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Webinar on Practical Ergonomic Risk Assessment in Construction 2023

The Health and Safety Authority in conjunction with the Construction Industry Federation and the Irish Human Factors and Ergonomics Society invite you to attend this webinar on practical ergonomics risk assessment tools tailored for those working in construction.

Why attend?

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Attendees will gain an insight to practical risk assessment tools to quantify ergonomic risks. They will also gain an understanding of the importance of controlling risk through the introduction of innovative engineering solutions or by changing the way work is planned and organised. The webinar includes case studies demonstrating the application of practical approaches to risk assessment and problem solving through worker consultation. The case studies also detail the tangible benefits arising from the interventions by way of reduced risk of musculoskeletal injury or ill health, improved human performance and productivity.

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- Health and Safety Professionals
- Project Supervisors for the Design Process
- Project Supervisors for the Construction stage
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- Contractors
- Safety Representatives
- Occupational Health Professionals
- Others that have an interest in the science and management of work

Webinar Dates and times

November 23rd 2023
11:00 - 12:30

Webinar Topics and Speakers

- 11:00 Introduction: *Ronan Redmond***
- Executive, Safety & Training, Construction Industry Federation
- 11:10 Managing Ergonomic Risk Exposure: *H.S.A. Strategy and Intervention***
Frank Power – Senior Ergonomist (Inspector), Health and Safety Authority
- 11:20 Introduction to the Ergonomic Risk Assessment Tool**
Ita Leyden (Leyden Consulting & Engineering)
- 11:30 Practical use of the Rapp Tool and Art Tool - *Ita Leyden*** (Leyden Consulting Engineering)
- 12:20 Questions & Answers**
- 12:30 Close of Webinar**

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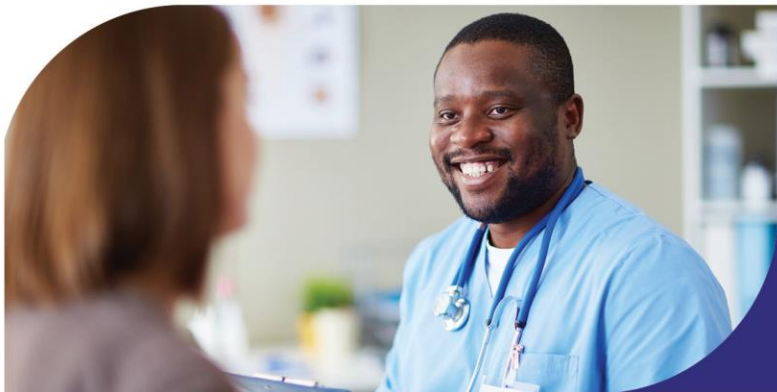
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Managing Ergonomic Risk Exposure in the Construction Sector: Current Strategies and Interventions

Frank Power, Senior Ergonomist (Inspector),
Health and Safety Authority, Ireland

November 23rd 2023



Key Points on Manual Handling Risk

Duty holders are duty bound to manage manual handling risk in construction; this means:

- Having knowledge of the manual handling activities that take place in their workplace
- being able to collect important technical information including load weight data, information on work area set up,
- being able to use evidence based risk assessment tools to identify risk factors and
- putting appropriate measures in place to address risk factors including introducing lifting equipment, changing how work area is organised or reducing load weight specification where practical

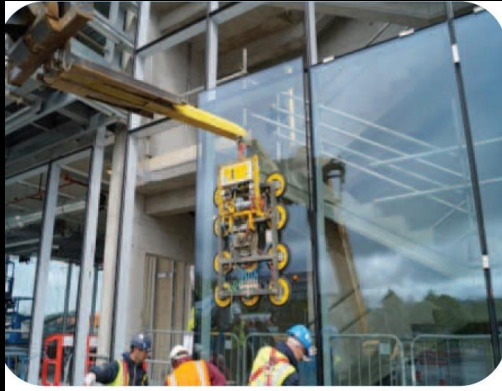
Ergonomics and its legal context on managing Manual Handling risk

- The 2005 Safety, Health and Welfare at Work Act and the Hierarchy of Controls
- The Manual Handling of Loads Regulation
- The Safety, Health and Welfare at Work Construction Regulations 2013





Evidence of
planned manual
installation of
loads on site



Evidence of
planned manual
installation of
loads on site

Questions for PSCS/Sub contractors/designers to ask when load installation is being planned on site?



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What type of manual handling activities are being considered as part of the load installation?

Where are loads being manually handled and what are the steps involved in moving a load?

Have you information on the load weight specifications of loads?

Can you provide documented evidence that ergonomic risk factors (e.g. load too heavy, load lifted away from the body, lifting loads above head height) have been identified and managed for manual handling tasks?

Can you provide evidence that appropriate mechanical handling equipment is made available to handle heavy loads?

