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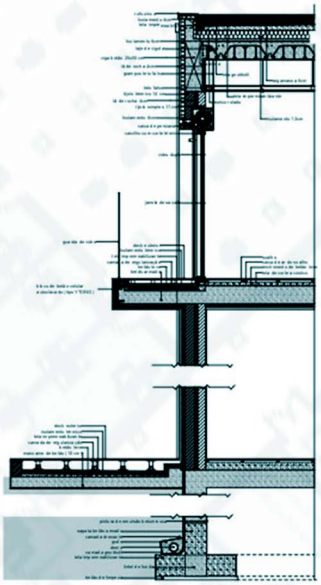

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ARCHITECTURE AND PANDEMICS

DESIGN STUDIO ASSIGNMENT AND INTERDISCIPLINARY CONTRIBUTIONS TO A HEALTH PARK FOR COVID-19

EDITED BY
A. NUNO MARTINS, MIGUEL SANTIAGO FERNANDES

Datasheet

Architecture and pandemics: design studio assignment and interdisciplnary contributions to a health park for Covid-19

EDITORS
A. Nuno Martins, Miguel Santiago Fernandes

SCIENTIFIC EVALUATION COMMITTEE
Teachers Alexandra Paio (ISCTE) and Jacinto Rodrigues (FAUP jubilee)

EDITION
University of Beira Interior
NGO Building 4Humanity

PRINT
Building 4Humanity

EDITORIAL DESIGN
Sara Gorecka Martins

ISBN
978-989-54741-5-8

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UNIVERSIDADE BEIRA INTERIOR

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Jacinto Rodrigues
Professor Catedrático Jubilado da Universidade do Porto

sem ingles

INTRODUCTION

Towards an humanitarian architecture for the disaster-risk of respiratory diseases

A. Nuno Martins
Architect and guest assistant professor at DECA / UBI

In the second week of March 2020 Portugal entered a state of emergency due to the COVID-19 pandemic and the national government established a first period of quarantine for the entire country. To overcome the lockdown and keep the academic schedule, universities switched to online classes, although there were little or no previous experiences at all of non-presential classes. In face of unexpected, radical and somehow harmful changes in our cheerful day-to-day lives, we proposed our students (of the first year of the integrated master's degree in architecture) at the University of Beira Interior (UBI) to engage in the serious societal challenge we were facing. This meant, in case that could make sense, responding to the new coronavirus outbreak through architecture and urban design.

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The exercise lasted the entire second semester and ended with an online exhibition of the students' delivery panels, followed by a seminar in the form of a webinar. The latter, under the title "Humanitarian Architecture and COVID-19", had the participation of academics from various disciplinary areas related to the functional program and proposed architectural challenge: to cross hospital architecture ideas for infectious respiratory diseases, health and well-being in a broader sense. The webinar was open to the whole community of the University of Beira Interior (UBI) and beyond, and the session was recorded on the DECA youtube channel of the Department of Civil Engineering and Architecture at UBI.
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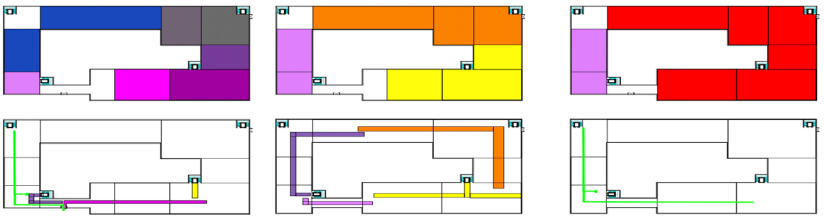

Figure 1 – Care unit for COVID-19. Zoning and circuits of employees, usersand visits(drawing by Jessica Liane, 2020)

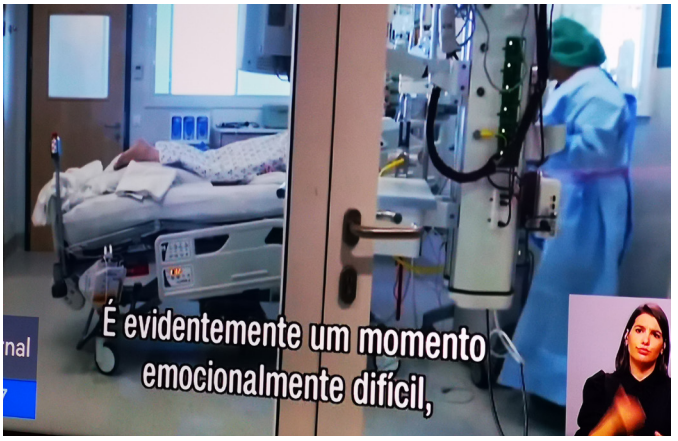

Figure 2 – Hospital in France adapted to the covid-19 pandemic with central and side service corridor (for visitors and medical personnel with protective equipment). Image from the TV news broadcast by RTP1, March 2020). and visits

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ACKNOWLEDGMENT

Departamento de Engenharia Civil e Arquitetura da Universidade da Beira Interior

NGO **Building 4Humanity**, *Designing and Reconstructing Communities Association*

Dr. José Valbom, Delegado de Saúde da ULS Guarda

David Coutinho, Enfermeiro Chefe dos internamentos COVID do Hospital Sousa Martins na Guarda

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1

Pandemia e Arquitetura: considerações de um passado recente, mas pouco presente*

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***** *estas notas foram redigidas com base na comunicação oral, pelo mesmo autor, em 02/07/2020*

Introdução

Vive-se, neste momento, uma situação que diversas vezes foi considerada inédita, sem precedentes ou, inclusivamente, como o acontecimento mais marcante dos últimos séculos. Serão, seguramente, palavras hiperbolizadas, mas que demonstram uma relação com o conhecimento do passado, e até com a actualidade de um passado recente. São também um espelho de que a memória é mais dilatada no tempo, não sendo – no limite – um tempo útil.

Do ponto de vista da arquitectura, ou da história da arquitectura, os edifícios tendem a ser marcas no território de um conjunto de acontecimentos que, para além do arquitecto e dos restantes projectistas, são também marcas sociais, políticas, científicas e económicas. Tal como o tronco de uma árvore, os seus círculos são inegáveis traços de momentos históricos, onde aquele edifício foi projectado e construído. Ao mesmo tempo, várias folhas (a existirem) mostram a evolução do pensamento do arquitecto, em justaposição com as suas experiências, em conjunto com textos de apoio de outras instituições, ou de clientes, ou ainda com pareceres técnicos que compreendem um tempo e um espaço próprio. As posteriores intervenções são, também, marcas de memória sobre estes edifícios, quer pela aniquilação, pela alteração ou ainda pela continuação ou alteração do uso. Por fim, existe o abandono, que para além de ser um testemunho de memória, o é, ao mesmo tempo, um sinal dos tempos e das relações com o passado. Não deixam de ser, também, edifícios que desafiam os limites entre a ciência e a arquitectura (Frampton, 2015).

Do ponto de vista da ciência, ou da história da ciência, as abordagens do tempo são diferentes, pela sua aparente imaterialidade e, até, mudança. Enquanto que a arquitectura está mais próxima de uma metamorfose visível, palpável, térrea e espacial, a ciência debate-se e constrói-se em bastidores ou por canais mais herméticos. Este tempo é, assim, e exclusivamente nesta perspectiva, quase assíncrono. A arquitectura demora até à sua materialidade, e a ciência demora na sua construção testada e avaliada. Logo, o caso dos sanatórios ou dos hospitais especializados são dois tempos assíncronos num só metrónomo, mas que tendem se alinhar-se, de forma simbiótica. Existem edifícios que, pela sua génese, construção de programa, tempo e espaço que são espelhos de uma evolução científica, em constante mutação, e cuja(s) velocidade(s) são dependentes e, até um certo ponto, como que vicariantes. O caso dos sanatórios para a tuberculose, nomeadamente depois do princípio do século XX até aos anos 50 do mesmo século, é ilustrativo destas duas ciências e de como, em conjunto, a duas profissões se aliam dois objectivos: a profilaxia e o tratamento da peste branca. Mormente a utilização de metáforas mais ou menos orgânicas – a arquitectura para a tuberculose ou a arquitectura contra a tuberculose – (Avelãs Nunes, 2017) que, embora aparentemente opostas tinham, na época, significados semelhantes. Mas poder-se-á utilizar estas mesmas expressões para esclarecer a sua importância e as suas

vicissitudes arquitectónicas (Avelãs Nunes, 2019a).

A arquitectura desempenhou um papel crucial nas questões espaciais (Adams, 2008). Num primeiro lugar, refere-se a questão da distribuição espacial ou, até, na espacialidade, porquanto elemento de segregação física (e psíquica) entre pessoas. Sendo a arquitectura, por excelência, a disciplina que regra ou pauta ou ainda faz funcionar tanto a fluidez como as barreiras, e tendo em conta a contagiosidade da tuberculose através, principalmente, de via aérea e por proximidade, a sua importância no combate ao contágio e proliferação é crucial.

