Comprehensive Safety Management for Construction Projects in China

JLT Risk Consulting

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Risk Consulting Department
Executive Director

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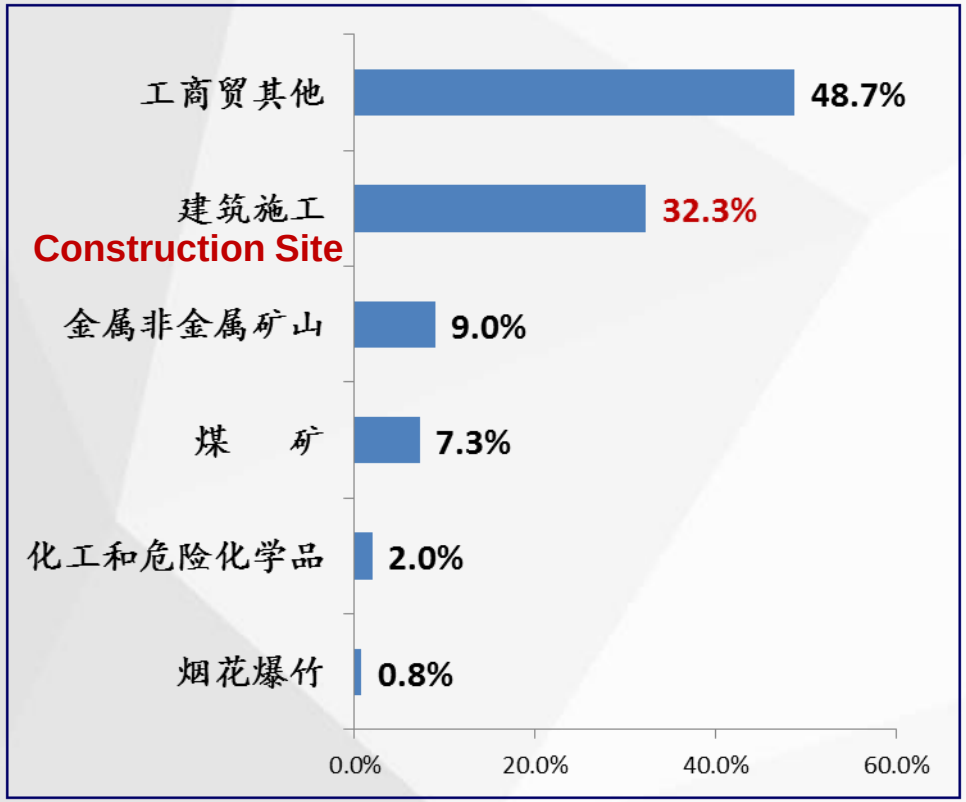
01 Top Risks on Construction Site

