13 ACGs

ARCASIA COVID-19 Guidelines

Interventions for the Built Environment

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Architects Regional Council Asia

ARCASIA COVID-19 Guidelines

Interventions for the Built Environment

By ARCASIA Committee on Social Responsibility &
ARCASIA Emergency Architects

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2020 had been a challenging year for everyone. The COVID-19 Pandemic has swept across the world, disrupted daily lives, shuttered businesses and created hardships for many. Notwithstanding the chaos, our ARCASIA community comprising the Architectural fraternity of 21 Asian countries have come together like never before. The outstanding support of our community is a testament to the strength of the ARCASIA spirit during this difficult time of crisis.

Despite restrictions on international travels and massive lockdowns in many places, I am pleased to announce that we have successfully pivoted our activities to online platforms and have continued to hold seminars, competitions and architectural awards in 2020. Especially poignant in this turbulent time is the swift response and work by our ACSR Committee, who has declared 2020 the year to support and empower Architects and the communities they serve, to focus on an action-oriented program to achieve immediate, mid and long term results through the formulation of guidelines in response to dealing with the pandemic situation.

With extensive research, developed through a series of rigorous workshops and webinars, the ACSR committee together with AEA has distilled 13 ACGs. It is envisaged that this document is used as a reference manual for all stakeholders of the built environment to help navigate the new normal that will emerge from the impact of COVID-19 once this crisis is over.

Therefore, I hope that our Council and member institutions will actively promote and adopt the measures identified in the document as a good practice for our cause. In addition, ACSR Committee welcomes all feedback and suggestions in order to further refine this document where necessary.

I wish you all a blessed year ahead!

Ar. Russell Dandeniya
Co-Convenor,
Chairman, ARCASIA Committee on Social Responsibility (ACSR)

One of the main objectives of ARCASIA is "to provide a forum for member Institutes, government agencies and allied professional organizations for the discussion of problems of common interest and seek solutions to these problems, which would contribute to the advancement of the profession and the development of Architecture relevant to the culture and aspirations of the Asian people"; the 13 ACGs booklet embodies this objective, and provides a comprehensive and timely solution to the pandemic which has gone on to affect all our lives.

The President and Council of ARCASIA identified 4 key thrust areas. These include; preparedness against emergencies or pandemic; life after 2020 - a new normal; empowering our communities - a new future; a new mindset; were identified to be addressed during the pandemic.

The ARCASIA Committee on Social Responsibility launched a research-based initiative to formulate guidelines conducive of creating a resilient and robust built environment for the future. The ARCASIA COVID-19 task force took it upon themselves to ensure that these guidelines could be simply adopted as short, mid and long term guidelines, and could be adjusted according to the economies, scales, culture, people, built environment of each country.

I am delighted with the outcome of collective wisdom and responsibility shared by all who participated in this mammoth task. I consider ACSR and AEA to have done a great service to the region and commend the efforts of all who contributed. Through the adoption of the 13 ACGs, it is hoped that sustainable solutions for the built environment of the future are achieved on a regional scale.

Tony S.F. Wong

Co-Convenor,
Director, ARCASIA Emergency Architects (AEA)

'A set of guidelines that goes beyond architecture'

What can architects do about COVID19? While we are confident that we will eventually manage the situation, there is still a long way to go before we reach that point; and the significant damage and loss of life it caused deserves deep thoughts on how to manage it in the short term, and how to prepare ourselves for the next pandemic in the long term. Hence, we decided to develop a set of guidelines for architects.

It is obvious that architects alone cannot solve it; and even more so, for us to be effectively contributing to the solution, we need to understand more about the fundamentals of the pandemic, and what really matters, regardless of whether it is related to architecture or not. The guidelines need to go beyond architecture; and not only that, it needs to go beyond architects and building professionals. It needs to reach the policy-makers who have the power to change the rules, and the general public so that they can use the new environment effectively.

The 13 ACGs are comprehensive – In addition to what needs to be done to physical architecture, it goes on to cover urban design, city planning, operations and also looks at the socio-cultural aspects of life. It highlights key areas of focus and provides directional advice on how to solve the problem. However, due to the vast diversity in geography, the details need to be developed by a specific country to suit their unique circumstances; and an implementation plan should be adhered to promote it to Policy-Makers and the General Public.

While much has been done to develop the 13 ACGs, the daunting task of implementation is ahead. As such, I would like to take this opportunity to thank the team of architects and our guest experts from various countries, among our member institutes. Their voluntary contribution of time and effort has made this publication of collective wisdom a success. I look forward to having more architects joining our ranks in realizing the established guidelines.

Introduction

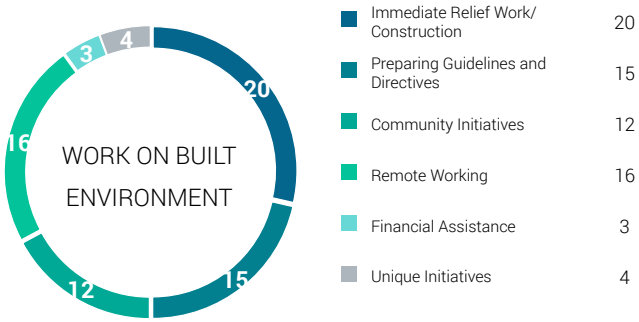
by **Thana Chirapiwat, Ph. D.**
Webinar and Workshop Convenor
Editorial Board

Back in May 2020, when the COVID-19 pandemic caused cities and countries to go into lock-down; work-from-home and study-from-home became the norm for a large group of the urban population. Inversely the underprivileged groups of the population suffered immensely, as work-from-home and study-from-home were options which were far from viable for them. They faced a dilemma of either going out to work or to stay at home and be jobless, with no means of income.

ACSR (ARCASIA Committee on Social Responsibility) and AEA (ARCASIA Emergency Architect) members representing the 21 member countries of ARCASIA raised their concerns about the multitude of difficulties encountered throughout the region. To understand the early impact and reactions to the pandemic, a survey was set out in early May.

The survey brought to light that architects are already involved in the fight against COVID-19, by engaging in immediate relief works related to the construction of facilities and preparing guidelines. It was also reassuring to discover that architects were engaged in so many initiatives spread out over many fronts ranging from immediate and long-term relief work, campaigns and services, and even providing financial assistance to communities.

The key results from the survey showed that architects were not concerned only about themselves; it showed how they worked and survived during the crisis; and how architects proved themselves to be conscientious members of the community who played a vital role in the fight against the pandemic.



ACSR and AEA then set up a task force to develop a roadmap to consolidate various guidelines issued by organizations. The team identified that most guidelines in existence were overwhelming and difficult to comprehend by the general public.

The taskforce proceeded to develop a set of guidelines which are simple, comprehensive, comprehensible, and implementable utilizing ARCASIA as a platform with member institutes to help co-invent the guidelines and to expand the implementation.

The process included reviewing existing guidelines, identifying what's applicable and what needs to be added to the first draft of ARCASIA COVID-19 Guidelines. 5 experts on subject matter from various fields were invited to provide vital input to compile the guidelines. They also participated in an online workshop on the 12th of September 2020, and again in the online webinar on the 21st of November 2020. The end result of this process can be seen in the 13 ACGs. The guidelines target 3 major groups: architects and related professions, policymakers and public authorities, and the general public; while it covers both private and public domains for short-term and long-term applications. This publication is released to ARCASIA's 21 member institutes for implementation in their local, domestic contexts and to be distributed to the public. It is ARCASIA's hope that these guidelines prove to be useful to many as the pandemic still continues to affect more people.

Principles of Managing the Pandemic

1. Reducing the exponential spread of the virus which is transmitted via respiratory droplets or aerosol; by segregating or protecting people from sources of the virus, either from carriers (with or without symptoms), or from objects where carriers had left the virus (from a few hours to a few days). This includes social distancing; wearing protective gear such as face masks and goggles; frequent cleaning or disinfecting of our hands and objects which we need to touch; managing ventilation (including air changes per hour and location of supply and exhaust vents) and drainage systems design which are potential media for spreading. This also means drastically reducing human physical interaction in enclosed spaces, prohibiting mass gatherings or crowds and reducing flow of people including closing of country/ city/ regional borders.

2. Providing suitable healthcare facilities to those who contracted the virus where the local healthcare system can accommodate the surge ("flattening the curve"), especially to the more vulnerable population such as the elderly, children and those with chronic diseases. This includes expanding the capacity of the current medical facilities and healthcare support, and at the same time limiting the spread by early detection, isolation, quarantine, and other means of physical distancing.

3. Finding alternative methods where people of all walks of life can maintain a basic level of human activity to live, work, learn, pray and play. Examples are supplies delivery, working from home, remote schooling, service sectors, etc. This should also take care of boosting general physical and mental health of people so that the impact of the disease can be reduced even if contracted.

