Enhancement of Construction Productivity & Capability Fund

We shape a safe, high quality, sustainable and friendly built environment.
1. Regulate foreign workers demand through levy & MYE

2. Enhance quality of construction workforce
   - CoreTrade
   - Tiered Levy

3. Impose regulatory requirements & standards
   - Raise buildable design requirements
   - Introduce constructability score
   - Mandatory BIM e-submission

4. Incentivise firms to adopt technology & build capability
   - Construction Productivity & Capability Fund (CPCF)
1. Regulate foreign workers demand through levy & MYE

**MYE Quota Cuts**
- Jul 2010: 5%
- Jul 2011: 10%
- Jul 2012: 10%
- **Jul 2013: 15%**

**Cumulative 40%**
2. Enhance quality of construction workforce

A

CoreTrade Registered
- Min. experience
- Passed skill assessment

Expand CoreTrade
- Additional trades
- Appoint training centres

B

Supervisory Certification + 4 years Experience

Higher Skilled Workers
Enhanced Buildability Framework

3. Impose regulatory requirements & standards

Existing Buildability Framework

- **Buildability Score** - Applies to architects & engineers

Enhanced Buildability Framework

- **Constructability Score** - Applies to builders
- **Tightened Buildable Design Score** - Applies to architects & engineers
3. Impose regulatory requirements & standards

Tightened Buildable Design Score

New Constructability Score

To be introduced in 2H 2011 for new projects

Strengthen existing requirements

1. Discourage designs which need labour-intensive construction processes e.g. brickwall
2. Encourage use of prefabricated bathroom

New requirements for builders

1. Encourage use of system formwork and climbing scaffold for *structural works*
2. Encourage use of productive work processes for *architectural & MEP* works
3. Impose regulatory requirements & standards

Mandatory BIM e-submission time-line

<table>
<thead>
<tr>
<th>Year</th>
<th>GFA Requirements</th>
<th>Submissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>GFA &gt; 20,000 m²</td>
<td>Architectural</td>
</tr>
<tr>
<td>2014</td>
<td>GFA &gt; 20,000 m²</td>
<td>Architectural, Structural, MEP</td>
</tr>
<tr>
<td>2015</td>
<td>GFA &gt; 5,000 m²</td>
<td>Architectural, Structural, MEP</td>
</tr>
</tbody>
</table>

Target by **2015**

**80% BIM adoption** for architects/engineers
4. Incentivise firms to adopt technology

CONSTRUCTION PRODUCTIVITY & CAPABILITY FUND (CPCF)

WORKFORCE DEVELOPMENT
- Workforce Training & Upgrading
- Enhanced BCA-Industry Built Environment Scholarship

TECHNOLOGY ADOPTION
- Mechanisation Credit (Mech C)
- Productivity Improvement Projects (PIP)
- Building Information Modelling (BIM) Fund

CAPABILITY DEVELOPMENT
- Construction Engineering Capability Development
4. Incentivise firms to adopt technology

Workforce Training and Upgrading (WTU) Scheme

- Up to 80% co-funding of the workforce training in:-

  A. CoreTrade Registration
  - Familiarisation Course
  - Skills assessment

  B. Other higher value-adding qualifications at supervisory levels
  - E.g. precast concrete, structural steelwork, NBQ in project supervision
### Enhancements to the WTU Scheme

#### Additional courses (including selected PMET training)
- Construction management
- Precast concrete design / construction, etc.

#### Training at supervisory level
- 17 courses

#### Training and Skills Assessment for CoreTrade Registration
- 7 Trades

#### Training and Skills Assessment for additional CoreTrade Trades
- 17 Trades

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4. Incentivise firms to adopt technology
List of Trades under CoreTrade Scheme

KEY TRADES FOR CONSTRUCTION TRADESMEN
• Construction plant operation
• Electrical works
• Plumbing and piping works
• Tiling and stone laying

