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Lockdown Urbanism: Covid-19 lifestyles and liveable futures opportunities in Wuhan and Manchester

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Introduction

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Based on the authors' personal experiences, this commentary discusses contrasting urban contexts and lockdown measures in twinned cities Wuhan, China and Manchester, UK, to examine spatial reach under Covid-19 restrictions in both places. Focusing on *latency*, the capacity of space to fit new occupation patterns and uses, the role of architecture and urban design is considered, to identify lessons applicable to physical and digital environment design, in scales and media that can absorb shock, supporting flexible, creative resilient approaches and patterns of future liveability.

Context: Wuhan + Manchester

Wuhan municipality (population 11.2M) covers an area with a range of densities, the city centre has very high building and population densities, in common with many Chinese cities (Cheng and Zhou, 2014). This paper reflects on lockdown experiences in a gated 10+ storey apartment block comprising 2-3 bedroom family apartments with shared outdoor space (Fig. 1); a prevalent typology in traditional and new residential zones (Sun, et al., 2018).

Greater Manchester (population 2.8M) comprises a central zone with suburbs across ten metropolitan boroughs. City centre residential accommodation is largely in apartment blocks whilst a significant proportion of the population live in suburban mixed low-medium density housing. A typical 2 storey suburban home has 2-3 bedrooms and includes some private outdoor space within the plot (Fig. 1).

Constraint and Spatial Reach in Open and Closed Lockdown Environments

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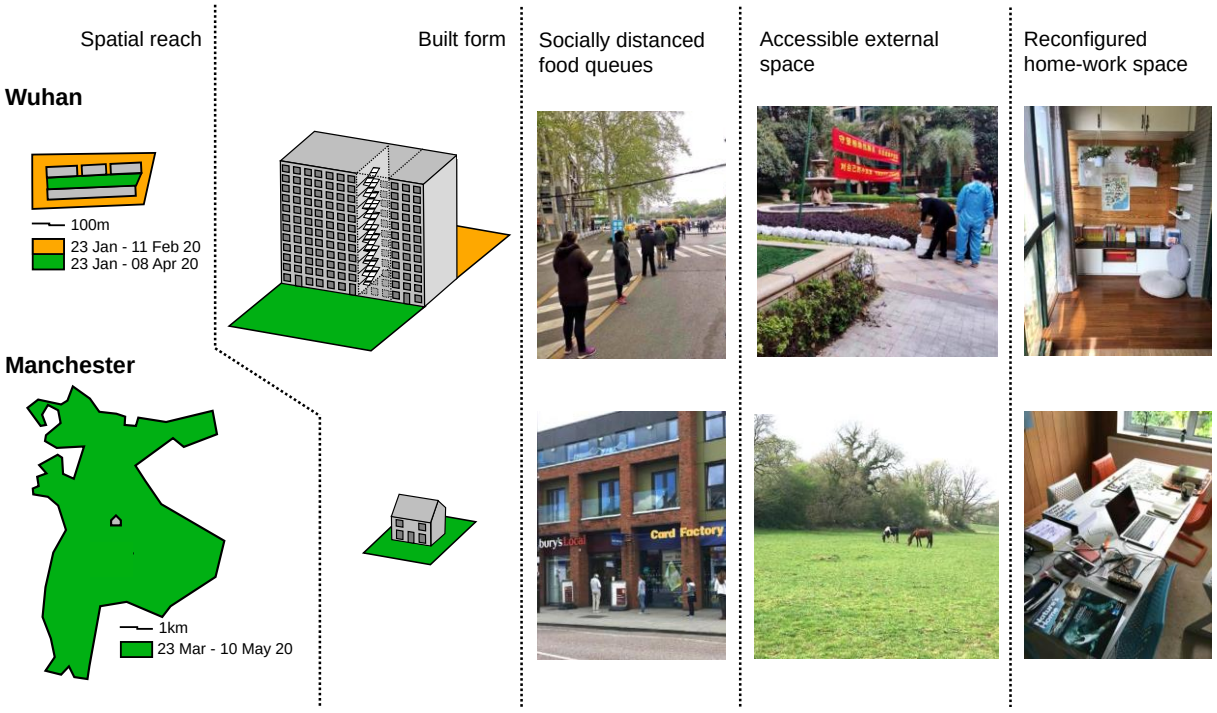
In the UK February 2020 saw hygiene measures encouraged as part of an ‘open’ control strategy. From 23 March 2020, *Stay Home, Protect The NHS*, *Save Lives,* restricted mobility to essential local travel including 1 daily shopping trip for food and medicine, 1 hour of daily exercise, sometimes combined in long walks to the supermarket (green area on Fig. 1), with general 2m separation social distancing rules to be followed in public, and 7 or 14 days self-isolation at home if Coronavirus symptoms appear. This relied on high levels of self-compliance and limited but well publicised police enforcement (BBC News, 29 May 2020). Forced closure of venues, sports and most retail was introduced to avoid large gatherings and while supermarkets and grocers remained open, numbers within stores at any one time were restricted and controlled through supervision, new floor markings, screens and barriers. These measures were effective until 11 May 2020, superseded by the more relaxed, *Stay Alert, Control the Virus, Save Lives* guidelines.

