



INSTITUTE
OF INDIAN
INTERIOR
DESIGNERS

A HANDBOOK ON DESIGN TIPS TOWARDS **DESIGN LITERACY FOR ALL**



'Satsang'

Partners towards
A Better Tomorrow



A HANDBOOK

ON DESIGN TIPS TOWARDS

DESIGN LITERACY

FOR ALL



INSTITUTE
OF INDIAN
INTERIOR
DESIGNERS

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IIID Design Clinic

IIID has created an enquiry form where anyone who can't afford a designer can raise a query and receive design counselling/guidance. Contact via email or visit the link on IIID website- www.iiid.in/Cms/index/contact_us

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A HANDBOOK
ON DESIGN TIPS TOWARDS
DESIGN LITERACY
FOR ALL

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President's Message



Jabeen Zacharias
President, IIID

‘People’- one of the most profound words, is an embrace that brings everybody together without exemptions. Hidden under this comfortable blanket of ‘people’, there are ‘the classes’ and ‘the masses’, who often are seen-unseen, heard-unheard, served-unerved.

Architecture, Interior Design and other Building Arts are but our responses to the primary need for ‘shelters’ with a history as old as mankind itself. The skill to shape one’s own safe haven is actually part of every homosapien’s survival toolkit which we marvel at, be it the ‘igloo’ or the ‘Indus valley’ till this day. Somewhere along the way, the complexities of modern living called for norms and codes and we took the kits and rights away from people to decide

on ‘niche services and sciences rendered by trained Professionals’. Today, deprived of the privilege to practise their traditions and skills for years, they are at crossroads with no directions. It is time to reach out to people, to the masses who need partnering. As President, a Professional and a Person, I call my philosophy ‘Design Democracy’. Design is of the people, by the people and for the people. Designers should be ambassadors and advocates for inclusive progress for ‘people’ in its true meaning. Through this Handbook, IIID has taken a step towards ‘Design Literacy and Design Democracy’. Dedicated to all those people somewhere, anywhere, who need us to help them weave the ‘Universal Dream of a Home’.

COA President's Message



Ar. Habeeb Khan

I am pleased to learn that IIID (Institute of Indian Interior Designers) along with other organizations like IGBC, ISHRAE, CREDAI, FSAI, IPA etc are publishing 'A Handbook on Design Tips' to share information on the basics of general planning aesthetics, services, costing etc. under its campaign title as 'Design Literacy for All'. In continuation of the noble efforts of the IIID in taking design to masses, this step will further the cause of the profession of design. A noble effort by the IIID led by Jabeen Zacharias, the president, will pave a path which breaks the illusion of design as an elitist profession and help reach out

to masses and improve the quality of their lives. It will not only do this but improve the levels of awareness amongst clients and the general public about the details of design as a profession.

I hope that this handbook plays a vital role in the availability of information conveniently.

I also want to put in a word of appreciation for all those who have worked hard to put this in place.

I extend my best wishes to IIID and all other stakeholders in their 'Mission for the Masses'.

Prologue

Buildings and spaces are usually designed by professionals and made their own by the users. However, not all spaces and buildings are designed by professionals and it is the users who give form and warmth to their homes. In this book, design professionals have shared some tips with the users and individual home builders. We focus on ideas for homes, especially useful for those who do not have access to designers or cannot afford them. We hope to facilitate design literacy for those who crave to make well-informed design interventions.

This Handbook invites you to explore more, than just make-do jugaad. We cover tips that spread awareness about the general principles of design while building your dream home or doing up its interior spaces. We discuss sustainable tips that ensure the well-being of the users. All of this is looked at from the lens of affordability and flexibility. If you are looking for special tips on planning living rooms, bedrooms, kitchens, bathrooms, furniture layout or choosing the right finishes, colour schemes and moods for different spaces or accessorising the space you have picked the right book. We also look at latent heroes like waterproofing, electrical conduiting, and many other ways of protecting the structure. Although these are not evident,

their treatment ensures a long-lasting, durable and safe structure.

This book discusses accessibility and design recommendations for persons with disability. We elaborate on design consideration for children/toddlers. It talks about designing spaces that are energy-efficient and also aims to introduce you to the world of greens as we discuss landscape, indoor gardens and much more.

It is divided into nine sections, each focusing on a different aspect of home design. Every tip is optimally explained using a sketch for better understanding.

This is just a glimpse of the cursory design considerations a lay person needs to know to make an informed design decision.

Most of the tips in the book can be easily generalised in any context, however, design is very subjective and centered around context, users and the science of building. Please note that we advise you to connect with a professional like an interior designer when renovating and designing the interiors of the house, an architect and engineer when building the structure and a landscape architect designer when looking at landscapes and gardens, to have a technically sound design and thorough execution experience.

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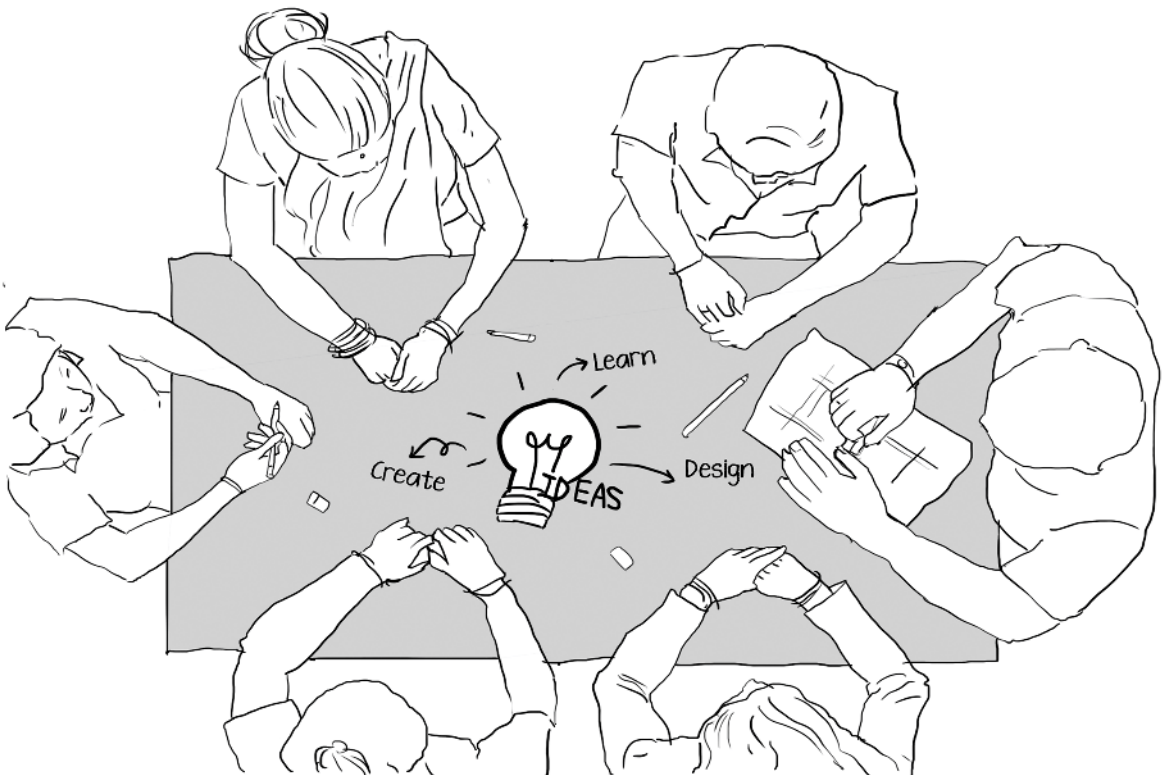
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IIID Design Literacy Forum

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Follow the QR code to the IIID Design Clinic.



Take a step towards Design Literacy

This book is an effort to build an understanding, in society at large, of design, the context of the site, how the sun, wind and rain influence a building and much more. Different sections of the book reflect on ideas like planning on the site, laying out furniture, and other affordable ideas. If you are planning the construction or interior work of your home, you can begin by checking in the appropriate boxes to jump start your journey.

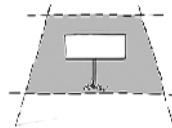
So... you want to ...

- Build your dream home
- Expand your existing home
- Renovate the interiors of your home



What about land, the house or the apartment?

- Already have one!
- Planning to buy



Design ideas? Do you have any?

- Yes, I have
- No, I'm confused

Well in either case... this book is here to help you make some right decisions!



What about resources?

- Money... Have you set your budget yet?
- Time... Do you have a deadline in mind?
- Professional advice



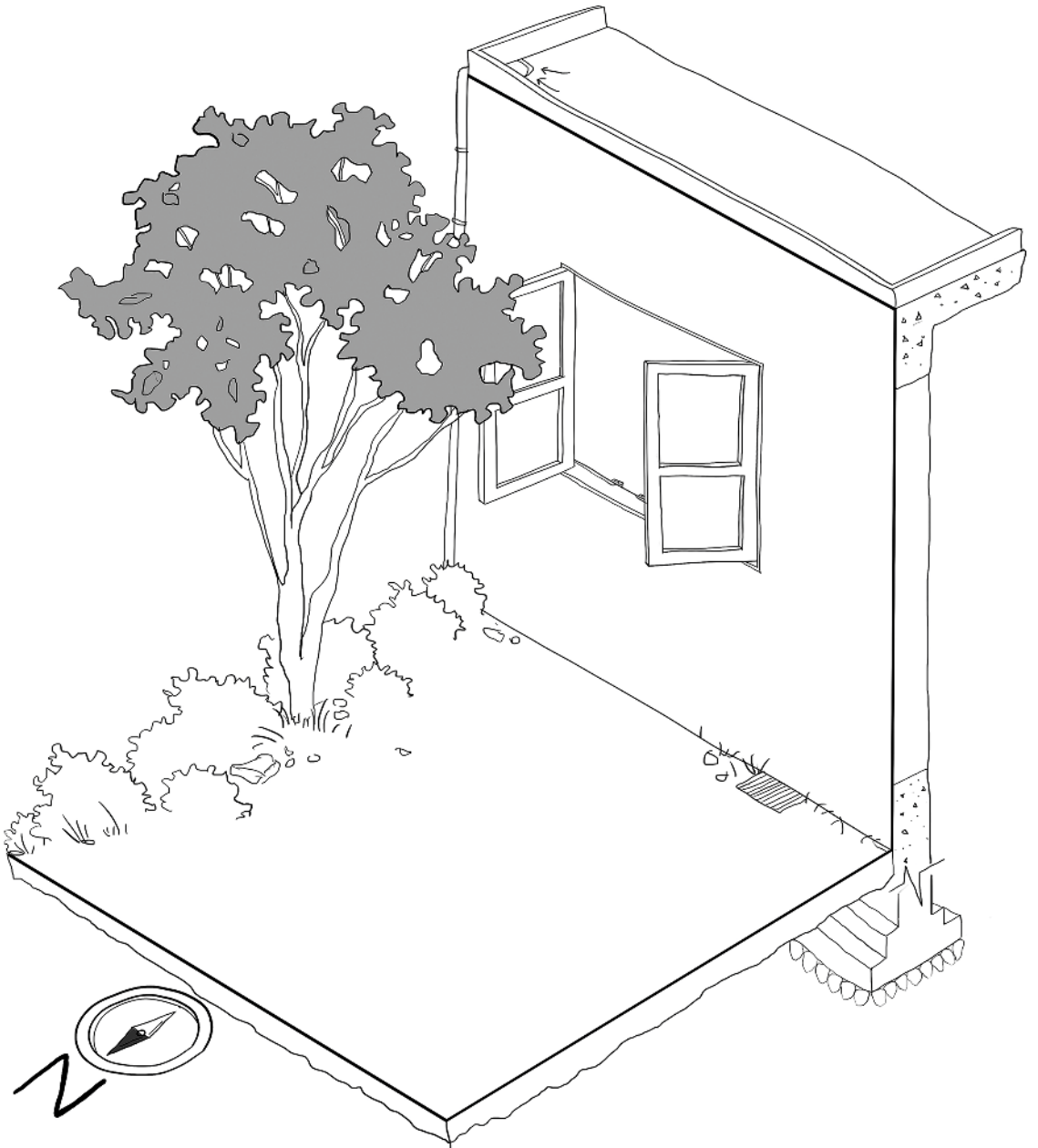
To ensure a well thought out design intervention that balances sustainability, well-being, aesthetics and function, a construction activity may need an architect, an engineer, an interior designer and a contractor.

Start with a budget. Learn about the cost of materials, labour and timelines. Talk to the IIID Design Clinic to get clarity on these processes.

I

General Design Principles

Do you know why designers provide huge openings/windows in the north and east, and block or have smaller openings in the south in hotter climates? Let us tell you why every design is unique and how local factors influence design decisions. Learn about building placement, the direction of doors and windows, the timeline of projects, budgeting and much more in this section.




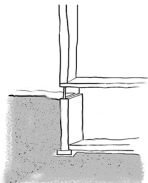
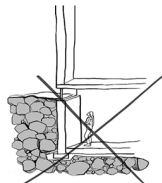
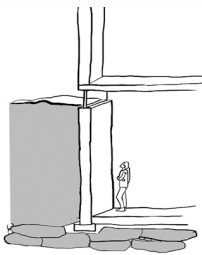
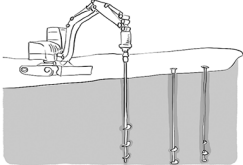
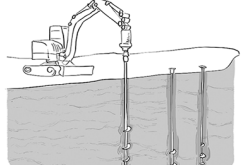


1. Building Your Dream Home

Let us begin by understanding the land and its properties before finalising the building layout.

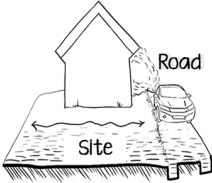
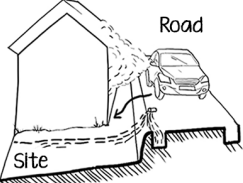
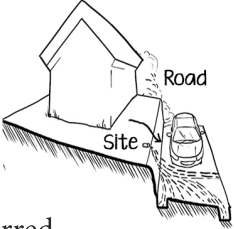
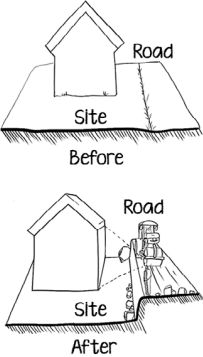
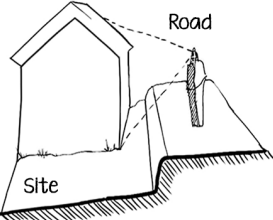
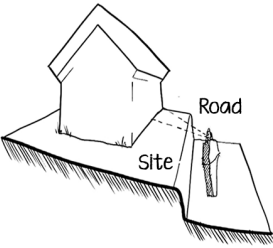
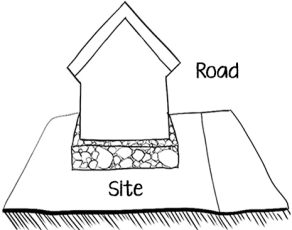
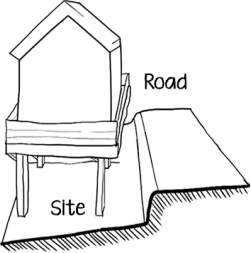
I. Soil and Soil Bearing Capacity for Foundations

The building rests on earth and hence, the quality of the soil matters. Designing for the type of soil on site also means choosing the right foundation. Most of these are very technical decisions as they impact the life of the structure and its stability. It is advisable to consult with an engineer to make the right decision. The following table has been segregated by soil type to help you with broad-based foundation-related tips. Please note that there are many other conditions that decide the nature of the foundation.

Sandy	Rocky strata	Clayey soil
 <p>Foundation design is very critical in sandy soil and needs to consider high silicates.</p>	 <p>Gives a stable base but costs more to break the strata, for laying the foundation.</p>	 <p>A deeper foundation will have to be built.</p>
 <p>Basements preferred as they are generally cooler.</p>	 <p>Blasting the rocky strata is expensive. Avoid basements.</p>	<p>If it is black cotton soil, the foundation needs to reach the bedrock.</p> 
 <p>Pile foundation and shoring are advisable.</p>	<p>Pile foundations are not advised as cost implications are high.</p>	 <p>Will need a pile foundation.</p>

Mixed-composite soil is always favoured as its economical for building foundations. The suggestions here are generic. Every soil should be tested before designing the foundation and recommendations should be given by a qualified structural engineer.

II. Elevation from the Road Level

Site at same level as the road	Site lower than the road	Site higher than the road
 <p>Not preferred but can be managed through design.</p>	 <p>Not preferred, sometimes difficult to manage through design.</p>	 <p>Preferred.</p>
<p>Site could flood easily.</p>	<p>Site being lower, the road drains off into the site.</p>	<p>Water drains from the site onto the road, benefitting the site.</p>
<p>Trash/garbage/unwanted material from the road may enter site based on design.</p>	<p>Unwanted material from the road is more likely to enter the site.</p>	<p>Unwanted material from the road is less likely to enter the site.</p>
 <p>Road level may rise in future leading to conditions where the site sits lower than the road, leading to less privacy.</p>	 <p>Lesser Privacy.</p>	 <p>More privacy.</p>
 <p>Build on high plinth/stilts for a long term solution.</p>	 <p>Build on high stilts for a long term solution.</p>	

General Design Principles

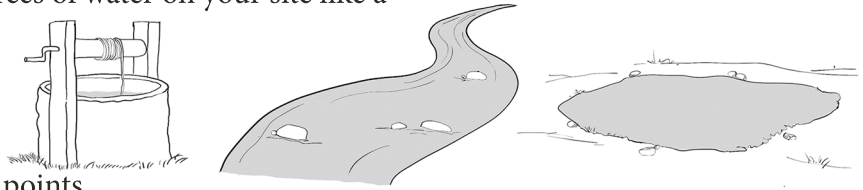
III. Water Source on or Near the Site

If you have natural sources of water on your site like a

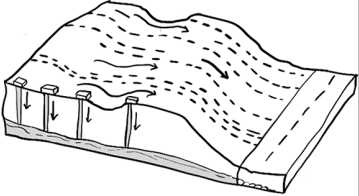
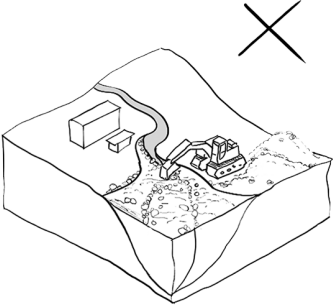
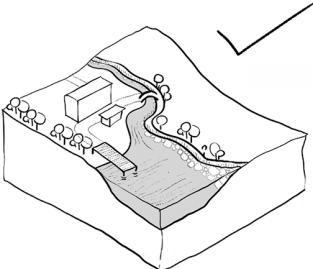

Well

Stream / river

Pond

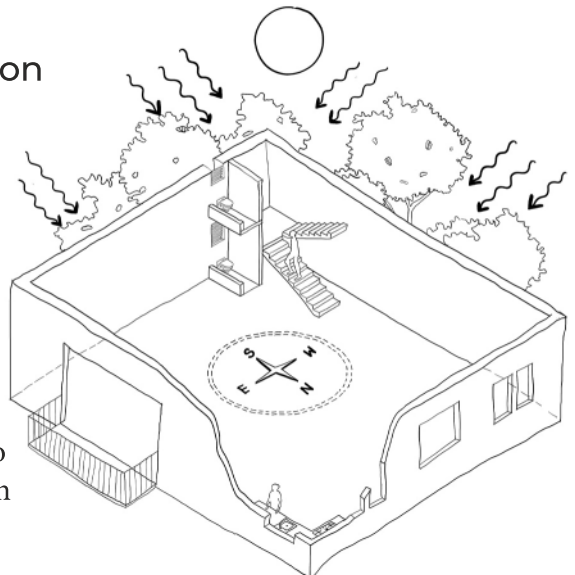


Consider the following points

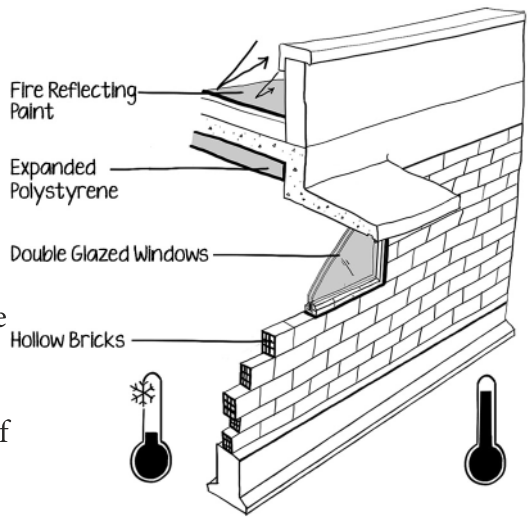
 <p>Do you face waterlogging on the site? Use natural depressions to harvest rainwater. Make soak pits for groundwater recharge and ensure a natural surface runoff from the site to the nearby road.</p>	 <p>Do not close the source or drastically alter contours. Recharge and nurture the natural resource. Make the water source a feature in your landscape strategy.</p>	 <p>Connect with an architect/landscape architect for sustainable advice.</p> 
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IV. Building Placement and Orientation

1. Avoid large windows and exposed concrete/glass walls on the west and south-west side of the building to reduce solar heat gain. This is applicable in the tropical context of India but not in the colder belts, especially the high altitudes. Plan services like toilets, bathrooms, staircases in the south and south-western sides. Plan the bathroom blocks either next to or above one another to simplify and optimize plumbing. The kitchen is preferred along the north/east or north-east to allow morning sunlight inside.


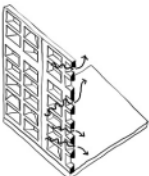
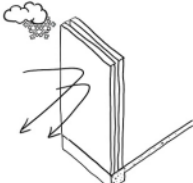
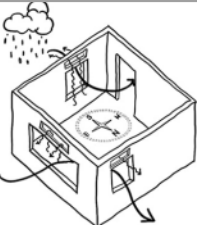
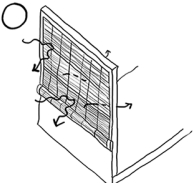


2. In the tropical hot climate of India, courtyards are preferred but not always possible. Also, ensure that windows have chajjas/overhangs to block direct sunlight and rain. If services like toilets/staircase can not be placed in the south or south-western corner, use hollow bricks/blocks for walls and double glazed window panes to minimise the solar heat gain. The roof, if exposed, can be insulated with fire inhibiting polystyrene or equivalent insulation. Paint the exposed finished roof with heat reflecting paint to minimize heat gain.. (by ISHRAE)

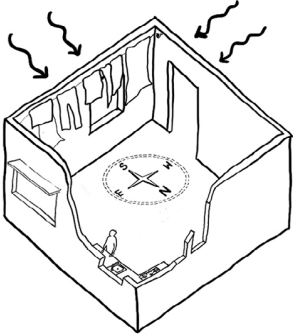
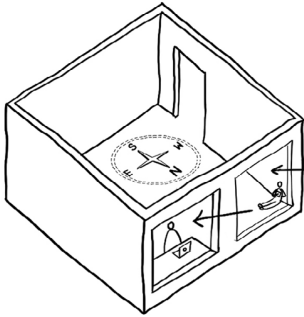
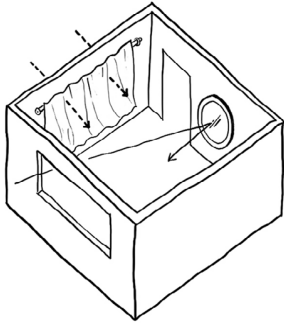
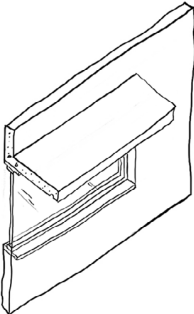
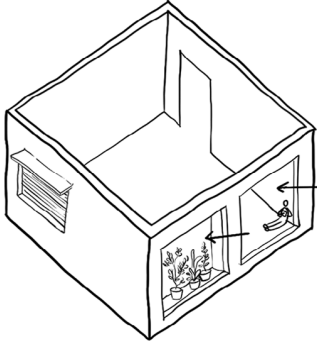


The layout of the house, the placement of windows and doors, and the orientation can enhance the natural lighting and ventilation in a building.

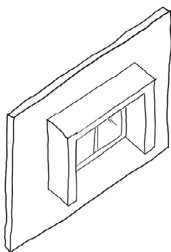
V. Breeze and Ventilation Based on Climate

Humid	Hot & Dry	Cold & Snowy
 <p>Requires maximum cross ventilation..</p>	 <p>Use <i>jalis</i> to facilitate the Venturi effect to reduce the temperature of air.</p>	 <p>Build double walls or cavity walls for insulation and to protect from harsh cold winds.</p>
 <p>Align the house to prevailing wind direction- in most cases north/north-east to south/south-west. Introduce ventilators on top to expel hot air that rises up.</p>	 <p>Use khus or wet jute curtains to increase humidity and cool the room as wind flows in.</p>	<p>Add larger windows towards the south for heat gain in cold climate.</p>

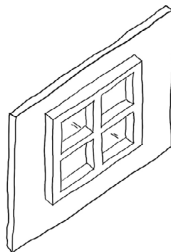
VI. Sunlight in the House

South, west, east sides of the house	North side of the house	Indirect light
 <p data-bbox="102 660 434 733">Direct sunlight is good for drying clothes.</p>	 <p data-bbox="485 624 811 733">Windows along the north are ideal for working with minimum artificial light.</p>	 <p data-bbox="874 660 1193 808">Dress up your windows with soft sheers/curtains that let in daylight while giving you some privacy!</p>
 <p data-bbox="102 1062 454 1281">Advised window detail with chajja for the south, west and east facing window/s. Early morning direct sunlight is recommended in kitchens.</p>	 <p data-bbox="485 1175 794 1284">Larger openings can be designed without fear of heat gain.</p>	<p data-bbox="874 1062 1224 1284">Add shading devices and light shelves to bring in indirect lighting. This will reduce load on artificial lights and hence, electricity consumption.</p>

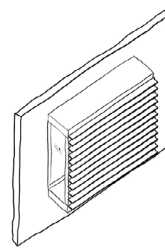
Shading devices based on direction



Best to avoid east or west exposure.



Best for the south-east or south-west wall.

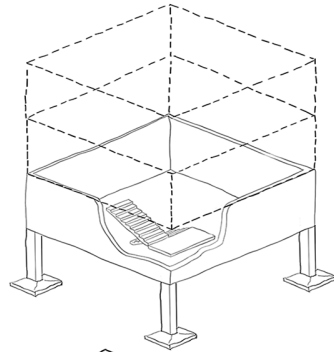


Add louvres on windows along the south wall on higher floors.

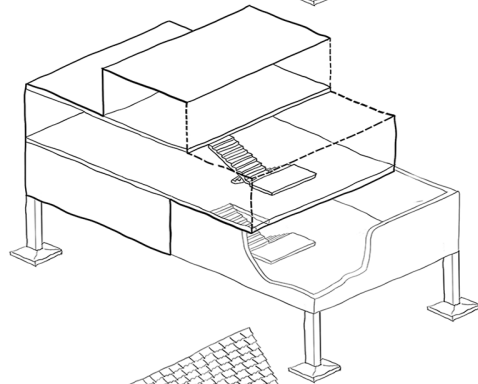
2. Expanding Your Current Home

Consult with an architect and structural engineer when you decide to expand. The strength of the building, foundation design, number of floors, etc. that can be raised depends on the structural design.

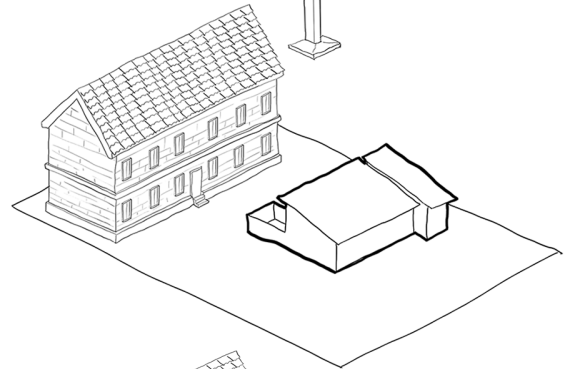
I. Vertical expansion should be planned in advance so that it becomes cost-effective to build more floors above. Design your house in phases to match your budget, but plan the foundation for the upper floors in advance.



