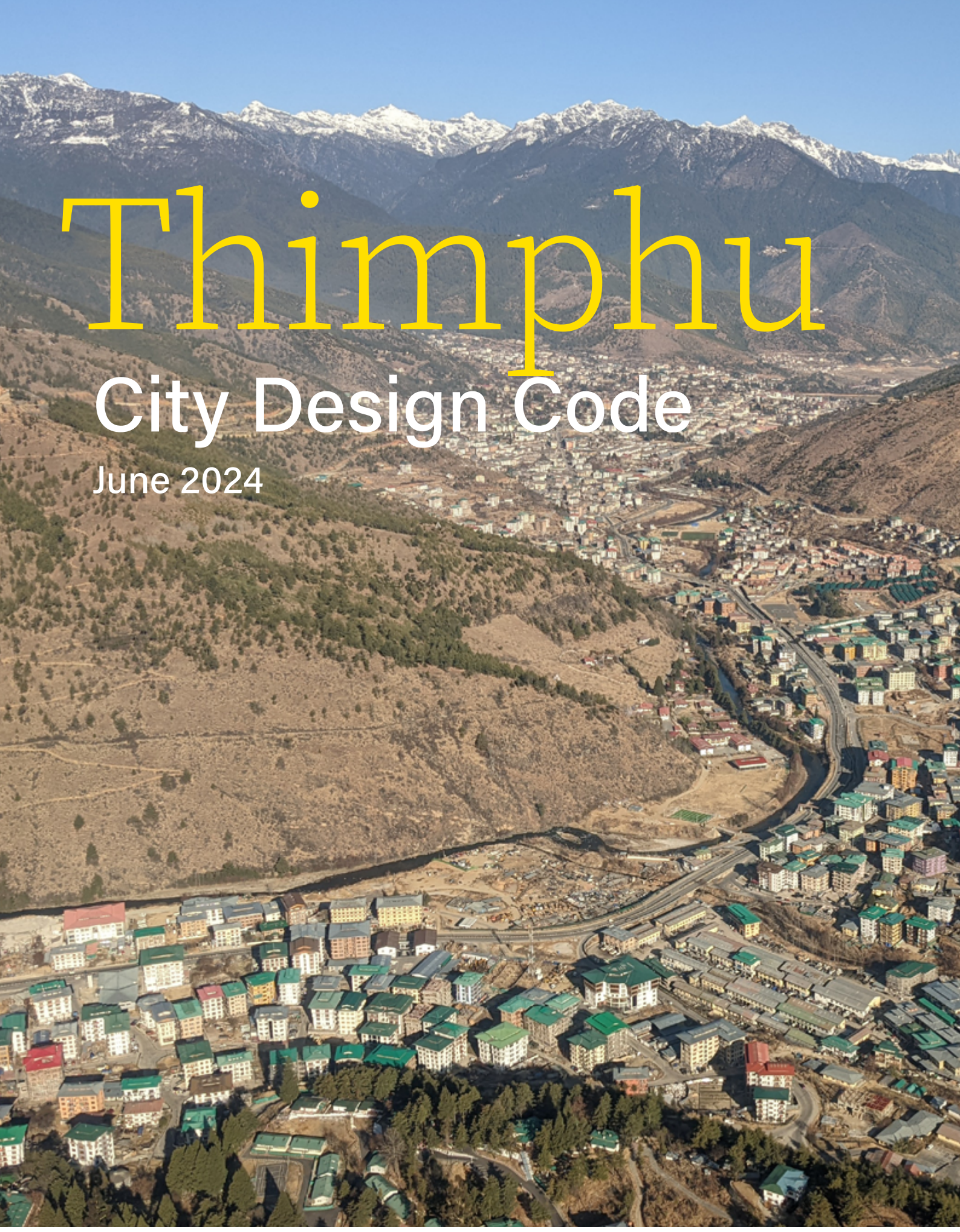
Thimphu

City Design Code

June 2024



Contents

Intro-
duction

Scope of the Design Code

The Scope of the Design Code

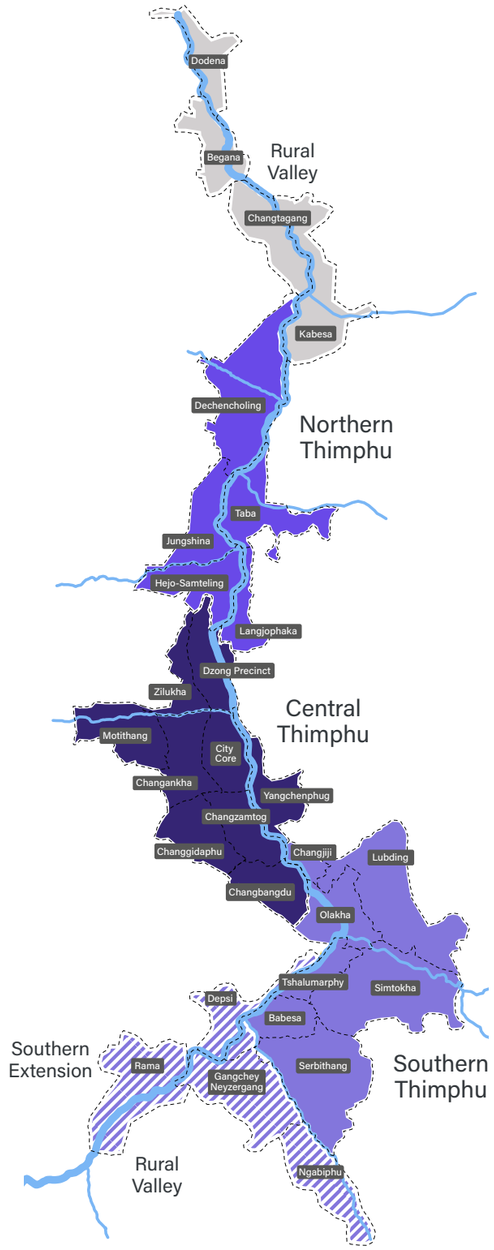
The Thimphu Design Code is a companion document to the Thimphu Structure Plan 2023 (TSP 2023), covering the same geographical area from Dodena in the north, to Rama in the south of the city.

Building on the proposition in the TSP 2023 of securing 'Good Growth in the Right Places', the Design Code provides a set of simple illustrated design requirements and guidance that govern the form of development and public realm interventions across Thimphu over the course of the TSP 2023 plan period.

TSP 2023 seeks to address Thimphu's socio-economic challenges and proposes a flexible plan that can adapt to the city's changing needs and cater to a transforming society. It sets out the key structuring principles for a 'Regenerative' city, that promotes sustainable growth through setting out a new land-use distribution, including a 'Centres Hierarchy', defining the parts of the city where additional development density should be achieved, including a future southern extension should growth pressures persist. This growth is supported by city-wide sustainable transport and utilities infrastructure.

Further, the TSP 2023 sets out policies for the preservation of heritage, natural landscapes, rural areas and agricultural settings, ensuring rural lives and the unique culture and identity of Bhutan can continue to be a feature within the city.

The Design Code illustrates the mandatory and discretionary design requirements for developments in the city with the aim of improving the quality of the built and natural environment, creating an enhanced city experience and a harmonious relationship between people, development and nature.



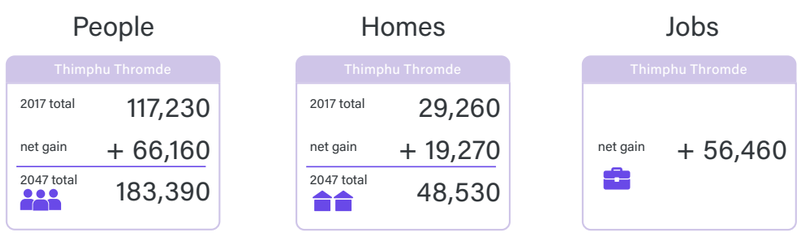


Fig.1 'Good Growth in the Right Places' - A sustainable basis for planning (TSP 2023)

Refer to TSP 2023, Chapter 2, 4 and 6

Relationships to other Documents

The Thimphu Design Code is the companion document to the TSP 2023 and shares the vision and supports and aligns with the principles and policies held within the document. The Thimphu Design Code supersedes and replaces the Bhutan Building Regulation (BBR) 2023, Small Plot Guidelines and the Development Control Regulation (DCR) 2016 within the area covered by TSP 2023.

As well as being the companion document to the TSP 2023, the Thimphu Design Code sits alongside a comprehensive set of Laws, Regulations, Standards and Guidelines already in place within Bhutan or across the city. These documents should always be adhered to in addition to the Thimphu Design Code. The Code does not replace or supersede these and references these where appropriate. This structure enables this suite of existing documents to be updated independently of the Design Code as and when necessary.

Who is the Design Code For?

The Design Code aids decision making of authorities while enabling design practitioners, developers and Thimphu's citizens to understand what can and can't happen in their city.

Decision-making authorities: can use the Design Code to control and guide development and public realm proposals. The Design Code will be used to inform decisions on development proposals and bring a consistent approach across different agencies. The Code provides requirements and guidance for the design of new and the retro-fit of existing streets and spaces so that authorities understand the expectations when upgrading the existing streets and spaces in Thimphu.

Designers and developers: through use of the Design Code, can see what type of development must be achieved across the city, what qualities will be encouraged, but can also use the Code to see and be inspired by the best, current urban practice.

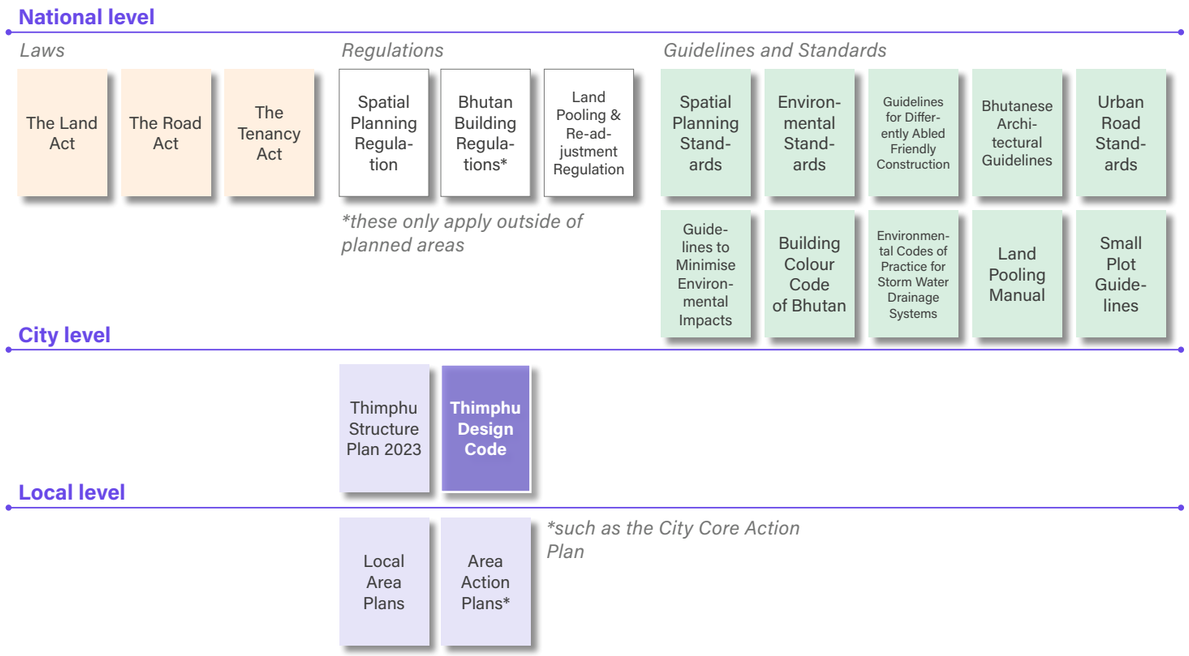


Fig.2 Relationship to other Documents

Vision

TSP 2023 Vision and 12 Design Code Principles

Working collaboratively with Centre for Bhutan & GNH Studies (CBS) and Doughnut Economics Action Lab (DEAL), the principles of Gross National Happiness (GNH) within the Doughnut are adopted in TSP 2023. There are two key principles through which TSP 2023 puts Doughnut Economics into practice. These principles underpin the TSP 2023 key planning policies, and spatial planning framework:

- **Be distributive.** Share opportunity and value with all who co-create it.
- **Be regenerative.** Aim to work with and within the cycles of the living world.

Thimphu's population growth needs to be supported by a regenerative economy. This should incentivise and structure current and future investment towards more inclusive and distributive practices. Thimphu should grow by ensuring residents have more equitable access to employment opportunities and community facilities.

The 12 Design Code Principles (see Fig.3) were developed as part of the TSP 2023 process and have been used to inform the content of this Design Code. Whilst the Code does not fully follow these Principles in terms of its structure, they are embedded throughout the Code's requirements and guidelines.

Cultivate Balance	Create Opportunity	Nurture Communities	Inspire
Context The context, heritage and character of an area will influence the siting and design of new development.	**Connections** A well-connected and inclusive network offering choice for moving around the city, making opportunities accessible for all.	**Living Neighbourhoods** New homes will be accessible, inclusive and sustainable, supporting healthy and happy communities.	**Identity** A diversity of places with distinct identities, reflecting a contemporary Bhutanese urban culture, will shape how we grow, adapt and develop into the future.
Natural Environment New development will contribute to the welfare and resilience of human and natural ecosystems, tackling the climate.	**Clustering of Uses** Clustering of uses will reflect local needs, create vitality, and support economic activity and community life.	**Streets** The design of streets will encourage social interaction, bring people closer to nature and increase levels of active travel.	**Resources** New development will be regenerative by design, conserving natural resources and respecting the limits of the living world.
Urban Structure An urban framework that will support compact, liveable and easily accessible places will guide how new development is delivered.	**Built Form** The relationship between buildings and public realm will deliver a compact form of development that adapts to a variety of uses and character areas.	**Landscape & Open Space** A network of green spaces will provide opportunities for people to enjoy time outdoors, improving the quality of life.	**Stewardship** Local communities will participate in the creation and management and maintenance of high-quality places for generations to come.

Fig.3 The 12 Design Code Principles, part of the Vision for Thimphu (TSP 2023)

Refer to TSP 2023, Chapter 3 and 16

Five Places within the City

The Thimphu Structure Plan 2023 defines 'Five Places within the City'. These five urban Places and the rural valleys beyond the city have been defined in order to inform varied identities through the city and reduce the general homogeneity and lack of specific character currently found in the city. See Fig.4.

Three of these Places are formed through the grouping of adjacent neighbourhoods and are consistent with the City Centre and the two proposed Sub-districts described in the TSP 2023: Central Thimphu, Northern Thimphu and Southern Thimphu. Two further Places lie at the northern and southern extents of the City, each providing a suburban transition to the rural valleys to the north and south of the city. One of these suburban places already exists at Dechencholing, while another will be formed in due course at Rama and Depsi. Outside of the urban areas described above is the northern and southern Rural Valley, consisting of rural landscapes and villages such as Kabesa and Namseling.

The Character Statement chapter (see CS codes) of the Design Code describes the desired future identity of these Places. Descriptive Character Statements identify the current and desired future characteristics of place and Checklists describe some of the ways, if employed, that future developments and public realm proposals could contribute to forming these characteristics and encourage a different identity and character to be formed over time.

The CS-Character codes provide an 'overlay' to be applied in addition to the requirements and guidelines of other codes such as BF-Built Form, US-Urban Structure and LU-Clustering of Uses. While these other codes go some way to forming character through required variation in built form and massing, the CS-Character codes ask applicants to consider and contribute to forming a set of more contextual and specific character areas through four themes (Built Form, Activity, Streets, Open Spaces) that vary between the Places.

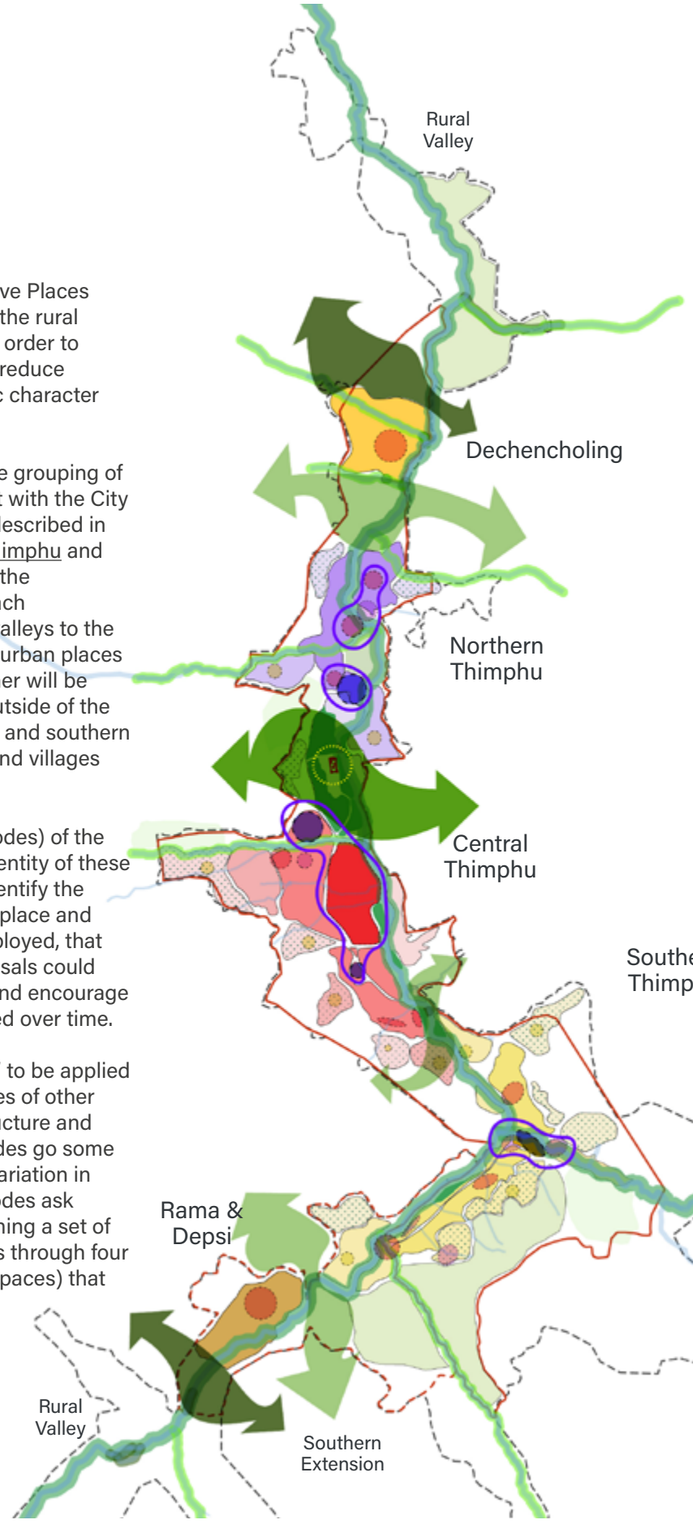


Fig.4 Places within the City and the Rural Valley

Refer to TSP 2023, Policy US6

Relationship to TSP 2023

A reformed Spatial Framework

The Thimphu Structure Plan 2023 (TSP 2023) establishes a reformed framework for development management decisions and procedures based on international best practice policies, regulations and standards.

The development control structure of TSP 2023 moves away from plot and precinct-level regulation to a more integrated and multi-layered spatial and policy framework approach. This results in a development plan that is more responsive to a site's features and local context and a flexible framework that can respond to changing demographic, economic, and community needs.

The TSP 2023 provides a set of Policies and Spatial Plans alongside a series of proposals for the city. The Policies and Spatial Plans set out mandatory development parameters that all future proposals must comply with.

The proposals describe the interventions that will be required to transform the city. Together, these Policies, Plans and proposals provide a future context that should be understood by developers, landowners and designers. Refer to TSP 2023 for full information and CX codes and CX-Checklists within this document.

TSP 2023 Policies and Spatial Plans will control and guide development alongside the Thimphu Design Code. Essentially, the Design Code is a companion document to the TSP 2023 - where:

- the TSP 2023 describes **where** development should be located within the city; while,
- the Design Code describes **how** development should occur.

A series of Area Types have been defined and mapped as part of the TSP 2023 (See Policy US6). The Area Types form the basis for much of the Design Code. See Fig.5 and Fig.6.

Area Types support the creation of identity and a sense of place. They are informed by an understanding of the existing place which includes experiences, lifestyles, activities and location within the city's urban structure and natural setting. Development within an Area Type should share certain urban and built form characteristics such as density, building heights, land use mix and street enclosure, for example.

To support the definition of specific built form characteristics, requirements and guidelines for different Area Types are provided throughout this Design Code as a set of code 'Variations.'

Other Spatial Plans of most relevance to the Design Code are:

- **Urban Structure:** Land Use, Centres Hierarchy, Density, Building Heights, Area Types (Policies US1, US2, US4, US5, US6);
- **Community Facilities:** Community Facilities Standards, Co-location & Integration (Policies CF1, CF2);
- **Protections:** Geohazards, Protected Landscape, Cultural Heritage, View Corridors (Policies P1-P4)
- **Green Infrastructure:** Open Space, Green Corridors (Policies GI1, GI3);
- **Transport:** Non-motorised Transport, Public Transport, Vehicular Circulation, Car Parking (Policies T1, T2, T3, T4).

TSP 2023 Area Types - Categories			
Urban Area Types	**Suburban Area Types**	**Rural Area Types**	**Other**
City Core Major Employment Urban I - Valley Floor Urban II - Valley Sides	Suburban I - Valley Floor Suburban II - Valley Sides Suburban III - Forest	Rural - Agriculture and Forest	Heritage & Culture Landscape & Open Space

Fig.5 TSP 2023 Area Types - Categories

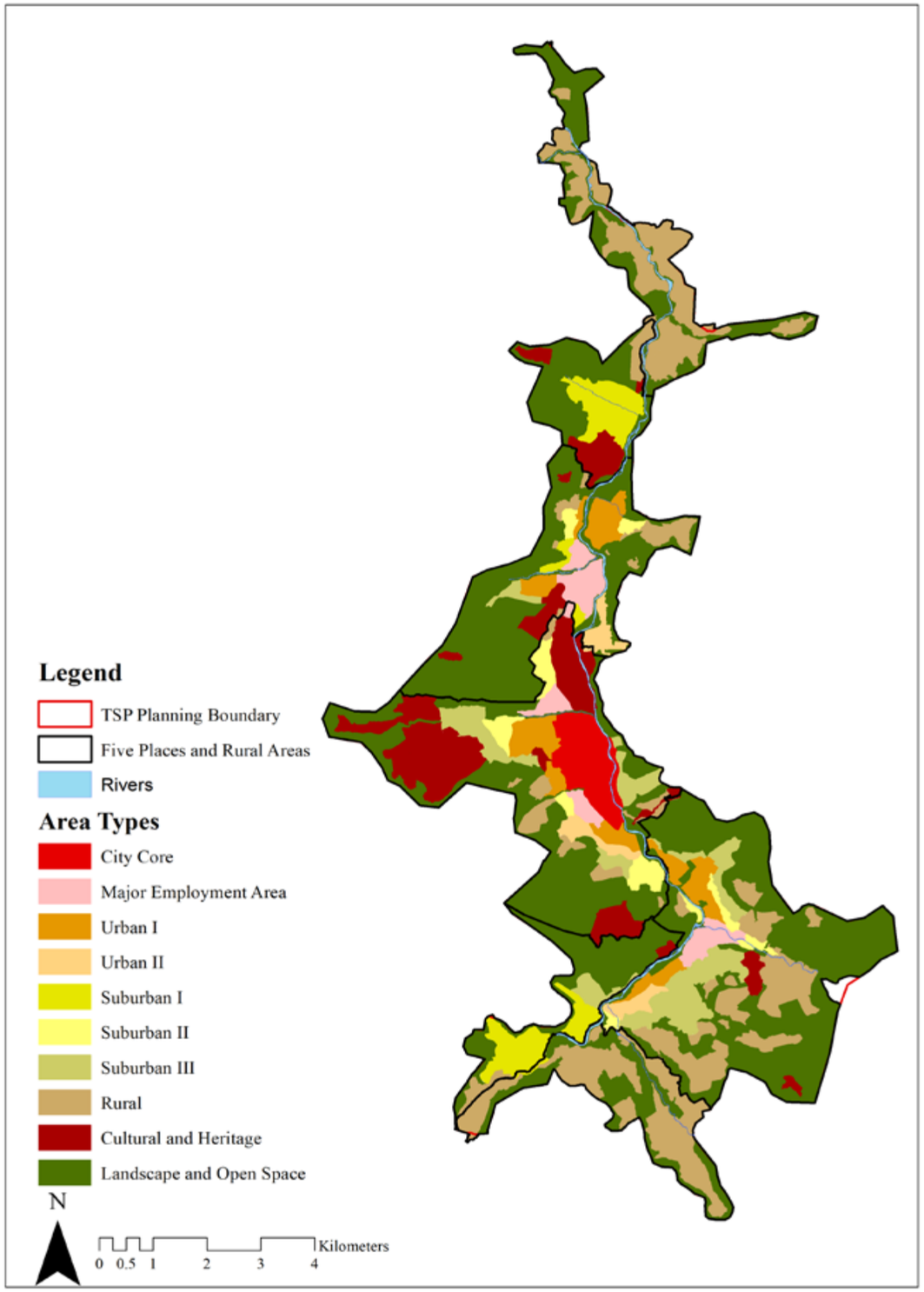


Fig.6 TSP 2023: Area Types and the Five Places within the City

Refer to TSP 2023, Policy US6

Navigation

The Structure of this Design Code

The structure of the document and an outline of the content is provided in Fig.8 and Fig.9.

There are four major Sections within the Design Code document: Introduction & Purpose, Design & Planning Process, The Codes and Defintions & Compliance. All applicants, architects/designers and developers should read Sections 1, 2 and 4 and read the relevant parts of Section 3. Within Section 3 there are five Code Chapters:

- City-wide codes;
- Place codes;
- Development codes;
- Comprehensive Development codes; and
- Public Realm codes.

Different parts of the Code relate more strongly to different types of development. Those engaged in the upgrade of public realm elements must read the Public Realm codes, for example, or those engaged in Comprehensive Developments (see Fig.7) must read the Comprehensive Development codes, amongst others. Who should read and comply with the codes in a particular Chapter is set out in Fig.9 and on the first page of each Chapter of the code.

Types of Development		
over 2,000sqm plot size	**Comprehensive Development**	Promoted by public or private entities, on larger plots or on multiple, contiguous combined plots.
283-2,000sqm plot size*	**Standard Plot development**	Infill development, generally promoted by private entities, consisting of development across standard sized plots.
less than 283 sqm plot size*	**Small Plot development**	Infill development, generally promoted by private entities, consisting of development across very small sized plots.

Fig.7 Types of Development within Thimphu

Sections of the Design Code

1 Introduction & Purpose

Provides the scope of the Thimphu Design Code and restates the Vision and 12 Design Code Principles from TSP 2023. This chapter sets out the Purpose of the Design Code, then provides the document structure and content overview.

2 Design & Planning Process

Sets out a changed process for making Planning Applications with new processes and information required to enable assessment of compliance and quality.

3 Design Codes →

Provides the requirements and guidance for development and public realm proposals within Thimphu. This chapter includes: City-wide codes, Place codes, Development codes for both Small and Comprehensive Developments and Public Realm codes.

Throughout this chapter are interspersed a series of visual 'Demonstrations' of the Code - or illustrations to show 'what good looks like'.

4 Definitions & Compliance

A Compliance Checklist for applicants to use and submit as part of their application will demonstrate compliance of ther proposal with the Code. This can also be used as an index.

Other Check-lists are compiled here, included to aid applicant's understanding of requirements for responding to Site and Site Context conditions and TSP 2023 policies and proposals (now requested/required as part of the Planning & Design Process).

Fig.8 Structure and content of the Design Code - overview

Structure of the Design Code chapters

City-wide Codes

RS Resources

SW Stewardship

Provides requirements and guidelines for all types of proposals to encourage the sustainable use of critical resources such as materials, water, energy and waste. Provides guidelines for the fuller participation of the community in the design, management and maintenance of proposals and parts of their city.

Place Codes

CX Context

CS Character

CS1 Central Thimphu

CS2 Northern Thimphu

CS3 Southern Thimphu

CS4 Dechencholing

CS5 Rama & Depsi

CS6 Rural Valley

Provides requirements and guidelines to guide appropriate design responses to existing (CX codes) and future (CS codes) contexts, including heritage responses. Ensures alignment with TSP 2023.

A set of related CX-Checklists are held within Section 4 of the document.

Development Codes

BF Built Form

Provides requirements and guidelines for developments on Small and Standard Plots as well as for Comprehensive Developments.

Comprehensive Developments

US Urban Structure

LU Clustering of Uses

Provides requirements and guidelines for Comprehensive Developments only, including guidance for forming 'mixed use clusters' to support the creation of the Centres Hierarchy described within the TSP 2023.

Public Realm Codes

NE Natural Environment

Provides guidelines for improving biodiversity and nature in the city, including guidelines for sustainable drainage.

LO Landscape & Open Spaces

ST Streets

ID Public Realm Identity

Provides requirements and guidelines for forming new or upgrading ('retro-fitting') existing streets and public spaces. These codes support and align with the Transport, Green Infrastructure and Protections Policies within TSP 2023.

Fig.9 Structure and content of the Design Code: Section 3, The Code Chapters

Generally, the CITY WIDE CODES will contain more Guidelines than Requirements. These will apply to all types of developments, across the whole TSP 2023 area.

The PLACE CODES apply across the whole TSP 2023 area. CX-Context codes and the relevant CS-Character codes will apply to all types of developments. All applicants should demonstrate compliance with these.

The DEVELOPMENT CODES will be most relevant to landowners, developers and architects. These will provide codes that will drive different built form responses for each Area Type and more specific Edge Conditions.

The PUBLIC REALM CODES will be most relevant to public authorities and entities engaged in Comprehensive Developments. These will apply to all types of developments, across the whole TSP 2023 area.

How the Code is Written

The Design Code is a partly written and partly illustrated document.

The written codes provide the required responses, with sentences containing the word must. These requirements must be complied with.

Some written codes provide more aspirational guidance, with these sentences containing the word ***should***. These are responses that applicants are expected to achieve where-ever possible.

Written codes will sometimes be accompanied by additional text. Explanatory text provides further detail or a fuller understanding of the purpose of the code and Best Practice text describes very aspirational or advisory possibilities and will sometimes contain the word ***could*** or ***can***.

The written codes are supported where-ever possible with illustrations in the form of 2D or 3D diagrams or photos which demonstrate or further explain the written code. These illustrations are generally for illustrative purposes only.

In addition, throughout the Codes there are supportive illustrations which are called Demonstrations. These again are illustrative only and provide further explanation of a group of written codes and showcase the types of development that the Design Code seeks to create.

How the Code is Written		
Must	Codes that are REQUIREMENTS.	Generally, these are measurable and have targets; e.g. min./max. dimensions, GFA's, areas, etc.
Should	Codes that developers/ designers are EXPECTED TO ACHIEVE.	Generally, these are guidelines that are important to achieve but may not be possible in every situation.
Could	Guidelines that are ASPIRATIONAL.	'Tips for best practice' or showing a possible way of achieving good out-comes.

Fig.10 Design Codes - how the Code is written

Interactivity tabs (allows the reader to move between different parts of the Codes when viewing in digital format)

Indicates Code VARIATIONS for different Area Types

Colour theme across titles and illustrations indicates what type of Code: Place, City-wide, Development or Public Realm Codes.

Objectives of this Code

Code reference

Written codes which contain the requirements (using 'must') and guidelines (using 'should').

Will often include 'Explanatory text' providing additional information or 'Best practice' text (using 'could').

Supporting illustration (photo, 2D or 3D diagram) - demonstrating or reinforcing the written code

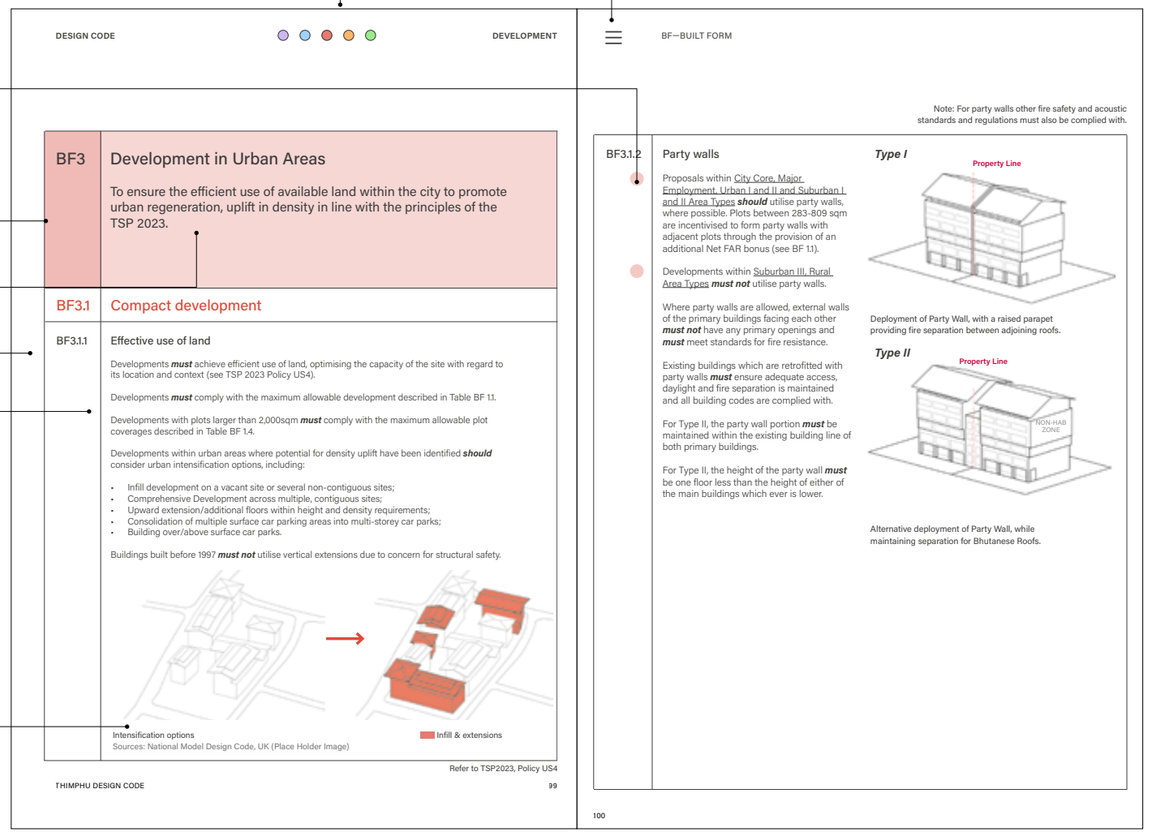


Fig.11 Design Codes: Typical page layout

How to use the Design Code

1

For all types of proposals.....

Look at the City-wide Codes that apply to any development or open space, anywhere in the TSP 2023 area.