02 Key impacts to a company

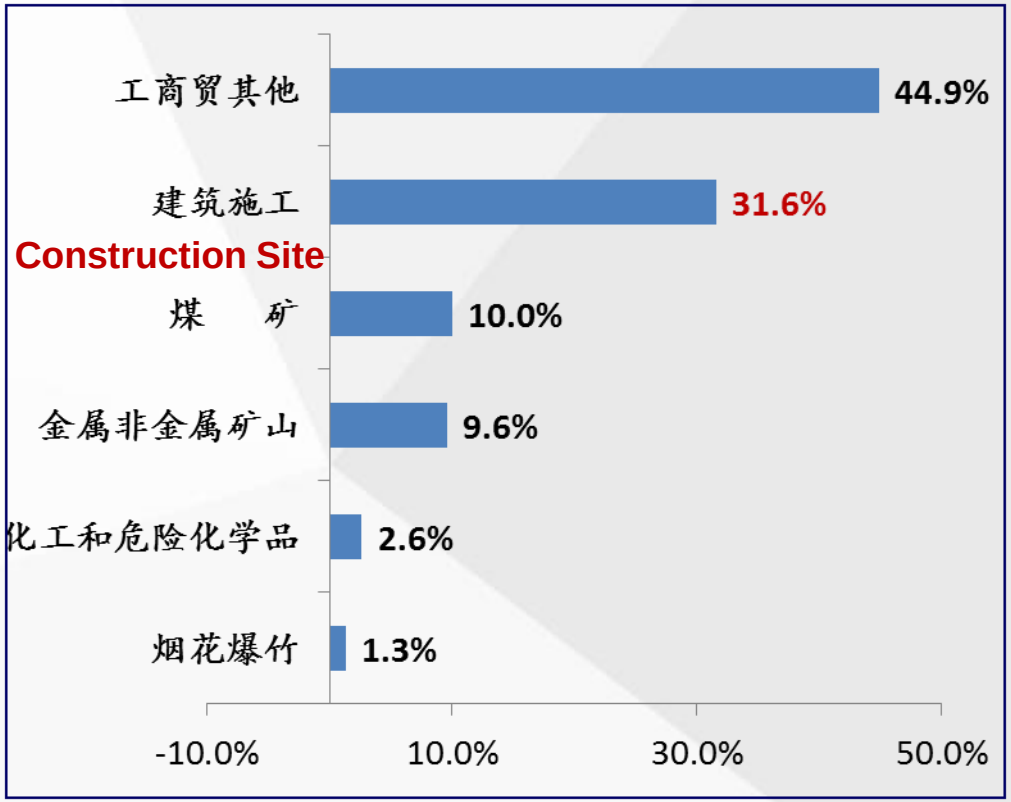
03 Risk management Solutions

Top Risks on Construction Site

Work Safety Accidents by Industries in 2015



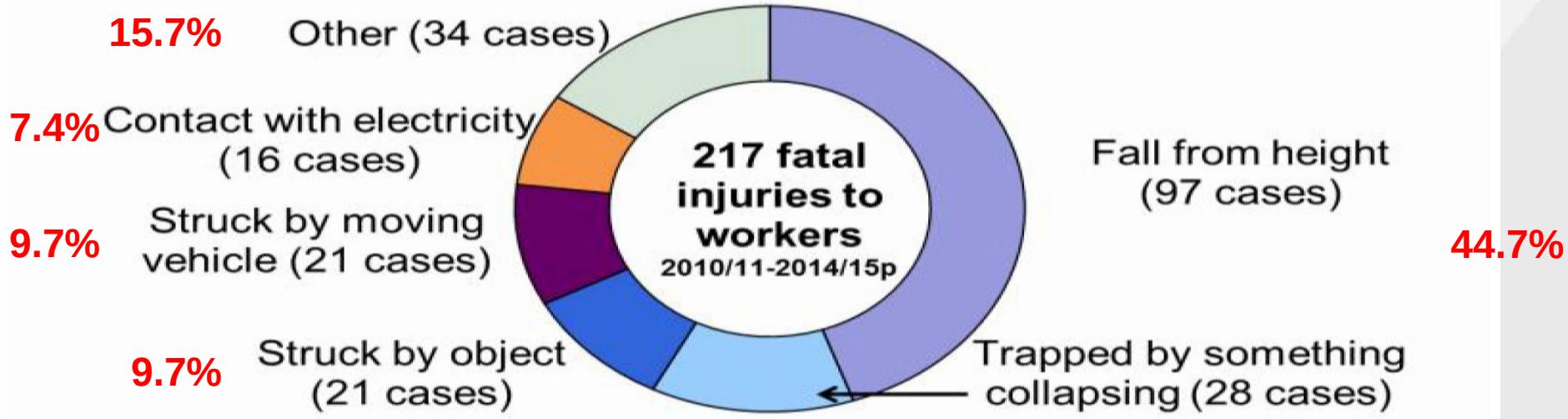
Nonfatal Accidents



Fatal Accidents

Key Risks on Construction Sites

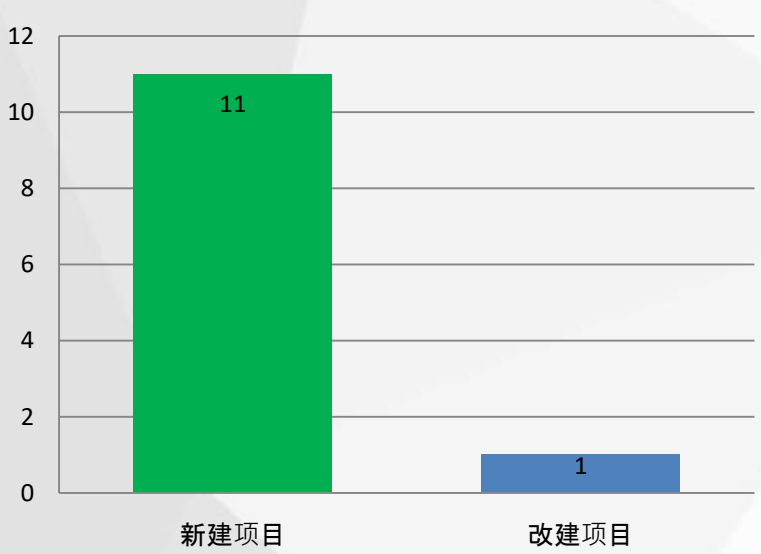
Figure 10: Fatal injuries to workers in the Construction sector by injury kind, last 5 years

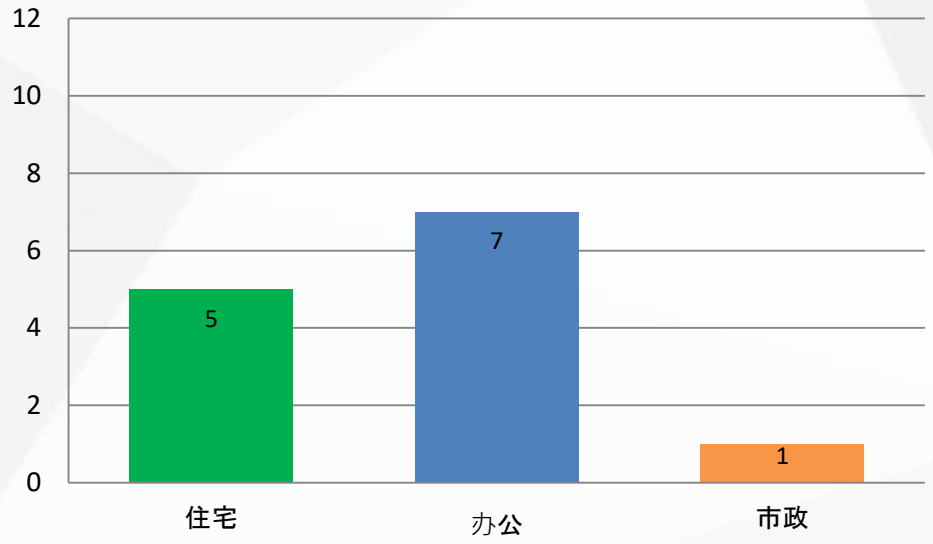


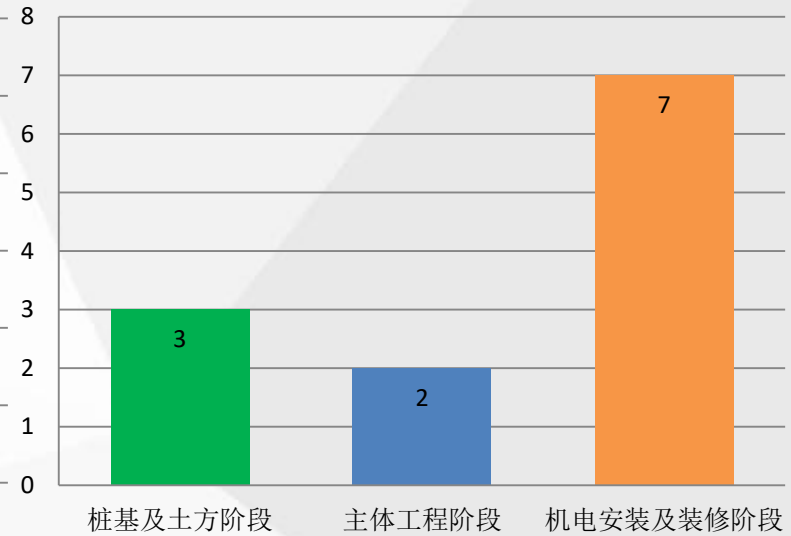
Source: RIDDOR

Top Risks On Construction Sites In China

Findings of JRC supervised projects:



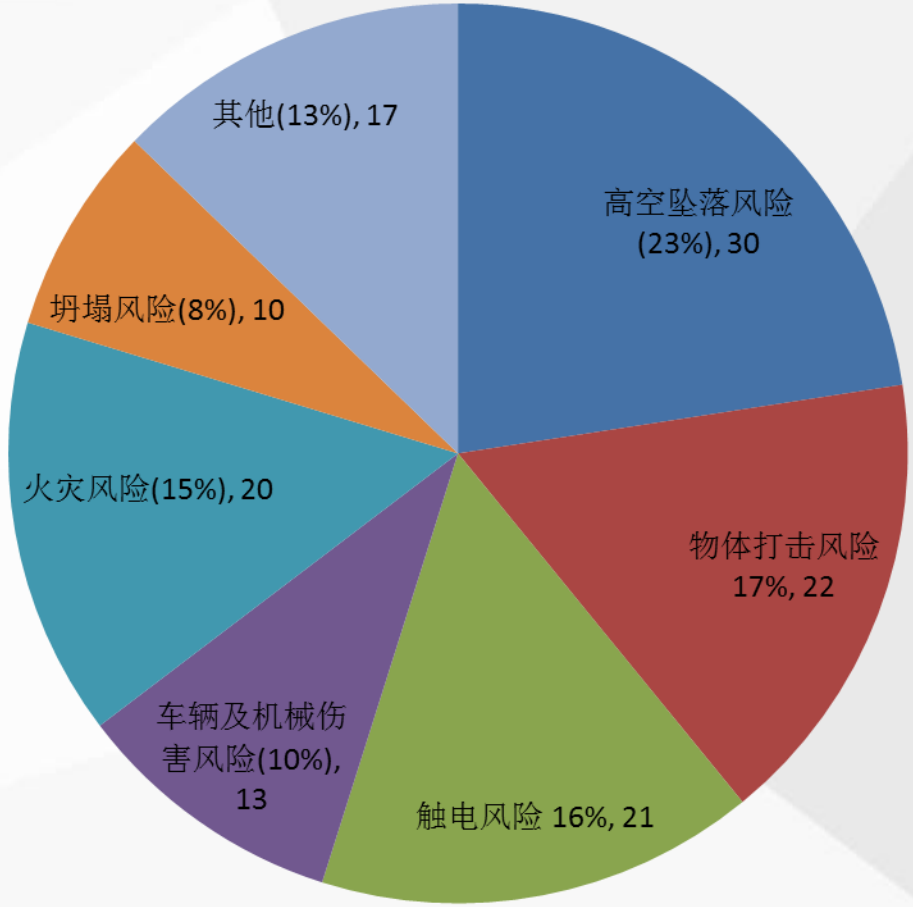




Top Risks On Construction Sites In China

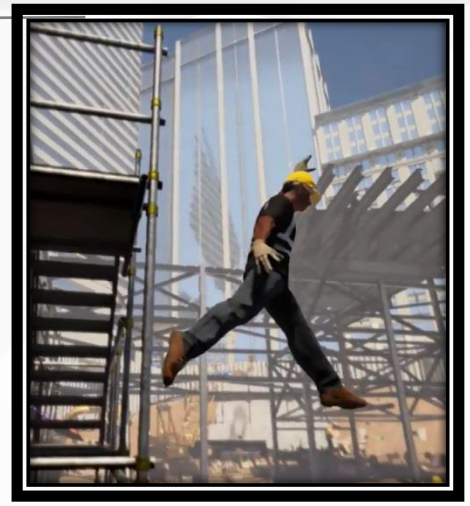
Findings of JRC supervised projects:

1. Falling from Height	— 23%
2. Falling Objects	— 17%
3. Electric Shock	— 16%
4. Fire	— 15%
5. Mechanical Injury	— 10%
6. Collapse	— 8%



Top Risks on Construction Site

Falling



Fire

Electric Shock

Machinery Injury

Falling Objects

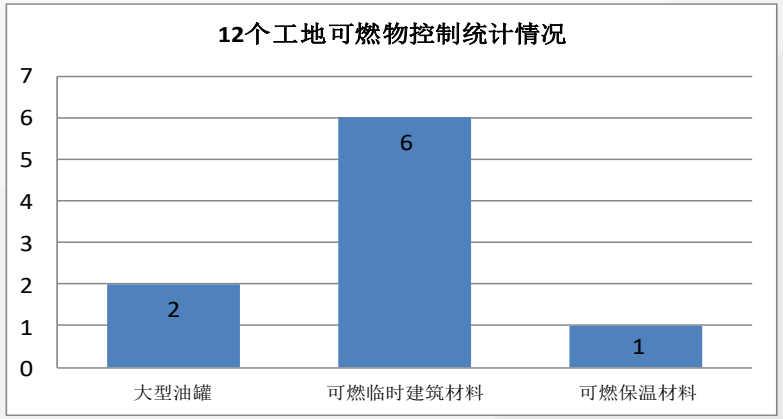
Foundation Pit Collapse

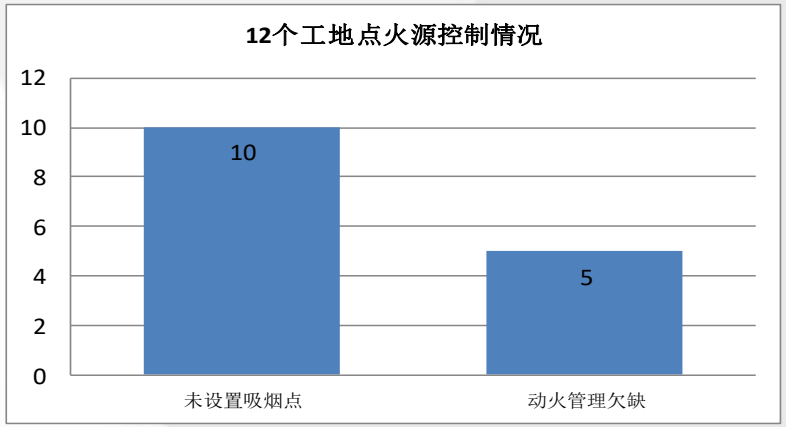
Top Risks - Fire

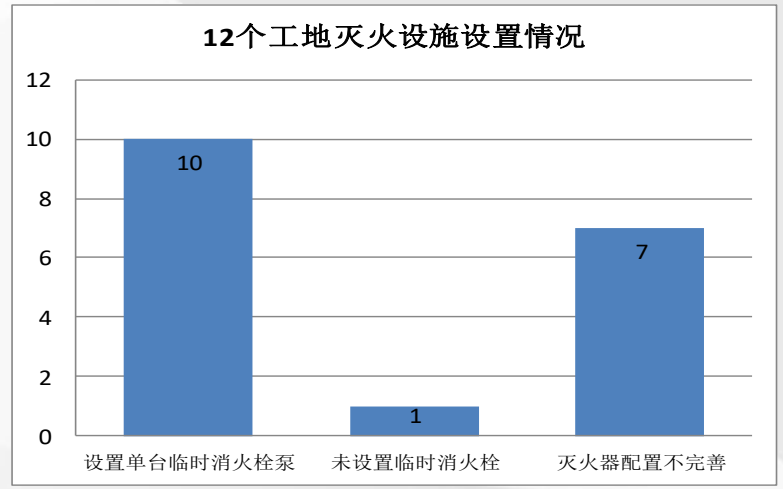
1. Combustible Materials 可燃材料
- EPS for temporary building 临建使用EPS
- Combustible insulation materials 建筑使用可燃保温材料
- Other Fuels 其他燃料

