COVID-19 & Construction Programming & Scheduling: The New Normal

A brief look into how construction programmes and scheduling has been affected to ensure safety of workers against COVID19
Content

• Introduction Covid - 19
• Part i Current Guidance
• Part ii The Impact/Realities Onsite
• Part iii Programming Under Covid-19
• Part iii Living With The New Normal
Introduction – Covid - 19

Some Key Figures
Covid – 19 – November 2020

Coronavirus around the world

<table>
<thead>
<tr>
<th>Total deaths</th>
<th>Total confirmed cases</th>
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</thead>
<tbody>
<tr>
<td>1,388,612</td>
<td>58,639,081</td>
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</table>

Latest daily figure 14-day trend

7,661 new deaths

496,358 new cases

Source: Johns Hopkins University, national public health agencies

Coronavirus in the UK

<table>
<thead>
<tr>
<th>Total deaths</th>
<th>Total cases</th>
<th>Hospital admissions*</th>
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<tr>
<td>55,024</td>
<td>1,512,045</td>
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Latest daily figure 14-day trend

398 new deaths

18,662 new cases

1,746 new admissions

*Publication dates differ by nation, most recent data for all nations to 18 Nov

Source: Gov.uk dashboard
Covid – 19 – November 2020

• 2 National Lockdowns and Regional 3 Tier Restrictions

• Furlough Scheme extended to March 2020 – Long Winter Ahead

• Mental & Other Health Issues of Growing Concern

• GDP in September 2020 was 8.2% lower than February 2020
Covid - 19

Number of deaths registered by week, England and Wales, 28 December 2019 to 6 November 2020

- All deaths - Five-year average
- Deaths not involving COVID-19
- Deaths involving COVID-19

Weekly deaths
25,000

03 Jan 31 Jan 28 Feb 27 Mar 24 Apr 22 May 19 Jun 17 Jul 14 Aug 11 Sep 09 Oct 06 Nov
Week ending
Covid - 19

- Average Age of Deaths 81
- 55% Men
- Ethnic Increased Impact
- Less than 7,000 deaths from under 65's
Covid - 19

UK, Monthly index and quarterly average, January to September 2020

- MSQP
- Q1 average
- Q2 average
- Q3 average

Monthly index, January 2020 = 100

Public sector net borrowing, excluding public sector banks (£ million)
Covid - 19

UK National debt - % of GDP since 1727

- Napoleonic Wars
- WWII
- Post-war Boom
- 2008 Financial Crash

Source: www.economicshelp.org

Public sector net debt excluding public sector banks, UK, March 1994 to the end of October 2020

Source: Office for National Statistics – Public Sector Finances
Covid - 19

UK, monthly index, January 2020 until September 2020

Monthly index, January 2020 = 100

GDP  Services  Production  Construction

Covid – 19 - Construction

- Construction initially 35% drop but by September 2020 had recovered to around 8.2% below pre-Covid 19
- Sites were closed for anything between a few days to 1-month approx.
- One Contractor closed a site, only to be instructed by the Client to Re-open
- Suppliers closed & Manufacturing of materials delayed
- One of our London Contractor Clients tested their Site Management Teams for Covid -19 in early Summer 2020 and found 53% of all the employees tested had already had Covid – 19
Part i – Current Guidance

Keeping you and your site safe
Part i – Current Guidance

- **HM Government** – *Working safely during COVID-19* in construction and other outdoor work – 11 May but Updated 5 November 2020
  

- **Construction Leadership Council** – *Site Operating Procedures - Version 6* – 20 October 2020
  
  www.constructionleadershipcouncil.co.uk/news/site-operating-procedures-update-version-6-now-available/
Part i – Current Guidance

- Between both of the dominant sets of guidance identified give useful direction towards the following:
  - Who and when we should travel to work
  - Site access and egress
  - Hand washing
  - Toilet Facilities, Canteens and rest area restrictions
  - Management of Meetings
  - Work planning to avoid close working
  - Movement around buildings/work sites
  - Adapting to a slow response of emergency services.
  - Work place cleaning

  - 1m PLUS....
Part i – Current Guidance

- **More specific guidance has been provided by the HSE and the Department of Health and Social Care.**

- **Some of the main messages from guidance is as follows:**
  
  - If a site is not consistently implementing the measures set out by PHE, it may be subject to enforcement action.
  