- RS Resources
- SW Stewardship

2

For all types of proposals....

Check Policies and Spatial Plans within the TSP 2023.

Confirm which Place the site is located within.

Look at Place Codes: Consider and analyse the existing Context and Site Conditions. Look at Character Statements and Place Check-lists.

- CX Context
- CS Character
- CS1 Central Thimphu
- CS2 Northern Thimphu
- CS3 Southern Thimphu
- CS4 Dechencholing
- CS5 Rama & Depsi
- CS6 Rural Valley

3

If a development proposal....

Check which Area Type the site is within and if located adjacent to an Edge Condition.

Check if proposal is a Small or Standard Plot, or a Comprehensive Development.

If a Small or Standard Plot or a Comprehensive Development look at BF-Built Form codes.

- BF Built Form

If a Comprehensive Development look at US-Urban Structure and LU-Clustering of Uses codes in addition to the BF-Built Form codes.

- US Urban Structure
- LU Clustering of Uses

4

If retro-fitting or creating new streets and spaces...

Look at Public Realm Codes and look at codes for the specific space type e.g. Street or Public Open Space

- NE Natural Environment
- LO Landscape & Public Spaces
- ST Streets
- ID Public Realm Identity

Please note: Interactivity is provided by the coloured tabs above (allows the reader to move between different parts of the Codes when viewing in digital format).

Purpose

Purpose of the Design Code

The Challenge

Over the last 20 years, the City of Thimphu has grown at an unprecedented rate. New development has consumed almost all available land and in places this has compromised the cultural and natural landscapes of the City. In particular, the original Thimphu Structure Plan (2003/4) has encouraged rapid commercialization of land in private ownership, delivered substantially through the use of imported materials and low skilled labour. At the same time, publicly owned land has more often been developed at lower density and remains under-utilized, while investment in critical physical and social infrastructure have fallen behind the pace of change.

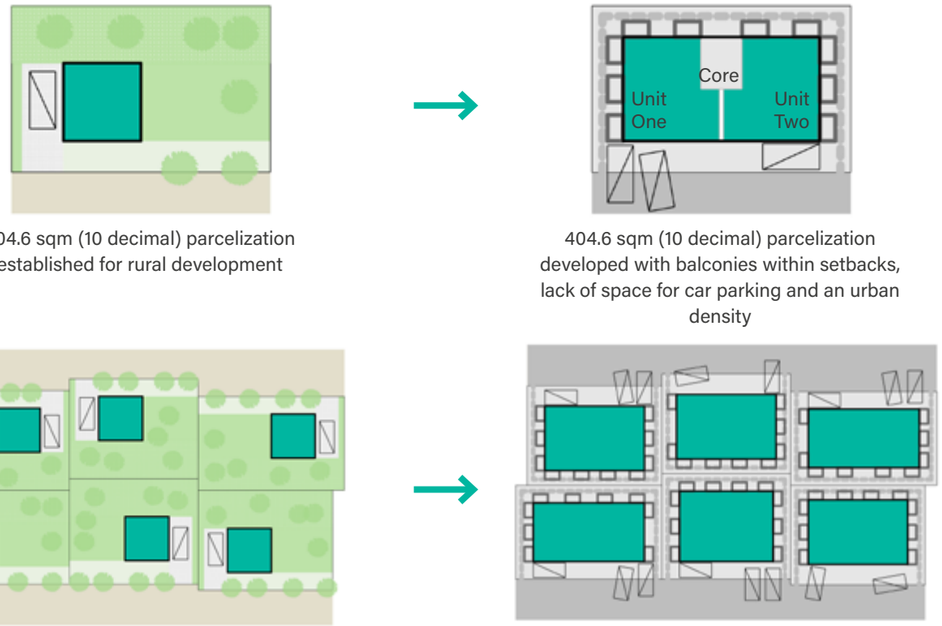
This, in combination with the requirements provided by the DCR (2016), has formed a series of problematic and unsustainable conditions across the City. This has created a systematic challenge for the City looking to the future. In considering the form of new development, three main challenges stand out:

1. Suburban parcelisation with urban density.
High density development has been encouraged on small plots, without due consideration for the conditions created between and around buildings. Typically, 4 to 6 storey standalone mixed use and apartment buildings have been built to fill plots of 404.6 sqm (10 decimals), but within a plot structure that is more suitable for small footprint, 2 storey suburban or rural development. This pattern of high density development within small parcels has restricted variation in the building morphology found across the city, leading to a uniform and undifferentiated character within neighbourhoods and lack of range and choice of places for people to live.

2. Quality of spaces between buildings
Across the city, buildings have often been built very close to one another, creating poor quality conditions and a lack of amenity for residents and other building users. Access for residents to daylight and sunlight, fresh air and ventilation, as well as visual and acoustic privacy has been compromised. Buildings have been formed with little concern for the creation of amenity spaces between buildings, including safe and accessible streets, shared gardens, areas for play or other shared informal spaces that could foster community vitality.

3. Architectural identity
New urban building typologies combined with the use of imported materials and construction techniques have often led to inappropriate and low quality architectural outcomes. There is concern that this is eroding Bhutan's distinctive and unique architectural culture and reinforcing the lack of differentation across the city.

Taken together, the rapid urbanisation process has led to a fragmented and inefficient utilisation of land and the generation of compromised building types, with small and inefficient floor plates. These low quality outcomes are neither good for residents or other building users nor are they sustainable or valuable to building owners over the long term. There is therefore an urgent need to improve sustainability and quality within the built environment, for the City to flourish into the future.



404.6 sqm (10 decimal) parcelization established for rural development

404.6 sqm (10 decimal) parcelization developed with balconies within setbacks, lack of space for car parking and an urban density

Rural cluster of 404.6 sqm (10 decimal) plots and 2 storey buildings set in gardens and landscapes

Urbanization of plots more suitable for rural or suburban conditions

Fig.13 Suburban parcelisation with urban density

From rural archetypal 'village cluster'

To poor quality of spaces between urban buildings

And erosion of Bhutanese architectural identity

Fig.12 The challenge - how rapid urbanisation has led to poor quality outcomes for the city and its residents

A New Approach

A point of change in development practices has been introduced by the Thimphu Structure Plan (2023), with the fundamental principle of directing 'Good Growth in the Right Places.' The TSP 2023 aims to develop the city by encouraging a greater density of development in 'the right places' and restricting over-development in 'the wrong places.' This approach promotes the regeneration of the existing footprint of the City while actively seeking to conserve and better protect both the City's natural setting and the parts of the city and the rural Thimphu Valley that offer strong character and identity.

This regenerative approach to the City's development promoted by the TSP 2023 will require a different attitude to the form and process of development. A new way of building must be encouraged. In some cases, a more comprehensive approach to development will be required, potentially promoted by new, larger development entities or the public sector. However, at the same time significant development will continue to be brought forward on small plots by individual developers and land owners. Each type of development will have a role to play and the Design Code has therefore been developed to apply equally to all types of development. Fig.14 provides a summary of how a development can come forward in a comprehensive manner to create varying character within the different Area Types defined within the city by the TSP 2023. Material within the Code, described as 'Demonstrations' provide illustrations of the outcomes when Codes are applied to both comprehensive and small plot developments.

Codes related to public realm and open spaces acknowledge that many of the city's streets and public spaces have already been established and a gradual upgrade of these will be required to form attractive, enjoyable and resilient spaces. Codes related to the natural environment and public realm within the city, apply equally to the retro-fitting of existing streets and spaces as they do to the creation of new ones within more comprehensive types of development.

The Thimphu City Design Code, as the companion tool to the TSP 2023, aims to provide pathways to better practice in the interests of all involved in creating a more sustainable and higher quality built environment.

City Core Area Type

Parameters	DCR	Design Code
Plot size	75 x 32m	75 x 32m
Plot area	2,400 sqm	2,400 sqm
GEA	7,200 sqm	8,160 sqm
Net FAR	3.0	3.4 **(+13.3%)**
Building footprint	1,200 sqm	1,794 sqm
Plot coverage	50%	75%

Urban I Area Type

Parameters	DCR	Design Code
Plot size	80 x 66m	80 x 66m
Plot area	5,280 sqm	5,280 sqm
GEA	15,840 sqm	16,896 sqm
Net FAR	3.0	3.2 **(+6.6%)**
Building footprint	2,640 sqm	2,870 sqm
Plot coverage	50%	54%

Suburban I Area Type

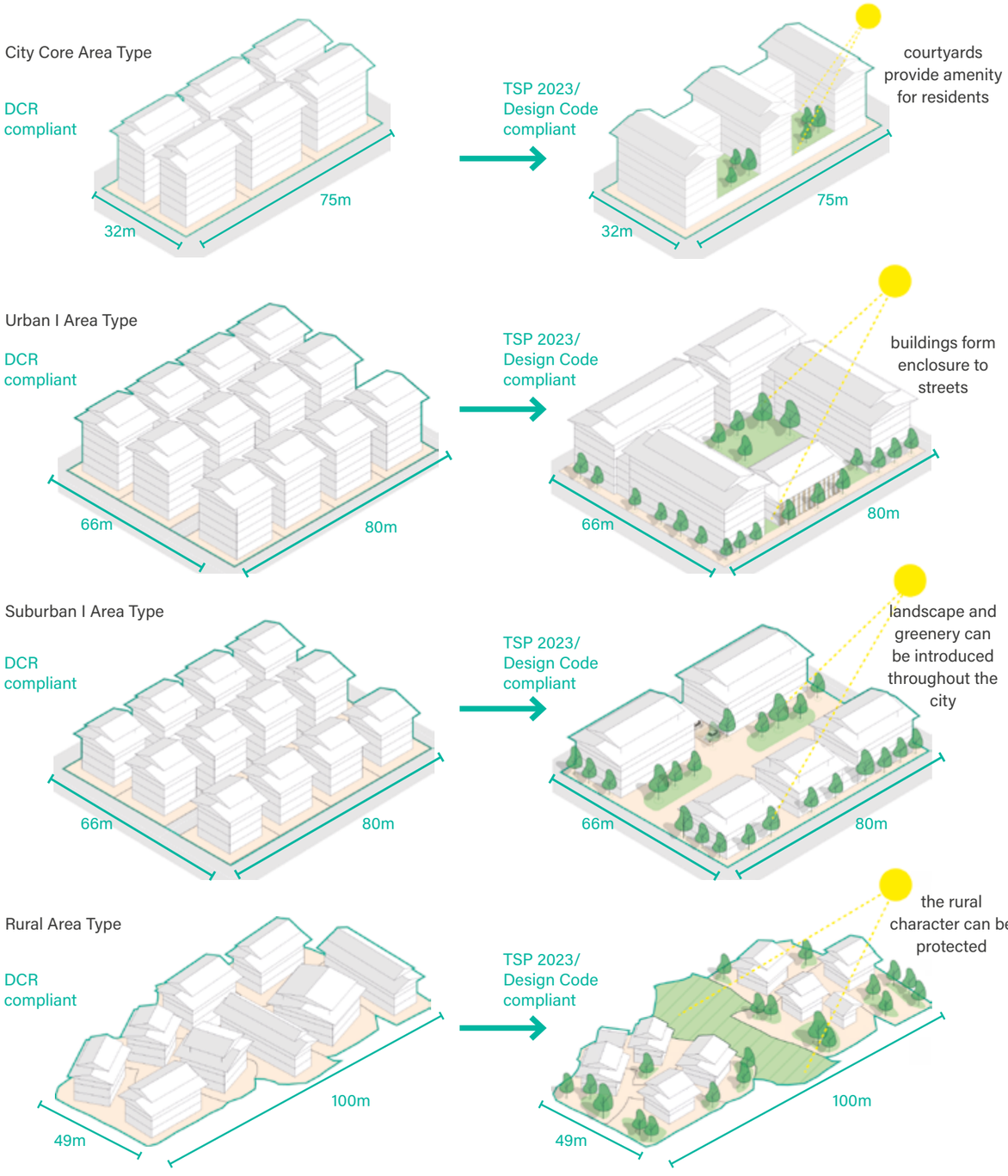
Parameters	DCR	Design Code
Plot size	80 x 66m	80 x 66m
Plot area	5,280 sqm	5,280 sqm
GEA	10,560 sqm	8,980 sqm
Net FAR	2	1.7
Building footprint	2,640 sqm	2,220 sqm
Plot coverage	50%	42%

Rural Area Type

Parameters	DCR	Design Code
Plot area	4,900 sqm	4,900 sqm
GEA	5,400 sqm	1,470 sqm
Net FAR	1.1	0.3
Building footprint	1,800 sqm	735 sqm

Fig.14 A new approach: Design Code compliant comprehensive development (in comparison to DCR compliant development)

Note: these tables and diagrams provide a comparison between what could be achieved under the former DCR regulations and what can be achieved under the Thimphu Design Code. This is intended to demonstrate the incentivisations held within the Code to pursue more comprehensive types of development that will have more benefits for the city and its residents.



Gradual transformation of the city

The Design Code sets a new vision for the City's built form and open spaces and establishes the basis for an evolving improvement and positive change in the built environment of the City.

As a key tool in the change process, the Design Code encourages the consolidation of small plots, through incentivisation, so that small land-owners can more easily meet the outcomes required and enjoy the benefits that can be achieved through the building of a better place.

Fig.15 provides an illustration of how development practices can gradually change through the incentivisations held within the Code, as follows:

- current practice allows even very small plots to be developed at high urban densities leading to inefficient building forms and inefficient use of land;
- the Code introduces a new structure that discourages the independent development of smaller plots through height restrictions and encourages land consolidation through party wall and density incentives;
- as plots gradually consolidate and become larger more development density is allowed, while at the same time other desirable outcomes become more possible to achieve e.g. setbacks, building separations, provision of outdoor amenity spaces and height variation;
- density incentives allow more flexibility in urban form and allows other objectives of the Code to be achieved such as greater privacy, better integration of car parking, stronger definition of streets and spaces and the creation of more space for nature and community within the city;
- this encourages new building typologies to be employed, which provide other benefits in terms of widening choice and access to housing for different households and lifestyles;
- new comprehensive developments will, in addition set a new quality standard for development, which will further incentivise small plot owners to contribute what they can to the city's positive transformation.

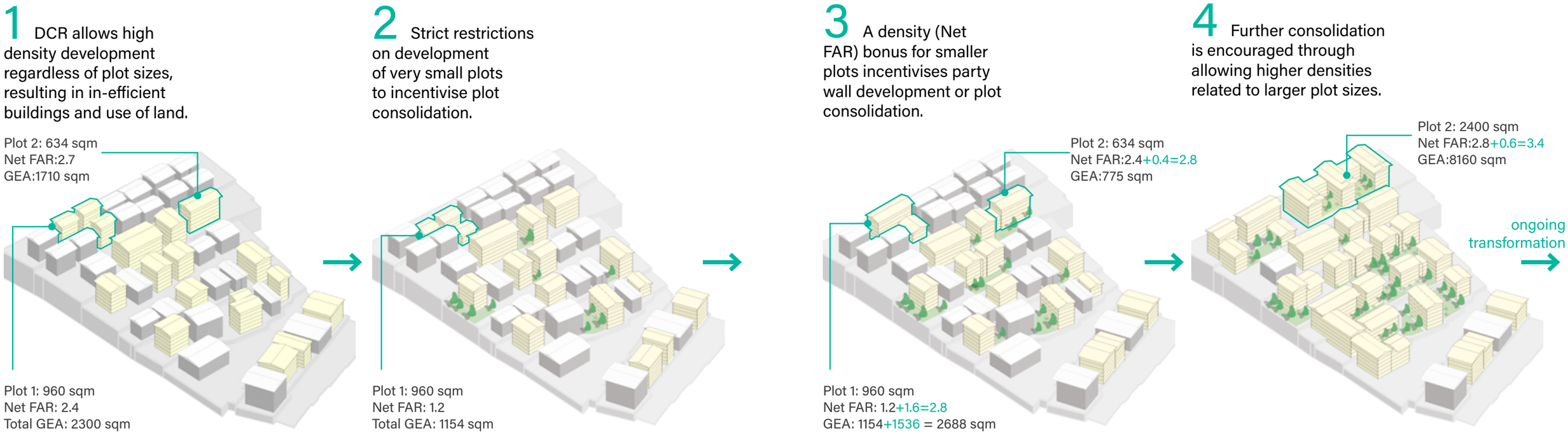


Fig.15 Gradual transformation of built form and development practices on small urban plots

The benefits of the new approach

The benefits of the new approach held within the Design Code are as follows:

- the quality of life and amenity of all those living and working in the city will be protected and enhanced;
- the long term value and sustainability of assets in the built environment will be secured, supporting positive social and economic outcomes;
- a more coherent urban character can be created, consisting of well spaced urban blocks, a legible, attractive and walkable street network with spaces well defined by development frontages;
- landowners of single small plots will be encouraged to develop in a different way, benefitting from the potential and value of intensification, through better integration with adjacent public realm and neighbouring properties;
- restriction of further plot subdivision and consolidation of existing small single plots through use of party wall and density incentives.
- the overall quality of development and the public realm will be improved, raising aspirations and expectations generally by showing what is possible to achieve;
- flexibility in approach will be encouraged and the appropriate innovation in design will be promoted;
- both public and private sector actors will be inspired, by the demonstration within the Code of the best practice in city making;
- the clear future vision set out in TSP 2023 will be reinforced through the creation of a series of identifiable Places within the city, that promote variety in character and encourages a distinctive Bhutanese architectural identity in an urban setting;
- a stronger and more sensitive response to the existing context will be encouraged, so that developments contribute to forming appropriate character and identity for different parts of city;
- certainty for all will be provided through a set of clear requirements for development of buildings and the public realm, which set new expectations for the planning approval process.

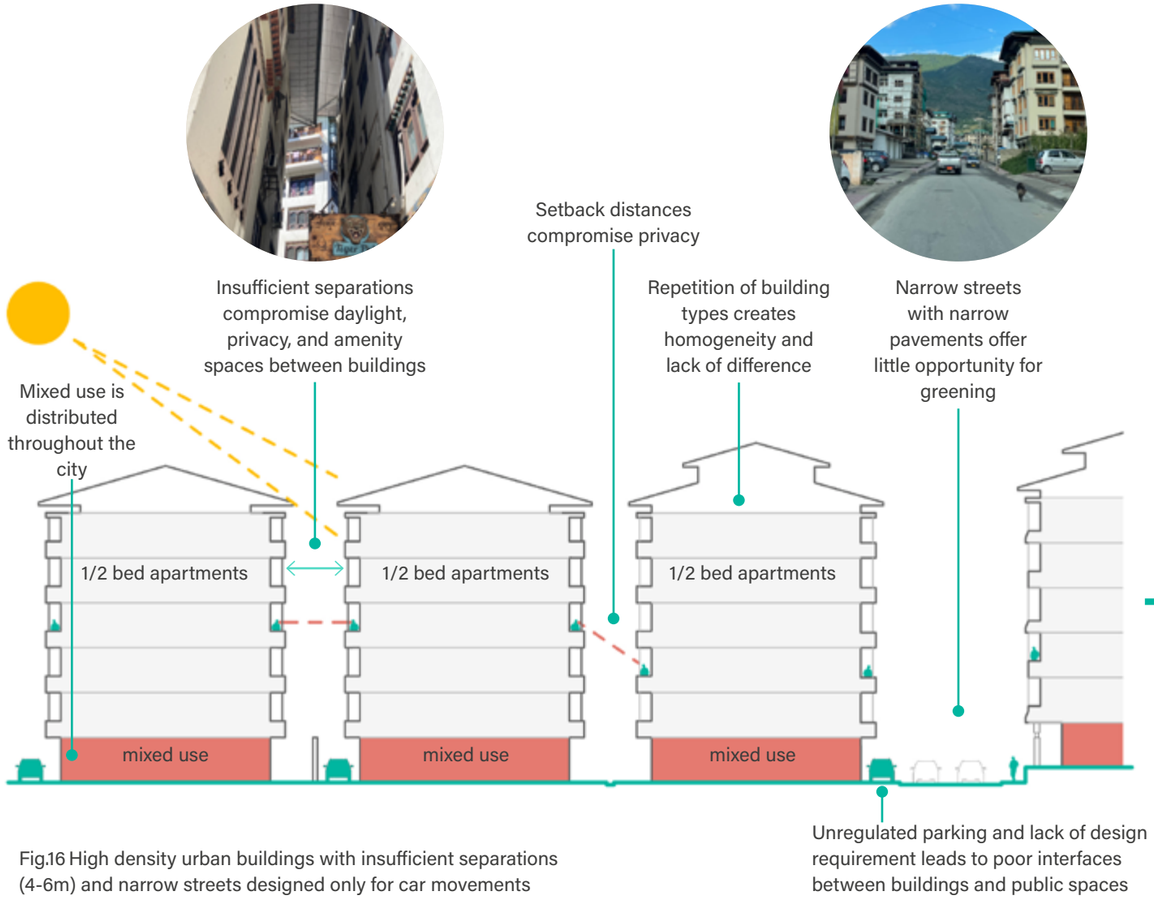


Fig.16 High density urban buildings with insufficient separations (4-6m) and narrow streets designed only for car movements

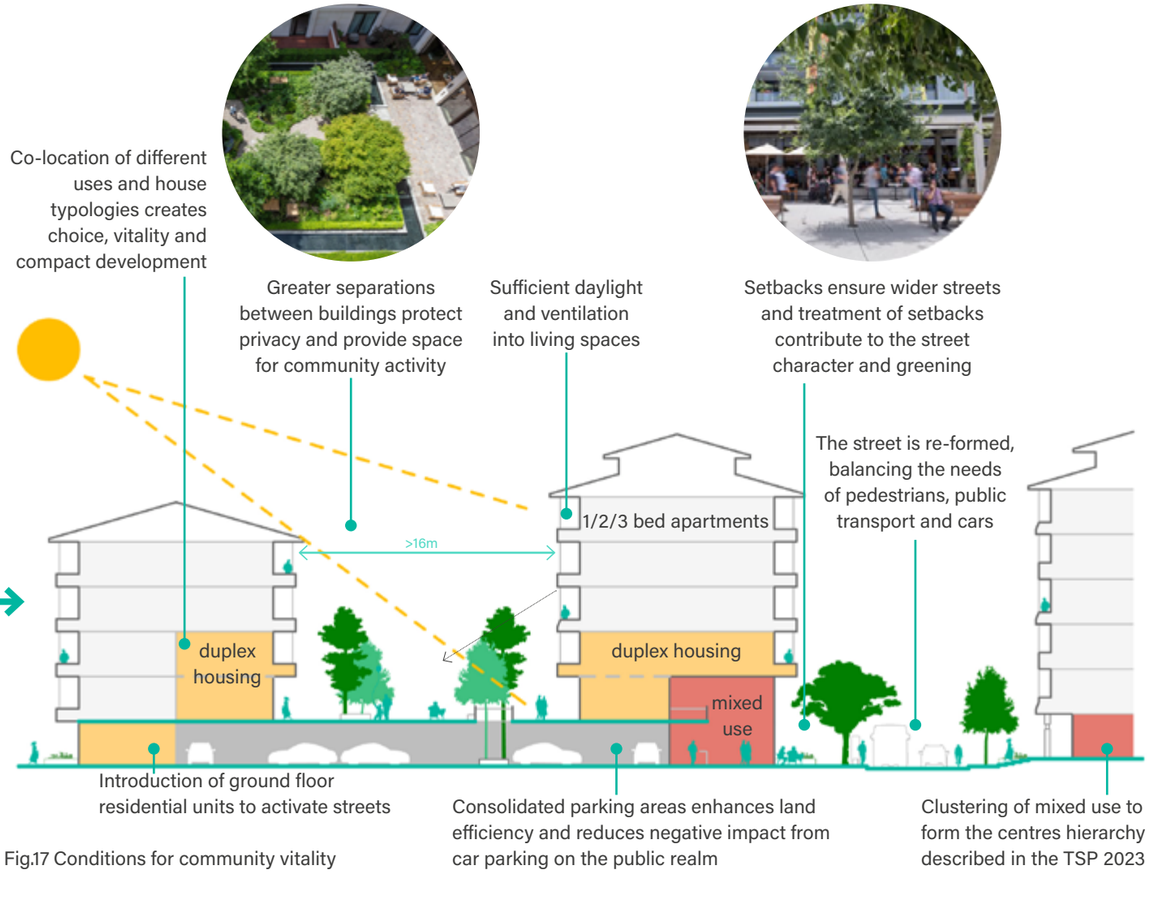


Fig.17 Conditions for community vitality

Design & Planning Process

Design and Planning Process

The following is a step by step guide to the new design and planning process required by the introduction of the TSP 2023 and the Design Code.

The Turnaround Time (TAT) for each stage of the Design and Planning Process must be kept distinctly separate.

Stage 1 - Planning permit

Appoint consultants: Confirm the appointment of registered professional or team of certified designers and engineers.

Confirm site boundary and land ownership: Obtain site map of the plot or site area and define the red line site boundary for site or plot subject to planning and building permit and confirm land ownership. Obtain ownership certificate from Land Records Section of Thimphu Thromde and from Planning Division of Thimphu Thromde.

Confirm site context (refer to CX codes): Define the 'context' for the site, and site map to cover wider area.

Engage with adjoining owners: Inform adjoining owners of intention to develop and discuss plot consolidation if relevant.

Stakeholder engagement: Engage local community and other stakeholders of intention to build, if relevant.

Check compliance with the Thimphu Structure Plan and Local Area Plan (refer to CX codes)**:** Identify existing relevant policies and guidance, such as Thimphu Structure Plan, Local Area Plans and demonstrate in principle compliance. Check for Hazard Zone.

Ground Investigation and Hazard and Risk Assessment (refer to CX codes): All development proposals must conduct a Topographic survey. Development sites outside of the Hazard Assessment Areas must carry out a Site Specific Ground Investigation. Sites within the Indicative Hazard Zones must carry out site specific detailed geotechnical studies. The land-owner/applicant will carry out these assessment through certified professionals and submit to the implementing authority. The responsibility will lie with the engineer and the firm completing the Hazard and Risk assessment to ensure that all relevant geohazards are accounted for in this assessment.
The assessment might identify that certain mitigation measures are required to facilitate development and as such, where development is feasible, the subsequent design would then need to address the relevant geohazards and mitigation measures required. This supporting documentation would then be submitted to an relevant agency for review. The results of this assessment may override the requirements in TSP 2023(chapter 9).

Preliminary analysis: Carry out a preliminary analysis of the site and establish site context including adjoining plots, building footprints and heights of existing buildings.

Re-use or demolition of existing buildings: Applicants should be directed by the implementing authority on the justification required for re-use or demolition or refurbishment.

Preliminary capacity study: Carry out preliminary testing of development potential for the plot or site using the Thimphu Design Code (refer to BF 1.1 to BF 1.4) to determine site capacity. Meet with implementing authority officials to discuss issues and agree progress to planning permit stage.

Utilities (refer to CX codes)**:** Applicants need to demonstrate the approach to connecting to and accommodating existing utilities within their site or plot.

Planning gain: Discuss principles of plot consolidation, Net FAR bonus and planning gain and agree mutual objectives.

Preliminary Report: submit preliminary report on land ownership, TSP 2023/LAP compliance, heritage constraints such as view corridors, utilities to the site, a copy of development intention letter and a preliminary site capacity study, accurately showing controlling mandatory elements, such as setback dimensions, parking areas, Net FAR, and other code requirements that impact on the design concept. Drawings to include:

- Site plan;
- Context area plan;
- Preliminary capacity study plans.

Planning compliance: Implementing authority grants or refuses planning permit. Additionally they must notify all the utility service providers and seek their clearance before granting permits.

Technical Committee: In event of a dispute or challenge, refer to Technical Committee.

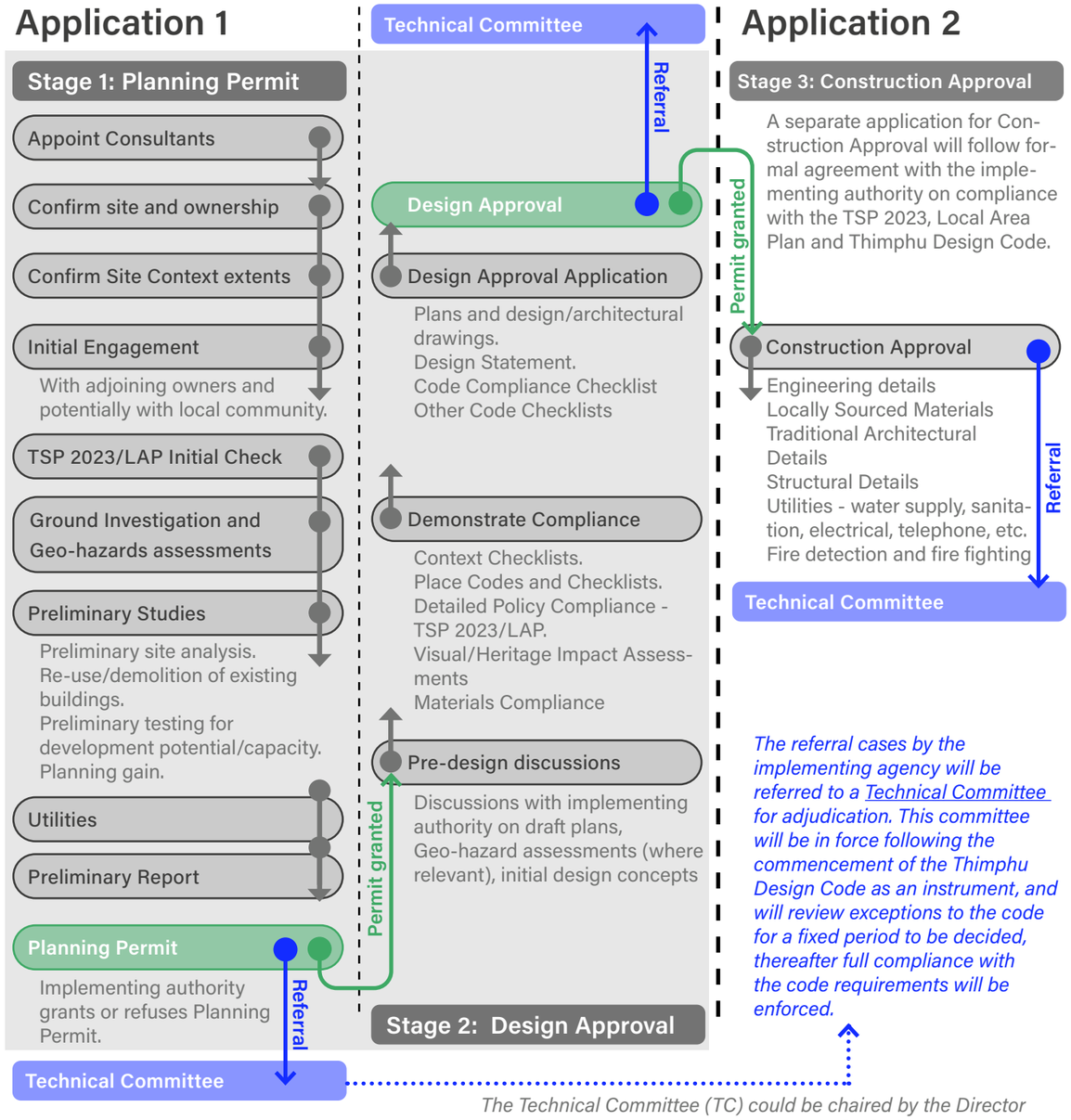


Fig.18 The proposed Design and Planning Process

Stage 2 - Design Approval

Site analysis: Analyse the site and surrounding context to understand the constraints and opportunities, taking account of local characteristics, social, cultural and environmental factors.

Context checklist (refer to CX codes)**:** A site analysis should be carried out and documented. Particular attention must be given to exploring the factors that have influenced the form of development, including the settlement morphology, pattern of plots and forms of boundaries, present and past uses of the site and the form, materials and detailing of buildings. Must also include an understanding of existing services and utilities.

Detail policy compliance (refer to CX codes)**:** Identify existing relevant policies and guidance, such as Thimphu Structure Plan, Local Area Plans, the relevant CS-Character Statement and Checklist in the Place Codes in Section 3 and other relevant documents and check compliance.

Place Codes (refer to CS codes)**:** Check compliance with relevant Place Code and checklist, and how the design supports the future characteristics for the area. The design of a site should be based on a site specific vision and accord with the Place Codes. Complete Place Checklist assessment to inform this and demonstrate compliance.

Concept design: A draft proposal and set of design parameters should be produced for the site covered in Codes reflecting a full appreciation of the site context, its opportunities and constraints, relevant policies and including a the design vision. Submit to the implementing authority to discuss, test and refine the design. Drawings typically include:

- Context plan;
- Site layout, showing all required elements/dimensions such as setbacks, building separations, parking location, density (Net FAR), etc.;
- Block form, including sections;
- Height and massing;
- Floor plans;
- Materials.

Proposals beyond the site boundary: The design concept should include details of proposed consolidation, land transfers and works to the public areas beyond the plot or site boundary.

Cultural Landscape/Heritage Impact Assessments (refer to CX codes)**:** Applicant to include a Heritage Impact Assessment for developments in heritage Buffer Zones as defined by TSP 2023.

Cultural heritage of local importance (refer to CX codes)**:** Demonstrate existing local heritage assets as defined by Local Area Plans are assessed for re-use before demolition.

Visual Impact assessment (refer to CX codes)**:** Applicant to include a Visual Impact Assessment for developments deemed to be within view corridors as defined by Local Area Plans that will set out zones of development that impact the view corridor.

Design Statement: The vision, design and design parameters should be summarised in a Design Statement to accompany the final submission. Subject to the scale, location and importance of the site, the site assessment should include:

- Context analysis – including neighbouring sites and closest roads;
- History of the site – previous uses and buildings on the site;
- Site characteristics – any specific features that may impact on the design concept;
- Relevant Policies and Guidance - summary;
- Design vision – with reference to Place Codes;
- Summary of design approach – design concept and detail design.

The context and site analysis should be included in the Design Statement with supporting plans, drawings and photographs, so it can be assessed by the implementing authority to demonstrate how the findings informed the design concept prior to a Planning Application being made.

Design Code compliance (refer to Section 4)**:** A Code Compliance Checklist should accompany the Design Approval application to self-certify compliance with the Thimphu Design Code.

Design Approval application: Full information should be furnished in the form along with the plan which should typically include (all plans/sections are Design/ Architectural drawings, not working drawings):

- Site location plan;
- Context plan;
- Utilities plan, showing location of existing and any new utilities and demonstrating the approach to connecting to these;
- Site layout, showing all required elements/ dimensions such as setbacks, building separations, parking layout, floor area and density (Net FAR), etc.;
- Floor plans;
- Roof plans, showing all required code elements/ dimensions such as roof separations, floor area;
- Sections;
- Design Statement;
- Code Compliance Checklist.

Design Approval: Subject to agreement by the implementing authority, a formal Design Approval will be granted.

Technical Committee: In event of a dispute or challenge, refer to Technical Committee.