Lockdown in Wuhan, combined with fear of infection through shared spaces including shared external spaces, building entrances and stairways tended to constrain spatial reach to private indoor areas, specifically a family’s apartment. In Manchester lockdown afforded extensive local spatial reach within a 1 hour travel distance from home in addition to typically more generous proportions of combined private internal and external space. In both places, restrictions altered domestic and professional lifestyle patterns, increasing the diversity of activities assigned to accessible spaces and revealing the importance of access to both internal and external space. Experiences in Manchester reveal increased detailed awareness of local geography and development of flexible domestic spatial arrangements. In Wuhan, the capacity of internal space to accommodate manifold functions was noted as is the importance of connecting to outside space and views. There is significant difference in the scales of space involved but also a shared need for varied characters of space in both places as shown in Fig. 1.



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The greatest challenge for Wuhan residents was the ability to undertake physical exercise (Chen et al., 2020). Engaging with communal areas varied according to the perceived risk and residents wearing masks would only make use of communal stairways and open spaces for fitness when fewer cases were reported, otherwise, activities were confined to personal indoor space. The desire to visit urban parks after lockdown was eased on 8 April 2020, suggests that open space with vegetation might be important for recovery from mental health issues associated with lockdown (Brooks, et al., 2020).

Finding Latent Capacity in the Home

New demands on the capacity of dwellings was particularly apparent under 'zero mobility' restrictions in Wuhan. Compact conditions and long working hours at home are challenging for families with children and shortage of space meant that balconies become increasingly valued as functionally reprogrammable latent space, separated from noisy indoor environments. Balconies have also become the primary interface with outdoor space, daylight and external views (Fig1).

In Manchester, the appearance of children and pets in video conference calls has arguably improved appreciation of the lives of employees/colleagues beyond the work environment (Beddington, 2020), whilst revealing the limitations of open plan spaces to accommodate simultaneous activities daytime activities. Increasingly blurred boundaries between work and leisure, repurposes and exposes previously private spaces via the video call. Redefining the home as a full time live-work environment exposes tensions in the ability of contemporary housing's spaces and furnishing to accommodate rapidly changing use patterns.

In both cities, the ability to access outdoor space has significant value as a necessary psychological release for large amounts of time indoors. Lockdown revealed the need to re-

evaluate residential architecture and urbanism, recognising the importance of designing in high quality interior and exterior latent space, able to be modified to accept new uses as an essential dynamic component of future liveability.

Extending Spatial Reach through Digital Platforms

Digital platforms have both supported localities and bridged social and physical distance. In China, WeChat improved social cohesion in urban neighbourhoods, playing an important role in sharing information about Covid-19 (Wang, and Tang, 2020). When supermarkets closed, WeChat enabled community leaders to notify residents about grocery collection times and locations. Government authorities arranged other services, such as medicines and special travel.

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Conclusions

Pandemic constraints have demonstrated the value of spatial latency within housing to absorb new or alternative activities under full occupation. Live-work spaces developed for creative professions offer a model that should be considered a necessary factor in the design of future housing, together with connection and access to high quality private and communal outdoor space. Digital and improvised networks in conjunction with physical space have provided baseline support for local communities, but mental wellbeing and physical needs also require high quality flexible hard and soft urban spaces with latency; indicating that architecture, urbanism and town planning need to be designed to accommodate unknown future changes.

