



RIAI

Post COVID-19

RIAI Proposals for the Reopening of Construction Sites to Promote Suitable Protocols for Working Environments

An RIAI Initiative

RIAI, APRIL 2020

Foreword

This document is presented on the basis of suggesting initiatives and ideas with the current COVID-19 situation as applicable currently, at date of publication, and further in consideration of safety of its members when visiting the site. It should be read in conjunction with the *CIF Construction Sector c-19 Pandemic Standard Operating Procedures, Version 1.*

Management of the site for the safety of contractor employees is, however, the sole responsibility of the contractor and must be based on a risk assessment for both the management of COVID-19 and for additional hazards resulting from changed work practices and distancing.

It is for each member to exercise professional judgement when considering any initiatives outlined herein, and Employer members should prepare safety procedural documents based on a risk assessment for site visitations and for home working.

It is the readers' and/or members' responsibility to establish if any changes in health and safety advice or legislation after the publication date have an impact on the initiatives outlined in this document.

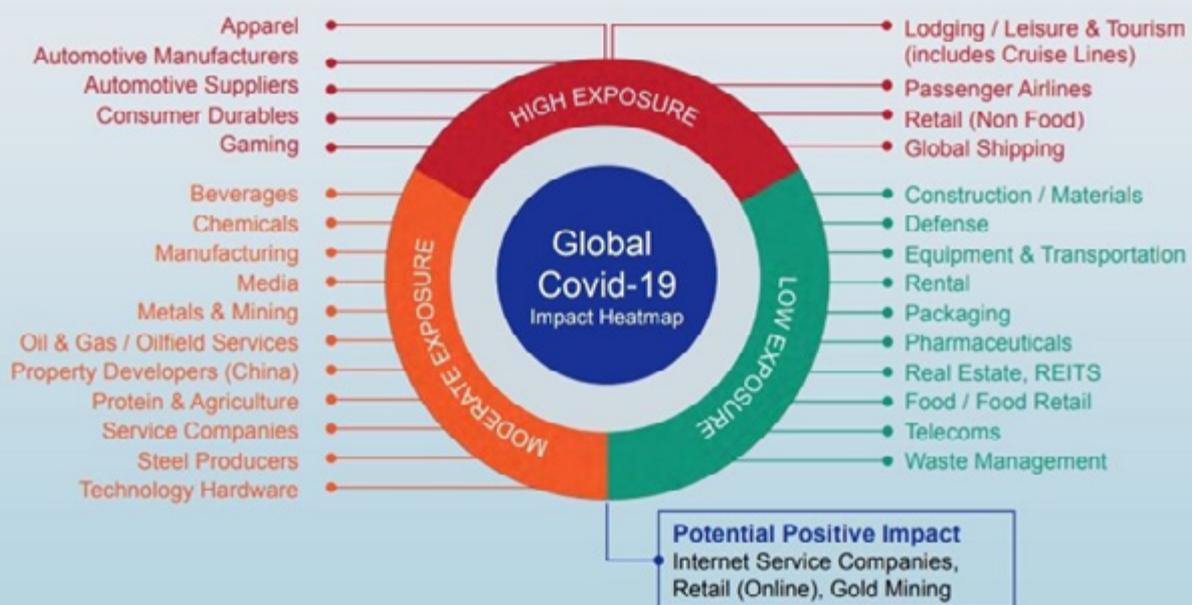
It is the members' responsibility to be aware of changes in legislation and advice since the date of publication of this ideas document. No responsibility for loss or damage caused to any person acting or refraining from action as a result of the material included in this publication can be accepted by the authors or the RIAI.

The primary intentions of this document are to set out initiatives to encourage site protocols appropriate to post COVID-19 site working and assisting in getting construction sites functioning post COVID-19 restrictions without compromising quality of construction and compliance with building regulations.