A person/firm/body or developer shall not erect a building or carry out additions and alterations or carry out civil construction activity without obtaining a construction approval from the implementing authority. A building permit shall be issued only to the legal owner of the land/plot following approval of the planning application by the implementing authority.

Compliance with regulations and code: Drawings to demonstrate compliance, including structural details, services, fire materials details, drainage, construction, phasing and other building code compliance. All plans/ sections to be working drawings submitted as a single set.

Materials: applications for all works will need to demonstrate compliance with the Thimphu Design Code and building code on the use of approved materials, locally sourced materials, bio-build, finishes and colours.

Technical Committee: In event of a dispute or challenge, refer to Technical Committee.

*Upon release of the Design Code for Implementation, the respective implementing authorities must prepare and update the Standard Operating Procedure as necessary.

Note: The Design Review Panel does not have authority to provide approvals. After each review the Panel will provide a set of recommendations which will be considered by the implementing authority as part of the application process. The implementing authority will constitute the Design Review Panel.

Stage 3 - Construction Approval

A separate application for a Construction Approval will follow formal agreement with the implementing authority on compliance with the TSP 2023, Local Area Plan and Thimphu Design Code.

Design Review Panel

A peer review by a designated panel of recognised experts and peers from the built environment professions, including architects, engineers, landscape architects and highways engineers and may include representatives from the local community and their representatives where appropriate. The panel will provide independent advice to the implementing authority on the quality of the proposals to provide advice on design quality and code compliance that may be used to inform the planning decision:

The Panel will review proposals for the following:

- Comprehensive Developments by the public or private sector.
- New public buildings such as schools, health and leisure buildings;
- Designs for Metropolitan and City Parks for example the Metropolitan Park designated in TSP 2023 around the Dzong that form its setting;
- Proposals adjacent to, overlooking or visible from the Metropolitan Park;
- Designs for developments that form the river frontage for example in the City Core and Major Employment Area Types, as they will be the most prominent locations and tallest development at 5/6 storeys;
- Designs for proposals adjacent to, overlooking or visible from National Heritage and those related to the TSP 2023 city level View Corridors.

The Panel can also review and advise on innovative developments that break with established practice on which the implementing authority may choose to seek expert advice.

City-wide codes

This chapter provides requirements and guidelines for promoting conservation of resources, management and maintenance of developments and greater community participation.

These codes apply to all types of developments and public realm proposals across the city and in rural areas.

RS Resources

SW Stewardship

Who must read this section:

- Public authorities, developers and architects/designers engaged in the design of Comprehensive Developments and public realm and open space proposals.
- Public bodies engaged in developing and deciding on public realm and open space proposals.
- Developers and architects/designers engaged in the design of development on Small and Standard Plots.

RS—Resources

RS1 Adaptable and Flexible Buildings

To ensure that new development minimises the environmental burden, conserves scarce resources and reduces their financial cost throughout their lifetime. To ensure buildings can adapt easily to anticipated future events and conditions such as rising temperatures and reductions in car use.

RS1.1 Adaptability and re-use

RS1.1.1 Re-use of existing buildings

Existing buildings within a proposed development site ***must*** be surveyed, assessed for potential refurbishment, re-use, adaptation and conversion of use, with this information formally reported prior to proposals being developed. This is to promote continued use/longevity of built assets, reduce unnecessary demolition and promote conservation of resources.

Applicants making applications that include the demolition of existing buildings ***must*** demonstrate that opportunities for refurbishment have been explored and discounted as a viable alternative as part of their application submission. As part of the application submission applicants ***must*** demonstrate that demolition will not have an adverse effect on neighbouring buildings and their occupants.

RS1.1.2 Adaptability of new constructions

Buildings and especially ground floor spaces for non-residential use ***should*** be designed to allow for ease of adaptation and conversion to other uses in the future.

Multi-storey car parks ***should*** be designed to be easily dismantled, easily adapted or partially adapted for other uses.

A car park structure can be designed for disassembly

A car park structure can be designed for adaptive reuse
Sources: Arup-Car parks aren't forever

Refer to the Design and Planning Process chapter

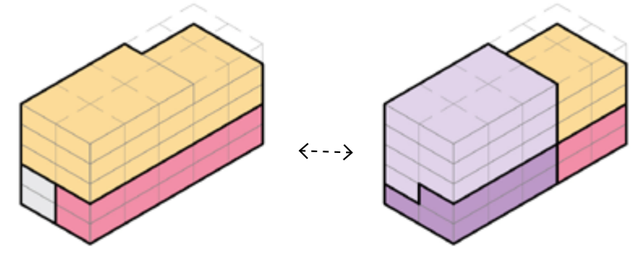
RS1.1.3 Designing in adaptability

In areas supporting a mix of uses, new Comprehensive Developments and buildings ***should*** employ flexible building typologies that allow for uses to easily change over time. The building design and layout ***should*** :

- Consider large floor to floor heights at ground level where mixed use and activity is desirable. A minimum 3.5m from floor to floor is recommended for retail, F&B, office, community and entertainment uses. Residential entrances and lobby spaces ***should*** also benefit from larger floor ceiling heights at ground floor. See BF 6.2.2.
- Adopt minimum floor to floor heights that can accommodate a range of uses or a combination of spaces in the future. For example, a 3.5m ceiling height at ground level can be converted from residential into a variety of mixed uses in the future.
- Design in-structure parking spaces (parking within buildings or multi-storey car parks) for adaptive re-use. For example, design parking podiums, garages and multi-storey structures with a minimum floor to floor height of 3.5m at ground floor so they can be easily converted and re-used.

Best Practice — *Use of modular construction techniques that enable easy modification or expansion of spaces without significant structural changes could be considered.*

Explanatory text — *This strategy of adaptability is especially important in mixed use clusters that depend on high and continuous occupancy of space to ensure continued active and attractive places. Adaptability is important considering that parking demand and requirements might adjust both with change in building use and increased use of public transport in the future.*



Flexibility in modular construction

Flexibility in minimum ceiling heights

RS2 Construction Methods

To reduce embodied carbon and carbon emissions inherent in the transport and import of materials. To enable a faster delivery of new development, housing and jobs, while supporting the Bhutanese economy and promoting new knowledge, skills and working practices in the construction industry.

RS2.1 Off-site construction

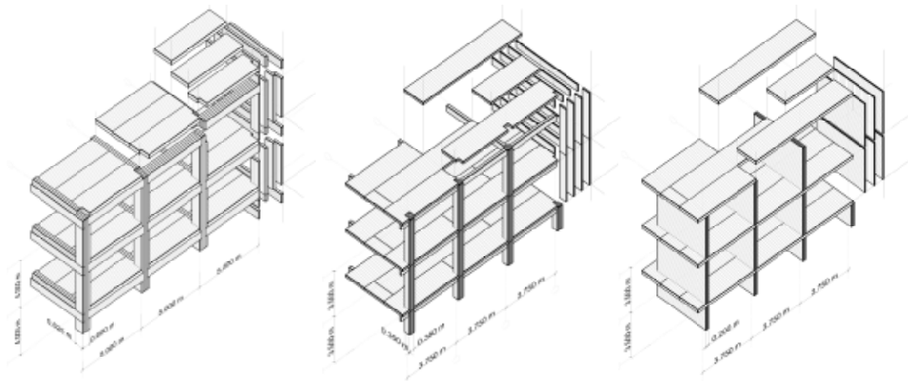
RS2.1.1 Pre-fabrication

Off-site construction ***should*** be employed for new public and private Comprehensive Developments and could be explored for smaller developments. Pre-fabrication of standard or repeated components and elements of construction ***should*** be explored.

Best Practice

The benefits of off-site construction are:

- *Reduced waste (and so cost) in construction;*
- *Reduced construction times;*
- *Reduced air and noise pollution throughout the construction process;*
- *Ensures quality of construction due to more controlled conditions;*
- *Improved accuracy of building elements;*
- *Promotes new, high skilled employment opportunities.*



Glue-laminated timber **GLT** frame for mid-rise **OFFICE** applications

Glue-laminated timber **GLT** frame for mid-rise **HOUSING** applications

Cross-laminated timber **CLT** panel for mid-rise **HOUSING** applications

ENGINEERED TIMBER MID-RISE TYPOLOGIES

Examples of mass timber pre-fabricated structures
Sources: GOA Gray Organschi Architecture, Arup - Norzin Lam Mixed Use Mass Timber Pilot Project

RS3 Materials

To reduce embodied carbon and carbon emissions inherent in the transport and import of materials. To support the Bhutanese economy and promote new knowledge, skills and working practices in the construction industry, while maintaining traditional skills and craft.

RS3.1 Materials

RS3.1.1 Embodied energy

The design of new developments ***should*** prioritise materials that have low embodied energy.

Best Practice

Materials with low embodied energy include:

- *Materials that can be re-used or recycled;*
- *Materials that can be sustainably sourced;*
- *Materials that are robust and durable and will withstand their intended use or level of exposure for a considerable length of time.*

RS3.1.2 Locally sourced materials

Developers and designers ***should*** select locally grown, sourced or made materials where-ever possible.

RS3.1.3 Bio-building

Developers and designers ***should*** preferably employ the use of bio-based materials.

Best Practice

Bio-build materials could include:

- *Timber;*
- *Rammed earth;*
- *Local stone.*

Traditional rammed earth construction is common in Bhutan

RS3.1.4 Healthy materials

Environmentally sensitive, non-toxic materials ***should*** be used and materials or products that produce VOC (volatile organic compounds) ***should*** be avoided.

Refer to the Design and Planning Process chapter

RS4 Resource Efficiency

Promote the efficiency in the use of materials, energy and water to conserve increasingly scarce natural resources. To promote and support the transition to a circular economy where waste is designed out and assets, materials and resources are kept in use at their highest value for as long as possible.

RS4.1 Energy efficiency

RS4.1.1 Passive design of buildings and sites

The design of buildings and layouts of sites ***should*** seek to optimise access to natural daylight for internal spaces, though use of dual aspect dwellings, optimal window size, higher floor to ceiling heights, shallower footprints and use of light-wells and roof lights. See BF codes.

The design of buildings and layouts of sites ***should*** seek to optimise access to natural daylight and sunlight for external shared spaces and adjacent public realm, especially those for use of residents and areas of public realm with high pedestrian activity.

Buildings ***should*** optimise use of thermal mass to help retain heat.

Buildings, roofs and associated external paved areas ***should*** employ the use of light coloured materials to avoid absorption of heat and contribution to overheating and the heat island effect.

Best Practice — *Tree planting, green roofs, green walls and trees and vegetation in external spaces can be deployed to provide shade to south facing internal spaces at risk of overheating and provide a cooling effect for internal and external spaces, while contributing to bio-diversity and amenity.*

Use of light coloured materials help to reduce the urban heat island effect and trees and vegetation can provide shading to south facing spaces that are at risk of overheating.

Buildings with a high proportion of glazing is at risk of either overheating or reduced thermal performance

Refer to TSP 2023, Policy UI6 and also to US1.1.5 and BF10.1.3.

RS4.1.2 Active Design Measures

Building design ***should*** include sustainable active measures such as:

- Efficient heating systems, e.g. underfloor heating, community heating systems (see TSP 2023, UI6, Energy Clusters), solar thermal, renewable heat technology, etc.;
- Heat recovery - collecting and using surplus/waste heat from domestic or commercial activities;
- Efficient ventilation systems where natural ventilation is not possible/feasible;
- Low energy mechanical services;
- Energy efficient lighting, such as LEDs and occupancy and daylight sensors;
- Energy efficient appliances.

Smart meters ***must*** be installed for all new developments. Developers ***must*** provide a suitable boundary box at each property for the implementing authority to install a suitable/required Smart Meter.
Smart meters ***should*** be retro-fitted into existing buildings to monitor energy demand and help to educate/highlight the importance of reduced energy consumption.

Best Practice — *Smart meters will enable the gathering of baseline data around household usage and energy demand which will inform future infrastructure upgrades and developments and also help to educate/highlight the importance of reduced energy consumption.*

RS4.1.3 Rooftop solar projects

New public and private Comprehensive Developments ***should*** incorporate solar panels to generate energy for the development and/or the community, where suitability can be demonstrated.

Best Practice — *Introducing elements such as Solar PV arrays will help to diversify energy supply and create supply resilience.*

Solar panel array located on the Centenary Farmer's Market, Thimphu.
Sources: Bhutan Broadcasting Service

RS4.2 Reducing waste & maximising re-use

RS4.2.1 Reducing waste in design & construction

Developers and designers ***should*** employ partial or complete pre-fabrication and off-site construction.

Developers and designers ***should*** select materials and construction methods that allow for ease of deconstruction and re-use of materials.

When selecting materials, developers and designers ***should*** prioritise where possible:
- The use of reclaimed materials;
- The use of materials with higher levels of recycled content.

RS4.2.2 Reducing waste in demolition

Where demolition of an existing building cannot be avoided the resulting materials ***should*** be salvaged or re-used within the proposed construction or off-site but within the city.

Developers ***should*** minimise the waste generated during demolition processes through the application of the Waste Hierarchy.

Best Practice

'The Waste Hierarchy' is as follows:

1. *Reduce;*
2. *Reuse (prioritise on-site re-use of demolition materials, followed by off-site re-use);*
3. *Recycle;*
4. *Resource recovery (for energy generation processes - fuels, heat and power);*
5. *Disposal.*

Refer to TSP 2023, Policy UI4

RS4.3 Water efficiency

RS4.3.1 Water saving

Developments ***must*** implement water saving mechanisms to reduce per capita demand. Such mechanisms can include rainwater harvesting, grey water recycling, dual flush toilets, low-flow taps/showers, pressure management.

Smart meters ***must*** be installed for all new developments. Smart meters will enable the gathering of baseline data around household usage and water demand which will inform future infrastructure upgrades and developments, while also helping to educate/highlight the importance of reduced water consumption. This will also assist with leakage detection.

Smart water meters ***should*** be retro-fitted into existing buildings to monitor water demand and help to educate/highlight the importance of reduced water consumption and assist with leakage detection.

New developments ***should*** include as many of the following measures as practicable:

- Water saving appliances such as: low and dual flush toilets, waterless urinals, water efficient/ low-flow taps and shower heads, low water use washing machines and dishwashers;
- Water re-use appliances, such as grey water recycling;
- Alternative water sources, such as rainwater harvesting;
- Low water use landscaping and gardens.

RS4.3.2 Water supply

Water supply for new or existing developments in municipal areas ***must not*** be sourced from nearby streams or groundwater, to ensure sustainable management of water resources and ensure reliable and resilient supply.

Municipal water supply ***must not*** be used for irrigation in Rural Area Types. Groundwater or nearby watercourses ***should*** be used for irrigation for agricultural land in rural areas, subject to assessment of the proposed abstraction volumes to ensure no negative impact on the natural environment.

RS4.3.3 Water re-use

New public and private Comprehensive Developments and public realm proposals ***should*** incorporate use of rainwater harvesting.

Best Practice

Harvested rainwater can be used for:
- *Irrigation of planting and trees;*
- *Cleaning of paving and other external surfaces;*
- *Flushing toilets.*

SW—Stewardship

SW1 Management and Maintenance

To ensure the consideration of future management and maintenance at the design stage, so that new buildings, streets and spaces are resilient, their qualities can be maintained for the longer term and interventions in the city enjoy longer life-spans.

SW1.1 Management plans for developments and public realm

SW1.1.1 Management of streets and public spaces

Management Plans for new or upgraded (retro-fitted) public streets and spaces ***must*** be submitted as part of the Design & Planning Process.

Where areas are to be adopted by Local Authorities, the Management Plan ***must*** provide information on layout, materials, construction details and landscaping.

Best Practice

Considering the future maintenance of streets and spaces as part of the design process will influence the selection of materials and construction methods.

SW1.1.2 Management of Comprehensive Developments

Management Plans for Comprehensive Developments ***must*** be submitted as part of the Design & Planning Process.

Management Plans ***should*** outline and commit to management requirements including refuse collection, public parking, private deliveries and landscape maintenance.

Management Plans ***should*** set out the responsibilities for management of each part of the proposal including streets and open spaces and shared spaces where these may be jointly or privately managed.

Management Plans ***should*** set out areas of the development that are to be managed and maintained and detail by which agency, whether a public or private company.

Best Practice

Considering the future maintenance of buildings and spaces as part of the design process will influence the selection of materials and construction methods.

Refer to the Design and Planning Process chapter

SW2 Community Participation

To encourage greater participation in the creation and management of places to build trust, collect local knowledge, and build places with relevance and resonance for the community. Extended participation builds community cohesion, promotes a shared sense of ownership and contributes to creating civic pride.

SW2.1 Participation in design

SW2.1.1 Comprehensive Developments

Comprehensive Developments ***should*** incorporate community engagement as part of the design process. Community engagement ***should*** be carried out at least twice through the design process - at the start and just prior to submission.

For residential developments the local community ***should*** be consulted to understand local housing needs and to inform housing mix and tenures. See BF 10.4.

SW2.1.2 Small and Standard Plots

Small and Standard Plots ***should*** communicate proposals to neighbouring property owners at the outset of the design process. Community engagement ***should*** be carried out at least once through the design process.

SW2.1.3 Public open spaces

When developing proposals for city scale spaces, such as Metropolitan Parks, City Parks and public squares within the City Centre and Sub-district Centres, the communities across the city ***should*** be consulted through, for example, use of online tools and exhibitions.

When developing proposals for local spaces, such as Neighbourhood and Local Parks, local squares and community gardens, local community and user groups ***should*** be consulted through, for example, use of community meetings and small exhibitions. Efforts ***should*** be made to reach a broad range of people and users in the local area.

Community engagement ***should*** be carried out at least twice through the design process - at the start and just prior to submission.

SW2.1.4 National and local heritage and cultural elements

Developments and public realm proposals within Buffer Zones of Nationally Important Heritage or adjacent to any cultural elements of local importance ***should*** seek and respond to the views of any identified user groups and/or the local community.

Refer to the Design and Planning Process chapter

SW2.1.5 **Responding to community feedback**

The process of consultation and the collected views of the community ***should*** be summarised and the resulting design response to the collected views ***should*** be described within material submitted as part of Design & Planning Process.

SW2.2 Community interventions and management by community

SW2.2.1 Community interventions

Authorities ***should*** allow community groups and individuals to make small and micro-interventions in the public realm. See also LO2.1.3.

Best Practice

For example, community groups and individuals could be allowed to introduce:

- *Micro-scale planting of flowers and shrubs along ownership boundaries or in left-over spaces in streets and public spaces;*
- *Community food growing as an activity within outdoor shared/communal spaces and local public parks and gardens;*
- *Maintenance and renovations of locally important Chortens and Mani Walls;*
- *Pavement cleaning/sweeping and litter pick-ups;*
- *Temporary paintings and art works.*

Micro-scale planting in the public realm introduced and managed by he community

Informal planting

Tarayana Park

Refer to the Design and Planning Process chapter and LO2.1.3.

SW2.2.2 Community management

Authorities ***should*** allow and promote the empowerment of local communities and user groups to manage their community assets. See also LO2.1.4.

Best Practice

For example, community groups could manage:

- *Local spaces or parts of local spaces;*
- *Shared/communal outdoor spaces within larger residential developments;*
- *Pooled parking areas within larger residential developments;*
- *Sport, recreation and play spaces;*
- *Community buildings and spaces;*
- *Management of local energy networks;*
- *Community housing, including forming co-operatives and co-housing groups.*

Explanatory text

Community management is the management of a common resource, either a building or a public space, by the people that use it through the collective action of volunteers, community groups and other stakeholders.

Communities that are enabled to contribute to the management of their assets will engender a sense of ownership and a greater civic responsibility.

Communities and individuals that are empowered to make micro-scale and/or temporary contributions to the public realm and spaces where they live will build a unique character and identity of place, reinforce locally specific cultures and traditions, build empowerment and a greater social cohesion.

Community football pitch, Taba, Thimphu

A shared parking area could be managed by the community that uses it.

Community managed performance space, Centenary Farmer's Market, Thimphu

Refer to the Design and Planning Process chapter and LO2.1.4.

Place codes

This chapter provides requirements and guidelines to ensure that informed design responses are made to site conditions and site context. Codes seek to initiate the creation of places with differentiated character and an identifiable sense of place.

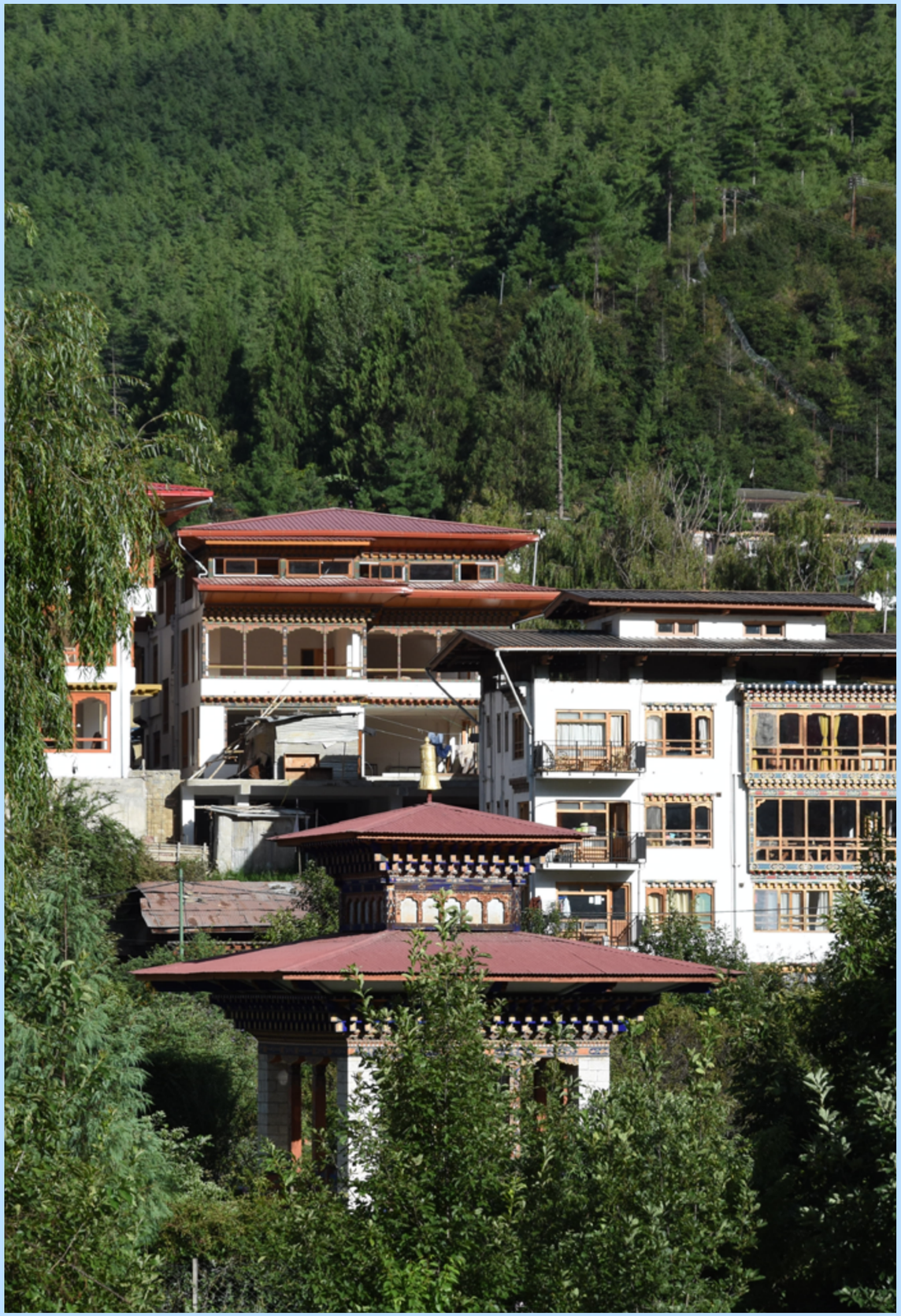
These codes apply to all types of developments and public realm proposals across the city and in rural areas.

CX Context

CS Character Statements

Who must read this section:

- Public authorities, developers and architects/designers engaged in the design of Comprehensive Developments and public realm and open space proposals.
- Public bodies engaged in developing and deciding on public realm and open space proposals.
- Developers and architects/designers engaged in the design of development on Small and Standard Plots.



CX—Context

CX1 Understanding the Existing Site and Context

To ensure that development responds positively to its surrounding context and the distinctive features of the site and respects, reinforces and enhances the character and qualities of the existing place.

CX1.1 Responding to the site context

CX1.1.1 Context study

All development and public realm proposals ***must*** demonstrate an understanding of the built form and landscape of the surroundings and context and demonstrate how proposals have responded to the surrounding heritage, natural and urban features (including utilities).

Context analysis and the associated design response ***must*** be demonstrated within material submitted as part of the Design & Planning Process.

CX-Checklist 1 ***must*** be followed to ensure a robust analysis of context.

Context extent ***should*** be confirmed with the implementing authority and will vary according to the type of development. For example, for a small or standard plot the context could be defined as the full block of which the plot is a part, a dimension from a plot say 50m radius, and for Comprehensive Development the context could be related to the area covered by the relevant Local Area Plan. Context for Comprehensive Developments ***should*** be extensive enough to show local retail, local community and education facilities, access and public transport facilities.

CX1.2 Responding to the site

CX1.2.1 Site study

All development and public realm proposals ***must*** demonstrate an understanding of the site and demonstrate how these proposals respond to specific site features (inc. utilities) and the opportunities that arise to develop character and distinctiveness. Site analysis and the design response ***must*** be demonstrated within material submitted as part of the Design and Planning Process.

Site analysis ***must*** include and demonstrate and understanding of existing services and utilities adjacent and/or within the site. Proposals ***must*** demonstrate the approach to connecting to and accommodating these within the site. See Design and Planning Process chapter.

If more than a 2m depth excavation is required, for basements or forming level site platforms, designers ***must*** develop mitigation plans. CX-Checklist 2 ***must*** be followed to ensure a robust analysis of the site and its existing features.

Refer to the Design and Planning Process chapter and Compliance chapter for CX-Checklist 1 and 2.

CX2 Alignment with Plans and Policies

To ensure that development is aligned to the Thimphu Structure Plan and other associated plans and so contributes to 'Good Growth in the Right Places'. The city is changing - TSP 2023 provides a set of proposals, policies and strategies that together form a future context for development to contribute and respond to.

CX2.1 Alignment with plans and policies

CX2.1.1 Alignment with the Thimphu Structure Plan 2023

Applicants ***must*** demonstrate understanding of, and compliance with, the Development Policies and Spatial Plans described in the Thimphu Structure Plan 2023. Development proposals ***must*** also demonstrate compliance with any relevant Local Area Plan or Action Plan which covers the area of the city including the site. A design response ***must*** be demonstrated within material submitted as part of the Design & Planning Process.

CX-Checklist 3 ***must*** be followed to ensure a robust understanding of the development requirements held within the Thimphu Structure Plan 2023.

CX2.1.2 Hazard and Risk Assessments

All development proposals ***must*** conduct a topographic survey. Development sites outside of the Hazard Assessment Areas ***must*** carry out a Site Specific Ground Invesigation. See BF11 for Seismic standards.

For developments within the Indicative Hazard Area (for both flood and landslide), a site specific geotechnical study ***must*** be conducted.

Permitted Development: New development which falls within Risk Category III & IV of Table 1604.5 of the International Building Code and/or SI(i) of Table 6 of Indian Standard 1893:2016 Part 1 is not permitted in hazard zones.

For developments within the Indicative Hazard Area (for flood and landslide) a Justification Test ***must*** be carried out to determine suitability for development. A Hazard and Risk Assessment ***must*** be carried out, which ***must*** include a Site Specific Ground Investigation. These ***must*** be carried out in advance of design proposals being developed. See TSP 2023, chapter 9, Fig 9.9, Tables 9.2 and 9.3 and the Figure below which shows the Hazard Map for the TSP planning area.

Mitigation measures identified as part the assessment ***must*** be included as part of the development proposal and proposals ***must*** demonstrate compliance with all other aspects of this Design Code and all relevant Standards. Developers ***must*** submit these reports as part of the design and planning process. See Design and Planning Process chapter. See also BF11 and NE3.

Refer to the Design and Planning Process chapter and Compliance chapter for CX-Checklist 3. Refer to TSP 2023, chapter 9.

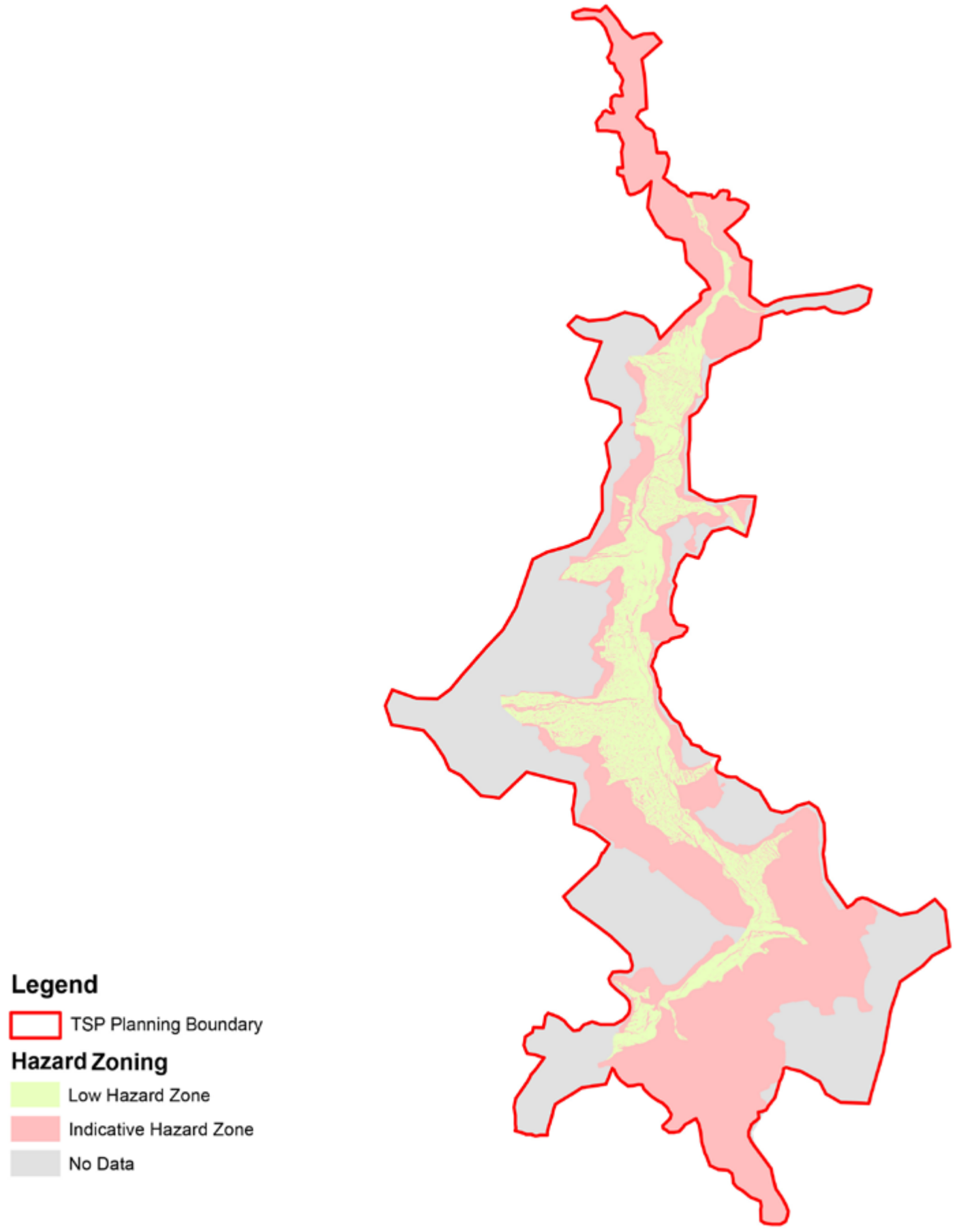


Fig.19 Hazard Map for TSP Planning Area

CX3 Architectural Identity

To foster high quality architecture throughout the city which reflects the very specific Bhutanese heritage and traditions and the contemporary urban culture and practices of the city of Thimphu, as well as anticipating an architecture that reflects future practices and construction methods.

CX3.1 Architectural approach

CX3.1.1 Approach

Developments architectural approach ***must*** consider the specific existing context (see CX1 codes and checklists) as well as the future proposed context (see CX2 and CS codes and checklists).

New developments in Rural Area Type ***must*** utilise a Traditional architecture approach (see also CS1).

New developments in City Core, Major Employment, Urban I and II, and Suburban I, II and III Area Types could utilise a mix of Innovative and Contextual/Contemporary architecture approaches (see also CS1). The features found in Section 1 of the Bhutanese Architecture Guidelines ***should*** be followed.

Where development is adjacent to areas of Traditional Village, a Traditional architecture ***should*** be utilised to reinforce this existing character (see also TSP 2023).

An example of Traditional architecture

An example of Contextual/ Contemporary architecture

An example of Innovative architecture

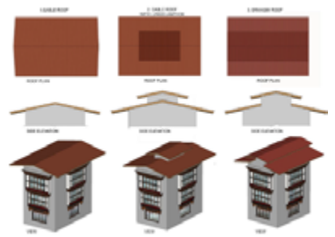
Refer to CX1 and CS1 codes

CX3.1.2 Traditional architecture

Traditional architecture ***must*** follow the guidance found in Section 1 of the Bhutanese Architecture Guidelines. The traditional features found in Section 1 of the Bhutanese Architecture Guidelines ***should*** be followed.

Extensions to buildings that display a Traditional architecture ***should*** avoid disrupting the symmetry and proportions already established.

Traditional detailing and local materials



Traditional Bhutanese roof configurations

Extensions which disrupt proportionality and symmetry

CX3.1.3 Contextual/Contemporary architecture

Contextual/Contemporary architecture ***should*** have a selection of traditional features, which can be simplified or curated to highlight special/important parts of the building e.g. entrances, roofs, balconies and windows of principal rooms. See Definitions chapter.

Contextual/contemporary architecture ***must*** include at least six of the key features shown in Table CX 3.1.5.

Higher degrees of transparency, with more open ground floor frontages

Reduced and simplified selection of traditional features

Simplified building profile and addition of contemporary features

Refer to the Bhutanese Architectural Guidelines and Definitions chapter

CX3.1.4

Innovative architecture

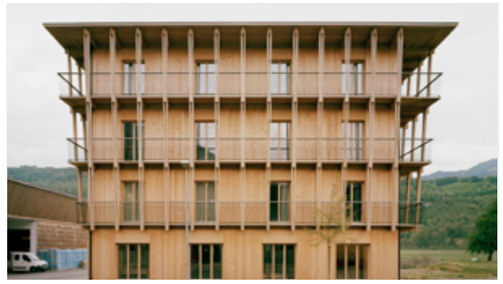
Innovative architecture ***should*** include the following key features:

- Design that expresses/celebrates innovative construction methods, including mass timber and rammed earth;
- Incorporation of new materials & combinations, including bio-based materials and eco-concrete;
- Novel façade compositions, including asymmetric and performative façade treatments;
- Alternative roof structures, including activated/ occupied spaces and reduced overhangs;
- New interpretations of traditional architectural features, including composition and complexity.