2. Ignition Sources 火源
- Smoking 吸烟
- Hot Work 动火

3. Inadequate Fire Protection System 消防保护不够
- Temporary Fire Hose System
- Portal Extinguisher

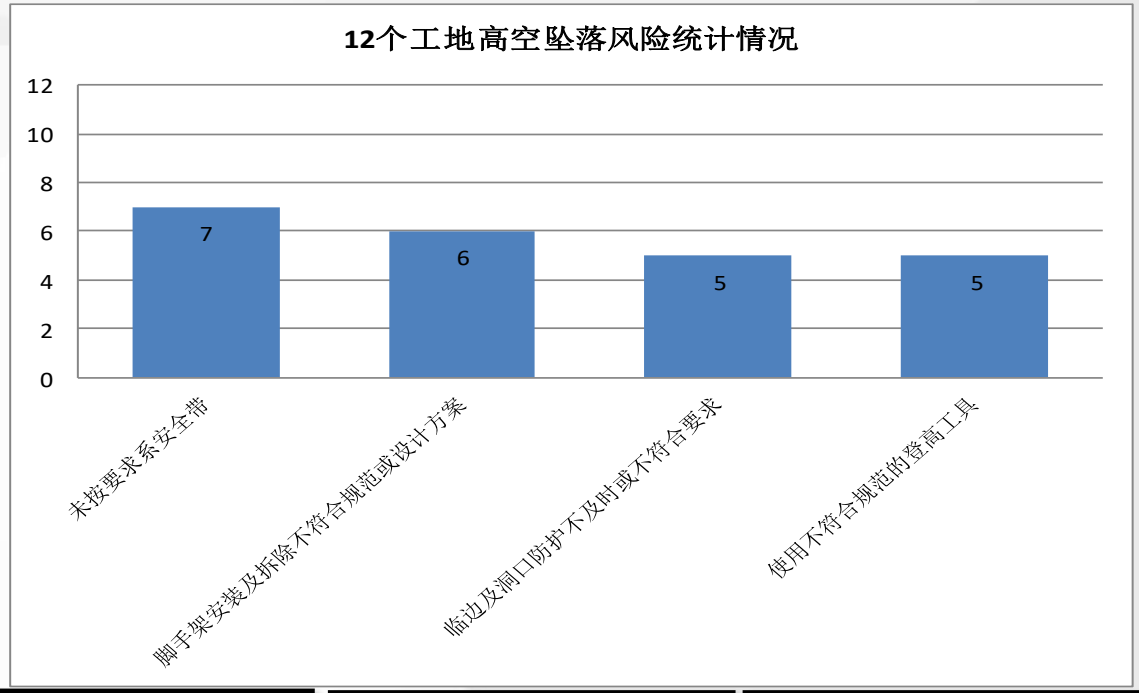






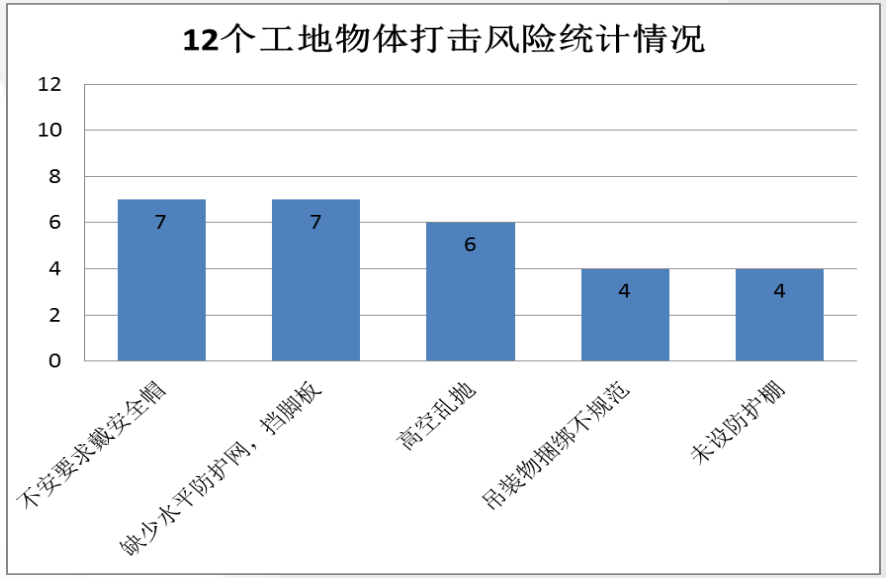
Top Risks- Falling From Height

1. Inadequate PPE 不佩戴PPE
2. Scaffold installation not compliance with design
设计和安装不一致
3. Inadequate protection on edges 临边防护不善
4. Unsafe equipment 不合格的登高工具



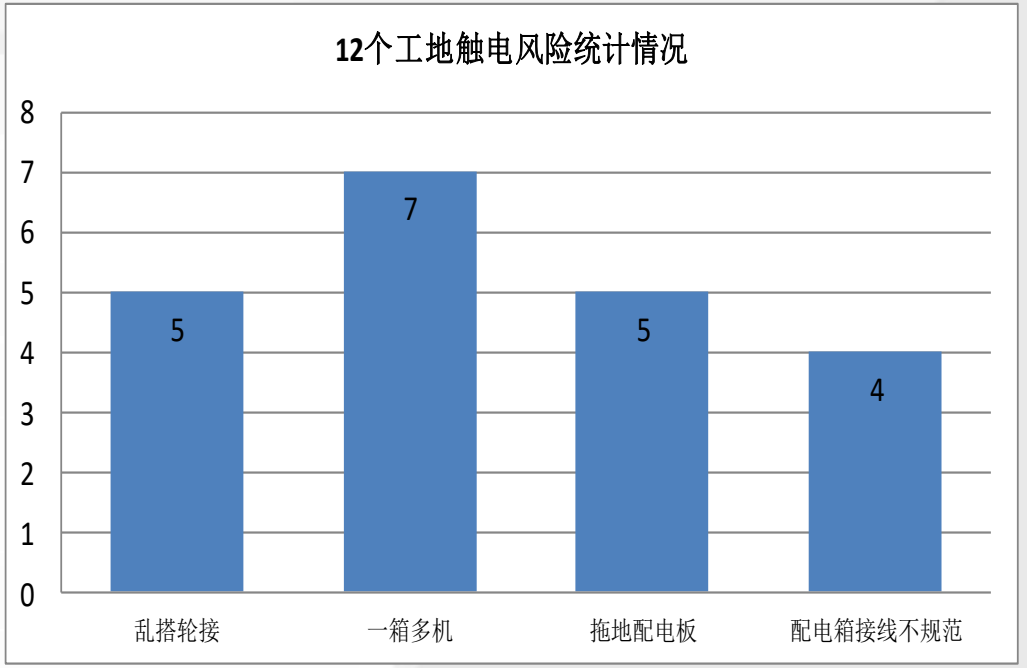
Top Risks- Falling Objects

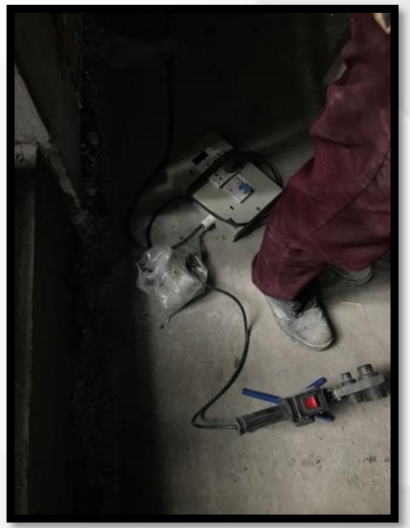
1. Not Wearing Helmet 佩戴安全帽
2. No Toe Board or Horizontal Safety Mesh for Scaffold
脚手架缺少踢脚板
3.Throwing objects from High 高处抛物
4. Improper Lifting Operation 吊装不规范



Top Risks- Electric Shock

1. Faulty Connecting 临时接线
2. Improper Switch Box Installation一箱多机
3.Lack of Protection-leakage protection，short-circuit protection…缺乏过载保护装置



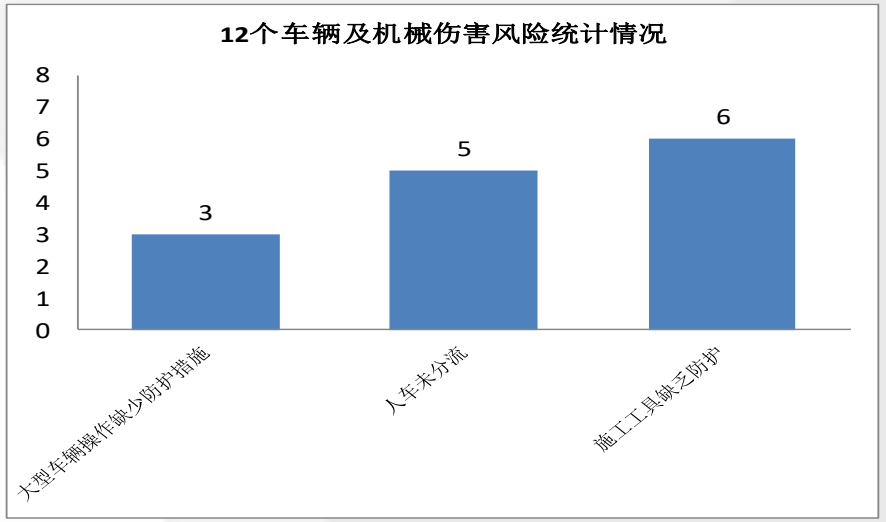


Top Risks- Vehicle and Mechanical Injury

1. No Warnings or Fence Guard for Vehicle/Machine Working Area
施工区缺乏隔离

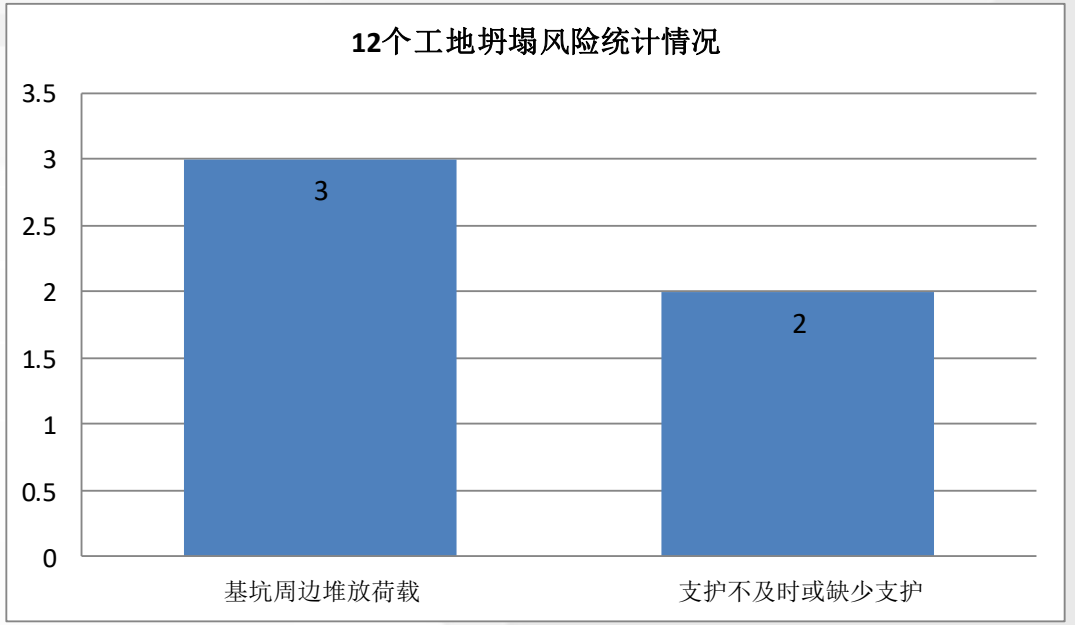
2.No dedicated person for traffic control
无交通指挥