Construction has Low Exposure to Economic Disruption

The COVID-19 Heat Map

COVID-19 induced economic disruption will disproportionately impact some industry sectors more than others



Source: Moody's, COVID-19 Impact Heatmap, Coronavirus hurts travel-driven sectors, disrupts supply chains

COVID-19

Construction Risks

Degrees of Risk

Construction Sites present different degrees of risk depending on:

- Building and Construction Type
- Project Type
- Construction Stage
- Site Setup and Staff Welfare
- Construction Techniques

Building and Project Type

Building types range across multiple categories from the nominally lower risk types such as Industrial, Logistics, Retail Warehousing, Roads and Rail or Multistorey Car Parks to nominally medium risk such as Schools, Third Level, Office or Retail Malls to nominally higher risk such as Residential, Healthcare, Research, Interior Fitout or Tunnels.

Project types will include, among others, New Build, Refurbishment, Conservation, Fitout, Interiors and Civil Works

Within each building and project type, there will be different levels of risk and it will be critical to evaluate the specific risks of each individual project. Risk needs to be evaluated against headings such as:

- Open or closed site
- Confined spaces
- Speed of construction
- Adequacy of horizontal and vertical circulation routes
- Multi trades activity
- Other project specific issues

Construction Stage

For most, but not all, projects, construction stage risk may be as follows:

LOWER RISK

- Excavation and Groundworks
- Foundations and Piling

MEDIUM RISK

- Basements and Substructures
- Structural Frame
- Roofing
- Interiors First Fix
- Interiors Second Fix

HIGHER RISK

- Cladding and Glazing
- M+E and Lifts
- Interiors First Fix
- Interiors Second Fix

For each construction contract there will be different levels of risk and it will be critical to evaluate the specific risks of each individual project.

Site Setup and Staff Welfare

For most, but not all, sites, setup risk may be as follows:

LOWER RISK

- Large sites

MEDIUM RISK

- Administration and management offices

HIGHER RISK

- Scaffolding
- Travel to site and access into site
- Horizontal walkways and vertical access
- Canteens
- Drying Rooms, Staff Changing and lockers
- Showers and Toilets
- Confined Spaces

For each construction site there will be different levels of risk and it will be critical to evaluate the specific risks of each individual project.

COVID-19

Possible Innovations for Risk Mitigation

Innovation Area

- 16-hour Daily Cycle with Shift Work
- Construction Site Personnel PPE
- Site Administration and Management Personnel PPE
- Site Setup and Staff Welfare
- Construction Techniques Work Stage Modifications
- Buddy System Modifications
- Site Inspection Protocols

16-Hour Daily Cycle with Shift Work

- Building sites operate 16 hours. Construction, administration and management personnel would be divided into two eight-hour shifts to restrict the number of people on site at any one time but maintain daily productivity. These could possibly be 7am-3pm, 3-4pm sterilisation break, 4pm-12am.
- Councils would have to modify current restrictions (for example, noise restrictions often dictate that building work cannot start until 8am)
- Issue updated guidelines to manage adherence to social-distancing rules in crowded lifts, site accommodation and all site access routes, vertical and horizontal. Guidelines to emphasise maintaining a distance of 2 metres inside and outside, a ban on queues at hoists and lifts, and social distance and hygiene monitors being appointed at each site.
- Additional industrial level cleaning, especially after meal breaks, "toolbox talks" to promote hygiene, and consideration given to staggered arrivals and departures of personnel from site.
- Toolbox Talks to give daily specific guidance to all construction personnel on how practically to maintain 2 metre social distancing in day to day work on the site.
- The PSCS role will need to be significantly increased to enable the PSCS to include the monitoring of new site working practices in Health and Safety. It is likely that Employers will need to adjust the scope of PSCS services to enable this.
- Any site that does not comply with the guidelines to be shut down. HSA personnel need to be increased to ensure the regular inspection of sites to monitor and maintain compliance with guidelines.