Um exemplo mais próximo no tempo é a utilização do vidro, nos locais de atendimento ao público em edifícios do estado que, ainda hoje, podem ser encontrados. Eram barreiras transparentes, onde era possível todo o contacto visual entre os utilizadores, mas cujo vidro era dotado de uma pequena perfuração, normalmente circular, seguida de um positivo em vidro com maior perímetro, imediatamente aposto. Estes planos verticais eram símbolos de segurança no atendimento ao público quando, nos anos 20 e 30 do século XX, as telefonistas foram grandes vítimas de tuberculose (Neves, 1937).

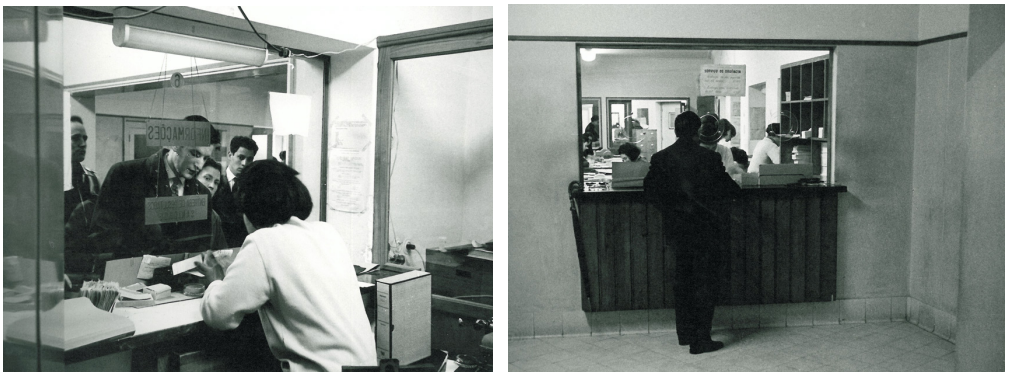

Imagem 1 e 2 – Exemplos vidros de protecção contra gotículas. Locais não identificados, mas relacionados com estruturas de atendimento a doentes potencialmente tuberculosos (dispensários).
Fonte: colecção privada, c. 1960/1970.

Esta é uma ilustração, entre várias (Colomina, 2019), que permite compreender o papel da arquitectura para evitar a proliferação da doença, como barreira (impermeável) entre doentes e sãos. Mas, alargando a escala, foram planeados e construídos edifícios

em forma de sistemas, para recolher, abrigar e até circunscrever um espaço entre os sãos e os doentes, ou seja, um limite perimetral de contágio perante a cidade. O caso do Sanatório Sousa Martins, construído na primeira década do século XX, é também um postal desta época. Mormente edificado na cercania da cidade da Guarda, estava justaposto ao tecido urbano. Nas primeiras décadas, tal como outros na mesma situação, foi assombrado pelo sentimento de insegurança por parte dos guardenses, pois a permeabilidade de um sanatório fechado era posta em causa. Rapidamente, passou a ser um local de segurança, pois a construção de uma vedação permitiu um rigoroso controlo de acessos, e assegurou um espaço mais fechado e mais isolado. Ao mesmo tempo, um jardim de grande escala foi construído, também como terapia coadjuvante da tuberculose e como profilaxia, aumentando a área de circulação e de convivência, e permitindo a segregação dos seus utilizadores. Naturalmente, também questões científicas foram consideradas para a génese e o propósito deste espaço, nomeadamente a purificação do ar e, a respeito das cercanias, para evitar o confronto visual entre os doentes tuberculosos do sanatório e os transeuntes da cidade (Avelãs Nunes, 2019).

É, tal como o vidro do atendimento, uma arquitectura anti-tuberculose, numa primeira acepção, pois evitava o contágio, funcionando como a melhor forma de isolamento – uma profilaxia espacial (Kisacky, 2017).

Imagem 3 e 4 – O Sanatório Sousa Martins, vista geral. Note-se a cidade da Guarda nas proximidades. Ao lado, um dos portões de acesso ao mesmo sanatório. Fonte: colecção privada, c. 1920; Delcampe.net (postal).

A ciência, e em particular a ciência médica, estava – nesta mesma época – já dotada de um conjunto de elementos de diagnóstico, quer do ponto de vista tecnológico, quer do ponto de vista do conhecimento de facto da doença. Almejava-se uma cura da doença, mas todos as drogas propagadas na época, e experimentadas entre médicos (e alguns charlatões) foram consideradas inúteis. Não havia qualquer elemento químico, ou até conjunto de terapias, que se percebiam realmente eficazes, quer na prevenção (pela vacinação, por exemplo), quer também no próprio tratamento. Assim, a arquitectura foi capaz, através dos seus arquitectos, e através de programas médicos que sempre procuravam acompanhar as tendências internacionais, de temporariamente substituir a terapia clássica, pela medicina e pela farmácia *tout court*. Pode, assim, assumir-se para utilização neste contexto da expressão arquitectura para a tuberculose.

O papel dos sanatórios nesta tentativa de tratamento dos tuberculosos foi imperioso para garantir um arsenal de resposta à doença. Assim, edifícios baseados num eixo (edifício - galeria de cura - jardim) permitiam, através de uma rigorosa estrutura de controlo e vigilância, que os doentes usufruíssem do ar puro, da alimentação, do repouso e da helioterapia (exposição solar). Estes postulados, vigentes durantes décadas, foram condicionalismos na escolha do local e, também, para o funcionamento interno do sanatório. O apetrechamento do sanatório com salas de Raios-X, cirurgias ou outros tratamentos médicos tornaram-no, desde cedo, num espaço tecnocientífico. A imagem do sanatório passou de impura, de possível foco de contágio, de espaço permeável à doença, para uma imagem de segurança por proximidade. Estar-se perto de um sanatório significava um sinal de possibilidade de tratamento. Como tal, a sua imagem de assepsia, de desenvolvimento tecnológico, e não de prisão ou de hotel, era também importante para o próprio tratamento. Diferentemente de um hospital, os espaços ajardinados, os jardins de inverno, as salas de cinema, as áreas comuns que permitiam programados momentos lúdicos e, também, as salas de tratamento médico mostram um programa rígido comportamental como auspício de algum tratamento. Todas estas realidades funcionavam ao mesmo tempo, mas com regras próprias de sociabilização de controlo mútuo.

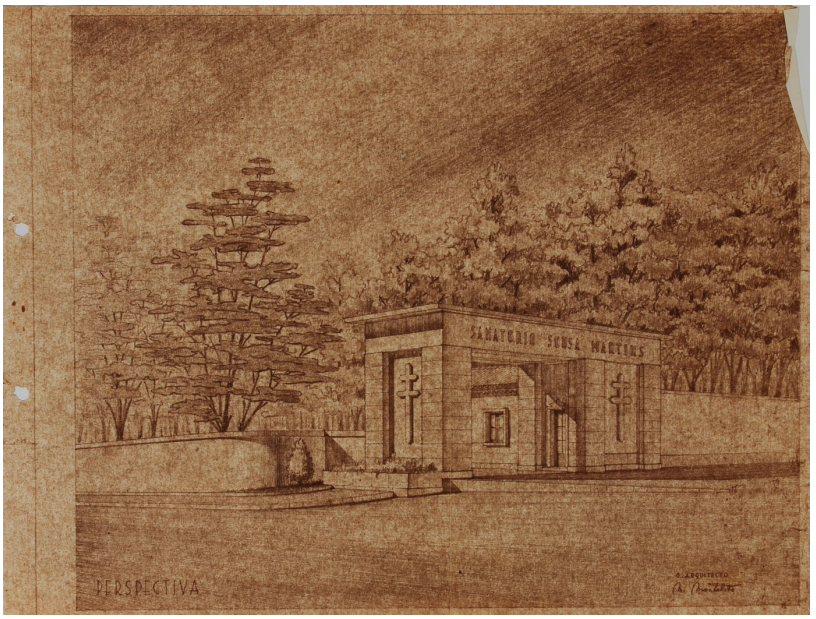

Imagem 5 – Projecto de M. Montalvão, em 1954, para um novo acesso ao Sanatório Sousa Martins. O primeiro contacto com o exterior (e acesso ao interior) tornou-se importante como imagem do sanatório. Fonte: SIPA, s/r.

Com a descoberta de químicos eficazes para "estancar" o contágio (com os tuberculostáticos) e com outros desenvolvimentos na década de 50 do século XX, o papel dos sanatórios no palco do contágio e do tratamento passa para um segundo plano, deixando de ser os protagonistas. O uso do sanatório como tal deixa de fazer sentido, passando rapidamente a edifícios mudos, ou através da conversão para outros sistemas (hospitais psiquiátricos, hospitais gerais ou hospitais especializados), ou através de um silencioso declínio, perante as suas ruínas. Passaram a ser memórias de uma das mais importantes doenças do século XX que, no século seguinte, ainda existem ecos do seu perigo. Agora tratável e controlável, em grande parte das suas manifestações, a tuberculose pode ganhar resistências aos tratamentos disponíveis, abrindo um novo ciclo onde a arquitectura pode ser importante, nas suas funções.