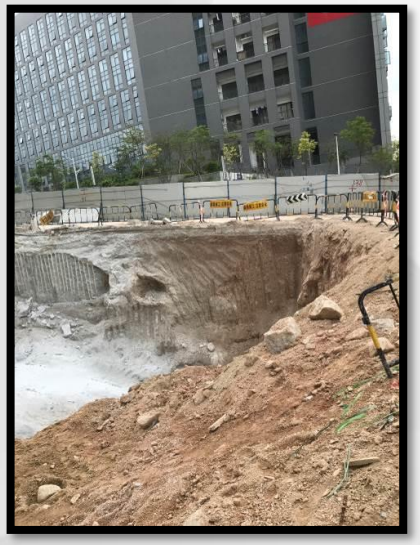
3.No safety guard for rotating cutting tool
工具缺乏保护

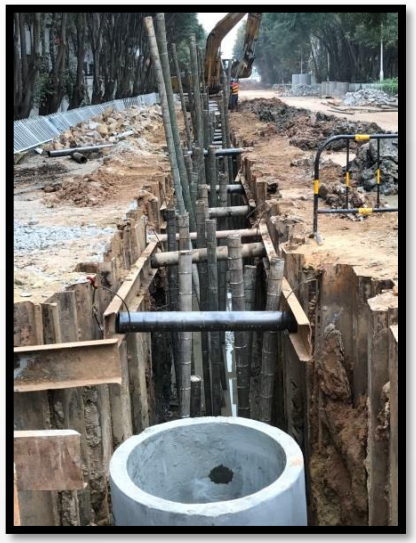


Top Risks- Collapse

1. Lack of Foundation Pit Supporting and Protection
2. Lack of Framework Supporting and Protection
3.Improper Tower Crane Installation







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03 Risk management Solutions

Catastrophe Loss Impacts

- 74 Fatal
- 2 Injuries
- 9
- 10

Regulation Requirements Impacts

Clearly define unsafe acts.

Establish safety production responsibility system.

Company is the risk owner

Accelerate innovation in safety regulation.

Establish long-term mechanism.

Government should take their responsibility

Impact of the Accidents

Direct Loss直接损失

- ❖Property Loss 财产损失
- ❖Delay in Start 工期延后

Other Loss其他损失

- ❖Unplanned Project Stop 临时停工
- ❖Imprisonment 刑事案件
- ❖Reputation 声誉

深圳渣土受纳场滑坡事故调查报告公布 110名责任人受处理

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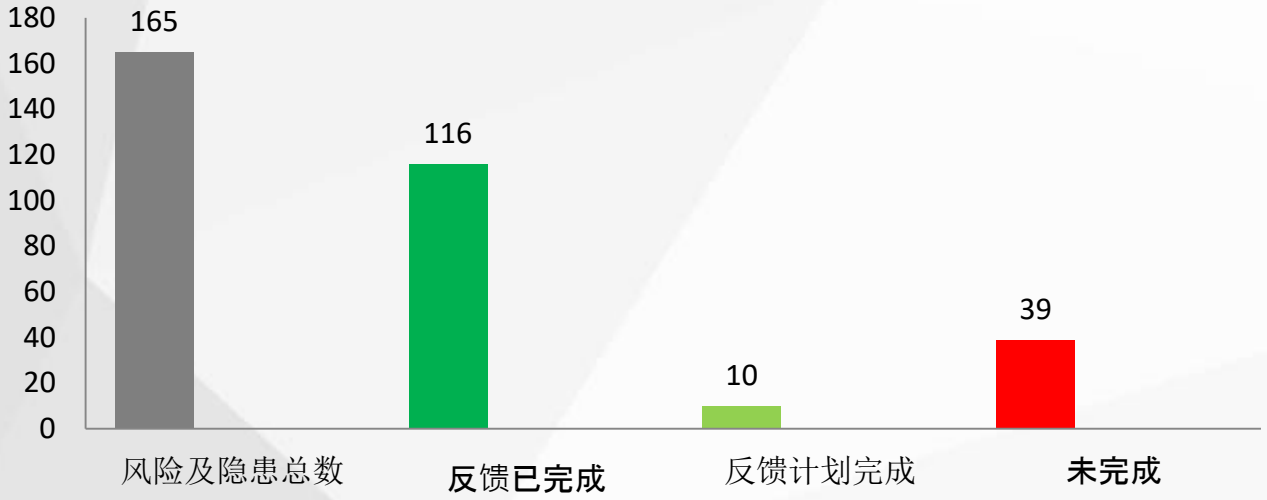
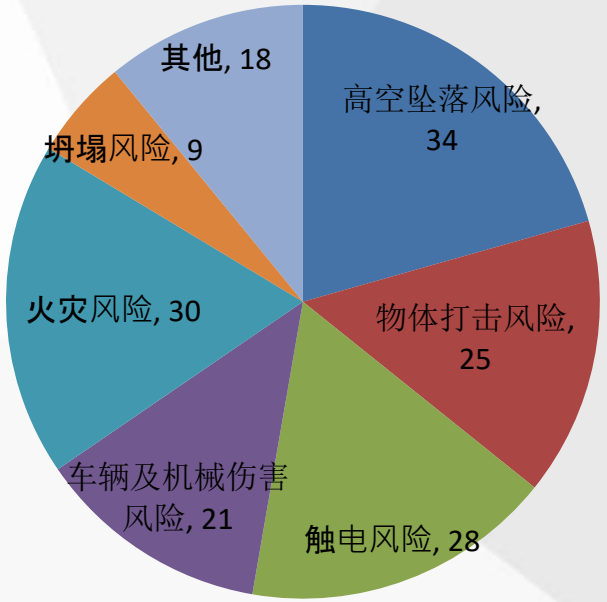
Risk Management – Loss Prevention

风险及隐患总数/完成情况
No. of Recs/Competed



风险隐患类型及数量



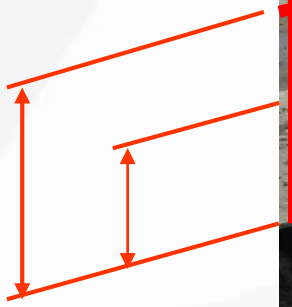
What could be better – Loss Prevention

What if someone come to this place?