Construction Site Personnel PPE

High Risk – Body Protection

- All construction personnel and management and administration personnel to wear a basic hazmat suits with hoods while on site away from administration offices or welfare facilities. A **hazmat suit** (hazardous materials suit), also known as a **decontamination suit**, is a piece of personal protective equipment that consists of an impermeable whole-body garment worn as protection against hazardous materials.
- These suits should be disposable (made of Tyvek or similar material) with attached hood and elasticated wrist and ankle cuffs.
- Hazmat suits to be worn with disposable ankle straps to secure to normal ankle high construction boots and disposable impermeable gloves. Suits to be disposable (cost approximately €3-€5 per suit).
- Suits, gloves and ankle straps to be disposed of after every use, which means after every meal break in canteen and after every shift (ideally two uses per worker per day).
- All used material to be disposed of in accordance with approved safe procedures.



High Risk – Head Protection

- All construction personnel and management and administration personnel to wear a multi-use wrap-around face protection screen and disposable approved face mask while on site away from administration offices or welfare facilities.
- These screens should be multi-use (made of plastic, perspex or similar material) with either independent fixing to head or with clip on attachments for attachment to site helmet.
- Face masks to be disposed of after every use, which means after every meal break in canteen and after every shift (ideally two uses per worker per day).
- Screens to be sterilised after every use, which means after every meal break in canteen and after every shift.
- All used material to be disposed of in accordance with approved safe procedures.

Construction Site Personnel PPE

Medium/Low Risk – Body Protection

- All construction workers or management and administration workers to wear full normal jacket and trouser PPE while on site away from administration offices or welfare facilities.
- These suits should be reusable after sterilisation which should take place daily.
- Normal construction site PPE to be worn with disposable ankle straps to secure to normal ankle high construction boots and disposable impermeable gloves.
- Gloves and ankle straps to be disposed of after every use, which means after every meal break in canteen and after every shift (ideally two uses per worker per day).
- Disposable face masks to be used, available per shift and at locations around site to allow replacement more often as necessary. Normal site goggles or glasses to be worn and sterilised after each use.
- All used material to be disposed of in accordance with approved safe procedures.

Construction Site Worker PPE

High Risk – Body & Head Protection

Supply Chain:

- Need for supply chain independent of and not impacting on healthcare PPE requirements.
- Investigate possibility of Irish retail or wholesale suppliers sourcing construction worker PPE from their existing far eastern manufacturers eg Primark, Dunnes, Portwest.

High Risk – Gowning / Degowning

- Arrange similar setup as cleanroom gowning area with control of garments, bench stepover system and proper garment disposal arrangements.

Site Administration and Management Personnel PPE

- All management and administration personnel to wear full work wear while working in site administration offices or while using welfare facilities.
- Disposable gloves and face masks to be used, available per shift and at locations around administration offices or welfare facilities to allow replacement more often as necessary.
- All used material to be disposed of in accordance with approved safe procedures.

Site Setup

The CIF has produced guidance for the safe setup of sites. The following are additional initiatives to further enhance safety on sites:

- Horizontal site walkways to be widened where possible to allow 2 metre passing distance.
- Walkways all to be marked with stripes or chevrons to maintain 2 metre distance between personnel travelling in the same direction.
- Where walkways cannot be widened to allow 2 metre passing distance:
 - Separate each direction with hoarding, if width allows.
 - Set up stop-go system for travel in each direction, manned at high traffic volume locations.
- On large floor areas tape or paint 2 metre square grid and set clear instructions to personnel to keep one grid square between them and next adjacent person.
- Set up stop-go system for all stairways, permanent or temporary used for access on construction sites.
- Treat hoists and lifts, where used for construction personnel access as confined spaces (see below for definition of confined space).
- Designate all stairs, particularly finished stair cores, prior to project completion as one way – either up or down to avoid passing.
- Widen entrances to all welfare facilities to allow 2 metre passing distance or use one-way access / exit door system.
- Enlarge all welfare facilities, where possible, to achieve lowest possible and practicable use densities.
- In canteen areas, fix all tables and chairs in positions achieving 2 metre separation distance in all directions.
- Add additional toilet, changing and drying room cabins to achieve lower density of use and control entry to these using locking system.
- Define the plan area of a confined space whether temporary or permanent



construction (suggested area – less than 4m x 4m). Establish rules for working in confined spaces:

- No more than one person at a time allowed in a confined space wearing low/medium risk PPE.
- No more than two people at a time allowed in a confined space wearing high risk PPE.
- Contractor's site supervision personnel to manage and monitor work in confined spaces at all times.
- Set up on site prefabrication areas remote from construction works, where possible in separate area of site, on confined site at basement or ground floor level after construction front has moved away horizontally or vertically.
- Consider, as in Japan, allocating all construction site personnel with work overalls to be worn at all times on site in medium / low risk environments (possibly with winter and summer alternatives). Overalls to be kept on site and put on at commencement of work shift and taken off at end of shift. Overalls to be owned by the contractor and contractor to arrange for laundering once or twice per week or, as often as deemed required.

Construction Techniques Work Stage Modifications

Excavation & Groundworks

- Maintain social distancing of 2 metres for all activities and construction site staff to limit interactions to a minimum so that they are not cumulatively 15 minutes within 2 metres per day.
- Use mechanical kerb lifts so one operative can lift kerbs into place.
- Use mechanical pipe lifters in preference to manual lifting.



Piling & Foundations

- Maintain social distancing of 2 metres for all activities and construction site staff to limit interactions to a minimum so that they are not cumulatively 15 minutes within 2 metres per day.
- Treat all foundation excavation pits as confined spaces.
- Maintain separation distance of 2 metres in all trench foundations.



Basements & Substructures

- Maintain social distancing of 2 metres for all activities and construction site staff to limit interactions to a minimum so that they are not cumulatively 15 minutes within 2 metres per day.
- Use extended length concrete rake and power float handles.



Construction Techniques Work Stage Modifications

Structural Frame & Floors

- Maintain social distancing of 2 metres for all activities and construction site staff to limit interactions to a minimum so that they are not cumulatively 15 minutes within 2 metres per day.
- Use manual or mechanical scissor lifts to lift suspended concrete slab formwork into place by one site operative.



Roofing

- Maintain social distancing of 2 metres for all activities and construction site staff to limit interactions to a minimum so that they are not cumulatively 15 minutes within 2 metres per day.
- Use manual or mechanical scissor lifts or hoists to lift roofing materials and components into place by one site operative.



Cladding & Glazing

- Maintain social distancing of 2 metres for all activities and construction site staff to limit interactions to a minimum so that they are not cumulatively 15 minutes within 2 metres per day.
- Combine standard single module cassette glazing components (1.5m wide into double units (3.0m wide) to achieve 2 metre separation between operatives at point of fixing.
- Cladding panels all to be designed in width modules greater than 2.5m to achieve 2 metre separation between operatives at point of fixing.
- Maximise use of off-site prefabrication for all cladding and glazing components.



- Maximise use of on-site areas remote from construction works for prefabrication for all cladding and glazing assemblies prior to installation on site.
- Use suction cup mechanical handling systems in preference to manual handling for all cladding and glazing components at all stages from delivery to site to final installation to allow operation by one operative.

Construction Techniques Work Stage Modifications

Mechanical & Electrical

- Examples of M+E site installation activities which could be reorganised to be undertaken by a single operative using mechanical handling equipment:
 - Cable pulling
 - Cable tray installation and installation of wiring into cable tray
 - Pipework installation
 - VAV box and FCU installation
 - Radiator installationContractors to examine all site installation activities with a view to installation by a single operative.
- Investigate all M+E components and assemblies to be manufactured in modules greater than 2.5m to achieve 2 metre separation between operatives at point of fixing.