Actualmente, em plena pandemia de COVID-19, as dimensões da arquitectura ganham um novo impacto nas imagens que os noticiários fazem chegar. São, e continuam a ser, as questões espaciais que estão em jogo: a profilaxia por um rácio de proxémia. A relação que se estabelece, ao nível da gestão e o do uso do espaço entre os

indivíduos, ainda não obrigou a uma replicação do funcionamento urbano em espaços de isolamento, tal como acontecera com o Sanatório Sousa Martins. Não são, de todo, a tuberculose e as infecções por COVID-19 comparáveis, pois o seu tempo (e o seu espaço) são obtusamente diferentes, e desenvolvimento científico subjacente é imparagonável. Mas a árvore, agora despida, num tempo utilitário (e não útil) não deixa de ser um retrato de uma pandemia, onde a arquitectura tentou, por diversas formas, medicalizar um espaço e configurar espaços humanizados.

Foram sobre estes (e outros mais) desafios que os alunos do Mestrado Integrado em Arquitectura da Universidade da Beira Interior se debruçaram. Neste sentido, o tempo que imprimiram nos seus projectos levantou o véu de uma série de preocupações espaciais e programáticas que, anteriormente, poderiam não suscitar devida atenção. As questões da convivência, da relação interior-exterior, da importância da luz (já como terapia ou profilaxia), entre as demais constrições que edifícios próprios para doenças altamente contagiosas não se sobrepuseram a um carácter mais digno e mais humano, que o projecto deve sempre contemplar. Mormente exercícios livres de pensamento pelo desenho, levantaram uma série de questões prementes para responder a desafios actuais e que, doravante, marcarão a sua forma de projectar.

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1

Conversation between Architecture and Psychology for Developing Humanized Hospitals

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Introdução

Architectural spaces greatly influence health, well-being, human development and interpersonal relationships (e.g. Thompson, 2013; Wilkie, Townshend, Thompson, Ling, 2018). Consequently, architecture and psychology, as well as other areas, inevitably meet eye to eye to optimize a physical space as a scenario for development and well-being. Creating more humanized environments for people with serious health issues to safely stay in isolation during the COVID-19 pandemic was the foundation for creating this document. While pondering the importance of space for the psychological well-being of patients, staff members and persons of interest, this document also seeks to stimulate the development of humane hospital environments, which may consequently become more "therapeutic" from a psychological perspective.

1 — INTERACTION BETWEEN ARCHITECTURAL SPACES AND PSYCHOLOGICAL FUNCTIONING

A person's state of mind, their experiences and life story influence the way they perceive and experience space(s), while physical spaces themselves are also a projection of stories, as well as social, emotional and personality configurations.

Evidence-based knowledge on health design has demonstrated that well-projected physical environments strongly contribute to safer hospitals, with less hospital infections, better healing environments for patients and also better teamwork (Ulrich et al., 2008).

Individual rooms, effective ventilation systems, good acoustic surroundings, adequate lighting, proper equipment design, "views" from inside the rooms, and workspace planning are some of the elements deemed important by the existing literature when considering the design of health facilities (Ulrich et al., 2008). The environment variables related to obtaining results in health, on an organizational-level and for end-users, mainly concern the visual environment (29%), sound environment (20%) and patient room design (20%) (Brambilla et al, 2019).

From a psychological perspective, some remarkable aspects of planning architectural spaces for treating health problems are: Lighting and interaction with the nature created by the space; facilitation of social interaction; accessibility to spaces and promotion of autonomy, and space planning and aesthetics..

1.1 — LIGHT AND INTERACTION WITH NATURE PROVIDED BY SPACE

The lighting effects of architectural spaces are strongly supported in existing literature in regards to the state of mind and cognitive functioning. Back in 1984, Ulrich ascertained in a study about post-surgical recovery that patients in a room with a view facing a natural landscape required fewer days of hospitalization and fewer analgesics than patients in rooms facing walls and buildings. The interaction with natural environments, including its mere observation, significantly reduces stress and has benefits for a person's mental-health and well-being (Jo, Song & Miyazaki, 2019; Thompson et al., 2012). These data refer to the need for considering the therapeutic potential of space planning, specifically

lighting and the “view” from the windows of treatment and recovery spaces.

1.2 — ARCHITECTURAL SPACE AND SOCIAL CONTACT

The organization of architectural space has clear and easily noticeable effects on behaviors and social interaction. As interaction and social support are vital to health recovery and well-being, considering this aspect is crucial when designing hospital spaces (Davidson et al. 2007). Planning spaces that allow the patient to socialize, communicate verbally and non-verbally, to watch, find and contact other people, namely those of some significance, is vital for a patient’s well-being, dignity and recovery.

1.3 — ACCESSIBILITY OF SPACES AND PROMOTION OF AUTONOMY

Building accessible architectural spaces is crucial for promoting well-being, especially for people with autonomy-related limitations due to age, physical, cognitive, social and/or sensory handicaps, or permanent, progressive or transient health issues. Human beings are innately dependent and require the care of others while progressively acquiring the autonomy that is an essential source of well-being and fulfilment (Deci & Ryan, 2013). The development and preservation of autonomy throughout a person’s lifecycle, as an incomplete architecture of human ontogeny (Baltes, 1987), is vital for human dignity and well-being. It’s a path where plasticity is increasingly recognized, within the limits of human characteristics and each person’s genetics. This plasticity depends on the circumstances, the interactions, culture and countless other factors, among which are architectural spaces. Spatial environment and design are vital aspects that may compensate or minimize loss and foster a person’s well-being.

1.4 — PLANNING AND AESTHETICS OF SPACES AND WELL-BEING

Space planning and aesthetics (houses, buildings, streets, open areas and infrastructures), their quality and aesthetics, among other factors and the interactions among them, influence the well-being and mental health of people and communities. The

impact of facilities on physical health is more deeply analyzed than the impact on mental health (e.g. Núñez-González et al., 2020; Smith, Metcalfe e Lommerse, 2012).

2 — ARCHITECTURAL SPACES AND THE COVID-19 PANDEMIC

The declaration of COVID-19 as a pandemic situation by the World Health Organization (WHO) on March 11, 2019, has led to several measures of pandemic-related prophylactic control. Among these measures is the need for social distancing given the virus' high degree of transmission through close contact with infected people, or through contact with contaminated surfaces or objects (WHO 2020). The need for distancing between people, namely indoors, has required profound changes to the management of public and private architectural spaces. Among other factors, the need for distancing and even isolating people, for airing and properly lighting spaces, has led to a revaluation, discovery and reinvention of areas of projection and connection with the outside, namely windows, balconies and exterior spaces.

2.1 — INFRASTRUCTURES FOR THE PROVISION OF CARE AND VISITS

Health and care provision infrastructures faced new movement organization rules and witnessed a reduction of their capacity directly related to the available area and ventilation capabilities. Limiting and restricting visitation was an adopted measure by most hospital infrastructures and residential care facilities. As social interaction and support are vital aspects for health recovery and quality of life (Davidson et al. 2007), reinventing ways for family members and other relevant people to visit and maintain contact with the most vulnerable and hospitalized people was a great challenge, where the conversation between architecture and other areas could be decisive for the preservation of dignity and quality of life.

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2.2 — THE "MULTIFUNCTION" HOUSE AS A PROTECTIVE AND RISK FACTOR

With the current pandemic, the concept of "home" as a familiar and intimate space was also "reinvented". Home became a far more busy and "consumed" space, having become the workspace of many in home-office situations, the study space for children

and youths in online teaching situations, unemployed adults, old and sick people, and those under treatment or recovery from COVID-19, or under prophylactic isolation. Though greatly accentuated during lockdown periods, this tendency has been widely present throughout the pandemic. For several people of various ages, their homes have therefore become the only space for sleeping, eating, working, exercising and socializing (Amerio et al, 2020). This change may alter the person's and the family's relationship with their home and the role it plays in their lives.

During research with university students in Italy, one of the European countries most affected by the COVID-19 pandemic, Amerio et al. (2020) noticed that the fragilities found at the student's houses were associated with a higher risk of depressive symptoms and a worse performance in terms of work/study.

The COVID-19 pandemic has greatly displayed the vital role of a house's characteristics and the planning of spaces in health. While better living conditions have served as a protecting factor, houses in poor condition or with smaller areas have shown to be great risk factors, namely for dysfunctional families or where situations of domestic violence and abuse exist. Areas with worse living conditions have a greater incidence of COVID-19-related mortality (Ahmad et al., 2020). These results alert to the crucial role of architecture in treating and preventing diseases.

