Concepts & Projects

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LAURA **CARRARA-CAGNI**

The pandemic has offered a widespread sensitivity for healthcare structure and an increased understanding how important they are. This will hopefully generate available funds to upgrade and renew the healthcare stock in most countries. It might be one of the very few positive aspects of this terrible pandemic.

The pandemic and changing hospital typology

In the last 12 months we have seen hospitals evolve, shutting down elective surgery and convert any space that was suitable into ICU's (Intense Care Units), cancelling outpatient visits and replacing them, with a considerable increase in video consultations. This move towards digital consulting is likely to continue beyond the pandemic.

Hospitals closed internal cafes and other commercial areas and used these to store protective equipment PPE. Food service in hospital was reviewed and often replaced by patients bringing their own provisions or by the hospital supplying single serve food preparations only. In Italy famous chefs worked off-site to prepare single serve meals for healthcare workers in hospitals.

To reassure patients about hospital visits it was, and is, vital that they are confident about the infection control measures. The quick and efficient way of doing this is clear communication about the precautions taken, such as one-way routes, distancing, and increase use of non-touch devices i.e. for instance automatic door openings.

In the future, the need to demonstrate the

effectiveness of the disinfection and cleaning processes will continue, and there will be pressure to discover better methods for cleaning. This will take time and investment. There is a current discussion about UV light robots for disinfecting surfaces. The thinking is that they might be a quick fix, but they are not safe enough to use yet.

Changing design scenarios

Hospitals will have to be upgraded and, in some instances, rebuilt where the assets stock is outdated and currently barely responding to needs. New generation hospitals will have to be super flexible to adapt to the declining trend of inpatient stays and possibly also outpatient treatments and consultations due to video consultation increase. With the expected wave of pandemic as we are seeing, the sudden demand of a vast number of critical care beds will need to be accommodated too. This cannot be achieved with small scale replanning i.e. moving partitions etc. It will need a complete rethink of the structures at concept stage.

Furthermore, healthcare institutions spent decades talking about telephone consultations for outpatients and COVID has managed to make this happen. Future briefs for hospitals will need to take this into account and it may lead

to significant reduction in the requirement for outpatient facilities.

Automation, which already was starting to pick up on healthcare briefs, will rise to the top of the list – automated materials / drugs delivery and collection within and to / from the hospital. This will include automatic doors, and all other touch points to be considered and eliminated where possible.

Larger decentralised storage of materials will also be a requirement to increase resilience, augmented by the need to store more PPE.

Designers should also focus on finishes and materials that do not allow infections to linger – products that mimic the performance of wood/ card and are more cleanable than plastics. New materials science is required to push this along faster and allow quick implementation of the new materials.

The Italian Veneto quarantine model to actively discourage hospital attendance is an example of what will have a considerable effect in a more decentralised system reducing overall hospital sizes further. Hospital receptions will need to work differently, organising patient visits remotely with pre-check in on phones, etc the general strategy is to use technology to away shift from

waiting in a hospital to allow just in time arrival and treatment.

Consideration should be given to a whole hospital air filtration system (HEPA) and a design that provides all single bedrooms, no multi bed wards, and all bedrooms provided with a positively pressurised lobby (thus allowing effective single room isolation all the time).

Prominent criteria

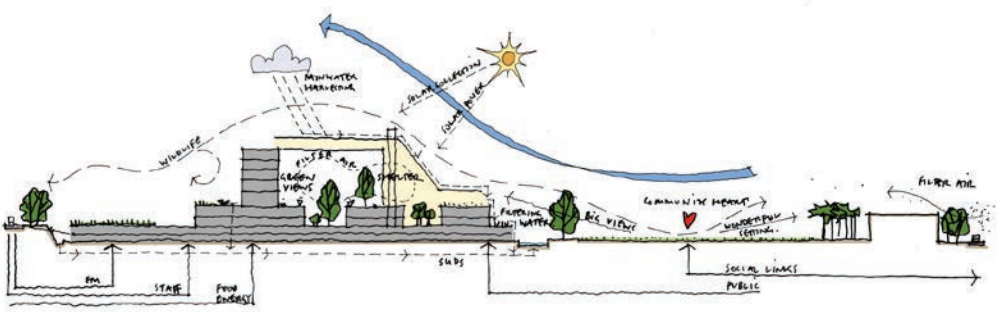
Flexibility. For years we have been advocating for the design of flexible space generally, and especially in healthcare as this area is an ever-evolving field as the last year has demonstrated and accelerated. Flexibility is key not only in case of a pandemic emergency but also more generally functionally and commercial. It creates the best use of space at all times and from a sustainability point of view flexibility allows spaces to be used and repurposed over time.

For us this means providing a regular structural grid throughout and lateral bracing provided external to floors plates and with lift / stair cores (not by inflexible concrete walls). Sufficient height to allow flexible floor planning is vital and an attitude to design that thinks of hospital delivery in two parts rather like a high-quality commercial office building – a shell and core design and a

fit-out design. This emphasises standardisation, modular components and off-site fabrication.