Internal Fitout

Internal fitout includes multiple work packages. Below is a representative sample:

Raised Access Flooring / Partitions / Internal Screens / Plastering & Partitions / Internal Doors / Ironmongery / Firestopping / Tiling / Wall Finishes / Sanitary Fittings / Toilet Cubicles / Architectural Metalwork / Vanity Units / Stone Flooring / Carpet / Floor Sealer / Suspended Ceilings / Vinyl Flooring / Matwells / Painting / Decorating / Joinery / Fire Cabinets / Access Panels / Waste Equipment / Joint Sealing Signage / Blinds / Access Barriers / Kitchen & Served / Workstations / Furniture / Equipment

Many of these will be easily adaptable to single operative working. Contractors to examine all site installation activities with a view to installation by a single operative.



Construction Techniques Work Stage Modifications

Internal Fitout

Other internal fitout work packages will require significant adaptation including:

Partitions / Internal Screens / Internal Doors & Ironmongery / Toilet Cubicles / Stone Flooring / Kitchen & Servery Equipment / Joinery / Access Panels / Waste Equipment / Signage

- Use mechanical or manual handling systems such as manual or mechanical scissor lifts to lift internal fitout components and assemblies into place in preference to manual handling at all stages from delivery to site to final installation to allow operation by one operative.
 - Plasterboard ceiling or partition slabs to be lifted into place using manually or mechanically operated lifts. In the short term, ceiling slabs can be lifted into place using mechanical scissor lifts usually used to move operatives around.
 - Doors to be lifted into position using manually or mechanically operated equipment.
- Maximise use of on-site areas remote from construction works for prefabrication for all internal fitout components and assemblies prior to installation on site.
- Prefit all door ironmongery at central point on site prior to installation
- Maximise use of off-site prefabrication for all internal fitout assemblies and components.
- Internal fitout components, where possible, to be designed in width modules greater than 2.5m to achieve 2-metre separation between operatives at point of fixing.



Buddy System Modifications

The following are the key points in relation to a modified Buddy System.

- Where operations cannot be realistically carried out by one person maintaining two metres separation from the next, a 'buddy system' would allow two people form a permanent team.
- This pair would be allowed work together as pre-COVID-19 but would observe specific protocols.
- Each should be tested at the outset to check if they carry the infection. If positive, clearly a team cannot be formed.
- Each is responsible for keeping the other safe. They operate as if they are in a high-risk situation. That implies wearing disposable Hazmat suits, visors, disposable gloves etc. Full disinfecting at the start and end of each shift.
- In the event that either contracts the virus, then contact tracing is easier.
- The principle of allowing buddy teams be formed in certain circumstances acknowledges the challenges of building and the reality that if realistic practices are not facilitated, then the other protocols may also come under pressure.



Site Inspections during COVID-19



Contractual Obligations

- Actions need to be taken at the time of pause to facilitate an appropriate re-commencement of inspections and adequate records.
- All parties to the Contract retain their relevant obligations for Supervision and Inspection.

Risk Assessment

- List factors in assessing if an inspection can be safely carried out in line with HSE / Government directions.
- Revisit original Risk Assessment to see if Inspection intensity can be relaxed in certain areas.
- INF and modifications to same if required.
- Review of any additional risks arising from new protocols.

Protocols for On-Site Inspections

- Understand normal protocols that remain relevant.
- Avoiding unnecessary meeting of others on-site.
- Observance of social distancing where contact is unavoidable.
- PPE to be expanded to include masks, sanitised gloves and overalls that can be safely discarded afterwards.
- Video and photography to be used to reduce travel to all parts of site.
- Avoid re-inspection where possible by agreeing other appropriate forms of confirmation that a report item has been satisfactorily closed.

Alternatives to On-Site Inspections

- Structured photography by Contractor with appropriate labelled and referenced records.
- Where adequate broadband is available, live video recording by Contractor under the direction of the person inspecting.
- Drone video / still photography to reduce access requirements.
- Post COVID-19 reinspection / testing / imaging / opening up, in defined circumstances where inspections during the relevant construction stages were compromised.

Co-ordination

- Four-week look-ahead for all inspections, reviewed at Site Meetings.
- Where Inspections are not aligned with the regular Site Meeting, consider virtual Site Meetings.



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