3 — CONVERSATION BETWEEN ARCHITECTURE AND PSYCHOLOGY FOR DESIGNING MORE HUMANIZED LIVING SPACES

The interprofessional dialogue around architectural projects implies a shared vision and may foster the conciliation of building norms, aesthetics, safety, and accessibility in innovative solutions for developing more humanized projects. The inclusion of possible users in this dialogue is a fundamental contribution for fostering the humanization of spaces, as well as its potential for therapy, well-being and functionality. This proposal may be included in the global idea of centering the design of hospital infrastructures and equipment around people as it is shown, for example, by Cifter & Cifter (2017). From a psychology perspective, this invites the authors of architectural projects to:

i. ***Know more about the narratives and perceptions of users and potential users of architectural spaces.*** It's a matter of exploring the experience, vision and perspective of those who'll make use of the space and bring it to life. The person must experience/have contact with the space and move about it. This visit may be done physically (where possible), via blueprints or mockups (which can be a cognitively demanding exercise and not achievable by everyone), or via virtual reality, for example. Afterwards, exploring the experience through questions such as: What have you felt inside the space? What did it remind you of? How would you like it to be? What can you tell us about the space and your experience of it? What did you like about it? What difficulties did you face?

ii. ***Provide the possibility of personalizing the space.*** Among other elements, creating a humanized space implies that the person has the possibility of deciding and placing personal and significant elements that are adapted to their lives, potentials and limitations. Spaces that a person can adapt to their own story and to what is personally significant.

iii. ***Value lighting and connection to the outside.*** The possibility of perceiving the time of day, embracing light and connecting with the outside world, such as looking outside or going out (to a balcony), are vital for the person's general well-being.

iv. ***Privacy and social interaction.*** Spaces that favor and allow for social contact, but also guarantee reserved areas or ways to make it a private space may be an architectural challenge that allows people to preserve their dignity and promotes their well-being and development as humans.

"My home", "my school", "the hospital where I am/was hospitalized", "the residential care facility where I live", etc., are expressions that mandatorily belong in the narratives and life stories of people in their different conditions and stages. Physical spaces are a part of each person's narrative and are continuously built and rebuilt on a psychological level. These environments and their assigned meanings, among which the hospital environment can be found, have impact over the well-being and recovery process of patients. Developing the idea that a hospital architectural project, besides meeting

sanitary norms, can also incorporate new concepts such as therapeutic environments, areas for treatment and healing, design, and at the same time integrate interprofessional dialogue and conversations with the users, may foster the construction of more humanized environments and improve the experience of patients, staff and family members.

This document serves as psychology's invite to architecture to listen to people's narratives, and in this specific case, to patients, hospital unit's staff members, families and communities, and to know more and coordinate projects with psychology's perspective on spaces. The collection of narrative elements and its coordination and formulation with architectural projects may require the optimization of dialogue and the development of teams composed of architects and psychologists. This dynamic may be an enticing challenge for the development of spaces that facilitate the inclusion of illness and hospitalization experiences from people's lives into their respective life stories, which ultimately includes moments of health and sickness.

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2

Hospital environment and SARS-CoV-2 pandemic

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Introduction

Since the first cases identified in December 2019 in Wuhan - China, SARS-CoV-2 infection (COVID-19) has spread exponentially around the world (Guan et.al. 2019). Given the progression of the disease and its risks, the World Health Organization (WHO) classified it as a pandemic in March 2020, identifying this infection as a threat to global health (Cucinotta and Vanelli 2020; Guan et.al. 2019). The disease has exposed weaknesses in political, social, economic structures and in particular health services that have reached unsustainable burden levels (Blumenthal et.al. 2020; EXPH 2020; Tisdell 2020). The number of cases has been growing consistently and persistently. Humanity hopes the arrival of effective treatments and vaccines that will eradicate or at least control

the disease (Eichler et.al. 2020).

COVID-19 has a variable spectrum of disease, and patients can be totally asymptomatic, with mild symptomatic conditions or progress to more severe clinical conditions such as Acute Respiratory Distress Syndrome requiring hospitalization in intensive care units (Hu B et.al. 2020).

SARS-CoV-2 transmission occurs when respiratory droplets produced during coughing, sneezing or in conversation are inhaled or land on the oral, nasal or ocular mucosa of those nearby. The contact of hands with contaminated surfaces or objects can also lead to the transmission of the infection, if there is subsequent contact with the mucous membranes. The airway has also been identified as a means of disease transmission, especially when aerosol-generating procedures are performed, such as aspiration of secretions, orotracheal intubation, bronchofibroscopy or invasive or non-invasive mechanical ventilation (DGS 2020d; WHO 2020).

The main transmission routes of this infection promote risks of contamination of the hospital environment, leading to the appearance of outbreaks in medical wards, reaching both patients and health professionals. Several studies have suggested an increased risk for health professionals within the scope of their activity (Black et.al. 2020; Nguyen et.al. 2020). A study that took place in the United States of America and the United Kingdom showed a three times higher risk of acquiring the infection (Nguyen et.al. 2020). In addition, the subsequent work absenteeism potentiates limitations in the response to the pandemic, due to a lack of human resources. This situation puts the most vulnerable hospitalized patients at risk. The adoption of infection control policies becomes critical in order to promote additional protection for workers and users of health services (Black et.al. 2020; Nguyen et.al. 2020).

Contamination of the air and the hospital environment is a relevant aspect to consider in the management of the pandemic. Several studies have sought to analyze this risk and quantify it. However, the results have been heterogeneous and sometimes contradictory, and more robust studies are awaited (Ahn et.al. 2020; Birgand et.al. 2020).

It has been suggested that the risk of contagion depends on the severity of the disease and treatment instituted. This risk does not seem to be the same throughout the disease

period, with a reduction being noted at the end of the first week, subsequent to the decrease in viral load in the airways (Ahn et.al. 2020; Birgand et.al. 2020).

Viral particles were detected in the close environment of infected patients. Personal protective equipment removal sites and patient rooms are areas with higher viral concentrations. However, in some studies, the detected viruses were not viable, not growing in cultures. Interestingly, high viral concentrations were also found in places where professionals gather, such as cafeterias, pantries or meeting rooms. In these places, which are usually small and poorly ventilated, masks are removed, facilitating contagion. Bathrooms are also places to consider, for the same reasons, given their small size, poor ventilation and potentiation of aerosolization of viral particles released in the feces when the toilet is flushed (Birgand et.al. 2020).

As previously mentioned, performing aerosol-generating procedures potentiates the spread of viral particles. The extent of this contagion is not yet fully known. However, authorities have taken preventive measures to avoid this risk (Ahn et.al. 2020; Birgand et.al. 2020; DGS 2020d). It should be noted that procedures such as non-invasive mechanical ventilation or high-flow nasal cannula oxygen therapy have shown clinical benefits, being important strategies in the treatment of the most critically ill patients. The recommendations have sought to emphasize the need to carry out this type of procedure in rooms or areas of negative pressure, with adequate technical conditions and using appropriate personal protective equipment (DGS 2020d; Sociedade Portuguesa de Cuidados Intensivos 2020).

According to current recommendations, infected patients should, whenever possible, be kept in rooms with negative pressure in relation to adjacent spaces (CDC 2019; DGS 2020b; REHVA 2020). These recommendations are the basis for the decision of political and health entities to seek to separate patients into COVID and non-COVID areas (DGS 2020b). The use of negative pressure avoids the transport of microorganisms and the consequent risk of environmental and interpersonal contamination. For this to occur, it is necessary, for example, to ensure permanent ventilation of spaces through the introduction of 100% of outside air, with renewal rates of not less than 10 renewals per hour, equipment that performs permanent extraction of air and absolute HEPA filters. Location and direction of extraction of contaminated air must be careful, taking place to

outside areas, away from the building or nearby buildings. When hospitalizing patients in areas with negative pressure, it is necessary to have transition zones between infected and non-infected areas, in order, for example, to prevent contaminated air from being transferred to non-infected areas and to facilitate the removal of personal protective equipment by health professionals. In addition to the above, planning circuits and hospital flows for infected patients is essential, in order to ensure the effective separation of patients in administrative areas, waiting rooms or clinical areas (CDC 2019; DGS 2020b; REHVA 2020).

Another relevant aspect is the contamination of the patient's environment and, particularly, of hospital surfaces. The survival time of the virus on surfaces is not yet consensual, with a period of at least 48 hours being pointed out, depending on environmental conditions, such as local temperature or humidity. These surfaces can constitute a reservoir for the virus if they are not properly sanitized. All are potential vehicles of contagion, but the risk varies with the frequency of their use. Places of frequent touch throughout the day such as door handles, light switches, telephones, computer keyboards, tables, benches, chairs, among others, are at high risk of transmission (DGS 2020c).

The hygiene of equipment and hospital environment has thus become even more relevant in the context of the COVID-19 pandemic, and must follow well-defined plans by the facilities and equipment services of hospitals. It is essential that this cleaning is carried out by qualified personnel, with suitable products adapted to existing surfaces. This must always occur from top to bottom and from the cleanest to the dirtiest areas. Cleaning frequency should also vary depending on the expected risk of contagion, with frequent contact surfaces being sanitized more often during the day (DGS 2020c; ECDC 2020).