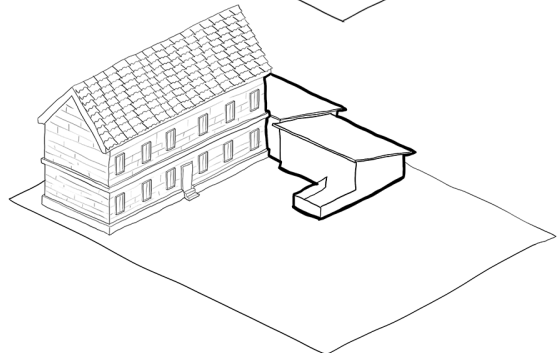
II. If not planned in advance and you have the scope to increase the building footprint, go for composite expansion and extend the existing footprint to build with a new foundation. Composite expansion allows for flexibility.



III. If your house is an old heritage property, you could build the new structure a minimum of 3 meters away from the main building so that it doesn't affect the old foundation. Thus, you will also be free to style it independently as well.



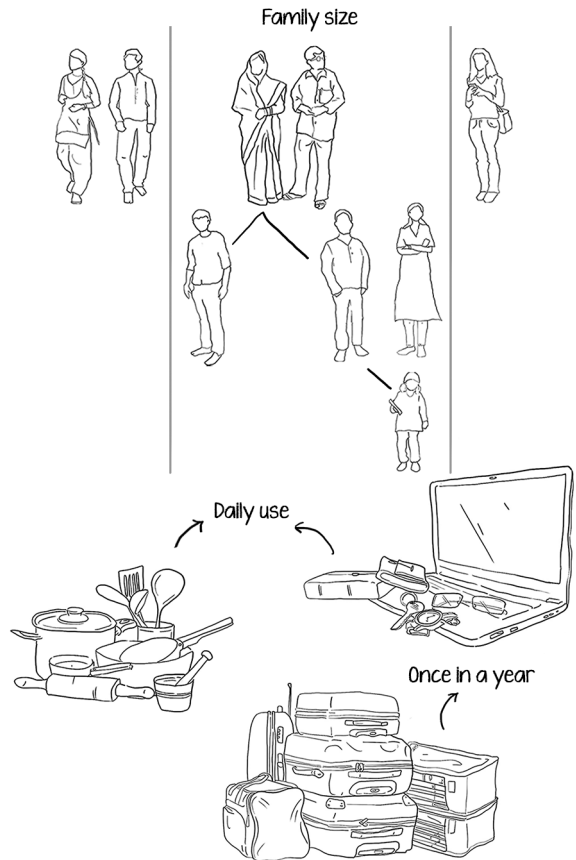
IV. If you wish to design an extension attached to the original house, retain the character of the earlier design and follow Heritage Guidelines for conservation and new construction.



3. Renovating Interiors

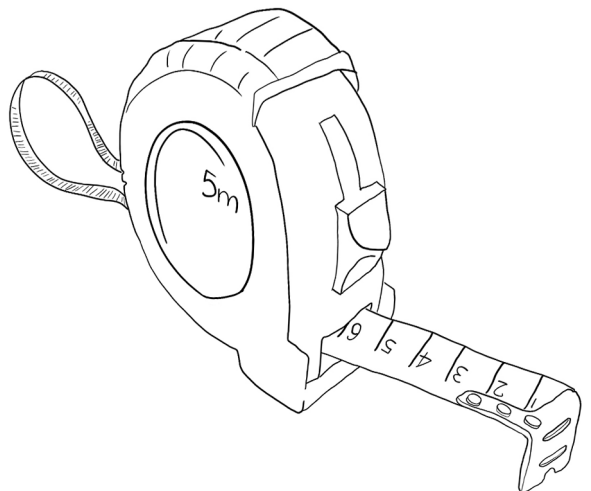
I. People and Possessions

Begin with the total number of people in the house, anticipated guests and then plan for the spaces. Small homes should especially plan for storage. Document your existing possessions and things you wish to retain. Discard unnecessary items and declutter. Segregate possessions by things you need on a daily basis (these should be accessible easily), weekly or occasionally (which should be accessible on shelves or in cupboards) and seasonal and yearly basis (in overhead storage or under the beds, etc.). This process helps to optimise the design, cost of making, cost of maintenance and reduces wastage of resources.



II. Measure

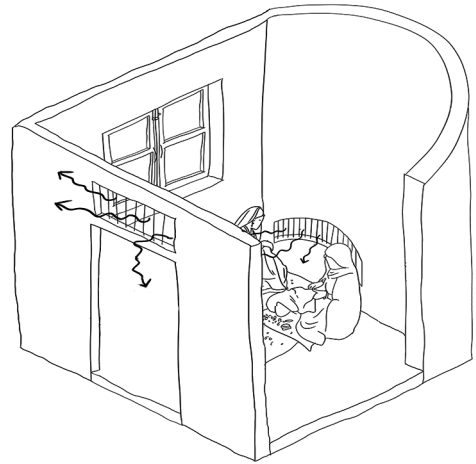
Before you do anything at all, you must measure your rooms. Don't get into approximations; take a measuring tape and measure all the rooms from one corner to another. Not knowing the amount of space you have is the biggest reason for design and planning errors. Then, measure every item that you intend to put in your room, especially the new furniture you wish to buy. See if everything fits in the available space, plan the layout and only then order the new furniture. Use the square pad at the end of the book to sketch and lay out your plans.



III. Exterior Walls, Windows and Doors

1. Windows and Ventilators

In hot, dry or humid climates, plan for small openings or ventilators at the top of doors and windows to allow the hot air to rise up and escape through the opening.



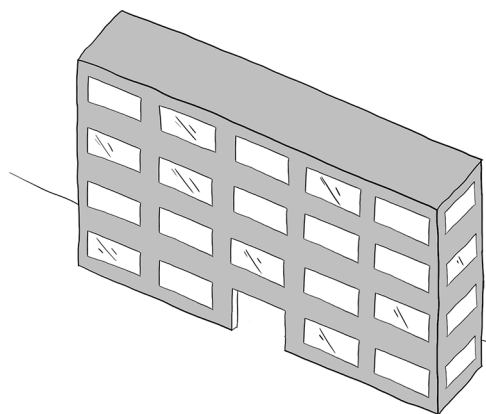
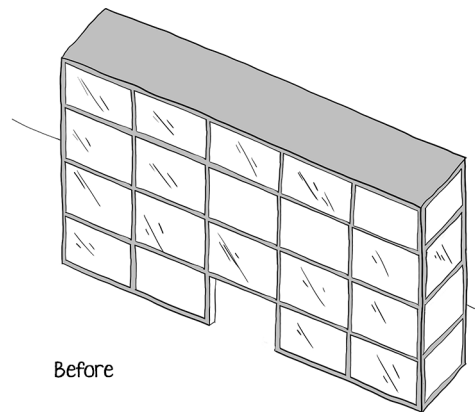
2. Window-to-Wall Ratio

Most buildings, societies or neighbourhoods have bylaws for how the building facade should look, so read and understand them before planning to alter the elevation of the building. A well-balanced Window-to-Wall Ratio (WWR) maximises natural daylight and minimises heat gain or transfer.

Use the following formula to divide the exterior surface area to help you decide the right proportions.

$$\text{WWR (\%)} = \frac{\text{Glazing Area (m}^2\text{)}}{\text{Exterior Wall Area (m}^2\text{)}}$$

Windows transmit ten times more heat than the wall. The lower the WWR, the more energy is conserved. For all climates, the optimum suggested WWR is 23.5%.

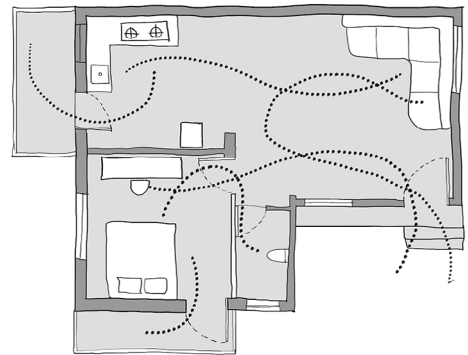
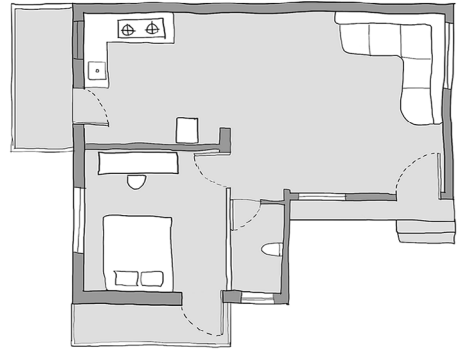


IV. Flow of Movement in the House

The flow of people and their activities helps us plan the circulation in the house. There are four types of flows to be considered- family movement, service-related flow, work-related flow, and flow of guests or visitors. Answering the following questions will help you realise the importance of different types of activities inside the home.

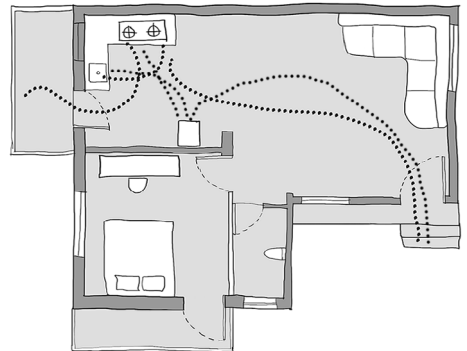
1. Family Flow:

- How does the family move between different rooms in the course of a day?
- Where do they spend most of their time?
- Which passageways are likely to have more than one person moving at a time?
- Alter the sizes of the spaces based on occupancy and utility.



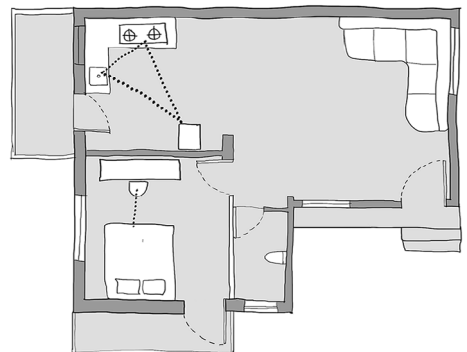
2. Service-related Flow:

- Where do the grocery, shopping, etc. go after you return from the market?
- How do you move around the house when dealing with the trash?
- Can you remedy any conflicts by furnishing them in a different way?



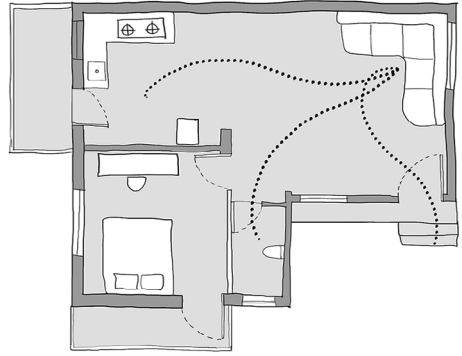
3. Work-related Flow:

- How do you move between different workstations in a room? For instance, in the kitchen- between the sink, the stove and the refrigerator.
- Is it comfortable now or will swapping and changing the locations of these workstations make the process of cooking easier?
- How will plumbing be affected by such decisions?



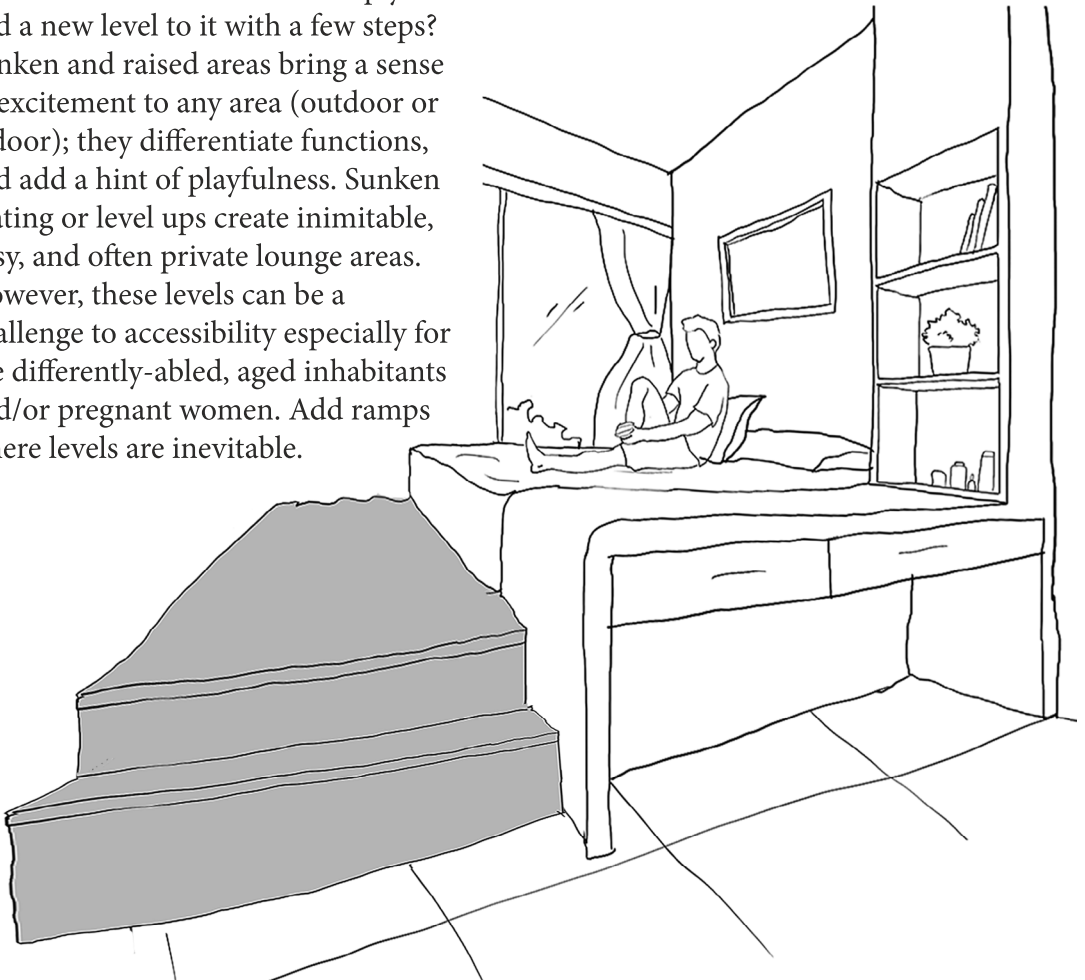
4. Flow of Guests or Visitors:

- How do invited guests move from the entrance to social areas such as the living room, dining area, kitchen, and bathroom?
- Does this flow clash with the more private sections of the home, and, if so, how can that be avoided?



V. Adding a New Level

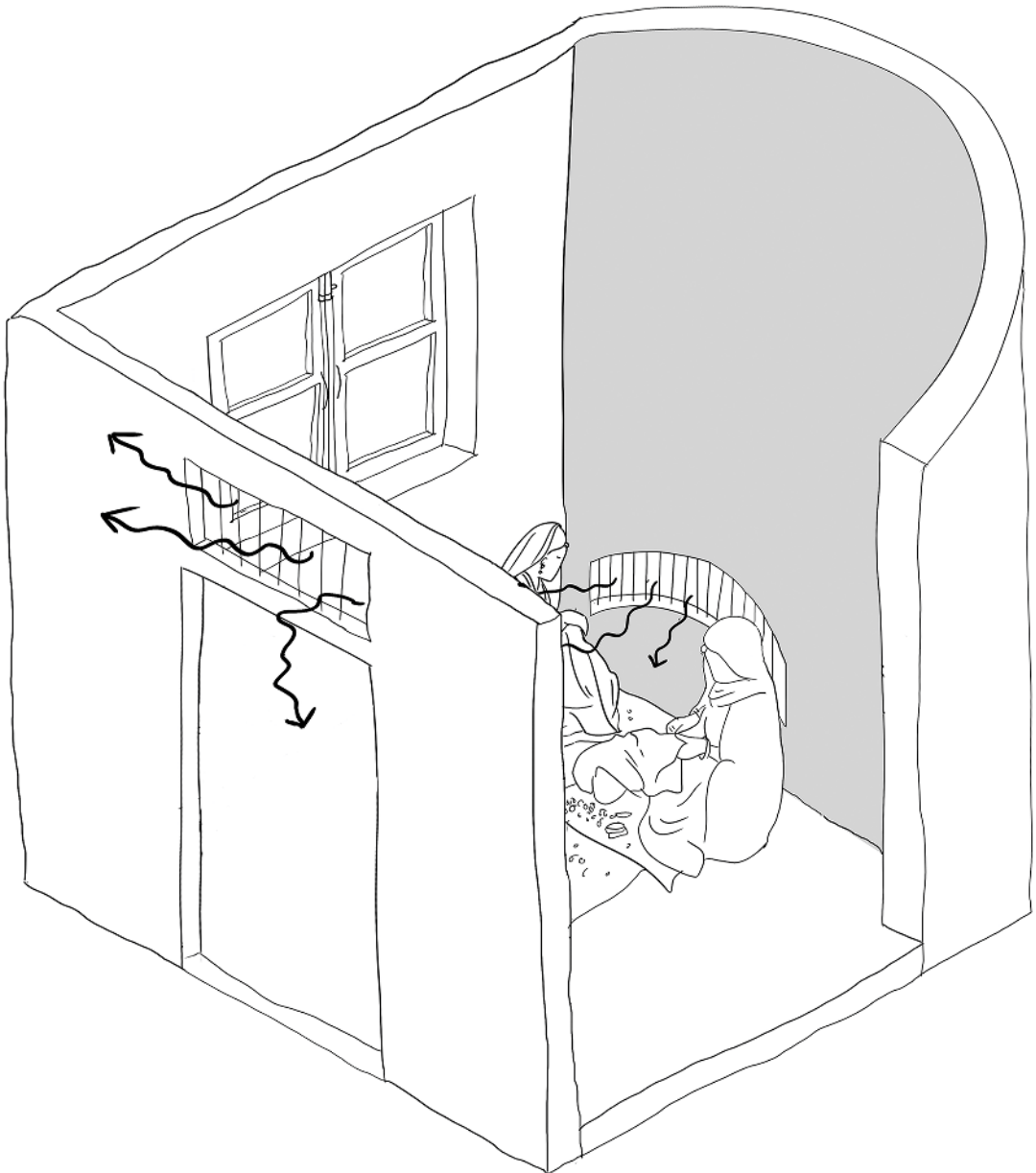
Ever seen how a space acquires a whole new charm when we simply add a new level to it with a few steps? Sunken and raised areas bring a sense of excitement to any area (outdoor or indoor); they differentiate functions, and add a hint of playfulness. Sunken seating or level ups create inimitable, cosy, and often private lounge areas. However, these levels can be a challenge to accessibility especially for the differently-abled, aged inhabitants and/or pregnant women. Add ramps where levels are inevitable.



II

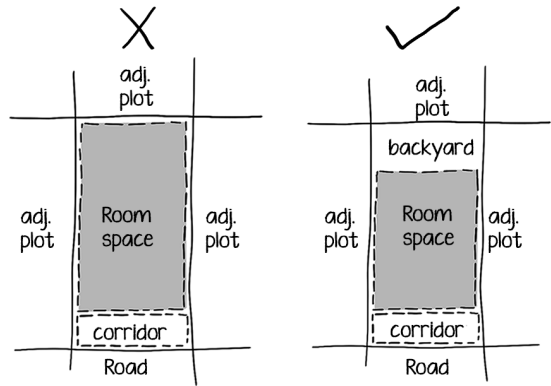
Well-being

Design has the power to impact the health and well-being of its users. Simple solutions like the provision of ample daylight or having specific indoor plants can help elevate the quality of life of the inhabitants. Learn about Indoor Air Quality, acoustics, lighting, design of openings based on climatic and spatial conditions in this chapter.

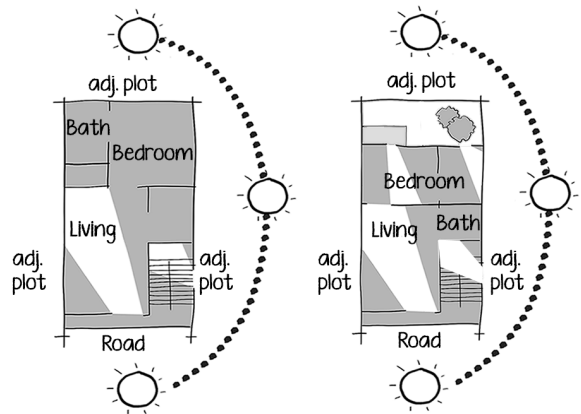


1. Optimal Balance between Built and Open Spaces

I. Most urban homeowners in India maximise construction by occupying maximum footprint and end up with dark/dingy spaces inside the building. Appropriate distance between two buildings is critical for ventilation and better liveable spaces.

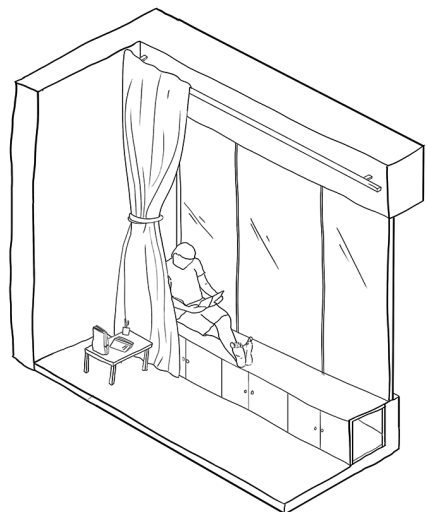


II. With a slight rearrangement of rooms, one can ensure better ventilation and natural light. Balconies can be designed and vents for bathrooms can be created, allowing natural light to illuminate a larger space.



2. Play of Heights

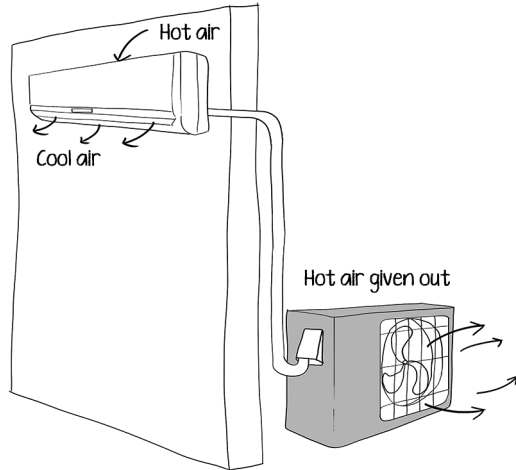
Lowering the window sill height creates a balcony-like feel and adds to the openness of internal spaces. These can also be converted to seating by extending the width of the window at the base. The space below the seating can add up as storage too. Rooms appear bigger and brighter with full-height windows.



3. Indoor Air Quality

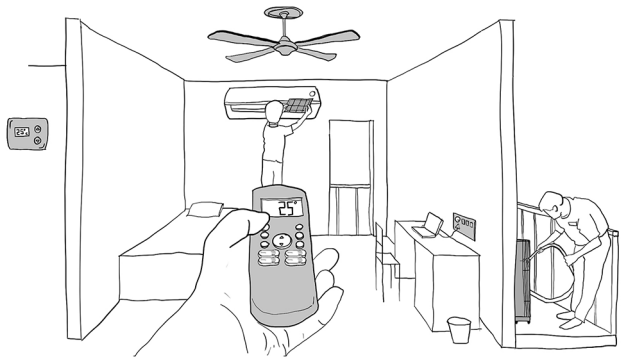
Inflow of outdoor air is critical. While using air conditioners, the induction/outdoor unit should be placed in an open, clutter-free spot. This might differ from application to application and is best executed in consultation with the AC company or referred from the Ventilation Standards mentioned in ISHRAE IEQ Standards or from ASHRAE Standard 62.1 and 62.2.

(by ISHRAE)



4. Optimum Indoor Temperature

If you have an AC, set the room temperature between 24 to 27°C for cooling. It is a good idea to provide fans in an air conditioned space. Set a higher temperature for cooling and use a fan at low speed to improve air circulation and comfort. Every 1°C increase in room temperature is likely to reduce the power consumption by 3%. In any case, don't set the thermostat below 24°C. Also, get the filters and coils cleaned periodically by authorised representatives of the manufacturers as per their recommendation. *(by IGBC)*



5. Finishes

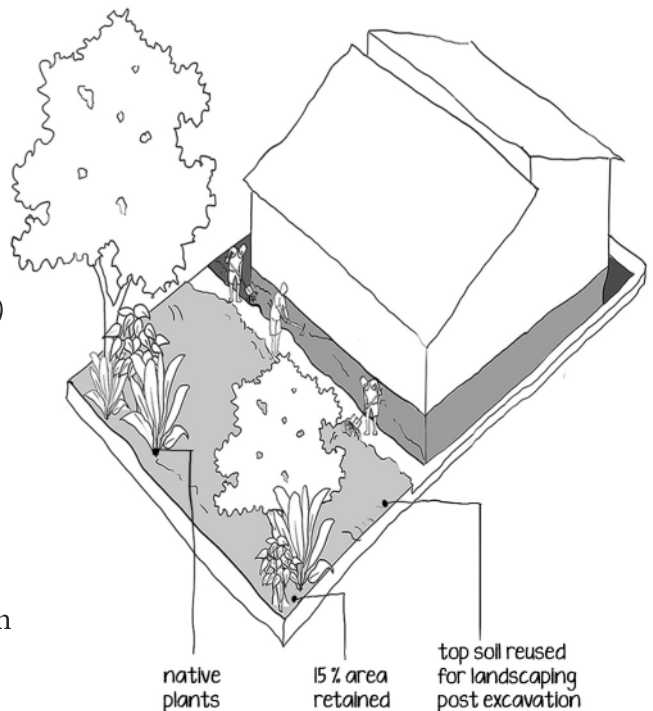
Select paints and adhesives that have low VOC (Volatile Organic Compounds) or purchase GreenPro eco-labelled products to be free from toxins. This will help in ensuring good health & well-being of the occupants. *(by IGBC)*



6. Garden and Landscape

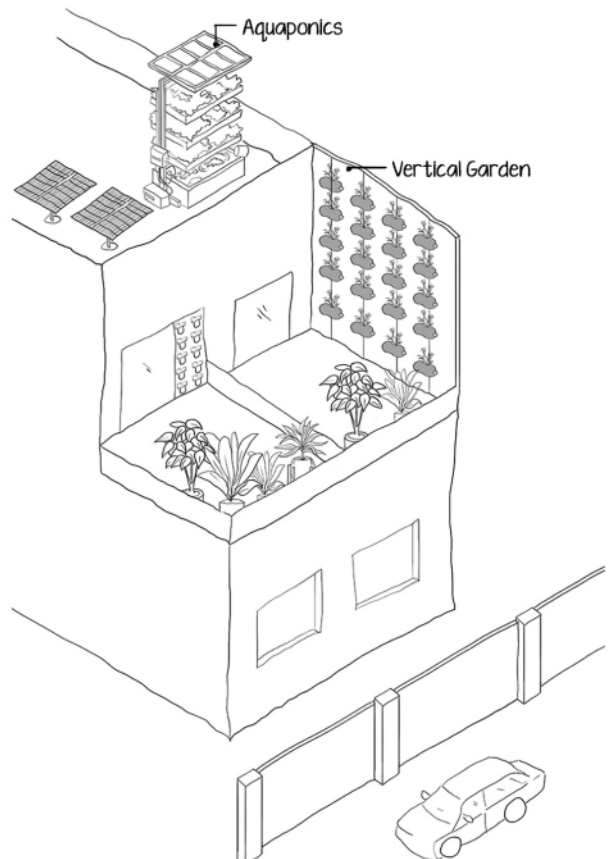
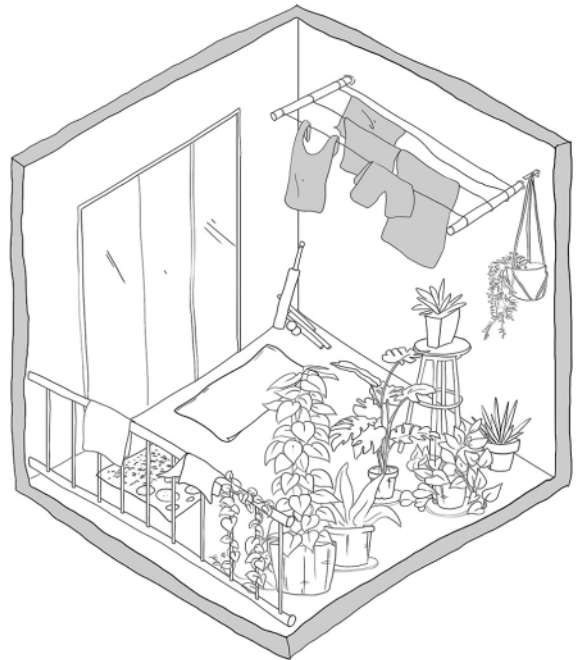
I. Outdoor Garden

1. Retain existing natural vegetation or earmark vegetation to the extent of at least 15% of the site area on the ground.
2. Native plants, drought-tolerant species & adaptive plant species are recommended. This will increase the biodiversity of the project. *(by IGBC)*
3. During construction, preserve the topsoil from excavation and reuse it for landscaping. Add a layer of dried leaf mulch or coco-peat on the top soil during the summer months. It will protect the soil from getting too hot and will also preserve moisture in the soil.
4. Outdoors can be used for relaxing and enjoying other's company or to be with nature. Backyards can double



up as kitchen gardens, spaces to dry clothes, composting pits or can be used to harvest rainwater.