Spatial constraints and occupation patterns have demonstrated the value of designing in latency as an investment for sustainability, livability and resilience. With Covid-19 restrictions expected to be ongoing, and digital modes of delivery for work and education likely to continue, understanding and designing for high quality, complex interactions between physical space and uses at a range of scales will be essential. The long-term impact of social distancing needs design thinking to enable effective, liveable built and natural environment responses and patterns of use to be developed. Latency can be supported if liveability and complexity are

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19 June 2020

CITIES, HEALTH and COVID-19: Initial reflections and future challenges

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Abstract
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With massive externally induced change, what stays, what shifts, what disappears? This paper considers spatial adaptability, spatial resilience in two comparative, yet different contexts to identify design based questions and propose thematic responses addressing resilient liveable future urbanism. This reflects on the similarities and differences between lockdown in China and the UK, the concept of mental as well as physical lockdown and how this has played out in these two countries.

Keywords
Lockdown, Architecture, Urbanism, Resilience, Liveability

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Biogs
Prof Tom Jefferies, Queen's University Belfast

Tom is Professor of Future Cities in the School of Natural and Built Environment, a prize-winning architect and urban designer. Prior to joining Queen's University Belfast Tom was Head of the Manchester School of Architecture, and Birmingham School of Architecture. He has taught, lectured and examined internationally. Tom's research investigates relationships between culture, space, landscape process to propose new forms of contemporary urbanism. Expertise in architecture, urban design, landscape, master planning and design codes, architectural history, theory and context, sustainability and heritage is a basis for developing symbiotic relationships between research and inter-disciplinary practice.

Tom has significant experience in running exploratory design-based work to generate new understanding of lived space. This acknowledges the underpinning importance of technologies (and the similarities we can observe in these across diverse regions and places), whilst critically addressing the importance of culturally generated ways of using and applying and embodying these technologies.

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Dr Jianquan Cheng Department of Natural Sciences, Manchester Metropolitan University

Born in Anhui Province, China, Jianquan is a Reader in Urban Studies who studied and worked in China, Netherlands and Ireland before joining Manchester Metropolitan University in 2006. Research interests include urban studies, urban analytics and healthy city. Previous roles include Associate Professor, Wuhan University, China (2000-2006), Post-doctoral researcher, National Centre for Geo-computation, National University of Ireland, Maynooth (2005-2006), Post-doctoral researcher, Department of Geography and Planning, University of Amsterdam, The Netherlands (2003-2006)

Research expertise includes
Urban Studies; Social and environmental impacts of urbanisation in the global east (particularly China): urban growth, inequity and inequality, residential segregation, migration and sustainability.
Urban policy analysis: transport and land use interaction, Big Data, Geo-simulation, spatial planning support, urban modelling.
Healthy Cities: inequality in medical resource distribution and perception of health risks, sport infrastructure, health-related advertising in streets.

Academic collaborations
Collaboration with several universities in China, including: Sun Yat-sen University, Shandong University, Nanjing Normal University, Wuhan University, Central China Normal University and Nanning Normal University.

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Dr Laura Coucill Manchester School of Architecture, Manchester Metropolitan University

Laura is a Senior Lecturer in Architecture with experience in practice, teaching and research. She has held positions at The University of Sheffield and Birmingham City University as well as spending a number of years in practice working on commercial, educational and industrial projects. Laura's research foregrounds cross-thematic data mapping and spatial analysis spanning historical and contemporary domains to offer insights into the conditions, operation and performance of urban space. Her work engages with policy and technology, using design as a testbed for sustainable and resilient urban form.