The hospitalization of patients with COVID-19 had a relevant impact on individual mental health. Knowledge of the diagnosis of the infection causes, in some patients, feelings of disbelief and shock, as well as an inevitable sense of life-threatening. This news is often accompanied by the diagnosis and isolation of other family members, promoting additional feelings of guilt and abandonment. The negative impact of this disease on mental health is described, enhancing or aggravating previously present psychiatric

illnesses such as depression or anxiety. The need for isolation is perceived as if they were in prison and the conditions present in these places contribute to this fact. The lack of adequate treatments, prolonged hospitalization and lack of support from family and friends raise anxiety levels and hinder the patient's therapeutic process (Sahoo et.al. 2020). The pandemic response initially focused on therapeutic action, setting aside the current holistic view of the biopsychosocial model of the disease. At this point, after an initial response more directed to the biological view of the pathology, it is also sought to focus on the psychological and social components that play a key role in the treatment of the patient (Wainright and Low 2020).

The overload of health professionals in this pandemic also does not allow for adequate personalized patient support. In an attempt to minimize hospital contagion, maximize time and reduce spending on personal protective equipment, health professionals seek to condense the activities to be carried out, enhancing patient isolation, given the shorter contact time with them due to the reduction in room entries (Fan et.al. 2020).

Thus, it is essential to reflect on these aspects and seek structural solutions that reduce the segregating effect of hospital isolation. As such, care scheduling strategies can bring some predictability to patient's day. The existence of glass doors or windows that allow viewing into the rooms allows greater surveillance of patients. The availability of adequate means of communication (tablets or mobile phone) may facilitate additional contacts with professionals and family and faster resolution of problems that may arise. On the other hand, the availability of entertainment media, such as music, television, newspapers or digital books and online games, may facilitate occupation of the idle time and a focus on aspects other than the disease itself. The existence of free internet in hospitals for their patients becomes essential, forcing the creation of adequate conditions for this access (Fan et.al. 2020).

A construção de futuros edifícios ou áreas com fins de prestação de cuidados de saúde deve considerar o bem-estar pessoal tanto de profissionais como utentes, como algo essencial no processo terapêutico. Torna-se essencial criar ambientes mais humanos, adaptáveis sempre que possível às necessidades particulares individuais, mantendo sempre a segurança necessária à prestação de cuidados médicos especializados (Tokazhanov et.al. 2020).

Construction of future healthcare areas or buildings must consider the well-being of both professionals and patients, as something essential in the therapeutic process. It becomes essential to create more humane environments, adaptable whenever possible to individual particular needs, while always maintaining the necessary security for the provision of specialized medical care (Tokazhanov et.al. 2020).

Health infrastructures in Portugal are aged and undersized, in many cases, for the population they serve (Campos 2017). In a situation of health care overload due to the pandemic, the readaptation of these structures is difficult and costly. However, the urgency of the response led many institutions to embark on the creation of temporary prefabricated structures, the reformulation of pre-existing areas or, together with local entities, the creation of field hospitals in large spaces such as pavilions, stadiums or car parks (Tokazhanov et.al. 2020).

In the future, modular construction has been pointed out as a possibility to solve these problems, allowing quick assembly of health buildings or the adaptation of pre-existing ones. This type of construction may allow temporary adjustments, adapted to specific, local or national health events (Tokazhanov et.al. 2020). Another aspect to consider in the process of creating or adapting healthcare institutions is air quality. It is important to plan circuits that prevent risks of intra-hospital contagion by airborne infectious agents (CDC 2019; DGS 2020b; REHVA 2020; Tokazhanov et.al. 2020). The type of materials to be used in the construction process is also very relevant, either because of the risk of viral persistence in some materials for longer periods and consequent contagion, as well as the need to be sufficiently resistant to frequent cleaning processes. Copper-based or low-porous materials have been identified as having a lower risk of infection, in contrast to glass, plastic or porous materials, preventing the prolonged survival of viruses and bacteria (Marquès and Domingo 2020; Tokazhanov et.al. 2020). Furthermore, the use of new “hand-free” technologies with voice or facial recognition, the use of cards to open doors, the presence of motion sensors, among others, allow the reduction of contact with surfaces. Additionally, the creation of wide areas reduces the risk of contagion, facilitating the maintenance of safety distances between patients. For example, large staircases, well-sized waiting areas and wide hallways can help with this process. Moreover, the integration of green spaces in hospital environments, accessible to all, has been identified as an essential factor to promote an improvement in their mental health and reduce the

anxiety/stress associated with the hospitalization process (Roberts 2020; Tokazhanov et. al. 2020).

COVID-19 pandemic brings challenges for the future, leading us to reflect on how to prepare and strengthen healthcare institutions for new demands and needs. It is essential to promote bridges between areas of knowledge and to know in depth the real needs of the communities. The creation of healthcare buildings should respond to the main health problems of the population. The development of new hospital projects must seek to break with the current vision of what a health institution is and seek to bring new solutions that reflect the current and future needs of the users of these buildings.

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3

Spaces to take care

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Introduction

In the words of McAdams (2015) 'Each Life is a work of art', the result of a number of interconnected variables and circumstances that lead that person to be who she is. In reality, we do not choose the date of our birth, our family, our brain... This unique work, which we are, is conceived, born and unfolds in time, that is, it does not appear as a finished product. The time of our life is marked by events, some cultural, such as entering school, others biological, such as puberty. In our culture, we assign phases (e.g., childhood or old age) to this existential continuity guided by these events, some normative and others idiosyncratic. What defines our nature is, therefore, the possibility to make culture. In other words, this possibility of, within our species limits, which are admittedly increasingly plastic, to organize our existential course, to choose, to build and to change.

However, it is estimated (Lyubomirsky, Sheldon, Schkade, 2005) that about 50% is what we are given at the outset, our baseline, and 10% the influence of circumstances. We are left with 40% of intentional activity in what, in this study, determines our happiness. These around 40% already give us a great deal of leeway and responsibility over how we want to live our personal and social lives. How we want to take care of ourselves and others.

When we talk about culture and construction and, consequently, about change, we are also necessarily talking about learning. All these concepts are interconnected with the plasticity construct. Although the reference to incredible human plasticity was widely underlined by Baltes et al. in the 70s of the 20th century (Baltes & Willis, 1982) contemporary neuroscience research have been confirming and providing a vast set of data that validate the initial proposals of the Life Cycle Theory.

Effectively, we do not know our limits and, therefore, it is not possible to speak at all about the characteristics of old age. However, some things we do know: there is a considerable increase in the average life expectancy; successive generations show physical and mental gains; there is a positive potential of the aging mind; older people are the superior group in wisdom and emotional intelligence; there is remarkable individual plasticity – adaptation to changes including loss; healthy lifestyle decreases likelihood of pathological conditions; well-being increases with age and given the considerable heterogeneity, direction and diversity of ways of aging, avoid simplistic solutions at this level.

Despite these conclusions, it is unavoidable that population aging is a global challenge (INE, 2015; World Health Organization, 2006) even if it is due to the Aging Index of the population, which translates into the number of elderly people per 100 young people, which was 72.1 in 1991; 102 in 2000; 141.3 in 2013; 150.9 in 2016; and it is estimated at 398 in 2050 for Portugal (INE, 2017). In addition, 17% of these older people are poor (INE, 2017) and that ageism is the greatest form of discrimination against human beings. The advent of the Corona Virus pandemic, as has been widely reported, has affected all of humanity and, in particular, older people. People over 60 years of age, considered a risk group, had a greater impact of preventive measures of social isolation and a consequent increase in the stigma of ‘vulnerable and fragile’ and a worsening of segregation according to age. We can thus foresee a setback in the practices of Active Aging recommended by the WHO, whose fundamental pillars are the participation,

health and safety of people throughout their life cycle. The social isolation measures taken to protect the population also brought anxiety and uncertainty. To the fear of being contaminated, other difficulties were added, such as loss of autonomy, loneliness, diseases derived from being homebound, lack of movement, fear of dying, food shortages, financial reduction...

In this context, designing an intensive care health unit for Covid19 is absolutely relevant. Especially if mental health and the well-being of users, mostly of advanced age, are taken into account. Being on constant alert due to a threat that we do not control implies an emotional demand, an experience of stress that can lead to depression and various physical problems that will interfere with the treatment of the disease. The word take care in its etymology does not just mean to watch over or take care of something, ourselves or someone, but also to be concerned with, and to think about how to do it in the best way. In this sense, here are some reflections/suggestions to take into account when building the necessary spaces to care for our elderly people with Covid19 during the challenging times we are living. In this elaboration, it would be important to start by listening to older people and favoring their participation in decision-making (e.g., do I want visits or not). This design for engagement needs to be centered on the person, respecting their choices, their dignity and their determination. In this sense, it must be relationship-centered and flexible. For this to be possible, attention to space is essential. In this care, environments must be designed to promote breathing and health, silence but also connection and safe contact with others, nature and the transcendent.