Have you prepared a method statement/RAMS which outlines the system of work for installing heavy loads which avoid or reduce risk of a musculoskeletal injury?

Risk Assessment Tools for Managing these risks



Example of
Score Sheet for
Assessment
of a Manual
Handling Task

G	Low level of risk
A	Medium level of risk
R	High level of risk
P	Very high level of risk

Risk Factors	Colour Band (G,A,R or P)			Numerical Score		
	Lift	Carry	Team	Lift	Carry	Team
Load weight and lift/carry frequency	P			10		
Hand distance form the lower back	R			6		
Vertical lift region	G			0		
Trunk twisting / sideways bending Asymmetrical trunk / load carrying	R			2		
Postural constraints	A			1		
Grip on load	R			2		
Floor surface	G			0		
Other environment factors	G			0		
Carry distance (carrying only)						
Obstacles en route (carrying on)						
Communication and co-ordination (team handling only)						
Other risk factors e.g. individual factors, psychosocial factor, etc.	TOTAL SCORE:			21		



Example of Issues observed on site

Inspector Intervention where Stone
cladding Installation was taking place:

- Inspector had concerns about loading capacity of loading bay and scaffold and observed stone cladding units on site being manually fitted into place
- Raised the issue with the PSCS and PSDP and contacted the Ergonomist
- Ergonomist asked the inspector to request further information related to the weight specification of the cladding and the method statement
- Ergonomist and local inspector did a follow up inspection

<u>Item</u>	<u>Drawing ID</u>	<u>Height (mm)</u>	<u>Width (mm)</u>	<u>Thickness (mm)</u>	<u>Description</u>	<u>Weight (Kg)</u>
1		475	715	60mm	Cladding	53.4
2		650	715	60mm	Cladding	73.1
3		865	715	60mm	Cladding	97.23
4		940	715	60mm	Cladding	105.7
5		1220	715	60mm	Cladding	137.1
6		1265	715	60mm	Cladding	142.2
7		650	190	60mm	Reveals	19.4
8		1220	190	60mm	Reveals	36.4
9		1265	190	60mm	Reveals	37.8
10		715	715	60mm	Soffit	80.3646
11		1010	715	60mm	Soffit	113.522
12		1035	715	60mm	Soffit	116.3319



Key Issues Observed





- Risk Level for Load Weight: Purple: Unacceptable Level of Risk: such operations present a serious risk of injury . Other risks factors observed with respect to awkward posture.
- No Risk Assessment to take account of the manual handling risk factors with respect to this operation
- There were hundreds of cladding units to be installed.
- The Method Statement prepared by the PSCS and the sub contractor did not make reference to the use of any mechanical equipment to install the cladding units
- No information available on the load weight specifications for the cladding units on site and no weight information on labelling on cladding loads delivered to site

Mac Tool Risk Assessment for stone cladding installation


Risk Factor: Load Weight

A Load weight

Note the weight of the load and the number of workers performing the task. Enter the colour band and numerical score on the score sheet. For teams of five people or more, a full risk assessment is needed. If the colour band is purple you should examine the task very closely as it may represent a serious risk of injury and must be improved.

2 people < 35 kg 3 people < 55 kg 4 people < 75 kg	2 people 35-65 kg 3 people 55-95 kg 4 people 75-130 kg	2 people 65-85 kg 3 people 95-130 kg 4 people 130-170 kg	2 people > 85 kg 3 people > 130 kg 4 people > 170 kg
 G/0	 A/4	 R/6	 P/10

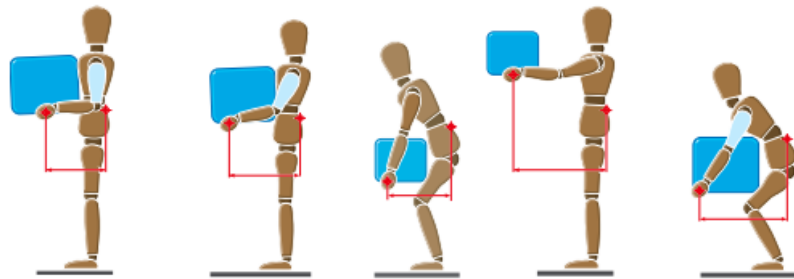
Load Weight/frequency of lift: 142kg

 Very high level of risk

Risk Factor: Hand distance away from the lower back

B Hand distance from the lower back

Observe the horizontal distance between the worker's hands and lower back. You should assess the 'worst-case scenario', including picking up and putting down. Use the following illustrations and descriptions as a guide:



Upper arms vertical AND torso upright	Upper arms angled away from torso	Torso bent forward	Torso upright. Arms fully outstretched	Upper arms angled away from torso AND torso bent forward
Hands close to the low back	G/0	Hands at moderate distance from the low back	A/3	Hands far from the low back
				R/6



Hand distance from the lower back:
(Arms angled away from the body)