5. Height of the plants must be such that it breaks visibility from roads and public places. Choose plants or trees that are home for birds; add bird feeders and water containers.
6. Often, terraces are under-used in homes. They can be converted to beautiful terrace gardens with solar panels that create energy to power the house. This will help you get fresh vegetables (if you lay out an urban farm) or electricity.
7. If you enjoy gardening/farming and you have the budget and space then try Aquaponics. It is one of the best techniques to cultivate vegetables as well as fish on the roof of your home.

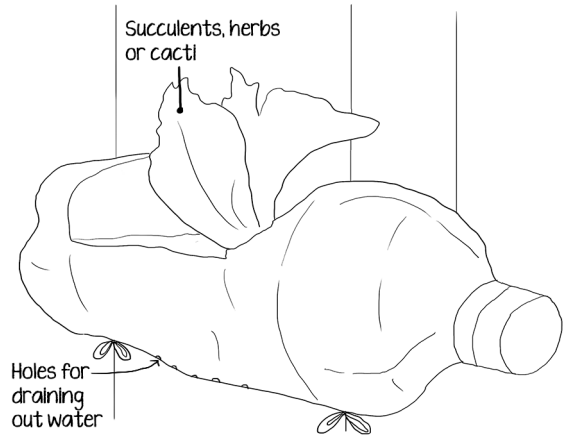


II. Vertical Garden

1. Green walls or vertical gardens are trending. A vertical garden is a simple felt fabric with multiple pockets in which plants have to be planted. This fabric holds water and acts as a buffer/water retainer even if you forget to water the plants for a day or two.

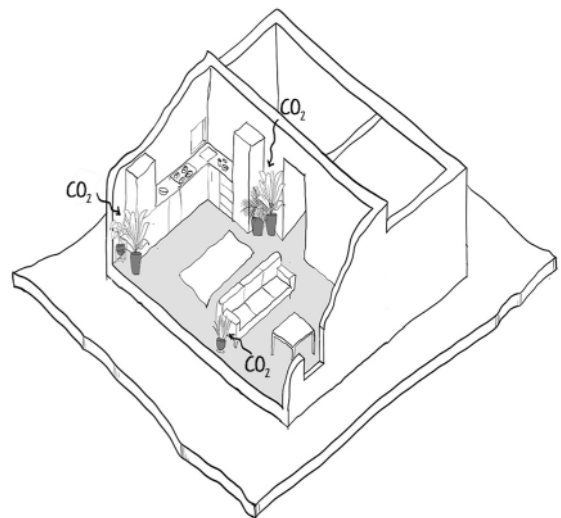
Well-being

2. Many are upcycling discarded plastic bottles. Factors to consider for a DIY plastic bottle vertical garden are as follows
 - A. Access to sunlight- ensure optimum sunlight is available in the chosen space.
 - B. Drainage- It's important to make small holes throughout the bottom (or the side, depending on whether the bottle will lie horizontal or vertical) to allow water to flow out quickly and avoid overwatering.
 - C. Use of sturdy, plastic, transparent or light coloured bottles.
 - D. Viable plant choices- succulents, herbs and cacti are easy to start with.
 - E. The best thing about the bottle garden is that you can hang it up at your window even if you don't have a balcony.

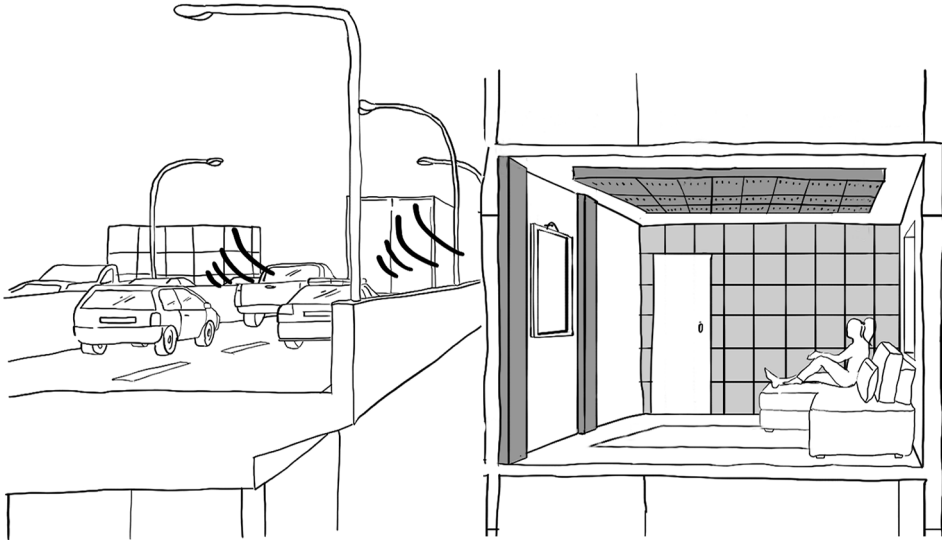


III. Indoor Plants

Greens like the snake plant, aloe vera, money plant, areca palm can be explored in interiors which would help to increase oxygen levels & absorb the CO_2 & other toxins present in the space.



7. Noise Control.



Has a new flyover added noise pollution to your peaceful abode? Noise from a nearby road, railway station, factory etc. can be disturbing. Generally, people insulate ceilings and walls with glass wool or foam. However, nowadays, there are other options you can explore to make your homes, silent havens!!

1. In case of high noise pollution issues, install acoustic tiles or panels, clad ceilings with perforated gypsum boards, install fibreglass on the ceiling.
2. Introduce double glazed windows to greatly cut off noise from the street.
3. Simpler ways to reduce noise pollution include heavy fabric curtains/blinds on windows and carpets on floors to absorb sound.
4. Vegetation can also be a great sound buffer.

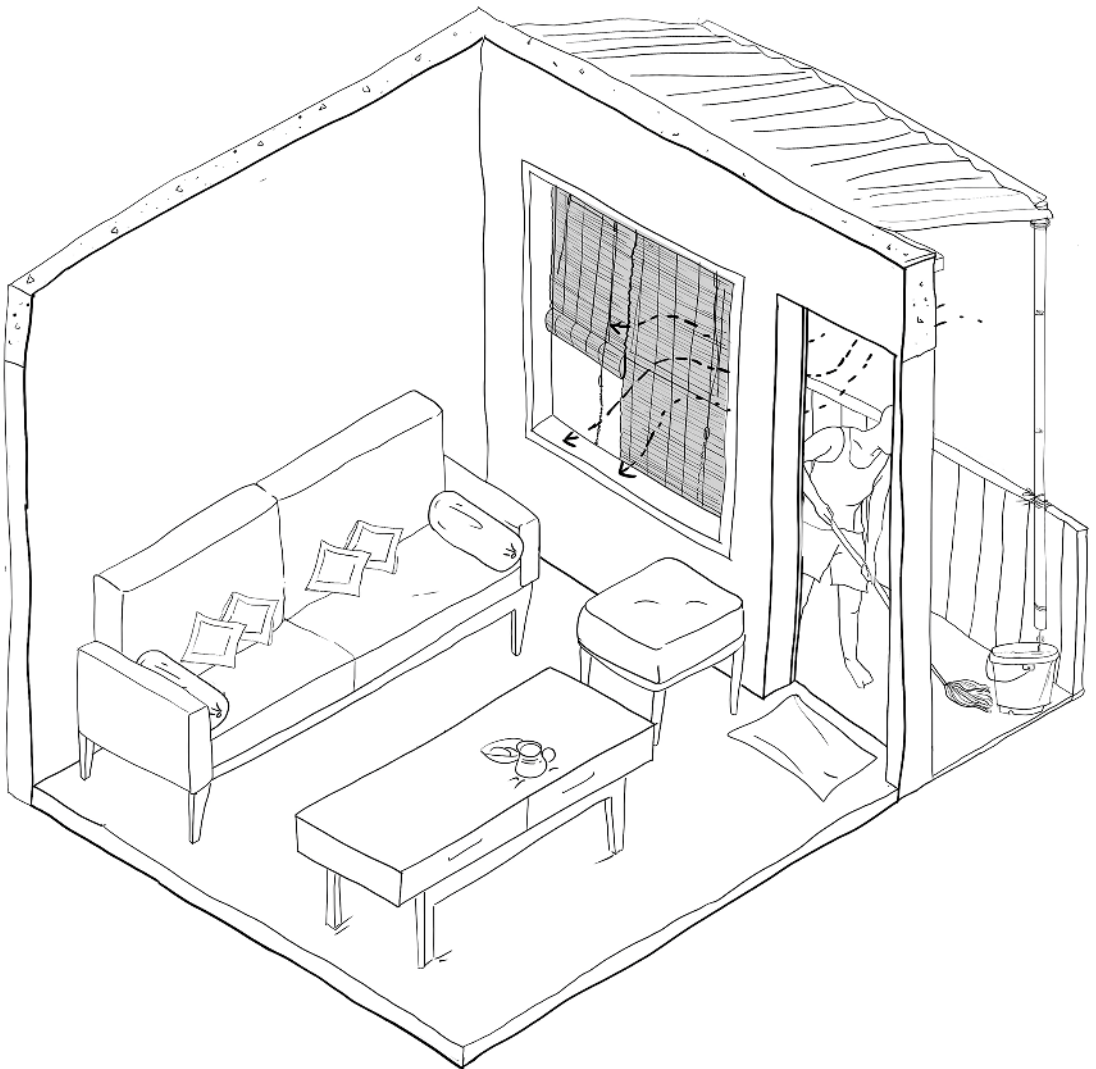
III

Sustainability

'Whether it's beautiful or not, if it doesn't take care of itself and the people in it, it's as bad as a sinking ship.' - Michael Reynoldson on Sustainable Homes.

Make your homes sustainable by choosing renewable energy, recycling wastewater, harvesting rainwater, segregating and composting organic waste, and optimising with passive design strategies based on local context and climate.

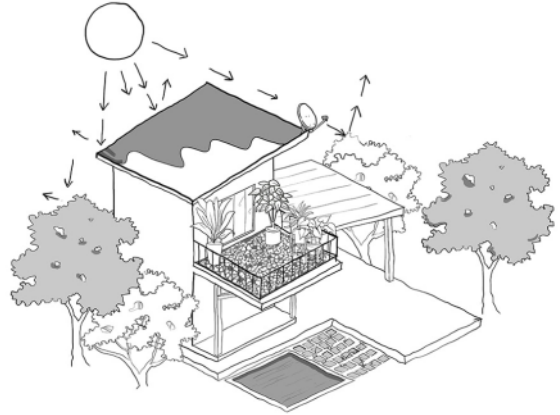
Explore the 5-R principle- Recharge, Recover, Reduce, Reuse, Recycle.



1. Temperature and Light Control

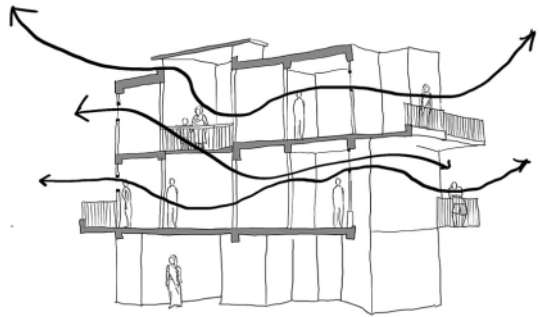
I. Heat Gain

Decrease the heat gain on the roof by using high SRI (Solar Reflective Index) paints, china mosaic or roof vegetation. Heat gain on the ground can be reduced through tree cover, grass pavers, grid pavers, vertical greenery and water bodies. *(by IGBC)*



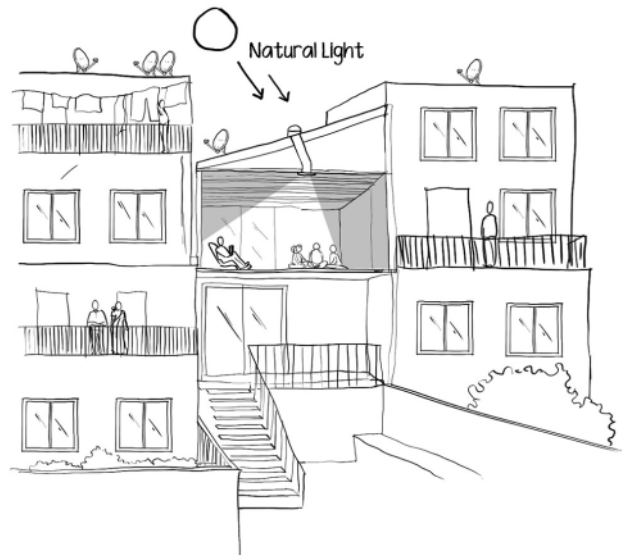
II. Ventilation

Provide at least 8% openable window area with respect to floor area. In residential spaces, explore cross ventilation in living spaces. Spaces designed with fresh air ventilation also enhance the occupant's well-being. *(by IGBC)*



III. Daylighting

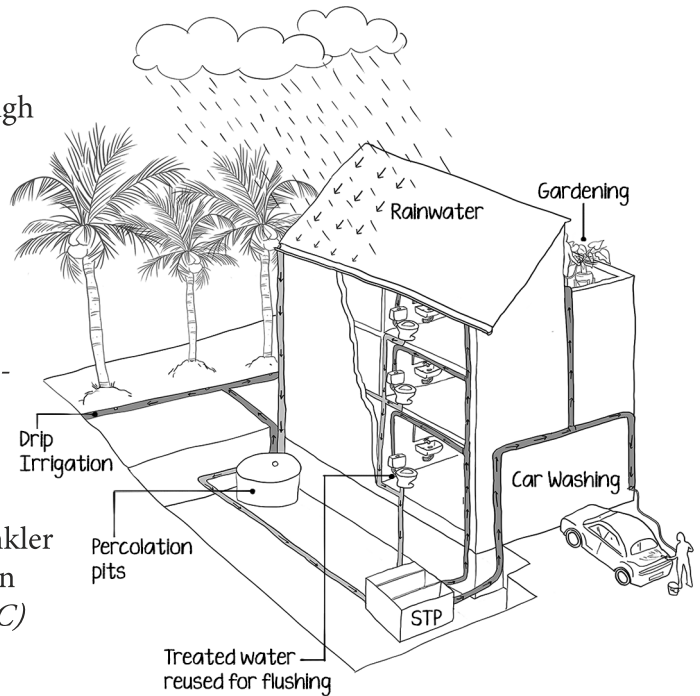
Design spaces to get access to natural lighting levels. Target for at least half the regularly occupied areas to have natural lighting. In areas where there is no access to natural lighting, explore light tubes/sun pipes which will provide natural lighting during daytime and save energy from artificial lighting. Daylight will enhance the health & well-being of occupants and also reduce energy consumption during the daytime. Spaces designed with natural daylight also enhance the occupant's well-being. *(by IGBC)*



Do check out the Liter of Light Project. It has a unique cost effective way of bringing daylight indoors in dense urban settings.

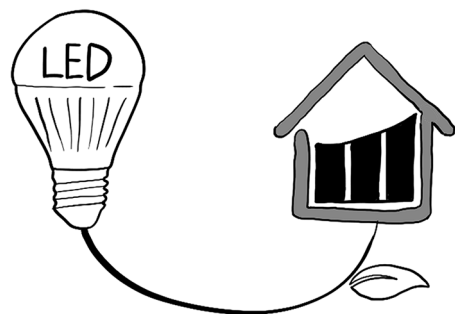
2. Water Conservation

- I. Capture runoff from roof & other surfaces and harvest rainwater through percolation pits.
- II. Use low flow plumbing fixtures like aerator fitted taps.
- III. Collect grey water and treat in-situ through mechanical STP or Phytoremediation and reuse for non-potable applications like landscape watering, flushing & water cooling chillers.
- IV. Efficient irrigation systems like sprinkler and drip irrigation can be explored in landscaping and gardening. *(by IGBC)*



3. Energy Efficiency

Passive features in design like orientation, efficient envelope- wall and roof, optimum Window-to-Wall ratio, efficient windows (glass with low U-value, low SHGC - Solar Heat Gain Coefficient, high VLT - Visual Light Transmittance), jali, horizontal & vertical shading devices, central courtyard, skylight, daylighting can be considered. Active features like efficient air-conditioning systems, efficient lighting LED systems, BEE 3 Star & above-rated appliances can also be used. *(by IGBC)*



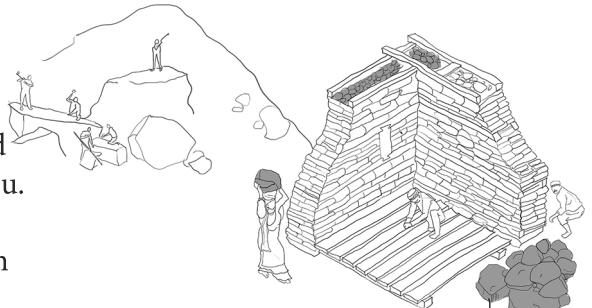
4. Building Construction and Materials

I. You can reduce construction waste by following a modular approach to design and construction, wherever possible.

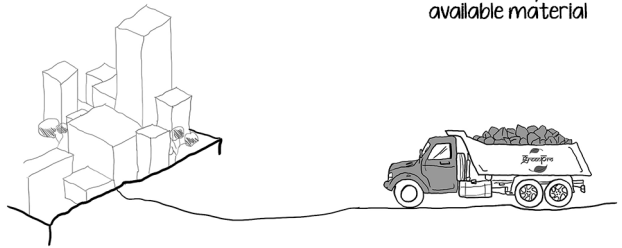
II. Reuse construction waste within the same site and send only the leftover construction waste to a construction and demolition waste recycling plant near you. This would help in diverting the waste from landfills and reduce dependency on virgin resources. *(by IGBC)*

1. Source locally manufactured materials to reduce transportation costs.
2. Use recycled materials to reduce dependency on virgin resources. Reusing old materials will have lesser impact on the environment due to their low embodied energy. Source GreenPro eco-labelled certified construction materials & products or purchase GreenPro eco-labelled materials. *(by IGBC)*

Rural Context



Urban Context



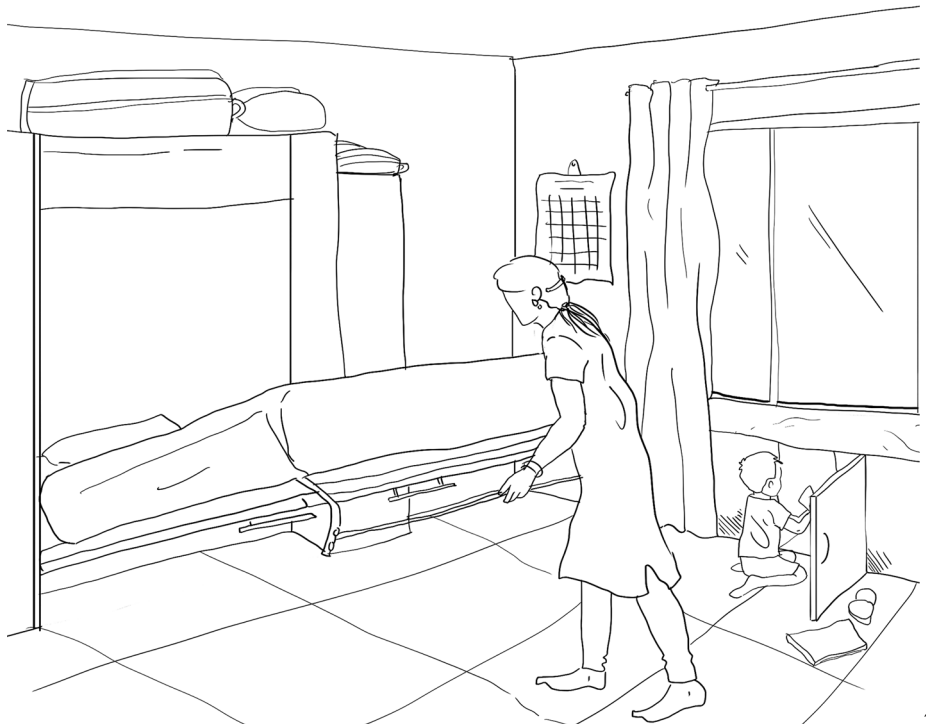
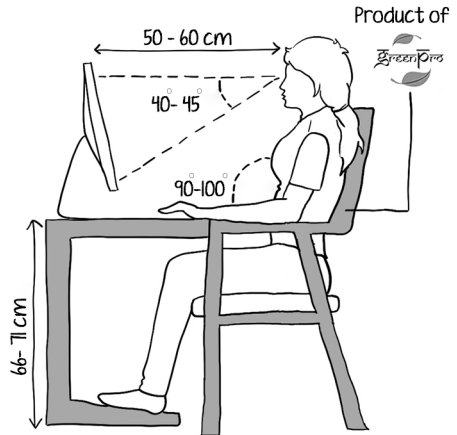
III. Sustainability in Materials

In the tropical context of India it is important to understand thermal conductivity of materials. The lower the thermal conductivity of a material, the more effective it is as an insulator (i.e. it keeps the inside cold when it's hot outside and vice versa).

Building Material	Thermal conductivity (W/(m ² K))
Brickwall	0.4 - 0.7
Cavity wall with no insulation	1.5
Insulated wall	0.18
Single glazed window	4.8 to 5.8
Double glazed window	1.2 to 3.7
Wooden door	0.17

5. Furniture

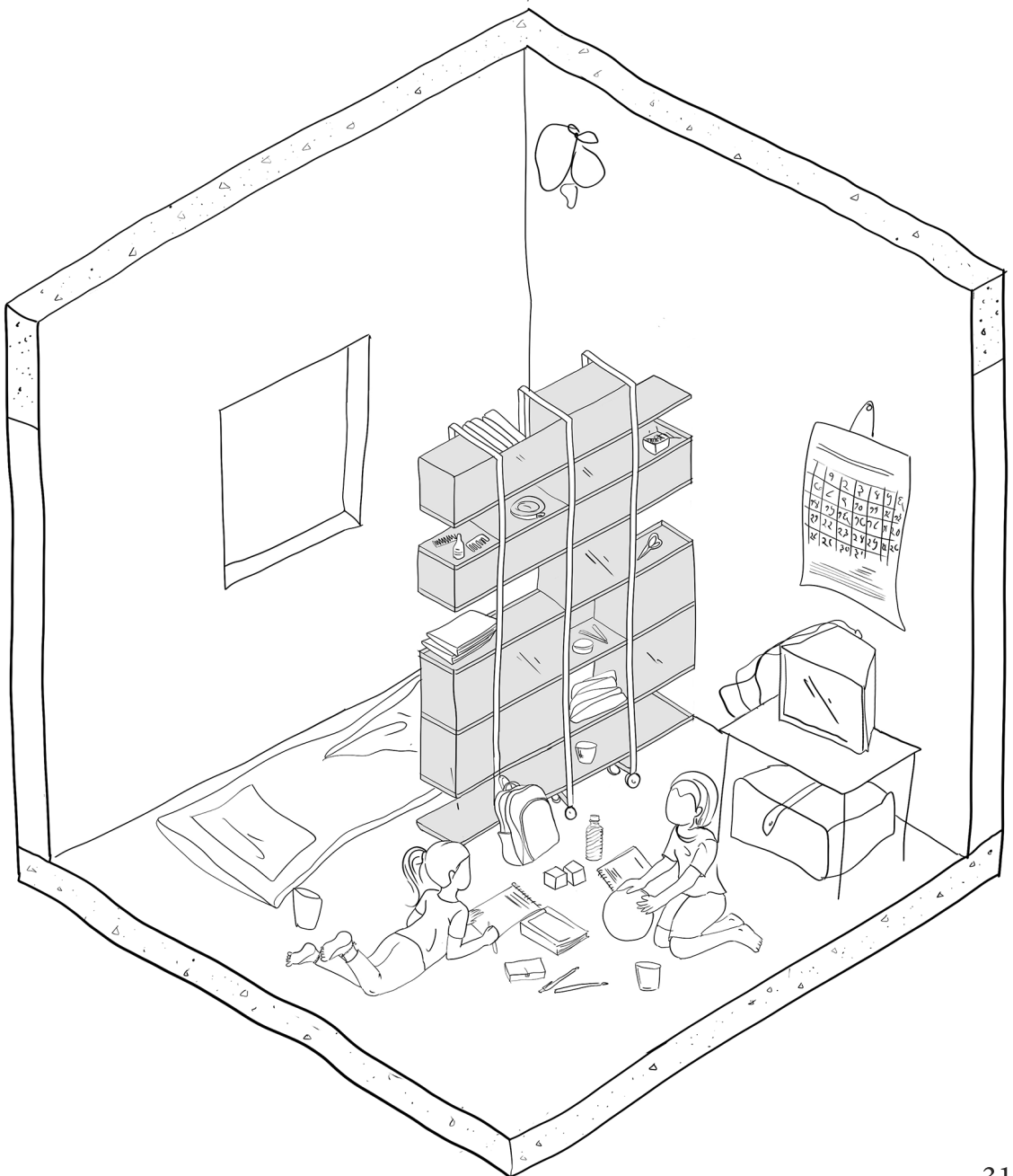
- I. Wherever possible, use rapidly renewable materials which have a harvesting cycle of less than 10 years—recycled wood, engineered wood, etc. for wood applications.
- II. Furniture systems and chairs certified by GreenPro can be explored. Explore ergonomically designed chairs. This will help in maintaining the health and well-being of inhabitants. *(by IGBC)*
- III. Convertible furniture is a great way to optimally use spaces. While occupying less space, they often allow a single room to be used in multiple ways. More on flexible furniture in the next chapter.