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4

ArchiteCtURE images for Covid19

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Introduction

Architecture is made up of images that are designs: something that does not yet exist, but promises a future existence. Not all images are like this: some are (or were, in times of innocence) mere copies of reality, while others are mental constructions without any connection to the world and have no need to materially express themselves. Between the two extremes, which are immediately questionable, there are many variations. Anyway, the universe of images (from document to fiction, from mental image to material image, from object to representation, from real to virtual), remains captive of an intimate and ancient tension which marked its destinies: the relationship with the world. Today, more than ever, this relationship is in crisis and seems to have broken. In their virtual greed, images have replaced reality, and it seems that they can live well without it.

This is especially relevant when crossed with that part of reality that we call urban space, a place mainly dominated by visualities. More than a century ago, Baudelaire expressed the idea that life of large cities is nothing more than a constant flow of images and the definition of the world as a set of images that we continuously archive and unarchive is not a new one (in Portugal, Bragança de Miranda, between others, addressed it with

some persistence in the late 1990s). At the end of this regime, who knows, the world will be no more to us than its images on the screens and it seems that in fact we are already much close to that destination. Vilém Flusser (1985) foresaw it in the 1980s and today it is hard not to believe that, to a large extent, many places on the planet have entered the process of de-realization: ghosts are no longer images (as they were for the greeks), now it is reality that is relegated to the spectrum condition or, as Baudrillard (1987) said, there is an inversion of the reference principle of images (malign inversion, according to the author), that established that first was the world and then images.

The second effect of the transition to the videosphere is that a great part of our vision of the world-showcase is summarized in a set of clichés in which we find ourselves cloistered and that constitute our "way of seeing" (Régis Debray, 1992). In this viral, stereotyped, normalized visual mainstream, new images call for alternatives that can be disruptive by managing to overcome stereotypes (and not only counter them with other stereotypes). Some of them also work to find other, lets say, less industrial solutions, that wish to be particularly rooted in dialogue with the world and are, in that sense, more obvious solutions.

In fact, this type of images does not suffocate what belongs to its nature: the imagination of reality. Considering then that our connection with the world has always been imaginary, it should be noted that even when part of images' work is/was to reveal that world, such work entails with it a good deal of concealment. In yet another statement almost viral, we would say that light always contains shadow. This is particularly pertinent when talking about the kind of images used in the design exercises to which this publication refers (and overall the architecture): photographs (writings of the light that can, through the exploration of shadow, become a mastery) and technical drawings that took it into account (João Pinto's project, for example, partially inspired by Malmö's hospital for infectious diseases): "When, finally, an architect discovers that light is the central theme of architecture, then he begins to be a true architect." (Baeza, 2008, p.1)

In a way, we can even consider that the appropriation of the territory by drawings (and not only by photographs) assigns those drawings a primacy towards the territory, sending this last one to the place of shadow. As Wittgenstein pointed out, there is more on the map than in the territory. What is changing is not the contribution of the imaginary to the

existence of the world nor the awareness of the relative impotence (or even distortion) of the revelation of the latter through images. Like any other, visual language transforms and organizes the world, reduces its chaos, makes visible the invisible and, at the same time, it is unable to transmit it in all those dimensions in which he is unspeakable (cf Calado, 2019). What is changing is the scale at which images replace the world, as well as the technical devices that have been altering their modes of manufacture: images are excessive and the digital raw material is a binary unit without binding to the analog mode (linked to similarity to reality, to photosensitive film and to a pact with the moment of creation / capture), above all committed to the infinite possibilities of editing and post-production that, in summary, profoundly changed nature of photography - to the point that, today, we can talk about something else after it: the post-photography. Dropping a long theme, I would just say, to finish the topic, that what has changed is this: for a long time, images helped us to imagine the world and now (because they are excessive, deeply normalized and still partly because they are generated mostly as virtualities) they make imagination difficult.

That said, let's go back to architecture to express towards their images a hope for the trend outlined. Image builders, architecture and design have always wanted to be functional. His proposals are expected to be useful and effective (while they also call for symbolism and even poetry - the wind rose in the Polaris project by Micaela Gomes). To that extent their drawings cannot be traced in a space open to all possibilities, in a virtual universe of the Escherian type, unconstructable, however prodigious the imagination that drove them. The works developed in the course Project IV-2 that were under appreciation by the participants of the webinar Arquitetura Humanitária e COVID-19, had a declared attempt to respond to the appeal of human life and its most immediate contingencies (Joana Gonçalves' project is called Humanizar Covid 19).Therein lies a strong reason why we wanted to look at them. Searching a non-alienated answer to the challenges of the present, previously coordinated with needs that, in the context of the pandemic, may even be called urgent and survival, the orientation of these formative experiences is a declaration of how much images must not quit its vicarious function and committed link to the world. This includes preserving memory (linked to identity and intergenerational dialogue) - a challenging task at a time when, under the powerful sign of change and transformation, the awareness that everything is transitory and unstable is sharpened. Nowadays, the praise of ephemerality (in art in general and in architecture in particular) is eloquent and the fascination for what does not last is great.

Can memory and transitory be compatible? Can we think the sustainable (le durable) in architecture as to answer the needs of the territory, the society, the pressure of the events and also their appearance and disappearance?

Looked at from the perspective of what we've been calling the iconocracy (to designate an approach not only focused on what images say, on their poetics - as happens in the approach of iconology -, but also looking at what images do - its policy), these architectural projects highlight the social function of images, aiming to establish a sustained link between space, territory, human and nature (the reference of the sanatorium of Paimio de Alvar Aalto was an inspiration for most of the works presented by the students). Since the Renaissance, visual technologies have developed so to help us to see farther away (with the astronomical telescope, the planetary probes, ...) and to see more inside (of the human body, nature and genetics of life, with the microscope, X-rays, ultrasound, MRI, underwater and stroboscopic photography, ...). Images can also make us view more closely. Photography and documentary cinema are in charge of doing so, sometimes in a sublime way. In a world in need of healing (as the emergence of COVID-19 made particularly flagrant), we would say architecture's images also have a duty not to stray. We will all benefit if they are interested in seeing closely to think far away, carefully and deeply observing the territories (and especially the human side of those territories, with all their memory and wisdom, also disasters, voids and insufficiencies) to find the horizons of the possible, imagining continuities and alternatives, anticipating solutions.

We dare to think that this may be a good way for architeCtURE's images: to be part of a healing process that goes beyond the overcoming of the current pandemic crisis. This is about integrating an ecological movement for the course of images, in the sense that today we need they make a strong bet on recycling. Recycling, in the visual field, largely means stopping avalanche of images (that, we could say, makes us sick), but above all developing strategies for appropriation, management of accumulation. (cf Calado, 2020)

We think the projects here concerned fulfill at least four of the greatest powers of images: naturally that of spatializing information (organizing it), that of linking (in the sense referred to above, and in others that we cannot develop here), that of keeping memory and also that of co-moving. The ability to trigger emotions has been classically attributed

to images (especially from cinema, television and other screens, such as video games) and its power has also been traditionally confronted with others, particularly those assigned to verbal language (considered as cooler, more rational, more fit for abstraction, and so on). It turns out that it is emotion that underlies our boldest actions, least workaday, the ones able to face challenges. That is why we made a kind of portemanteau transforming the idea of commotion into something that points to cooperative action. It is this active and mobilizing energy of joint efforts that we also recognize in the purposes of the work in focus, as well as in the dynamics of communication, sharing and discussion that around them Professor Nuno Martins encouraged.

We finish our contribution by stating a set of questions. Not those that we eventually intended to give some answer to in this text, but those that, for us, were raised by the work developed by students of Project IV-2: *what is today our outside world? How are we internalizing it and how do images contribute to it? A world where distancing, the aseptic thing, the abstinence from the physical sensations and the emotions associated is imposed? Or a world that challenges us to counteract the excessive non-body of reality? What reality will be created by architecture's images to accommodate the human in nature and nature in the human?*

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8

STUDENTS' CONTRIBUTION

Health Park and Continuing Care Unit Project

Project 1

João Afonso Pinto

Project IV-2. MIA/UBI, 2019/2020

Health Center and Intensive Care Unit for Covid-19

Introduction

The most recent pandemic raised the problem of preparing health facilities to serve an unusual number of infectious disease patients. But also the need to design health spaces that allow patients to come into contact with visitors and nature's role in recovery. It is from these needs that the challenge of designing a care unit focused on covid-19 emerged.

This academic project is located in Covilhã, Portugal, in an area with good access that connects the new part to the old part of the city. .

Architectural Refernce

I believe that architectural references are all that we study and observe.

However in the act of designing we must look for references similar to the program and form of our project as a source of inspiration. So it was in the Paimio sanatorium by Alvaar Alto in Finland and an hospital for infectious diseases in Malmo Sweden that I found this inspiration. One for the relationship with the nature and the other by the shape of the building and similarity of the program.