4. Managing the social economic impact of the reduced physical interaction by enhancing infrastructure for communication and ease of access to the provision for Wi-Fi network and computer hardware;
   (i) to enable remote interaction, and transparent communication to the citizens to maintain confidence and ;
   (ii) to provide opportunities for alternative financial assistance to those severely impacted (e.g. Loss of job, earnings).

Summary

The fundamental issues to be tackled are summarized below:

i Reducing the movement of people in general, while increasing remote working and learning in safer environments.
ii Reducing physical social interaction while increasing virtual activities for connectivity;
iii Reducing large-scale destination-focused events while increasing small-scale manageable home or community-based activities;
iv Adapting the physical environment within limitations, in response to the increasing needs of the rapidly changing external environment and social behaviour patterns.
v Application of alternative strategies in addressing the increased socio-economic pressure brought on by the pandemic;
vi Addressing the anxiety of the uncertainty of the future, by facilitating the need for continuously informed decision making by means of a one-stop centre to refer to.

Scope and Limitation

The guidelines focus on what can be done via the built environment in support of achieving the four principles listed above as well as science-based behavioural guidance issued by international organizations and respective country authorities.

The Guidelines intended to be general in nature and serve as guidance for individual countries to adapt for use in their particular circumstances, paying due heed to achieve a balance between a risk-free environment, social impact, economic impact and long-term sustainability.

Practice related issues such as financial assistance or finding new job opportunities are not included in this guideline. Issues beyond the realm of the built environment and outside the purview of architects such as labour issues, economic issues and political issues are also excluded.

Glossary

Private Domain includes areas occupied exclusively by an individual or a family, a home or a close community such as a neighbourhood, a private office area, a personal workspace, or private realm in any sector.

Public Domain includes public areas for transit, working, shopping, education, leisure, exercise etc. which are open to all people with minimal limitation; which are either indoor or outdoor.

Short Term refers to a time frame from now until when immediate action taken until adequate attention or resources can be directed to look at long term measures.

Long Term refers to a time frame from now to as far out as we can envision, provided resources are available.

Semi-Private Space refers to space under the control of the Community where access by the public is permitted with effective access control. (e.g. Entrance lobby of an office building)

Semi-Public Space refers to space that may or may not be under the control of the Community where access by the public is permitted with limited access control. (e.g. Car parking shared by a shopping mall and residential building)

Physical Distancing is also referred to as "**Social Distancing**", and refers to keeping a safe space between yourself and other people who are not from your household. Generally, the practice of social or physical distancing is to stay at least 1-2 meters or 3-6 feet (about 2 arms' length) from other people who are not from your household in both indoor and outdoor scenarios. Social distancing should be practised in combination with other everyday preventive actions to reduce the spread of COVID-19, including wearing masks, avoiding touching your face with unwashed hands, and frequently washing your hands with soap and water for at least 20 seconds. *(Source: Centers for Disease Control and Prevention, at https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html)*

Separation refers to the use of physical barriers such as screens or partitions, either transparent or opaque (depending on function), permanent or temporary.

Isolation (or quarantine) refers to the complete separation of a person suffering from a contagious or infectious disease from others. People in contact with the person should be wearing full medical protection gear or personal protective equipment.

Flattening the curve refers to in epidemiology, the idea of slowing a virus' spread so that fewer people need to seek treatment at any given time is known as "flattening the curve." The "curve" researchers are talking about refers to the projected number of people who will contract COVID-19 over a period of time. It explains why so many countries are implementing "social distancing" guidelines. *(Source: https://www.livescience.com/coronavirus-flatten-the-curve.html)*

Community refers to a social group who live, learn, work, play or pray together in the same space. Most people in the community know one another, and / or share similar norms, values, religion, customs, or identity.

(Hand) Washing refers to cleaning (especially of hands) with soap and water or a suitable sanitizing solution after you have been in a public place and have touched any item or surface that may be frequently touched by other people, such as door handles, tables, gas pumps, shopping carts, or electronic cashier registers / screens, lifts buttons, handrail, baluster etc. before touching your eyes, nose, or mouth because that's how germs and virus enter our bodies. Detailed methodologies should follow local health authority guidelines as issued from time to time.

Contactless refers to the operation of conducting activities, without having physical contact with the object, surface and another person i.e. interface with other media (disposable gloves, etc); or as a physical separation with a device such as hatches or scheduling of space used; or technology such as motion and heat sensors.

Cleaning refers to the removal of germs, dirt, and impurities. It does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection. *(Source: https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html)*

Disinfecting refers to using chemicals, for example, EPA-registered disinfectants, to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection. *(Source: https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html)*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1

SPACE PLANNING

Configure living or working spaces to prevent the entry of contaminants; facilitate separation and social distancing within spaces; allow as required surveillance; and reduce anxiety.

1.1 Transition Space

Create a transition space immediately outside or within the entrance space, where cleaning, disinfecting, and changing of clothes can take place. This space should be well ventilated and should be thoroughly and frequently cleaned and disinfected.

Short-Term
Review, identify and modify existing space.

Long-Term
Ideally, include hand washing facilities as part of building design.

Private Domain
Include facilities for holding of dirty clothing, shoes, face masks, and easy access to cleaning/ disinfecting agents or facilities.

Public Domain
Consider integrating this space with a screening space.

1.2 Screening Space

Create screening spaces in semi-public areas with restricted access to screen visitors, receive deliveries and dispose high-risk garbage (used masks, delivery packaging etc.). Ideally, this should be separated from the normal entrance of occupants. Screening facilities should be designed to conduct thermal scanning of body temperature, handling health declarations, and recording visitors' information for tracking if needed by the health authority.

Short-Term
Review, identify and modify existing space.

Long-Term
Plan and incorporate in the standard planning guide. Aim at providing segregation of "clean" and "unclean" flow.

Private Domain
Screening facilities should ideally be provided in semi-private space. Ensure the ability to segregate "unclean" disposal and "clean" supplies.

1.3 Access Control to Semi-public Spaces

In multiple occupancy developments, as means of reducing public exposure and enhancing focused intensive cleaning and disinfecting; provide access control to semi-public spaces when transitioning from public spaces (e.g. lift lobbies, lifts, car parking) to private spaces (e.g. private workspaces, residential apartments).

Short-Term
Leverage existing semipublic space, review movement patterns, and provide temporary cordoning.

Long-Term
Integrate planning into the design.

Private Domain
For single occupancy houses, such spaces can be developed on a community basis (village/ neighbourhood/ district basis).

Public Domain
Consider integrating this space with screening space. There can also be multiple layers of access control.

1.4 Physical Distancing and Separation

Design spaces exercising the principles of physical dimensions of distancing, orientation, and separation to ensure effective physical distancing is achieved. When isolation is required, provide physical separation which meets applicable health and safety standards without ignoring the need for social connectivity.

Short-Term
Review, identify, and modify the arrangement of furniture, adapted space or use of additional temporary structures.

Long-Term
Plan and incorporate into the planning guide.

Private Domain
Physical distancing can be achieved with planned seating positioning and orientation. Physical separation can be achieved by means of curtains, partition, furniture.... etc. Isolation spaces should ideally be self-sufficient with its own bathroom facilities and communication connections if possible and practicable.

Public Domain
Provide physical separation in addition to physical distancing as much as practicable. Leverage on existing spaces and consider introducing extra barriers. Plan for isolation spaces when suspected cases are identified.

1.5 Communal Space

When constraints of resource allocation or physical space availability inhibit the allocation of adequate space within the private domain for purposes of living, working, learning or playing; identify and modify communal space while limiting access to people within the identified community. Encourage the adaptive use of adjacent or nearby open space such as plazas, squares, parks and open fields.

Short-Term
Review, identify and modify existing space.

Long-Term
Plan and incorporate into the planning guide as multi-use space.

Private Domain
Identify and modify existing under-utilised space, into new communal space to reduce density and provide relief to people. This requires creativity and community collaboration. Examples include pedestrianizing streets, providing more facilities for non-contact sports… etc.

Public Domain
Guideline specific to Private Domain.


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2

BUILDING TECHNOLOGIES

Adopt appropriate and authorised building technologies to avoid the spread of the virus or any contaminant through the building systems.

2.1 Ventilation System

If constant cross ventilation cannot be achieved in any space within the built environment, mechanical means using technology is sought as follows: On top of achieving standard norms of comfort for its occupants, heating, ventilation, and air conditioning (HVAC) systems design must ensure adequate dilution of conditioned air with fresh air from clean sources as per applicable guidelines, addressing droplets, aerosol, water, and airborne transmitted diseases. The design of HVAC systems should shorten the time taken for respiratory droplets to be removed from the air, and should therefore avoid unnecessary air circulation (draughts) indoors which might spread the contaminants and virus. HVAC should provide for an adequate flow rate (air changes per hour) with an appropriate filter (HEPA, ultraviolet light or other) or 100% fresh air change, which is further facilitated through an appropriate layout of supply and exhaust vents. These precautions are particularly important for spaces occupied by COVID-19 patients or suspected COVID-19 patients or people with any other airborne infection or contaminants.