IV

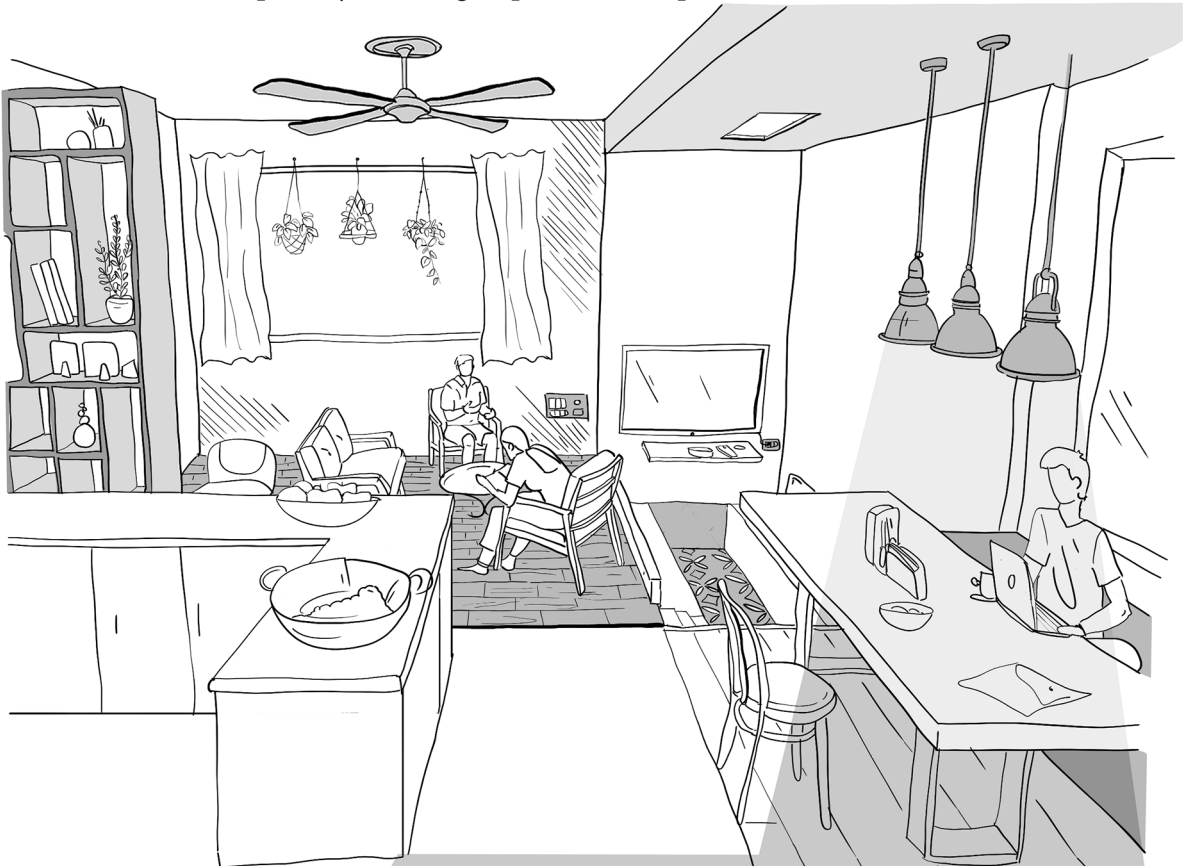
Flexibility & Accessibility

This section focuses on optimisation of space. Don't only plan for the present, plan for 10 years into the future. Consider factors like incrementality for young families, scaling down for old couples, coping up with ageing users, accident-proofing the house for babies and universal accessibility.



1. Open Plan

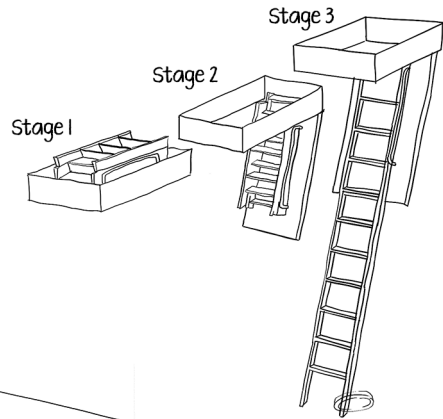
'Open plan living' has brought significant focus to dual-use or multifunctional spaces. Here are some unique ways to design open flexible spaces.



- I. Segregate areas with creative flooring designs. Intricately designed tile inserts can create an inviting, rug-like appearance
- II. Sink floors or raise platforms! Wood or marble finished platforms help with instant visual zoning.
- III. Ceilings can help with zoning as well! Layer the ceiling in different levels at different areas, and treat it with contrasting finishes.
- IV. Use furniture to segregate different areas. Effective placement of sofa and chairs will demarcate the dining area. In an open kitchen, an island may separate the living area from the dining. A bookshelf or storage can be used as a partition too.
- V. Lighting can also act as an invisible wall. Create multiple lighting circuits, therefore lighting each zone individually. Pendant lights over the table, will bring that zone in focus and while the other parts of the room drift away.

2. Flexible Furniture

I. Use ladders that can be hung up when not needed and brought down when required instead of a fully functional staircase. The use of lighter material can aid in reducing the weight of the ladders thus making it easier to lift or move.



II. Tables can be folded into the wall, tables can be dismantled or nested, chairs can be stacked, a sofa can become a bed, etc. These are some examples of flexible furniture that can help you save space. Window seats can create storage space below.



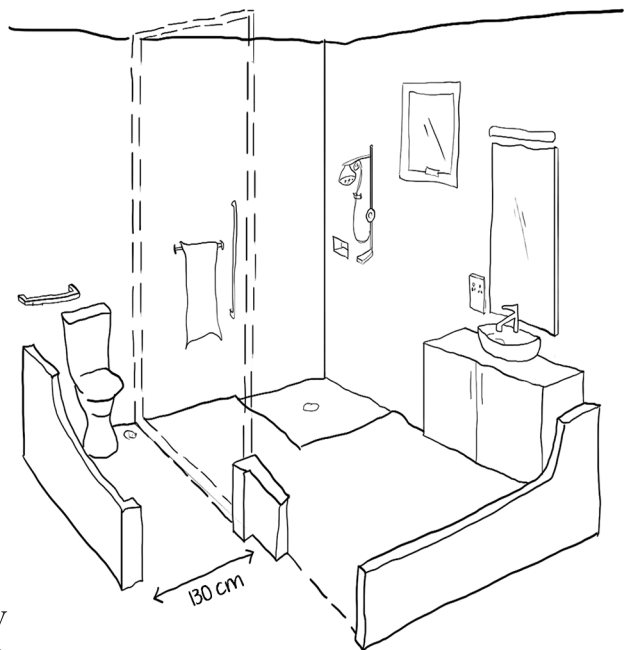
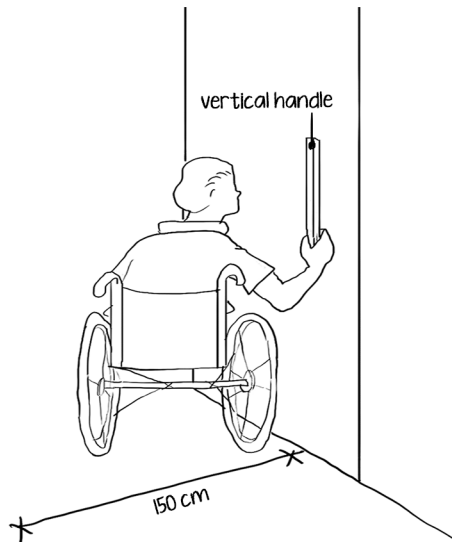
III. Staircases can be designed creatively, such that space under it can be used as a study or storage. The riser and tread can give a grid that you can align to while designing.



3. Alterations for Wheelchair Accessibility

Here are some ways to make your home more wheelchair friendly.

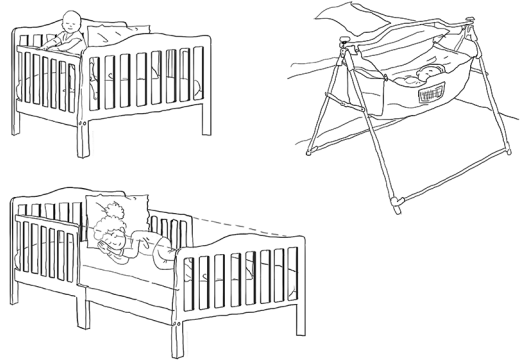
- I. Overcome differences in level between the road and the house/apartment by installing a kerb ramp at the gate.
- II. Look for buildings with wide elevators/lifts when buying a new home.
- III. Manoeuvring in tight spaces with a wheelchair is difficult, try to have at least 150cm wide corridor spaces so that the wheelchair can take a full U-turn.
- IV. Door width should be more than 90cm and one should avoid high thresholds.
- V. Reduce the height of controls, shelves and other objects to a level comfortable to the user to increase accessibility.
- VI. Design a bathroom such that the wheelchair user can access it independently.
- VII. Replace furniture to make better passages for wheelchair movement. Place vertical handles on doors instead of horizontal ones so that they can be accessed at any level by anyone in the house.



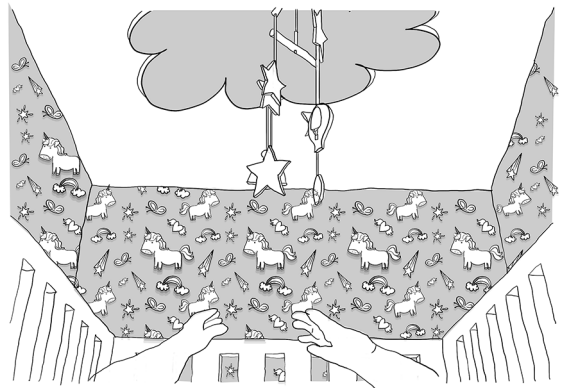
4. Accident-proofing Homes for Babies

Welcoming a new little member to your family? Bring your baby home into an adorable, functional and flexible nursery.

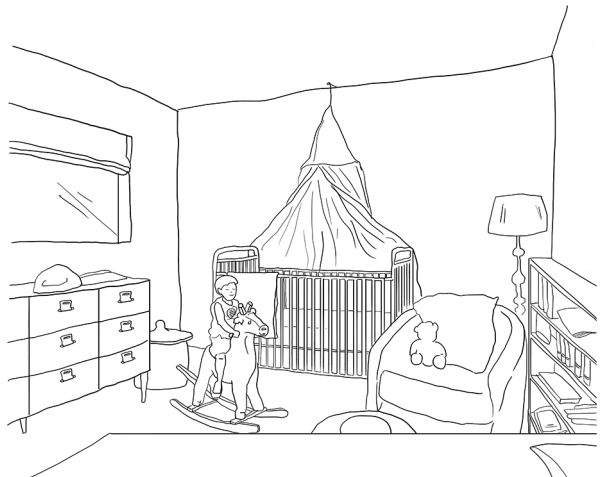
- I. Consider using a crib that converts into the baby's first bed when the baby outgrows it. Most Indian parents prefer to have the baby sleep on the bed with them. Indian innovations like folding cribs with cloth jhula (ghodiyu) can save a lot of space and money.



- II. Experiment with bold, contrasting colours and graphic patterns to stimulate the baby's vision. Try a mural wall, upholstery and other textiles, and of course, don't forget where the baby stares the most – the ceiling.



- III. Select furniture pieces that can evolve from nursery to a toddler's space. Add fun elements to a space like a tent or animal rocking horse that the baby can use as s/he grows into a toddler. You can also create a reading nook which can be used when the baby reaches that milestone of reading.

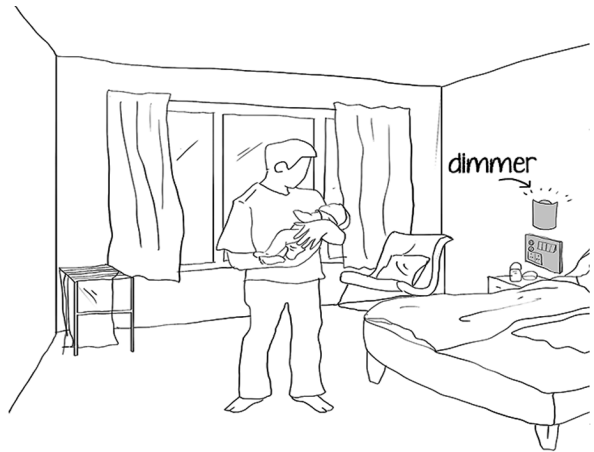


Flexibility & Accessibility

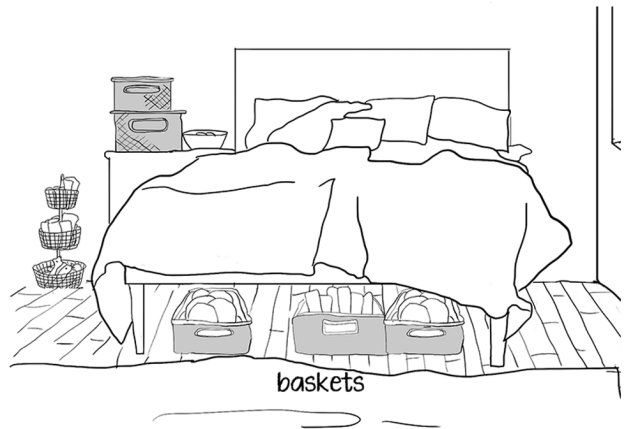
IV. Add a dimmer to the lighting, it's just like a fan regulator. It will help you with the late-night baby sessions.

V. Select durable, washable/water-resistant fabrics and rugs that can be easily cleaned.

VI. Think about furniture placement and accident-proofing as the baby gets active.



VII. Focus on creating an uncluttered space with plenty of storage options that make cleaning up easy. Buy baskets that can be stacked easily in a corner or under the bed.



VIII. Allow for plenty of floor space so that the baby can have floor playtime.

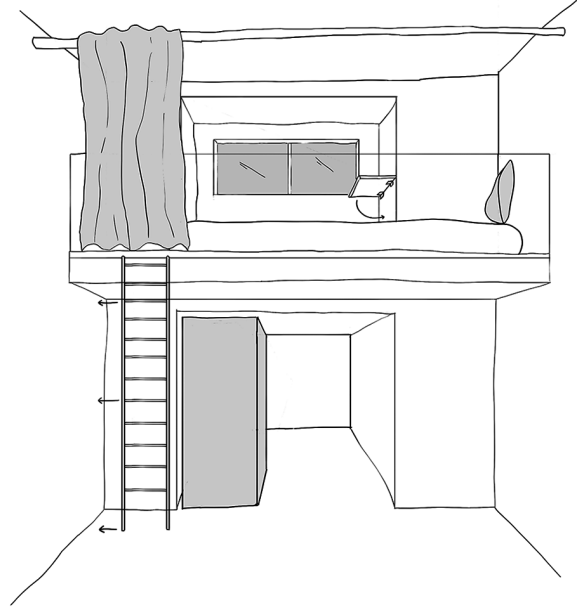
IX. Try to avoid furniture with sharp edges. This is useful for everyone and not just toddlers.

X. Adding blackboards mounted at low heights can serve as a child scribble wall while saving you from the effort of repainting the walls after your child outgrows this phase.

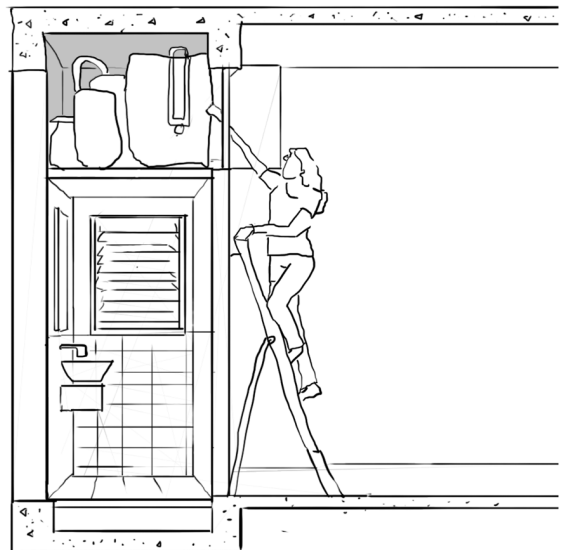


5. Lofts for Mezzanines

- I. Make use of additional room height to introduce a loft area for storage or an actual usable mezzanine. One can use a minimal staircase or foldable ladder type fitting to access this space.



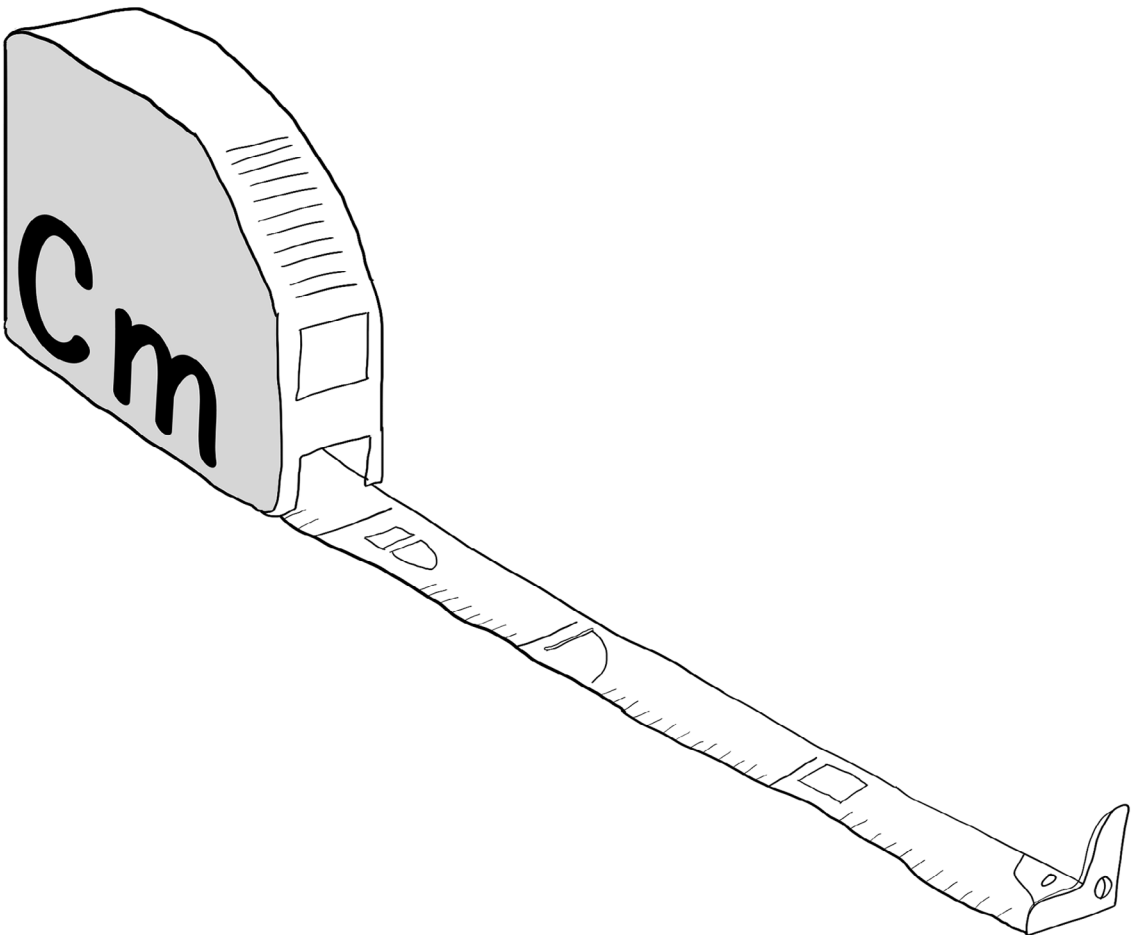
- II. Storerooms and bathrooms often do not require the same height as the other living spaces. creating a second lowered slab in such spaces allows for the entire footprint of the bathroom to be used as a loft accessible from adjacent rooms.



V

Rooms & Sizes

A desk set-up that contributes to poor posture will cause body strain and stress. The right dimensions and design depend on ergonomics and the study of anthropometry (human body sizes) to give designers specific standards for any particular space. In this section, we share them with you.

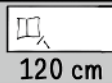
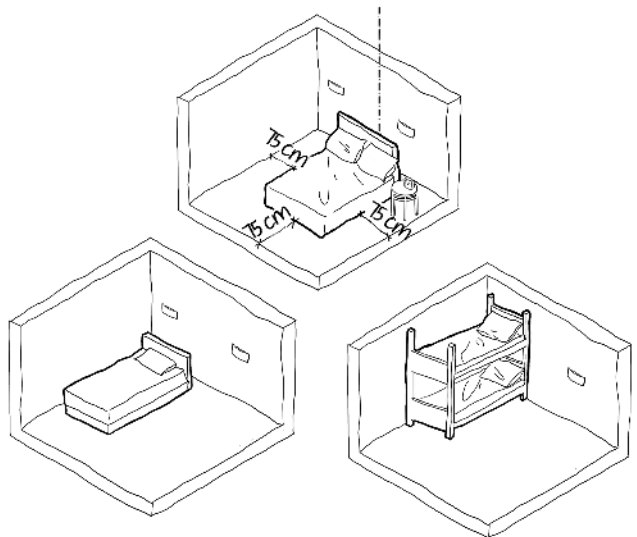
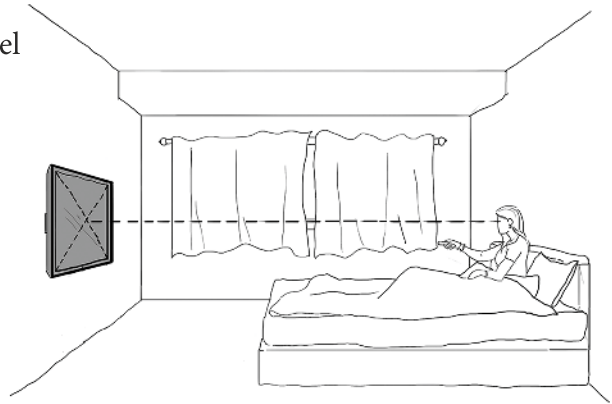


1. Bedroom

An ergonomic bedroom can be achieved by fulfilling the requirements of the user/s and designing a clutter-free layout.

I. Bed and TV Unit

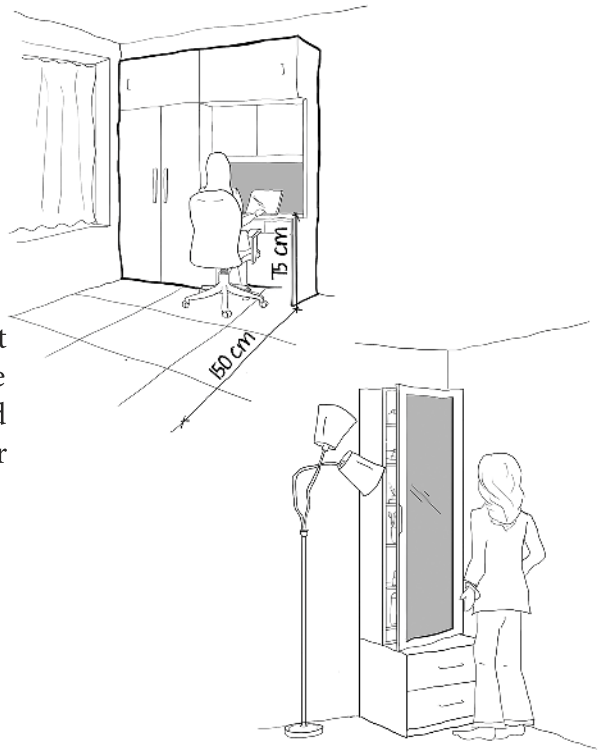
1. The average height of the bed (at the top of the mattress) should be 40 to 65cm, depending on the comfort level of the user.
2. In order to place a television correctly, follow this general rule- the ideal centre of the screen should be at the eye level of the viewer. A wall-mounted TV can be positioned to ensure good posture while viewing the TV from the bed. Use the following formula to calculate the distance and decide the sizes of the TV or vice versa. Recommended minimum distance for viewing 4K TV is 1.5 times of the TV vertical screen size, for High Definition TV is 3 times of the TV vertical screen size, for Standard Definition TV is 6 times of the TV vertical screen size as mentioned by Sony Electronics.
3. The double bed should have a clearance of at least 60-75cm on both sides and in front of the bed for movement and circulation.



- Single beds can also be aligned along the wall. Bunk beds can also be along the wall.

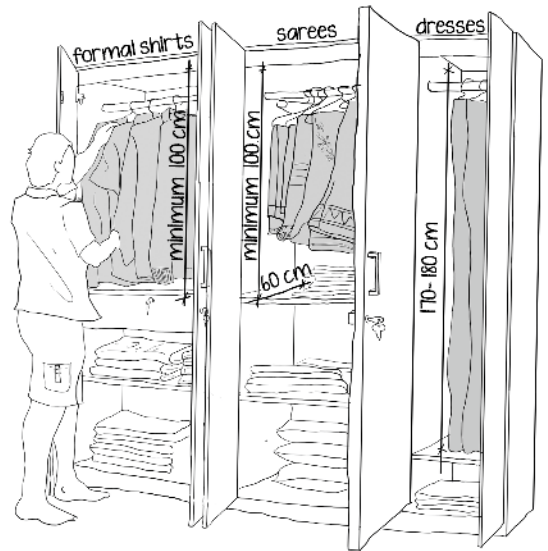
II. Tables- Study and Dressing

- Save space by combining the wardrobe and study area into a single unit. There should be a clearance of at least 150cm in front of the study table so that a person can sit and work, and still have enough circulation space for another person to walk from behind.
- The study table should be 75cm high to ensure a comfortable position when seated.



III. Wardrobe

- The clear depth of the wardrobe should be at least 60cm.
- The position of the shelves and hangers should be such that one does not have to reach for or bend too much for frequently-used items.
- For hanging sarees or formal shirts, the vertical clearance of the shelf should be 110cm from the rod, while the vertical clearance for hanging long clothes like gowns or dresses should be 170 to 180cm.

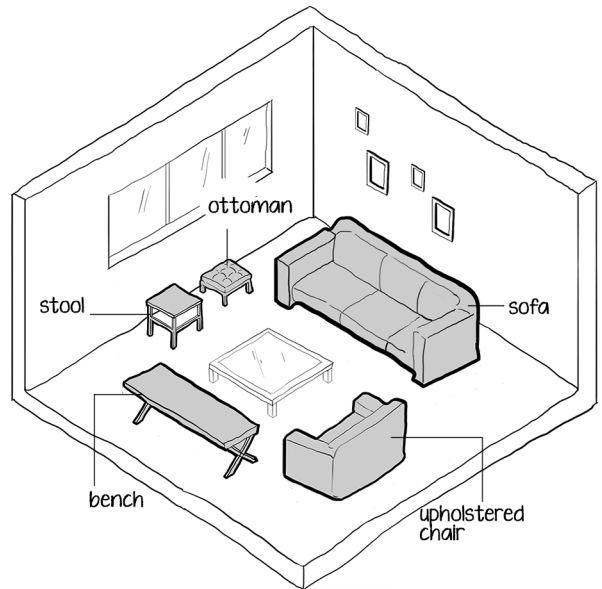


2. Living Room

The first thing to keep in mind is that you want the proportions of the furniture to match the proportions of the room. A good rule of thumb is to invest more on furniture that you use often, and save money on things you use less often.

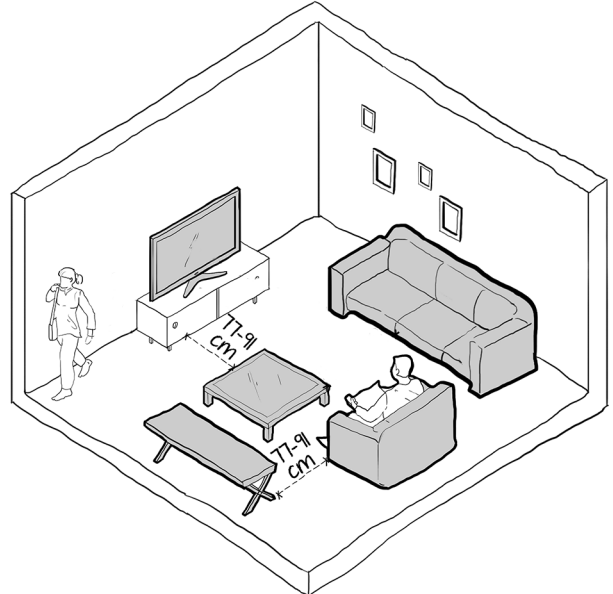
I. Seating

1. Sofas come in various sizes- single, double, triple, L-shaped and more. Pick the one that suits your room.
2. For upholstered chairs allow about 90 to 102cm of width and 102 to 112cm of depth.
3. Stools can be 40 to 50cm high; benches around 35 to 45cm deep and 91 to 152cm long. Low-height stools like ottomans can serve the double purpose of footrest and seating.



II. Circulation

1. You want the room to flow around the furniture for circulation and also have clear paths to the seating areas and exit points. Circulation paths need 77 to 91cm of clear width. You can place coffee/center tables less than 50 to 60cm from the chairs and sofas so that you can easily reach items you set down and at the same time there is enough space between furniture for people to easily move about.