KEY TRADES FOR CONSTRUCTION FOREMEN
• Electrical works
• Plumbing and piping works
• Tiling and stone laying
• Waterproofing works
• Reinforced concrete works
• Structural steel works
<p>| 1 | Cladding and Curtain Wall Installation |
| 2 | Glazing                                 |
| 3 | Drywall Installation                    |
| 4 | Suspended Ceiling Installation          |
| 5 | Doors and Windows Installation          |
| 6 | Joinery Works                           |
| 7 | Air-Conditioning Ducting Installation   |
| 8 | Fire Protection Works                   |
| 9 | Gas Pipefittings Works                  |
| 10| Lift Installation                       |</p>
<table>
<thead>
<tr>
<th>S/N</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Certificate in Interior Finishing Coordination</td>
</tr>
<tr>
<td>2</td>
<td>Certificate in Pavement Construction and Maintenance</td>
</tr>
<tr>
<td>3</td>
<td>Certificate in Precast Concrete Construction Supervision</td>
</tr>
<tr>
<td>4</td>
<td>Certificate in Waterproofing Supervision</td>
</tr>
<tr>
<td>5</td>
<td>Certificate in Building Measurement</td>
</tr>
<tr>
<td>6</td>
<td>Certificate in Geotechnical Instrumentation for Supervisors</td>
</tr>
<tr>
<td>7</td>
<td>Certificate in Levelling and Setting Out</td>
</tr>
<tr>
<td>8</td>
<td>Certificate Course for Structural Steel Supervision</td>
</tr>
<tr>
<td>9</td>
<td>NBQ in Project Supervision</td>
</tr>
<tr>
<td>10</td>
<td>Higher NBQ in Project Supervision</td>
</tr>
<tr>
<td>11</td>
<td>Advanced NBQ in Project Supervision</td>
</tr>
<tr>
<td>12</td>
<td>NBQ in Supervision and Coordination of M&amp;E Works</td>
</tr>
<tr>
<td>13</td>
<td>Higher NBQ in Supervision and Coordination of M&amp;E Works</td>
</tr>
<tr>
<td>14</td>
<td>Advanced NBQ in Supervision and Coordination of M&amp;E Works</td>
</tr>
<tr>
<td>15</td>
<td>NBQ in Operation &amp; Maintenance</td>
</tr>
<tr>
<td>16</td>
<td>Higher NBQ in Operation &amp; Maintenance</td>
</tr>
<tr>
<td>17</td>
<td>Advanced NBQ in Operation &amp; Maintenance</td>
</tr>
</tbody>
</table>
# List of Additional Courses to be funded by WTU

<table>
<thead>
<tr>
<th>Type of Courses</th>
<th>Courses</th>
</tr>
</thead>
</table>
| **Certificate courses**              | 1. Project Management for Professionals in the Building and Construction Industry *(in collaboration with SPM)*  
2. Construction Productivity Management *(in collaboration with SCAL)*  
3. Design of Precast Concrete structures for Engineers  
4. Workshop on Site Management of Precast Concrete Construction |
| **Certificate courses**              | 5. Builders Cert in Plumbing and Pipefitting  
6. SEC(K) in Precast Concrete Components Erection  
7. SEC(K) in Structural Steel Fitting  
8. SEC(K) in Interior Drywall Installation  
9. System Formwork Training  
10. Mechanical Elevated Work Platform |
| **Trade Diplomas**                  | 11. Structural Steel Supervision  
12. Reinforced Concrete Supervision  
13. Plumbing Technology  
14. Electrical Technology  
15. Waterproofing |

*Note: Courses underlined are new courses that will be introduced in 2011.*
## Mechanisation Credit (MechC)

<table>
<thead>
<tr>
<th></th>
<th>Current funding cap</th>
<th>Enhanced funding cap</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purchase of equipment</strong></td>
<td><strong>All equipment</strong></td>
<td><strong>For equipment cost &lt; $100,000</strong></td>
</tr>
<tr>
<td></td>
<td>(50% co-funding)</td>
<td>(50% co-funding)</td>
</tr>
<tr>
<td></td>
<td>$20,000</td>
<td>$20,000</td>
</tr>
<tr>
<td><strong>Leasing of equipment</strong></td>
<td><strong>All equipment</strong></td>
<td><strong>For leasing cost &lt; $30,000</strong></td>
</tr>
<tr>
<td></td>
<td>(50% co-funding)</td>
<td>(50% co-funding)</td>
</tr>
<tr>
<td></td>
<td>$5,000</td>
<td>$6,000</td>
</tr>
</tbody>
</table>