In the future care might move away from hospital to more office type settings, localized care for less serious conditions leaving hospitals more concentrated and centralized for the serious conditions. Localised care might in the future be delivered with mobile units to reach the more rural areas This will require a level of real estate for the maintenance and restocking of the vans.

We need to start thinking outside the box of traditional care, factoring in the increase of telemedicine and the proliferation of digitalised healthcare.



Midland Metropolitan University Hospital (MMUH), Birmingham, United Kingdom

Elements to be implemented in new projects

The Midland Metropolitan University Hospital

(MMUH) near Birmingham, UK, that Edward Williams Architects designed in collaboration with HKS and Sonnemann Toon, leads a wider regeneration effort for this deprived area and acts as the catalyst for a major series of built interventions, which include the opening up of the canal arm to re-link it into the existing canal network in the city.

Midland Metropolitan University Hospital (MMUH), Birmingham, United Kingdom

The hospital is defined in three key functional

zones: the car park which formed the base of the building, the clinical hot zones which formed the central layer and the wards which we situated at the top of the building with views out over the surrounding area. All with a regular structural grid across all floors and external bracing to give maximum future flexibility.

Midland Metropolitan University Hospital (MMUH), Birmingham, United Kingdom

A public Winter Garden at high level allows friends, patients, families and staff to relax within the secure environment of the hospital with access to shops and cafes, as well as providing a year-round, covered, exhibition and performance and meeting space.

Midland Metropolitan University Hospital (MMUH), Birmingham, United Kingdom
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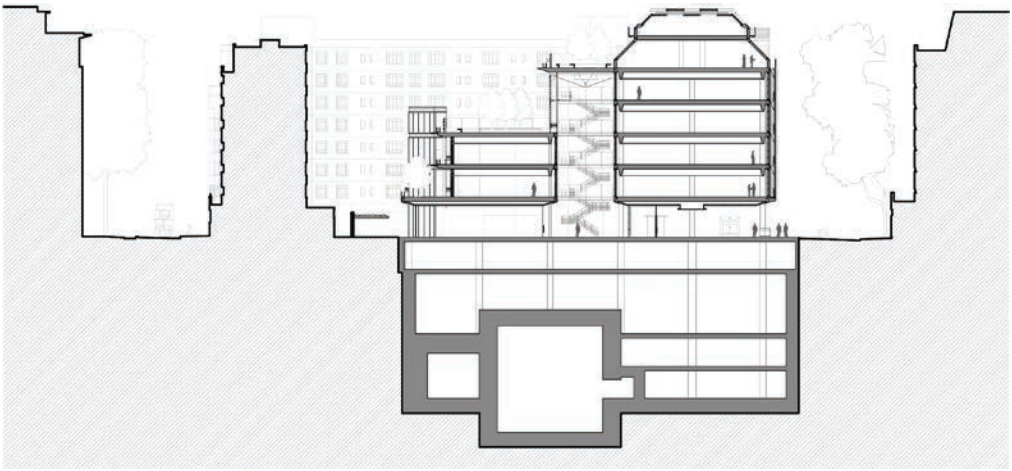
The UCLH Proton Beam Therapy Hospital in London, that Edward Williams Architects designed in collaboration with Scott Tallon Walker, is the first major public proton beam therapy unit in the UK. Located in a very dense urban are of central London, much of the building is underground with patient beds above, all arranged around a central courtyard building and full height day-lit atrium. The 34,500 m^2 building has direct access to UCLH's existing radiotherapy

department and is immediately north of the new University College Hospital Macmillan Cancer Centre, a project that my co-director, Edward Williams delivered when working for his previous practice. The new building completes the urban block in which it sits and is arranged around an L-shaped full height atrium that separates it from a lower central courtyard building and brings daylight into the heart of the building.



University College Hospital (UCLH), Grafton Way Building, London

The building has a clear building organisation externally and internally. The basement levels are used for PBT, theatres and plant. The above ground levels are used for clinical in-patients accommodation, plant above ground minimised to maximise the value of the building. Stepped garden terraces improve outlook for neighbouring residents and preserve good daylight/sunlight penetration to these residences.