180 cm



80 cm



40 cm



180 cm

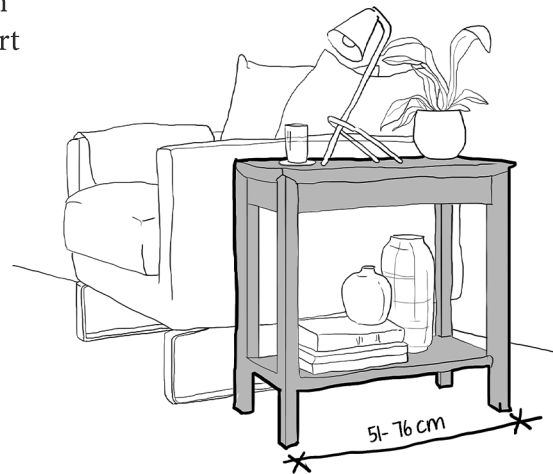
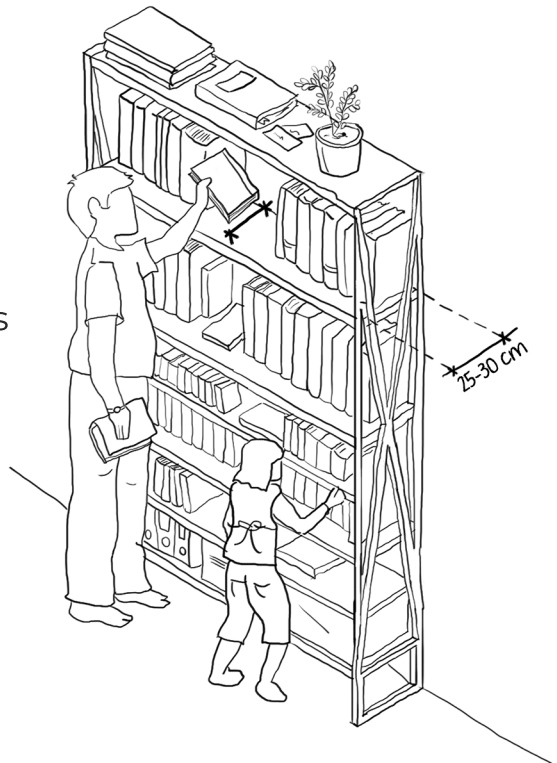


120 cm

2. For example, if your TV Size is 42 to 50 inches, you will want to keep your seating within 305cm of it. Also, carefully consider the height. Having the screen set 90-110cm above the floor works in most cases.
3. Place furniture so that people can easily hear one another when seated.

III. Shelves, Lamps and End Tables

1. Most books have an average depth of 25 to 30cm. Consider this while designing a bookshelf. Create compartments based on the categories of books you have. Place the children's books on lower shelves.
2. When it comes to end tables, consider a mix of scales and finishes. Square and rectangular tables commonly range from 51 to 76cm in either direction. If they are to support table lamps, be certain that they are large enough for the scale of the lamp that you choose. Also ensure that they allow other items to be set around them (for example, coasters for drinking glasses).

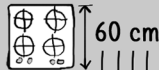
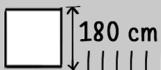
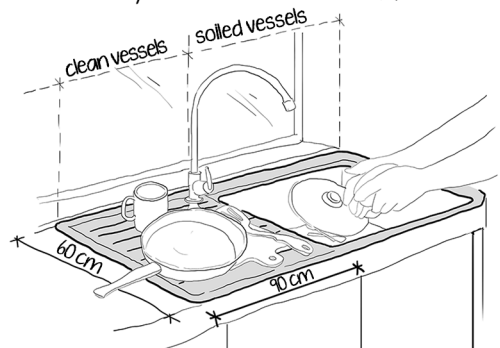
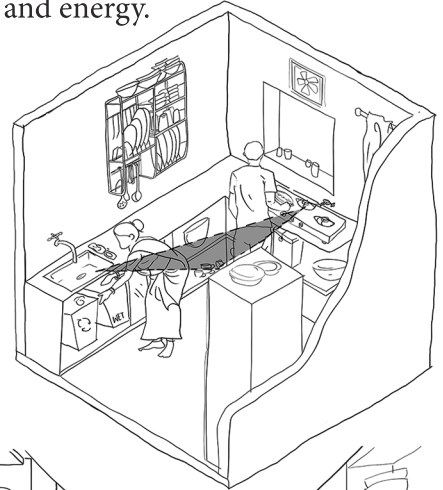


3. Kitchens

Conventional or modular, kitchens have to be efficient and ergonomic, so you can get the most work done in maximum comfort, and optimise time and energy.

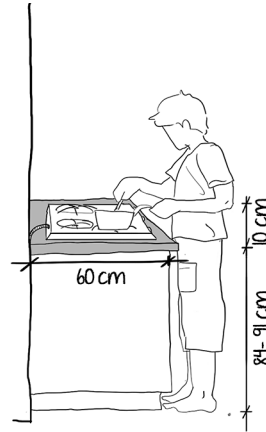
I. Workstations and Planning

1. Place the hob (gas stove), sink and fridge in a triangular arrangement to ensure efficiency in kitchen use.
2. As far as possible, place the hob closer to the window so that fumes can be vented out.
3. Water and plumbing should be accessible for repairs and maintenance.
4. Ensure good exhaust and ventilation.
5. Avoid sinks in corners/inaccessible spaces.
6. When planning the kitchen layout, ensure that the circulation-cum-working space between two countertops is at least 120cm wide. Any less, and it will be too narrow, making it difficult for two people to work together.
7. Sinks in most cases come with a drainboard. If not, it would be important to leave a counter space on either side for drying utensils.

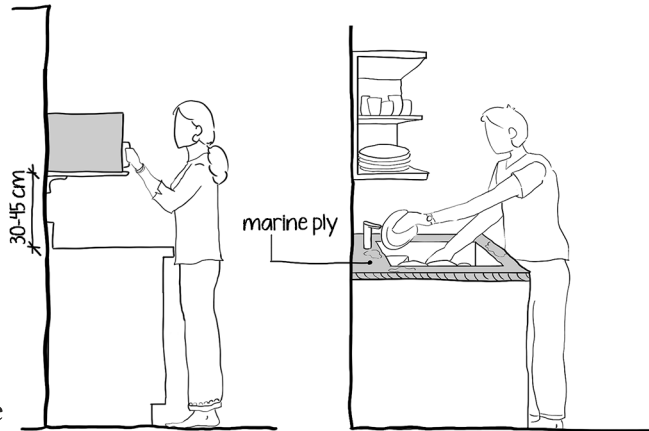


II. Countertops and Appliances

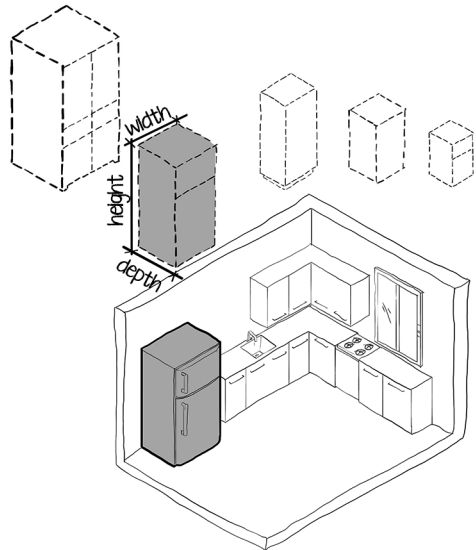
1. The height of the gas stove should be such that a person does not strain their back while standing and working. The standard height of the kitchen countertop for Indian kitchens is around 84cm and the maximum is 91cm, this takes both male and female average heights into consideration. By rule of thumb, there should be a gap of 4 inches between the top of the counter and your elbow in standing position. Use the elbow rule to customise your kitchen according to the height of the person/s working in the kitchen.



2. The standard depth of a kitchen countertop and the lower cabinets and drawer units should be 60cm. Do note that the depth of the countertop may vary, depending on the size of the kitchen appliances such as the gas stove or cooking range that has to be installed.

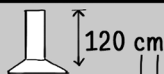


3. For efficient working, the base of the microwave should be 30 to 45cm higher than the countertop. You can adjust this dimension as per your height and convenience.



4. Use smooth & easy to clean surfaces. Use marine ply instead of regular ply for shutters that come in frequent contact with water.

5. Refrigerators are available in multiple models and sizes. It is practical to



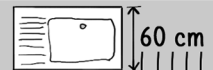
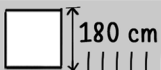
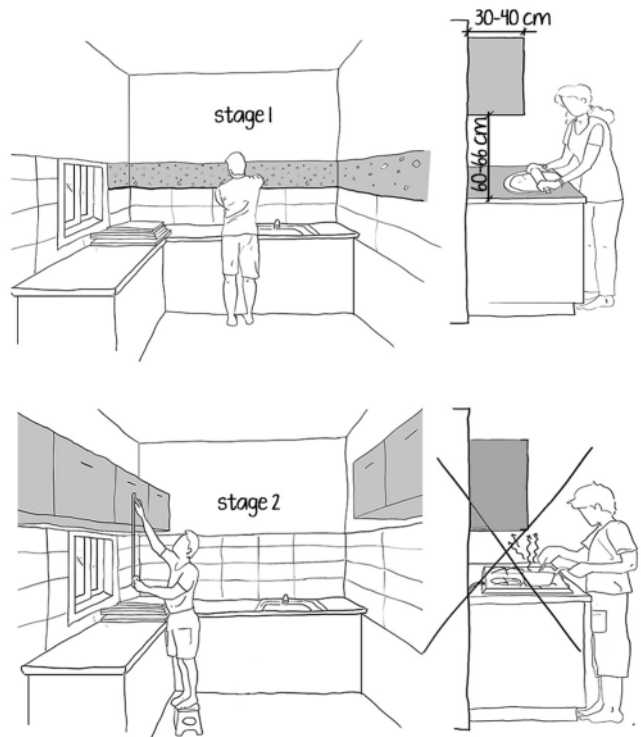
finalise the refrigerator model first, make a note of the width, depth and height of the refrigerator and plan around it, if you are planning to buy a new one during your renovation.

- Make the kitchen platform (supports and top) in the following types of stones (arranged in ascending order of price) - kadappa, white marble, grey granite, black granite. Avoid using softer stones like sandstones, natural & composite marbles, acrylic polymer-based materials for kitchen tops as they will easily catch irreversible stains. Dark granites, quartz are more suitable for platform tops. Red oxide/black oxide countertops are cost-effective and add charm to the kitchen.

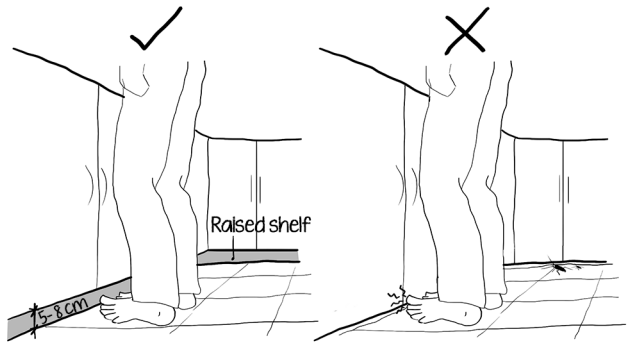


III. Shelves and Cabinets

- The minimum clearance between the kitchen countertop and the upper cabinets ranges between 60 to 66cm.
- Tip: It is advisable to complete the tiling of the kitchen backsplash first and then adjust the height of the overhead cabinets, so as to ensure minimum cutting and wastage of tiles. A good way to balance point 1 and 2 would be to buy tiles which can be put together easily in a 60 to 66cm gap.
- The depth of overhead cabinets should range between 30 to 40cm. These cabinets are given less depth so as to prevent the user from banging their head while working.



4. Avoid making storage over the hob as the heat/steam from the food can ruin the cabinets above it.
5. Raise the shelf 5 to 8cm from the floor level below the kitchen platform. This will prevent insects from entering inside the kitchen storage and also give the user enough skirting for using the storage unit shutters and drawers while not hurting one's toes.



IV. Storage and its Position

Frequency	Accessibility	Type of Activity		
		Stove (3"-5")	Sink Drainboard (3")	Electrical appliance and platform
High	Above platform	Salts & spices	Matka	Cabinets with other storage
		Spoons, forks & ladles	Water purifier	
	On platform	Gas stove	Scrub and cleaners	Chopping/ preparation
Medium	Below platform drawers	Bowls		
	Below platform shelves	Plates	Wet and dry dustbins	Grain and oil storage
Low		Shelves		



120 cm



40 cm



31 cm

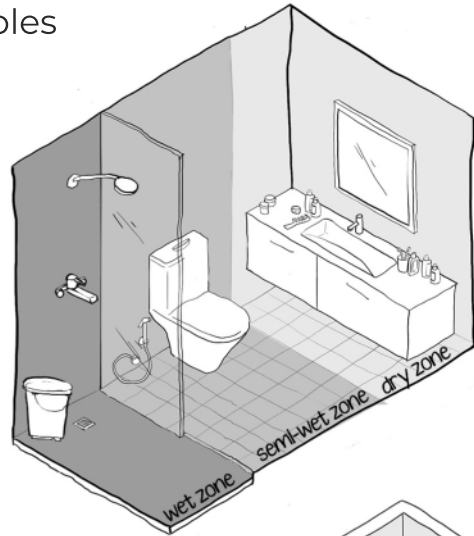


60 cm

4. Bathroom

I. General Bathroom Design Principles

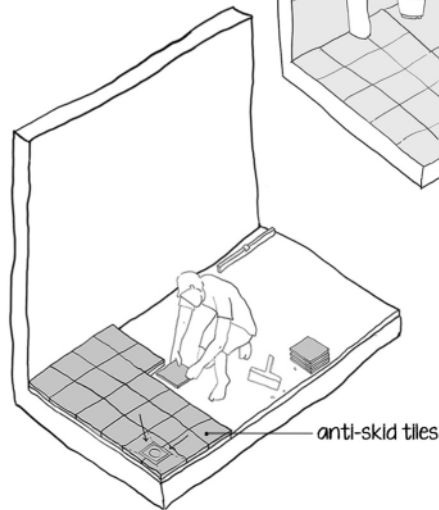
1. Separate wet (shower), semi-wet (WC) and dry zone (Handwash) by creating floor levels, thereby making maintenance easy and the bathroom safe (non-slippery). This will also allow for the possibility of installing a cubicle at a later date.



2. A complete washroom should ideally be 120cm wide & 270cm long with each activity (basin, WC & Shower) given 90cm width each. A bathroom to cater to the physically challenged should be at least 150 x 270cm or 200 x 200cm.



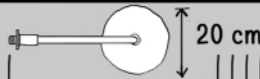
3. In a small bathroom, large tiles can give the illusion of a bigger space.



4. Choose anti-skid/anti-slip tiles for the entire bathroom flooring, especially the wet area for safer use of bathroom spaces.



45 cm

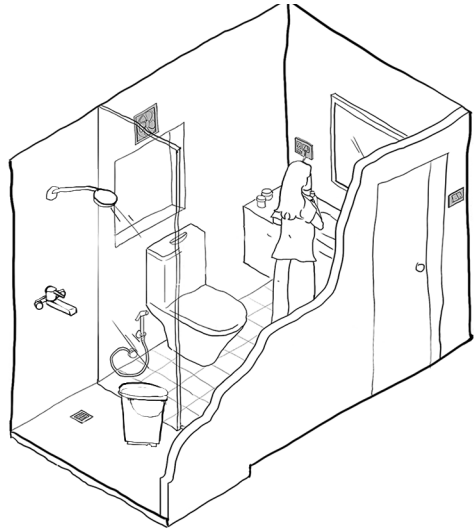


20 cm



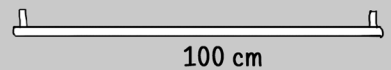
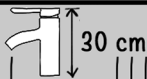
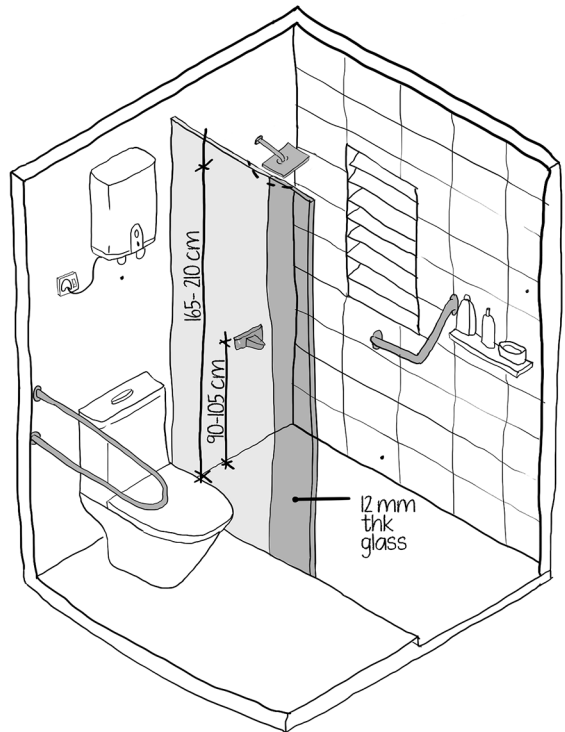
30 cm

- When you're designing switchboards for this zone make sure to provide one main source of light on the outside wall and one near the wash basin-vanity area for mirror light, exhaust fan. Give an electrical point for hair dryers and electric shavers and other such appliances for which one needs the mirror.



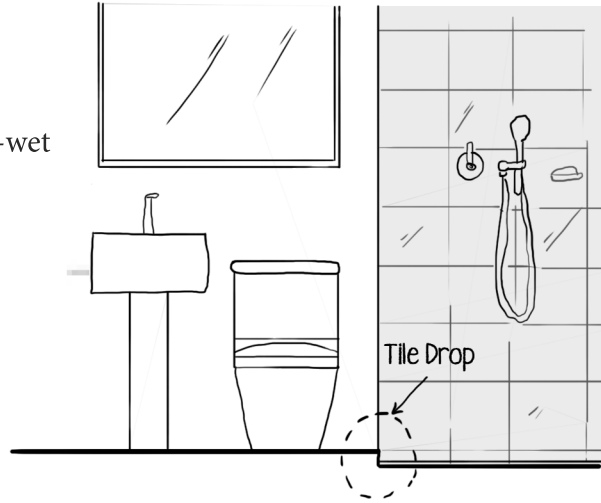
II. Wet Area

- Ensure that the bathroom flooring is laid at a correct slope to allow effective drainage in the wet area. Slope of minimum 1:50 towards the drain in a zone of at least 80cm from the drain, if the shower is directly above the drain, is adequate.
- Minimum size for a comfortable single-user shower can be 90cm wide and 120cm deep. If a glass partition is used for shower cubicles, ensure that it is at least 12mm thick and toughened. If glass is not toughened, ensure that a transparent safety film is installed over it to ensure protection under breakage.
- Provide grab bars near WC and Shower areas for elderly.
- As far as possible try to have natural ventilation closer to the wet area to ensure the space remains dry and free of any stale odor. If it is not possible to have a vent, then use mechanical ventilation like an exhaust fan.

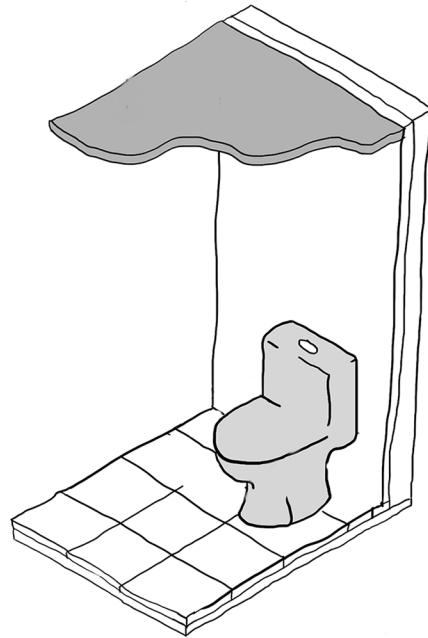


III. Semi-wet Area

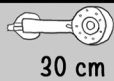
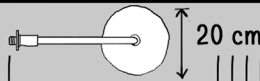
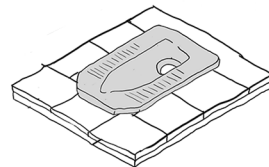
1. A tile drop in the wet area should separate the wet area from the semi-wet area.



2. Single-user water closet with Indian/ western WC is generally 90cm wide and 120 to 130cm deep. Height of the seat cover from the floor may be 40 to 45cm maximum taking into consideration average Indian height.

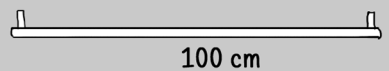
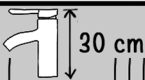
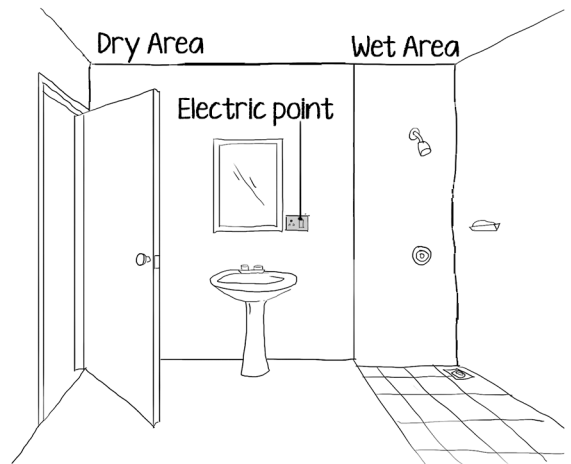
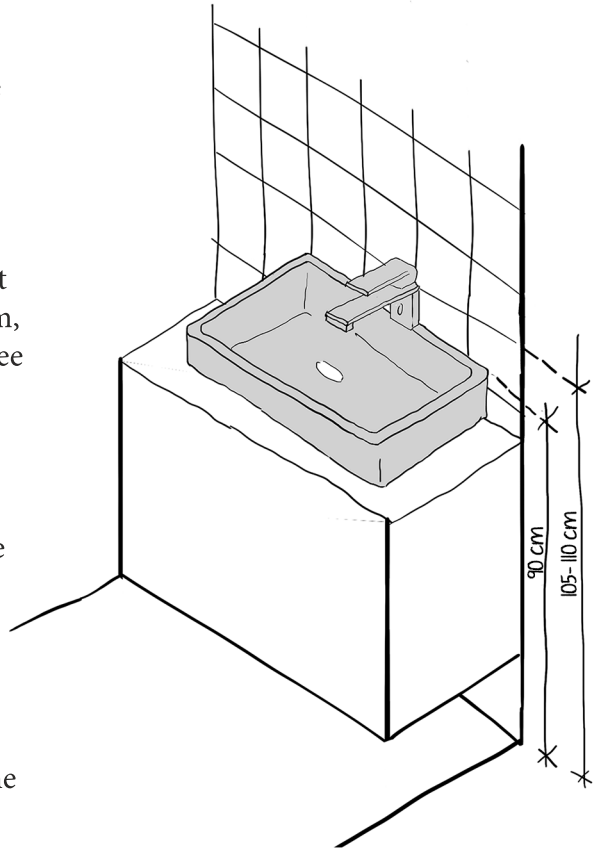


3. Avoid use of Gypsum on walls and ceilings as it is a hygroscopic material and will deteriorate in a short period. Use alternatives like fibre cement boards which have more water & humidity resistance.



IV. Dry Area

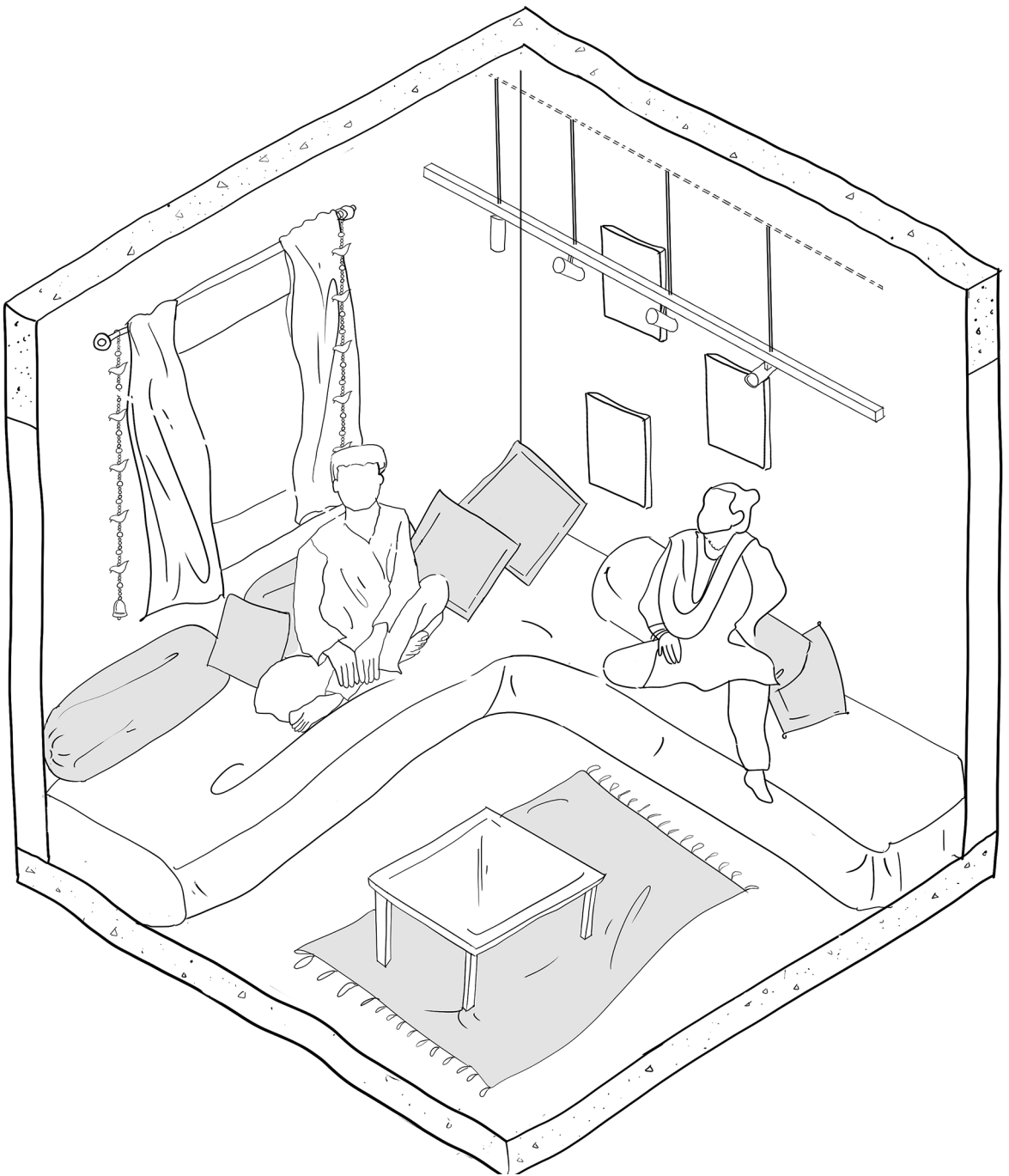
1. Basin-tops should be at 90cm and the spout level will change accordingly.
2. When choosing a mirror, make sure it enhances the design of your bathroom, and position it so that everyone can see their reflection properly.
3. Add lights over the mirror to improve the quality of reflection.
4. If there is a window or vent, orient your wash basin and mirror to face the natural light and not against it.
5. While picking or designing wash basin cabinets, ensure the material used is water-resistant ply and not chipboard.
6. Add electric points for the hair dryer, shaving machine, etc. near the dry area.
7. Door to the bathroom should open in the dry or semi-wet area.



VI

Furniture & Accessories

Belongings and furniture personalise a home. However, users often fail to organize their homes effectively, resulting in clutter. This section deals with furniture choices, layout and accessories.



1. Affordability and Lifespan

There are 3 factors to consider before making furniture in different types of plywoods and boards - budget, carpentry, execution time and longevity/life of the material. The life of the furniture also depends on the type of finish applied over it. A properly seasoned and polished piece of furniture will last longer.

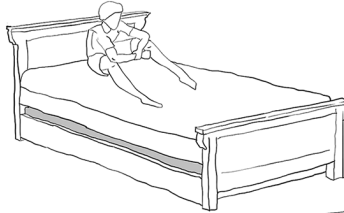
Raw material	Cost	Carpentry and execution time			Longevity of the material		
		short	medium	long	short	medium	long
Particle & medium density boards	Affordable	X			X		
Commercial plywood	Medium to Expensive		X			X	
Marine plywood	Medium to Expensive			X			X
Light density wood	Affordable	X				X	
Medium density wood	Medium		X			X	
High density wood	Expensive		X	X			X

2. Space Savers

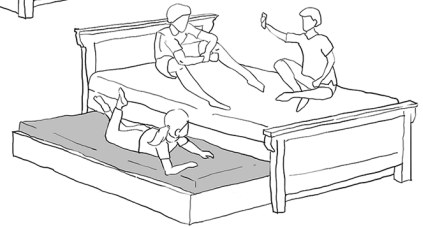
I. Think Trundle

Most people end up buying more furniture than their rooms can hold. But Indian families are big. Does your house always seem to host an unexpected guest or do your kids often invite friends for sleepovers? Well then, the trundle is your solution. A trundle bed is just a designer's name for a regular sofa-cum-bed.