Short-Term
Review and operate according to function including the period of use. Modify the current system in particular with airflow and source of fresh air.

Long-Term
Review design standards to find the appropriate balance between the need for fresh air, level of air movement, energy efficiency, and thermal comfort. Consider also having the flexibility to switch to different operation modes to suit the circumstances of an epidemic or pandemic. To state capacity of people per session who may occupy any enclosed space.

Private Domain
Fresh air should be sourced from an open area as opposed to narrow back lanes where drainage or exhaust from other units are discharged. Avoid openings in tall narrow spaces which will potentially be subject to the chimney effect, drawing exhaust air from the immediate neighbourhood.

Public Domain
Consider sanitizing the fresh air using UV light or better filters if possible and practicable. Pay special attention to controlling airflow, and prevent draughts which might spread the virus. Maximize the use of natural ventilation.

2.2 Drainage System

Where drainage system is used the following should be adhered to:
Ensure drainage systems are designed with provision for effective anti-siphonage seals and such seals are properly filled with water to prevent the spread of the virus to adjacent units connected to the same drainage system. If the areas have no specific drainage, or have communal or shared facilities with or without a proper drainage system, the following to be adhered to appropriately:

Short-Term
Conduct review and correct the situation with priority.

Long-Term
Ensure basic standards are met and enforced. Conduct research on operationally safe traps (like W Trap) and update them as part of building regulations.

Private Domain
Check seals regularly; employ qualified plumbers when conducting alterations.

Public Domain
Checking of seals to be a mandatory part of a standard operating procedure.

2.3 Latest Technologies/ Materials

If resources permit and are available, consider the application of the latest technology and material such as photocatalyst coatings, contact-free taps & lift buttons, easily cleanable surfaces …etc.

Short-Term
Apply new and/ or modify existing technologies that are affordable and practicable.

Long-Term
Incorporate this design concept into new planning standards. Continue to research into new technologies.

Private Domain
Not domain-specific.

Public Domain
Not domain-specific.

2.4 Design and Construction Tools

Improvement of process and design and construction, through the active application of technology. This includes the capability to collaborate and design remotely, application of new design and construction technologies such as BIM, VR...etc., wider application of automation to reduce the need of contact, and the use of self-cleansing material for touchable surfaces.

Short-Term
Adoption of a new way to work requires time and perseverance. “Determination” from leadership is critical, and a proper “Change Management Plan” is helpful.

Long-Term
Constant review of the changing environment and emerging technologies should be part of the new normal.

Private Domain
Not domain-specific.

Public Domain
Not domain-specific.


STAY HOME SAFE POSITIVE
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GUIDELINES

3

ADAPTING TO ENVIRONMENT

To modify space, usage and utilization of the environment
to continue to live, work, learn, pray and play
as the epidemic drags on.

3.1 Capacity, Crowd and Density Planning

Review existing capacity and modify layouts to suit density guidelines to avoid overcrowding, as updated from time to time by the local health authority; ensure adequate physical distancing and separation is achieved. Consider alternative means to fulfil business objectives, as opposed to enforcing traditional regular hours of physical attendance.

Short-Term
Adapt to the immediate impact of movement and activity restrictions. Provide quick adjustments to the physical environment as well as operational changes. For example; more takeaway for restaurants; delivery service for groceries; virtual classes for schools. Storage capacities may be adjusted as regular delivery of stock and frequency of purchase change due to movement restrictions.

Long-Term
Design the physical environment and operational procedures with long term flexibility to cope with future recurrence. For example; the hybrid service model with both on-site and off-site service delivery; blended learning in education… etc.

Private Domain
Where density cannot be improved, consider the application of physical separation (Guideline 1.4) or adapt communal space (Guideline 1.5).

Public Domain
Consider different operational models, in addition to providing flexibility in the physical environment and service delivery models. For example, in a workplace, consider working in time shifts or staggered work hours where employees occupy space at different times; or reduce working hours at the workplace to avoid having lunch together. Enable staff to work from home as far as practically possible; thereby reduce the burden on the transport system.

3.2 Remote Working and Learning

Provision of working and learning spaces at home, hotels, hostels, dormitories and any accommodation; which are comfortable (ideally naturally lit), private and free from distractions.

Short-Term
Adjustment and compromise in terms of the physical environment and behaviour of co-occupants. Experiment with different approaches to arrive at a solution acceptable to all.

Long-Term
Such considerations will need to be part of the initial design, or achieved through the permanent modification of existing spaces. Where space limitation prohibits meaningful change, the usage of communal space to be considered. (Guideline 1.5)

Private Domain
This guideline is private domain-specific.

Public Domain
This guideline is private domain-specific.

3.3 Religious and Socio-cultural Activities

Consider incorporating religious and socio-cultural activity spaces at home, or office, or close to home; in a communal setting for individuals, or for the congregation; to conduct daily, weekly or annual rituals or activities; with social distancing, hygiene and respiratory etiquette.

Short-Term
Utilize existing space at home to enable attendance to such activities virtually. Leverage on existing communal space where small scale activities can be conducted in a safe and controlled environment after careful risk assessment. (Guideline 12)

Long-Term
Consider the new norm and incorporate the design and planning of private and communal spaces. (Guideline 12)

Private Domain
Providing space at home for conducting some of these activities. (Guideline 12)

Public Domain
Develop new planning and design guides with respect to facilities where such activities are conducted to accommodate the requirement of the new norm. (Guideline 12)

3.4 Time / Space Sharing

Improve space availability and help relieve the pressure of maintaining occupant density and social distancing. Consider how space could be shared by different users at different times of the day and be utilized for different functions.

Short-Term
The adoption of multifunctional and shared spaces is encouraged especially when addressing the needs of low-income communities or when space is a premium.

Long-Term
Suitability of this strategy should be subject to careful consideration as it varies greatly between communities and organizations.

Private Domain
Sharing facilities is already a norm in the Private Domain. The key is to design and set it up properly. (Guideline 3.2) Some usages already in practice include using the dining table as a worktable (when working from home), or the sofa as a bed (when temporary isolation is required to confine someone).

Public Domain
Multifunctional and shared spaces are being adopted by many multinational corporations and sophisticated businesses in the form of “Alternative Workplace Strategy”. For example, there are no assigned seats, and cafés are often used as meeting spaces. This requires adaptation in behaviour and following norms of etiquette. For example, a good cleaning and disinfecting protocol will give employee confidence to use shared space comfortably.

3.5 Connectivity for Communication

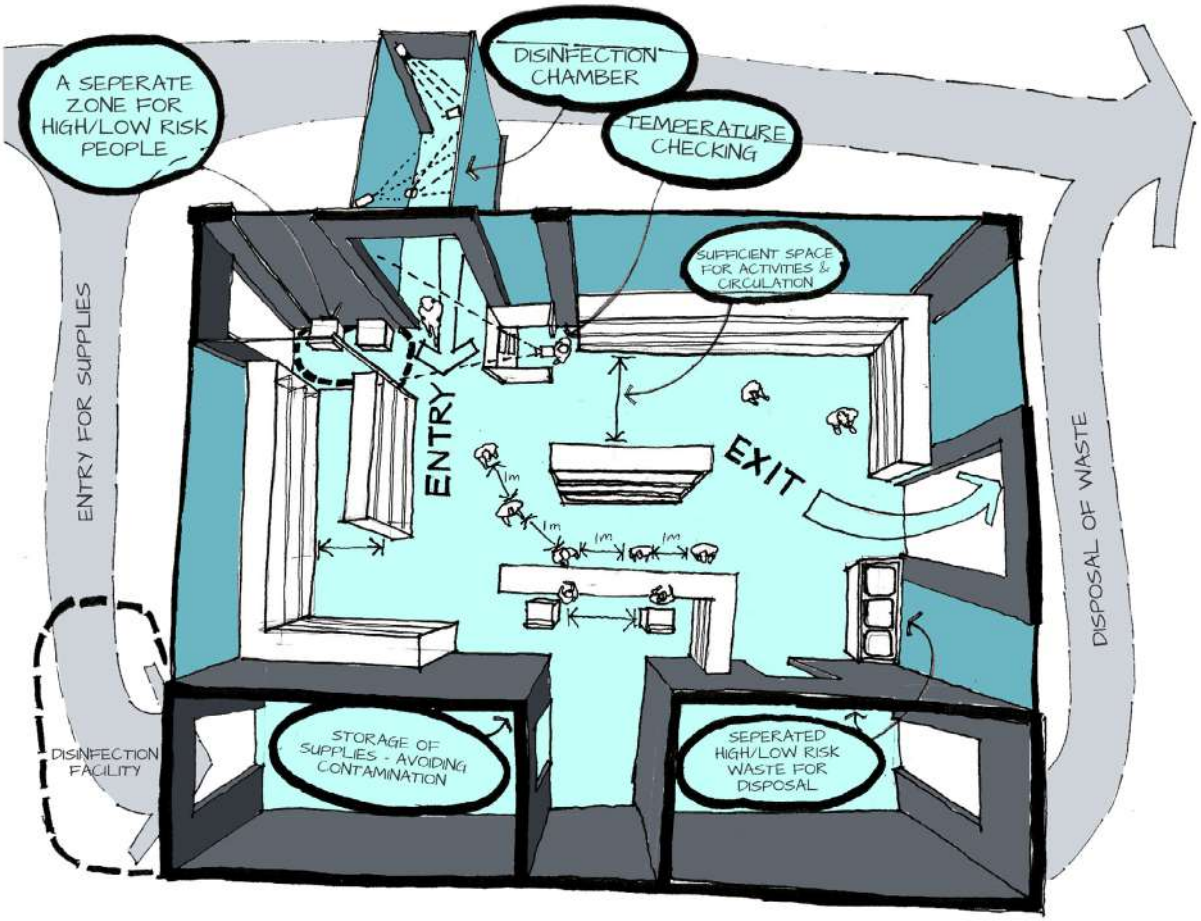
Enable proper communications with the outside world, and accommodate remote working and learning by providing adequate, stable and secure WiFi connectivity.