See Definitions chapter.

Incorporation of bio-based material (rammed earth & timber)

Mass timber construction



An interpretation of traditional architectural features e.g. building profile and overhanging roof, that expresses innovative construction methods and bio-based materials

Refer to the Definitions chapter

CX3.1.5 Architectural features

Architectural Features	Traditional	Contextual/ Contemporary
Use of local natural materials, including rammed earth, timber, stone and masonry.	●	◌
Use of engineered, manufactured, local and non-local materials.	○	●
Design that expresses traditional Bhutanese construction methods.	●	○
Design that expresses/celebrates contemporary or innovative construction methods.	○	●
Low window to wall ratio, typically below 15%, across all floors.	◌	◌
Higher window to wall ratio on upper floors, generally above 15% and below 50%.	○	◌
Transparent and open active ground floor use frontages, with a window to wall ratio above 30%.	◌	●
"Flying" gable timber roof that hovers in layers above the building.	◌	◌
Expressed timber framing with elaborate timber windows and Rabsel built on the top floors over heavy walls on lower floors.	○	○
Multi-tiered trefoil timber windows with Horzhu.	◌	◌
Colourful timber lintels and cornices that mark the level and crown of each floor, windows and doorways.	◌	○
Colourful floral, iconographic and spiritual paintings that decorate the interiors and elevations of buildings.	○	◌
Rendered wall surfaces with limited decoration, isolated use of colour and painting.	◌	◌
Rectilinear and simple building forms.	◌	○
Varied building forms, including curved and asymmetric façades and massing.	◌	◌
Symmetrical façades and massing.	◌	○
Timber doors and window frames with all traditional features, as relevant.	●	○
Stepping-out building profile with cantilevered Rabsel on upper floors.	●	◌
Cantilevered and inset open balconies.	◌	◌

● **Must** be included

◌ **Should** be included

○ **Could** be included

CX4 Heritage

To ensure that development and public realm reinforces and celebrates Thimphu's heritage buildings and cultural sites of national importance and local significance, promotes their conservation and ongoing activation and preserves these assets for future generations.

CX4.1 Heritage assets

CX4.1.1 Registered or Designated Cultural Heritage

Works within the Core Heritage Area and Buffer Zone of Significant Heritage Assets ***must*** provide a Heritage Impact Assessment for approval by the relevant authorities to demonstrate compliance with the Management Plan prepared for the heritage asset. See CX4.5 for general guidance.

Explanatory text: *A Management Plan will be prepared by the Department of Culture and Dzongkha Development which will set out appropriate requirements and responses for both the Core Heritage Area and the surrounding Buffer Zone of a nationally significant heritage structure.*

CX4.1.2 Cultural elements of local importance

Locally significant heritage buildings and other cultural elements, not already identified within the TSP 2023, ***must*** be identified as part of Local Area Plan development.

The Local Area Plan ***must*** set out the appropriate requirements and responses for a locally important asset. The requirements and responses ***should*** be developed in partnership with the relevant public and government organisations. See SW 2.14.

Explanatory text: *These are structures not identified within the TSP2023 but have significance, either in terms of contribution to townscape and Bhutanese identity, or local cultural value and so contribute to the cultural landscape. The requirements and responses developed can also be developed with relevant local communities and user groups.*

CX4.1.3 Chortens, Mani Walls, Lue, Nye and other small heritage elements

Heritage and cultural structures ***must*** be preserved in-situ and remain accessible to all. The environment around these structures ***should*** be improved through public realm works, with measures that ensure accessibility for differently abled people. See Differently Abled Friendly Construction Guidelines.

Any public realm improvements ***must*** ensure that these elements remain as a focal point and gathering space for members of the local community.

Refer to the Design and Planning Process chapter. Refer to TSP 2023, Policy P3.

CX4.2 Traditional Buildings and buildings with cultural value

CX4.2.1 Re-use of Traditional Buildings and buildings with cultural value

Where Traditional Buildings and buildings with cultural value (see CX4.2.3) are located within the site of any development proposal, they ***must*** be assessed for potential refurbishment, re-use, adaptation and conversion of use as part of any development proposal for the site.

Best Practice: *Maintaining, re-using and improving these types of buildings will ensure continued use/ longevity of heritage assets and preserve Bhutanese traditions, identity and character.*

CX4.2.2 Demolition of Traditional Buildings and buildings with cultural value

Applications that include the demolition of Traditional Buildings and buildings with cultural value (see CX4.2.3), ***must*** demonstrate that opportunities for refurbishment have been explored and discounted as a viable alternative as part of their application submission.

Where demolition cannot be avoided, the resulting materials ***should*** be salvaged or re-used within the proposed construction or other proposed constructions within the city (see RS chapter).

CX4.2.3 Identification of buildings and features with cultural value

Buildings and features with cultural value ***must*** be identified as part of Local Area Plan development.

This process ***must*** also identify any other elements associated with the building that contribute to its setting or to local character e.g. boundary walls, garden spaces and out-buildings that could also be considered for preservation and protection.

The Local Area Plan ***must*** set out the appropriate requirements and responses for both the building or feature and any adjacent development and public realm. The requirements and responses ***should*** be developed in partnership with relevant public and government organisations and the local community.

Explanatory text: *The TSP 2023 identifies Traditional Buildings as 'Traditional Village'. These are older buildings which have significance in terms of their age (built before 1960), architectural design and contribution to townscape and Bhutanese identity. However, there are other buildings and features not identified within the TSP 2023 which may have value in terms of demonstrating vernacular architecture, traditional crafts and construction as well as forming a contribution to townscape and Bhutanese identity. These may not yet have heritage value, but preserving these now would mean they can become heritage assets in the future.*

Refer to the Design and Planning Process and Resources chapter

CX4.3 View corridors

CX4.3.1 City-wide view corridors

City-wide view corridors to heritage, cultural and natural assets, as defined in Chapter 9.6 of the TSP 2023, ***must*** be protected.

Local Area Plans ***must*** establish the appropriate requirements and responses for areas which fall within city-wide views, to include restrictions on building locations and heights.

Any development proposal within a city-wide view corridor ***must*** comply with the requirements and responses described in the Local Area Plan, and may have to prepare a Visual Impact Assessment to determine its impacts on the view. See CX4.4 for general guidance.

The public realm environment at the view origin location ***should*** be improved through public realm works, for example tree planting for shade, accessible public realm, seating and appropriate lighting.

Explanatory text

City-wide view corridors have been defined within the TSP 2023. These are views of landscape and cultural heritage of national significance which span across multiple neighbourhoods.

CX4.3.2 Local view corridors

Locally significant view corridors to heritage, cultural and natural assets ***must*** be identified as part of Local Area Plan development.

Local Area Plans ***must*** establish the appropriate requirements and responses for areas which fall within any local view corridors to include restrictions on building locations and heights.

Any development proposal within or impacting on a local view corridor ***must*** comply with the requirements and responses described in the Local Area Plan and demonstrate an appropriate design response.

The public realm environment at the view origin location ***should*** be improved through public realm works, for example tree planting for shade, accessible public realm, seating and appropriate lighting.

Explanatory text

Local view corridors refer to views of landscape and cultural heritage features of local importance or particularly high quality views of features of national significance from within a single neighbourhood.

Refer to TSP 2023, Policy P4

Note: General Guidance provided for illustration only. Implementing authority will set out exact process and requirements at a later stage.

General guidance for assessing heritage impact:

A requirement for an Heritage Impact Assessment (HIA) is established through section 9.5 Cultural Heritage, policy P3.
In accordance with international best practice, development proposals to the core heritage area of a nationally significant cultural heritage asset and its buffer zone should be required to produce a Heritage Impact Assessment (HIA).

This should follow guidance such as ICOMOS 'heritage impact assessments for cultural world heritage.' This would support effective decision making, enabling representatives from Thimphu Thromde, Thimphu Dzongkhag and the Department of Culture and Dzongkha Development to adequately assess the impact of a proposal on the character and significance of the asset and identify potential mitigation measures if required.

A Heritage Impact Assessment should establish:
1. Methodology explaining the process to conduct the heritage impact assessment.
2. Site history and description.
3. Description of changes or developments proposed.
4. Assessment and evaluation of overall impact of the proposed changes.
5. Measures to avoid, to reduce or to compensate for impacts.

The approach can help understand proposals and compliance against the design code or management plans for heritage sites, as defined in section 141 and 170 of the Cultural Heritage Bill.

General guidance for assessing visual impact:

A requirement for an Visual Impact Assessment (VIA) is established through section 9.6 View Corridors, policy P4. This relates to how to define view corridors through Local Area Plans.

View corridors should follow international best practice methodologies for Landscape and Visual Impact Assessments, this includes definition of the following. Each view corridor should define and protect the following:
a) Key features of the view including the significance of the features.
b) Aspects of the foreground that contribute to the setting of the view.
c) Aspects of the background that contribute to the setting of the view.
d) Specific development control regulations within the view corridor if required, defined through Local Area Plans.
e) Interventions that would improve the quality of the view.

If a development is proposed within a view corridor, the person seeking to develop would be required to set out the following:
1. Methodology explaining the process to conduct the assessment.
2. Site description.
3. Description of changes or developments proposed.
4. Assessment and evaluation of overall impact of the proposed changes, including photos and drawings of the proposal site from the view point showing how the development proposal will or will not impact the foreground, middle ground or background.
5. Measures to avoid, to reduce or to compensate for impacts such as reducing height, changing the footprint or orientation of the proposal or additional tree planting/ landscaping.

Depending on the significance of the view, for example national vs local heritage sites, the outcome of the assessment should be discussed with the Department of Culture and Dzongkha Development or TT or Thimphu Dzongkhag to explore impacts and agree mitigation measures if required.

Fig.20 General Guidance for visual and heritage assessments

CS—Character Statements

CS1 Creating Character

To define current characteristics alongside future identity and desired characteristics for each of the 'Five Places within the City' and the Rural Valley. To encourage appropriate design responses that will incrementally contribute to forming the future character and qualities of Place.

CS1.1 Place identity

CS1.1.1 'Five Places within the City' and the Rural Valley

Comprehensive Developments and public realm proposals ***must*** achieve at least 70% of the relevant Place Checklist.

Proposals on Small and Standard Plots ***must*** achieve at least 60% of the applicable parts of the relevant Place Checklist.

How the proposal responds to these guidelines or contributes to forming future character ***must*** be described as part of the planning application process.

These requirements and guidelines ***should*** be used in conjunction with (not instead of) others within the BF, US, ST and LO chapters.

Refer to TSP 2023, Policy US6

Place	Neighbourhood
Dechencholing	Dechencholing
Northern Thimphu	Taba
	Jungshina
	Langjophaka
	Hejo-Samtenling
Central Thimphu	Dzong Precinct
	Motithang
	Zilukha
	City Core
	Changangkha
	Changgidaphu
	Changzamtog
	Changbangdu
	Yangchenphug
Southern Thimphu	Changjiji
	Simtokha
	Lubding
	Olakha
	Tshalumarphy
	Babesa
	Serbithang
Rama and Depsi	Rama
	Debsi
Rural Valley	Dodena
	Begana
	Changtagang
	Kabesa
	Gangchey
	Serbithang-Ngabiphu

Dechencholing

CS1.2 Dechencholing characteristics

Dechencholing will provide tranquil suburban living with a strong sense of community. A neighbourhood that will embrace a gentle mid-density of residential housing set amidst lush, green, forest landscapes.

Existing Characteristics

Frequent bus service to other parts of the city

Views along the valley over the city

Proximity to nature and animals

Ample outdoor recreation and open space

Future Characteristics

A community immersed in nature

Intimate gathering points for the community

Peaceful, walkable streets

Tranquil spaces for contemplation

	Built Form	Activity	Landscape & Spaces	Streets & Connections	
OPPORTUNITIES	Area is characterised by **medium density** development. Housing typology is a mix of **small apartment buildings** and **detached homes.** Heights **vary** between **2 and 4 storeys.** There are several **older buildings** remaining, potentially holding cultural value. **Heritage assets** are located in the vicinity.	A **focus for community activity** is forming around Dangrena Park. There is a new **primary school.** Dechenphug Lhakhang attracts **visitors** from across the city. The **golf course** and proximity to **hiking trails** makes Dechencholing an important **recreational destination.** Sense of **peace and tranquillity**, as cars and traffic are more limited.	**Pristine forested hillsides** create a strong setting and the sense that the forest, its peace and its coolth, is very close. There are **significant areas of trees** and a **water course** running through the centre of the settlement, providing tranquil sounds and atmosphere. At Dagrena there are beautiful **views south along the Thimphu Valley**.	Existing streets are l**ow traffic and slow speed**, allowing streets to accommodate pedestrian activity well and ensures **peace and tranquillity.** Existing streets are **fairly well formed,** with surfaces and pavements.	CELEBRATE
FUTURE CHARACTERISTICS	**A medium density, suburban** neighbourhood. **Varied building heights** between 2 and 4 storeys. **Compact structures** allowing for larger, more open private or shared amenity spaces. A focus on providing **homes for larger and inter-generational families.** New buildings will be a mix of **Traditional and Contemporary** styles (see CX3.1) **Older buildings** that display traditional crafts and construction **will be retained, renovated and re-purposed.**	A **self sufficient community** with a new Neighbourhood Centre at the riverside and a Local Centre at Dangrena Park offer **small scale workspaces, local retail, services and community infrastructure**. **Activities for visitors** to the local heritage assets. Clear routes and **access to recreational activities** such as golf and hiking trails will be improved/formed. Shared amenity and public spaces will encourage activities that foster a **strong sense of community**. Public spaces will provide a range of **safe play spaces** for children.	Public spaces will be characterised by **lush planting and larger trees**. **Tranquil, contemplative spaces** will be formed, away from traffic noise. **Planting will reflect the character of the forest** - informal groups of larger, forest type trees. Public realm and planting will form **a new setting for Pangri Zampa Lhakhang**. **Traditional crafts and materials** will be celebrated in the public realm. **Existing trees will be retained** to **preserve biodiversity** and character. One will always feels **immersed in nature**.	The **street network will be continuous** and well connected. Cars will be de-emphasised, and frequent bus services and **pedestrian activity will be prioritised.** **Children will walk and play safely** with ample amounts of overlooking from buildings. **Streets will be lushly planted** with trees that reflect the **character of the forest**. **Pedestrian connections along the central Valley Park** will connect the Wang Chhu riverside and the forested hillsides and Dechenphug Lhakhang.	CONTRIBUTE

	Place Checklist 1: Dechencholing **KEY WORDS** Suburban, Medium Density, Self-sufficient, Height Variety, Family and Multi-generational Homes, Traditional, Contemporary, Traditional Materials and Crafts, Tranquillity, Outdoor Recreation, Sense of Openness, Forest Planting, Larger Trees, Waterways, Views, Bio-diversity, Community Spaces, Gardens, Safe Play spaces, Walkable Streets, Green Streets.	
BUILT FORM	Does the proposal have a housing mix which promotes family sized houses and homes suitable for multi-generational living?	yes/no
	Does the proposal provide front and side setbacks that are larger than the minimum required, to provide a sense of openness, less enclosed streets and spaces?	yes/no
	Are front setbacks well planted and landscaped, and are boundary edges planted to provide additional greening as a contribution to the streetscape character?	yes/no
	Are external facades and any boundary walls predominantly high quality, natural, local materials and traditional crafts including rammed earth walls, timber framed roofs, timber shingles and dry stone walls and masonry?	yes/no
ACTIVITY	Do the uses and activities proposed reinforce the activity cluster at Dangrena Park or contribute to forming the new Neighbourhood Centre ? (TSP 2023, Policy US2)	yes/no
	Does the proposal provide integrated co-working spaces or additional spaces for working within homes to support a more self-sufficient neighbourhood?	yes/no
	Does the proposal have shared indoor or outdoor spaces for the residents or local community to use?	yes/no
	Does the proposal provide space for spiritual and/or communal activities to take place, e.g. providing open spaces of a quiet and contemplative character?	yes/no
LAND-SCAPE & SPACES	Does the proposal create public, shared and/or outdoor spaces that are quiet, undisturbed by traffic and other noises where nature can be heard e.g. water running, birds singing, children playing and prayer wheels, etc?	yes/no
	Does the proposal provide or contribute to forming accessible indoor and outdoor places for older people to occupy?	yes/no
	Does the proposal provide or contribute to forming safe play areas for children e.g. does the proposal provide play space itself or provide strong overlooking of an adjacent play space?	yes/no
	Does the proposal include shared or private (single family) outdoor spaces that are greened, planted and/or incorporate new or existing trees?	yes/no
	Does the proposal retain and integrate existing natural features and assets, including existing larger forest type trees, existing bio-diverse planting, water courses and/or water bodies?	yes/no
	Does the proposed landscape design, planting and tree species selection for public realm, shared amenity spaces, setbacks and boundaries reflect those found in the surrounding forest?	yes/no
	Does the proposal use natural, local materials and traditional crafts in the public realm that draw from and reflect those already used in the local area?	yes/no
STREETS & CON-NECTIONS	Does the proposal create intimately sized, low-speed and lightly trafficked streets which encourage children to play outside and pedestrian activity to take place safely?	yes/no
	Do streets incorporate significant planting with species which reflect the directly adjacent surrounding forest, e.g. streets could be widened in places to incorporate informal planting and small groups of forest type trees?	yes/no
	Are existing and proposed pedestrian connections provided with strong overlooking and/or active ground floor uses (if appropriate) to ensure activity, safety and promote use?	yes/no
	Appropriate for Small and Standard plots to consider incorporating **Total** (Small & Standard Plots) **Total** (Comprehensive Development)	___/13 ___/18

Northern Thimphu

CS1.3 Northern Thimphu characteristics

A convivial and lively urban place in a forest setting, that welcomes a vibrant mix of different people and age groups. A distinctly urban place with a mix of indoor and outdoor activities, promoting healthy lifestyles.

Existing Characteristics

Dense neighbourhoods dominated by parking

An urban community nestled within the forest

A coherent grid of streets

Significant level changes

Future Characteristics

Higher density urban blocks with a relaxed street life

Easily accessible riparian and forest landscapes

Urban streets with strong definition and enclosure

Inviting and active parks and public spaces

	Built Form	Activity	Landscape & Spaces	Streets & Connections
OPPORTUNITIES	Neighbourhoods such as Taba have a **coherent street grid system** with larger plot sizes. Areas like Samtenling are not fully developed providing an opportunity for substantial numbers of **new homes**. Important **religious and heritage sites** are located within the Northern Thimphu neighbourhoods.	**Popular residential communities**, offering more space and local facilities than the City Core. Close proximity to **government offices** and **diplomatic areas. Recreational activities** such as Futsal pitches and a new swimming pool promote **health and fitness**. A **new hospital** at Taba will provide access to healthcare.	Northern Thimphu sits between the **Tashichho Dzong landscapes** and Dechencholing forest - **a proposed City Park**. The **Wang Chhu** runs through the neighbourhoods, offering a long **River frontage.** Key locations offer **fantastic views** of the city. The **India House** compound provides an extensive **green landscape.**	The **natural spaces** can become better **connectors** instead of barriers to movement. The **Greenway** can provide **alternative connection** to the City Core, as well as recreation opportunities.
FUTURE CHARACTERISTICS	A **higher density** neighbourhood defined by **four to six storey** buildings forming **urban blocks.** Homes will have ample **natural light** while a sense of **privacy** for residents. Residents will enjoy attractive **shared amenity spaces**, close to home. The **housing mix** will provide for a **variety of residents**, including young people, young families, older people with some **larger family homes.** Significant **views along the Thimphu Valley** are celebrated. **Settings** of **religious and heritage sites** will be well maintained.	A **Sub-district centre** and a range of Neighbourhood and Local Centres will form **primary focus points** for the northern **residential communities**. A vibrant mix of **community and active uses.** The **hospital** and a new **employment and diplomatic quarter** will provide **local jobs**, reducing trips into the City Core. Provides convenient access to a wide range of **sport, recreation, religious and cultural activities**, including the **swimming pool** and **Futsal grounds** which will promote exercise, healthy lifestyles and emotional wellbeing.	Northern Thimphu will provide **urban living within a natural setting**. A **new City Park (Taba Forest Park), Valley Parks** and the **Wang Chhu Riparian Corridor** and will offer **outdoor recreation**, links to hiking trails and **increased bio-diversity.** **Planting** will reflect the **character of the surrounding forest**. **Public spaces** will be easily accessible with new public space offering **dramatic views** along the valley. The presence of **Tashichho Dzong** and significant **natural landscapes** adds to the area's appeal.	Clear **pedestrian links** from the neighbourhoods along the **Valley Parks, and the river** will improve **accessibility** and promote **recreation**. **Street life, safety,** and the **pedestrian experience** will be prioritised. **Access to public transport** will be improved by re-balancing vehicular movement and parking. Retro-fitted streets will create a **walkable** and **inviting network of streets and spaces.** A renewed **focus on cycling** will provide alternative ways of moving through the city and natural landscapes.

CELEBRATE

CONTRIBUTE

	Place Checklist 2: Northern Thimphu **KEY WORDS** Higher Density, Urban Blocks, Enclosure, Urban Living, greater Housing Mix, Young and Old, Family Housing, Valley Views, Natural Light, Forest and Natural Settings, River Frontage, the Greenway, Sport and Recreation, National Heritage and Landscape Assets, Government, Employment Clusters, Active Uses, Cycling, Green Streets	
BUILT FORM	Does the proposal promote a diverse housing mix which offers suitable options for small families, older and younger people?	yes/no
	Does the proposal form or contribute to forming urban blocks that strongly define streets with urban frontages, and internal spaces within blocks for residents amenity?	yes/no
	Are front boundary walls minimised in height to allow for informal surveillance of streets and spaces and additional greening of streets through planting at boundaries?	yes/no
	Does the proposal utilise level changes to provide height variation in buildings and an accessible transition from the public realm?	yes/no
	Does the proposal provide more generous than required 'amenity balconies' and/or shared roof terraces for residents which capitalise upon views?	yes/no
	Does the proposal provide building separations greater than the minimum required to provide improved daylighting and privacy?	yes/no
ACTIVITY	Do the uses and activities proposed contribute to forming the range of Centres for the northern communities? (TSP 2023, Policy US2)	yes/no
	Does the proposal provide ground floor uses which support neighbourhood activity and daily needs of the corresponding area type?	yes/no
	Does the proposal provide workspace clusters in locations accessible to public transport of the corresponding area type?	yes/no
	Does the proposal incorporate indoor or outdoor spaces that encourage sport and recreation, active lifestyles and healthy living?	yes/no

LAND-SCAPE & SPACES	Does the proposal create public spaces as a focus for the community, e.g. public spaces, promenades along the riverside or spaces with access to public transport, active uses, with street furniture and places for meeting to encourage a sense of community and conviviality?	yes/no
	Does the proposal maintain an appropriate setting for religious and heritage sites e.g. by reducing heights, use of specific materials, mitigation through significant tree planting, etc.?	yes/no
	Is there a strong relationship formed between the development and the Royal Parks, e.g. forming/retaining views to Tashichho Dzong, pedestrian links to the park, etc?	yes/no
	For public realm, shared amenity spaces, setbacks and boundaries, is the proposed landscape design, planting and tree species selection reflective of those found in the surrounding forest landscapes?	yes/no
	Does the proposal create or contribute to forming internal, shared open spaces within urban blocks for residential amenity?	yes/no
	Does the proposal provide compact and multi-functional open spaces for a range of ages, e.g. children play area, shaded pavilion for older people to gather, etc.?	yes/no
STREETS & CON-NECTIONS	Do streets incorporate significant planting with species which reflect the directly adjacent surrounding forest, e.g. streets could be widened in places to incorporate informal planting and small groups of forest type trees?	yes/no
	Do any new streets incorporate a high degree of greenery with space for new streets to grow to maturity, new street trees and low-level planting and/or integrated sustainable drainage?	yes/no
	Are there visible and legible pedestrian links provided or promoted from within the proposal to any adjacent trekking trails and to the riparian landscapes wherever relevant?	yes/no
	Appropriate for Small and Standard plots to consider incorporating **Total** (Small & Standard Plots) **Total** (Comprehensive Development)	___/14 ___/19

Central Thimphu

CS1.4 Central Thimphu characteristics

At the heart of Thmphu, national destinations, landscapes and heritage provide the setting for a vibrant city centre promoting urban living and working, where everything is on your doorstep or a just a step away.

Existing Characteristics

Streetscape dominated by cars and parking

Highly active with a huge mix of uses

Unformed streets and pavements in the busiest part of the city

National destinations, landscapes and heritage

Future Characteristics

Urban living in the city centre

A bustling vibrant City Core

Urban streets with enclosure

Active pedestrian spaces and street trees

	Built Form	Activity	Landscape & Spaces	Streets & Connections
OPPORTUNITIES	Buildings are predominantly **5-6 storeys** in the City Core**.** There are areas of **under-utilised land** in the City Core that can accommodate **additional uses and new urban housing**. The **upper slopes** of Central Thimphu are more **lush and less dense,** with **suburban** development and **views over the city.**	The area has a highly **intensive mix of uses** including commercial, residential, institutional, religious, cultural and royal use, forming a **national destination** at the City Core. The **Centenary Farmer's Market** is an important use that drives **high levels of footfall** and **traffic** into the City Core. The City Core is the most **vibrant and active** part of the city.	There are natural and recreational assets such as **Centenary Park** and **Chu bachu stream**. Neighbourhoods to the west of the City Core offer **greenery** and **proximity to the forested mountainsides.** The **urban streams** can be improved to form **green, bio-diverse connectors** between neighbourhoods. **Existing mature willows** punctuate the City Core.	The City Core is the area with the **highest levels of footfall** in the city. The fine grained street network can be used to **improve pedestrian permeability**. Potential to improve **east west connections** across Central Thimphu. The **urban streams** can be improved to form **walking routes** between neighbourhoods.
FUTURE CHARACTERISTICS	Central Thimphu will have the **highest densities** in the city with the City Core providing **new homes and workspaces**. People will be able to **live and work in close proximity.** Streetscape will be defined by **urban blocks** that provide **active uses** at the ground floor and creating **shared community spaces** at the rear with ample amount of **daylighting and privacy** for its residents. The **fine grained** built form structure will be enhanced by providing better **pedestrian connections.**	**Vibrant street life** will be facilitated through a network of shops, parks and markets, with well-connected pedestrian streets and lanes. **Stronger pedestrian connections** between destinations such as **Norzin Lam, Clock Tower Square, the markets and Centenary Park** will be improved encouraging **high footfall**. **New homes and workspaces** will be provided that attract a diverse set of city dwellers. **Local centres in the upper neighbourhoods** will offer retail, services and community infrastructure.	**Public landscapes, Valley Parks,** an extended **Riverside City Park and Public Squares** tailored to meet national and more local needs, will form a mosaic of green spaces through the City Core. Spaces along the river provide for **sport, recreation, events and children's play.** **Trees** will be a common feature within **urban streets**. The **urban streams** will be 'day-lighted' and cleaned to establish a **natural, green and blue** network with mature willow trees and **bio-diversity**.	At the City Core increased **pedestrian connections** will create a more **walkable and permeable** urban environment. **Innovative parking solutions** will reduce the dominance of cars in the public realm. The **urban streams** will be improved to form well used **east west pedestrian routes** from the upper valleys to the riverside. A clear **hierarchy of streets** and lanes will efficiently manage vehicular traffic and **while allowing high levels of pedestrian activity.**

CELEBRATE

CONTRIBUTE

	Place Checklist 3: Central Thimphu **KEY WORDS** National Destination, Highest Density, Urban Blocks, Enclosure, Urban Living, Housing Mix, Suburban Upper Slopes, Intensive Mix of Uses, Fine-grained, Vibrant Street-life, River Frontage, City Park, the Greenway, Green & Blue Network, Public Squares, Sport and Recreation, National Heritage and Landscape Assets, Government, Employment Clusters, Green Streams, Walkable and Permeable.	
BUILT FORM	Does the proposal promote a mix of housing typologies, including: a range of apartment sizes, or duplexes and town houses, with a focus on providing homes for smaller families and younger people?	yes/no
	Does the proposal avoid using boundary walls, using other ways of establishing privacy?	yes/no
	Does the proposal form or contribute to forming urban blocks that strongly define streets with urban frontages?	yes/no
	Does the proposal use innovation in construction, bio-build materials or integration and celebration of sustainable technologies?	yes/no
	Does the proposal provide more generous than required 'amenity balconies' and/or shared roof terraces for residents?	yes/no
	Does the proposal integrate seamlessly with the street to provide a high quality urban building interface?	yes/no
	Does the proposal consider and integrate with the established existing building line and façade rhythm to create a unified block frontage?	yes/no
ACTIVITY	Does the proposal provide active uses on the ground floor with spill out areas that serve to activate and provide overlooking to streets and public spaces?	yes/no
	Do the uses and activities proposed contribute to forming the new Centres for each community? (TSP 2023, Policy US2)	yes/no
	Does the proposal integrate community and cultural uses as part of the City Core (see CCAP)?	yes/no
	Does the proposal provide workspace clusters in locations accessible to public transport?	yes/no
LAND-SCAPE & SPACES	Does the proposal include shared outdoor spaces or that are greened, planted and/or incorporate new trees?	yes/no
	Does the proposal respond to proximity to a Green Stream (see CCAP), e.g. by providing amenity balconies and/or entrances, or small community or active uses overlooking the stream?	yes/no
	Does the proposal provide or contribute to providing an appropriate setting to heritage assets, such as decreasing height, providing frontage that overlook and provide enclosure?	yes/no
	Does the proposal form pedestrian connections and/or open up views towards national and local heritage assets such as Lhakhangs, City Parks, etc.?	yes/no
	For public realm, shared amenity spaces, setbacks and boundaries, does the proposed landscape design, planting and tree species selection form an urban character, e.g. through regular spacing of trees, formal planting, increased hard surfaces, etc.?	yes/no
STREETS & CON-NECTIONS	Do new or retro-fitted streets provide shaded footpaths and areas to accommodate high levels of footfall?	yes/no
	Does the proposal contribute in forming high quality pedestrian connections to the city destinations, e.g. through new pedestrian links through the development, locating entrances and/or active uses to provide overlooking, locating balconies to provide overlooking, etc.?	yes/no
	Do new or retro-fitted streets incorporate street furniture and places for meeting to encourage a sense of community and conviviality?	yes/no
	Appropriate for Small and Standard plots to consider incorporating **Total** (Small & Standard Plots) **Total** (Comprehensive Development)	___/14 ___/19

Southern Thimphu

CS1.5 Southern Thimphu characteristics

A place of exchange and innovation where younger people generate and discover new economic opportunities, a fresh urban culture and space to study, learn, work and socialise.

Existing Characteristics

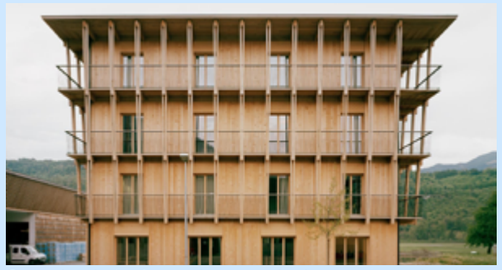
Congested developments and intensive commercial uses

Express way forms a barrier to pedestrian movement

Lack of public realm and open space

Narrow streets and footways, dominated by cars

Future Characteristics



Opportunity for Innovative architecture and construction

Babesa Water Gardens - a new City Park

Pedestrian activity and pedestrianised streets

Urban street life and activity

	Built Form	Activity	Landscape & Spaces	Streets & Connections	
OPPORTUNITIES	**Underutilised areas and incompatible uses** like the large Olakha Workshop site provide the opportunity to provide a new **Sub-district Centre.** **Sparse, low density development** on the **upper slopes** with views to **Buddha Dordenma.**	Already a **varied mix** of retail, commercial, institutional and residential uses. Presence of **existing further education institution** can form the basis for a greater **knowledge economy**. **Arrival at the City** and **place of interchange** - proposed Regional Transit Hub. **The confluence** of the two major rivers - an important **religious and cultural destination.**	Presence of **nationally significant heritage assets** such as Simtokha Dzong, Buddha Dordenma and the river confluence. The proposed **Babesa Water Gardens** can be a waterside public space offering new recreation activities and **connections along the Wang Chhu** riparian corridor.	Two **regional scale roads** converge here forming the opportunity for an **important public transport and logistics interchange** and long distance connections to other parts of Bhutan, including Paro Airport.	CELEBRATE
FUTURE CHARACTERISTICS	This will be an area of **high density** with new development concentrated at the Southern **Sub-district centre.** The urban form will create strong **street enclosure** and liveable urban neighbourhoods with ample **daylight and shared open spaces**. Residential buildings will offer varied **housing choice** with an emphasis on homes for **younger people and smaller families.** **Development** on **upper contours** will be **minimised.** A new **Regional Transport Hub** will form a **landmark building** at the entrance to the City, demonstrating **modern, 'Made In Bhutan' building technologies**.	An **intensively mixed use** urban area with a **diverse housing offer, innovation and enterprise hubs, start-up spaces, nightlife, cultural spaces and riverside activities.** It will be a **bustling** place with a concentration of **young people**. Further education and new **research spaces** at the Science, Technology and Innovation Park (**S.T.I.P**). Babesa Water Gardens will introduce **water sports,** and **waterside activities**, **improving access to the riverside** and enriching daily urban life. An **Innovation district** with spaces and facilities that foster **entrepreneurship and the new economy.**	The **significance of the river** will be celebrated with **improved connections and public spaces** formed around the river and the confluence. The **Babesa Water Gardens** will be an important new **City Park** providing much needed **waterside recreation spaces** in the South. The **Greenway** pedestrian and cycle route will provide routes along the river. At **upper neighbourhoods development** will be minimised to **preserve the forest cover** that remains. Improved and additional local **green spaces** will be provided for the community.	This area will function as a pivotal location for city arrivals and regional transit, with the planned **Regional Transit Hub**, fostering the use of **public transport**. **Innovative parking solutions** will reduce the dominance of cars in the public realm. The **character of the express way** will change, reducing its roadway width, introducing **boulevard trees, cycle lanes and bus lanes** and providing better **pedestrian crossings to improve links to the riverside.** **Urban street life** and the **pedestrian experience** will be prioritised.	CONTRIBUTE

	Place Checklist 4: Southern Thimphu **KEY WORDS** Regional Destination, National Heritage Assets, Arrival at the City, Transit Hub, Public Transport, Sub-district Centre, Higher Density, Urban Blocks, Urban Living, Rural Upper Slopes, Intensive Mix of Uses, Employment Clusters, Research and Innovation, New Economy, Modern Building Technologies, Urban Street-life, Babesa Water Gardens, Royal Boulevard, the Greenway, Riverside, Water Sports and Recreation.	
BUILT FORM	Does the proposal offer a varied housing mix that offers suitable options for younger people and small families including options such as co-living?	yes/no
	Does the proposal form or contribute to forming urban blocks that strongly define streets with urban frontages, and internal spaces within blocks for residents amenity?	yes/no
	Are front boundary walls minimised in height to allow for informal surveillance of streets and spaces and additional greening of streets through planting at boundaries?	yes/no
	Does the proposal provide building separations greater than the minimum to provide improved daylighting and privacy?	yes/no
	Does the proposal utilise innovative parking approaches to seamlessly accommodate cars without impacting on the public realm?	yes/no
ACTIVITY	Do the uses and activities proposed contribute to forming the range of Centres for the southern communities? (TSP 2023, Policy US2)	yes/no
	Does the proposal have shared indoor or outdoor spaces for the residents or local community to use?	yes/no
	Does the proposal provide flexible and adaptable ground floor spaces to help foster experimentation in uses and a new economy?	yes/no
	Does the proposal provide new cultural uses as part of the new Sub-district centre?	yes/no
	Does the proposal have education and research spaces as part of a workplace cluster in locations accessible to public transport?	yes/no
LAND-SCAPE & SPACES	Does the proposal create public spaces as a focus for the community? These can be public spaces and promenades around the riverside or areas with access to public transport, active uses, areas with good views across the valley etc.	yes/no
	Does the proposal include shared outdoor spaces or that are greened, planted and/or incorporate new trees?	yes/no
	Is there a strong relationship formed between the development and the adjacent riverside or forest landscapes, e.g. views from upper floors to the riverside, pedestrian links reinforced or formed, etc.?	yes/no
STREETS & CON-NECTIONS	Does the proposal form pedestrian connections or views towards local assets such as Babesa Water Park, heritage assets, the riverside or river confluence?	yes/no
	Does the proposal support the creation of pedestrian scale blocks with frequent permeability and accessibility?	yes/no
	Do streets incorporate street furniture and places for meeting to encourage a sense of conviviality?	yes/no
	Do the streets incorporate SuDs and a high degree of greenery with street trees and low planting?	yes/no
	Is there an emphasis on way finding and the transit experience of pedestrians and passengers?	yes/no
	Appropriate for Small and Standard plots to consider incorporating	**Total** (Small & Standard Plots) ___/10 **Total** (Comprehensive Development) ___/18

Rama and Debsi

CS1.6 Rama and Debsi characteristics

Pioneering, sustainable twin-community, creating a new, highly visible entrance to the city, which exemplifies new architecture and construction practices forming model communities.