Everyday



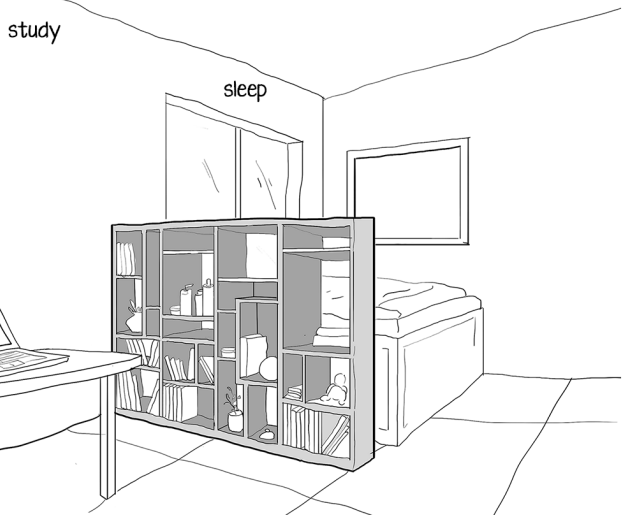
During Visitors



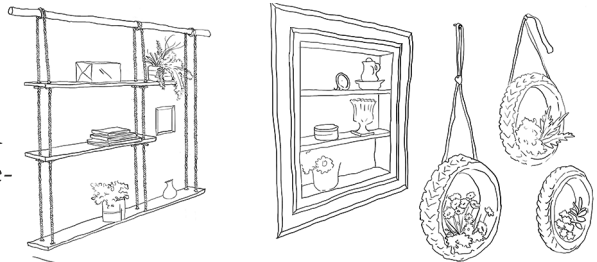
II. Floor-to-ceiling Display Ideas

Having a full-height cabinet in your home can help create the illusion of a higher ceiling and larger space.

1. Full-height cabinets are stylish and functional. You can make use of the design to create a partition between the living room and other private spaces in the home, or any other areas too.
2. The display can also be designed to be flexible using unique visual features that can be changed with simple interchangeable elements like display boxes or shelves.
3. Incorporate both open and closed shelves that help in storage. Consider a mix of vertical and horizontal shelves to guide the eye through the space.



4. Experiment with different materials other than the conventional wood or metal. Install glass shelves on rope brackets, use painted old tyres, or old window frames, and think out-of-the-box! Go bold with bright coloured paints.



III. Hinged v/s Sliding

Managing a small space? Try sliding doors to rooms, storage, wardrobes and more. Add mirrors to the shutters to create the illusion of a larger space.

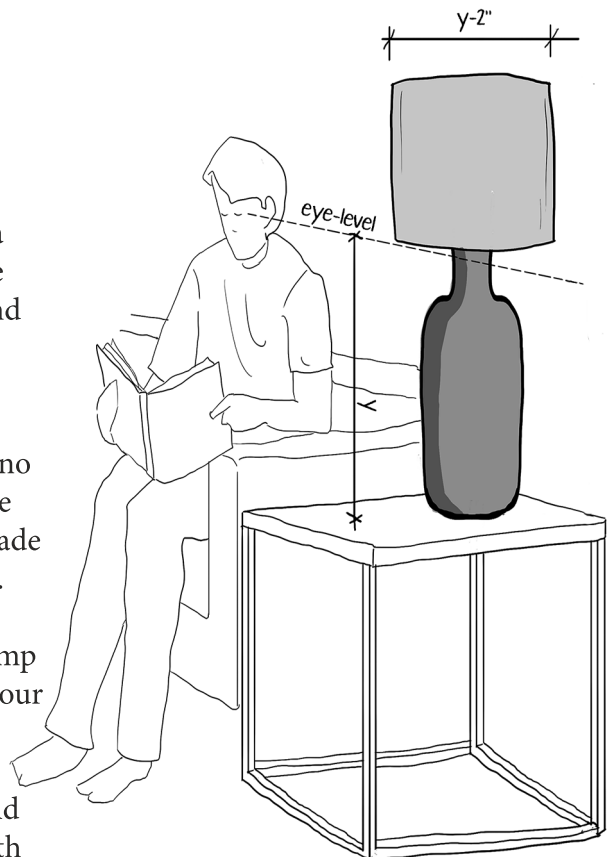


3. Accessories

I. Table Lamp

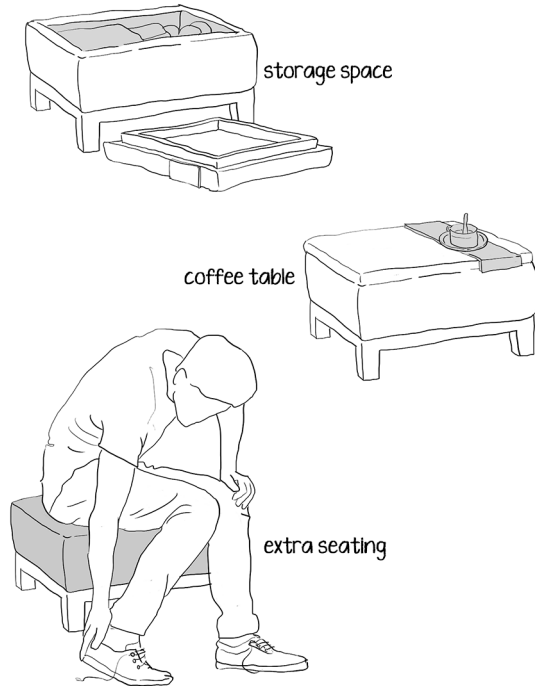
When used correctly, table lamps can bring symmetry, colour, contrast, texture and of course, illumination to any room that they adorn.

1. A good rule of thumb when buying a table lamp for an end table is that the combined height of both the lamp and table should not be more than 145 to 160cm.
2. Typically, your table lamp should be no more than 1 ½ times the height of the table it will be set on and the lampshade should never be larger than the table.
3. The general norm here is to pick a lamp where the bottom of the shade is at your eye level when you are seated.
4. The diameter of the lampshade should be at least 2 inches less than the length of its body.



II. Versatile Foot Stool

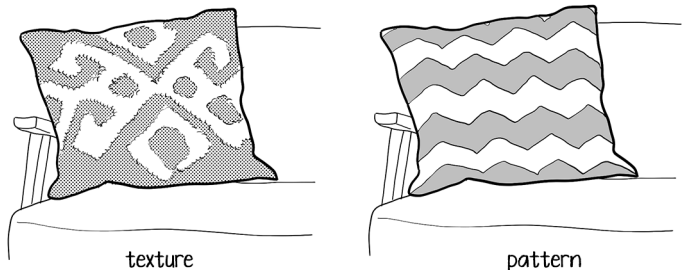
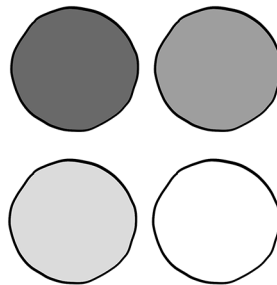
Playful, versatile and functional, the humble Ottoman (or footstool) is certainly one piece of furniture you shouldn't live without! This tiny furniture can easily disguise itself as a coffee table, a chic storage space or simply extra seating. Don't you love to sit back on your sofa, kick up your feet on a soft, plush small stool and relax? You may even choose one with storage for kid's toys, books or any other stuff. Available in a wide variety of shapes, sizes, and materials, Ottomans are delightfully multifunctional. The flat top surface can be used to play board games too.



III. Layering with Furnishing

When it comes to creating inviting spaces, the trick is to layer fabric textures and patterns, in a mix of complementing colours and shapes for an instant visual and tactile experience. Here's how to layer like a pro!

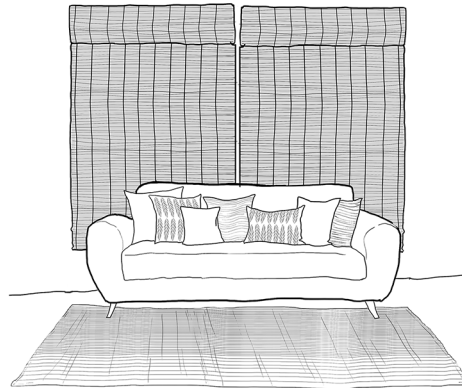
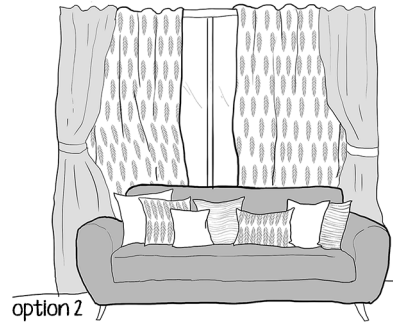
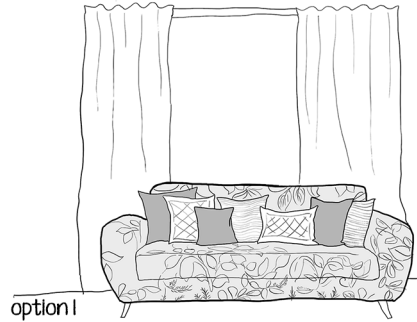
1. Choose a colour palette of 3 to 4 colours/shades.
2. Do not confuse texture with pattern! Pattern is in the print or embellishments on fabric, while texture of fabric can be felt when you run your fingers over it. Try a pattern like a Madras cloth or Chevron print for example to create a rhythm in the visual.
3. If the sofa is in a solid colour, layer it with a mix of solid, textured and printed cushions. If the sofa is



Furniture & Accessories

upholstered with patterned fabric, go bolder in pattern for cushions and team them with solid colour cushions from the sofa print fabric. The same may be followed for chairs too.

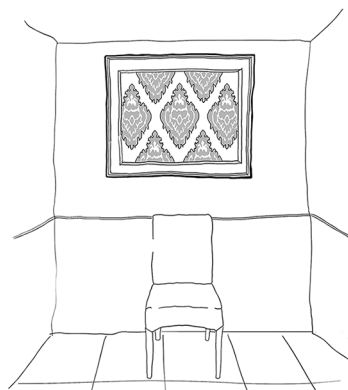
4. Layer curtains in the same colour palette, while repeating patterns from at least one of the sofa cushion fabrics. For example, if the cushion has a chevron print, you may repeat the print on a self (chevron) textured sheer curtain, flanked by a solid colour main curtain.
5. Add a layer of organic fabric in the overall look. Maybe just a woollen throw or a chic blind at the window or a handmade sisal or jute rug.
6. Heirloom sarees or exotic embroidered fabrics when framed become great wall pieces.



IV. Colour of Lighting

Colours of the lights you install matter. Different colours have different functions and you should be paying attention to where you install those colours.

Colour of the bulb is typically denoted by a Kelvin rating (usually 2,700 to 6,500) and accompanied by a descriptive name, such as soft white, daylight, etc.



1. Soft white (2,700 to 3,000 Kelvin) is warm and yellow, the typical colour range you get from incandescent bulbs. This light gives a warm and cosy feeling and is often best for living rooms, dens and bedrooms.



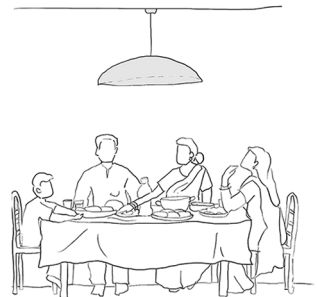
Soft white
(2700 to 3000 Kelvin)



2. Warm white (3,000 to 4,000 Kelvin) is more yellowish-white. These bulbs are best suited for ambient lighting and focus lights.



Warm white
(3000 to 4000 Kelvin)



3. Bright white (4,000 to 5,000 Kelvin) is between white and blue tones. With a less cosy and more energetic feel, bulbs with this colour range are best for workspaces (such as a home office or garage) and kitchens with chrome fixtures.



Bright white
(4000 to 5000 Kelvin)



4. Daylight (5,000 to 6,500 Kelvin) has a more bluish tone. This light colour will maximize contrast for colours, making it ideal for working, reading or applying makeup.

With this in mind, when choosing light bulbs for a room, think of what you normally do in that space and buy bulbs for that purpose. You may want daylight bulbs for reading or soft white bulbs in your bedroom. You probably want a warm light over the dining table or a combination of warm and white light in the kitchen.

If your budget permits, opt for smart bulbs. Change the color of the lights on the fly. For instance, while reading use white or daylight, while relaxing, opt for soothing warm white!



Daylight
(5000 to 6500 Kelvin)

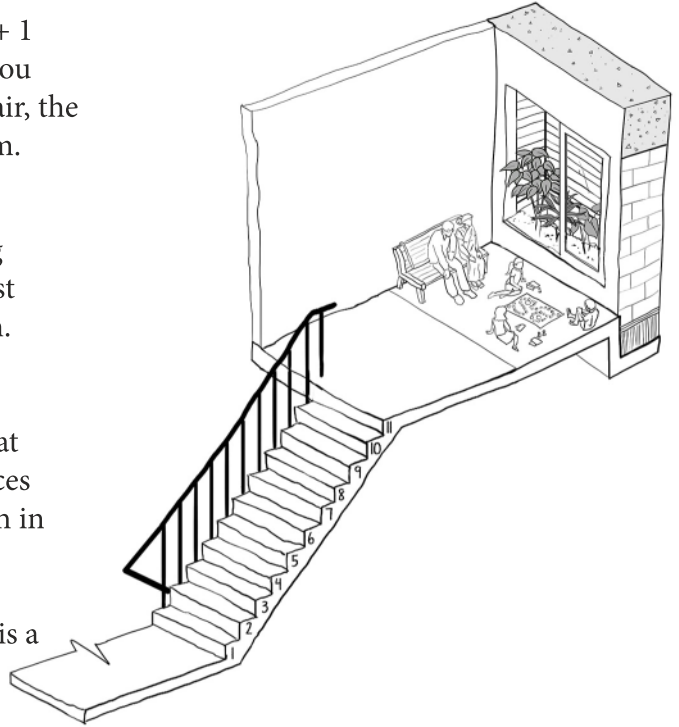


4. Important Dimensions

I. Steps and Stairs

Blondel formula of 2 Risers (height) + 1 Tread (base) = 63 to 65cm will help you decide the height and base of each stair, the general height of one stair being 15cm.

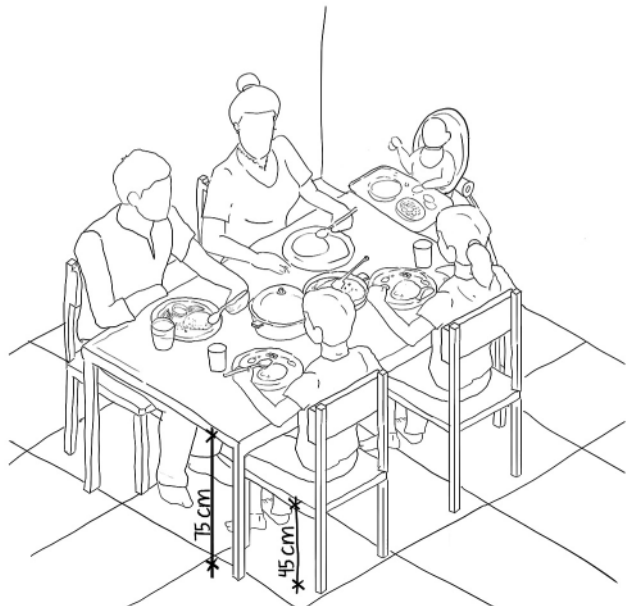
1. In stair design, while transitioning from one flight to another, we must stagger the flights by 1 tread width. It allows the handrail to come to normal stipulated height from the floor and turn into the next flight at standard height. With such practices we can avoid the vertical mismatch in staircase railing.
2. Not more than 12 steps in a flight is a good practice.
3. You can make mid-landing spaces interesting by increasing the depth, bringing in light through a skylight or adding a planter box window. It can also become an activity space for kids, elders, etc.



II. Dining Chairs

Your sitting posture during dining is crucial for your well-being.

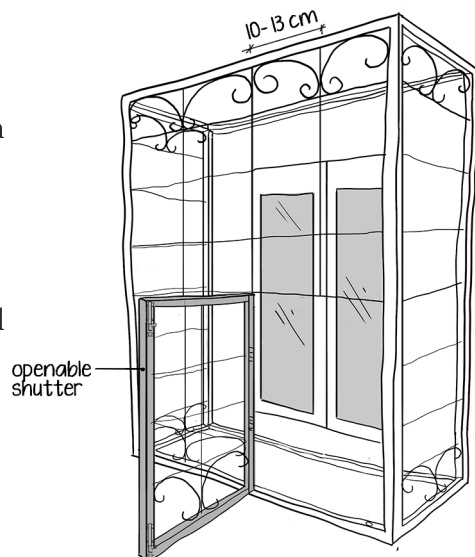
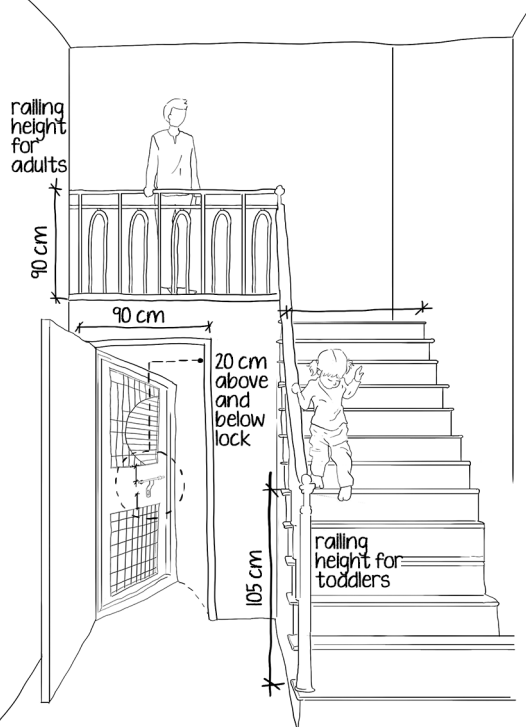
1. Standard seat height is 45cm, and a standard table height is 75cm. You should opt for a high chair for a child to encourage the tradition of the family eating together.



2. Design for 30cm between the top of the dining chair and the bottom of the table.
3. Make sure there's enough clearance for knees!
4. Leave 17cm of room between the arm of the chair (if chair has arms) and the table.

III. Other Important Dimensions

1. Minimum width of the main door should be 90cm to allow movement of furniture and a stretcher in case of emergencies. This should also be the minimum width of the staircase.
2. In case of grill doors, keep the area around the lock (20cm above and below) solid to prevent a slim hand slipping in to open the door.
3. If you have toddlers or young kids in the house, the minimum railing height should be 105cm. For a regular adult, 90cm should suffice.
4. Maximum gap between balustrades or window grills should be 10 to 13cm to prevent theft or kids' heads being stuck.
5. Don't forget to include an openable shutter in your window grill. This will be helpful in case of emergencies like a fire when you may have to get out from the window.

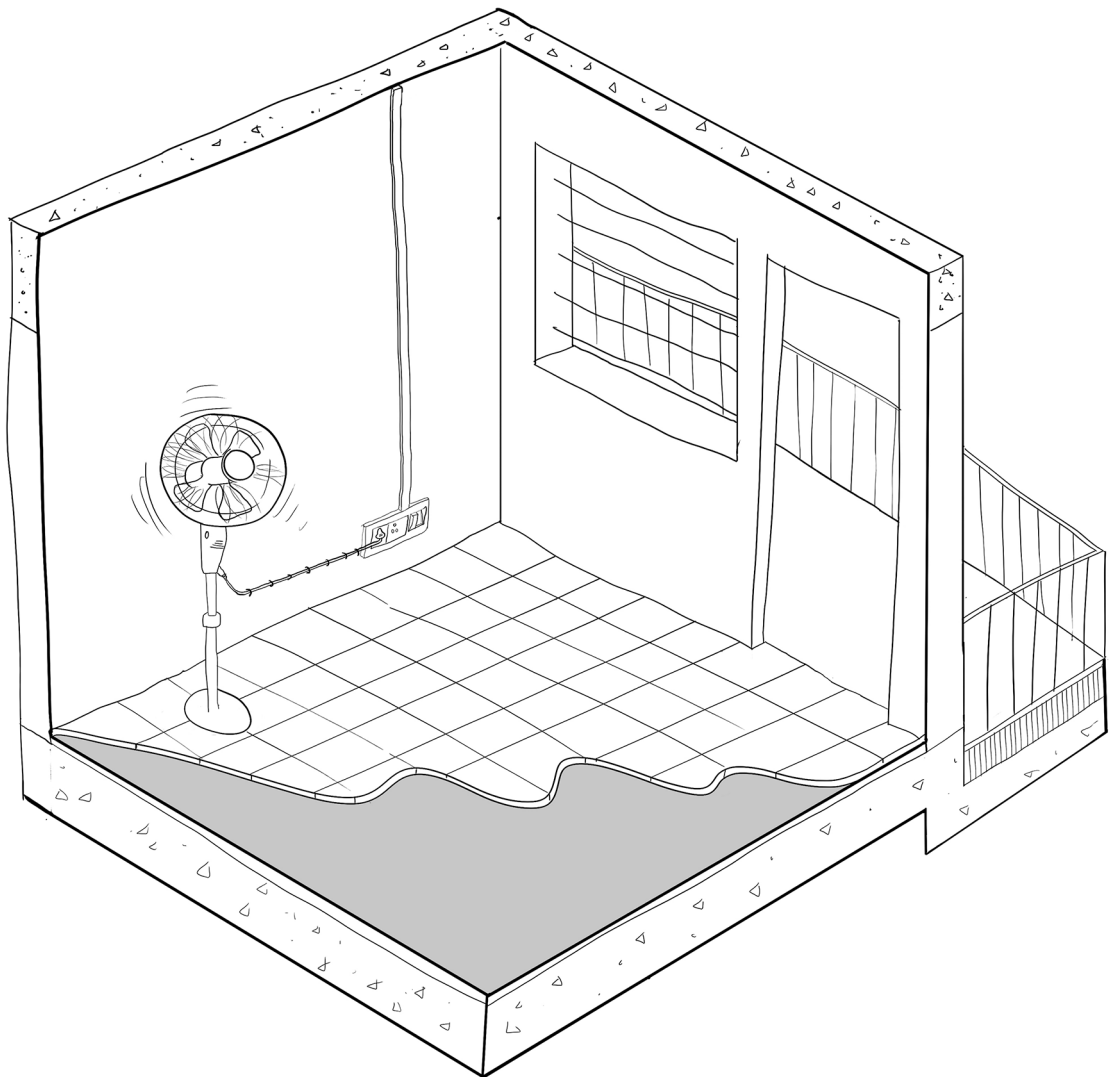


VII

Protection

Homes need protection. Users are generally unaware of design practices for a safe and protected home.

This includes, but is not limited to electrical safety, waterproofing, material wear-and-tear, anti-termite, insect-proofing and fire safety.



1. Electrical Safety

Ensure that standard electrical wiring methods are used.

I. Using ELCBs instead of MCBs to reduce the risk of short circuits. Do not keep power points close to water points.

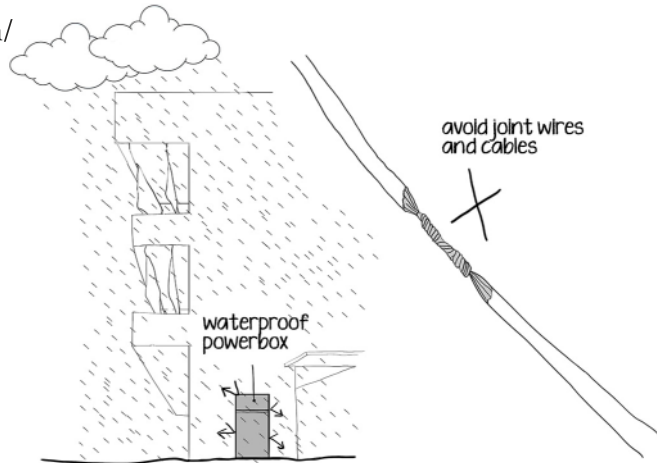
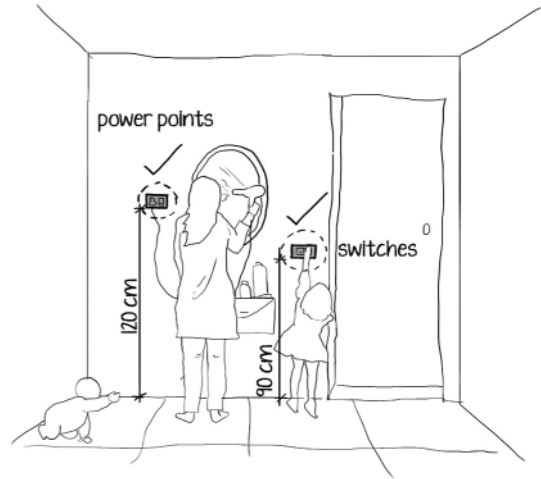
II. Use waterproof power boxes for all power points outdoors. Keep open power points away from the reach of children but make buttons and switches accessible to them, especially switches to a bathroom or in the bedroom.

III. Keep electrical mains at easy-to-access locations so that anybody can switch the mains off during power fluctuation/failure.

IV. As far as possible, avoid joints in wires and cables.



Centrally located main electrical circuit board with ELCB



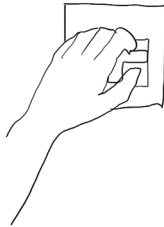
2. Fire Safety

When buying, renting or building a property, adherence to the region's fire norms are an absolute obligation. It entails extensive rules and regulations. What you read here is just a basic checklist of do's and don'ts. Please consult the 'National Building Code of India (Fire and Life Safety)' for detailed regulations.

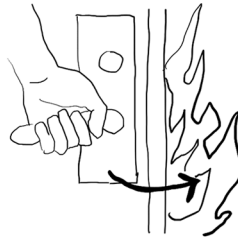
RESCUE



ALARM



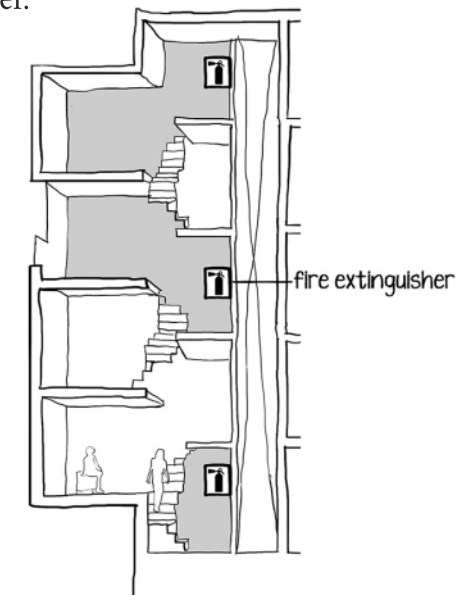
CONTAIN



EXTINGUISH

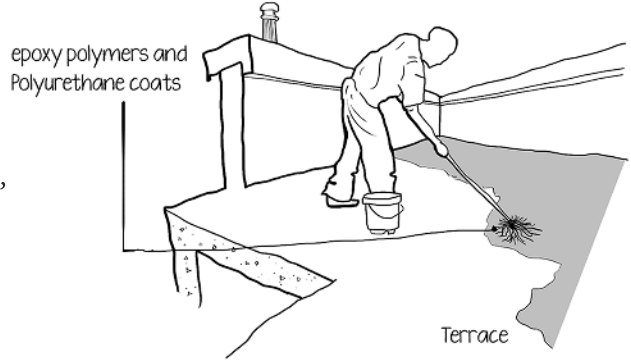


- I. Always learn the emergency actions and protocols related to the fire management system installed in your building and educate your family too. Remember the mnemonic RACE.
- II. Have one fire extinguisher at an accessible location for emergency use, especially if your building doesn't have a fire management system.
- III. Don't apply flammable material in areas close to fire.
- IV. Use cleaner fuel for cooking like LPG, natural gas etc.
- V. Do not place any furniture or object of hindrance in the fire evacuation route. Simply put, do not block any part of the staircases or landings or doors to the staircase lobby.
- VI. If you live in a group housing society, a fire evacuation drill is a healthy and essential part of common practices. This involves a quarterly rehearsal of - 'How to Act' in case of a fire outbreak thereby preparing people to respond sensibly in an event of disaster.