  - 'If a task cannot be undertaken safely, it should not take place.'
  
  - Site reporting procedures - site attendance and location. Crucial to identify interactions and contact if a worker becomes ill. Also great records for recording progress.
  
  - Change site hours to decrease density and increase distancing, also enables avoidance of peak transport times.
Part ii – Realities onsite
Part ii – Realities onsite

• One of our London Contractor Clients tested their Site Management Teams for Covid-19 in early Summer 2020 and found 53% of all the employees tested had had Covid-19.

• Entering/Exiting Site, Site Welfare and Site Setup in General

• Working Processes on Site
Part ii – Realities onsite

Entering/Exiting Site, Site Welfare and Site Setup in General - Example
WELFARE - BEFORE
WELFARE - NOW
SITE OFFICES - BEFORE
SITE OFFICES - NOW
Part ii – Realities onsite

Working Processes on Site – What this Means
Part ii – Realities onsite

• Effect upon Trades:
  Façade specialist
  Bricklayers
  High speed fit-out in general.
  Decorators

• We must be mindful that even if processes can be undertaken on the ground, off site manufacturing and deliveries are also proving to be a hurdle to overcome.

• It would appear that Brexit stockpiling of materials has helped but may present a problem later on!

• Reluctance of at risk COVID-19 group i.e older or at risk group of work force.

• Amongst our range of clients we have chosen three examples that show the different approaches that contractors have taken towards preparing their sites for COVID-19 working and also some constraints experienced.
Part ii – Realities onsite – Example 1

- Changes to site manpower flows and site office, welfare changes.
- 3D images show the pre COVID19 scenario.
- Entry/egress: Site access still has multiple points but now staggered with hand wash stations at start of entry queue and 2\textsuperscript{nd} station at entrance gate.
- Site office access: wait area for access to stairs to limit contact.
- Welfare: Reduced density welfare area, showers and toilets limited to 2-3 persons.
- Office: Two large meeting rooms with open windows. Layout changed to reduce face to face exposure. Desks kept same but alternate desk left empty to reduce occupants and avoid face to face.
Part ii – Realities onsite – Example 2

• Example 1 showed changes required to welfare. Reducing welfare usage is sometimes not possible and so the size of welfare has to be increased.

• Increase of welfare or site offices to maintain resource levels impacts free space on site.

• Yard and storage space is reduced causing potential logistics issues, greater number of deliveries due to lower storage space, ‘just in time’ delivery style has greater risks to programme.

• Potential effect on plant movements with more constrained space and potential increase in deliveries.

• Increase in site offices and changes to yard likely to reduce the number of work fronts that are available as site logistics change. Decrease in productivity.

• Some trades slow to return based on current guidance e.g. glazing and façade. This may entail resequencing project such change from shell & frame staggered with façade to complete shell & frame then façade separate to enable different work method.
Part ii – Realities onsite – Example 3

• COVID19 permit to work area to ensure specific trades work in planned zones.

• Additional benefit that it should aide the tracing of workers should one of the group become symptomatic.

• Also track productivity of group to compare with pre COVID19 to update programme and inform future similar activities or baseline programmes.

• Inductions – Outdoor inductions and offsite videos e.g. Morrisroe Video

• Significant increase in signage, for way finding, safe work practices, etc
Other considerations

- Data needs to be suitable to what device is the user on. Architect may have multiple screen setup at home, review of drawings by others in team may be on smart phone and so process needs to be adapted to suit platform.

- Plant availability is limited at present (although improving) delivery date is non specific or simply unavailable. Consider programme for alternative activities should risk materialise.

- Materials from overseas – shut downs have impeded production and delivery cross borders is more difficult.