Short-Term
Maximize the capability as much as the bandwidth permits and provide additional support to the underprivileged communities who are adversely affected by the lack of infrastructure.

Long-Term
The government and telecommunication service providers need to work together to enhance coverage to all as an essential utility (no less than water and electricity). Incorporate design concepts into new planning guidelines. Architects and Planners to incorporate this as an integral part of design.

Private Domain
This is important when remote working and learning is required. Enhancing connectivity requires not only the work of the government and telecommunications service providers but also the developers and property managers of the communities as enablers. The situation is particularly acute in underprivileged communities where funding is scarce and the lack of basic personal hardware is common.

Public Domain
Similar to Private Domain. The availability of free stable seamless Wi-Fi throughout an area is important.


A SEPERATE ZONE FOR HIGH/LOW RISK PEOPLE
DISINFECTION CHAMBER
TEMPERATURE CHECKING
SUFFICIENT SPACE FOR ACTIVITIES & CIRCULATION
ENTRY FOR SUPPLIES
ENTRY
EXIT
DISPOSAL OF WASTE
1m
1m
1m
1m
DISINFECTION FACILITY
STORAGE OF SUPPLIES - AVOIDING CONTAMINATION
SEPERATED HIGH/LOW RISK WASTE FOR DISPOSAL

4

FLOW MANAGEMENT

Management of the circulation of people,
and the flow of goods, with adequate provision for
service maintenance and disposal.

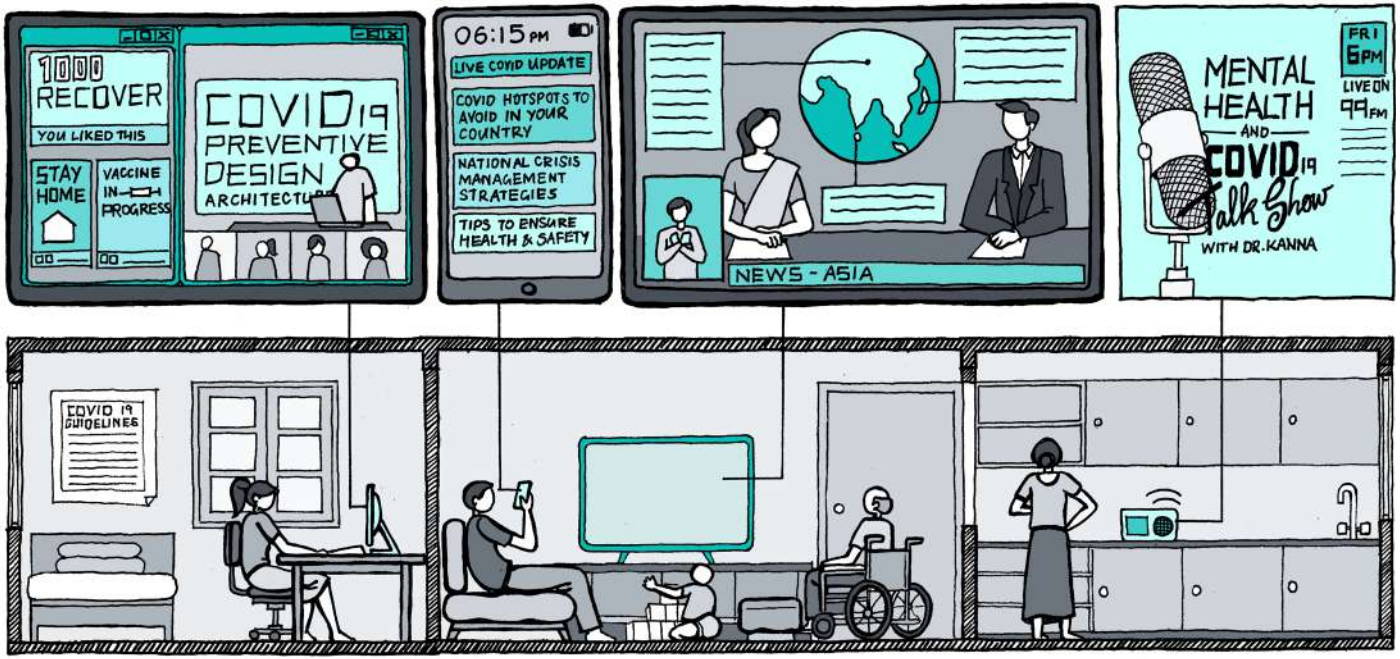
Review current layout to manage flow; reduce cross-traffic of people (e.g. separating entry and exit at markets or departmental stores); identification and segregation of "clean" (known / low risk) and "unclean" (unknown / high-risk) applicable to both the flow of material and people. Provide transition and storage space to manage delivery and increased supplies storage requirements.

Short-Term
Review current flow pattern to identify if the possibility of cross-contamination exists, and address them with short term operational measures.

Long-Term
Incorporate Flow Management into design standards. Such measures may be permanent or part of emergency measures that could be implemented in times of crisis.

Private Domain
Usage of semi-public transitional spaces to deal with delivery, disposal, and public access control. (Guidelines 1.1, 1.3, 1.5)

Public Domain
Clear signage needs to be provided to direct such flow. This is critical for medical and healthcare facilities such as hospitals and clinics, and other high-risk areas such as homes for elderly, as well as places where there is a high level of circulation of people and a high flow of material (markets, department stores, schools, airports, transport terminals… etc.).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VACCINE IN PROGRESS
COVID 19 PREVENTIVE DESIGN
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LIVE COVID UPDATE
COVID HOTSPOTS TO AVOID IN YOUR COUNTRY
NATIONAL CRISIS MANAGEMENT STRATEGIES
TIPS TO ENSURE HEALTH & SAFETY
NEWS - ASIA
MENTAL HEALTH AND COVID 19 Talk Show
WITH DR.KANNA
FRI 6PM
LIVE ON 99FM
COVID 19 GUIDELINES

5

COMMUNICATION AND EDUCATION

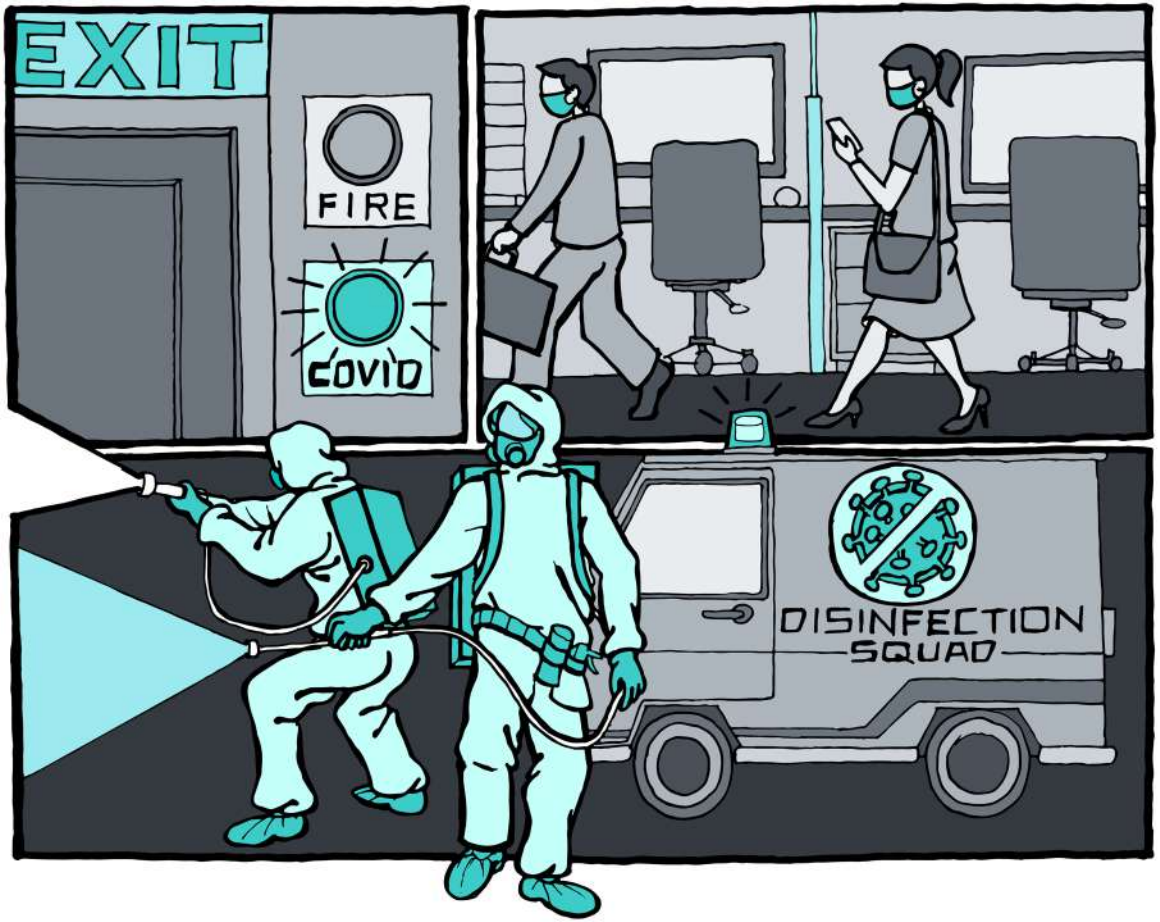
Reduce uncertainty and instil confidence through transparency in providing fact-based education, which is communicated to all levels of the public.