R High level of risk

Key Points to consider when addressing manual handling in construction

- Do not make assumptions that it is not a significant hazard
- Do not rely on accident data to determine if musculoskeletal injuries are prevalent
- Team lifting of loads is only appropriate for low frequency lifts
- Think about projects on site where there will be installation of large loads (e.g. Cladding/Glazing/Large plasterboard units/Lintels/Fire doors)

Key Points to consider when addressing manual handling in construction

- Ask the question: how are loads to be installed?
- Do you have the load weight data?
- Do you know the planned system of work for installation?
- What is the work environment like?
- Is it likely that there will be exposure to manual handling risk factors such as excessive force, repetition, sustained awkward postures etc. ?
- Has a risk assessment being carried out, has the PSCS/PSDP and Sub-contractor discussed?
- Has consideration being given to using appropriate mechanical means to install the loads?
- Is there competence on site in using evidence based risk assessment tools such as the Mac Tool?
- Is it considered at the design stage/tender stage of projects when materials are specified for installation?

The Risk Assessment Process

Step 1	Task description	The metal billets have to be transferred manually from a table into a CNC Machine. The employee takes the billet from the table and carries it to the CNC Machine and then reaches in to place the billet in position in the machine.
Step 2	Collect Technical Information	This is a manual handling task and the appropriate risk assessment tool to use in this case is the Mac Tool. There are changes in posture as the billet is transferred from the table to the CNC. The billet can weigh 20-130kg. The table is at waist height. The floor is clean and free of debris. There are no handles on the load and it is difficult to handle.
Step 3	Identify the risk factors using the relevant risk assessment tool and fill in the relevant score sheet (e.g. MAC Tool)	Below is a completed MAC Tool score sheet for this task: There are a number of ergonomic risk factors with respect to this handling task and these include the load weight (billet weight up to 130kg), hand distance from the lower back (upper arms angled away from the body and trunk), trunk twisting and sideways bending when placing the billet into the CNC machine.
Step 4	Identify the improvements to be put in place	There are high risk ergonomic risk factors identified in the score sheet for this task and the employer has in consultation with the person that does the job and a number of other colleagues identified a solution to avoid the handling of the billets. A custom engineered billet loader was fixed to the floor at each CNC machine centre and all operators were trained to use it.
Step 5	Review the effectiveness of the improvements	The new engineering intervention is very effective in that it has eliminated the ergonomic risk factors completely. The billet loader eliminates the manual lifting of the billet and the billet loader can be operated with a neutral standing posture.



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An Introduction to Ergonomic Risk Assessment



This short course is suitable for practitioners including managers, supervisors, safety officers and occupational health professionals who may be assessing work activities which involve manual handling and/or repetitive tasks involving the upper limbs. The course has a particular emphasis on the 5-step risk assessment process.

Please note that this course is intended to raise awareness and provide an overview of ergonomics and its relationship to the risk assessment process.

The course is not intended to replace the workplace specific information and training needs required by health and safety legislation and it does not denote competency in ergonomic risk assessment. Specific training and / or specialised advice may also be required.

Course duration: 20 minutes

Learning outcomes:

At the end of this course, you should be able to:

- understand the meaning of ergonomics and how it relates to manual handling work activities. and/or repetitive tasks involving the upper limbs.
- understand why ergonomic risk factors must be managed.
- understand the ergonomic risk factors that impact on musculoskeletal health.
- recognise risk assessment tools that can be used to assess ergonomic risk.
- apply a 5-step ergonomic risk assessment process for assessing work activities.

[Enter Course](#)

Conclusion

- Take account of the risk assessment process
- Be Aware of planned load installation work activities on site
- Try to use the risk assessment tools, consider organising training for relevant staff
- Talk to your staff
- Refer to our website and guidance
- Enjoy the webinar

www.hsa.ie

https://www.hsa.ie/eng/workplace_health/manual_handling_display_screen_equipment/



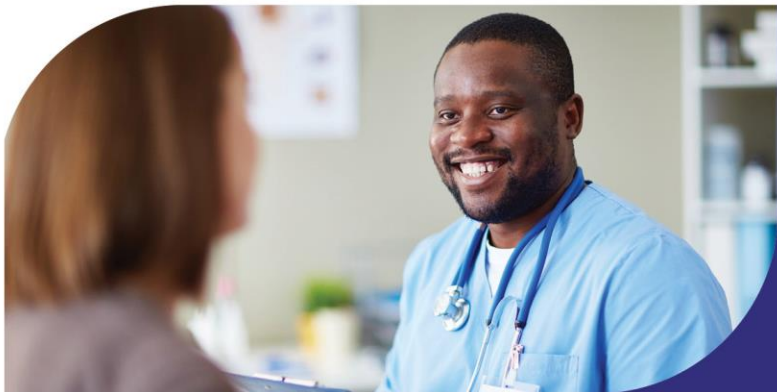
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Go raibh maith agaibh
Thank you

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