Concept

The concept of the project comes from the idea of creating a nucleus focused on nature. In this case it would be a courtyard that would encompass the entire dense program. Instead of following orthogonal lines, also concerned with how the various spaces could relate to eachother, the ring appeared as a viable solution that would allow connection between several areas and an opening to the outside for all of them.

Materiality and built system

This is an academic project and mainly focused on issues of human use. The costs of a project of this type could be a topic that, if it were to be carried out, would change the project or make it unfeasible. So, it was intended that the entire structure was made of reinforced concrete, based on a slab system supported on walls that separate the rooms. The secondary walls would be common brick system and the facades would be glazed. Through this glass walls it can allow for good sunlight and spaces designed in such a way as to allow a natural ventilation would reduce the costs in HVAC systems.

Responding to the Pandemic Problems

The proposal presented is a ring-shaped building with three floors that is reacheble by car from a lower level. This gives access to the garages and the main entrance where the sorting is located. The middle floor is 4m above and gives access to the garden of the ring core. All medical and treatment facilities are located on this floor, also administration and living areas. The upper floor is made up of hospitalization bedrooms, which is divided into intermediate care and intensive care.

The ring plan divides the spaces with three corridors, one central and two at the edges.

interior and exterior. This system generates routes with diferent uses and thus separate the people who circulate with diferent tasks without having to cross paths.

In addition to the concern with technical conditions and people management in an

infectious disease environment, one of the most important factors in space design is the issue of sustainability and the possibility of creating a passive and comfortable environment.

So there are spaces in the ring that allow for cross ventilation, good insolation, and that always allow views to the outside. The rooms all have large glass walls and doors that face the corridors, all of which are made of glass.

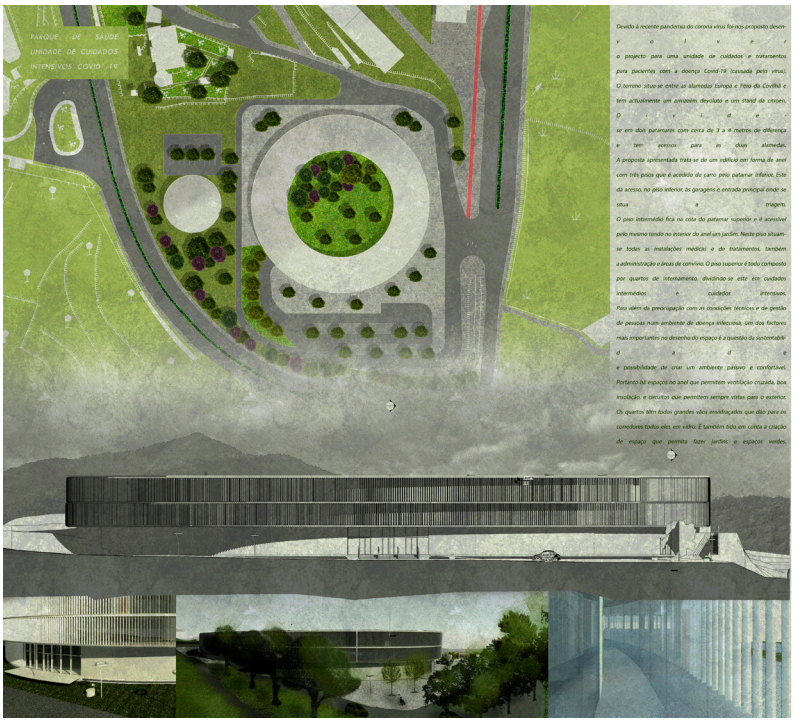
Transformation possibilities

As the shape of the building is in a ring, its center would mainly be a garden for contemplation, walk or simple protected outdoor space that would allow contact with nature. However in case of extreme need it would be an expansion space allowing more rooms and patient care units, having all the treatment facilities direct connection to this area.

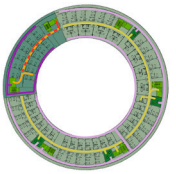
Final reflections

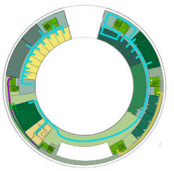
When the teacher challenged us to create an alternative program for the second project exercise of the second semester of the 4th year, I accepted with enthusiasm because the topic suggested a great learning experience and a unique opportunity. However, I didn't had the notion of the complexity of the program ahead. I admit it was hard. The short time we had mixed up with the whole move to an online system because of the first states of emergency. But it was the teacher's organization and his demand allied to an ability to generate good discussion that helped to reach the goals. It also brought us very varied perspectives such as the influence of architecture in psychology.

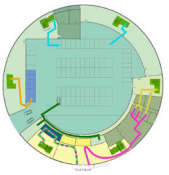
In the end, the main thing for me was the discussions that were often an eyeopener, and today I already remember our classes with nostalgia, even in the atypical situation in that went online.



Devido à recente pandemia do corona vírus foi-nos proposto desenvolver o projecto para uma unidade de cuidados e tratamentos para pacientes com a doença Covid-19 (causada pelo vírus). O terreno situa-se entre as alamedas Europa e Ferro da Covilhã e tem actualmente um armazém devoluto e um stand de citroen. Divide-se em dois patamares com cerca de 3 a 4 metros de diferença e tem acessos para as duas alamedas.
A proposta apresentada trata-se de um edifício em forma de anel com três pisos que é acedido de carro pelo patamar inferior. Este dá acesso, no piso inferior, às garagens e entrada principal onde se situa a triagem.
O piso intermédio fica na cota do patamar superior e é acessível pelo mesmo tendo no interior do anel um jardim. Neste piso situam-se todas as instalações médicas e de tratamentos, também a administração e áreas de convívio. O piso superior é todo composto por quartos de internamento, dividindo-se estes em cuidados intermédios e cuidados intensivos.
Para além da preocupação com as condições técnicas e de gestão de pessoas num ambiente de doença infecciosa, um dos factores mais importantes no desenho do espaço é a questão da sustentabilidade e da qualidade e possibilidade de criar um ambiente palavro e confortáveis. Portanto há espaços no anel que permitem ventilação cruzada, boa insolação, e circuitos que permitem sempre vistas para o exterior. Os quartos têm todos grandes vãos envidraçados que dão para os corredores todos eles em vidro. É também toda em conta a criação de espaço que permita fazer jardins e espaços verdes.







LEGENDA DE CIRCULAÇÕES

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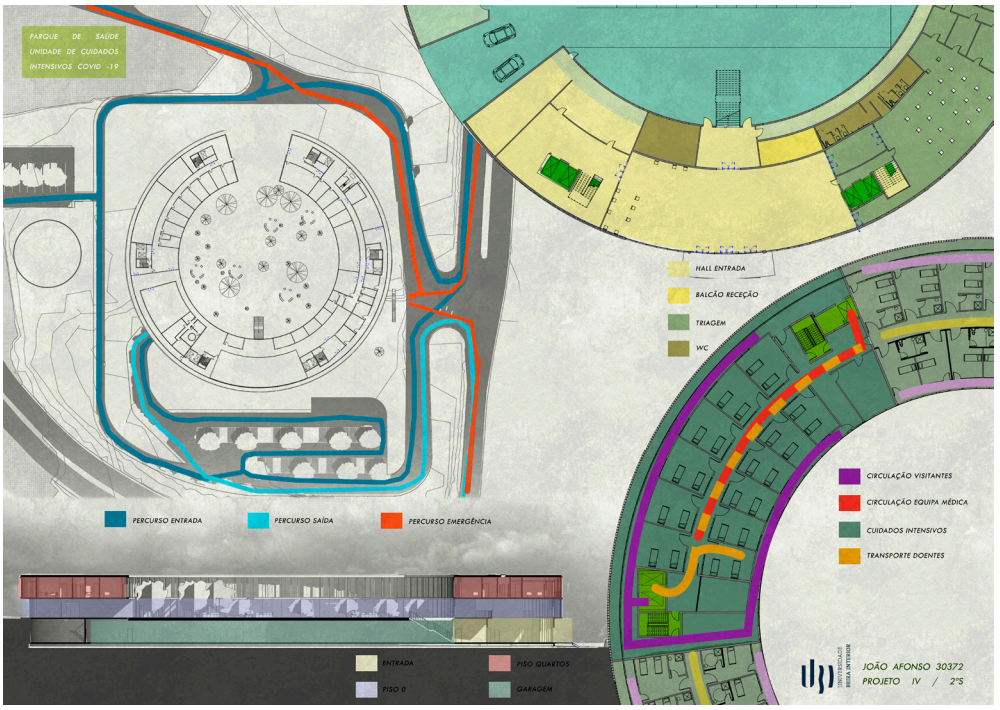
PROJETO IV / 2ºS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PERCURSO SAÍDA
PERCURSO EMERGÊNCIA
CIRCULAÇÃO VISITANTES
CIRCULAÇÃO EQUIPA MÉDICA
CUIDADOS INTENSIVOS
TRANSPORTE DOENTES
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PISO QUARTOS
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PROJETO IV / 2ºS


PARQUE DE SAÚDE
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acabamento em marmorite
estrutura de betão armado
JOÃO AFONSO 30372
PROJETO IV / 2ºS

Project 2

Joana Rico Gonçalves
Project IV-2. MIA/UBI, 2019/2020

Humanize Covid-19

Introduction

The project of this hospital park, intended for the treatment of infectious diseases, emerged in an academic context at a time of pandemic. This proposal, carried out in a short period, (teaching time destined to the accomplishment of the exercise in the scope of the Curricular Unit Project IV) served as a pioneering example to the debate of 'therapeutic architecture' as architecture capable of responding to new ways of inhabiting derived from a pandemic reality.