*Cap on funding of $250,000 per firm per tranche*
<table>
<thead>
<tr>
<th>PIP level</th>
<th>Funding cap</th>
<th>Supportable cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm - Builders</td>
<td>$100,000 per application</td>
<td>• Manpower cost</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Equipment &amp; material cost</td>
</tr>
<tr>
<td>Firm - Prefabricators</td>
<td>$500,000 per application generally</td>
<td>• Consultancy service cost</td>
</tr>
<tr>
<td>Group – At least 2 unrelated companies</td>
<td>$500,000 per application</td>
<td>• Intellectual property acquisition cost</td>
</tr>
<tr>
<td>Industry – To be led by Public Agency with at</td>
<td>$1 million per application (for private sector companies)</td>
<td></td>
</tr>
<tr>
<td>least 2 unrelated companies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Enhancement 1: Open Group PIP to all firms

<table>
<thead>
<tr>
<th>PIP level</th>
<th>Funding cap</th>
<th>Eligibility</th>
<th>Current</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm - Builders</td>
<td>$100k per application</td>
<td>Main con / subcon</td>
<td>Main con / subcon</td>
<td>Main con / subcon</td>
</tr>
<tr>
<td>Firm - Prefabricators</td>
<td>$500k per application generally</td>
<td>Prefabricator</td>
<td>Prefabricator</td>
<td>Prefabricator</td>
</tr>
<tr>
<td>Group – At least 2 unrelated companies</td>
<td>$500k per application</td>
<td>Main con / subcon together with another firm</td>
<td>All firms (e.g. contractors, developers, consultants, suppliers)</td>
<td>All firms (e.g. contractors, developers, consultants, suppliers)</td>
</tr>
<tr>
<td>Industry – To be led by Public Agency with at least 2 unrelated companies</td>
<td>$1 million per application (for private sector companies)</td>
<td>Public sector agencies with other firms</td>
<td>Public sector agencies with other firms</td>
<td>Public sector agencies with other firms</td>
</tr>
</tbody>
</table>
## Enhancement 2: Raising support level for key systems and materials

<table>
<thead>
<tr>
<th></th>
<th>Current % support</th>
<th>Enhanced % support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment cost</td>
<td>About 20%</td>
<td>Up to 50% for selected equipment (e.g. system formwork, climbing scaffold)</td>
</tr>
</tbody>
</table>

- **System Formwork**
- **Climbing scaffold**
Enhancement 2: Raising support level for key systems and materials

<table>
<thead>
<tr>
<th>Material cost <em>(extra cost over conventional material)</em></th>
<th>Current</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% support</td>
<td></td>
</tr>
<tr>
<td>Material cost</td>
<td>50% (for self compacting concrete only)</td>
<td>Up to 80% for select materials <em>(e.g. self compacting concrete, prefab bathroom, drywall)</em></td>
</tr>
</tbody>
</table>

*Only gypsum boards, cement boards and similar drywall systems used in residential projects are supportable.*
Examples of PIP projects

- System Formwork
- Self Compacting Concrete
- Floor Tile
- Concrete Slab
- Screedless floor
- Fabric ductwork
- Drywall (for residential project only)
- Climbing scaffold
- Concrete Slab
- Floor Tile
- Drywall
Building Information Modelling (BIM) Fund

For individual firms (50% co-funding)
- Training cost
- Consultancy cost

For Project Collaboration (50% co-funding)
- Training cost
- Consultancy cost
- Hardware and software cost
<table>
<thead>
<tr>
<th>Schemes</th>
<th>Current (Max grant per appln)</th>
<th>Enhanced (Max grant per appln)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Level</td>
<td>$7,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>Support level &amp; supportable items: up to 50% of training, software and hardware costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Collaboration</td>
<td>$70,000</td>
<td>$210,000 (<a href="#">cap of $35,000 per discipline</a>)</td>
</tr>
<tr>
<td>Support level &amp; supportable items: up to 50% of training, consultancy, software and hardware costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of Applications per firm</td>
<td>1</td>
<td>3 (cap of $105,000 per firm)</td>
</tr>
</tbody>
</table>

*discipline refers to architect, C&S engr, M&E engr, QS, PM, contractor*
Thank you

We shape a safe, high-quality, sustainable and friendly built environment.