Short-Term
Provide access to a communication networks; to notify, educate and remind people of appropriate hygiene and social distancing practices in the form of stakeholder training (e.g. to parents for schools, caregivers for geriatric homes… etc.), signage, visual cues or verbal announcements.

Long-Term
Develop the school curriculum and civil education system to include general awareness and knowledge of the following; importance and impact of the built environment on hygiene, health and safety; crisis management. While all levels of society, especially built environment professionals, be provided science-based education pertinent to the situation, contingency planning, new standard operating procedures for coping with the new normal and managing future crisis situations.

Private Domain
The target audience to be the household. Multiple popular channels in the country (TV, Newspaper, Social Media etc.) to be used; and systems be put in place to measure outreach and success.

Public Domain
The process of educating the general public should ensure that it reaches the decision-makers and those controlling resources. Communications and Education should target policymakers of the government, corporations, organizations, and leaders of professions and industries.


EXIT
FIRE
COVID
DISINFECTION
SQUAD

6

STANDARD OPERATING PROCEDURES

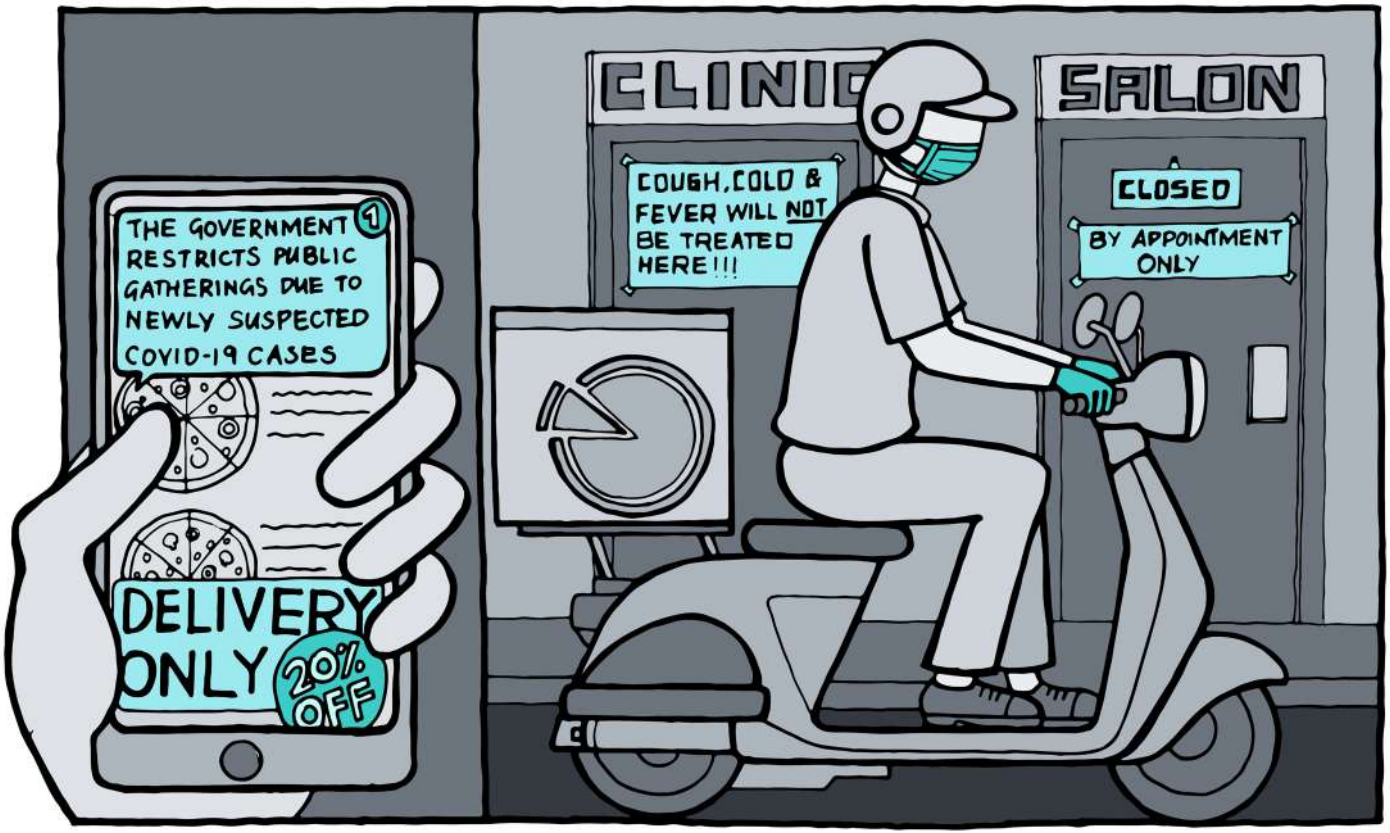
Development of new Standard Operating Procedures (SOPs) for cleaning, disinfecting, staying informed and updated and responding to various situations which may arise.

Short-Term
Develop SOP if none exist, and review SOP against the current situation to ensure effectiveness.

Long-Term
Incorporate a regular review process to ensure SOP is updated. Ensure general awareness among all stakeholders, and provide training and drilling so that all participants can work together and react efficiently and effectively.

Private Domain
Follow government guidelines and comply with them diligently.

Public Domain
Be prepared for emergency cleaning and disinfecting when confirmed cases are identified. Consider changing dedicated seating at the workplace or place of learning space to one which is shared to reduce personal belongings and clutter, enabling more effective cleaning and disinfecting.


THE GOVERNMENT RESTRICTS PUBLIC GATHERINGS DUE TO NEWLY SUSPECTED COVID-19 CASES
1
DELIVERY ONLY
20% OFF
CLINIC
COUGH, COLD & FEVER WILL NOT BE TREATED HERE!!!
SALON
CLOSED
BY APPOINTMENT ONLY