3. Water Protection

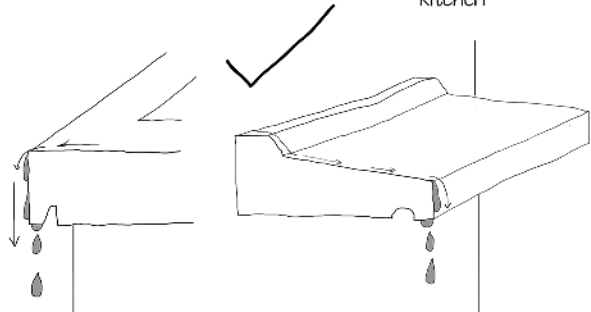
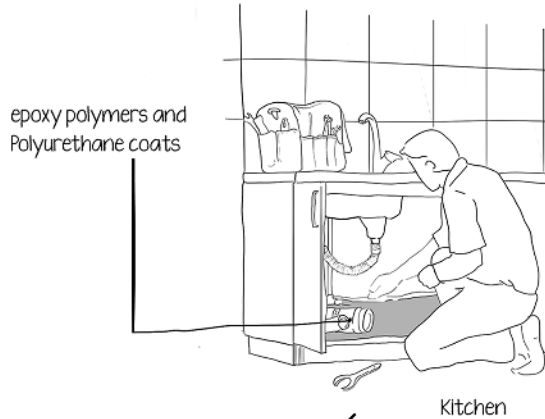
I. Waterproofing techniques like *surkhi*, epoxy polymers and Polyurethane coats are effective and long lasting as compared to simple cement-based waterproofing techniques. Terrace/balcony tops, bathroom floors and kitchen sinks are the main areas to look at.



II. Other important areas to be protected during construction of a home are the plinth, roof, any exposed wall touching the neighbour's wall/ boundary, any joint between old and new concrete.



III. Water protection can be guaranteed through this design detail. Use drip moulds in parapets, wall ends and chajjas to prevent water from crawling back on the building.

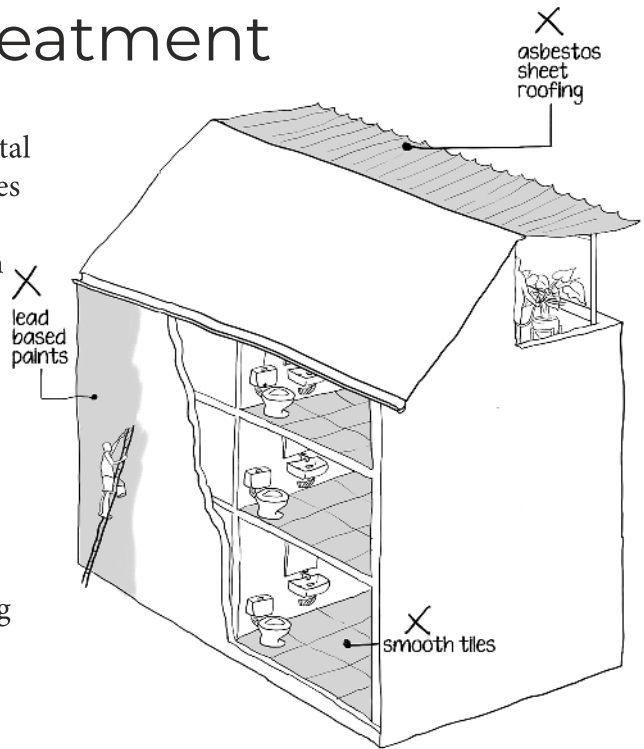


4. Surface Treatment

Many types of surface treatment systems are available for the treatment of horizontal surfaces such as roofs and vertical surfaces for instance wall buildings constructed from various construction materials such brick, stone, concrete, tarmac and slate.

General Note

- Extremely smooth surfaces can get slippery. Avoid smooth tiles on bathroom and kitchen floors.
- Use non-toxic/non-carcinogenic material and avoid material containing asbestos.
- Avoid lead-based paints.



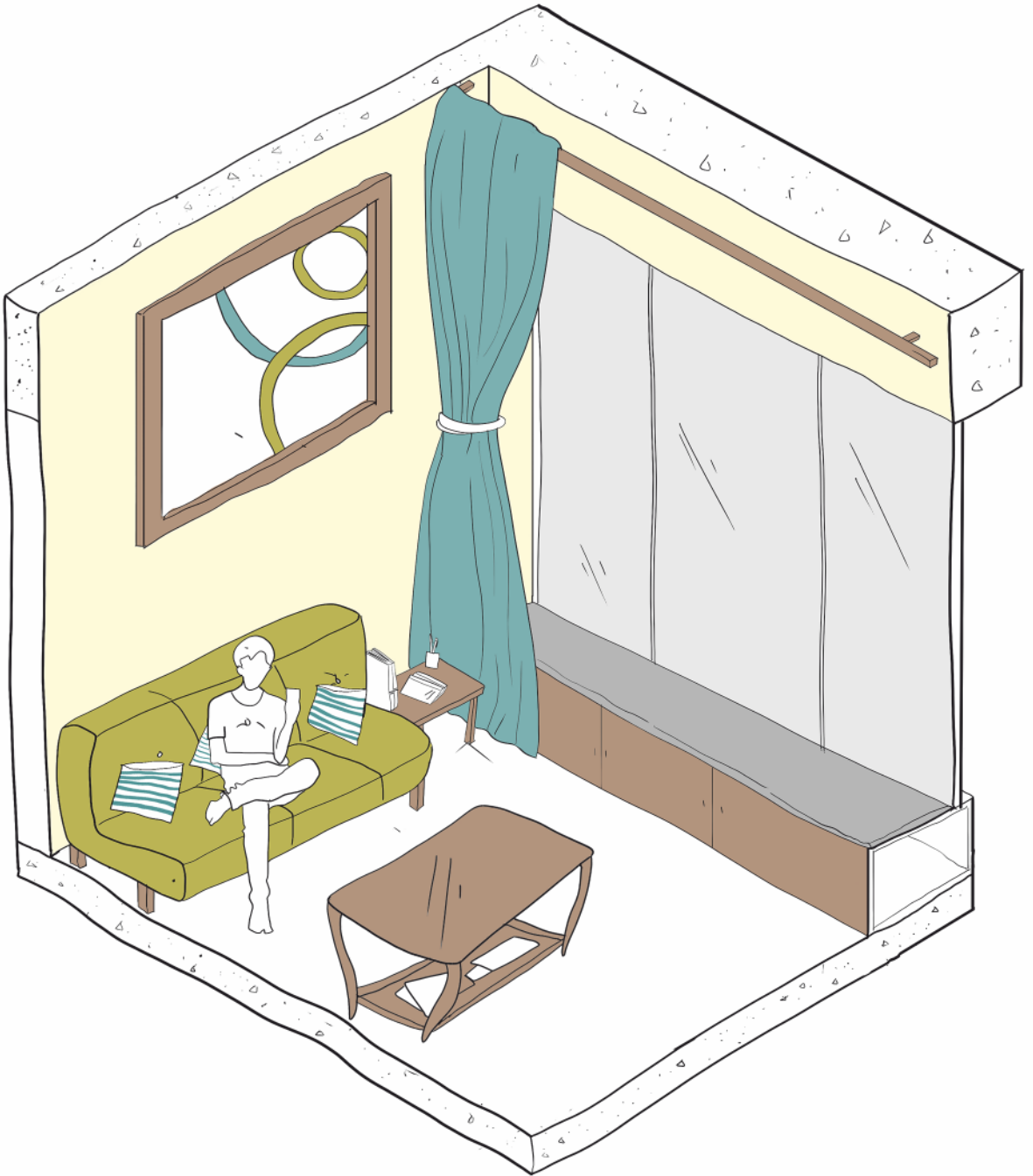
I. Types of Surface Treatments

1. Lime Coating: This can be used on interior and exterior walls.
2. Colour Wash: The procedure to apply the paint is similar to lime coating with three coats of colour.
3. Dry Distemper: Strictly for interior walls; you can apply it on plaster, walls and ceilings.
4. Oil Bound Distemper: For interior walls, this is applied on a base of putty.
5. Acrylic Emulsion/Plastic Emulsion (water-based): For interior walls.
6. Enamel Paint (oil-based): Requires professional application. If used on a raw surface of wood, first wood primer or putty is applied.
7. Oil-based Acrylic Paint: It is popularly used on furniture to provide a different feel.
8. Red Oxide: This is used on metal, interior and exterior walls.
9. Metallic Paint: This is strictly to be applied on the interior walls and metal only.
10. Texture Paint (cement-based): Used on interior and exterior walls, the application involves the use of roller on the surface.

VIII

Wall Finishes

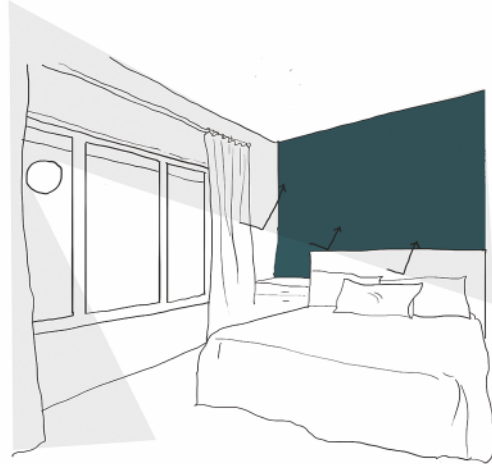
Surfaces and their colours are seen more prominently in interior design. Consider two aspects: colour and texture. Colours used in a space should be dictated by the function of the space as well as how the user perceives it. We will be sharing the science and aesthetics of wall finishes with you in this section.



1. Tones and Shades

You may already know that light shades make a room look bigger and dark shades make it look smaller. This is because of the reflectance quality of the colour and where that colour is placed in the room, i.e., ceiling, wall, floor.

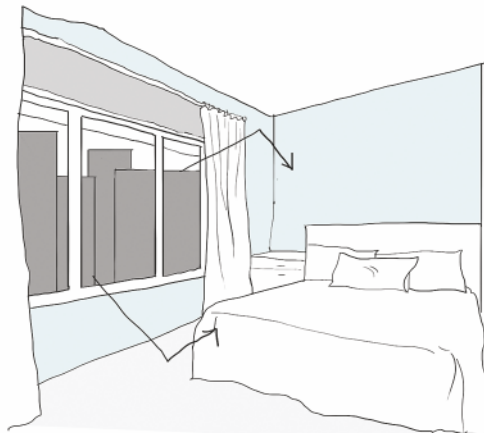
I. If your room receives too much direct sunlight make one of the side walls a darker shade to reduce the reflectance.



II. If you have a water body near your home and sometimes direct glare from the water hits your ceiling, make it darker.

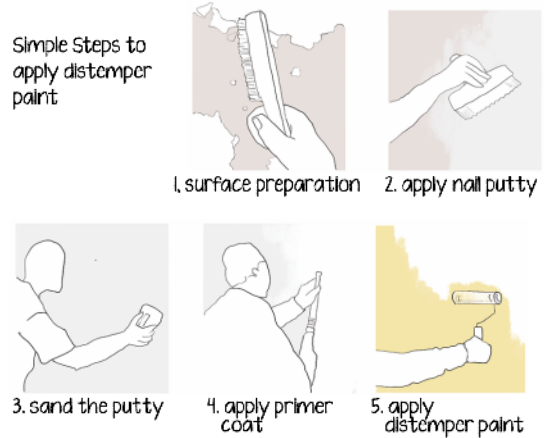


III. On the other hand, if your window is placed such that you do not receive direct sunlight or tall nearby buildings are blocking the direct sun, use lighter colours on the floor as well as the back and side walls. Use tones and shades based on context as shared above to make the room light up naturally.

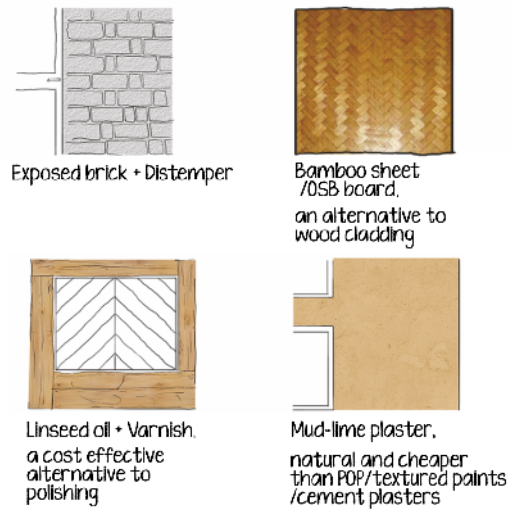


2. Alternate Affordable Finishes

I. Although the market will be trending with the latest in textured paint and new innovations in paint technology, an all time affordable alternative is water-based distemper. It allows the wall to breathe, needs less wall preparation like sanding, smoothing and grinding. It comes in a variety of colours and is cheaper than other paint options and easy to maintain and redo.



II. Another low cost alternative to paints is chalkboard paint (especially if you have a child at home turn the entire wall into a chalkboard wall). A wall can be painted with exposed brick + distemper, bamboo sheet cladding, linseed oil + varnish, mud lime plaster amongst other options.



3. Colour Choices

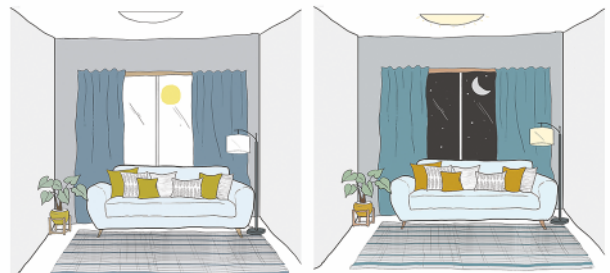
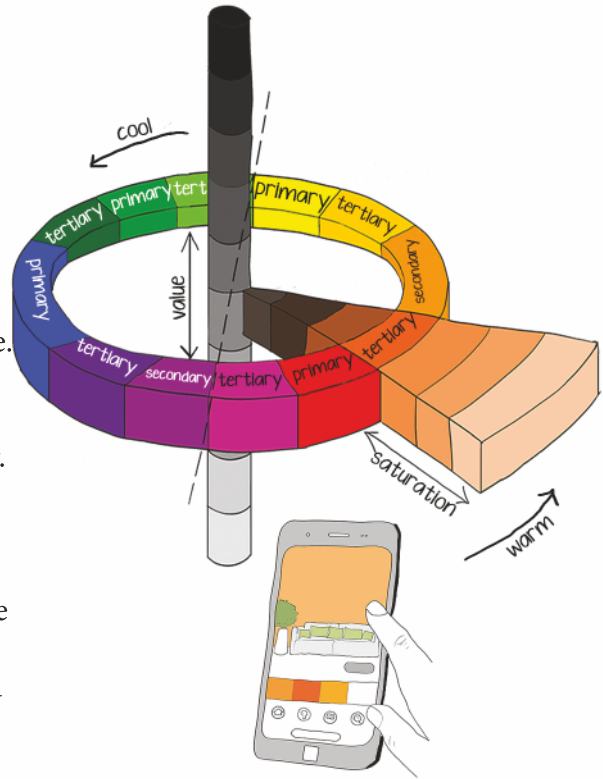
The innumerable choices of colours often pose the most confounding question in any design attempt. A simple question like, “What colour should I choose for my new sofa or new curtains or a texture painted wall?” has no ‘one correct answer’. Moreover, not all answers will lead to equally desirable outcomes.

Begin by understanding the colour wheel. Colours are differentiated in the colour wheel as primary, secondary or tertiary; they are defined by characteristics such as hue, saturation, value and qualities such as warm and cool.

Here are a few practical and fundamental tips and tricks that you can employ while selecting colours-

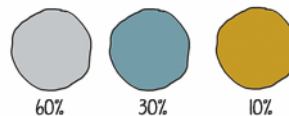
Wall Finishes

- I. When choosing colours, never look at them in isolation. Look at the entire combination of colours that you will use. This is your colour scheme. If possible, use swatches or a physical colour shade card from a paint company to place the colours side by side to know your exact colour scheme.
- II. Many colour companies have virtual rooms that you can paint to see how the colour combination looks together.
- III. When you want to alter, don't change colours in your chosen colour scheme in isolation. If you want to change one of the colours, you may need to change the entire colour scheme.
- IV. Looking at colours in natural light and then artificial light alters their quality. The impact of your interior design colour scheme depends on the type of artificial lighting you plan to use and the amount of natural light entering the room. So, you can benefit from buying paint testers or using fabric swatches to see what the colours look like with the lighting that you have in both day and night.
- V. Try to work with a maximum of three to four colours. Do expand your search into different tones of the same colour to enhance the aesthetic (Use two colours for the wall, a mix for the carpet, some for the curtains, furnishing and a highlight for the cushions). The 60-30-10 rule can be a good guide on proportioning colour usage. Use a main colour for decorating 60% of the room, 30% of the room in another colour and 10% of the room can be decorated in a third colour that is often called an accent colour.

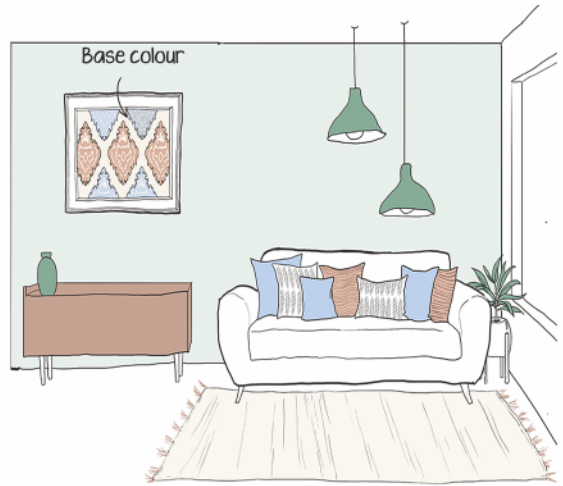


Room in natural light

Room in artificial light



- VI. If you are looking to only partially redecorate a room, start with what you will definitely be keeping. This is your starting colour palette. Now build your colour scheme around this.
- VII. Look for inspiration that may give you a starting point in your journey to choosing colours for your interiors. Look outside and you may be inspired by some natural hues. Get inspired by artwork you wish to hang in your home that will give you the base colour combinations to work with. Sample colours from a photograph you wish to hang may translate into your interiors as well.
- VIII. If you are looking for a fail-safe colour scheme, think monochromatic. Focus on a single colour, now combine with variations of that hue by incorporating tints (add white), tones (add grey), and shades (add black). A single colour will expand into an entire colour palette.
- IX. Another tried and tested colour scheme that can never go wrong is the neutral colour scheme. It consists of achromatic hues (white, grey, and black) along with near neutrals (beige, tan, brown, and other dark hues). All neutral colors have one thing in common- they are typically desaturated with the help of tints, tones, and shades.
- X. Colour is the surest and most accessible tool to design for all, since everything has colour! More often than not there is a hesitation to commit to an unfamiliar colour.

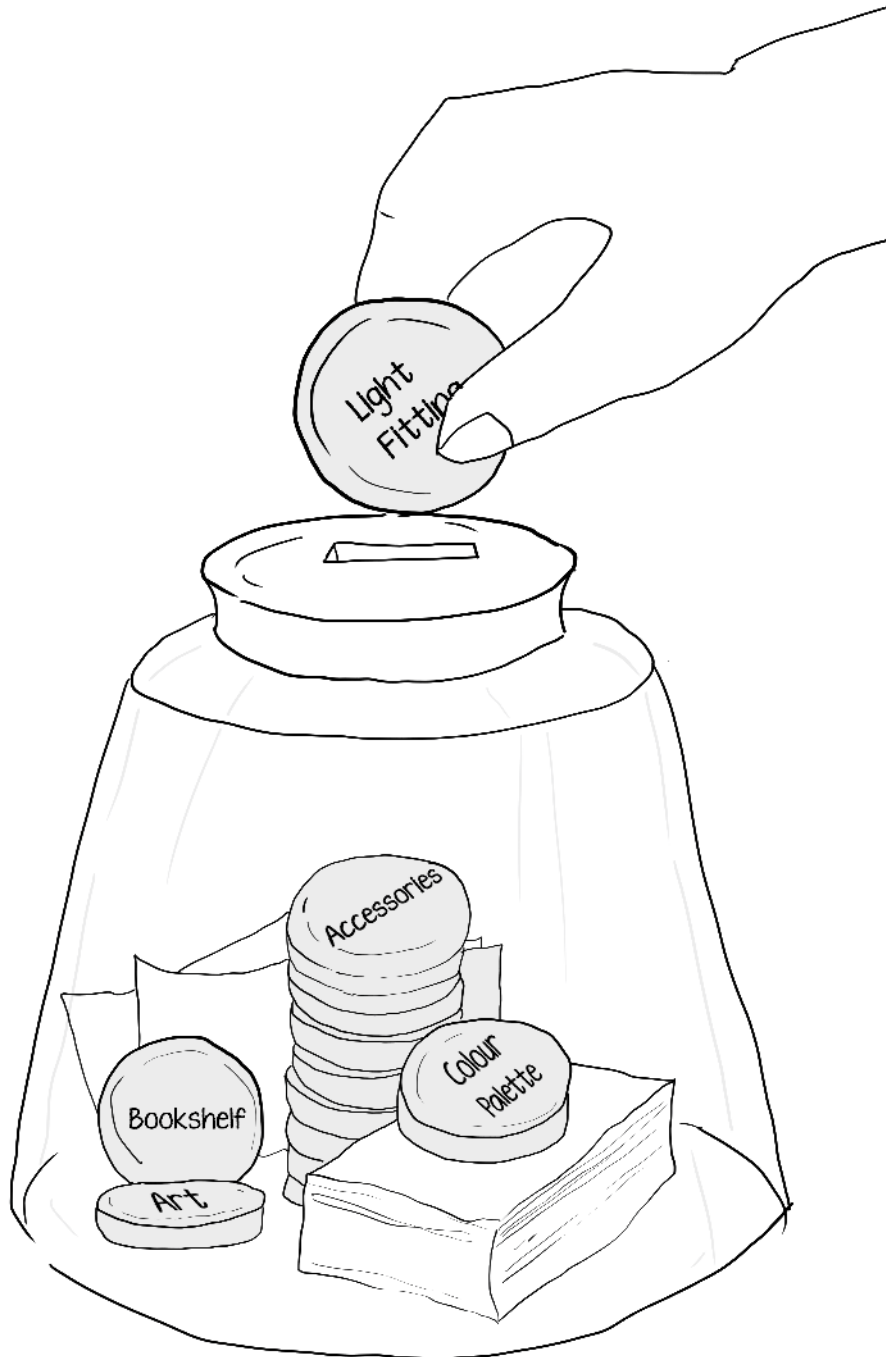


Do not limit yourselves and your imagination, go on and explore the world of colours.

IX

Affordable Grandeur

We love our home and would especially want it to look like those featured in magazines! While most people believe it takes a high budget for our homes to look lovely, in reality it's easily possible to get there without burning a hole in your pocket! Sharing some quick tips for an instant upgrade.



Affordable Grandeur

Light fittings add sophistication and luxury most effortlessly! Invest in a light fitting which gives you an instant "wow" feeling! For example, for a modern luxury look you could choose crystal fittings and for a classic look you could pick a clean lined simple gold fitting!

Select the most visible area of the space and style it with a statement art piece or sculpture.

Embrace the power of bookshelves! Dress them up with stylish bookends, sculptures, potted plants, and mini frames.

Splurge on sofa cushions, throws and statement rugs rather than on the sofa! These are the items that make your decor inviting!

You can never go wrong with crystal accessories! Try crystal vases, bowls, Tea light holders, candleholders and even picture frames!



Art makes a home feel more personal and adds a distinct status to the interior! Raid a local craft store for inexpensive but charming vintage posters/photographs or shop online for some real art (need not be expensive as long as you select real showstoppers). From family pictures to DIY artworks, nothing oozes style like a gallery wall.

Strategically placed mirrors in exotic frames like gold or silver leafed frames instantly add glamour to the room.

Finally bring in some greens inside to make a picture perfect living room.

Commit yourself to a cohesive colour palette! For example, the easiest way is to choose furnishings inspired by colours from the art print on your wall! Tie the room together with colours from the painting repeated in the rug, or sofa pillows or curtains.



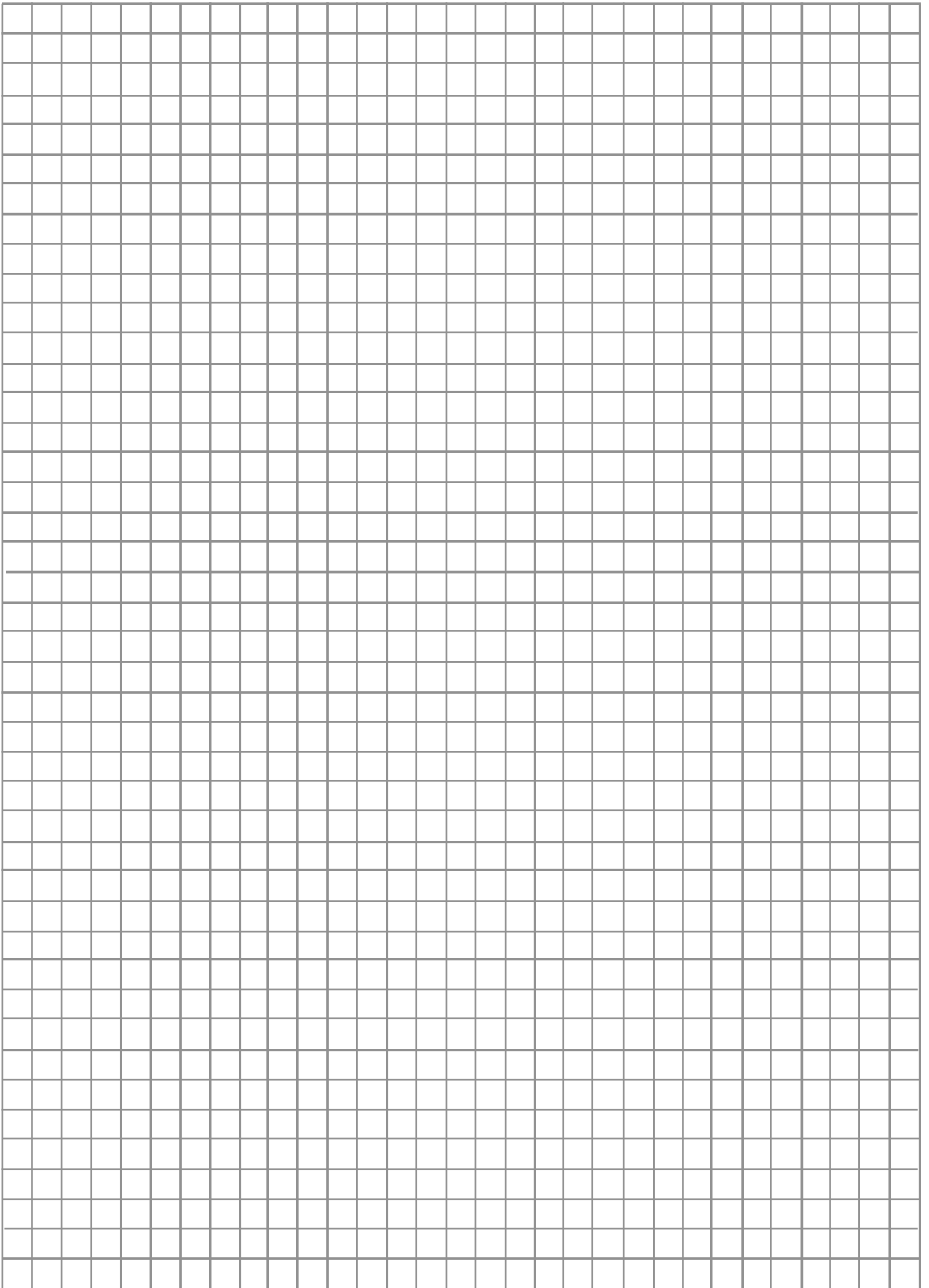
With this we have shared the Beginner's Design Tips with you. Use the square pad in the next few pages to sketch out your ideas. Cut or print and paste some clippings to create the mood for your space. Use this power-packed book to design your own home.