Existing Characteristics

Development on steep slopes overlooking the city

Existing suburban streets

Existing suburban development

Tranquil outdoor spaces and local heritage

Future Characteristics

Innovative architecture

Community food growing and farming

Active streets for walking and cycling

Neighbourhood Centre for the community

	Built Form	Activity	Landscape & Spaces	Streets & Connections
OPPORTUNITIES	Debsi is characterised by **suburban, medium density** development. Heights in Debsi **vary** between **3 and 4 storeys.** Forms **a new edge to the city**, defining the limits of the city. **Rama is highly visible** from the express way.	Large parts of the land are **undeveloped** presenting an opportunity to explore a **exemplar new neighbourhood**. **Residential areas** in Debsi are primarily on the lower contours with a **few community facilities** and residential uses on the steeper areas.	There are **gentler slopes** in Rama. There are very steep slopes in parts of Debsi, with **beautiful views** across the city. There is a **long riverside edge** in both Rama and Debsi, providing an opportunity to form a strong relationship to the river.	Existing streets are l**ow traffic and slow speed**, allowing streets to potentially accommodate pedestrian activity well and ensures peace and tranquillity.
FUTURE CHARACTERISTICS	**Medium density, suburban** neighbourhood. Varied building heights between **3 to 4 storeys** with tallest development at the local centres. New buildings will be a mix of **Contemporary** and **Innovative** style (see ID chapter). The built form will be **pioneering** and **sustainable** with a strong focus on **timber** and other **bio build materials.** These communities **mark the entrance** to the city and have a **strong visible roofscape.** A focus on providing **larger family homes** with ample amount of **public open space, shared courtyards** and **amenities**.	Local centres will provide access to **education, healthcare, services and amenities.** **Adventure and recreation** activities will be easily accessible to the residents of the area due to its location at the edge of the city. **Religious assets** will be important **community spaces** with open space and public facilities.	The **terraced farms, forests** and **river** will create a **varied landscape** character. **Productive gardens** will be created and maintained by the community reflecting on the agricultural landscapes. Proximity to the river will encourage **waterside activities** and **recreational opportunities**. Planting will reflect the **agricultural landscapes near the river** and the **forested landscapes on the upper slopes.** Public spaces formed around areas with **views across the valley.**	Rama and Debsi will illustrate model neighbourhoods with **well connected** and **pedestrian friendly** streets. Efficient **public transport** and **cycle networks** will be favoured within the settlement, with **parking** organized in **shared structures** at the edges of the urban area to create **safer, pedestrian priority** streets. Streets will be **low speed** and allow **children to walk and play safely.**
				CONTRIBUTE

	Place Checklist 5: Rama and Debsi **KEY WORDS** Mid density, Suburban, Pioneering, Sustainable, New way of living, Model housing, Timber, Productive landscapes, Distinctive roofscape, Adventure, Local Centres, River side, Walkable, Safe play spaces	
BUILT FORM	Does the proposal have a housing mix that includes family sized houses and multi generational living?	yes/no
	Does the proposal provide front and side setbacks that are greater than the minimum required, to provide a sense of openness, less enclosed streets and spaces?	yes/no
	Are the front setbacks well planted and landscaped and are boundary edges planted to provide additional greening as a contribution to the streetscape character?	yes/no
	Does the design of the roofscape consider views and overlooking from the expressway and the opposite bank of the river?	yes/no
ACTIVITY	Do the uses and activities proposed contribute to forming the two new Neighbourhood Centres for each community? (TSP 2023, Policy US2)	yes/no
	Does the proposal provide small-scale co-working spaces or additional spaces for working within homes to support working close to home?	yes/no
	Does the proposal have shared indoor or outdoor spaces for the residents or local community to use?	yes/no
	Does the proposal incorporate indoor or outdoor spaces that encourage sport and recreation, active lifestyles and healthy living?	yes/no
LAND-SCAPE & SPACES	Does the proposal provide or contribute to forming comfortable and accessible indoor and outdoor places for older people to occupy?	yes/no
	Does the proposal provide or contribute to forming safe play areas for children e.g. does the proposal provide play space itself or provide overlooking of an existing play space?	yes/no
	Does the proposal include shared or private (single family) outdoor spaces or that are greened, planted and/or incorporate new trees?	yes/no
	Is there a strong relationship formed between the development and the riverside? e.g. views to the riverside, pedestrian links formed, etc.	yes/no
	For public realm, shared amenity spaces, setbacks and boundaries, does the proposed landscape design, planting and tree species selection reflective of those found in surrounding context (such as agricultural landscapes, food production)?	yes/no
	Does the proposal provide any spaces for the community? e.g. productive gardens, food growing, picnic spaces?	yes/no
	Does the proposal allow residents to contribute to forming and maintaining shared amenity or local public open spaces?	yes/no
STREETS & CON-NECTIONS	Does the proposal prioritise streets as spaces for people? Streets should be very low speed and lightly trafficked to allow children to play outside and pedestrian activity to take place.	yes/no
	Are existing and proposed pedestrian connections and streets provided with overlooking and/or active ground floor uses (if appropriate) to ensure activity, safety and promote use?	yes/no
	Does the proposal create pedestrian priority areas, with cars kept at the edges of the new neighbourhood in pooled car parking buildings?	yes/no
	Appropriate for Small and Standard plots to consider incorporating **Total** (Small & Standard Plots) **Total** (Comprehensive Development)	 ___/13 ___/18

Rural Valleys

CS1.7 Rural Valleys characteristics

A re-invigorated agricultural economy rooted in the existing culture and working landscapes, forming clusters, supporting fulfilling rural lives.

Existing Characteristics

Terraced farmlands

Forming clusters

Forest landscapes

Traditional buildings

Future Characteristics

Traditional architecture

Community farming

Slow streets

Rural centres

	Built Form	Activity	Landscape & Spaces	Streets & Connections	
OPPORTUNITIES	The rural areas of Thimphu valley encompass villages and natural and agricultural landscapes located at the outskirts of the city. The layout of these village clusters often follow the **natural topography**, resulting in an **organic and loosely structured** arrangement.	There are several **religious** and **educational institutions** in the area. The lush landscapes and peaceful atmosphere is a **draw for tourists.**	The landscapes are characterised by **terraced agricultural fields, forests, streams and tributaries** contributing to their **unique and picturesque** landscapes.	The existing roads **follow the contours** of the valley. They are typically unformed in nature thereby **encouraging low speeds.**	CELEBRATE
FUTURE CHARACTERISTICS	The **organic village forms**, **vernacular architecture** and rural **agricultural landscapes** will be protected, ensuring the continuity of cultural heritage. Existing patterns of development with rural **buildings clustered along winding lanes** between **terraced agricultural fields** and forest will be preserved. New buildings will seek to harmoniously **blend contemporary elements with traditional forms.** The promotion of **nature-based bio-building** will reinvigorate the vernacular.	**Rural centres** will be formed or re-invigorated to support the daily needs of the existing population and provide a focus for each community. The traditional ways of life will diversify into a range of potential activities, encompassing **third sector tourism, agri-business and agricultural education, Buddhist teaching organic food production, nature exploration, outdoor recreation, forestry** and more. These initiatives will add significant value to the **local economy** and support sustainable development.	Enhancing the **intrinsic charm** of these places while accommodating change sympathetically will retain the **balance between development** and **productive and natural landscapes**. These places hold the potential to inspire **innovative agricultural practices.**	The streets will **retain** their **existing character** and will promote **low traffic speeds.** The rural areas will be well connected with the **regional public transport** network to reduce the dependence on cars. The **clustering of the built form** will encourage **pedestrian movement** within the areas.	CONTRIBUTE

	Place Checklist 6: Rural Valleys **KEY WORDS** Family and Multi-generational Homes, Traditional, Contemporary, Traditional Materials and Crafts, Tranquillity, Outdoor Recreation, Sense of Openness, Forest Planting, Larger Trees, Waterways, Views, Bio-diversity, Community Spaces, Gardens, Safe Play spaces, Walkable Streets, Green Streets.	
BUILT FORM	Does the proposal sit within gardens, landscapes or agricultural fields?	yes/no
	Does the proposal form a cluster with surrounding development, with landscapes and open spaces between buildings?	yes/no
	Does the proposal follow the natural topography and contribute to the informal layout of the surrounding rural development?	yes/no
	Does the proposal provide front and side setbacks that are greater than required, to provide more open, less enclosed streets?	yes/no
	Are front setbacks well planted and landscaped and are boundary edges planted to provide additional greening as a contribution to the streetscape character?	yes/no
	Is the proposal formed of Traditional style buildings? (See CX3.1)	yes/no
	Are external facades and boundary walls predominantly high quality, natural, local materials and traditional crafts including rammed earth walls, timber framed roofs, timber shingles and dry stone walls and masonry?	yes/no
ACTIVITY	Do the uses and activities proposed contribute to forming the new Rural Centres for each community? (See TSP 2023 - add ref)	yes/no
	Does the proposal provide small-scale spaces uses which support the rural economy? E.g. homestays, spiritual tourism, food growing	yes/no
LAND-SCAPE & SPACES	Does the proposal provide or contribute to forming comfortable and accessible indoor and outdoor places for older people to occupy?	yes/no
	Does the proposal include shared or private (single family) outdoor spaces or that are greened, planted and/or incorporate new or existing trees?	yes/no
	Does the proposal provide any spaces for the community? e.g. productive gardens, food growing, picnic spaces?	yes/no
	Does the proposal retain and incorporate existing natural features and assets, including existing larger, forest type trees, planting, water courses and/or water bodies?	yes/no
	For public realm, shared amenity spaces, setbacks and boundaries, does the proposed landscape design, planting and tree species selection reflective of those found in the surrounding area?	yes/no
	Does the proposal retain and enhance existing cultural, heritage or spiritual assets e.g. mani walls?	yes/no
STREETS & CON-NECTIONS	Does the proposal create intimately sized, low-speed and lightly trafficked streets which encourage children to play outside and pedestrian activity to take place safely?	yes/no
	Are streets designed more informally, with loose green edges, organic alignments and natural materials e.g. gravel or sand?	yes/no
	Do any new streets incorporate a high degree of greenery with space for new streets to grow to maturity, new street trees and low-level planting?	yes/no
	Appropriate for Small and Standard plots to consider incorporating **Total** (Small & Standard Plots) **Total** (Comprehensive Development)	___/12 ___/18

Development codes

This chapter provides requirements and guidelines for the urban fabric and built form of all development plots and all types of development.

These codes apply to all sizes of plot across the city and rural areas.

BF Built Form

Who must read this section:

- Developers and architects/designers engaged in the design of development on Small and Standard Plots.
- Public authorities, developers and architects/designers engaged in the design of Comprehensive Development proposals.

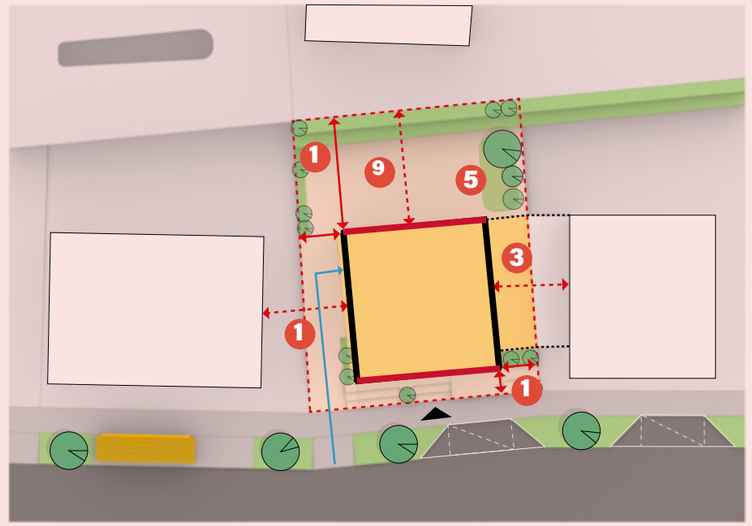
Demonstration 1

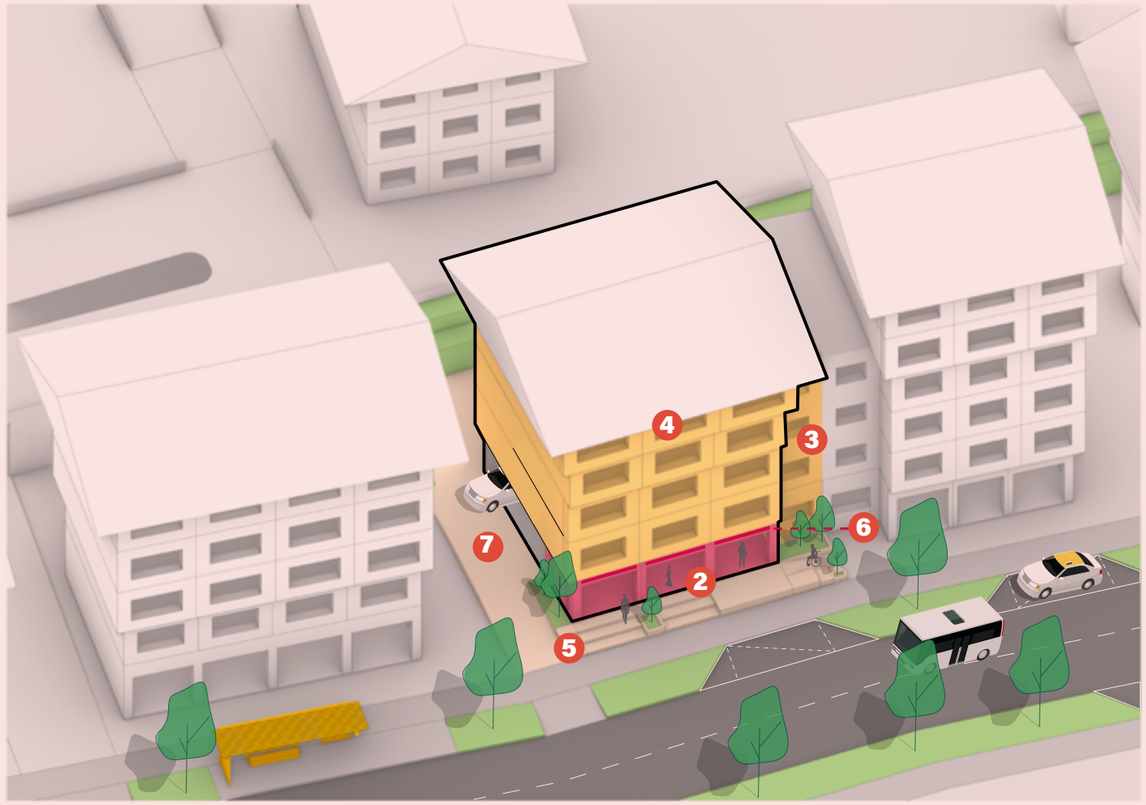
The following demonstration provides illustrations of the BF-Built Form codes applied to a single development on a Small or Standard Plot. This also shows the benefits of forming a Party Wall with a neighbouring plot.

Small and Standard Plots - Single Plot Development

Development Codes	Plot Demonstration
1 **BF1 Development Controls** Summarises the key development parameters such as density (Net FAR), maximum heights (by Area Type and plot sizes), alongside required building separations, setbacks, and plot coverages.	▪ Net FAR and height regulations set the capacity of a development plot. ▪ Required setbacks, building separations, and plot coverage define the development's build-able area.
2 **BF2 Permissible Land Uses** Clarifies permissible uses for developments, in accordance with TSP 2023 Land Use designations, factoring in other specified criteria for permissible uses.	▪ In residential Land Use zones, retail spaces are allowed on the ground level along public transportation corridors.
3 **BF3 Development in Urban Areas** Presents urban intensification strategies following TSP 2023 density uplift principles and focusing on efficient use of land, party walls, and plot reconfiguration and consolidation.	▪ Plots with areas between 283-809 qm are incentivised to develop shared Party Walls with adjacent plots, through the provision of an additional Net FAR bonus .
4 **BF6 Building Form** Further clarifications on BF1 Development Controls (density, height, setbacks, building separations) introducing guidance on urban block positioning, façade breaks, roof, and designs adaptable to topography, geohazards, and flood resilience.	▪ The development meets separation requirements by placing habitable facades at the front/back and non-habitable facades on the sides. ▪ Orienting the demonstration block to address the street, and creates amenity space at the rear.
5 **BF7 Building Interfaces** Provides rules for how buildings interact with adjacent buildings and the public realm, including the treatment of front, side, and rear setbacks, and boundary walls.	▪ The development provides accessible entry via steps and ramps within the front setback to manage level changes. ▪ The side setback area is utilised as access to ground-level rear stilt parking. ▪ At the rear, the development maximises building separation to establish a shared space.
6 **BF8 Architectural Treatment** Regulates building materials, colours, greening strategies, and guidances on signage.	▪ Signage is incorporated into the ground floor façade design only of the development.
7 **BF9 Parking** Specifies minimum and maximum parking standards by Land Use with strategies for parking and service integration across different Area Types.	▪ Parking is integrated into the ground level of the demonstration building, behind the active frontage to reduce its visual impact.
8 **BF10 Living Neighbourhoods** Addresses residential development standards, focusing on interior space standards, daylight and ventilation, and exterior requirements for amenity spaces, balconies, roofs, and gardens.	▪ The development features amenity spaces to the rear of the building (within the interior of the urban block) with sufficient front and back separation to ensure good daylight, privacy and ventilation.
9 **BF12 Edge Conditions** Sets specific rules for developments along unique edge conditions such as facing Wang Chhu, valley parks, open spaces, forests, and green streams.	▪ Not applicable.

- Demonstration plots
- Existing Buildings
- Infill residential buildings
- Extensions/connections
- Ground level parking
- Retails
- Setbacks
- Building separations
- Habitable facade
- Non-habitable facade
- Parking access
- Main entrance





Demonstration 2

The following demonstrations provide illustrations of the BF-Built Form codes applied to a infill development on multiple Small or Standard Plots.

Small and Standard Plots - Infill Development

Development Codes	Plot Demonstration
1 **BF1 Development Controls** Summarises the key development parameters such as density (Net FAR), maximum heights (by Area Type and plot sizes), alongside required building separations, setbacks, and plot coverages.	▪ Net FAR and height regulations set the capacity of the developments. ▪ Requirements for setbacks, building separations, and plot coverage define the developments' build-able areas.
2 **BF2 Permissible Land Uses** Clarifies permissible uses for developments, in accordance with TSP 2023 Land Use designations, factoring in other specified criteria for permissible uses.	▪ In Residential Land Use zones, retail spaces are allowed on the ground level along public transportation corridors.
3 **BF3 Development in Urban Areas** Presents urban intensification strategies following TSP 2023 density uplift principles and focusing on efficient use of land, party walls, and plot reconfiguration and consolidation.	▪ Plot B is consolidated with Plot C due to Plot B having a depth of less than 15m, allowing for a denser, more cohesive, more efficient development. ▪ Internal Plot D is designated as communal parking spaces, with a maximum of 2 storeys. ▪ Development of Party Walls in Plots E and F is encouraged through the density (Net FAR) bonus.
4 **BF6 Building Form** Further clarifications on BF1 Development Controls (density, height, setbacks, building separations) introducing guidance on urban block positioning, façade breaks, roof, and designs adaptable to topography, geohazards, and flood resilience.	▪ This urban block consists of a series of buildings that together spatially define the public streets and form shared spaces internally . ▪ Main entrances are located on the flatter, more accessible streets. ▪ Change in level is utilised to accommodate amenities such as parking, building services, community spaces, etc.
5 **BF7 Building Interfaces** Provides rules for how buildings interact with adjacent buildings and the public realm, including the treatment of front, side, and rear setbacks, and boundary walls.	▪ Buildings provide entries on flatter streets, or via steps and ramps to manage the topography. ▪ The side setback area is utilised as access to ground-level parking or outdoor areas. ▪ At the rear, buildings maintain sufficient separations to establish shared or private outdoor spaces.
6 **BF8 Architectural Treatment** Regulates building materials, colours, greening strategies, and guidances on signage.	▪ Signage is incorporated into the ground floor façade design of the demonstration building.
7 **BF9 Parking** Specifies minimum and maximum parking standards by Land Use with strategies for parking and service integration across different Area Types.	▪ Parking is integrated into the ground level of buildings, behind the active frontage to reduce visual impact. ▪ Internal Plot D is designated for communal parking spaces to better meet parking requirements.
8 **BF10 Living Neighbourhoods** Addresses residential development standards, focusing on interior space standards, daylight and ventilation, and exterior requirements for amenity spaces, balconies, roofs, and gardens.	▪ The buildings feature amenity spaces to the rear of buildings, with sufficient front and back separation to ensure good daylight, privacy and ventilation.

(A-G) Demonstration plots
Existing Buildings
Infill residential buildings
Extensions/Connections
Communal parking structure
Ground level parking
Retails
Community spaces
Building separations
Habitable facade
Non-habitable facade
Parking access
Main entrance

BF—Built Form

BF1 Development Controls

BF1.1 Building height and density (Net FAR)

See Figure 7 for description of Development Types. (Introduction chapter)

		City Core		Major Employment	
Development Type	Plot Size (sqm)	Maximum Height*	Maximum Net FAR	Maximum Height*	Maximum Net FAR
Small	0-81	No development permitted	N/A	No development permitted	N/A
	81-182	8m or 2 storeys		8m or 2 storeys	
	182-283	11m or 3 storeys	1.9	11m or 3 storeys	1.8
Standard	283-364	18m or 5 storeys	2 + 0.4 bonus**	18m or 5 storeys	1.9 + 0.3 bonus**
	364-809	26m or 6 storeys	2.4 + 0.4 bonus**	26m or 6 storeys	2.2 + 0.3 bonus**
	809-2,000		2.8		2.5
Comprehensive	>2,000	26m or 6 storeys	3.4	26m or 6 storeys	3.2

* The lower bound is inclusive and upper bound is exclusive.
Building height and density requirements: City Core and Major Employment Area Types.

See Figure 7 for description of Development Types. (Introduction chapter)

		Urban I		Urban II	
Development Type	Plot Size (sqm)	Maximum Height*	Maximum Net FAR	Maximum Height*	Maximum Net FAR
Small	0-81	No development permitted	N/A	No development permitted	N/A
	81-182	8m or 2 storeys		8m or 2 storeys	
	182-283	11m or 3 storeys	1.7	11m or 3 storeys	1.4
Standard	283-364	18m or 5 storeys	1.8 + 0.3 bonus**	14m or 4 storeys	1.5 + 0.3 bonus**
	364-809	24m or 6 storeys	2.2 + 0.3 bonus**	18m or 5 storeys	1.8 + 0.3 bonus**
	809-2,000		2.5		2.1
Comprehensive	>2,000	24m or 6 storeys	3.2	18m or 5 storeys	2.8

* The lower bound is inclusive and upper bound is exclusive.
Building height and density requirements: Urban I and II Area Types

Note: TSP 2023 provides absolute maximums for building heights and will take precedence over heights in these tables.

For building heights: see also BF6.2
For Party Walls: see also BF3.1.2
For development in Rural Areas: see also BF4

Refer to TSP2023, Policy US1 and Definitions chapter

See Figure 7 for description of Development Types. (Introduction chapter)

		Suburban I		Suburban II		Suburban III	
Development Type	Plot Size (sqm)	Maximum Height*	Maximum Net FAR	Maximum Height*	Maximum Net FAR	Maximum Height*	Maximum Net FAR
Small	0-81	No development permitted	N/A	No development permitted	N/A	No development permitted	N/A
	81-182	8m or 2 storeys		8m or 2 storeys		8m or 2 storeys	
	182-283		1.0		0.8		0.5
Standard	283-809	14m or 4 storeys	1.1 + 0.2 bonus**	14m or 4 storeys	1.0 + 0.2 bonus**	11m or 3 storeys	0.6
	809-2,000		1.3		1.2		0.75
Comprehensive	>2,000	14m or 4 storeys	1.7	14m or 4 storeys	1.6	11m or 3 storeys	1.1

* The lower bound is inclusive and upper bound is exclusive.
Building height and density requirements: Suburban I, II and III Area Types

See Figure 7 for description of Development Types. (Introduction chapter)

		Rural	
Development Type	Plot Size (sqm)	Maximum Height*	Maximum Net FAR
Small	0-81	No development permitted	N/A
	81-182	8m or 2 storeys	0.5
	182-283	8m or 2 storeys	0.5
Standard	283 and above	8m or 2 storeys	0.6

* The lower bound is inclusive and upper bound is exclusive.
Building height and built area requirements: Rural Area Types.

*One building must not exceed a ground coverage of 200 sqm and in instances of multiple buildings, must abide by the building separation codes.

**Maximum building height excludes jamthog and roof; and is controlled by metres and storeys, whichever is less*
***Party wall bonus (see BF 3.1.2 for more guidance)*

Note: TSP 2023 provides absolute maximums for building heights and will take precedence over heights in these tables. Additonally, not withstanding the provisions of the code, in cases of specific restrictions such as but not limited to flight funnel, buffer around registerd heritage structures will take precedence over the code.

Refer to TSP2023, Policy US1 and Definitions chapter

BF1.2 Building setbacks

Area Type	Front Setback (minimum)	Side Setback (minimum)	Rear Setback (minimum)
City Core	3m	3m	3m
Major Employment	3m	3m	3m
Urban I	3m	3m	3m
Urban II	3m	3m	3m
Suburban I	3m	3m	3m
Suburban II	3m	3m	3m
Suburban III	3m	5m	3m
Rural	3m	5m	3m

Building setback requirements by Area Type summary table.

Car parking ***must not*** be located within front setbacks. Where car parking is provided in side or rear setbacks the minimum setback ***must*** be 5m.

Rear and side setbacks ***must*** comply with minimum distances defined for building separations. (see BF 1.3).

BF1.3 Building separations

Plot Size (sqm)	Minimum building separation between habitable façades	Minimum building separation between non-habitable façades
0-2,000	6m	6m
>2,000	12m	6m

Building separations requirements summary table

All buildings must achieve at least 6m separation from all buildings, whether existing or new, and all types of façade.

Note: 6m is considered a reasonable separation between buildings in terms of fire safety. However, other standards and regulations will need to be complied with.

BF1.4 Open space coverage for comprehensive development

Area Type	Minimum Open Space Coverage
City Core	25%
Major Employment	30%
Urban I	30%
Urban II	40%
Suburban I	50%
Suburban II	60%
Suburban III	70%

Open Space Coverage requirements by Area Type summary table (for plots larger than 2,000 sqm only)

Plots larger than 2,000sqm ***must*** comply with minimum open space coverage. Plots under 2,000 sqm ***must*** follow the requirements in BF1.1.

For plots at Edge Conditions, while floors are reduced, the Allowable Net FAR is maintained. (See BF12)

For setbacks: see also BF6.4. BF7
For building separation: see also BF6.5

General Note for codes BF1.1 to 1.4: Other standards and regulations (for example regulations in regard to Fire Safety) must also be complied with. These safety requirements will override setbacks and separations in this code, if greater.
Please note: a 3m setback will not be sufficient width for fire truck access. Where truck access is required to the side or rear of a building an increased setback will be required.

BF2 Permissible Land Uses

The following provides requirements and guidance for the location of different uses across the TSP2023 area. Refer to TSP2023, Policy US1 and Table 5.7.

	Permissible Use	Design Code Guidance
Urban Residential	Primary Uses: ▪ Residential Secondary Uses: ▪ Community facilities ▪ Retail ▪ Office ▪ Public open space ▪ Recreation facilities ▪ Small scale utilities	▪ Secondary uses are permitted as supporting functions necessary for the residential community. Their location and amounts ***must not*** erode the residential character. Permission for these uses is conditional upon these activities adequately mitigating noise, light pollution, vibrations, fumes and dust to minimise disruption to residents. ▪ Small office and retail spaces are permitted. The GEA of office and retail space ***must*** be minimised. Uses such as home offices, art studios and creative spaces, co-working, and professional offices for small businesses, clinics and educational services could be considered to support the residential population. ▪ Office and retail uses are preferably located within designated Mixed Use zones. Where located within Urban Residential zones these uses ***must*** be limited to ground floors of buildings facing Primary Streets or public transport corridors only. ▪ Community facilities including playing fields, gymnasiums, swimming pools, libraries, crèches/daycare facilities and community halls are permitted. ▪ Recreational facilities are permitted, conditional on being limited to daytime operating hours. All recreational facilities to follow international standards. ▪ Night time recreational uses including bars, discotheques and pool rooms are not permitted.
Suburban Residential	Primary Uses: ▪ Residential Secondary Uses: ▪ Community facilities ▪ Retail ▪ Small scale local employment ▪ Public open space ▪ Recreation facilities ▪ Small scale utilities	▪ Secondary uses are permitted as supporting functions necessary for the residential community. Their location and amounts ***must not*** erode the residential character. Permission for these uses is conditional upon these activities adequately mitigating noise, light pollution, vibrations, fumes and dust to minimise disruption to residents. ▪ Retail and small scale employment uses are permitted as secondary uses. The GEA of office and retail space ***must*** be minimised. Uses such as home offices, art studios and creative spaces for personal use and small businesses could be considered to support the residential population. ▪ Retail and employment uses are preferably located within designated Mixed Use zones. ▪ Community facilities including playing fields, gymnasiums, swimming pools, libraries, crèches/daycare facilities and community halls are permitted. ▪ Recreational uses are permitted, conditional on being limited to daytime operating hours.All recreational facilities to follow international standards. ▪ Night time recreational uses including bars, discotheques and pool rooms are not permitted.

Refer to TSP2023, Policy US1

	Permissible Use	Design Code Guidance
Rural Residential	Primary Uses: ▪ Residential ▪ Agriculture ▪ Agri-tourist homestays, exchange programmes and spiritual retreats ▪ Rural local centre ▪ Small plot agriculture Secondary Uses: ▪ Community facilities ▪ Small retail ▪ Public open space ▪ Recreation facilities ▪ Small scale utilities	▪ Residential use is permitted as a primary use. ▪ Agricultural uses such as Chhuzhing (wet agriculture), orchards, vegetable gardens, green houses, workshops related to agricultural activity and repair, and storage facilities are permitted as primary uses. ▪ Homestays and other cottage industries to support agriculture, agri-tourism, exchange programmes and spiritual retreats are permitted as supporting uses, to enable economic activity for rural households. These uses should be associated with a rural household and ***must*** be incorporated into existing or new rural homes or within the same plot. ▪ Secondary uses are permitted as supporting functions necessary for the rural community. Their location and amounts ***must not*** erode the residential character. Permission is conditional upon these activities adequately mitigating noise, light pollution, vibrations, fumes and dust to minimise disruption to residents. ▪ Small retail uses are preferably located on the ground floors of buildings within Rural Local Centres only. Within Rural Residential zones these uses ***must*** be limited to the ground floors of buildings immediately adjacent to Rural Local Centres and fronting onto any public transport corridors only. ▪ Community facilities including playing fields, gymnasiums, libraries, crèches/ daycare facilities and community halls are permitted. Smaller facilities ***must*** be located on the ground floors of residential buildings. These uses ***must*** be located within or adjacent to Rural Local Centre designations. ▪ Recreational uses are permitted, conditional on being limited to daytime operating hours. All recreational facilities to follow international standards. ▪ Night time recreational uses including bars, discotheques and pool rooms are not permitted.
Mixed Use	Primary Uses ▪ Medium and high density housing ▪ Community facilities ▪ Government ▪ Commercial ▪ Retail ▪ Restaurants & Cafés ▪ Contemporary culture such as venues, museums and cinemas Secondary Uses ▪ Community facilities ▪ Hospitality ▪ Public open space ▪ Local retail	Refer to TSP 2023 Policy US2, CF1 and CF2 for detail of the Centres Hierarchy, Community Facilities and Co-location and Integration of Facilities. Refer to LU 3.1 for guidance on forming mixed use clusters in urban and rural areas. ▪ Mixed use zones are intended to support neighbourhood daily needs and create vibrant nodes and focus points for economic, cultural and social activity. ▪ Local Area Plans will identify and locate any specific cultural or community uses for individual neighbourhoods. ▪ Residential uses are permitted as a primary use. A residential population will support local business and the economy and provide activity throughout the day. ▪ Commercial, retail and restaurant and cafe uses are permitted as primary uses. Local Area Plans will define locations for these uses, but these uses ***must*** be located close to public transport nodes and areas of high footfall. Commercial employment use ***must*** be located in small clusters adjacent to public transport nodes. For commercial employment spaces, uses including workshops, offices, light industrial, storage spaces, service stations and car repair services could be considered. Permission is conditional upon these activities adequately mitigating noise, vibrations, fumes and visual impact to minimise disruption to any adjacent residents. ▪ Night time recreational uses including bars, discotheques and pool rooms are permitted, and ***should*** be located within commercial clusters to reduce disruption to areas of a more residential character. ▪ Secondary uses are permitted as supporting functions including: gymnasiums, swimming pools, libraries, crèches/daycare facilities and community halls; hospitality uses such as hotels, lodging and tourism facilities.