7

RESILIENCE AND CONTINGENCY PLANNING

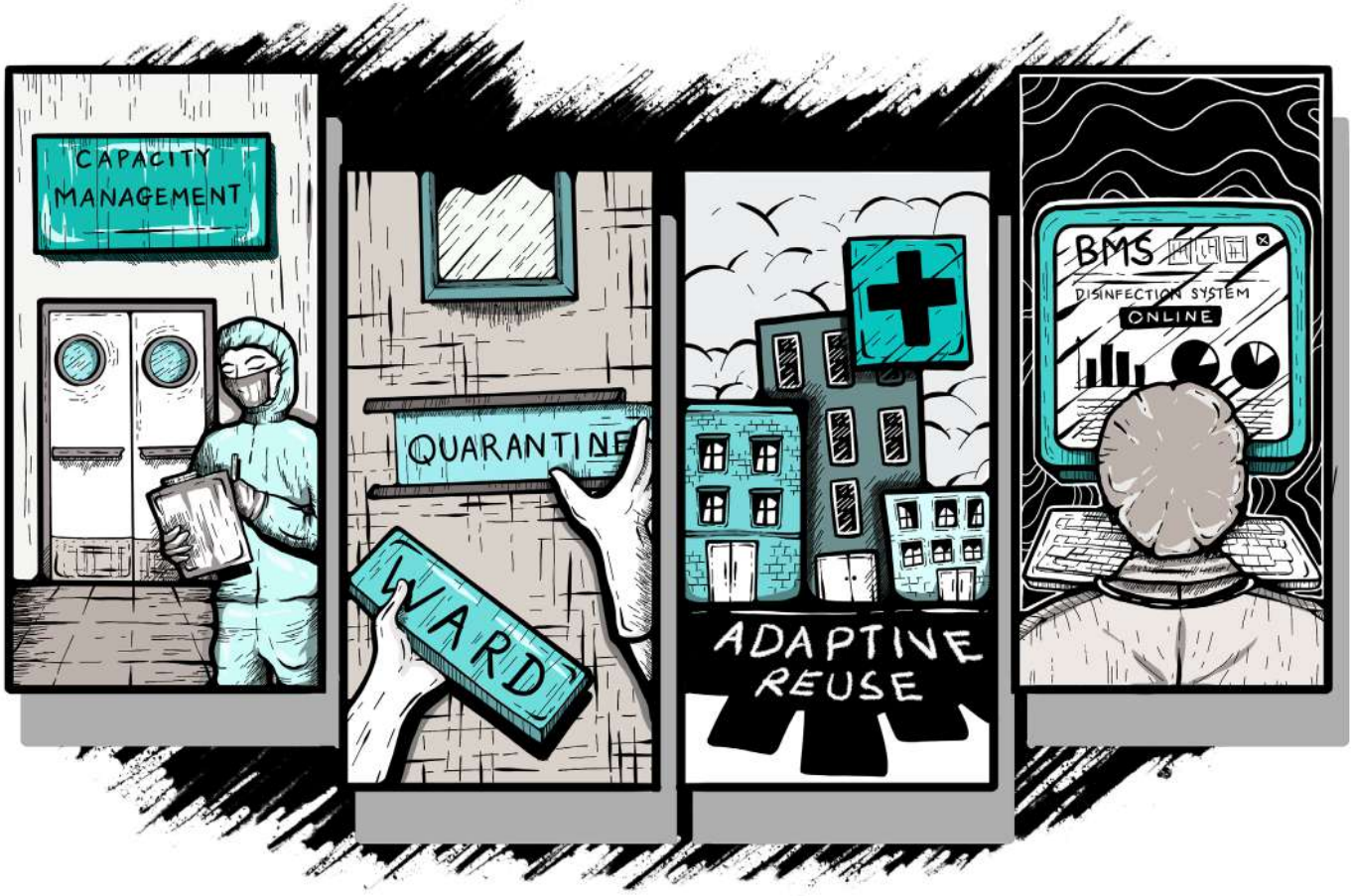
Development of well-administered contingency plans for different pandemic scenarios; which are reviewed and updated regularly; communicated to all stakeholders; and reinforced with training and drills.

Short-Term
Develop a contingency plan if none exists, and review it against the current situation to ensure effectiveness.

Long-Term
Ensure review, training and drilling are practised regularly. Make contingency planning a culture for resilience development.

Private Domain
A typical contingency plan for the private domain is the Fire Evacuation plan. In the case of a pandemic, it is very different. This should typically include scenarios where a co-occupant is sick (unconfirmed), under home quarantine, work / learn from home etc. It should respond to different levels of segregation with all occupants.

Public Domain
Many organizations already have contingency plans to address different risk scenarios, pandemic being one of them. The objective of such plans is not only to prevent the spread of the virus but also to mitigate disruption to operation. The Contingency Plan should include aspects which ensure services continue. Risk scenarios would typically react to such scenarios as existence of a suspected case, confirmed case, disruption of supply, significant fluctuation of demand. Responses may vary from providing different levels of enhanced cleaning and disinfecting, work from home, change in the delivery model (e.g. dine-in versus take-away for restaurants) etc.


CAPACITY MANAGEMENT
QUARANTINE
WARD
ADAPTIVE REUSE
BMS
DISINFECTION SYSTEM
ONLINE

8

MEDICAL AND HEALTHCARE FACILITIES

Continuously review and maintain the ability to rapidly increase the capacity of isolation, segregation of medical and healthcare facilities; as well as the conversion of adjacent open spaces or facilities for surge scenarios.

Consider multiple usage of facilities at the planning stage, and plan for adaptive reuse of existing facilities. Such interventions could cater to surge/ re-occurrences and assist in disaster management other than the pandemic. Consider new building technologies and methodologies that can reduce turn-around time significantly to build such facilities.

Short-Term
Many such facilities have been created since early 2020. Existing facilities such as newly completed housing converted into quarantine camps, and large exhibition spaces converted into isolation centres; while repurposed shipping containers were used for the rapid construction of new prefabricated hospitals.

Long-Term
Incorporate design concepts into new planning guidelines so that dual or multiple usages is provided for at the beginning of the planning process.

Private Domain
Refer specific authority of country / region pertaining to medical and healthcare facilities.

Public Domain
Refer specific authority of country / region pertaining to medical and healthcare facilities.


LIVE
WORK
BUILDING REGULATION
REVIEW
LEARN
PLAY
PRAY

9

BUILDING REGULATIONS REVIEW

Review existing regulations, revise, and create new guidelines which would enable a better living environment.

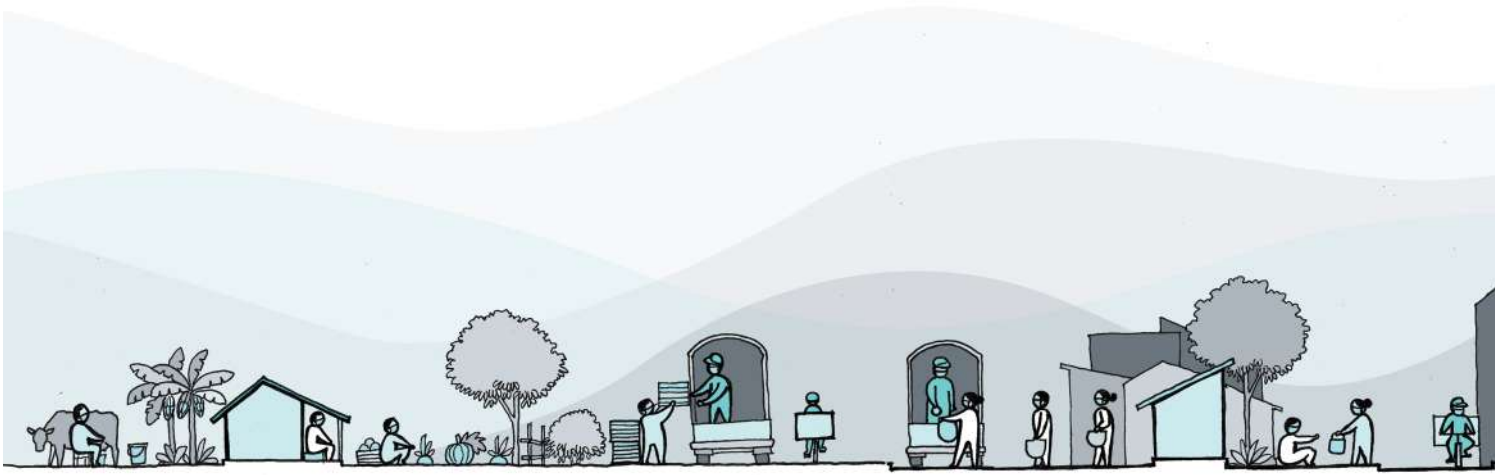
Given the shifts in social behaviour, and the economic situation post-pandemic; the potential need for new building types (where notions of live, work, learn, pray and play might be re-thought); including consideration of the psychological environment for mental health, elderly, children; while domestic abuse brings about the need for careful consideration of governing regulations.

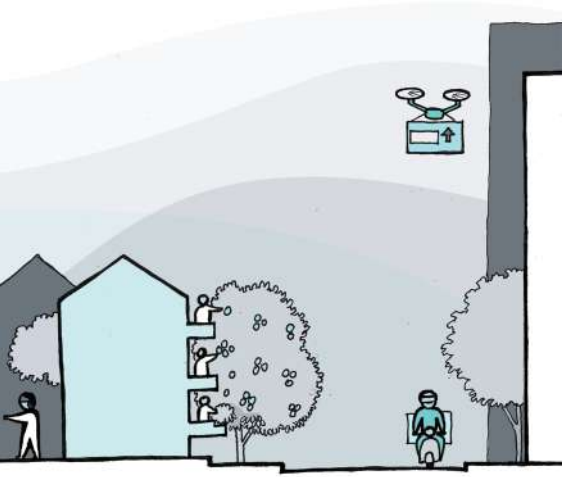
Short-Term
Review impact of the pandemic on different occupants. Assess how the built environment facilitates or impedes the effort against the pandemic. Identify regulatory issues to be resolved.

Long-Term
Conduct a comprehensive review of the regulatory issues, and make amendments to enable future development to be pandemic resilient. Due to forthcoming changes in terms of usage, it is critical to review the existing minimum dimensions and standards in buildings. Enforcement is critical to ensure compliance.