- Materials for existing e.g. Mortar. Brick layer had stockpiled bricks but mortar factory shut.

- Huge volume of material available from major and smaller law firms on JCT and NEC application for delays. Specifics of your contract must be considered as standard forms rarely 100% adopted, contracts invariably changed.

- With site reopening you likely have responsibility to advise upstream and down stream on changes to programme and dates or risk failing to comply with contract.

- Note each of the changes above may have different entitlement under the contract: delays from materials, force majeure, employer’s risks, free issue materials, changes in legislation, working hours,
Part iii – Programming Social Distancing Construction
Part iii – Programming Social Distancing Construction

• In the most basic form, a simple programme, showing initially overlapping works, when base lined and then extended due to resource compliant utilized and with finish to start links further extending the programme, will show on a simpler level the effect. This is potentially suitable to claims for straightforward delays.

• An alternative to demonstrating the affect of COVID-19 working would be the allocation of assessed ‘risk’ bars.
Pre COVID19 Baseline with Full Resourcing
Post COVID19 with Resource Constraints

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<th>Finish</th>
<th>Duration</th>
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Example Programme Extract

- Normal flow of tasks
- Overlapping activities
- Labour resources average 10 per day

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<th>Line</th>
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Example Impacted Programme

- Finish to start logic applied.

- Baseline - difference from original plan.

- Labour resources spread-out
Example Impacted Programme

- COVID risk allowances applied.
- Baseline to show difference from original plan.
- Labour resources spread not demonstrated so well as 1st Example.
Part iii – Programming Social Distancing Construction

• Resourced programmes allow you to cap the total number of activities on site at any one point. This may work with all scenarios but would be expensive at tender stage. However on site this may well provide for complex tight projects, an excellent way of showing the COVID 19 delays.

• Disruption assessment based on measured mile or productivity analysis.
Part iii – Programming Social Distancing Construction

- We have as a company documented and continue to update key COVID19 events.

- Various options available to impact programmes in order to assess and present the impact of the new working regimes.

- Capped/demonstration of programme resource levelling.

- Disruption / measured mile analysis for change in productivity rate

- Smart programme updates utilising a mobile phone app - Profile has been providing this service well before COVID19 was identified in China
Part iii – Programming Social Distancing Construction

Other avenues of Analyses:

• Monte Carlo reviews are one technical way of showing this. This may become very useful for projects in pre – and early stages.

• Earn value risk assessments
Part iii – Living With The ‘New Normal’

- More working from home in the future – saves office costs, fuel, time, money & helps improve pollution levels. Could also be good for those that get to benefit from extra time with family instead of commuting, but could be bad for those that are isolated at home.

- Working from home may mean that people work longer hours and work during evenings and weekends – good for productivity but could be bad for mental health. Companies may need to learn to monitor this.

- Working from home and compliant work stations set up

- Remote working will require companies to invest in equipment and systems for staff to keep/use at home – extra cost

- Remote working could also allow companies to take opportunities further away – won’t be the case with site teams but could apply to management teams

- Remote Mobile App Reporting for Progress

- Companies may need to arrange regular catch up sessions on Teams/Zoom to avoid complete isolation of staff. This could include time for a general chat or a weekly quiz to boost morale
Part iii – Living With The ‘New Normal’

• More flexible working hours – peak times on public transport may no longer exist or be less extreme

• Better hand hygiene, wearing face coverings and social distancing may mean less colds, flus and bugs go around – this may mean less people taking time off work due to illness

• Training staff could be challenging moving forward with social distancing measures still in place and testing of site staff

• Sites may need to invest in equipment such as face ID rather than fingerprint ID to enter site, automatic soap/santiser dispensers and automatic dryers to avoid unnecessary contact, permanent thermal cameras rather than a hand held temperature gun

• Logistics planning will now need to take into account social distancing – sites will need to allow for more space, jobs taking longer, staggered work hours and carefully considering whether tasks can run parallel depending on the location of each task