Refer to TSP2023, Policy US1, US2, CF1 and CF2

	Permissible Use	Design Code Guidance
Workplace	Primary Uses ▪ Office ▪ Maker space/Fab Lab ▪ Studio ▪ Co-working ▪ Managed workspaces Secondary Uses ▪ Public open space ▪ Local retail	▪ Large and small scale office space are permitted as primary uses. Other primary uses could include art studios and creative spaces, co-working space, small professional offices for small businesses and small scale workshops. ▪ Permission for these uses is conditional upon these activities adequately mitigating noise, light pollution, vibrations, fumes and dust to minimise disruption to any adjacent residents outside or inside the workplace land use zone. ▪ Limited local retail uses are permitted as secondary uses to support the working population. These uses ***should*** be located on the ground floors of buildings facing Primary Streets or public transport corridors only.
Hospitality	Primary Uses ▪ Hospitality Secondary Uses ▪ Public open space ▪ Local retail ▪ Food & Beverage	▪ Hospitality uses such as hotels, lodging and tourism facilities are permitted. ▪ Limited secondary uses within resorts such as food and beverages and small shops are permitted.
Industrial	Primary Uses ▪ Industrial Secondary Uses ▪ Workplace ▪ Public open space ▪ Local retail ▪ Food & Beverage	▪ Industrial uses including light and heavy industry, workshops, service stations and car repair services and warehouse/storage spaces are permitted as primary uses. ▪ Permission for these uses is conditional upon these activities adequately mitigating noise, light pollution, vibrations, fumes and dust to minimise disruption to any adjacent residents outside or inside the workplace land use zone. ▪ Limited secondary uses including supporting office space and facilities for workers such as food and drink and local shops are permitted.
Government	Primary Uses ▪ Government ▪ Workplace Secondary Uses ▪ Mixed Use ▪ Public open space ▪ Local retail ▪ Food & Beverage	▪ Government institutions, diplomatic enclaves, and government offices are permitted as primary uses. ▪ Large and small scale office space are permitted as primary uses. ▪ Limited local retail and food and beverage uses are permitted as secondary uses to support the working population. These uses should be located on only the ground floors of buildings.
Education	Primary Uses ▪ Education ▪ Workplace Secondary Uses ▪ Community facilities ▪ Public open space ▪ Recreation facilities	▪ Educational uses including schools, colleges, research institutions, training facilities and public libraries in addition to supporting offices are permitted as primary uses. This can include a small number of residential units for members of staff. ▪ Community facilities including gymnasiums, swimming pools, libraries, crèches/ daycare facilities and community halls can be co-located and shared with educational facilities outside of school hours. ▪ Indoor and outdoor recreation spaces could be used outside of operating hours by the local community.

Refer to TSP2023, Policy US1

	Permissible Use	Design Code Guidance
Health	Primary Uses ▪ Healthcare ▪ Workplace Secondary Uses ▪ Local retail ▪ Food and Beverage ▪ Community facilities ▪ Education	▪ Healthcare uses including dispensaries, clinics, care-homes and hospitals are permitted as primary uses. This can include a small number of residential units for members of staff. ▪ Limited local retail and food and beverage uses are permitted as secondary uses to support the working population and visitors to the facility. These uses ***must*** be located on the ground floors of buildings only.
Community Facilities	Primary Uses ▪ Community Centres ▪ Libraries ▪ Civil defence, police ▪ Fire fighting ▪ Animal shelters ▪ Other community facilities Secondary Uses ▪ Office ▪ Local retail ▪ Public open space ▪ Recreational facilities ▪ Religious	▪ Community facilities including gymnasiums, swimming pools, libraries, crèches/ daycare facilities and community halls are permitted as primary uses. ▪ Public services including fire fighting, police and animal shelters are permitted as primary uses. ▪ Limited local retail and office uses are permitted as secondary uses. These uses ***must*** be located on the ground floors of buildings only.
Agriculture	Primary Uses ▪ Agriculture ▪ Tourism including agri-tourist homestays, exchange programmes and spiritual retreats Secondary Uses ▪ Very low density residential ▪ Rural Local Centre ▪ Recreation facilities ▪ Open Space ▪ Religious	▪ Refer to BF4.2.4 for guidance on development controls for Agriculture land. ▪ On land designated as Agricultural Land Use in TSP 2023, barns, storage, green houses, workshops and other buildings related to agricultural practices are permitted (see BF 4.2.4 for built form restrictions). ▪ On land designated as Agricultural Land Use in TSP 2023, homestays and other cottage industries to support agri-tourism, exchange programmes and spiritual retreats are permitted to enable household economic activity and the rural economy (see BF 4.2.4 for built form restrictions). ▪ On land designated as Agricultural Land Use in TSP 2023, very limited residential uses are permitted as a secondary use. Any residential use ***must*** only be included in special circumstances and ***must*** only be included to support an existing rural household.
Open Space	Primary Uses ▪ Open space Secondary Uses ▪ Recreation facilities ▪ Community facilities ▪ Cultural facilities ▪ Utilities	▪ Refer to LO2 chapter for guidance on appropriate facilities and activities for each open space type.

Refer to TSP2023, Policy US1

The following provides allowable community facilities within the different centre hierarchy identified in the TSP2023. Refer to TSP2023, **Policy US2 and CF1.**

Centres	Primary Uses	Centres	Primary Uses
City Centre	▪ National Referral Hospital ▪ University ▪ Stadium ▪ City Police Station ▪ Metropolitan Park	**Neighborhood**	▪ Primary school ▪ Health clinic ▪ Neighborhood park and sports
Sub-district Centre	▪ Secondary School ▪ Fire Fighting ▪ City Park ▪ Sports Complex ▪ Vet	**Urban Local Centre**	▪ Mobility hub ▪ Nursery ▪ Pocket park ▪ Community centres ▪ Waste hub ▪ Small shop
Rural Local Centre	▪ Primary Health ▪ Hall ▪ Shop		

Centres hierarchy as proposed under TSP 2023

BF3 Development in Urban Areas

To ensure the efficient use of available land within the city to promote urban regeneration, uplift in density in line with the principles of the TSP 2023.

BF3.1 Compact development

BF3.1.1 Effective use of land

Developments ***must*** achieve efficient use of land, optimising the capacity of the site with regard to its location and context (see TSP 2023 Policy US4).

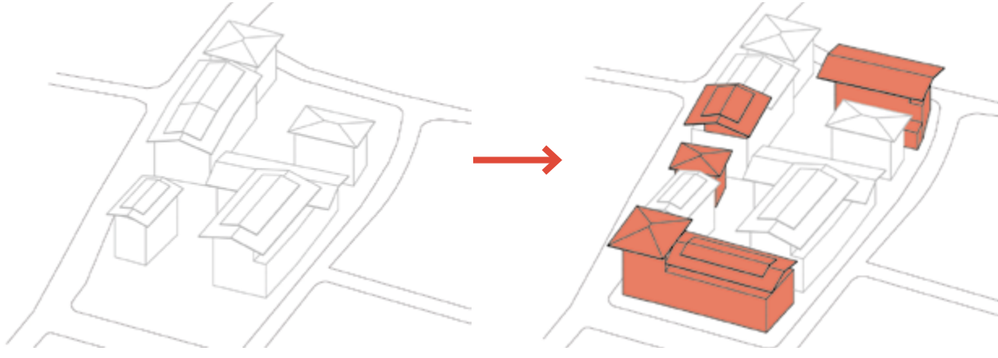
Developments ***must*** comply with the maximum allowable development described in Table BF 1.1.

Developments with plots larger than 2,000sqm ***must*** comply with the maximum allowable plot coverages described in Table BF 1.4.

Developments within urban areas where potential for density uplift have been identified ***should*** consider urban intensification options, including:

- Infill development on a vacant site or several non-contiguous sites;
- Comprehensive Development across multiple, contiguous sites;
- Upward extension/additional floors within height and density requirements;
- Consolidation of multiple surface car parking areas into multi-storey car parks;
- Building over/above surface car parks.

Buildings built before 1997 ***must not*** utilise vertical extensions due to concern for structural safety.



Intensification options

Infill & extensions

Sources: National Model Design Code, UK

Refer to TSP2023, Policy US4

Note: For party walls other fire safety and acoustic standards and regulations must also be complied with.

BF3.1.2 Party walls

Proposals within City Core, Major Employment, Urban I and II and Suburban I and II Area Types ***should*** utilise party walls, where possible. Plots between 283-809 sqm are incentivised to form party walls with adjacent plots through the provision of an additional Net FAR bonus (see BF 1.1).

Developments within Suburban III, Rural Area Types ***must not*** utilise party walls.

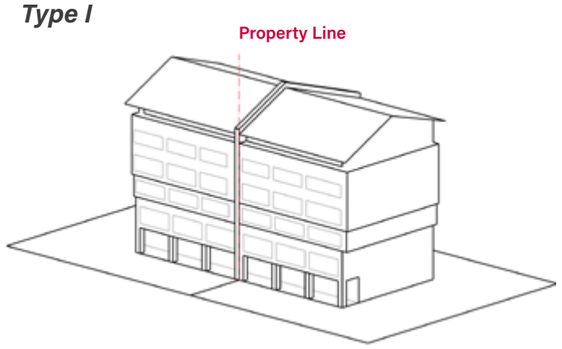
Where party walls are allowed, external walls of the primary buildings facing each other ***must not*** have any primary openings and ***must*** meet standards for fire resistance.

Existing buildings which are retrofitted with party walls ***must*** ensure adequate access, daylight and fire separation is maintained and all building codes are complied with.

For Type II, the party wall portion ***must*** be maintained within the existing building line of both primary buildings.

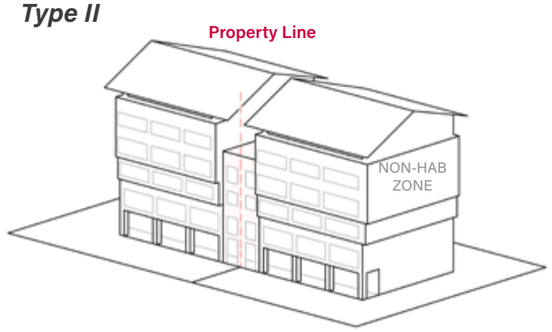
For Type II, the height of the party wall ***must*** be one floor less than the height of either of the main buildings which ever is lower.

Type I



Deployment of Party Wall, with a raised parapet providing fire separation between adjoining roofs.

Type II



Alternative deployment of Party Wall, while maintaining separation for Bhutanese Roofs.

BF3.2 Reconfiguration, subdivision and consolidation

BF3.2.1 Minimum plot size

All plots in any Area Type ***must not*** be subdivided into areas smaller than areas mentioned in the table below. The shortest side of any plot ***must*** be at least 15 meters.

	Land Pooled	Land Not Pooled
Area Type	Minimum Plot Size (Decimal)	
City Core	13	15
Major Employment Area	13	15
Urban I, II	13	15
Suburban I, II	15	20
Suburban III	15	25
Rural	15	25

Note: LAP Pooled means the particular plot either contributed towards the land pooling or made Cash Payment in lieu of Land Contribution (CPLC) during the LAP preparation process.

BF3.2.2 Existing smaller plots

Existing small plots ***must not*** be further subdivided.

Existing small plots ***must*** explore plot reconfiguration and consolidation to form regular sizes and shapes which enable efficient development, and ***must*** be accessible by road or pedestrian access.

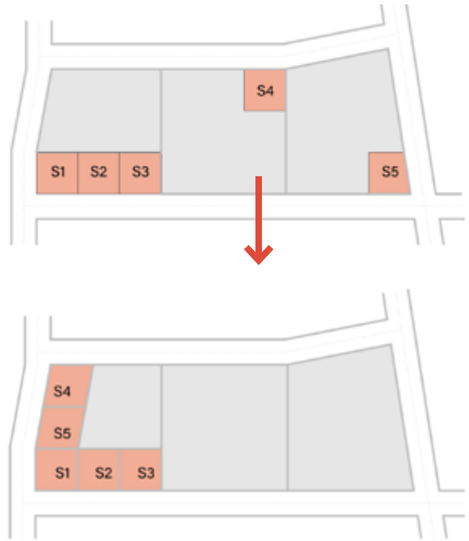
The minimum front plot width of reconfigured plots ***must not*** be less than 7m.

During reconfiguration plots ***should*** be located directly adjacent to each other to facilitate compact development and building efficiency.

The building separations will not apply for small plots. The minimum setbacks ***must*** be as per the following:

Plot Size (sqm)	Setback
81-182	1.2m on all sides
182-283	1.5m on all sides

*The lower bound is inclusive and the upper bound is exclusive.



Small plot reconfiguration

Note: Additional requirements for Community and Education Facilities within Rural Area Types are located within the LU chapter.

BF4 Development in Rural Areas

To create an appropriate morphology for rural areas that maintains character and settlement patterns and ensures the continuation of agricultural practices. To ensure that development parameters for rural areas support the conservation of the rural character and the generation of a new rural economy in alignment with the principles of TSP 2023.

BF4.1 Rural morphology

BF4.1.1 Forming Rural Clusters

All buildings of any use in Rural Area Types ***must*** form or reinforce existing organic ally arranged clusters of rural buildings. Rural Clusters ***must*** be formed along existing roads and ***should*** be no more than 20 buildings.

Landscape separations ***must*** be maintained between each Rural Cluster. A minimum distance of 30m ***should*** be maintained. Landscape separations between Rural Clusters ***must*** remain as either agricultural/ productive fields or gardens, watercourses and irrigation, areas of forest planting or other natural areas and ***must*** retain the natural topography.

Rural Clusters and landscape separations ***should*** be defined as part of the Local Area Plan development process.

The existing pattern of development is a series of clustered buildings with landscape spaces inbetween. Clusters are generally located along rural roads

BF4.1.2 Clusters in Rural Area Types

Small Rural Clusters ***should*** consist of up to 6 individual buildings.

Medium Rural Clusters ***should*** consist of 6-15 individual buildings.

Large Rural Clusters ***should*** consist of 15-20 individual buildings.

There ***should*** be very few Large Rural Clusters and these ***should*** only be associated with Rural Local Centres.

Large rural clusters should only be associated with Rural Local Centres.

BF4.2 Development in rural areas

BF4.2.1 Rural buildings

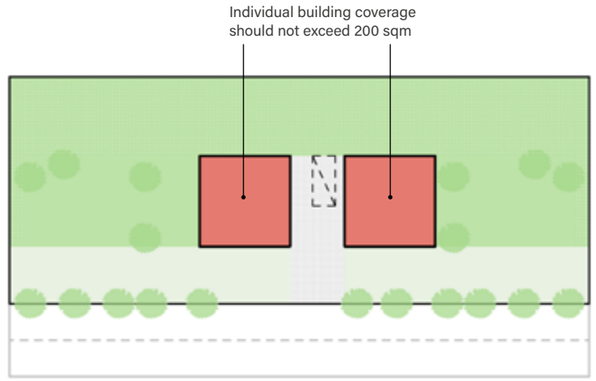
For development within Rural Area Type:

- Developments ***must*** comply with Tables within BF 1.1. (See also TSP 2023, Policy US1).
- Developments of any use ***must*** be formed of single buildings or clusters of individual buildings (see BF 4.1).

For development within Rural Area Type only:

- Individual buildings ***must*** relate to the form, scale and architectural detail of existing rural buildings and ***should*** utilise a Traditional architecture (see also CS1.7 and CX3).
- Individual buildings can contain a single use or a mixture of uses (see BF2 for permitted uses), but these uses ***must*** be operated by a single family/household and ***must*** be located within the same plot or building that the family occupy on a day to day basis.

Development of any type or use will not be permitted on any land classified as Chhuzhing. Land classified as Kamzhing and under Agricultural Land Use ***must*** be used only for agricultural practices and ***should*** ideally be restored to Chhuzhing (see also TSP 2023 GI6)



Development on plots in rural area types

Refer to TSP2023, Policy US1, GI6

BF4.2.2 On-plot configuration of rural buildings

The building ***should*** be located adjacent to a rural road or the existing plot access. The location of the building on-plot ***should*** ensure that larger areas of the plot remain un-built to allow for potential agricultural/ food growing use.

On larger plots where more than one building is permissible, buildings ***must*** be located adjacent to each other to align with the rural morphology (see BF4.1) and to ensure that larger areas of the plot can remain un-built to allow for potential agricultural/ food growing use.

BF4.2.3 Agricultural buildings

Activities within Agricultural Land Use zone (see TSP 2023, Policy US1) ***must*** be restricted to uses that support agricultural uses and the rural economy (see Table BF2).

Buildings ***must not*** be developed on any land defined as Chhuzhing.

On Kamzhing land also designated as Agricultural Land Use in TSP 2023, restoration of Chhuzhing (wet agriculture) ***must*** be promoted first. Where this is not possible, other agricultural practices are also permitted.

Development can occur on Kamzhing within Rural Residential or Rural Local Centre Land Use zone. Codes BF4.1 and 4.2 ***must*** be followed.

See TSP 2023 Policy US1

	Chhuzhing	Kamzhing	
Rural Residential Land Use (TSP2023)	No development permitted	Development permitted.	Follow codes BF4.1, BF4.2.1 - BF4.2.2
Agricultural Land Use (TSP2023)	No development permitted	*Development permitted.	Follow codes BF4.2.3 only

*Kamzhing within Agricultural Land Use should be restored to Chhuzhing or other agricultural use, where possible.

Refer to TSP2023, Policy US1, E1, E2 and GI6

BF5 Responding to Topography

To provide principles for developing on sloping terrain that reduces impacts on the natural environment and the setting of the city and ensures better integration of development with forest landscapes.

BF5.1 Responding to topography

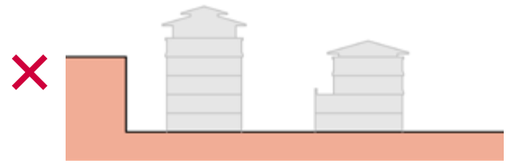
BF5.1.1 Site Layout

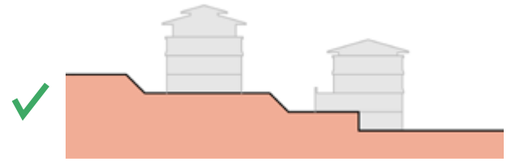
Developments ***should*** avoid a single large flat development platform and development configurations that require excessive retaining structures, earth removal and land forming.

Multiple smaller level development platforms ***should*** be formed with the topography.

Buildings forming urban blocks ***must*** be located to generally follow/align with contours.

Where buildings do not follow the topography/contours, ground floors and roofs ***must*** step consistently in alignment with the slope.





Minimising cut and fill through smaller, stepped development platforms.

BF5.1.2 Building design

Main entrances to buildings ***should*** generally be avoided along steeply sloping streets and ***should*** be promoted along flatter, more accessible streets.

Building entrances should predominantly be located along flatter, more accessible streets

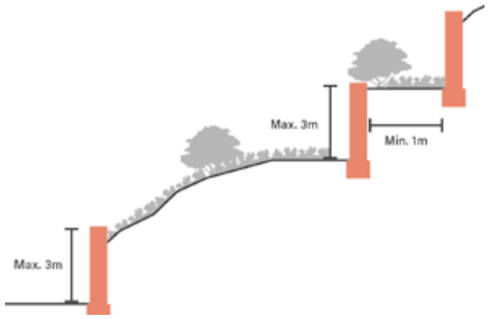
Note: For development at the edges of the settlement, other fire safety standards and regulations will need to be complied with. These safety requirements will override the requirements in this code, if greater.

BF5.1.3 Retaining walls

The maximum height of any single retaining wall ***must*** be 3m. If retaining structure is required higher than 3m then walls ***must*** be stepped with a minimum of 1m distance between stepped walls.

If retaining wall is more than 2m high then a mitigation plan is required to be submitted on application.

Vegetation and tree planting ***should*** be included between the steps to reduce the visual impact of retaining structures and re-introduce biodiversity.



Stepped retaining walls, incorporating planting and vegetation

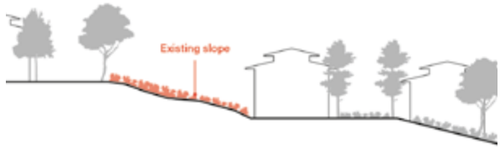
BF5.1.4 Development on valley sides

Developments in Suburban III and Rural Area Types ***must*** :

- minimise the impact of development on valley sides e.g. minimise tree removal, earth re-forming;
- concentrate development in the least steep areas;
- introduce new tree planting and vegetation between buildings and downslope of buildings;
- keep floor-to-floor heights of buildings to minimum sizes to minimise the heights of buildings. (See BF 6.2.2.)

Developments in Suburban III and Rural Area Types ***should*** :

- be located as close to access points as possible and reduce the length of new access roads as much as possible;
- use colours and materials that blend into the setting for building elevations. The use of timber, browns and darker colours will help to buildings blend better within a forest setting;
- minimise the use of lighter/white coloured materials.



Retention of natural topography and vegetation


Planting down-slope of new buildings


Roof, colours and massing that integrate well with forest setting.

BF6 Building Form

To provide principles for arranging buildings to form a coherent urban fabric of urban blocks, streets and spaces and ensure buildings are arranged to provide conditions for community vitality.

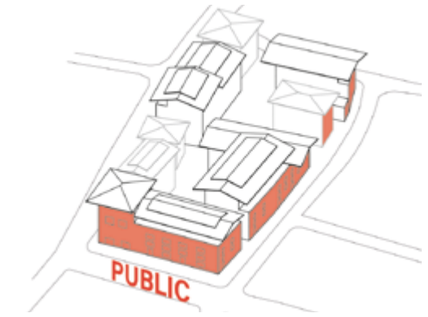
BF6.1 Building layout

BF6.1.1 Forming fronts and backs

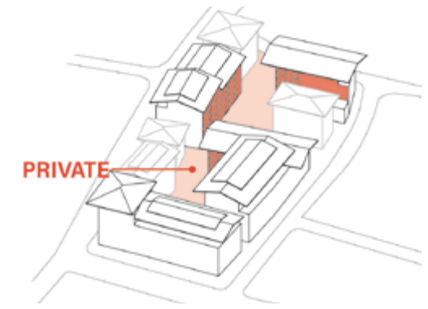
Urban blocks ***must*** consist of a series of buildings that together spatially define the streets and public spaces that form the extents of the block.

Development ***must*** form frontage that provides enclosure and overlooking of public streets and spaces from both active and non-active (residential) ground floors and upper floors. See BF 7.2 and 7.3 for further guidance on ground floor frontages.

Urban blocks ***must*** consist of a series of buildings that together spatially define secure, shared and/or private spaces within the interior of the block.



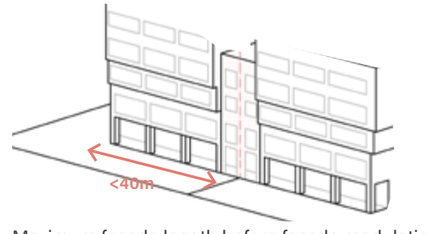
Development forming the public realm



Development forming the private realm

BF6.1.2 Façade modulation

All developments ***must not*** exceed 40m in continuous building façade facing streets and public realm.
Façades can modulate by stepping backwards or forwards to create a break in the facade plane, or provide a full building break.



Maximum facade length before facade modulation

BF6.2 Building height

BF6.2.1 Maximum building height

All developments ***must*** comply with the maximum building heights described in Table BF 1.1, unless TSP 2023, Policy US5 describes lower heights for a particular area.

Plots of 2,000 sqm and above ***must*** ensure that a minimum of 50% of the total built footprint has a reduced building height from the maximum allowed by at least 1 storey.

Refer to BF 12. Edge Conditions for additional height restrictions in specific locations.

Explanatory text

Where a Local Area Plan has been prepared for a specific area, the requirements and guidance within the Local Area Plan shall supersede the following Design Code height restrictions.

BF6.2.2 Minimum floor-to-floor heights

Ground floors ***must*** have a minimum floor-to-floor height of 3.5m.

Upper floors with residential uses ***must*** have a minimum floor-to-floor height of 2.9m. Upper floors with commercial uses ***must*** have a minimum floor-to-floor height of 3.5m.

Ground floor level parking ***must*** have a minimum floor-to-floor height of 3.5m to allow for introduction of mixed uses to front streets or to allow for re-use. Upper floors with parking use ***must*** have a minimum floor-to-floor height of 2.5m.

To allow for some essential equipment in the ceilings of kitchens and bathrooms, an area of the gross internal area of residential dwellings can be lower than the minimums above. This area ***must not*** be lower than 2.5m floor-to floor height and its area ***must not*** be greater than 25% of the gross internal area.

Subject to this Code, architectural guidelines and other relevant regulations, a Mezzanine floor may be permitted in a floor subject to the total floor height not exceeding 5 meters.

An area of mezzanine floor ***must not*** exceed 25% of the plinth area, and the same ***must not*** be calculated as part of total permissible Floor Area Ratio and height of the building.

BF6.2.3 Basements

For City Core, Major Employment, Urban I and II and Suburban I and II Area Types a maximum of 2 basement floors is permitted, provided that the technical requirements are fulfilled and assessment of risks to the adjacent plots and structures are carried out.

For Suburban III, Rural Area Types a maximum of 1 basement floor is permitted, provided that the technical requirements are fulfilled and assessment of risks to the adjacent plots and structures are carried out.

Basement levels ***must not*** be used for habitable spaces. Basements ***must*** have a minimum floor-to-floor height of 2.5m. A staircase of the basement floor ***must*** have fire resistance value of not less than 2 hours and the maximum travel distance to the staircase ***must not*** be beyond that specified in Building Code. Basement development ***should*** reference the Basement Regulation (or any updated or replacement document)

Refer to TSP2023, Policy US5

BF6.2.4 Ground floor level

On sloping streets the ground floor level of new buildings ***should*** be established consistently with adjacent existing buildings to each side of the plot.

Floor level for ground floor active uses and ground floor residential and commercial lobbies ***must*** be located vertically within 0.5m of the public footpath grade.

Floor level for all other ground floor uses ***must*** respond contextually to flood risk, topography and other considerations.

See BF 7.2 and 7.3 for further guidance on treatment of ground floors and setback interfaces with public realm.

See also Demonstration 3.

Inconsistent ground floor levels reduce pedestrian permeability and accessibility for less abled people.

Ground floor level maximum elevation change from public footpath

BF6.3 Bhutanese roofs

BF6.3.1 Overhangs and separations

Roof overhangs ***must*** be a minimum of 1.5m from face of top-most Rabsel wall for buildings more than 2 storeys.

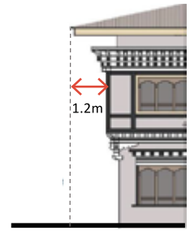
Roof overhangs ***must*** be a minimum of 1.2m from face of top-most Rabsel wall for buildings of 2 storeys or lower.

Adjacent roofs ***must*** have a minimum of 4m separation (for fire safety and ensure light into spaces between buildings).

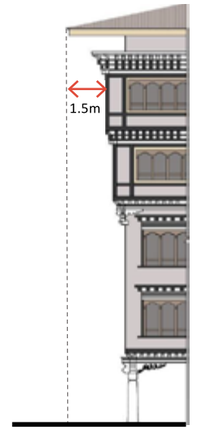
If a roof is to be occupied the floor to ceiling height ***must*** be a minimum of 2.3m.

Roof overhangs ***must*** be within plot boundaries.

Roof cut-out for any building may be allowed with maximum coverage restricted to 10% of the main building plinth area.



Minimal roof overhang for a 2 storey building



Minimal roof overhang for a building over 2 storeys

Note: 4m is considered a minimum separation between roofs in terms of fire safety. Other standards and regulations must also be complied with.

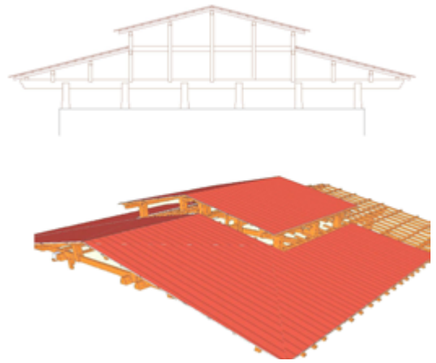
Note: For setbacks other fire safety standards and regulations must also be complied with. These safety requirements will override setbacks and separations in this code, if greater.

BF6.3.2 Jamthog

A Jamthog ***should*** be permitted, subject to technical requirements and standards for architectural proportions, structural safety, lighting, ventilation, room sizes and heights, and fire safety as per this Code, relevant standards, and regulations. Provided that attic ***must not*** be permitted.

The area of Jamthog plinth ***must not*** exceed 45% of the main building plinth area.

The maximum vertical distance between the main roof and the Jamthog roof ***must*** be maintained at 1000 mm, calculated vertically from the edge of the Jamthog roof to the top of the main roof.



Jamthog
Source: Bhutanese Architecture Guidelines 2014

The maximum breadth of the Jamthog plinth ***must not*** exceed 2/3 of the breadth of the main buiding plinth. The maximum vertical distance between phanakhep and the edge of the main roof ***must*** be maintained at 850mm.

BF6.4 Setbacks

BF6.4.1 Front setbacks

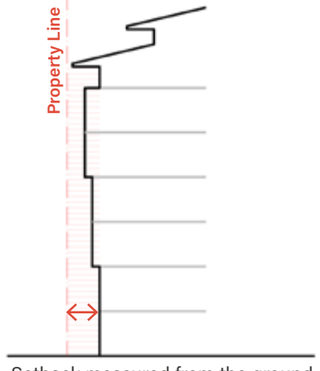
Front setbacks ***must*** be measured as the offset from the property line to the ground floor building facade, and ***must*** comply with the minimum distances defined in Table BF 1.2.

Building projections, and Rabsel walls, are permitted within the front setback, but ***must not*** extend beyond the property line. Balconies ***must not*** be allowed in the front setbacks.

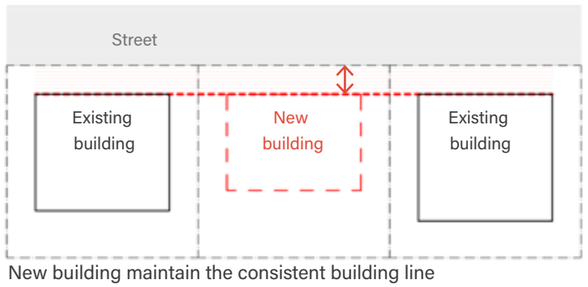
Where streets or parts of streets have already established, consistent building lines, the front setback dimension ***must*** maintain or extend the established setback.

Explanatory text

Front setback areas function as the interface between the building frontage and the street. Detailed guidance on the treatment of front setbacks is provided in BF 7.1 to BF 7.3.



Setback measured from the ground floor of building facade



New building maintain the consistent building line

Refer to BBR 2023 (for Jamthog roofs)

Note: For setbacks other fire safety standards and regulations must also be complied with. These safety requirements will override setbacks and separations in this code, if greater.

BF6.4.2 Side setbacks

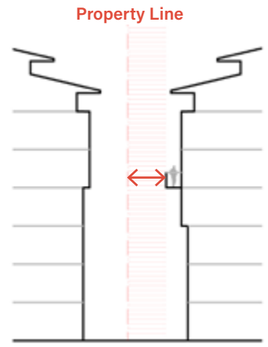
Side setbacks ***must*** be measured as the offset from the property line to the closest building element, including cantilevered balconies and projecting Rabsel walls, and excluding roof overhangs. Side setbacks ***must*** comply with the minimum distances defined in Table BF 1.2.

Side setbacks are not required where party walls are formed (see BF 3.1.2 for more guidance on party walls).

Side setbacks ***must*** comply with minimum building separations (see BF 1.3).

Explanatory text

Side setback areas provide space for pedestrian through-routes, arcades with shops, and buffer landscapes which create separation from adjacent buildings. Detailed guidance on the treatment of side setbacks is provided in BF 7.4.



Setback measured from the closest building projection

BF6.4.3 Rear setbacks

Rear setbacks ***must*** be measured as the offset from the property line to the closest building frontage/building element, including cantilevered balconies and upper projecting Rabsel walls, and excluding roof overhangs. Rear setbacks and ***must*** comply with the minimum distances defined in Table BF 1.2.

Rear setbacks ***must*** comply with minimum building separations (see Table BF 1.3).

Explanatory text

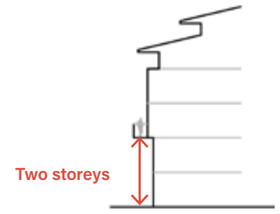
Rear setback areas help form an internal space within the block which can contain amenities for residents or space for parking. Further guidance on the treatment of rear setbacks is provided in BF 7.5.

BF6.4.4 Vertical clearance for building projections

In City Core, Major Employment, Urban I and II Area Types or for any building over 3 storeys, a minimum vertical clearance of two storeys ***must*** be provided for all building projections, including balconies and Rabsel.

In Suburban I, II and III and Rural Area Types or for any building less than 3 storeys, a minimum vertical clearance of one storey ***must*** be provided for all building projections, including balconies and Rabsel.

Rural Area Types



Urban and Suburban Area Types

Note: For setbacks other fire safety standards and regulations must also be complied with. These safety requirements will override setbacks and separations in this code, if greater.

BF6.5 Building separation

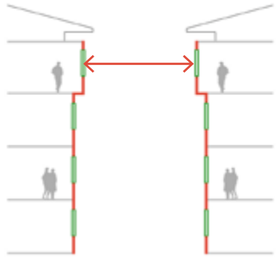
BF6.5.1 Minimum separations

Separation requirements and guidelines are as follows:

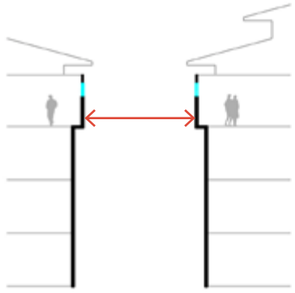
- For small plots, a minimum separation ***should*** be determined by the minimum setback requirements.
- For standard plot development, a minimum separation of 6m ***must*** be maintained.
- For comprehensive development, a minimum separation of 6m between non-habitable façades and 12m between habitable façades ***must*** be maintained.

Explanatory text

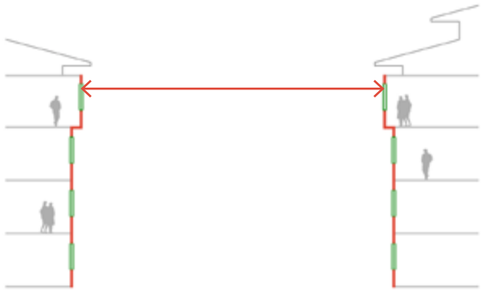
Building separations are crucial for ensuring adequate daylight, ventilation, external views, and privacy between adjacent buildings. Building separation requirements are applicable to adjacent buildings within and surrounding the development plot.