Private Domain
Some of the measures to mitigate the pandemic might be in conflict with the regulations (e.g. washing facilities at the entrance without natural ventilation, the home may not be compliant in terms of allowing for certain kinds of work… etc.). Specific attention is needed to factor in the new usage for working and learning.

Public Domain
Similarly, in the public domain, there may be conflicts with regulations (e.g. enhanced ventilation might be in conflict with environmental regulations on energy conservation). Confidence building measures have to be adopted in terms of people getting back to work in various building typologies with specific attention to air-conditioned indoor areas.





10
CITY PLANNING AND URBAN DESIGN REVIEW

Review the planning of urban and rural environments in light of identified new needs to counter COVID-19 and other future pandemics.

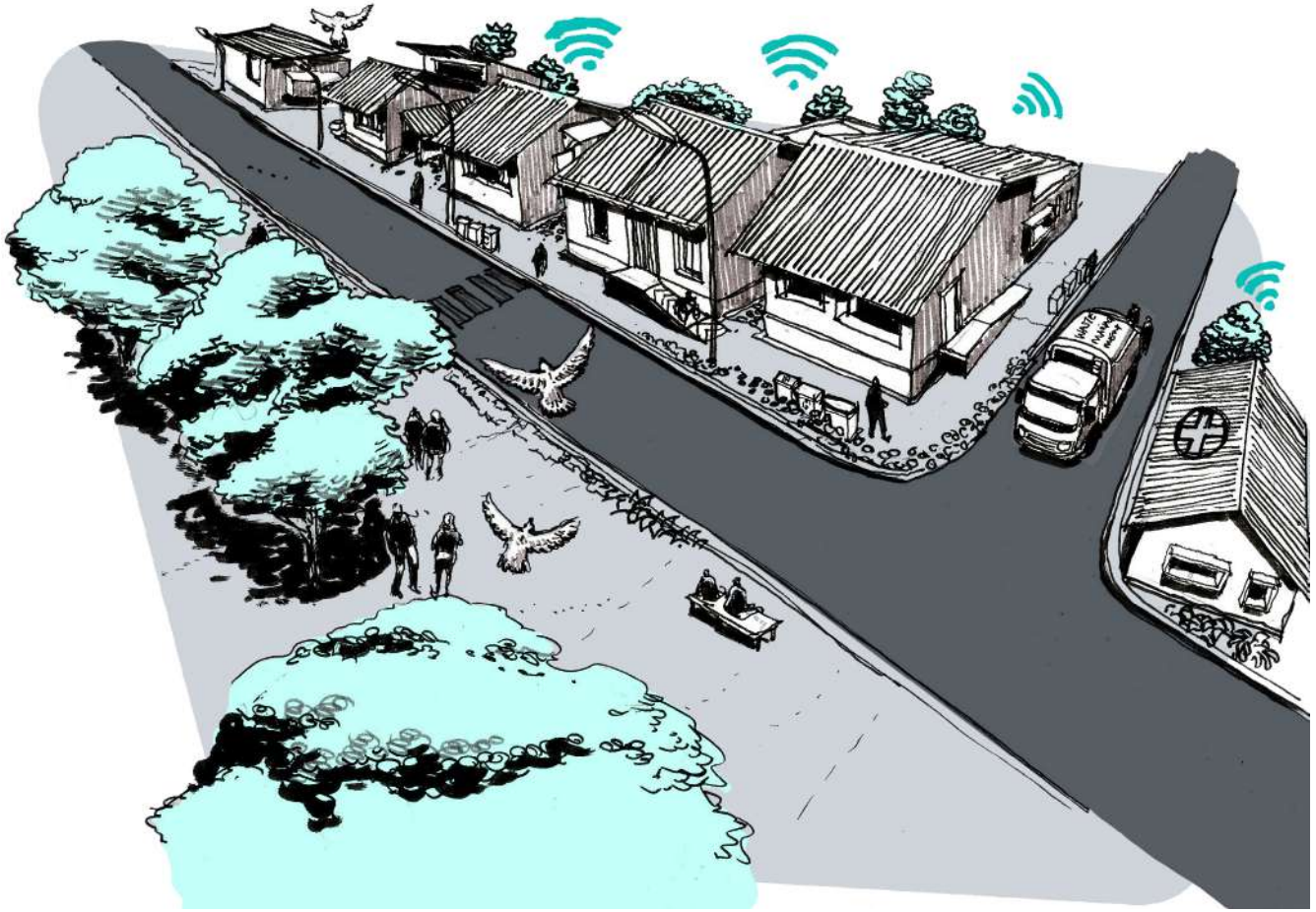
Achieving a new balance of risk, resiliency and sustainability should be a key consideration. The review should not be driven only by the government, but also by civilian communities, commercial enterprise, corporations, and property developers as stakeholders. Focus on people and usage, capacity in the differing period of use or events to prevent crowds while preparing for the future, with action plans for opening up the usage, with new normal parameters and innovative people and animal-friendly guidelines.

Short-Term
Review the impact of the pandemic on different communities and identify city planning and urban design issues to be resolved.

Long-Term
Conduct a comprehensive review of the planning and make amendments to enable future developments to be pandemic resilient. This should include the city planning process itself; the role of urban design; as well as the significance of property values.

Private Domain
Review existing housing typologies in terms of density; number of floors; different income groups; urban-rural setting; self-sufficiency of communities; transport requirements; and infrastructure for support of housing communities.

Public Domain
Review existing city planning and urban design mixes in terms of land use, centralization vs decentralization, density, number of floors, single versus multiple occupancies, self-sufficiency of communities, urban-rural setting, and mass transit vs sustainable individual commute (walking and cycling), and presence of green space, fields or plazas for communal needs as it arises.



11

HEALTH AND WELLBEING

Focus on designing for a clean and healthy living environment with access to nature to boost the immune system and improve psychological wellbeing.

It is particularly important for low-income communities (slums), where existing facilities for hygiene and other forms of infrastructure (both in terms of Wi-Fi and utilities) are below standard; and for the elderly and differently-abled individuals whose social interaction is further reduced due to a higher risk of infection and/or impaired in terms of physical mobility. The provision should also be extended to places of work for those who cannot work from home such as cleaners, maintenance personnel, construction workers, domestic help, hotel maids, guards, police and others, apart from health workers as front liners.

Short-Term
Focus on providing extra protection to sub-optimal environments (e.g. low-income communities, unregulated communities and developments) apart from enforcing existing regulatory requirements or legal acts for the well-being of the various front liners in the community.

Long-Term
Strive to enhance the built environment for all communities and developments to achieve basic standards, taking into consideration post-pandemic needs. Explore strategies to counter cyclical vulnerability towards the pandemic in the built environment with reference to varied climate zones, cultures and governance.

Private Domain
Special focus should be on underprivileged communities such as slums, where home care is provided to the disadvantaged. Infrastructure such as washrooms, utility spaces and service zones should provide for adequate hygiene and health care, and should be adapted to architectural designs.

Public Domain
Special focus should be on communities, in particular those who are vulnerable such as the elderly and the disabled as well as the community front liners.

