University of Huddersfield Repository

Tezel, Algan, Koskela, Lauri, Tzortzopoulos, Patricia, Formoso, Carlos and Alves, Thais

Visual Management in Brazilian Construction Companies: Taxonomy and Guidelines for Implementation

Original Citation


This version is available at http://eprints.hud.ac.uk/23745/

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

• The authors, title and full bibliographic details is credited in any copy;
• A hyperlink and/or URL is included for the original metadata page; and
• The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

http://eprints.hud.ac.uk/
<table>
<thead>
<tr>
<th>Case study No</th>
<th>Removing Visual Barriers</th>
<th>Standardization</th>
<th>The SS program</th>
<th>Production Control</th>
<th>Production Leveling</th>
<th>In-Stage Quality</th>
<th>Prototyping and Sampling</th>
<th>Visual Signs</th>
<th>Work Facilities</th>
<th>Imprehensional VM</th>
<th>Performance &amp; metrics</th>
<th>Visual aids</th>
<th>On-Site Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Site layout organization - Using chain-link fences</td>
<td>- Marked pathways</td>
<td>SS exists</td>
<td>Visual control in cement bags and bricks</td>
<td>- Company policies visually presented</td>
<td>Visual work instructions</td>
<td>SS exists</td>
<td>On-site construction quality control and assurance</td>
<td>- Productivity metrics - Quality metrics - Safety metrics</td>
<td>Visual information on the project environment for the workforce</td>
<td>- Color coded worker group and project performance boards</td>
<td>Simple mistake proofing device for pipe fitting</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Site layout organization - Using chain-link fences</td>
<td>- Color coded helmets, material &amp; workstations</td>
<td>SS exists</td>
<td>Visual control in cement bags and bricks</td>
<td>- Prototypes of certain piping systems</td>
<td>- Slogans - Warnings</td>
<td>Visual ID of safety equipment on site</td>
<td>SS exists</td>
<td>On-site construction quality control and assurance</td>
<td>- Color coded worker group and project performance boards</td>
<td>Visual information on the project environment for the workforce</td>
<td>- Color coded worker group and project performance boards</td>
<td>Simple mistake proofing device for bricklaying</td>
</tr>
<tr>
<td>3</td>
<td>Site layout organization - Using chain-link fences</td>
<td>- Marked pathways</td>
<td>SS exists</td>
<td>- Card based (kanban) production control system for brick, cement, &amp; electrical fixtures</td>
<td>- Safety signs - Company policies - Slogans</td>
<td>Preparations for an on-site system</td>
<td>SS exists</td>
<td>On-site construction quality control and assurance</td>
<td>- Supplier performance boards - Overall construction progress boards - Quality metrics - Safety metrics</td>
<td>Visual information on the project environment for the workforce</td>
<td>- Color coded worker group and project performance boards</td>
<td>Simple mistake proofing device for bricklaying</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Site layout organization - Using chain-link fences</td>
<td>- Marked pathways</td>
<td>SS exists</td>
<td>Concrete production Leveling by using simple, colored beads</td>
<td>- Prototypes of certain piping systems</td>
<td>- Safety information - Desired practices reminders by using the company mascot</td>
<td>SS exists</td>
<td>On-site construction quality control and assurance</td>
<td>- Productivity metrics - Safety metrics - Financial metrics</td>
<td>Calendar summarizing important project events in the near future</td>
<td>- Color coded worker group and project performance boards</td>
<td>Simple mistake proofing device for bricklaying</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Site layout organization - Using chain-link fences</td>
<td>- Marked pathways</td>
<td>SS exists</td>
<td>Prototypes of certain piping systems</td>
<td>- Safety information - Desired practices reminders by using the company mascot</td>
<td>- Process charts - Visual work instructions - ID coded magnetic board summarizing the important dates of the project planning</td>
<td>SS exists</td>
<td>On-site construction quality control and assurance</td>
<td>- Productivity metrics - Safety metrics - Financial metrics</td>
<td>Calendar summarizing important project events in the near future</td>
<td>- Color coded worker group and project performance boards</td>
<td>Simple mistake proofing device for bricklaying</td>
<td></td>
</tr>
<tr>
<td>Site layout organization</td>
<td>Using chain-link fences</td>
<td>Using glass where appropriate</td>
<td>Marked pathways</td>
<td>Color coded helmets, material, tools &amp; workstation</td>
<td>ID cards &amp; name tags</td>
<td>Material grouping</td>
<td>Site stock area IDs</td>
<td>Location IDs</td>
<td>Site maps</td>
<td>Area responsible personnel photos/contact</td>
<td>SS exists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------</td>
<td>-------------------------------</td>
<td>-----------------</td>
<td>---------------------------------------------------</td>
<td>----------------------</td>
<td>-------------------</td>
<td>------------------</td>
<td>-------------</td>
<td>----------</td>
<td>------------------------------------------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site layout organization</td>
<td>Using chain-link fences</td>
<td>Using glass where appropriate</td>
<td>Marked pathways</td>
<td>Color coded helmets, material, tools &amp; workstation</td>
<td>ID cards &amp; name tags</td>
<td>Material grouping</td>
<td>Site stock area IDs</td>
<td>Location IDs</td>
<td>Site maps</td>
<td>Area responsible personnel photos/contact</td>
<td>SS exists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site layout organization</td>
<td>Using chain-link fences</td>
<td>Using glass where appropriate</td>
<td>Marked pathways</td>
<td>Color coded helmets, material, tools &amp; workstation</td>
<td>ID cards &amp; name tags</td>
<td>Material grouping</td>
<td>Site stock area IDs</td>
<td>Location IDs</td>
<td>Site maps</td>
<td>Area responsible personnel photos/contact</td>
<td>SS exists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site layout organization</td>
<td>Using chain-link fences</td>
<td>Using glass where appropriate</td>
<td>Marked pathways</td>
<td>Color coded helmets, material, tools &amp; workstation</td>
<td>ID cards &amp; name tags</td>
<td>Material grouping</td>
<td>Site stock area IDs</td>
<td>Location IDs</td>
<td>Site maps</td>
<td>Area responsible personnel photos/contact</td>
<td>SS exists</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fences and Chain Organization**
- Appropriate

**Site Layout**
- Using

**Location IDs**
- Material grouping
- Site stock area IDs
- Location IDs
- Site maps
- Area responsible personnel photos/contact

**Hand tools control boards**
- Card based (kanban) production control system for various materials
- Sampling for safety gears, personnel & material location matching
- Prototypes of certain piping systems
- Safety signs, worker emotions' boards, slogans, best practice, information on the production system
- Process charts
- Visual work instructions
- Color coded magnetic project drawings
- Various visual aids
- On-site construction quality control and assurance
- Productivity metrics
- Safety metrics
- Quality metrics
- Financial metrics
- Visual workers' mood board

**Visual Information**
- On the project environment for the workforce

**Simple mistake proofing for the installation of sinks**
- For the workforce

**Electrical fixtures are fitted on bricks before bricklaying**
- Electrical and mechanical (piping, fixtures) prefabrication with visual information