Setting handrail

Gap ?
180cm

Essential height ?
100 c m



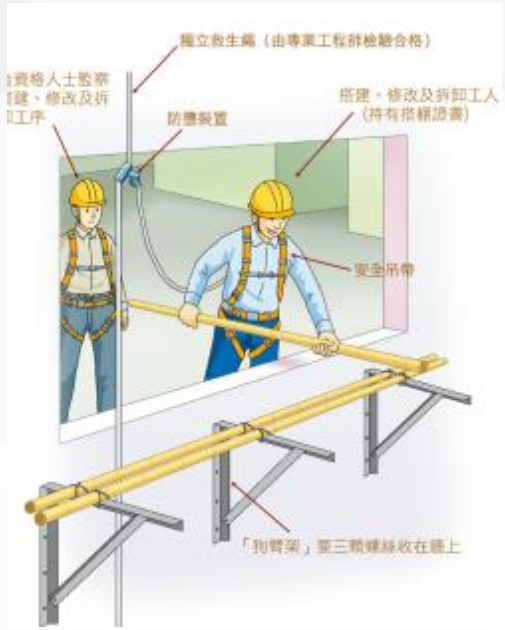
Height of skirting board:over 18cm

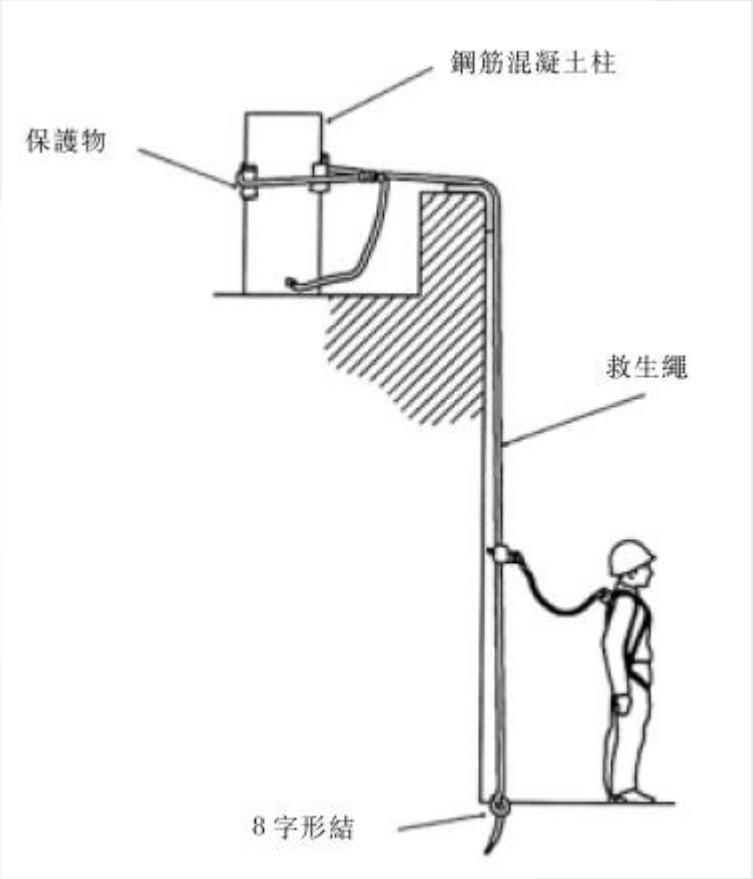
Gap ?
35 ~ 50 c m

Setting skirting board

What could be better – Loss Prevention

解决方案-独立生命绳



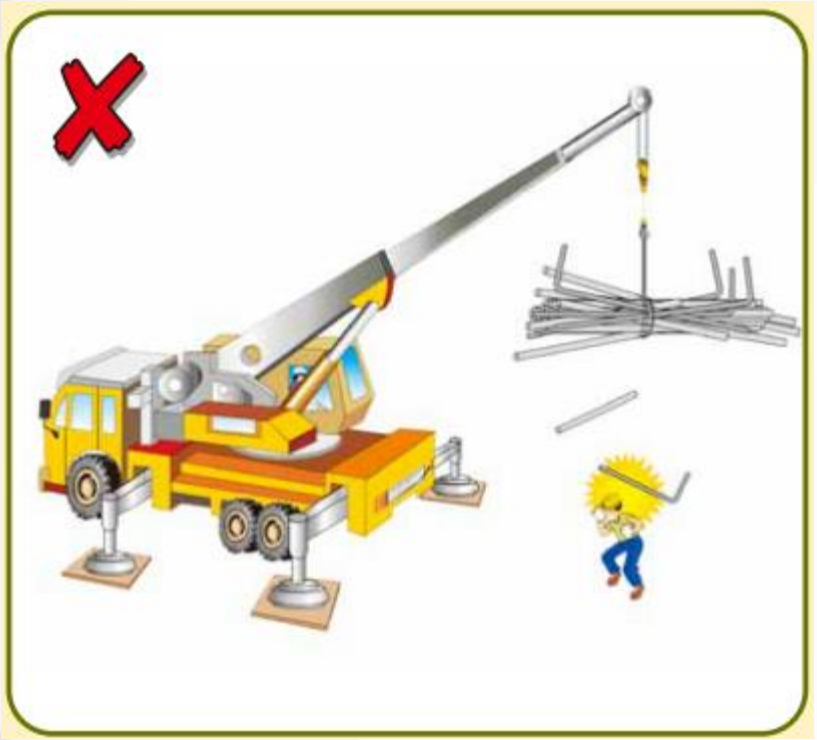


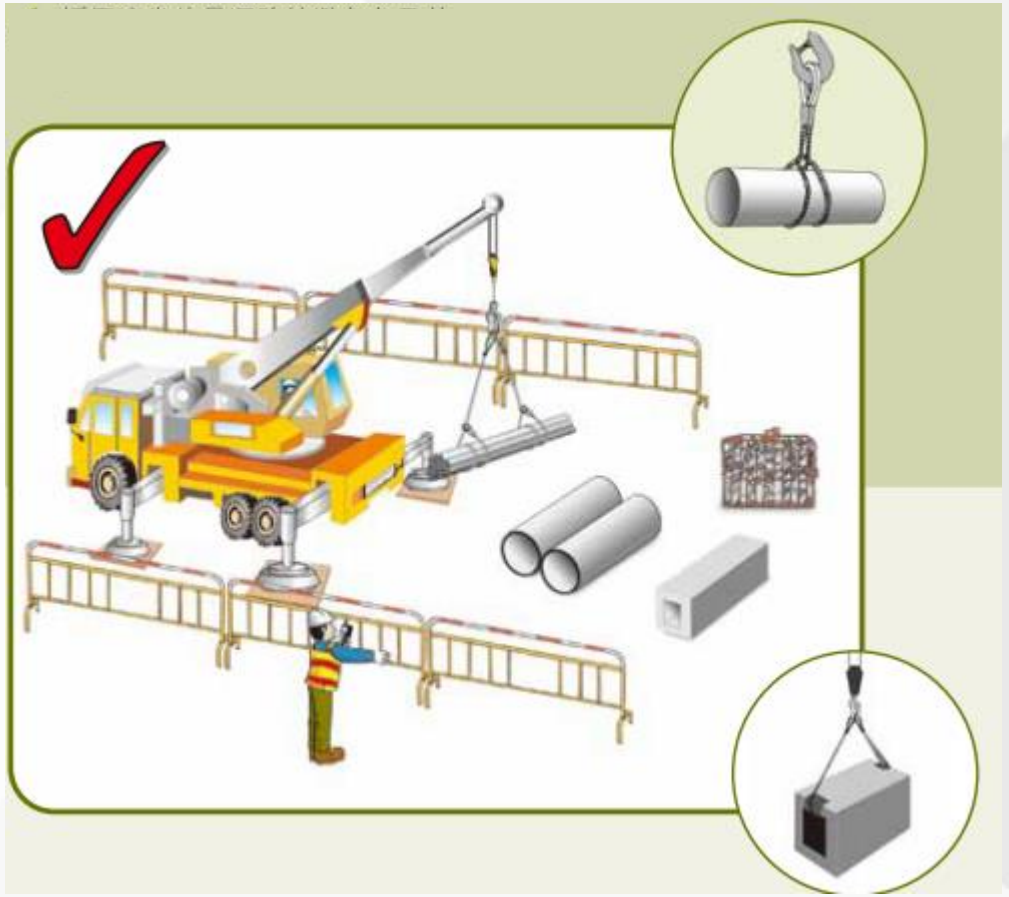
人字梯