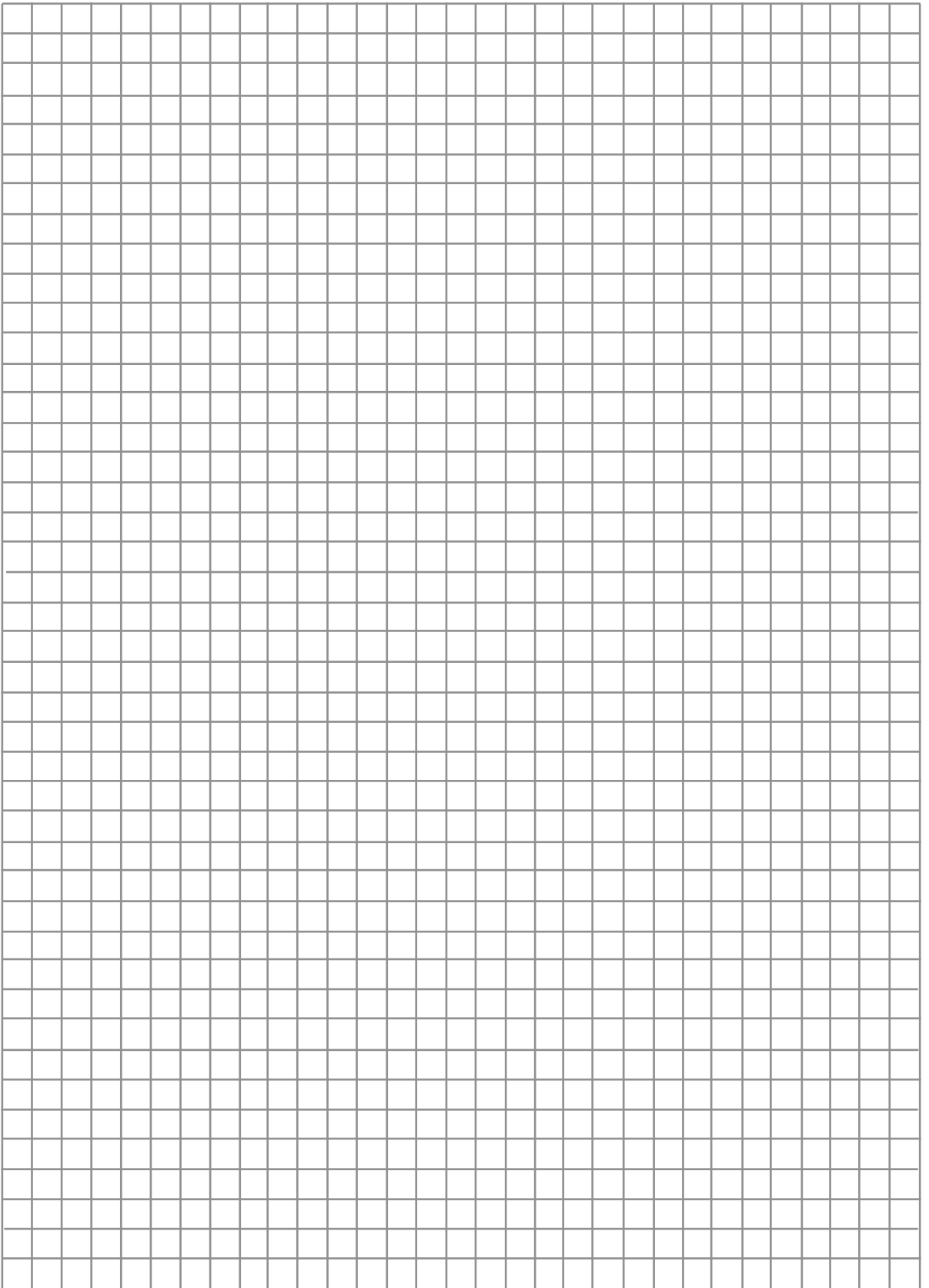
But remember, with great power comes great responsibility. Kindly understand that the content of this book is merely 10% of the actual lessons for any design exercise. Use this knowledge well and when in doubt, contact the IIID Design clinic who will always be happy to help. Talk to the IIID Design Clinic to get clarity on design processes. Follow the QR code to the IIID Design Clinic.

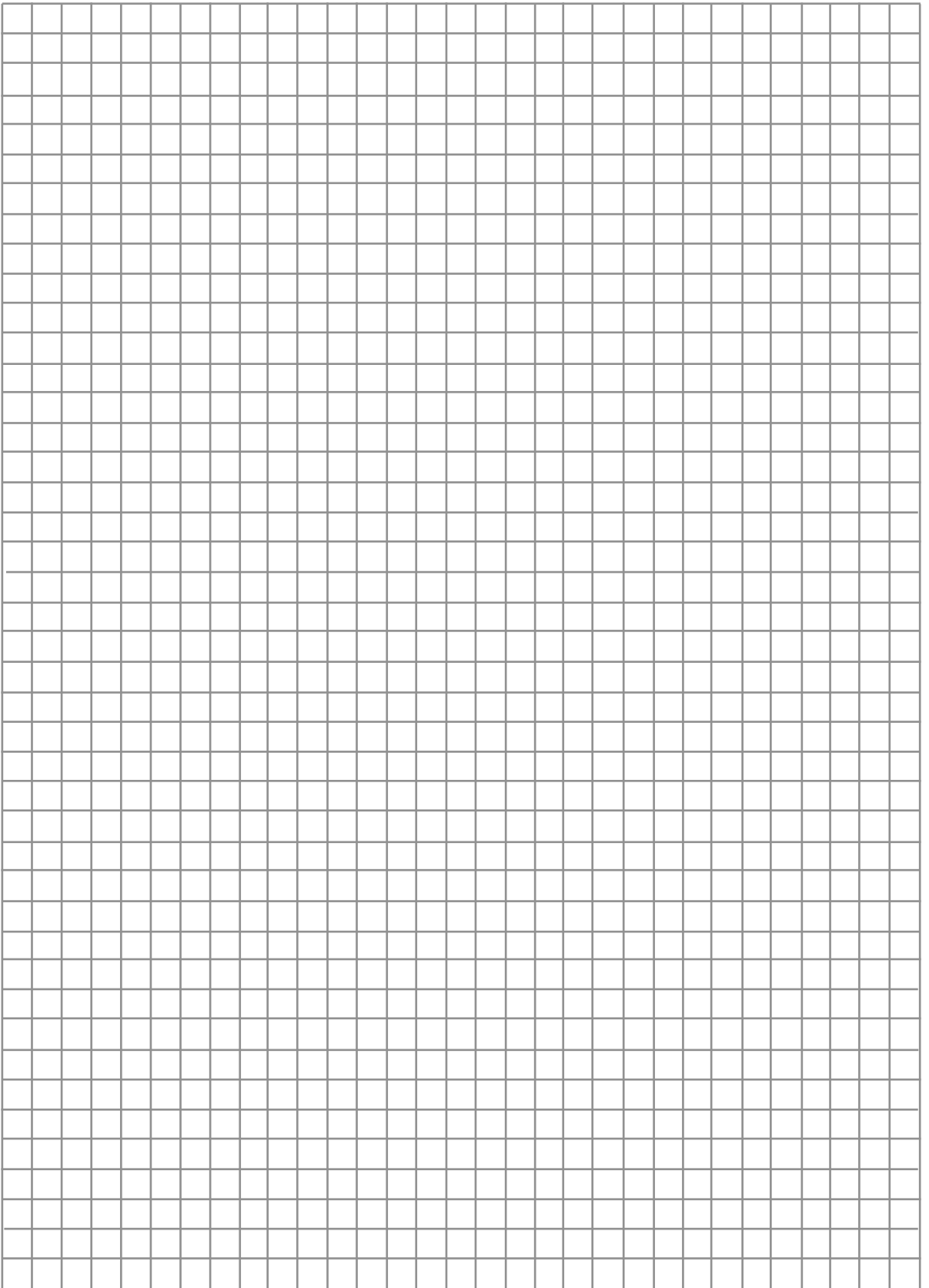
Do not hesitate to consult with an Interior Designer, Architect, or Engineer. They are trained and qualified to create homes beautiful, optimise for affordability, consider the environment and most of all understand user psychology and well-being to make the perfect home for you and your dear ones.

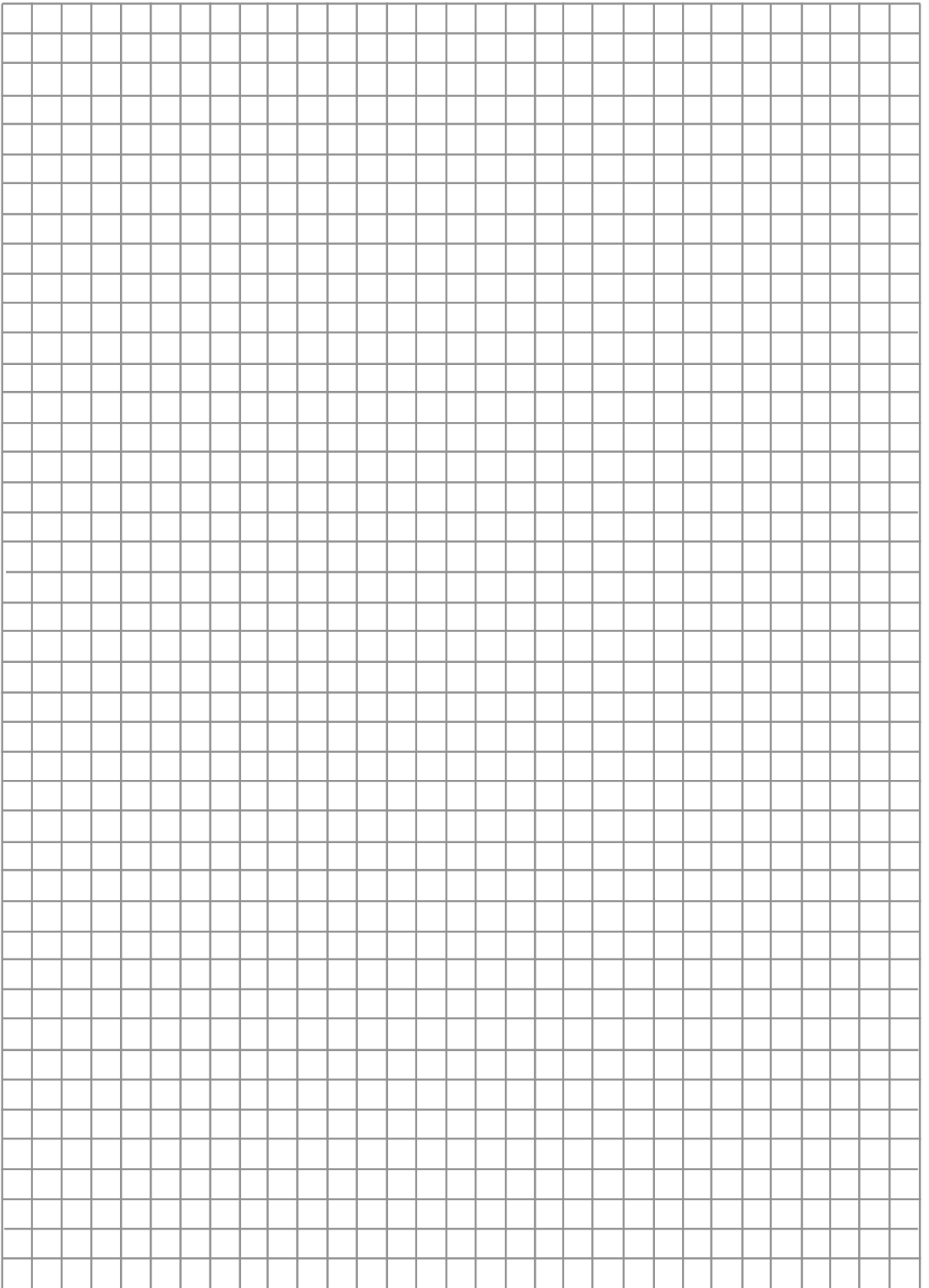
Cheers to the joy of creativity!

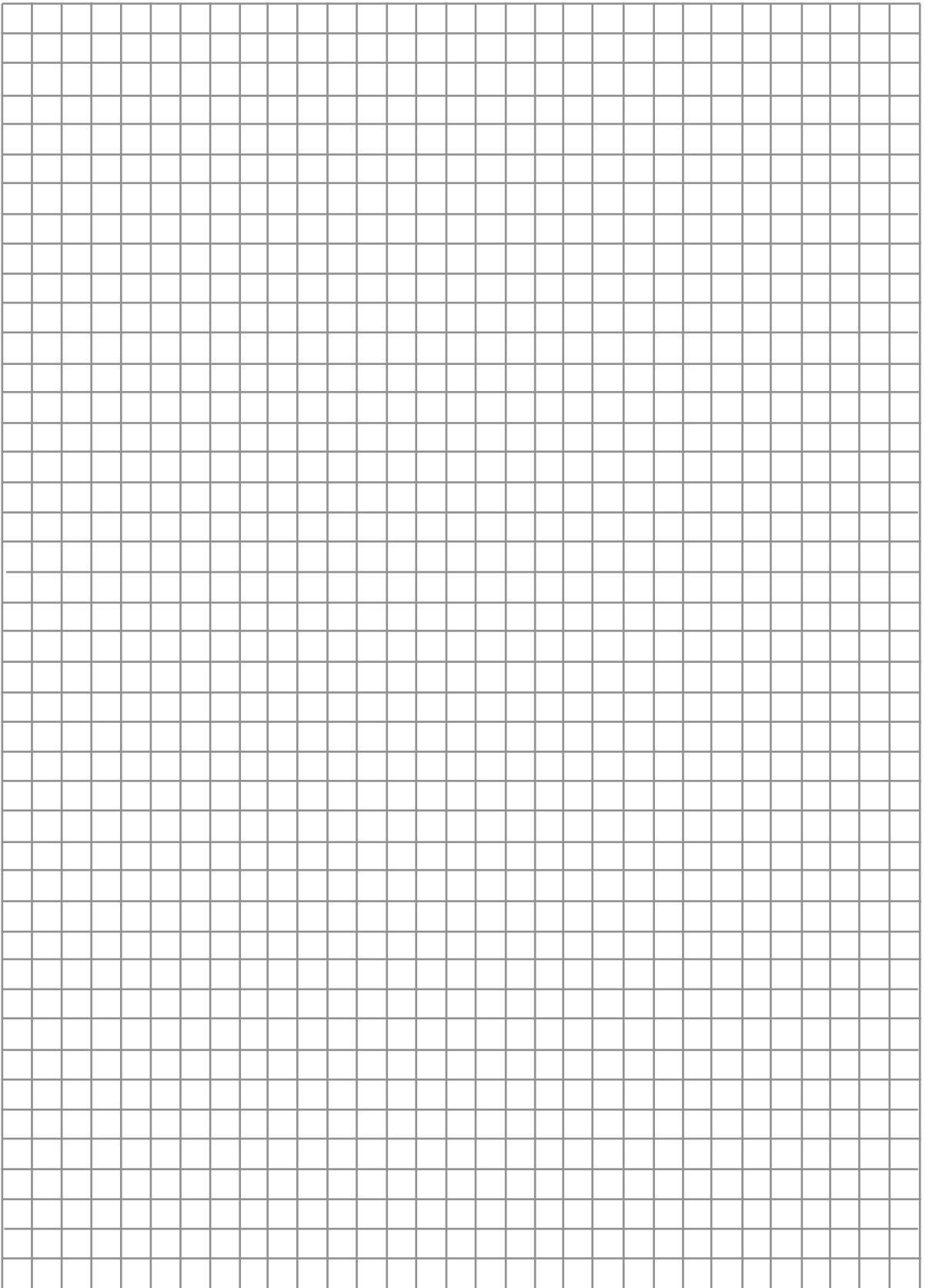


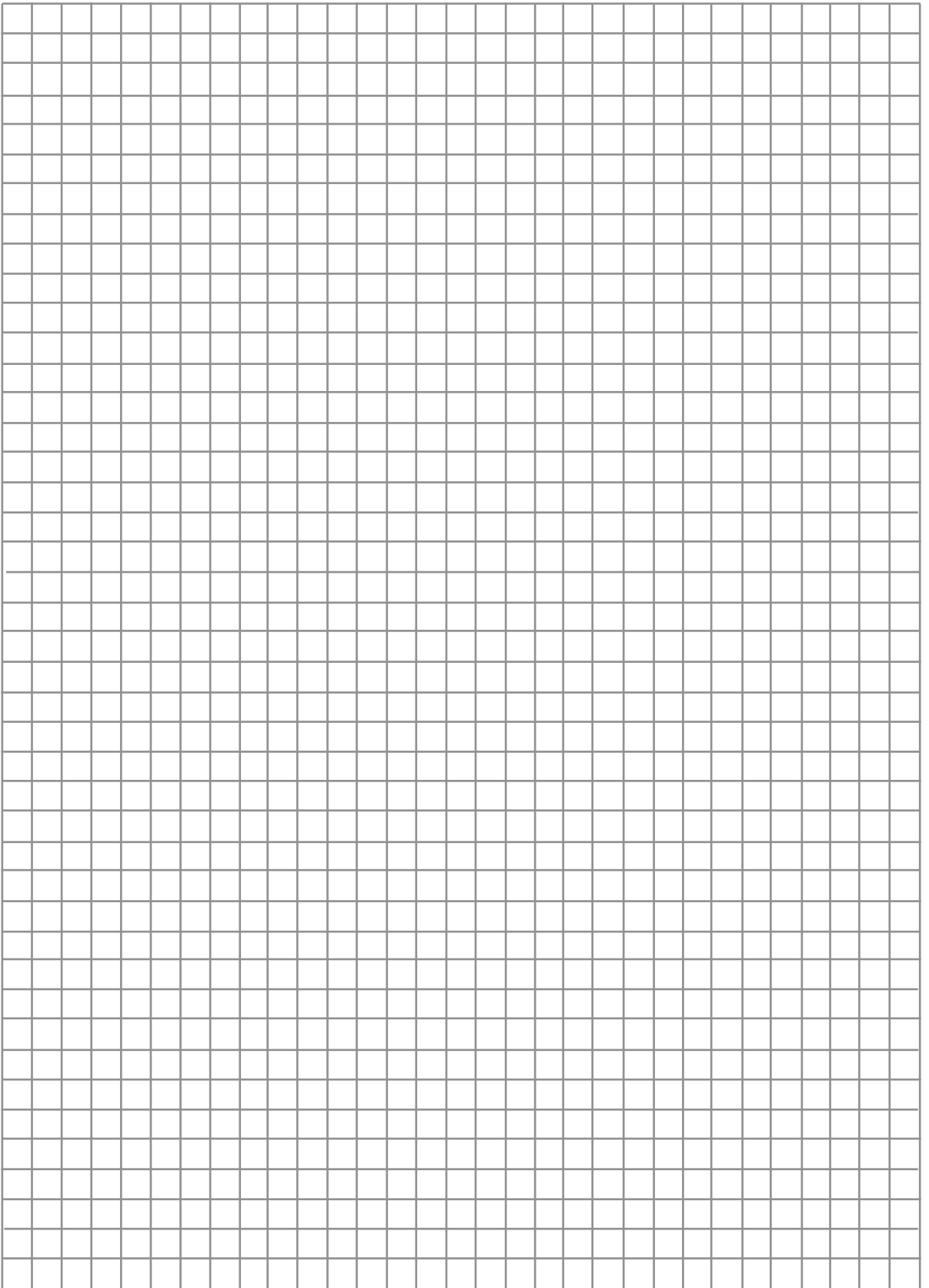


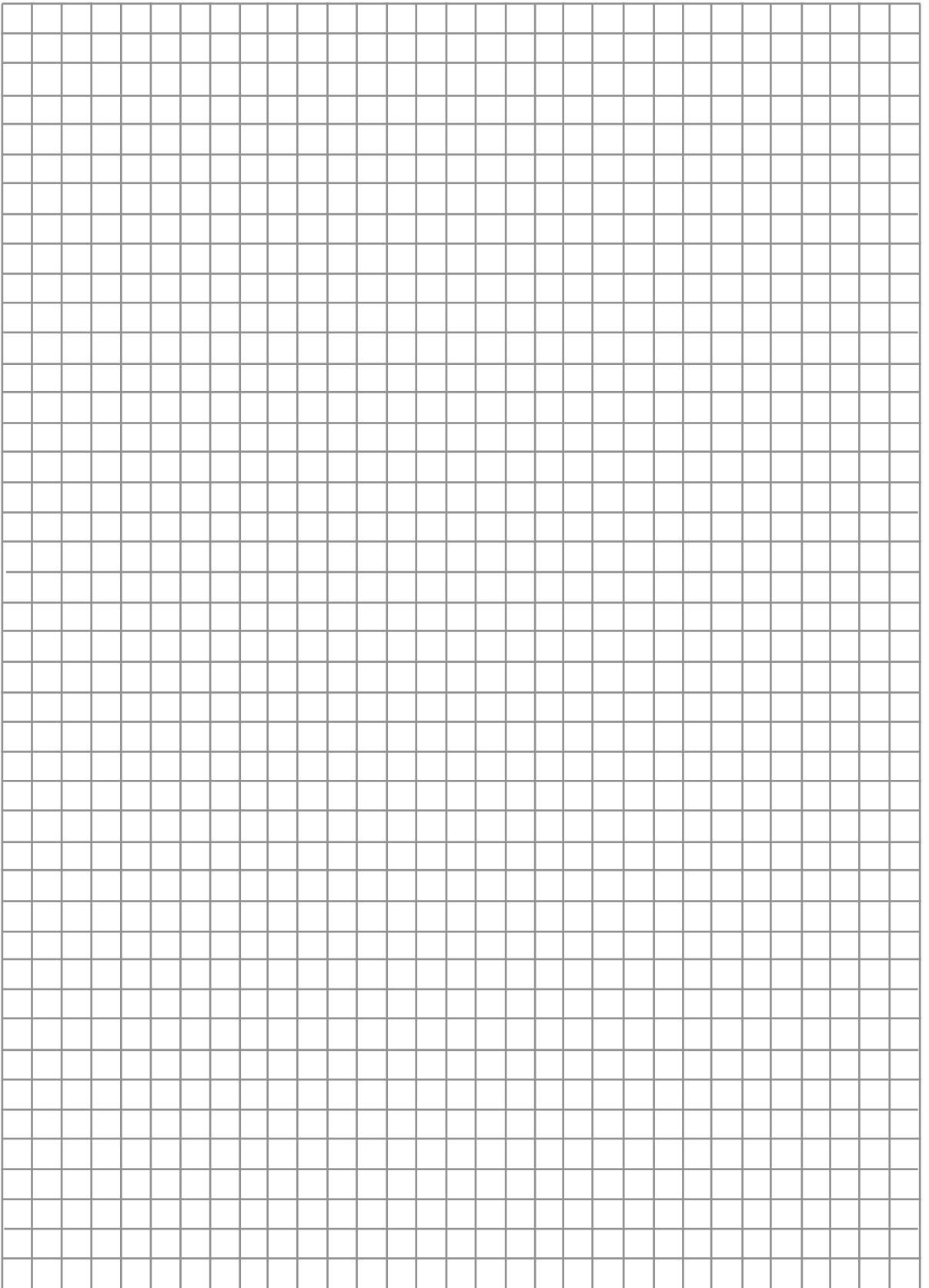


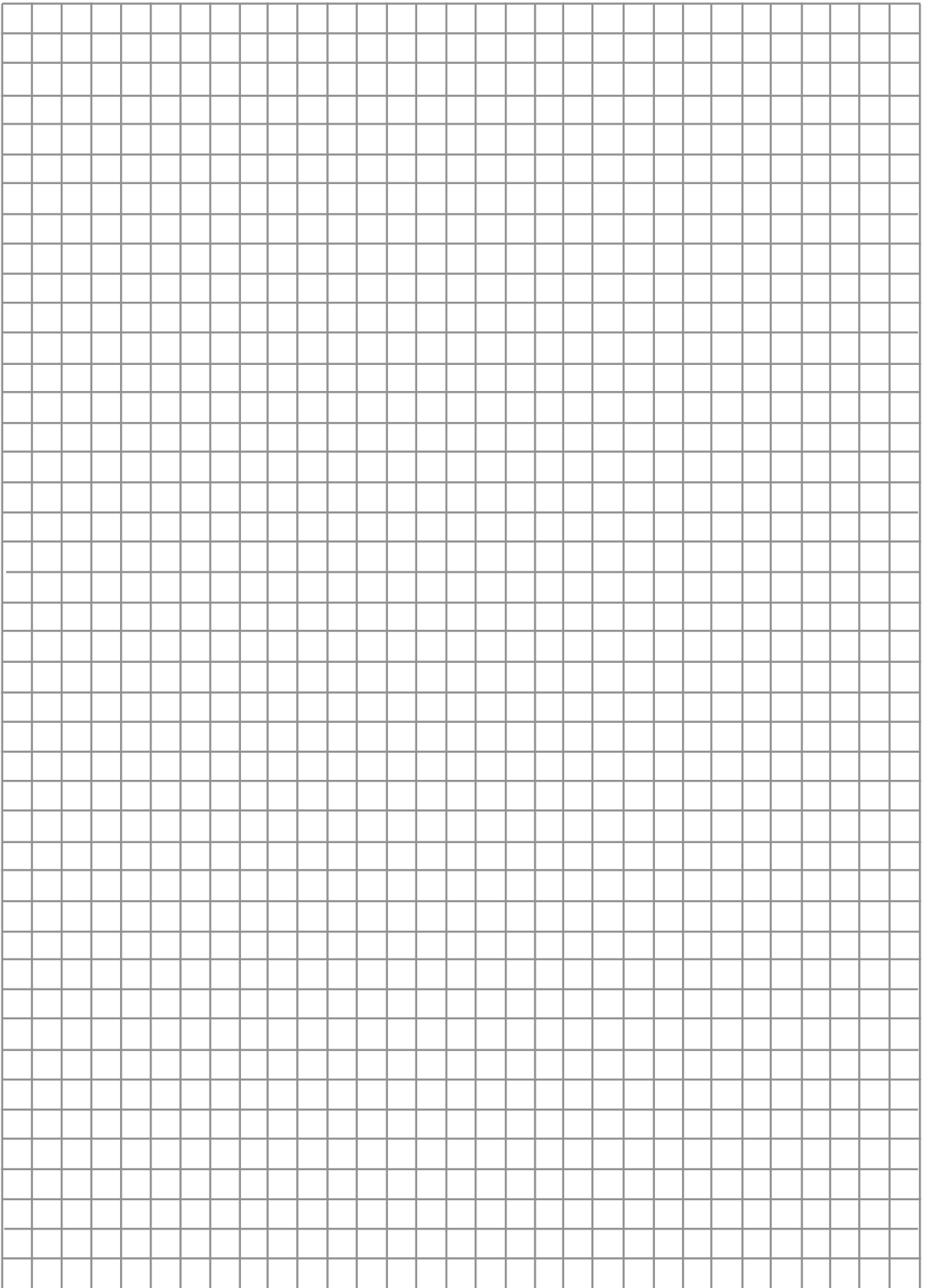












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Institute of Indian Interior Designers (IIID) founded in 1972 is the apex professional body of Designers in the country. It strives to establish good professional & trade practices and ethics amongst its members and to highlight and enhance the stature of the Interior Design Profession. Giving back to the Society for a better tomorrow, aided with Good Design responses, to meet the challenges of our times across all social and economical strata is an important mission for IIID. This publication is an Initiative to promote the 'Design Literacy for All' campaign of IIID.

The Handbook on Design Tips aims to provide insight into common design issues faced by people while shaping their spaces, particularly the 'Universal Dream of Homes' to even those who may not have access or means to hire Professional Designers. It is divided into nine sections each focusing on a different aspect of home design. Every tip is optimally explained using a sketch for better understanding and awareness about general principles of design, sustainable concepts and other most sought answers to the readers and end-users. Turn the pages to know about furniture, planning, accessorising, affordability and much more.

IIID proudly dedicates this Publication to the Nation on the occasion of its 50th Foundation Day!

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