Risk Management in Construction

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Health & Safety Risk Assessment in Practice

* Clarity, Responsibility, and Safety in Action.
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Course Overview

* Purpose: Understand how to identify, assess, and manage risks in construction.
* Duration: 45–60 minutes (self-paced).
* Focus: Academic insight with real-world safety applications.

Learning Outcomes

- Explain the importance and purpose of Health and Safety Risk Assessments
- Define Hazards, Risks and Controls
- Undertake a health and safety risk assessment

Questions to Answer in this lecture:

- How **SAFE**/dangerous is your construction method statement?
- What are the sources of hazards?
- Who are those at risk?
- What are your plans/techniques to mitigate identified danger?

Risk Management

Define Risk?

* A probability or threat of damage, injury, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through pre-emptive action.

www.businessdictionary.com

* **Risk** is the possibility of something bad happening. cambridge dictionary

* **Risk** involves uncertainty about the effects/implications of an activity with respect to something that humans value (such as health, well-being, wealth, property or the environment), often focusing on negative, undesirable consequences.

Society for Risk Analysis. Retrieved 13 April 2020

Which do you prefer and WHY?

Risk Management Process

Four Steps of the Risk Management Process

1. Identify the risks to a project or activity.
2. **Assess the risk.**
3. Take practical/sustainable steps to reduce the risk to an acceptable level.
4. Document, review, update and communicate

Marie et al., 2021 "Four step risk management process".
https://www.migso-pcubed.com/blog/risk-management/four-step-risk-management-process/

Risk Management …

- Risk management could be conducted for financial, operational, human capital, technological purposes. However, in this module, our focus is on the **Health and Safety risk in construction.**

* For Health and Safety this means:
  * Ensuring workers and the public are properly protected
  * Ensuring significant risks are managed effectively
  * Focus on reducing risks that happen more often and those with serious consequences
  * Recognising that individuals have the right to be protected, but also have to exercise personal responsibility.

❖ Legal obligation under Construction Design and Management (CDM) (2015) Regulations: ***eliminate*** *foreseeable health and safety risks to anyone affected by the work and, where that is not possible, take steps to* ***reduce or control*** *those risks*

❖ Eliminating *foreseeable* risks needs a good method statement

❖ Control measures are then used to reduce the risk to an acceptable level

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Health and Safety Risk Management Process

The stages of risk assessment (HSE):

1. Identify the hazards & possible outcomes
2. Identify the people at risk
3. Evaluate the risk (severity × likelihood) …
   and decide on precautions (control measures) to reduce the risk to an acceptable level
4. Record the findings and communicate them
5. Review and update as required

Let's define Hazards and Risks

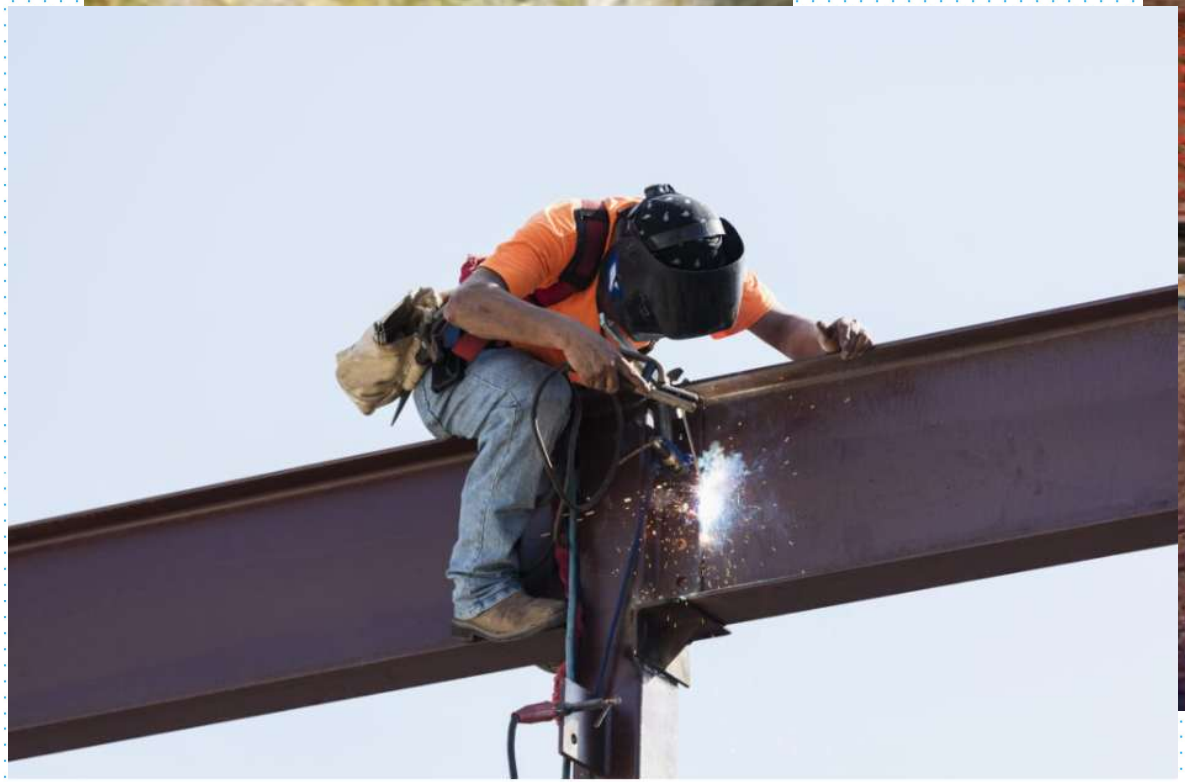
- A **Hazard** is a *potential source of harm* or adverse health effect on a person.