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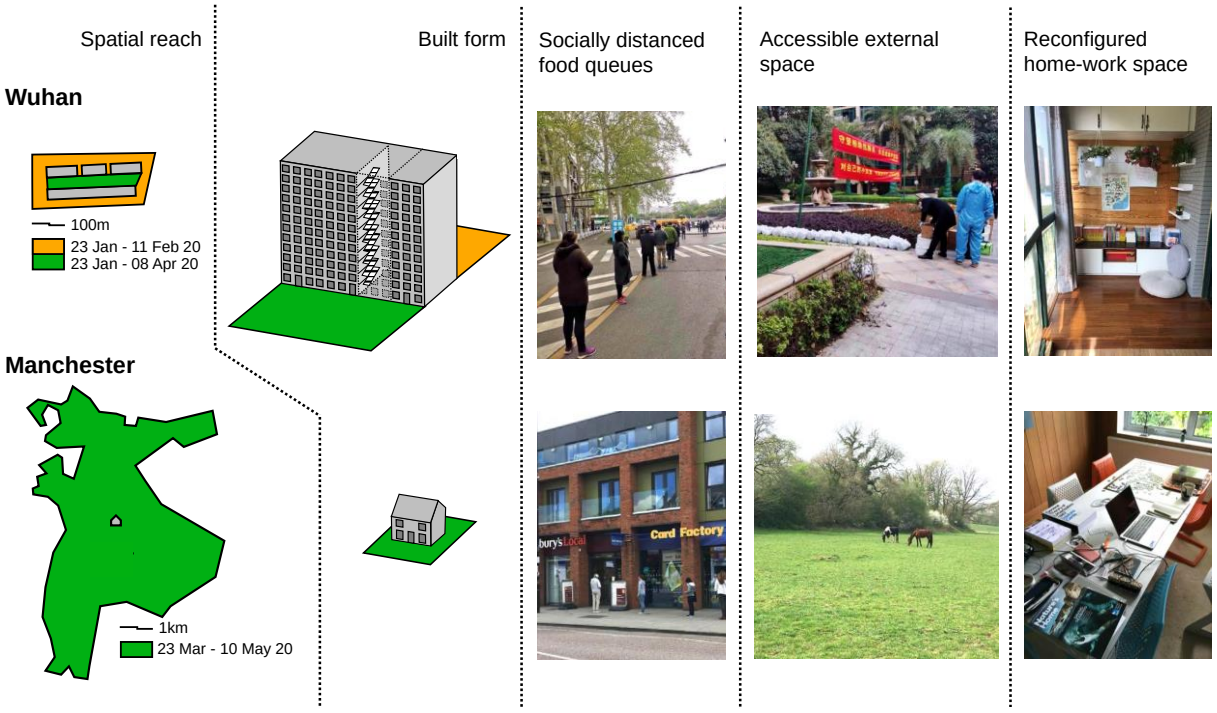

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Cities & Health

Reviewers' comments:	Response	Changes
Reviewer #1: Title Title is interesting and the first half (Lockdown Urbanism) is excellent. However, the latter half is a bit long and descriptive, and does not convey the full insight of the article. Revising the latter half of the title to be more concise and incorporate the core forward-looking message of the article (which is more related to the design of built environments) would help its clarity and appeal. Abstract Abstract generally reflects the article and follows a logical, interesting narrative. However, I think it could be revised to try to capture the novelty and intrigued of the article. The academic language undermines the more general appeal of the article - which I believe would be great widespread. The comparison of lockdowns in Wuhan and Manchester is fascinating. The abstract could more clearly convey that the lived experiences are those of the authors. My initial reading interpreted it as the authors investigating others' lived experiences. As currently written, the phrasing of the second andthird sentences could be revised for clarity. Both sentences run a little bit and may be more effective if separated into three or more succinct statements. Also, the opening sentence ends with "Manchester in UK" - the "in" is not necessary.	Title reworked: Original title: *Lockdown Urbanism: Observations on pandemic induced lifestyle change and spatial aftershocks in China and UK.* Abstract amended	New Title: ***Lockdown Urbanism: Covid-19 lifestyles and liveable futures opportunities in Wuhan and Manchester*** **Amended Abstract** *Based on the authors' personal experiences, this commentary discusses contrasting urban contexts and lockdown measures in twinned cities Wuhan, China and Manchester, UK, to examine spatial reach under Covid-19 restrictions in both places. Focusing on latency, the capacity of space to fit new occupation patterns and uses, the role of architecture and urban design is considered, to identify lessons applicable to physical and digital environment design, in scales and media that can absorb shock, supporting flexible, creative resilient approaches and*

Main text Very interesting and well thought through comparison of lockdown experiences and limitations in Wuhan and Manchester. The article is well-written, well-structured, and in short, very effective in its current form. One minor presentation note: the reliance on short (often a single sentence) paragraphs throughout the article is a bit distracting. The structure feels choppy and disconnected at times. Might be worthwhile to try to bridge paragraphs together and revise transitions to help form a smoother, more cohesive argument.	The full text and figure has been revised to answer stylistic and presentational issues.	*patterns of future liveability.* *With massive externally induced change, what stays, what shifts, what disappears? This paper considers spatial adaptability, spatial resilience two comparative, yet different contexts to identify design based questions and propose thematic responses addressing resilient liveable future urbanism. This reflects on the similarities and differences between lockdown in China and the UK, the concept of mental as well as physical lockdown and how this has played out in these two countries.*
Reviewer #2: Thank you for your commentary on the state and experience of the lockdown in both Wuhan and Manchester. I thought the paper read well and effectively presented the context of these cities and relevant governance measures in relation to Covid-19. To bolster this paper and relate it more strongly to the SDGs and research on lockdown, I would suggest a few things. Firstly, setting some context as to why Wuhan and Manchester were compared. I would specifically like to understand these cities in relation to density, and not just population, with a clear understanding of density calculations to better compare the two situations. Secondly, the paper seems to imply that the situation in Wuhan was tougher than in Manchester. Is	Text edited and revised and restructured throughout Wuhan/ Manchester twin city status cited Experiences in both places reframed and discussed as ‘closed’	The full text and figure has been revised extensively to answer all questions below