What could be better – Loss Prevention

解决方案-推行标准化，产品化登高工具。

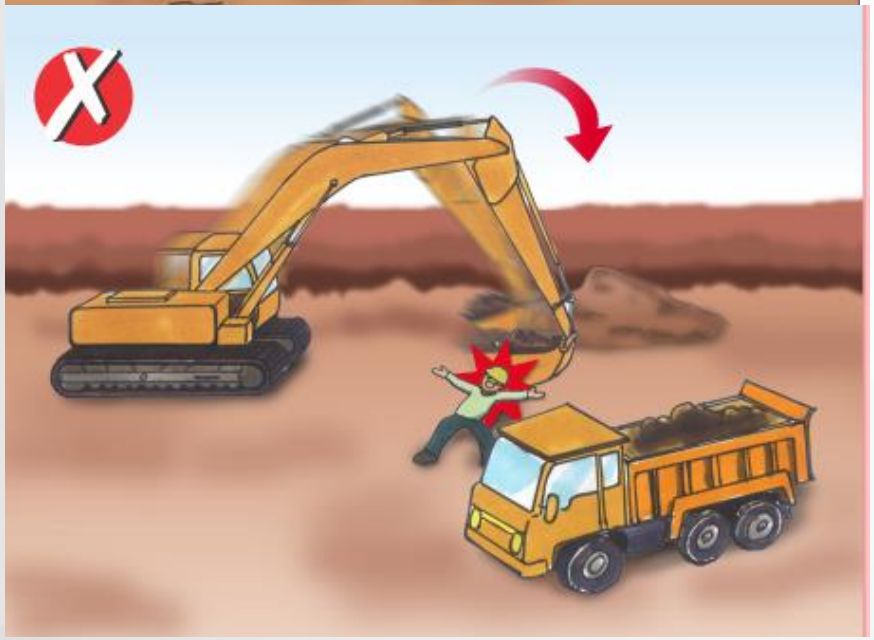
What could be better – Loss Prevention

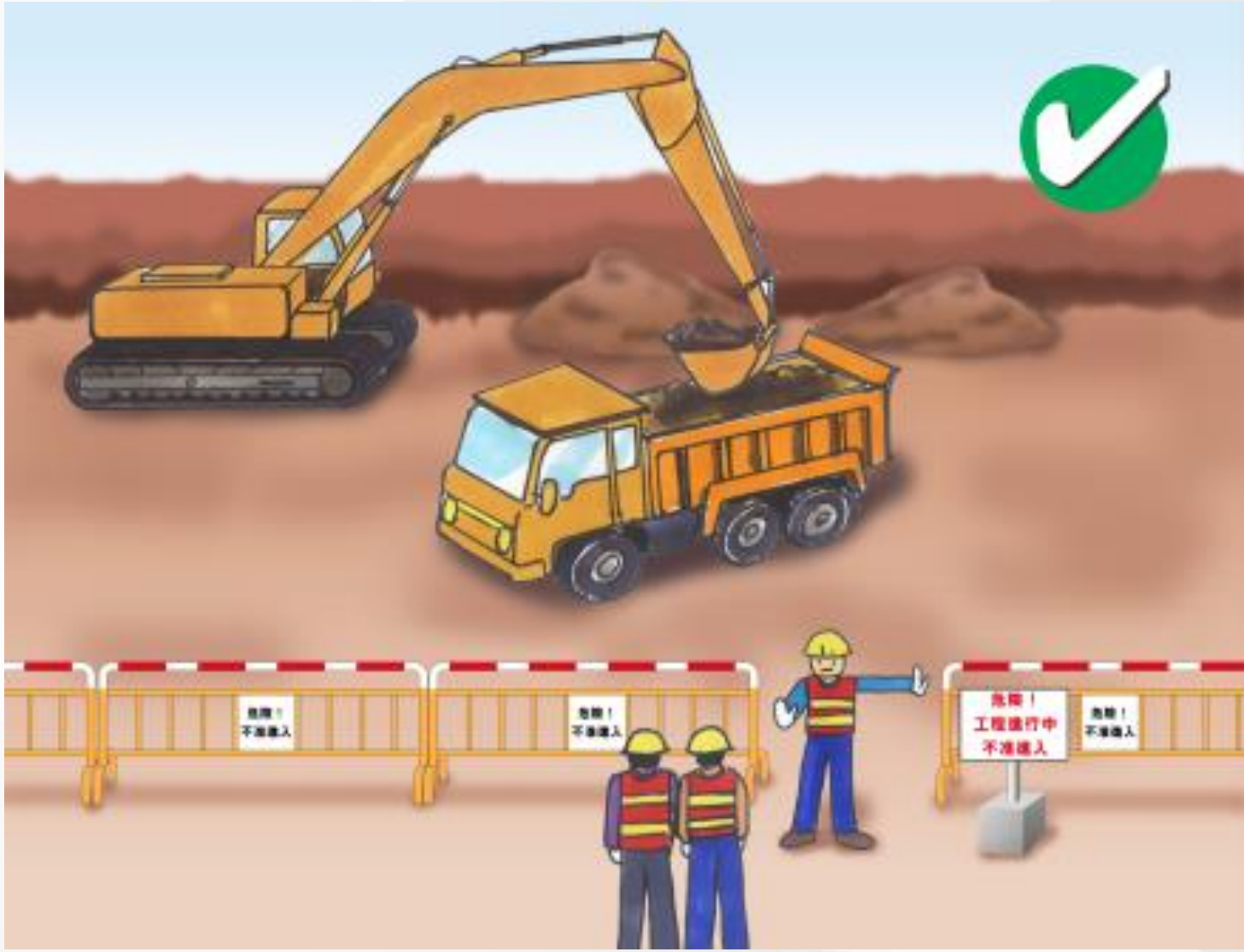




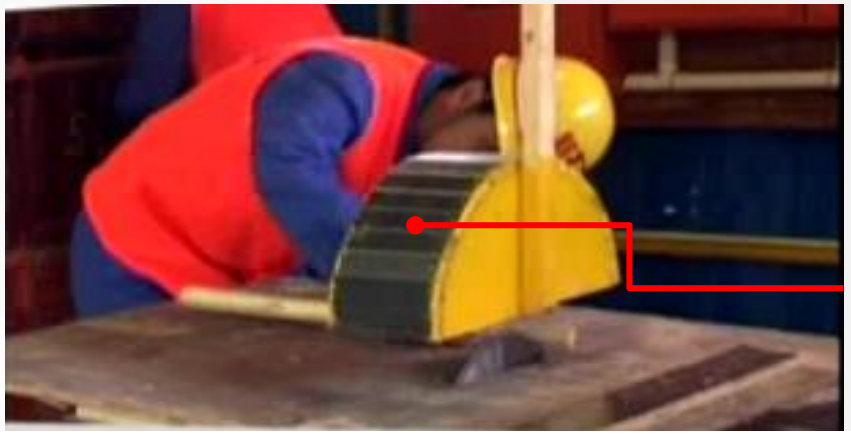
What could be better – Loss Prevention

机械伤害





What could be better – Loss Prevention



防护罩

手柄

防护罩

砂轮片

What could be better – Loss Prevention

管理理念

热加工操作许可证

停止!

