

# DRAGON'S HEART HOSPITAL YSBYTY CALON Y DDRAIG



**Tenancy Location:** Principality Stadium, Cardiff  
**Engineers:** Mott MacDonald & Hoare Lea  
**Structural Partner:** PHD Access & Overlay Events  
**Live Handover Date:** May 2020  
**Designer:** ES Global & BDP Engineers  
**Build Duration:** 5 weeks  
**Final Decommission Date:** Dec 2020

*As part of the rapid response to the United Kingdom's Covid-19 pandemic, a temporary 'Surge' Hospital was created in Cardiff to service the Welsh population. Within 10 days the first 300 of a potential 2,000 beds were made available at the Dragon's Heart Hospital located within the iconic Principality Stadium.*

## THE PROJECT

Upon completion the 2,000-bed capacity hospital included mobile x-ray units, CT scanners, a pharmacy, and an end-of-life pathway of care for people in the last weeks or days of their life. Adjacent to the Cardiff Blues Arms Park stadium, we formed a safe Staff Haven, rest area and a reception area for relatives.

As part of the Principal Contract Team, leading a distinguished number of companies to deliver the specialist build elements, the design and construction of the hospital advanced in parallel with the setting of requirements and production of designs, all completed in less than one week on work that would normally take two to three years on a regular hospital build.

Over 15,000m<sup>2</sup> of tented, temperature air-conditioned hospital space was created in the main stadium bowl under the closed roof, including elevated wards on large raised modular scaffold platforms, built over the obstacles of incumbent seating stands. The field of play tent was one of the largest in Europe at 150(L) x50m(W) and was combined with four smaller tents at 150 (L) x24m (W). We constructed an additional three tents built on scaffold 3.5m(H) around the perimeter of the stands measuring 100m (L) x10 (W) each.

To put the size and scale into context, the main field tented structure was eight times the size of Glastonbury's main stage! There was 11km of panels used for bed heads and screening, 150km of electrical cabling, 61km of IT cable, 44 new toilets, 300 additional sinks, 120 tonnes of oxygen supply, 55 Arctics of Scaffold and enough temporary power to run 11,000 homes.



## CHALLENGES

One of the biggest build challenges involved installing the new required oxygen, water, sanitary, power and HVAC services into the playing pitch area. In particular heating and cooling was a mechanical and engineering challenge with very large, complex ventilation ducting networks designed within days.



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Extensive rigging experience allowed for the hanging of the extremely large steel supply ducting from the stadium's regular roof truss, all to free up valuable floor space, combined with running innovative fabric ducts at 2.5m x 2.5m, neatly threaded through the modular scaffold support grid.



We implemented Co-Vid working control measures, which followed the advice of the latest guidelines from NHS and Public Health England/Wales. From the outset, we created a proactive, yet protective stance including an online induction and medical questionnaire prior to site arrival. This was an industry first innovation and has now become common place across all industries.

## KEY MEASURES

By following the latest Government guidelines, whilst protecting workers, maintaining social distancing, minimising contact and washing/ sanitising hands regularly, we implemented the following measures to allow work to carry on efficiently yet safely:

- An online site induction process to ensure that persons who were not allowed to be out of their homes, did not access the site.
- On arrival a mobile phone bar code scanner system logged all staff on and off site and produced a daily log of staff entry and exit times, creating our own on-site track and trace bubble.
- Leaving site during the shift to visit local shops or amenities was prohibited.
- We displayed a large amount of signage to reinforce the message regarding COVID-19 symptoms, social distancing measures, hand washing and hygiene to limit the risk of transmission.



- We ensured that everyone had to wash their hands before entering site. To that end, we designed and built a dedicated walk-through hand-washing facility which all workers had to physically pass through before entering the site entrance.
- We employed full time medics, who looked after general site first aid and also undertook a temperature check on every worker before they could enter the site.
- We acquired vast stocks of PPE and face masks that had turned into gold dust during the height of the pandemic, issuing them free of charge to all workers as part of our duty of care.
- We adopted policies that encouraged multiple workers not to touch the same objects, no returnable vehicle passes for deliveries, no 'multi-use' PPE. Everyone working on site was issued with their own personal non loan PPE.
- All the site office facilities were designed with generous floor layouts that allowed one-way traffic and correct social distancing between desk areas.
- We staggered start/finish times for workers so that we could maintain social distancing. This also extended to breaks and lunchtimes along with a canteen layout that was socially distance compliant.
- We provided our own canteen and caterers to fuel the full site creating dishes for breakfast, lunch and dinner whilst ensuring there was no need to Operatives to try and leave thus breaking the working bubbles. Water

stations were created and placed in the various bubbled work zones throughout the stadium, providing sealed bottles of water to keep hydration levels topped up, whilst also maintaining work zone segregation.

- We provided site cleaners to ensure cleanliness of all communal areas, wash rooms and catering areas through the 24-hour, 7 day a week programme.
- We continually encouraging workers to maintain social distancing and had COVID-19 Safe Practice Security Marshalls to assist in policing the process.
- We distributed and maintained numerous hand sanitiser points throughout the site.
- All temporary office accommodation had a maximum capacity with minimal occupants, face to face meetings kept to a minimum for the entire project duration.
- Deals were negotiated with local Car Parks to allow key vehicles to be placed for the duration of the project build allowing our specialist teams to be deployed from throughout the UK.
- Hotels were booked out in their entirety with work bubbles allocated to certain hotels and every operative having their own room.

At the end of the 5 week build all PHD operatives were tested again, and no one had contracted the virus.