this the case or can you also balance the argument more to show how in the UK the measures for lockdown, living and building conditions etc may have been less successful than Wuhan? Finally, the point about 'latent space' is valid but I wonder whether you can explore this point much further? It seems to state the obvious. A more critical view of internal layouts and building design would help to elevate this paper to one that shows the author is well versed in the challenges of design, viability, use etc of internal spaces. I do hope the above is clear and wish you the best of luck with your paper.	and 'open' responses to Covid-19 Conclusions revised and spatial use discussion reworked. Figure revised to incorporate this comment	
Reviewer #3: The article is very interesting. The paper examined the spatial constraints and occupation patterns of two cities, Wuhan and Manchester with Covid-19 restriction. The paper investigated digital and improvised networks in conjunction with physical space for real world impact - Covid-19 period. Covid-19 restrictions have change people's lifestyle (e.g. job status, physical spatial and recreational experiences, etc.). That leads to rethinking the value of capacity and adaptability, in terms of not only human being not the city. The following issues may be considered when the authors revise the paper. 1) The authors may think out how to support to achieve healthier cities when confronting with this kind of world-wide public health issue, in terms of the built environment, urban plannning, and urban design. 2) In the conclusion section, the author stated "Spatial constraints and occupation patterns have demonstrated the	Conclusion reworked looking at shared areas of opportunity for both case studies Conclusion reworked to clarify language.	The full text and figure has been revised extensively to answer all questions below

value of capacity and adaptability as an investment, rather than a cost." what does it mean? what kind of investment? 3) In the abstract, the authors raised two questions: "what lessons can be learned to design environments.....What are the essential prerequisites necessary in the design of built environments that support and enable rapid change?". The authors have addressed the first question, while it seems that the second question didn't response sufficiently or provide sufficient context. I suggest the authors should reconsider it carefully.	Abstract, body text and conclusions revised Body text and conclusions expanded and revised.	
Reviewer #4: The paper collects some material for the description of the lifestyle to adapt to the rapid change in working, professional and domestic practices after the starting of the Covid-19 pandemic and its relation with the domestic space in two cities in China and UK, which gives the readers the first-hand understanding about what has happened now. Therefore, the topic is interesting. However, if there is more time, here are some suggestions. First, the words of "spatial aftershocks" seems difficult to be understood; Secondly, the abstract should add more conclusion rather than questions;	Title revised to remove this term Whilst there is too little space in the essay to go into extensive detail, specific and shared themes of latency and liveability are identified and expended on for further action. The figure has been reworked to explain this. Abstract tightened and revised, extensive	The full text and figure has been revised extensively to answer all questions below

	revision to body text images and abstract to address this	
Thirdly, it is better to add the necessary data to prove its conclusion, for example: How have the digital and improvised networks in conjunction with physical space provided support for local communities? How have the spatial constraints and occupation patterns demonstrated the value of capacity and adaptability as an investment? And so on. The arguments in the article is too brief and too simple.	This essay is not based around data but around the authors' lived experience, validated where necessary by news and other reference material. Qualitative experience forms the basis of the paper to discuss wider trends.	
Fourthly, the author should add more pictures into the paper to strengthen its first-hand impression. Also, the Fig 1 is hard to read.	Figure extensively reworked within the 1 figure limit.	
Fifthly, Wuhan has ended the lockdown, so please add some analysis about its comparison before and after the lockdown.	The article was written during the pandemic and reflects authors' lived reality in both cities within the 1500 word limit. We do not currently have access to post lockdown Wuhan material (the co-author is now in the UK) and there is insufficient space to adequately address post lockdown space within this article. This would form the potential basis of follow up work.	