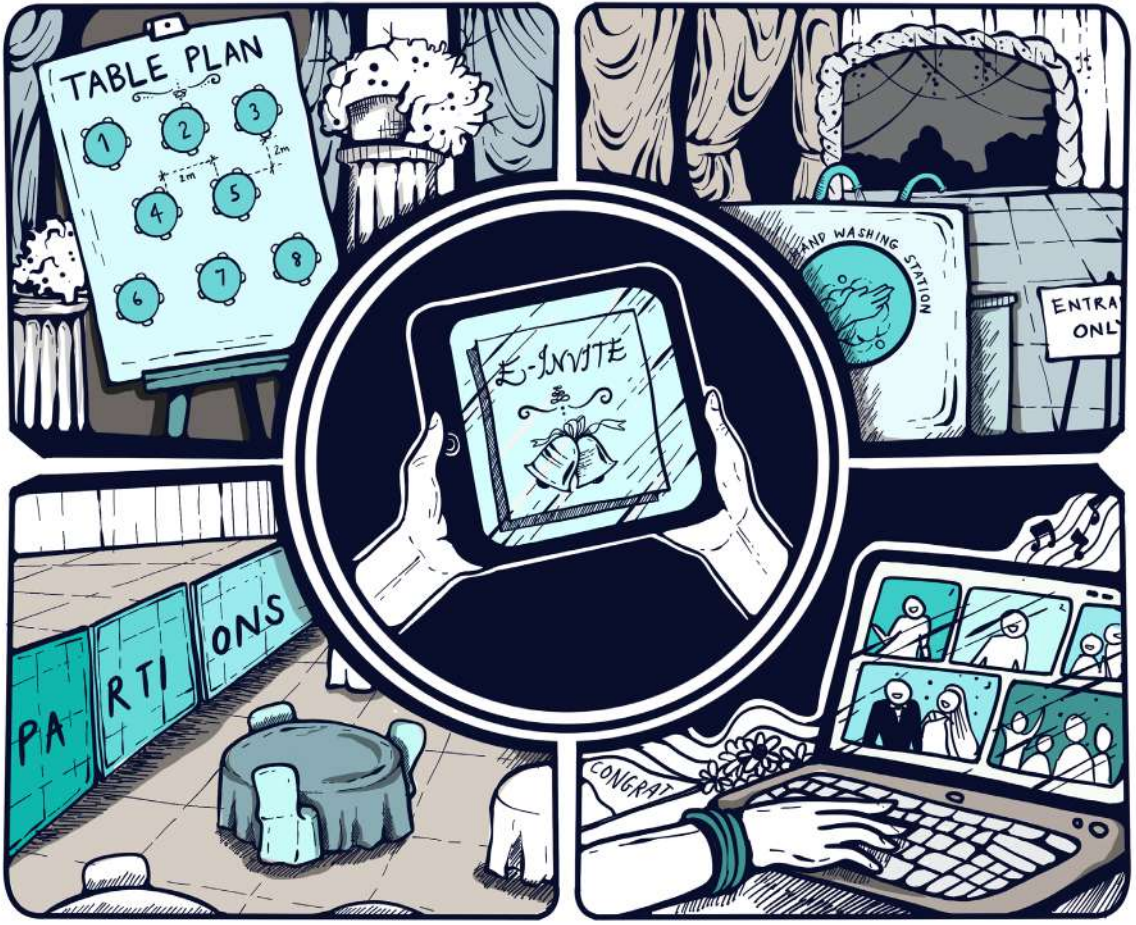


TABLE PLAN
1
2
3
4
5
6
7
8
2m
2m
E-INVITE
HAND WASHING STATION
ENTRA
ONL
PA
RTI
ONS
CONGRAT

12

SOCIO-CULTURAL ASPECTS

Cultural and religious activities are an essential part of peoples' lives. Significant activities should continue with precautionary measures in place and sensitivity towards maintaining its identity and symbolism.

Ensure compliance of personal protection and social distancing. Avoid high-density large-scale gatherings in closed confined spaces, ensure rituals are contactless and minimise the need to remove personal protection (such as masks when eating and drinking).

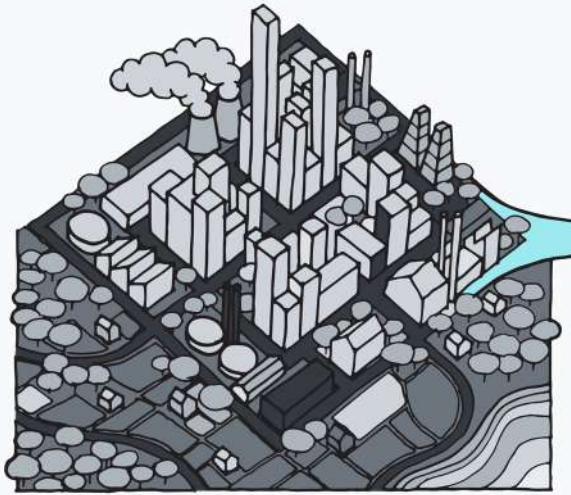
Short-Term
As much as possible conduct events virtually, and have in-person attendance for significant events only. Balance risks, needs and space capacity; control density and crowding by scheduling, and manage the flow of people.(Guideline 3.3)

Long-Term
Review annual activities calendar, prioritize based on the nature of different activities; set up a long-term plan on physical versus virtual delivery. By nature of the socio-cultural significance of such activities, the identity of the existing and emerging architectural vocabulary needs to be explored and revisited. The impacts on the transformation of buildings and its architectural identity have to be monitored through a mechanism that respects the prevailing architectural language of the region. (Guideline 3.3)

Private Domain
Consider providing space at home for conducting some of these activities. (Guideline 3.3)

Public Domain
Develop an action plan with adequate safety measures (such as celebrations which are linked to huge gatherings) in terms of its infrastructure provisions of spatial requirement (Guideline 3.3); hygiene provisions and the control of the flow of people within the facilities and its immediate surroundings (Guideline 4).

PROPOSED DEVELOPMENT PLAN 2021

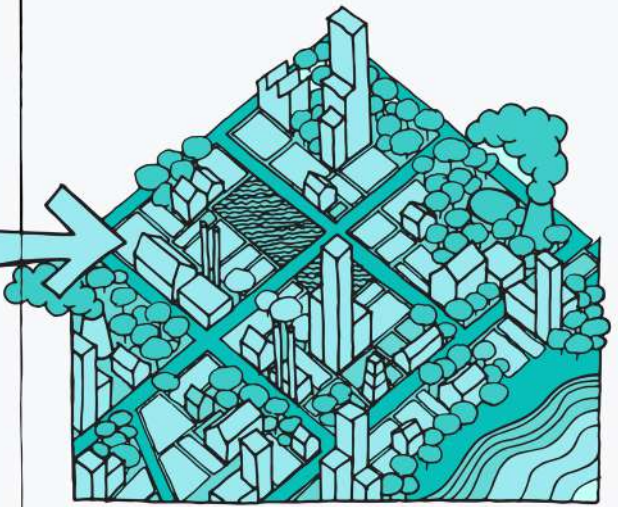


PRE-COVID 19 URBAN-RURAL DEVELOPMENT PLAN

13

PROPOSED DEVELOPMENT PLAN 20

DECENTRALIZED PLANNING CONCEPT



POST-COVID 19 URBAN-RURAL DEVELOPMENT PLAN

14

13

URBAN – RURAL MIGRATION

The significant changes in the economic situation and the need for physical distancing post-pandemic might have an impact on the rate and direction of global and regional urbanization.

The reverse trend of migration from urban to rural areas should be considered in spatial and economic planning and needs a strong people-friendly action plan with sensitive measures.

Short-Term
Work with Policy Makers to monitor trends, identify shift patterns, and plan strategies for mitigation. Focus on keeping the business and related economy in continuum especially real estate and service industries which are labour dependent. Explore alternatives as a result of shortage of labour and dependency on technology and automation.

Long-Term
Support Policy Makers to implement mitigation strategies in accordance with actual identified migration. Generating employment opportunities in rural areas by policymakers, considering re-looking at long term master plans by introducing decentralization methods in rural and country sides in terms of satellite level planning in fringe areas of the main urban cores, from physical, social, economic and cultural aspects.

Private Domain
Should a reverse trend be identified, support the generation of employment opportunities outside urban areas; potentially promoting local artisans and vernacular construction techniques to the building industry, where the use of traditional building materials can open up new roadmaps of economic revival in the rural areas and help people to have a better quality of life.

Public Domain
Should a reverse trend be identified, provide infrastructure and well-equipped community facilities in rural and suburban areas such as health care facilities, grocery, wet market, schools, religious place, banks and other facilities within the neighbourhood and network with adjacent neighbourhoods for other facilities.

SUMMARY

by Architect **Manguesh R Prabhugaonker**
Chief Editor

The 13 Guidelines addressing multidisciplinary dimensions of our built and natural environments, ranging from public to private domains, urban to rural contexts, have been formulated with a vision to provide strategic directional roadmap for implementation. This can be possible with the help of all the members from ARCASIA countries, their region/country-specific strategies and deep understanding of ground realties in terms of impacts and responsive measures due to pandemics, both at macro and micro levels.

The Guidelines, focusing on long-term and short-term goals with an emphasis on a result-oriented action plan, require a comprehensive implementation plan, which can be readapted and applied in various countries based on the intensity of damages and their mitigation measures. The process of formulating our goals and objectives for co-inventing built environment guidelines primarily facilitates the process of recreating resilient and self-sustainable architectural and planning strategies with focus on community health, liveability and well-being of the people.

Planning and development and implementation will depend on effective governance, clear communication and widely understood implementation strategies that comprise programs that meet both short-term and long-term goals, with country-specific research initiatives to strengthen our preparedness and to overcome the impacts of pandemic and disasters, current and in the future. Challenges related to Asian sub-continent–where specific emphasis on high density along with vulnerable sections of the society is needed–concern significances of local's socio-cultural identities recognizable through activities of complex age groups in various land uses. A development plan for built environment intervention–both in the traditional vernacular heritage context and emerging contemporary design vocabulary–is going to be the most critical directional vision that will evolve towards a new Resilient Asia.

During the implementation stage, we are bound to face a situation of a strong dependency of the built environment on building technology and wired digital automation, due to post COVID SOPs. These need to be integrated into our newer way of living and future guidelines, with respect towards the natural environment, its ecology, and the challenges of conservation and preservation of nature.

As architects with social responsibility, let us use these Guidelines as a set of tools capturing strengths and opportunities emerging from the pandemics with comprehensive collaborative implementation efforts to co-invent a liveable built environment for the health of people and for Resilient Asia.

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