避免热加工操作,如果可能,寻求替代的更安全的方法

在开始任何涉及明火或会产生高热和/或火化的临时性工序之前,都必须申请此热加工操作许可证.
这些工序包括但不限于, 钎焊,切割,磨工,锡焊,用气焊喷枪铺设屋顶和点焊等工序.

第 1 部分

指示

1. 消防安全主管:
A. 指定必须执行的预防措施
B. 热加工操作过程中填妥并保留**第 1 部分**.
C. 把**第 2 部分**交给热加工操作人员.
D. **第 2 部分**存档,供今后参考.包括 1 小时防火巡视和 3 小时监控已实施完毕,经签名确认的信息.

热加工操作人员:
☐ 本企业员工
☐ 承包商_____

日期	工作单编号
地点/建筑物和楼层	
识别目标/详细地点	
工序性质	
热加工操作人员的姓名(楷体)及签字	

我确认已对上述地点进行了检查,并已采取"所需预防措施检查表"上勾选的防火措施.允许进行此项热加工操作.

消防安全主管/运营主管的姓名(楷体)及签字

开始时间: 上午 下午 结束时间: 上午 下午

许可证到期	日期	时间	上午 下午

请注意:本表格背页印有紧急事故通告字样.可在适当时候加以使用.

登陆 www.asia.jlt.com,可以每周七天,每天二十四小时全天候在线订购热加工操作许可证或其他 JLT 资源.

JLT

所需预防措施检查表

有 不适用

☐ ☐ 消防泵正在运行并可自动启动.
☐ ☐ 喷淋系统的供水控制阀为开启状态.
☐ ☐ 消防栓水枪和灭火器处于工作状态/可操作.

在热加工作业区 35 英尺(11 米)以内的安全要求

☐ ☐ 清除所有易燃液体,粉尘,棉絮和油垢.
☐ ☐ 清除区域内易爆性的气体环境.
☐ ☐ 保持地面清洁.
☐ ☐ 弄湿易燃性的地板,盖以湿砂或防火板.
☐ ☐ 尽量移走其他易燃物体.
否则使用 JLT 认证的焊接挡板、防火毯、防火罩、防火布或金属加以隔离保护.
☐ ☐ 遮盖所有墙体和地面上的开口.
☐ ☐ 在热加工操作区下方与四周设置 JLT 认证的焊接挡板、防火毯和防火罩.
☐ ☐ 隔离保护或关停可能将火星带到远处易燃材料的管道和传送带.

在墙壁,天花板或屋顶进行热加工操作前的检查要点

☐ ☐ 建筑物不可燃且没有可燃的覆盖物或隔热材料.
☐ ☐ 需移走墙体、天花板和屋顶另外一面的可燃材料.

对密闭设备进行热加工操作前的检查要求

☐ ☐ 将一切可燃材料从密闭设备中清除.
☐ ☐ 清除设备容器内的可燃液体/气体.
☐ ☐ 压力容器、管道以及设备已经停用并隔离、排空.

防火巡视/热加工操作区监控

☐ ☐ 在热加工操作期间及完工后 60 分钟内(包括任何用餐或休息时间),监火员进行现场防火巡视.
☐ ☐ 监火员应有适用灭火器并视情况需要配备即用消防水带.
☐ ☐ 监火员经过培训,了解如何正确使用灭火器材及警报系统.
☐ ☐ 热加工区域上下方的邻近区域可能需要监火员巡视.
☐ ☐ 在 60 分钟防火巡视后的 3 小时内,仍要保持对热加工操作区的监控.

☐ ☐ **采取的其他预防措施:**
_____
_____
_____
_____

警告!

热加工操作进行中
小心火焰!

警告!

热加工操作进行中
小心火焰!

当紧急事故发生时:

报警电话:_____

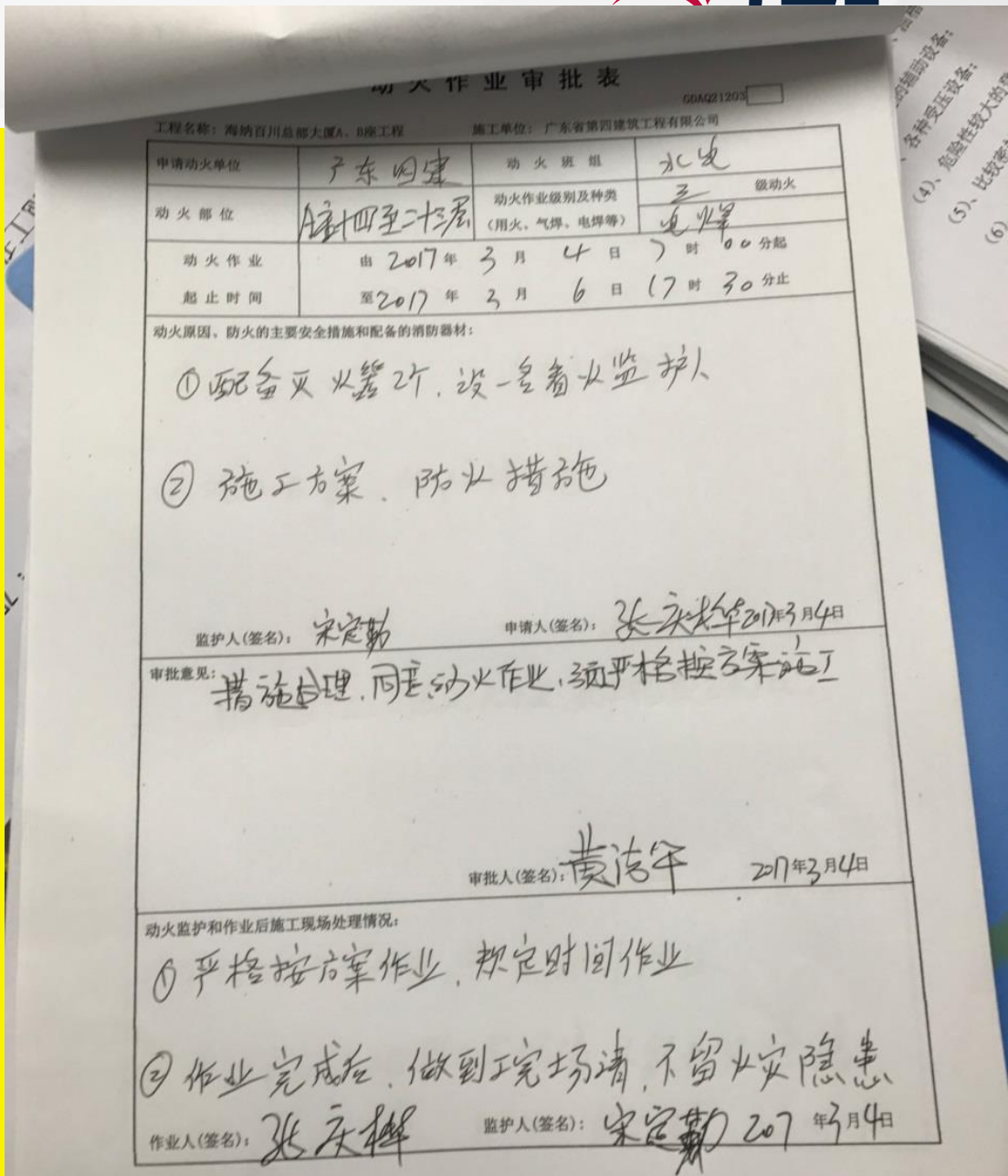
地址:

_____

_____

_____

警告!



What could be better – Loss Prevention

施工安全技术需要改进

外幕墙安装

VS

机器人外幕墙安装

Comprehensive Insurance Program

Insurance to be considered in Project Stage

- Corporate Insurance Program
- Clear Insurance Guideline for Contractor
- Delay in Start Up

谢谢!

Thanks

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