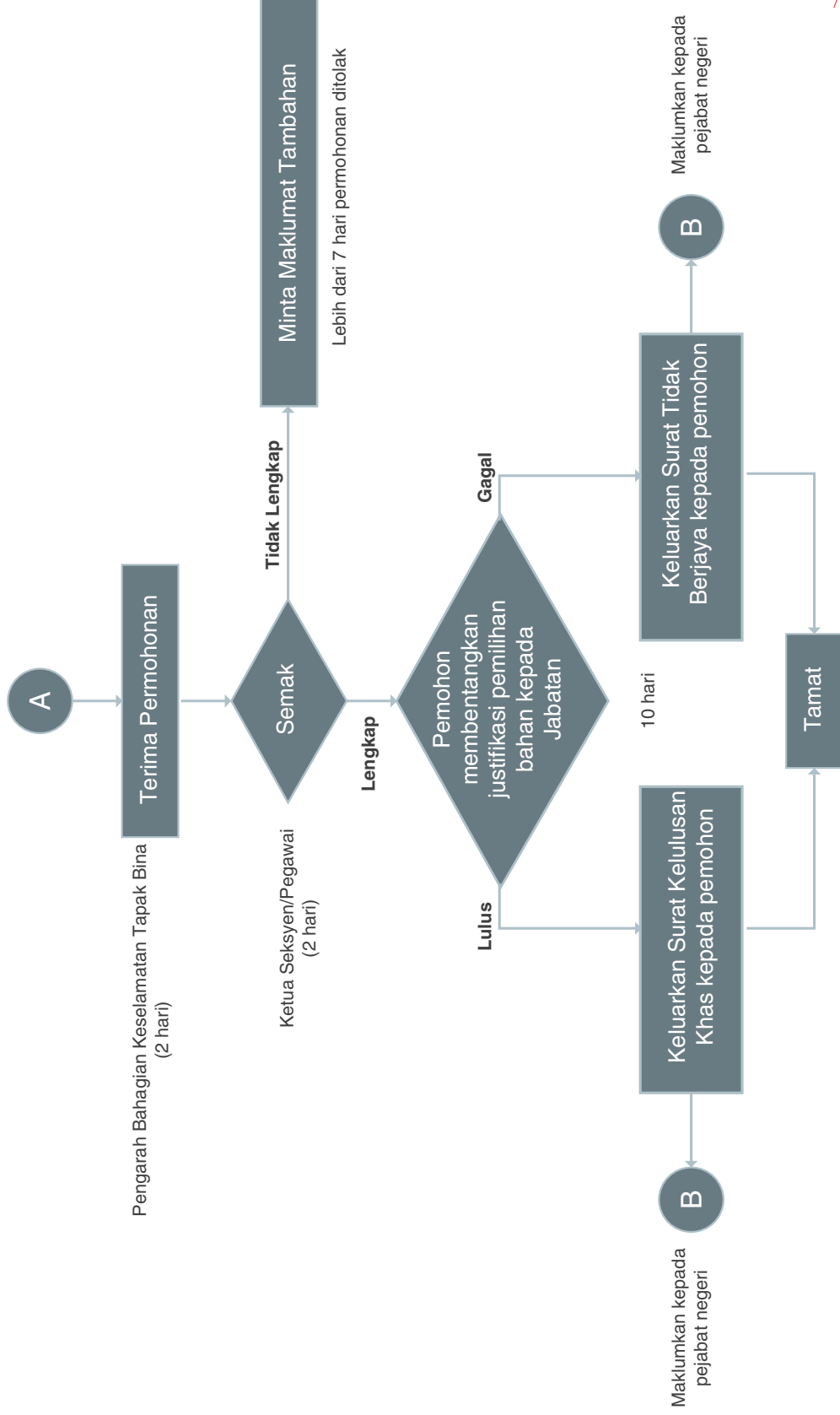
Date : .....

(Signature of applicant)





## CARTA ALIR IBU PEJABAT



## APPENDIX 5

Ruj. Tuan :  
 Ruj. Kami :  
 Tarikh :

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 :

3. Sekiranya terdapat perubahan pada butiran di atas, kebenaran ini akan terbatal dengan sendirinya. Sehubungan dengan itu, pihak Tuan masih tertakluk dibawah peruntukkan perundangan Jabatan ataupun Agensi Penguatkuasaan yang berkaitan.

Sekian, terima kasih.

**‘BERKHIDMAT UNTUK NEGARA’**

Saya yang menurut perintah,

**(PENGARAH NEGERI)**

Ruj. Tuan :  
 Ruj. Kami :  
 Tarikh :

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:

<b>Bil</b>	<b>Description</b>	<b>Tick (✓)</b>
1	<p><b><i>Type of scaffold</i></b></p> <p><b><i>(a) Metal tube scaffold</i></b></p> <p>- Metal tube scaffold exceeding 40 metres in height</p> <p><b><i>(b) Other scaffold</i></b></p> <p>- Other scaffold exceeding 15 metres in height</p> <p><b><i>(c) Metal tube scaffold equivalent to or less than 40 metres in height</i></b></p> <p>-Non-prefabricated metal tube scaffold (tube and coupler scaffold): steel tubing complying with BS 1139</p>	<input type="checkbox"/>   <input type="checkbox"/>   <input type="checkbox"/>
2	<p><b><i>Design drawing</i></b></p> <p>A copy of design drawing at least A3 size</p> <p>(a) Plan;</p> <p>(b) Front view; and</p> <p>(c) Side elevation.</p> <p>(d) Detail drawing consist of -</p> <p>(i) Dimension include transom and ledger in Standard International (SI) unit</p> <p>(ii) Foundation</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

	(iii) Ties -Type and location (Mark on the drawing) (iv) Bracing (v) Raker / Outtrigger (vi) Access & Egress (vii) Base plate	
3	<b>Design calculation</b> (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	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4	<b>Method of statement for the construction of scaffolds including</b> (a) Methodology of scaffolding installation (b) Hazard identification risk assessment and risk control (HIRARC) (c) Safe operationg procedure (SOP)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5	List and copy of scaffolder certificate	<input type="checkbox"/>
6	Letter of declaration between employer (Main contractor or sub contractor) and scaffolder	<input type="checkbox"/>
7	Catalogue Note: Special requirement for other scaffold	<input type="checkbox"/>

3. Maklumat ini hendaklah dikemukakan dalam tempoh tujuh (7) hari daripada tarikh surat ini. Sebarang kelewatan perlu dimaklumkan dengan kadar segera kepada pihak Jabatan. Sekiranya Tuan gagal berbuat demikian, pihak Jabatan menganggap Tuan tidak berminat dan permohonan Tuan akan ditolak.

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)**



## APPENDIX 7

Ruj. Tuan :  
Ruj. Kami :  
Tarikh :

Tuan,

**KEPUTUSAN PERMOHONAN KEBENARAN PEMASANGAN PERANCAH**

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

**LOKASI** : .....

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

2. Berdasarkan hasil semakan yang dibuat oleh Jabatan, permohonan Tuan didapati tidak dapat dipertimbangkan untuk kelulusan di bawah Peraturan 75, Peraturan-Peraturan Kilang dan Jentera (Kendalian Bangunan dan Kerja-Kerja Binaan Kejuruteraan) (Keselamatan) 1986.

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)**

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