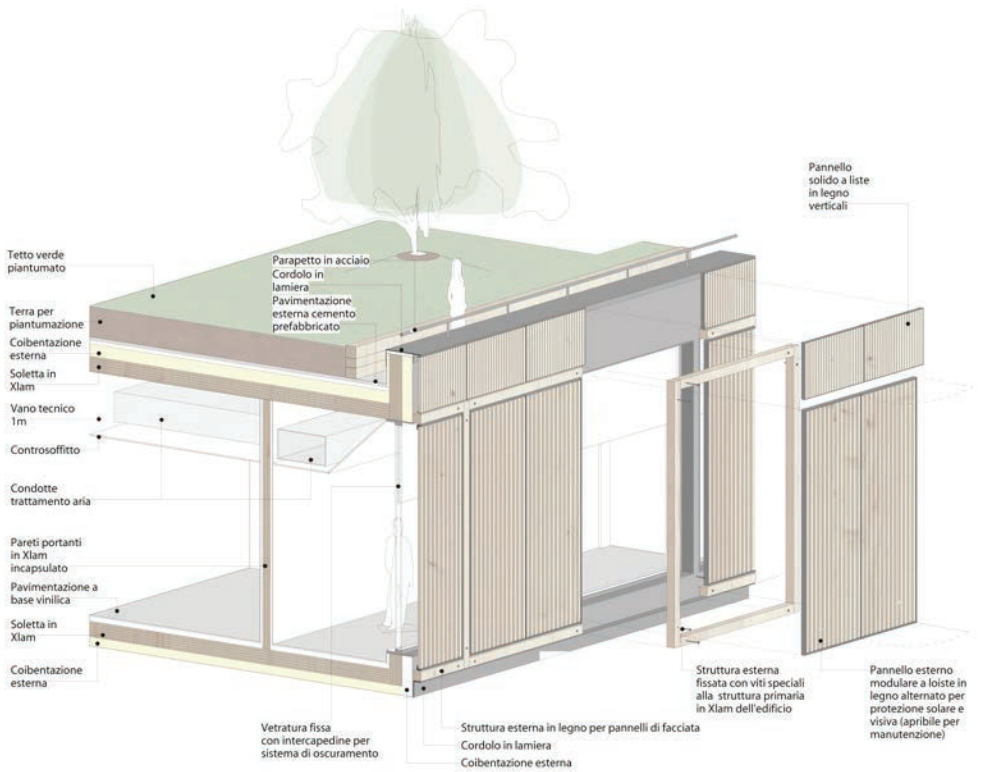
University College Hospital (UCLH), Grafton Way Building, London

The Regional Bellinzona Hospital in Switzerland is located in a congested site on a mountain with beautiful views. We proposed a simple compact volume to house the six new operating theatres and their annex spaces on a single level, with additional staff and store areas in two lower levels.

The building's green roof offers a beautiful landscaped terrace directly accessible from the entrance and café. The new glazed pavilion is the gateway to a garden walkway where a panoramic view of the Magadino valley can be enjoyed. The building's compact setting is designed to minimize the impact on the existing hospital and its garden while improving the main entrance and its connection to the garden.

Bellinzona Regional Hospital, Bellinzona, Switzerland

The internal distribution of the new block is simple and regular for optimal functionality and cost efficiency. The building is modular and designed to be built from prefabricated sustainable cross laminated timber. This approach met the client's requirements to minimize the construction programme, reduce noise and disruption to the hospital operations.



Bellinzona Regional Hospital, Bellinzona, Switzerland

Medium and long-term views on the post-pandemic world

The pandemic has offered a widespread sensitivity for healthcare structure and an increased understanding how important they

are. This will hopefully generate available funds to upgrade and renew the healthcare stock in most countries. It might be one of the very few positive aspects of this terrible pandemic. The public will no longer tolerate healthcare structures that are not safe and operating with the best technologies. Hopefully governments will respond with an efficient and coordinated programme. This increased awareness I think this is a great opportunity to set in motion the construction of better healthcare facilities.

Working during the pandemic challenges & advantages

We have all been working remotely on UK lock down 1, started on 24th of March 2020, in lockdown 2 in November and again in lockdown 3 from the beginning of this year. Returning to work from the Studio though in the meantime, as soon as we could.

Last year we had one colleague going into the office every day, with a new electric bike, in a semi deserted office building, mostly because he could not cope with staying at home in a rented room all day. Having one of us manning the studio was very helpful on all fronts, prints, plots, collecting deliveries, re-booting computers for the remote workers, etc. This also allowed us to 3D print hundreds of headband parts for PPE

visors to donate to the National Health System. We were also asked to send finished product PPE visors to cover an entire NHS ward in Lincolnshire and we were able to assemble the ordered parts with the printed ones and prepare for collection.

We start every working day with a team video meeting, to keep us all informed on diaries and projects. Fortunately, all our building sites have carried on, although maybe slower for lack of building material through the merchants. Regular weekly site visits turned into remote project meeting with the contractor going around showing site details. We have put in a planning pre-applications and meetings have been arranged. So, with the difficulties of not being around a table or in the same open space, we work hard and carry on, leaning new ways of accomplishing our tasks. Hopefully, these new ways will give us additional tools for the future.

Because of our significant past experience of running projects in the US from London, from 2006 to 2011, we have handled expertly our remote meetings. Having said that, for our business, remote working is not as efficient as working together, and there is no way this change in working practice will have a long-term effect our studio culture. We cannot wait to be in our Studio again, but perhaps with a few more video meetings.