Separation between habitable and non-habitable façades for standard plot development



Separation between non-habitable façades for comprehensive development



Separation between habitable façades for comprehensive development

BF6.5.2 Window treatment and positioning

Windows on façades with less than 12m separation from any adjacent façade ***must*** employ mitigations to ensure privacy for residents and reduce overlooking between residences.

Primary windows to habitable rooms ***must not*** be situated on non-habitable façades.

Primary windows ***should not*** be located close to the internal corners of courtyards or L-shaped blocks.

BF7 Building Interfaces

Provides rules for how buildings interact with adjacent buildings and the public realm, including the treatment of front, side, and rear setbacks, and boundary walls.

BF7.1 Treatment of front setbacks

BF7.1.1 Integrating with the public realm

Front setbacks ***must*** provide an integrated transition between public and private spaces, including material treatment and level change, enhancing the visual and functional interface between the building and the street. See also Demonstration 3.

Front setbacks can have different widths depending on Area Type and ground floor use, and ***must*** comply with the standards described in Table BF 1.2 and BF 6.4.1.

Car parking ***must not*** be located within the front setback (see BF 1.2 for more information).

Poor integration between building and street

BF7.1.2 Accommodating level change

Setback areas can provide vertical level change from the public realm, but ***must*** comply with the maximum standards stated in BF 6.2.4.

All pedestrian access to buildings, including stairs and ramps, ***must*** comply with 2.1.4 of the Guideline for Differently-abled Friendly Construction.

In sloping sites and flood prone areas requiring raised ground floors, a direct connection ***should*** be established at grade between the public realm and the ground floor to avoid creating blank walls.

Inaccessible and significant level change

Refer to Differently-abled Friendly Construction Guidelines

BF7.1.3

Pedestrian experience

Ground floor frontages ***must*** be designed to foster a positive pedestrian experience within the public realm.

Long blank, inactivated frontages and tall boundary walls facing pedestrian footpaths and public spaces ***should*** be avoided.

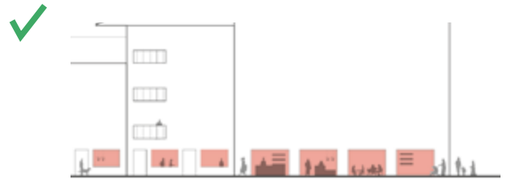
Informal surveillance ***should*** be provided along all streets and pedestrian-only routes by locating active uses, building entries, lobbies and large windows oriented toward streets and public spaces at ground floor, as well as habitable residential spaces such as living rooms and balconies, at upper floors. These strategies encourage higher levels of footfall and pedestrian activity.

Active streets and pedestrian-only routes ***must*** be well lit.

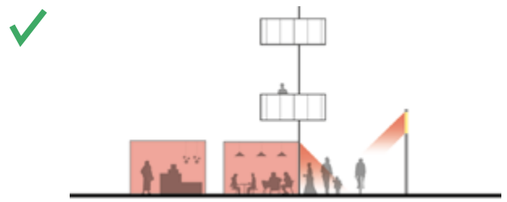
Best Practice

In addition to public lighting, additional light can be provided through 'borrowed light' from interior ground floor spaces such as shop fronts, cafés and residential lobbies.

Long blank frontages and un-activated spaces



Active frontages for pedestrian routes



Lighting for pedestrian safety

BF7.2 Interfaces at active ground floors

BF7.2.1

Location of active frontages

See Table BF 2 for controls on distribution of Land Use.

Explanatory text

Local Area Plans will augment TSP 2023 and provide further guidance on appropriate locations for Ground Floor Active Frontages and mixed uses that respond to existing land uses, local identity, character, street hierarchy, and desired levels of activity.

BF7.2.2

Setback treatment/spill-out zones

Spill-out zones for active ground floor uses ***should*** help animate the building edge and provide an integrated transition of material and level change between the public realm of the street and the private realm of the building.

These zones ***should*** be primarily hardscape, but ***should*** include planters, storm water management, and trees for shading and pedestrian comfort, where appropriate.

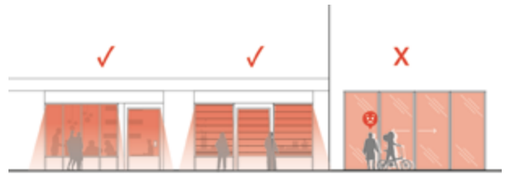
See also Demonstration 3.

BF7.2.3

Ground floor frontage treatment

Frontages ***should*** allow for views between interior and exterior spaces to provide informal surveillance and activity on the street.

Continuous, floor to ceiling glazing ***should*** be avoided.



Large windows provide visibility into active ground floor uses and surveillance of public realm

BF7.2.4

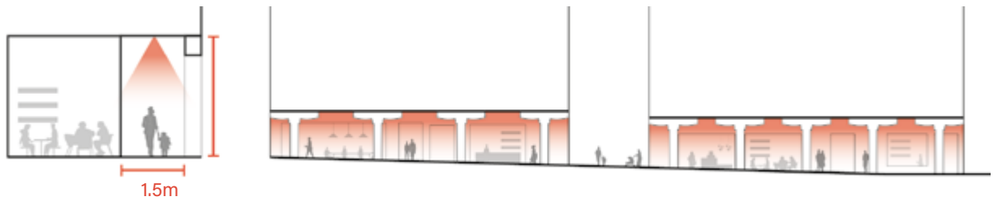
Colonnades

Where employed, colonnades ***should*** extend the entire length of an urban block, whether they transverse a single or multiple ownerships. These elements ***should*** have:

- Vertical proportions, with a ceiling height greater than the width;
- A minimum covered width for pedestrian circulation (clear of obstructions) of 1.5m;
- Consistent depth and heights along the length of the colonnade;
- A consistent grade along the length of the walkway. Where level change in unavoidable, the level changes ***should*** be accommodated using ramps, avoiding abrupt level changes;
- Effective lighting to create a safe and inviting atmosphere in the evenings;
- Clear signage which doesn't obstruct pedestrian movement (see BF 8.2 for more guidance).

Best Practice

Colonnades are best used along the most highly active streets or spaces within major Centres, where they can provide shade and shelter for pedestrians, space for spill-out and transition between interior and exterior spaces.



Colonnades design guidance

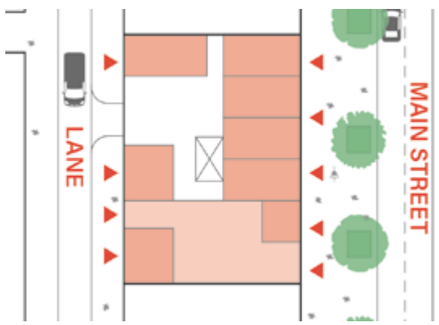
BF7.2.5

Building entries

Entries to active uses ***should*** be oriented towards active streets and public spaces.

In locations where active frontages are expected, the number of entries to active uses facing the public realm ***should*** be maximised.

Along active frontages, entries to other uses on upper floors ***should*** be minimised.



Maximising number of building entries to the public realm

BF7.3 Interfaces at residential ground floors

BF7.3.1 Setback treatment

Setback areas facing residential ground floor frontages ***should*** create a transition between public and private spaces, and ***should*** perform certain functions as follows:

- Provide privacy for residents at ground floor;
- Establish clear boundaries between public and private space;
- Provide private or shared outdoor space for residents;
- Contribute to urban greening and street character;
- Contribute to water permeability and enhance on-plot drainage and urban bio-diversity;
- Manage level change: Setbacks can be used to manage level differences between the residential ground floor and the public realm grade (see BF 6.2.4).

See also Demonstration 3.

BF7.3.2 Ground floor frontage treatment

Residential lobbies and/or any shared amenity spaces, ***should*** be designed to promote transparency into the interior of the building.

Ground floor residential units ***should*** consider placement and size of windows to maximise natural light while maintaining privacy. See also Demonstration 3.

Residential balconies on upper floors ***should*** contribute to informal surveillance of public realm. Utility balconies ***should not*** be located on frontages oriented towards active streets and public spaces.

BF7.3.3 Lobbies and front doors

Residential lobbies ***must*** be oriented towards streets and public spaces, where they can be clearly seen by pedestrians. Obstructions that might hide or block the entrance ***must*** be avoided.

Good lighting at entrances ***must*** be provided to enhance safety and visibility.

Ground floor residential units ***should*** have individual entrances directly accessed from the street. Front doors create activity, higher informal surveillance and more visual interest along the street.

Best Practice

Recessed entries or projecting canopies can be incorporated to articulate and highlight residential entrances.

Individual entrances accessed directly from shared street.
Source: quartier st. nikolai / KSW Architekten + stadtplaner

Recess in facade used to highlight shared entrance.
Source: Kajstaden Timber Building / C.F. Møller Architects

BF7.4 Side setbacks

BF7.3.4 Setback treatment and functionality

Side setbacks ***must*** comply with Table BF 1.2 and BF 6.4.2.

The functionality and treatment of side setbacks ***must*** relate to the Area Type as follows:

Car parking
In Suburban I, II and III, and Rural Area Types side setbacks ***could*** accommodate surface car parking (see BF 9.6 for more guidance).
Car parking ***should*** be screened from the street.

Mid-block pedestrian connections
In City Core, Major Employment, Urban I and II, and Suburban I, II and III Area Types side setbacks ***could*** be utilised to create new mid-block pedestrian connections which increase permeability, (see US1.1.4 for more guidance).

Arcades
In City Core, Major Employment and Urban I Area Types side setbacks ***could*** be utilised as arcades which are lined with active uses.

Landscape and planting
In Urban I and II, Suburban I, II and III, and Rural Area Types wider side setbacks ***should*** be utilised as outdoor private or shared spaces. Narrower setback spaces ***should*** instead utilise planting to create a privacy buffer between buildings and enhance visual quality.

Functional uses
All developments ***could*** utilise side setbacks to accommodate building servicing, utility space, storage and car park access into the interior of the block. Planting, screens and placement of these functions ***must*** minimise visual and audible impact.

Any boundary treatments ***must*** comply with guidelines provided in BF 8.3.

Car parking

Mid-block pedestrian connections

Landscape buffer

Arcades with active frontages

Shared communal space

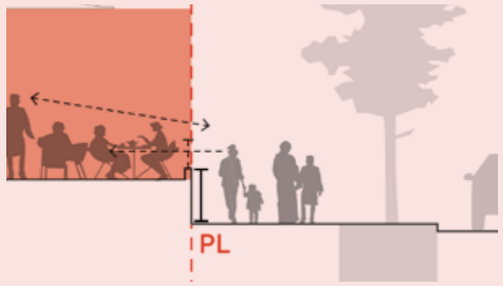
Unattractive, non-functional & inaccessible

Demonstrations 3

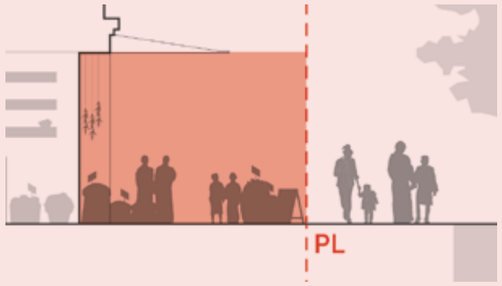
The following demonstrations provide illustrations of some different ways of treating front setbacks and providing both contributions to the public realm but also to community vitality and residential comfort.

Front setback treatments for active ground floors

Spill out for active uses



Level difference is used to provide spill-out space which overlooks and activates the public realm



Spill-out can also be located at the same level as the public realm, with any level transition within the building

Street greening and drainage

Wider setback areas can provide spill out zones for active uses as well as integrated planted areas that contribute to water permeability, bio-diversity and pedestrian comfort

Narrow setbacks

A narrow spill-out zone can be defined through surface material, landscape treatment and removable furniture.

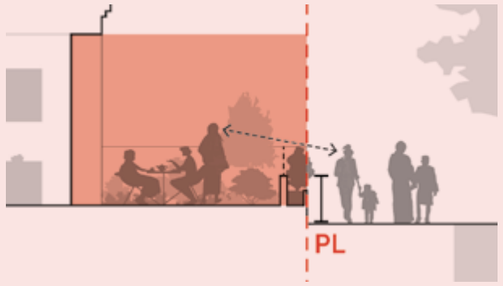
Setback with integrated seating

Setbacks that resolve the level difference from the street to the buildings can integrate public seating

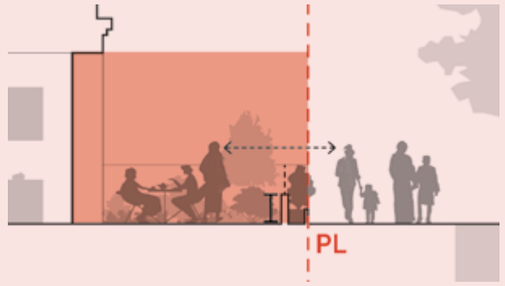
Setbacks that resolve the level difference from the street to the buildings can provide public seating

Front setback treatments for residential ground floors

Setbacks for private residential amenity space

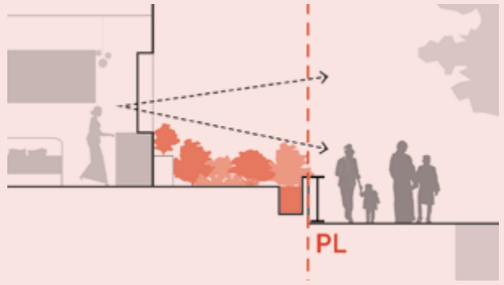


Level difference can be used to provide privacy for outdoor residential amenity spaces

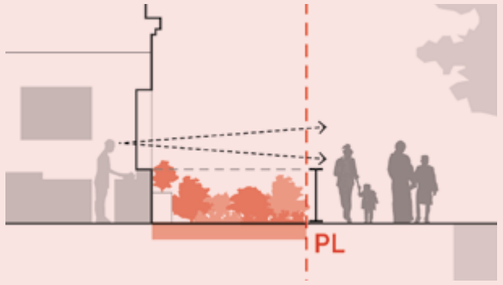


Low boundary walls combined with planting provides privacy and separation from public realm

Providing privacy and passive surveillance



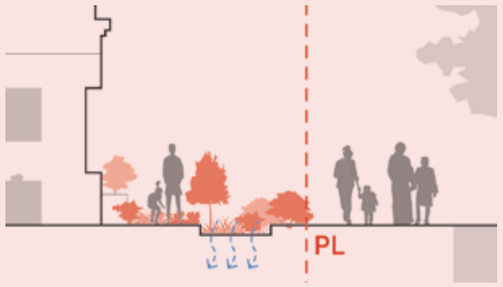
An elevated ground floor and amenity space provides privacy and separation while also maintaining overlooking of the public realm



A heavily planted setback provides privacy and separation to residential ground floor. Planting should be low-growing to maintain views to the street

Street greening and drainage

Planted setbacks can provide additional water permeability, reducing run off into drainage infrastructure



Planted setbacks can contribute to bio-diversity within the city

BF7.5 Rear setbacks

BF7.5.1 Setback treatment and functionality

Rear setbacks ***must*** comply with Table BF 1.2 and BF 6.4.3.

The functionality and treatment of rear setbacks ***must*** relate to the Area Type of the development:

Shared parking court
In City Core, Major Employment, Urban I and II, and Suburban I, II and III Area Types rear setbacks within the interior of a block ***could*** be utilised as a parking court to meet on-plot requirements, and potentially shared between multiple buildings (see BF 9.6 for more guidance).

Shared open space and amenity
In Urban I and II, and Suburban I, II and III Area Types setback areas with sufficient space ***should*** be utilised as outdoor private or shared spaces for residents. It ***should*** be well landscaped and include planting and greenery that encourage use and enjoyment of these spaces by residents (see BF 10.2 for more guidance).

Private garden
In Urban I and II, Suburban I, II and III, and Rural Area Types rear setbacks ***could*** be utilised as private gardens for the amenity of individual homes (see BF 10.2 for more guidance).

Agriculture/food production
In Rural Area Types rear setbacks ***should*** be utilised to grow food and as productive landscape to support the rural economy.

Any boundary treatments ***must*** comply with guidelines provided in BF 8.3.


Spaces to grow food


Communal open space


Gardens for amenity


Shared parking court

BF8 Architectural Treatment

Regulates building materials, colours, greening strategies, and guidance on signage.

BF8.1 Materials and colours

BF8.1.1 Materials

Development ***should*** reflect the respective architectural approach (Traditional, Contemporary/Contextual or Innovative, (see CX3 codes).

The use of local materials and/or traditional details ***should*** be balanced with the need for sustainability and innovation in design and construction.

Materials of a flush, featureless surface quality, such as glazing or flat metal panels, ***should*** be used only in limited quantities and in compositional balance with richer materials.

The sentence ***could*** be made clearer with some adjustments. Here's a revised version:

Reflective and colored glass ***must not*** be used for structural glazing, curtain walls, or other glazed areas. Reflective glass ***must not*** be used at active ground floor frontages.

The detailing and facing materials of any extension ***should*** reflect and respond to those on the existing property, to provide consistency of materials.

Within any existing area or street considered to have a strong and/or consistent character or materiality, development ***should*** reflect and enhance this existing character.


Incongruous and "artificial" materials: reflective glazing


Local materials such as stone and timber


Over-use of glazing


White render


Inconsistent materiality and build quality


Light timber frames over heavy masonry or rammed earth walls

Refer also to CX 3.

BF8.1.2 Colours

Development ***should*** reference the Building Colour Code of Bhutan (or any updated or replacement document) for primary building colours.

Bright colours ***should*** be sparsely used and generally reserved for decorative painting on elements such as Rabsel.

White

Mud Colour

Light Brown

Exposed Stone Masonry

BF8.2 Signage

BF8.2.1 Commercial signage

A coherent signage strategy where common datums and fixed heights are established ***should*** be coordinated along the frontages of streets and public spaces. This can be facilitated through Local Area Plans.

BF8.2.2 General guidelines

All commercial signage ***must*** :

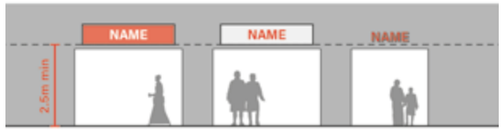
- Be located to avoid visual clutter. No more than one sign per commercial unit to avoid clutter and ensure consistency;
- Avoid obstruction of important views/ sightlines and architectural features;
- Be located within the height of the ground floor, at a consistent level from the ground plane;
- Provide a minimum vertical clear height of 2.5m from the finished floor of the public realm or footpath;
- Along colonnades, signage ***must*** be placed in the interior of the walkway, above storefronts and avoid the external face of colonnades or internal faces of columns;

Visual clutter must be avoided.

Signage placed above store fronts along colonnades.
Source: the Palais Royal, Paris

Refer to Building Code of Bhutan (2014)

- Avoid fluorescent and neon illumination outside of City Core, Sub-district or Neighbourhood Centres;
- Use materials that are durable, easy to maintain and weather resistant. Reflective glazed and highly coloured plastic signage ***must not*** be permitted;
- In rural areas and in areas in proximity to heritage sites, commercial signage ***must*** be kept to a minimum and use colours which are harmonious with the adjacent natural and built environment.



Positioning Guidelines

BF8.3 Boundary treatments

BF8.3.1 Provision of boundary walls

In City Core, Major Employment, Urban I and II Area Types the use of boundary walls ***should*** be discouraged. Open and accessible frontages ***should*** be encouraged to promote visual connection, active streets, and overlooking of the public realm, contributing to community vitality.

Where there are privacy or security concerns, alternative methods such as low hedges, strategic planting, or artistic fencing ***should*** be employed. Where security concerns are low, boundary walls ***should*** be lowered and made more open. See also Demonstration 3.

In Suburban I, II and III, and Rural Area Types low boundary walls to streets and public spaces ***could*** be used for defining property boundaries and provide privacy and security in lower density areas.

BF8.3.2 Boundary walls heights

In City Core, Major Employment, Urban I and II Area Types the solid base of boundary walls ***must*** be limited to a maximum height of 0.9m above which more visually permeable materials ***must*** be used. The total wall height ***must*** be limited to a maximum height of 1.5m.

In Suburban I, II and III and Rural Area Types the solid base of boundary walls ***must*** be limited to a maximum height of 1.2m, above which more visually permeable materials ***must*** be used. The total wall height ***must*** be limited to a maximum height of 1.8m.

Note: the above boundary wall heights apply for any use within a particular Area Type, where boundary walls are necessary. Can be used as guidance for boundaries to public spaces.

In all Area Types, boundary walls for schools ***must*** be limited to a maximum height of 1.2m, above which more visually permeable materials ***must*** be used. The total wall height ***must*** be limited to a maximum height of 1.8m. These boundaries ***must*** be partially or wholly visually permeable to ensure long blank frontages are not created.

For further guidance for Parks and public spaces - see ID chapter.

BF8.3.3 Boundary wall design & treatments

Boundary wall height, materiality and style ***should*** be coordinated with the architectural style of the related buildings on-site.

Landscaping, planting, natural materials ***should*** be used to articulate boundaries in a softer, more sustainable manner.

Aggressive-looking defensive measures such as razor wire or barbed wire and blank concrete wall ***should not*** be used.

Best Practice

Boundary walls could be designed by combining a solid base with more visually permeable materials above or behind. The solid base may consist of stone, brick, or rammed earth providing a foundation. Above or behind it, a variety of materials could be used to soften the appearance and integrate the wall into the surrounding landscape. Options include plants, timber, bamboo, or other contextually appropriate materials.

Attractive and natural boundary treatments

Aggressive and unattractive boundary treatment

BF8.3.4 Treatment of retaining walls

Concrete retaining walls ***must*** be treated/ faced so that the concrete structure is not left exposed.

Tree planting and vegetation ***should*** be introduced between stepped retaining walls.

See BF 5.1.3 for more detailed guidance on retaining walls.

Monolithic retaining wall

Stepped retaining wall faced with masonry and with planting areas interspersed

BF9 Parking Requirements

BF9.1 Non-residential uses: visitor car parking requirements

Disabled parking ***must*** be 5% of the total parking spaces provided, with a minimum of 1 space requirement.

	Use	Area Type	Minimum Parking	Maximum Parking
2	Theatre, cinema, music venue, auditorium	City Core	1 space per every 10 fixed seats + disabled	1 space per every 6 fixed seats + disabled
3	Department store, shopping centre	City Core	Disabled only	Disabled only
		All other Area Types	1 space per 400sqm LFA + disabled	1 space per 100sqm LFA + disabled
4	Public hall, community centre, club house	City Core	Disabled only	Disabled only
		All other Area Types	1 space per 200sqm LFA + disabled	1 space per 100sqm LFA + disabled
5	Restaurant, bar, cafe	City Core	Disabled only	Disabled only
		All Area Types	1 space per 200sqm LFA + disabled	1 space per 100sqm LFA + disabled
6	Shop (larger than 40sqm LFA)*	City Core	Disabled only	Disabled only
		All other Area Types	For a cluster of less than 4 shops, 1 space per shop. For any shop over the first 4 shops, 0.5 spaces per shop + disabled parking	For a cluster of less than 4 shops, 1 space per shop. For any shop over the first 4 shops, 0.5 spaces per shop + disabled parking
7	Hotel, guest house	City Core	Disabled only	1 space per 10 rooms
8		All other Area Types	1 space per 10 rooms	1 space per 5 rooms
	Office, workplace	All Area Types	No visitor parking	No visitor parking
9	Sports facility, recreation facility	City Core	On a case by case basis. If there are audience stands then same as auditorium	On a case by case basis
		All other Area Types		4 spaces per pitch
10	Vehicles service, repair workshop	All Area Types	On a case by case basis	On a case by case basis
11	Healthcare (less than 1,000sqm GEA)	All Area Types	1 space per consultant room	2 spaces per consultant room
12	Education	All Area Types	No visitor parking	
13	Industrial, workshop	All Area Types		
	Warehouse	All Area Types		

*Lettable floor area (LFA) is described in the Definitions chapter.

BF9.2 Non-residential uses: employee car parking requirements

Disabled parking ***must*** be 5% of the total spaces provided, with a minimum of 1 space requirement.

	Use	Area Type	Minimum Parking	Maximum Parking
2	Theatre, cinema, music venue, auditorium	All Area Types	Disabled only	
3	Department store, shopping centre	All Area Types		
4	Public hall, community centre, club house	All Area Types		
5	Restaurant, bar, cafe	All Area Types		
6	Shop (larger than 40sqm LFA)*	All Area Types		
7	Hotel, guest house	City Core	Disabled only	1 space for every 20 staff
		All other Area Types	Disabled only	1 space for every 10 staff
8	Office, workplace	City Core	Disabled only	1 space per 400sqm GEA + disabled
		All other Area Types	Disabled only	1 space per 200sqm GEA + disabled
	Sports facility, recreation facility	All Area Types	Disabled only	Disabled only
9	Vehicles service, repair workshop	All Area Types	1 space per 200sqm GEA + disabled	1 space per 100sqm GEA + disabled
10	Educational	City Core	Disabled only	1 space per 10 classrooms
		All other Area Types	1 space per 10 classrooms	1 space per 2 classrooms
11	Healthcare (less than 1,000sqm GEA)	All Area Types	0.5 space per consultant room	1 space per consultant room
12	Industrial, workshop	All Area Types	1 space per 200sqm GEA + disabled	1 space per 100sqm GEA + disabled
13	Warehouse	All Area Types	1 space per 1,000sqm GEA	1 space per 500sqm GEA

BF9.3 Residential uses: car parking requirements

	Use	Area Type	Minimum Parking	Maximum Parking
1	Residential	City Core	0.25 spaces per dwelling with 3+ bedrooms	0.5 spaces per dwelling with <3 bedrooms
		All other Area Types	1.0 spaces per dwelling with 3+ bedrooms	1.5 spaces per dwelling with 3+ bedrooms
			0.75 spaces per dwelling with <3 bedrooms	1 spaces per dwelling with <3 bedrooms

Car provision ***should*** comply with the following requirements:

Uses: 1 Within the City Core Area Type, residential parking provision ***should*** be restricted to reduce the reliance on use of cars within high accessibility and mixed use areas. Note: This Design Code encourages a smaller proportion of larger homes in the City Core.

Uses: 2 Within the City Core Area Type employees will be expected to park in public, consolidated parking multi-storeys.

Uses: 2 3 4 5 6 Parking requirement for visitors to uses in urban centres (uses 2, 3, 4, 5 and 6) ***must*** be established on a case by case basis. Developers ***should*** understand car parking provided or proposed within vicinity, the available capacity and the potential for sharing car parking spaces with other adjacent public and community uses.

Uses: 3 4 5 6 Within the highly accessible and mixed use areas, employees will be expected to park in public, consolidated parking within or adjacent to the urban centre.

Within an urban centre the total LFA area of all mixed uses (use types 3, 4, 5, 6) ***should*** be added up and provision of visitor car parking ***must*** be derived from the total LFA of all uses.

Uses: 7 Drop off space for visitors and taxis ***must*** be provided. Within the highly accessible and mixed use areas, employees will be expected to park in public, consolidated parking within or adjacent to the urban centre.

Uses: 8 Within the City Core Area Type employees will be expected to park in public, consolidated parking multi-storeys. Within the highly accessible and mixed use areas, employees will be expected to park in public, consolidated parking within or adjacent to the urban centre.

Uses: 9 Spaces for vehicle repair ***must*** be on-plot.

Within the highly accessible and mixed use areas, employees will be expected to park in public, consolidated parking within or adjacent to the urban centre.

Uses: 10 Space for drop off for visitors ***must*** be separate to ambulance access and waiting and servicing areas.

Explanatory text

Car parking provision is particularly relevant as one tool to manage demand and discourage car travel. Limited parking provision can have a direct impact on the volume of trips undertaken by car, especially when associated with employment destinations: such measures have a higher positive impact at peak times by discouraging car trips for regular commuting. The limited provision of car parking at residential areas will indirectly discourage car trips by influencing ownership levels.

It is important that these limitations in parking provision are considered alongside the opportunity of each site to support sustainable transport alternatives. Areas with good walking and public transport accessibility should not provide a quantum of car parking that will make car travel more competitive when compared with sustainable modes. Conversely, it is important that areas that are less well served by sustainable modes are provided with sufficient parking so as to avoid unregulated parking. Regardless of the standards proposed, each case should be considered on its individual characteristics, but firmly based upon this rationale.

Above to be read in conjunction with tables 9.1, 9.2 and 9.3

BF9.4 EV requirements

BF9.4.1 EV requirements

All new and renovated residential buildings with more than 10 parking spaces ***must*** be equipped with appropriate pre-wiring for a charging point at each space.

For new and redeveloped commercial buildings, pre-wiring for installation of electric chargers needs to be included for 20% of the spaces.

For public parking spaces, provision ***should*** be made for EV charging, initially at 5-10% of the total provision at a given location to ensure adequate distribution throughout the city.

Explanatory text: *EV charging should not encourage peak-time charging, therefore employment-based parking should not be required to provide significant number of charging spaces.*

BF9.5 Cycle parking requirements

BF9.5.1 Cycle parking in residential developments

A minimum of 1 cycle parking space ***must*** be provided for every 5 units within residential developments.

Cycle parking spaces ***must*** be provided within structures that ensure they are secure and covered/protected from the weather.

Cycle parking spaces ***should*** be increased over time as cycling increases.

Best Practice: *Spaces can be introduced on-plot that can be converted to accommodate cycles in due course. e.g. car parking areas can be reduced in size, storage areas at ground floor could be converted, etc.*

BF9.5.2 Cycle parking in mixed use areas

Within Neighbourhood Centres two separate clusters of four 'Sheffield Stands', or the equivalent of 16 spaces ***must*** be provided.

Within Local Centres one cluster of four 'Sheffield Stands', or the equivalent of 8 spaces ***must*** be provided.

Cycle parking within any mixed use areas ***should*** be provided within the public realm - see Codes ST 3.4.

BF9.5.3 Cycle parking in employment areas

Cycle parking ***must*** be provided to allow for 10% of employees to travel by bike.

Cycle parking spaces ***must*** be provided within structures that ensure they are secure and covered/protected from the weather.

BF9.6 Integrating parking within developments

BF9.6.1 Car parking provision

All development ***must*** comply with the maximum parking ratio defined in Tables BF 9.1-9.4. These standards ***should*** be reviewed over time as public transport provision improves.

Parking requirements for healthcare facilities greater than 1,000sqm ***must*** be evaluated on a case-by-case basis. A study ***should*** be completed which considers location, proximity to public transport, number of staff, patients and visitors, hours of operation and catchment of visitors and patients to determine the required provision. If space for two-wheelers is required, a car parking space can be converted into three two-wheeler spaces for the required quantity.

Hotels ***must*** provide space for pick-up and drop-off in addition to parking requirements.

In the City Core Area Type employees will be expected to park in shared public, consolidated multi-storeys parking.

BF9.6.2 Car parking treatment

In-structure ground floor parking facing a primary street or principal public space, ***must*** be fronted with commercial, community or habitable uses so that parking is not visible. Ground floor parking facing secondary and tertiary streets ***should*** be hidden from view.

All portions of sub-grade parking visible above grade ***should not*** exceed 1.5m in height, and ***should*** be treated with the same level of detail, material quality, and facade articulation as other facade areas.

Decked or basement parking levels ***should*** be utilised to resolve changes in level within a development.

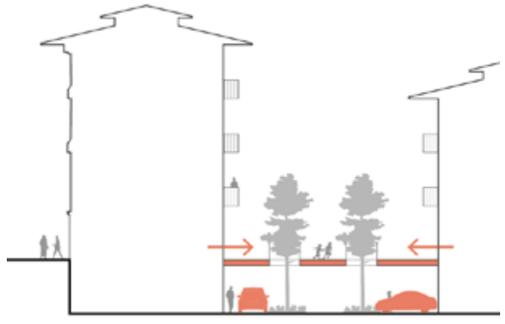
Surface parking areas ***should*** be located to receive informal surveillance from buildings.

All parking types ***should*** be designed to provide safe, direct, and comfortable pedestrian paths from parking to building entrances.

Surface parking ***must not*** be located within the front setback.

Best Practice: *Surface car parking could allow rain water permeability and be used for other on-site water re-use and treatment systems.*

Parking located behind active use to reduce impact on public realm



Parking could be located under a light-weight deck. This allows space between buildings for residents to use, daylight into the parking area and allows trees to be planted in 'real ground' and grow through the deck.

BF9.6.3 Integrating car parking within developments

For City Core, Major Employment and Urban I and II Area Types: on-plot parking ***must*** be accommodated through the use of basement or stilt parking.

Shared multi-level car parking structures ***should*** be used within higher density areas for groups of residential buildings, for clusters of mixed/commercial uses and for employment areas.

For Suburban I, II and III Area Types: on-plot parking ***must*** be accommodated through the use of basement, stilt or surface parking.

Surface parking ***must*** be no larger than 10 spaces. Parking ***should*** be located behind or to the side of buildings and ***should*** be screened from the street.

Surface parking areas ***should*** be greened with planting and street trees to reduce visual impact and to integrate parking areas into shared or private spaces.

For Rural Area Types: on-plot parking ***must*** be accommodated through the use of stilt or basement or surface parking.

Surface parking ***must*** be no larger than 3 spaces per plot. Parking ***must*** be located on-plot, behind or to the side of buildings and ***should*** be screened from the street.

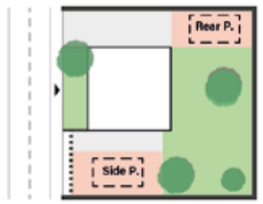
On-plot parking spaces ***must*** be consolidated together and located close to primary buildings to maintain larger un-built areas to allow for potential agricultural/food growing use.

Stilt parking ***must not*** be converted for other uses, unless otherwise demonstrated that commensurate replacement on-plot parking is provided through other means.

Urban areas: Parking accommodated within 'stilt' structures, underneath buildings, should be hidden behind other space or screened from the street

Sub-urban areas: parking can be accommodated in 'stilt' parking or surface parking areas, should be hidden behind other space or screened from the street

Sub-urban areas: surface parking areas should be greened to reduce visual impact of parking



Rural areas: Side parking must be screened from the street, rear side parking is permitted

BF9.6.4 Multi-level car parks (MLCPs)

MLCPs ***must not*** exceed 50m in length on the longest frontage and 30m on the shortest frontage.

MLCPs ***should*** be located in close proximity to the activities they support and ***must*** provide direct high quality pedestrian links to these activities.

Public MLCPs ***must*** be located with good vehicular connections from primary and secondary streets and ***should*** provide or promote pedestrian connection to any wider various destinations in the surrounding area.

Vehicle entrances to car parking structures ***should*** be located away from pedestrian only or highly active streets and public transport routes. Vehicle entries ***should*** be arranged to minimise the number of vehicle crossovers on pedestrian paths.

Pedestrian entrances ***should*** be located in convenient and visible locations at ground level on an active street frontage.

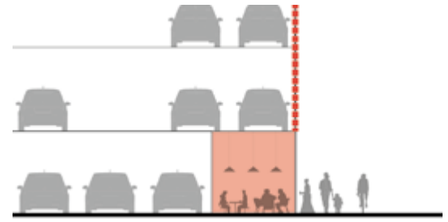
Good lighting ***must*** be provided within the car park, including any staircases and lifts, as well as along pedestrian routes to the car park.