Questioning the functioning of the existing hospital surfaces (not prepared for large-scale infectious diseases) was the mot for this project, which aims to respond to the two biggest weaknesses analyzed: on the one hand, to emphasize the importance of the proximity of the user with nature and, on the other hand, on the other hand, the need to humanize the processes of visits and/or farewells, avoiding the feeling of 'abandonment' reported.

Descriptive memory

Choosing the location required consideration of different access points depending on different types of traffic: emergency, users, staff, loading/unloading docks and services. In this sense, the definition of the various routes made it possible to avoid the unnecessary crossing of courses.

In addition, the solar orientation and the existing topographic conditions were the two major decisive factors to define the shape of the implantation. The main objective was, therefore, to allow the natural conditions of the land to prevail, reconciling the building's autonomy with pre-existing ones, for example, maintaining the larger trees. The decreasing difference in elevations in the west-east direction allowed the creation of a semi-underground floor. This floor combines an underground rectangular body intended for the garage (70 seats) with an 'L' body intended for a residential area for healthcare professionals. The residence consists of a set of 26 studios, two patios - one fully delimited and the other with a greater extension towards which all the studios are oriented - and the respective service areas. This floor, torn in the west and south facades, gives the idea of the 'basement' of the main body that rises superiorly divided by four volumes - the largest that articulates all the dependencies of the hospital equipment and three volumes placed perpendicularly, the infirmaries.

The proposal is developed over four floors. On the ground floor, the entrance, facing north, splits with the waiting room for companions on the left and users waiting room on the right. Both spaces respect the minimum security distance rules and have an entrance antechamber with an express disinfection zone. The screening area consisting of four rooms attached to a waiting area for the results may be complemented, in case of greater turnout, by the use of covid-19 tests in drive-thru format in the car park.

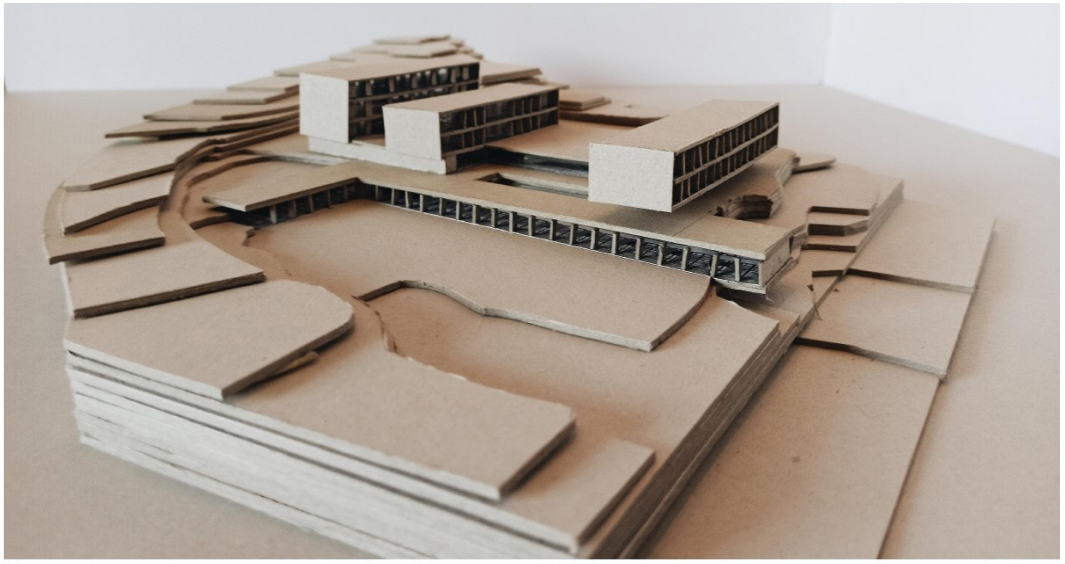
Due to the terrain's orography, to the west, are located the entrances for laboratory personnel (Clinical Analysis Laboratory; Hematology; Immunology; Microbiology; Pathological Anatomy and; Clinical Biochemistry) and Pharmacy due to the functional needs of the docks. loads/unloads. In the division of these two programmatic contents there is a quadrangular patio that naturally illuminates circulation areas and humanizes a space that is conventionally dominated by machines and artificial light. It is also an entrance intended for the specific needs of the corpse deposit and crematorium, bringing together all the service areas in this area.

The materialization of this project presents constructive solutions that reflect concerns about durability, thermal and acoustics. The construction system proposed was ETICS, with the isolation from the outside give to the building a more efficient performance. The use of solar panels on the roof will guarantee some autonomy to the building, which will

use mechanical heating or cooling systems in situations of slightly drastic indoor-outdoor temperature differentials, thus reducing CO2 emissions. The flooring of this hospital unit intends to bring the hospital character closer to the residential one. A floor with a visual resemblance to wood was chosen, with easy cleaning and 100% recyclable materials. A strong baseboard was needed to obviate cleaning and maintenance problems. For this, the solution involved the design of a metallic baseboard whose cut is curved and without a protruding upper edge, avoiding the accumulation of residues.

Final considerations

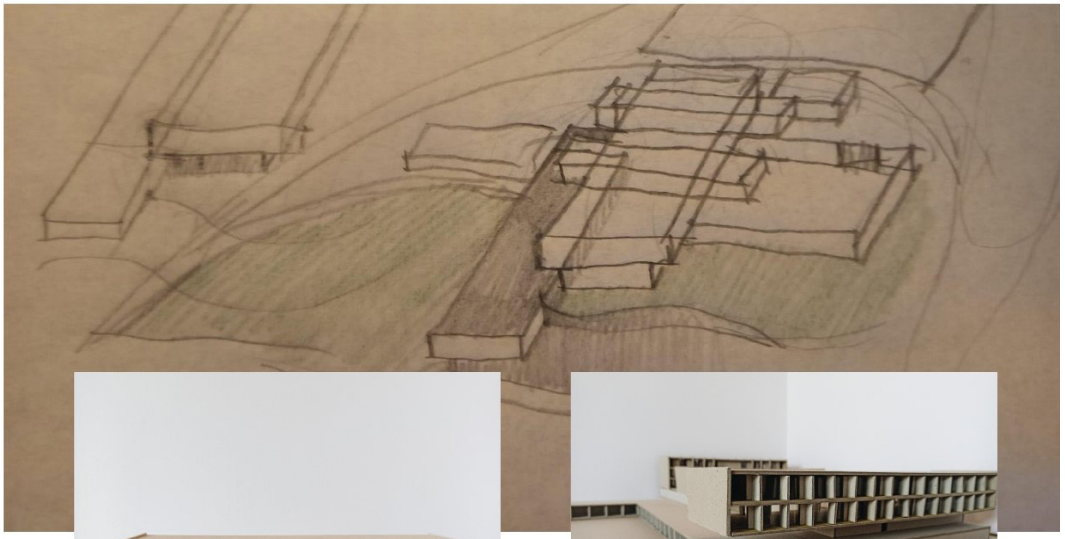
My experience, during this period when I was an exchange student at the University of Beira Interior (UBI), in particular in this project exercise, reinforced the idea that the work was germinating in an irrepressible and decisive feeling that architecture does not end at any point. It takes many forms and is directly proportional to the level of development of societies. The design of architectural or urban space has the ability to interfere even with public health issues, going beyond its physical dimension.











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Poster for event of presentations of student works

This publication is the result of a practical exercise in the Curricular Unit of Project IV-2 of the 4th year of the integrated master's degree in architecture at UBI. It took place during the first lockdown associated with the new coronavirus, in the first half of 2020. These pages bring together the work of students as well as a synthesis of the interventions of guest speakers, professionals and academics from various disciplinary areas, in the webinar 'Humanitarian Architecture and COVID-19', in June 2020.

As a whole, works and texts underline the ancestral and close relationship between architecture and health. Both are part of an update of disciplinary knowledge in areas such as medicine (infectiology), biology, psychology, gerontology, visual culture and the design of hospital buildings. Knowledge that the history of architecture and respiratory diseases, crossed in the rich experience of tuberculosis sanatoriums, as well as the current pandemic that we are experiencing, prove to be convergent.

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ISBN
978-989-54741-5-8

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