- **Risk** is the *likelihood* that a person may be harmed by a hazard - usually with an indication of how serious the harm may be.

•Risk rating = likelihood × severity

Hazards and Risks …

* What is the **hazard**? & possible outcomes
* Who is at risk?
* What is the **risk rating**? (i.e. **likelihood** × **severity** of the hazard)
* What **control measures** can be used to reduce the risk?
* What is the **residual risk**?



What are the possible hazards in this figure?

What are the control measures to minimize the suggested risk?

Risk assessment … the Process …

* Identify the **hazard** ...
* Decide **who** might be at **risk** and what the **hazard outcome** would be ...
* Assess the **likelihood** of the hazard outcome and its **severity.**
* Calculate the **risk rating** (likelihood × severity).
* Apply appropriate **control measures** to reduce risks to an acceptable low level.
* Assess the **residual risk rating.**
* Any risks that cannot be reduced to an acceptable low level should initiate a review and modification of the design or construction method statement.

Things to consider …

- If [residual] risk is not LOW the activity should not be taking place without further consideration in the risk management process.
- If residual risk is MEDIUM or HIGH
  - modify the activity & method statement
  - put in place [additional] control measures
  - seek advice!
- Other grading systems exist but process is the same.

Example: RISK ASSESSMENT

RIDDOR – Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995)

H&S RISK ASSESSMENT FORM		GROUP names			Group number
HAZARD	HAZARD OUTCOME	PERSONS AT RISK	SEVERITY x LIKELIHOOD = RISK RATING	APPROPRIATE CONTROLS OR CONTROLS IN USE TO REDUCE RISK	RESIDUAL RISK Should be LOW
Manual handling of heavy materials	Neck/back/ foot injury	Operatives	3 x 4 = 12	Use items weighing less than 25kg Use mechanical lifting where possible, otherwise carry out a manual handling risk assessment.	3 x 1 = low

TRADE or ACTIVITY (eg bricklayers)	SEVERITY	LIKELIHOOD	
	1. VERY MINOR	1. HIGHLY UNLIKELY	1 – 5 LOW
	2. MINOR, not RIDDOR	2. UNLIKELY	
	3. SERIOUS, RIDDOR 3 days	3. LIKELY	6 – 10 MEDIUM
	4. MAJOR, RIDDOR	4. HIGHLY LIKELY	
	5. FATALITY	5. FREQUENT (CERTAIN)	11 – 25 HIGH

Example: RISK ASSESSMENT

CDM Risk Management Record (Quantified)

Revision Control:

Originator _____ Date: _____

_____

Checker _____ Date Checked: _____

Project Stage:

Design	
Construction	
Maintenance	
Demolition	

Likelihood
Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Fairly Likely
Rating 4 = Likely
Rating 5 = Very Likely

Severity
Rating 1 = No significant injury or illness
Rating 2 = First aid injury or illness
Rating 3 = Upto "3 day" injury or illness
Rating 4 = Over "3 day" injury or illness
Rating 5 = Fatality, disabling injury etc.

Project	
Project No.	
Area	
Phase	
Doc Ref.	
Date	
Page	

S = Severity \ L = Likelihood	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Risk Rating = Likelihood x Severity

Ref.	Hazard	Risk	Risk L	Risk S	Risk RR	Design Action / Control Measures	Residual Risk L	Residual Risk S	Residual Risk RR	Action By?	Residual Risk	Contractors (or Others) Specific Measures
1.00												
1.01												
1.02												
1.03												
1.04												
2.00												
2.01												

References/ Additional Resources

- Health and safety in construction, HSG 150, third edition, published 2006). ISBN 978 0 7176 6182 2. https://www.hse.gov.uk/pubns/priced/hsg150.pdf

Engineer the Ground. Engineer the Mind.

* Thank you for learning with Damilola Bashir Akinniyi.
* For mentoring or collaboration, visit damilolaakinniyi.com