The façade of parking structures ***should*** be well articulated. All parapet edges and/or façades ***should*** be designed to screen vehicles from public view at all levels.

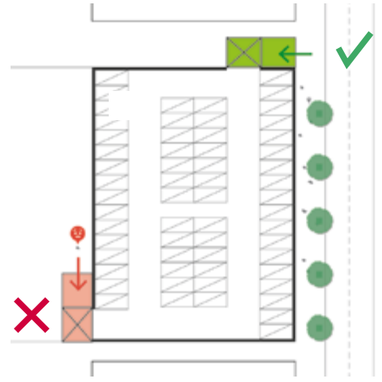
Vehicular ramps and ramped floors ***should not*** be visible to street or public space.

Parking structures ***should*** be naturally ventilated.

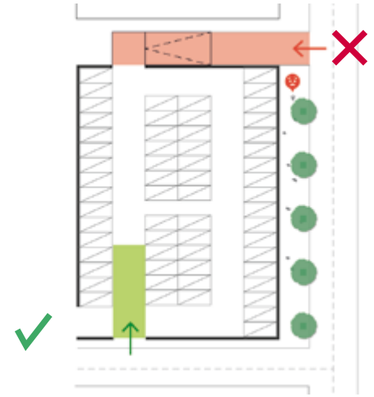
MLCPs ***should*** be designed to be easily dismantled or easily adapted for other uses.



Multi-level car park screening and behind active use space



Pedestrian entrances should be located in convenient and visible locations

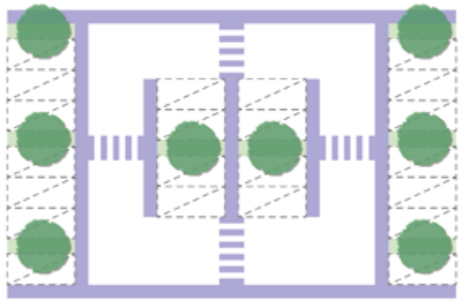


Vehicle entrances to car parking structures should be located away from highly active street

BF9.6.5

Surface car parks

Surface parking areas ***must*** be designed to cater for both vehicular movements and pedestrian movements e.g. safe routes demarcated across the car park area, with pedestrian crossing points. Trees and other planting ***must*** be incorporated to reduce visual impact and provide shade for pedestrians and parked cars.



Parking with pedestrian routes and planting

BF9.7 Servicing

BF9.7.1

Integrating servicing within public realm

Service areas and service entries ***should not*** face main streets and public spaces.
Service entries ***should*** minimise visual impact on the public realm.

BF9.7.2

Vehicular access to servicing

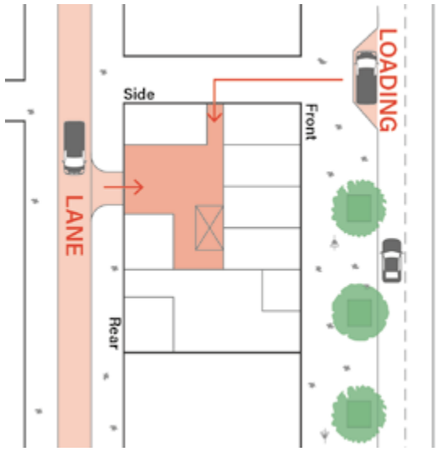
Vehicle and service access ***should*** be located to the rear or side of buildings.

Vehicle and service access and utilities within buildings ***should not*** visually dominate building frontages.

Where these functions are located on ground floors, these functions ***should*** be screened by other ground floor uses to avoid creating blank walls to the street.

Vehicle and service access points ***should*** :

- be consolidated and separated from pedestrian movement;
- minimise aesthetic disruption to residential or active ground floor frontages;
- be oriented towards the least prominent street (avoiding main streets and active frontages);
- avoid the corners of buildings and highly trafficked areas (e.g.. intersections or roundabouts).



Service entry at the side of building, and rear side vehicular access for servicing

BF10 Living Neighbourhoods

To promote the inclusion of a variety of high quality housing types and sizes to accommodate a range of households and lifestyles, enhance affordability and access to housing, reinforce character of place and create more inclusive, vibrant urban communities.

BF10.1 Health and wellbeing

BF10.1.1

Residential space standards

Housing development ***must*** provide adequately sized rooms with comfortable and functional layouts which meet the needs of residents without differentiating quality and standards between different tenures.

Applicants ***should*** state the number of occupiers a home is designed to accommodate rather than simply the number of bedrooms.

Explanatory text

Minimum space standards are relative to the number of occupants and take into account commonly required furniture and the space needed for different activities and circulation.

Type of dwelling		Minimum gross internal floor areas (GIA)* and storage (sqm)						Best practice extra space
Number of bedrooms	Number of bedspaces	1-storey dwellings		2-storey dwellings		3-storey dwellings	Built-in storage	
1b	1p	39/37	43/41*				1.0	1.5	+4
	2p	50	55	58	63		1.5	2.0	+5
2b	3p	61	67	70	76		2.0	2.5	+6
	4p	70	77	79	86				+7
3b	4p	74	84	84	94	90	100	2.5	3.0	+10
	5p	86	97	93	104	99	110			+11
	6p	95	107	102	114	108	120			+12
4b	5p	90	101	97	108	103	114	3.0	3.5	+11
	6p	99	111	106	118	112	124			+12
	7p	108	121	115	128	121	134			+13
	8p	117	131	124	138	130	144			+14
5b	6p	103	115	110	122	116	128	3.5	4.0	+12
	7p	112	125	119	132	125	138			+13
	8p	121	135	128	142	134	148			+14
6b	7p	116	129	123	136	129	142	4.0	4.5	+13
	8p	125	139	132	146	138	152			+14

Minimum and best practice internal space standards for new dwellings
Sources: London Housing Design Standards_2023

Refer to Differently-abled Friendly Construction Guidelines

BF10.1.2 Accessibility

All communal and circulation areas, homes, approach routes and external accesses ***must*** comply with the 'Guideline for Differently-abled Friendly Construction.'

New developments ***must*** provide lifts for buildings with G+4 storeys and above.

New developments ***should*** provide step-free access to all homes.

Communal entrances to residential buildings ***should*** be easily identifiable and allow everyone to use them independently without additional effort, separation or special treatment.

BF10.1.3 Residential aspect

Single aspect dwellings ***should*** be avoided on north facing frontages (to minimise dark internal spaces without solar gain and natural ventilation).

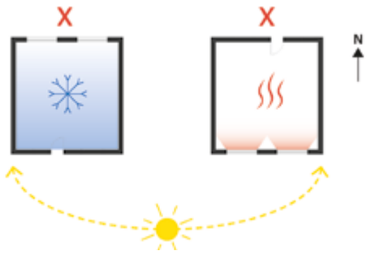
Single aspect dwellings ***should*** be avoided on south facing frontages (to avoid overheating of internal spaces). Where this cannot be avoided it ***must*** be demonstrated how overheating will be reduced without reliance on energy intensive mechanical cooling systems.

Single aspect dwellings ***should*** only be provided where it can be demonstrated that all habitable rooms are provided with adequate passive ventilation, privacy and daylight.

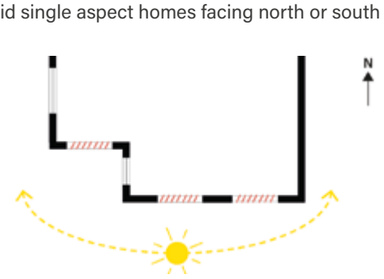
Dual aspect dwellings ***should*** be orientated so that the principal facade (eg. the main aspect of the home) faces south to utilise solar gain and maximise thermal efficiency. Solar shading can prevent summer overheating.

The location of the main living spaces, and the main outdoor space of a home, ***should*** be optimised to make the most of the best daylight, views and the orientation. These spaces ***should*** receive direct sunlight and enjoy reasonable privacy.

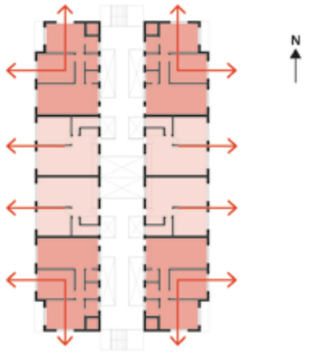
All homes ***should*** allow for direct sunlight in conjunction with solar shading. As a minimum, at least one habitable room ***should*** receive direct sunlight – preferably the living area and/or the dining space.



Avoid single aspect homes facing north or south



Dual aspect dwellings with south-facing facade utilise shading devices to mitigate overheating during summer



Example floor plan of a block, where dual aspect and ventilation of single aspect units can be achieved.

See TSP 2023, Policy H2, H3, H4

BF10.1.4 Noise

Habitable rooms ***should*** be located away from busy roads and existing buildings that generate excessive noise and/or poor air quality.

Bedrooms and living rooms ***should*** be located away from: corridors; lifts; stairs; bin and cycle stores; wheelchair and mobility scooter stores; plant rooms; and other noise-generating ancillary spaces.

Sound-attenuation measures ***should*** be adopted to reduce the external noise experienced within the home to an acceptable level.

High levels of soundproofing between dwellings, ***should*** be provided for privacy. Sound proofing ***should*** be provided between rooms to allow different activities (including work and study) to take part simultaneously within the home.

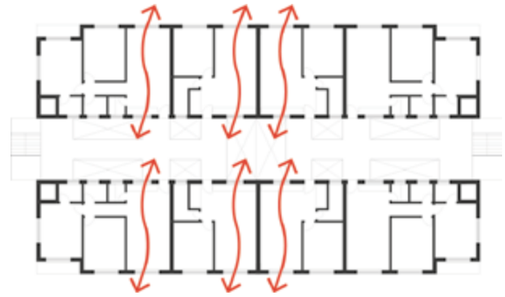
BF10.1.5 Ventilation

The design of buildings ***should*** maximise natural ventilation by including open-able windows, shallow floor plates, and designing in 'stack effect' cross ventilation where pressure differences are used to draw air through a building.

A variety of window opening options within a home ***should*** be provided to maximise the benefit of passive ventilation by allowing controlled ventilation through smaller openings and purge ventilation through larger windows and/or doors.

Utility areas in homes (kitchens and bathrooms) ***should*** be located on external walls to ensure use of natural ventilation and good natural lighting.

Internal cores (staircases) ***should*** be located on external walls to increase access to natural ventilation and natural light.



Building with cross ventilation and stack ventilation

BF10.1.6 Community vitality

The number of apartments related to each vertical core/stairwell ***should*** be minimised - typically 2-8 homes per floor level, per staircase/vertical core.

Best Practice — *Indoor communal spaces for residents to use could be provided within apartment blocks e.g. shared co-working spaces, spaces for childcare, community meeting rooms, gyms and social spaces, etc.*

BF10.2 Outdoor amenity space

BF10.2.1 Minimum requirement

The provision of outdoor amenity space ***must*** be included in residential developments. Every home ***must*** have access to suitable private and/or shared outdoor amenity space through one of the following: shared gardens, courtyards or roof terraces for groups of dwellings, and/or private gardens, roof terraces or balconies for individual dwellings.

For the provision of outdoor amenity space the following guidance ***should*** be followed:

- For developments of up to 50 dwellings: a minimum of 5sqm of private or shared outdoor amenity space per dwelling ***should*** be provided;
- For developments above 50 dwellings: a minimum of 10sqm of private or shared outdoor amenity space per dwelling, delivered as private and shared spaces or a combination of both.

The provision of outdoor amenity spaces ***must not*** count towards the minimum Gross Internal Area.

Explanatory text — *A minimum amenity space provision may be set out differently by Local Area Plans, taking into consideration the specific needs and requirements of each area. Where there are requirements set out in Local Area Plans, these will supersede the above guideline.*

BF10.2.2 General guidance for outdoor amenity space

Shared outdoor amenity space ***should*** be designed to provide a private, attractive, functional and safe environment, appropriate for residents to use communally and ***should*** be designed with appropriate response to use, outlook, noise, sunlight, trees and planting, materials, artificial lighting and boundary treatment. Narrow and very steeply sloping spaces ***should*** be avoided. See also LO2.10.

Private spaces ***should*** provide a reasonable level of privacy for the household.

Best Practice — *The overall quality and management can help create a sense of ownership and pride. See code SW2.2.2.*

BF10.2.3 Private amenity balconies and roof terraces

Amenity balconies ***must*** comply with the minimum building separation requirements set out in the BF 1.3.

Amenity balconies ***must*** achieve a minimum depth and width of 1.5m. Balconies ***must not*** be enclosed with glazing.

Amenity balconies and private roof terraces ***should*** :

- avoid locations which has a negative impact on the privacy of neighbouring residents;
- be preferably accessed via the main living space or alternatively the kitchen/dining room;
- preferably be designed as inset/recessed balconies, which allow for better privacy, better weather protection and better architectural articulation and façade depth than projecting balconies;
- avoid large projections that prevent sunlight entering the apartment below;
- be located to avoid exposure to high levels of noise and/or strong wind.

Utility balconies (those used for drying clothes and accommodating services such as air conditioning units or mechanical services) ***must not*** be considered as outdoor amenity space.

Where utility balconies are provided, they ***must*** be orientated towards the least prominent facade of the building and avoid overlooking the public realm. Utility balconies ***could*** be screened to reduce impacts on the building frontage.

BF10.2.4 Shared roof terraces

Roof terraces can be covered or open, and provide communal amenity space. These spaces ***should*** :

- be accessible to all residents, and to people of all ages and abilities and accessed from the communal core/staircase;
- if covered, have a minimum floor to ceiling height of 3.5m;
- be designed and orientated to receive reasonable levels of direct sunlight;
- be orientated towards views over the city, to natural landscapes, parks and heritage assets;
- be separated or screened from any rooftop utilities and servicing areas;
- provide protection from wind where appropriate;
- For roof cut-out provision, refer BF6..3.1.

BF10.3.2 Shared or private front gardens

Front gardens (within setbacks) ***should*** be designed to contribute to the overall character of the public realm outside of the plot. Front gardens ***should*** provide clarity of ownership through boundary features or level change from the public realm. Front gardens and boundary treatments ***should*** be designed to increase privacy and security to ground floor residential units.

Front gardens ***must*** comply with the minimum front setback dimensions defined in the code BF 1.2. For further guidance on the treatment of front setbacks, see BF 7.1 and also Demonstration 3.

BF10.3.3 Shared or private rear gardens (or courtyards)

Rear gardens ***must*** comply with the minimum rear setback dimensions defined in the code BF 1.2. Rear gardens ***should*** :

- avoid excessive slopes and be accommodated on levelled terrains/terraces;
- provide adequate space for day-to-day uses such as a tables and chairs for outdoor dining, clothes drying, relaxation and safe children's play;
- be designed and orientated to receive reasonable levels of direct sunlight;
- be sufficiently screened from neighbouring properties to provide adequate levels of privacy;
- avoid boundaries (e.g. fences, hedges or walls) that exceed 1.8m metres to protect views and access to daylight;
- be separated or screened from any shared parking, utilities or servicing areas;
- contribute to surface water management by incorporating SuDS strategies, where possible.

Best Practice — *Shared rear gardens can provide space for communal food growing or community gardens.*

BF10.3 Housing tenures

BF10.3.1 Tenure mix

New residential developments larger than 50 units ***must*** include a mix of housing tenures, such as private sale, private rent, affordable rent and/or shared ownership. Targets for affordable housing delivery ***should*** aim for a minimum of 30%. See TSP 2023, Policy H4.

New residential developments larger than 50 units ***should*** involve the local community in the decision-making process to ensure that tenure mix and affordable housing are tailored to local needs and priorities.

See NE codes and LO2.11

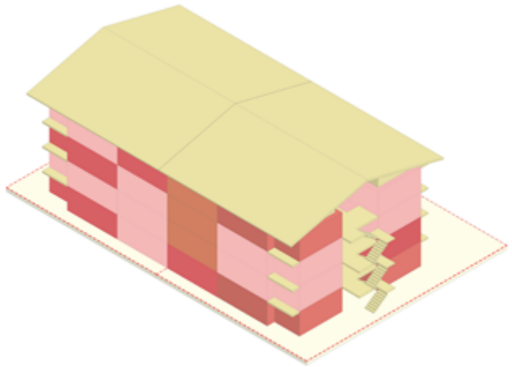
BF10.3.4 Tenure-blind design

Developments ***should*** integrate a mix of tenures and ***must*** ensure that the design quality, appearance and location of homes on-site do not distinguish between different tenures.

Developments ***must*** avoid concentrating affordable housing in one location and instead integrate them with other tenures.

Outdoor shared spaces ***must*** be accessible and open to all residents regardless of housing tenure.

Where non-residential amenities are included in the development (such as community rooms, play spaces, indoor gyms and shared workspaces) they ***should*** be accessible to all residents regardless of housing tenure.



Tenure-blind design integrates different tenures within one development

- Affordable Rent
- Shared Ownership
- Private Sale

BF10.4 Housing mix

BF10.4.1 Meeting housing needs

Proposals ***must*** comply with any Housing Needs Assessment for the city and/or one for any relevant Local Area Plan.

Development proposals ***should*** demonstrate how the mix of dwelling types and sizes meet strategic and local need and are appropriate to the location.

See TSP 2023, Policy H2, H3, H4

BF10.4.2 Housing mix distribution

A varied housing mix ***should*** be promoted across Thimphu to meet the varied needs of households and residents at different life stages.

The housing mix ***should*** contribute to forming the relevant proposed Place Vision that aim to create diversity across the city. See also CS codes for additional guidelines per Place.

Developments in City Core and Major Employment Area Types ***should*** provide a housing mix that makes the best use of land, capitalising on the availability of services within walking distance, and current and future accessibility by public transport.

Developments ***should*** have a smaller proportion of family homes, delivering a unit mix that will cater predominantly to smaller households such as young professionals, couples, small families and/or senior citizens requiring homes with fewer habitable rooms.

An appropriate housing mix ***should*** provide a higher proportion of 1bHK and 2bHK homes, and a lower proportion of 2bHK and 3bHK homes. Larger 4-bed+ homes ***should*** be provided on a more limited basis.

Developments in the Urban I and II and Suburban I Area Types ***should*** provide a balance between family and non-family units, creating a transition between the City Core housing offer and the more family-oriented Suburban housing offer.

An appropriate housing mix ***should*** provide a balance of 1bHK and 2bHK homes and 2bHK and 3bHK homes. 4-bed+ family homes ***should*** be provided on a limited basis.

Developments in the Suburban Area Types II and III and in Rura Areal Types ***should*** have a greater proportion of family homes, with a more limited provision of 1bHK and 2bHK homes.

These parts of the city ***should*** cater more to larger households providing homes that can accommodate multi-generational living and/or larger families requiring more space.

An appropriate housing mix ***should*** provide a lower proportion of 1bHK and 2bHK homes, and a higher proportion of 3bHK and 4bHK homes. A small proportion of 4bHK+ family homes ***could*** be provided.

In Rural Area Types, the housing mix ***should*** provide mostly 3bHK, 4bHK and 5bHK homes, with 1bHK and 2bHK homes provided on a limited basis.

See TSP 2023, Policy H2, H3, H4. See CS codes.

BF10.5 Housing typologies

BF10.5.1 Housing typology distribution

Developments ***must*** adopt housing typologies that respond positively to the proposed Area Type, Place and local community needs. See CS codes.

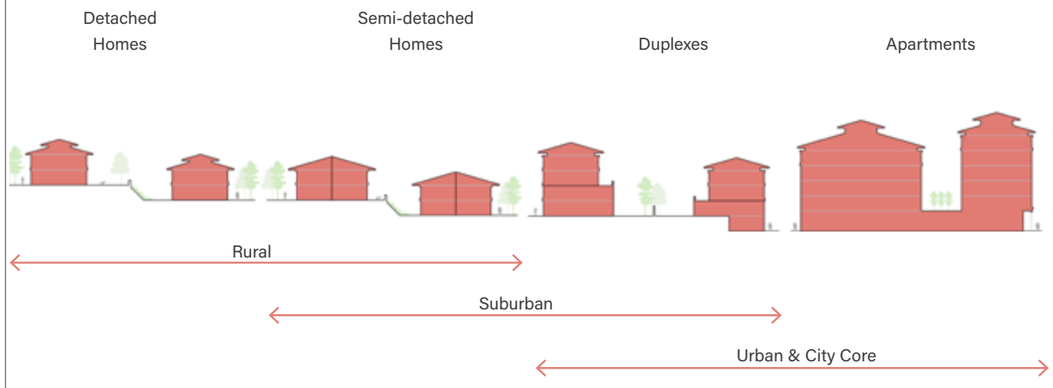
Demonstrations on following pages provide an illustration of potential housing typologies that ***could*** be adopted across different Area Types and Places to diversify choice for different types of household and the reinforce the intended character (see CS codes).

Rural Area Types ***should*** be characterised by detached single family homes.

Suburban I, II and III Area Types ***should*** explore a wider variety of housing typologies to ensure that density is managed in accordance with the neighbourhood's capacity and proposed character, including detached, semi-detached and duplexes (in the form of terraces or row houses). A limited amount of apartments, no higher than 4-storeys, can be provided within designated Local or Neighbourhood Centres.

Urban I and II Area Types ***should*** deliver higher density multi-household units consisting of a range of different sized duplexes and apartments. Detached and semi-detached typologies ***should*** be avoided.

City Core and Major Employment Area Types ***should*** be characterised mostly by apartment buildings, which can range from point blocks to linear blocks. Detached and semi-detached typologies ***should*** be avoided.



Housing typology profile across the city

See TSP 2023, Policy H2, H3, H4. See CS codes.

Demonstration 4

The following demonstration provides illustrations of potential apartment building typologies that could be deployed to provide variation and choice for various types of households (from single person to families) across appropriate Area Types and Places.

Apartment typologies

Description:

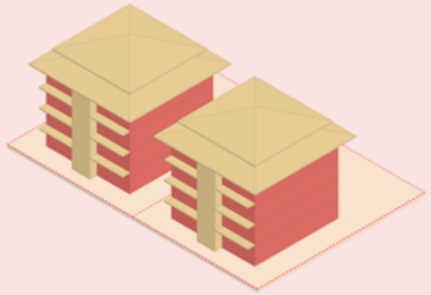
Apartment typologies should be the predominant type of home within areas of higher density living (e.g. within City Core, Major Employment and Urban I and II Area Types and Neighbourhood and Local Centres) .

The typical versions shown are: point block, joint block with party wall, and linear block. Apartment typologies should accommodate a range of unit sizes.

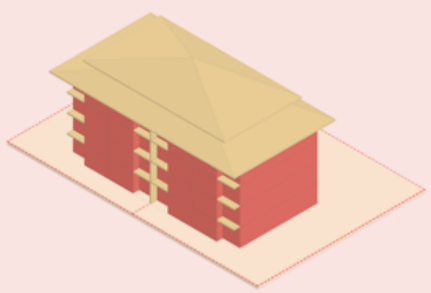
Typology features are as follows:

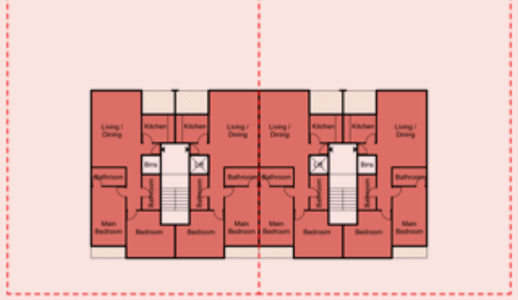
- Number of storeys: 3-6.
- Unit size: can vary; for example, in City Core and Major Employment Area Types there should generally be a greater proportion of 1 and 2-bedroom apartments; while in a Neighbourhood Centre within a Suburban I Area Type larger apartments can be included to accommodate larger families.
- Amenity spaces: balconies can provide external private amenity. Private or shared gardens (at ground or roof level) can provide outdoor shared spaces for the residents only. Apartment buildings can provide indoor shared spaces for residents also, such as childcare spaces, co-working spaces and gyms.
- Access: communal access via stairs and/or lifts. The number of apartments accessed per core is minimised, typically 4-8 units accessed per floor. Ground floor units could be accessed directly from the street where they are facing the street or from a shared garden or courtyard.
- Parking: generally provided on-plot, either in-structure ('stilt' parking) or within shared ground floor parking podiums, basements or multi-level parking buildings. Open, surface parking courts can be provided in Suburban Area Types. Cycle and other storage space can be provided at ground floor, within shared car parking areas, within shared gardens or alternatively within individual homes.
- Variations: Apartment typologies can accommodate mixed use typologies with retail, community or workspace used on the lower levels.

Apartment with ground floor and upper balconies providing informal surveillance of streets.
Source: Gleis 21 / Hertha Hurnaus

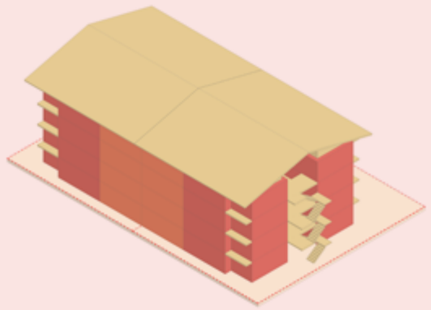


Point Block

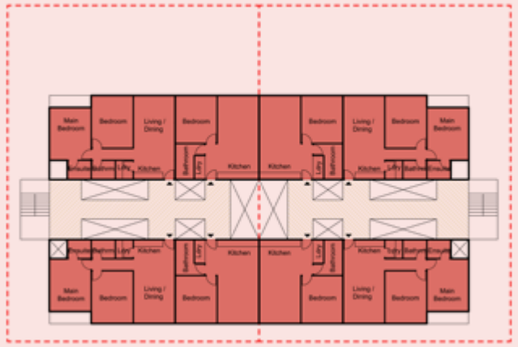




Joint block with Party Wall



Apartment typologies appropriate for areas of higher density living



Linear Block

Demonstration 4

The following demonstration provides illustrations of potential duplex typologies that could be deployed to provide variation and choice for medium and larger households across appropriate Area Types and Places.

Duplex typologies

Description:

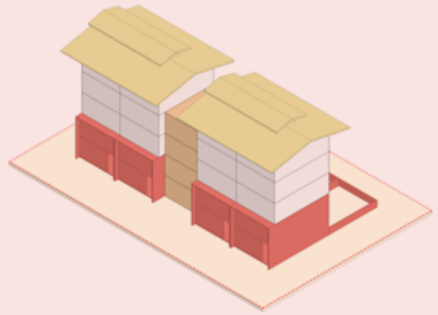
Duplexes can be deployed in various ways. Duplexes can be used integrated with apartment buildings within areas of higher density living (e.g. within City Core, Major Employment and Urban I and II Area Types and Neighbourhood and Local Centres) where they can be located at the lower levels with apartments above. Duplexes can also be used to 'wrap' car parking structures to minimise visual impact and promote good street frontage. Duplexes can also be provided on the top floors of apartment buildings where they could have better access to larger roof-top amenity spaces.

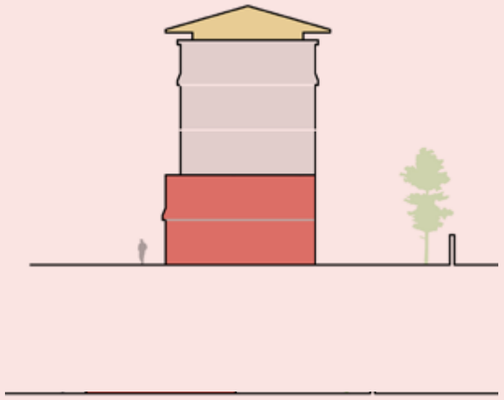
Alternatively they can be a 'stand-alone' typology providing 2 storey terraces (or row housing) or 3 or even 4 storey town houses. These typologies provide a highly flexible and efficient way of accommodating larger households, including multi-generational homes.

Typology features are as follows:

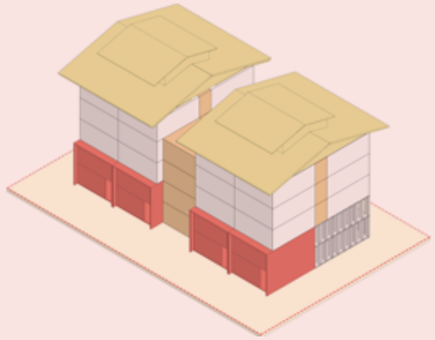
- Number of storeys: 2, 3 and 4.
- Unit size: between 2 and 5 bedroom units (with the stand-alone typologies generally providing the larger homes).
- Amenity spaces: duplexes typically have access to a private back garden and generally also a smaller front garden. Duplexes used to 'wrap' other uses such as car parking could have a private balcony space, roof terrace or access to a shared outdoor space. Upper duplexes can have access to private balconies or more generous rooftop terraces.
- Access: lower level duplexes are typically accessed via individual front doors and duplexes integrated with apartments can have access through a shared core/staircase.
- Parking: generally provided on-plot, either independently in-structure, or within shared ground floor parking podiums, basements or multi-level parking buildings. Open, surface parking courts can be provided in Suburban Area Types. Cycle parking can be provided at ground floor, within shared car parking areas, within shared gardens or alternatively within individual homes.

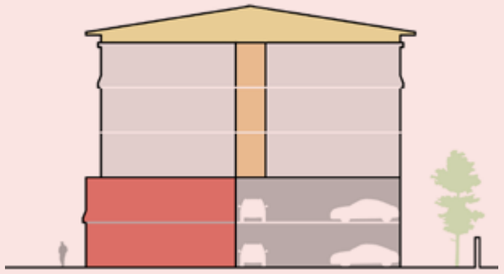
Duplexes accessed via individual front doors
Source: Eddington Lot1 (UK)



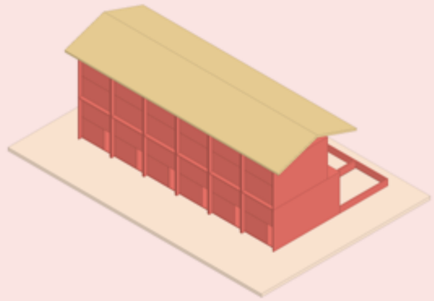


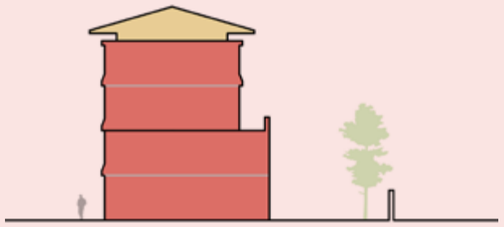
Duplex integrated with apartments





Duplex 'wrapped' car parking structure





Stand-alone duplexes

Demonstration 4

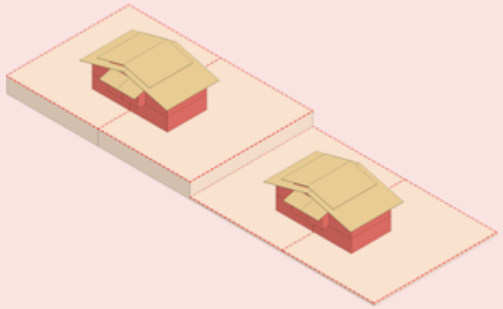
The following demonstration provides an illustration of a semi-detached typology that could be deployed to provide variation and choice for larger households across appropriate Area Types and Places.

Semi-detached homes

Description:

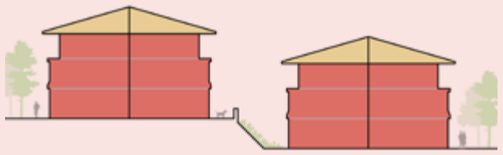
Semi-detached homes should be used in lower density areas only, in Suburban Area Types. They should not be used within Rural Area Types.

Semi-detached homes share a single party wall with one other home and these units are typically built as a pair, each with private gardens to the rear, side and front. They provide single-family homes for lower density areas and generally accommodate larger households, including multi-generational families.



Typology features are as follows:

- Number of storeys: 2, 3 and 4.
- Unit size: between 3 and 5 bedroom units.
- Amenity spaces: typically private and enclosed back and/or front gardens.
- Access: individual front doors accessed directly from street.
- Parking: provided on plot in different ways, such as integrated into the building at the ground-floor, on-plot within separate garages or covered structures either at the side or the rear of the building, or consolidated off-plot in shared parking courts.



Semi-detached typologies for lower density living
Source: Hanham Hall (UK)

Semi-detached typology for lower density areas

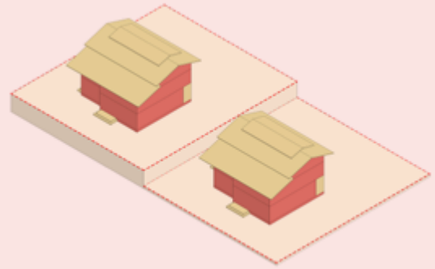
The following demonstration provides an illustration of a detached typology that could be deployed to provide variation and choice for larger households across appropriate Area Types and Places.

Detached homes

Description:

Detached homes should be used in lower density areas only, in Suburban and Rural Area Types.

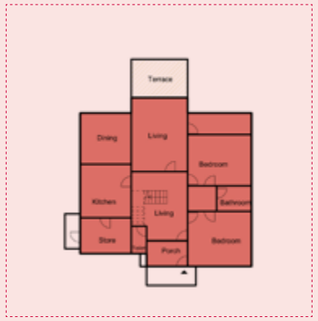
Detached homes are free standing buildings providing single-family units for low density areas. They generally accommodate larger families including multi-generational families.



Typology features are as follows:

- Number of storeys: 1, 2, 3 and 4.
- Unit size: between 3 and 5 bedroom units or larger.
- Amenity spaces: typically private, enclosed back gardens, which could be used for food growing in rural areas.
- Access: individual front doors accessed directly from street.
- Parking: provided on plot in various ways, such as within separate garages or covered structures, within the outdoor space at the rear, or consolidated off-plot in shared parking courts.

Detached Typologies for low density living
Source: Dumra Housing (Bhutan)



Detached typology for lower density areas

BF11 Resilience

To minimize geohazard and flood risk, enhance the resilience of urban development and protect the well-being of people and property by establishing guidelines for resilient design in the urban environment.

BF11.1 Geohazards

BF11.1.1 Permitted development in Hazard Zones

New development which falls within Risk Category III & IV of Table 1604.5 of the International Building Code and/or SI(i) of Table 6 of the Indian Standard 1893:2016 Part 1 ***must not*** permitted in Hazard Zones. See TSP 2023, chapter 9.

BF11.1.2 Seismic standards

Current seismic design standards ***must*** be consulted for all new developments or redevelopments. The size, nature and materials for the proposed development ***must*** be reviewed by a qualified engineer to ensure appropriate seismic design measures are implemented where required. As a minimum, the following seismic factors/criteria ***must*** be used:

- At a minimum (where Indian Standards are applied), IS 1904, IS 1892, IS 1893 andIS 13920 ***should*** be examined and applied.
- Where design follows ASCE 7-16, a S0.2 of 1.40 and S1 of 0.65 ***should*** be applied.

The results of following this process may require additional structural measures (e.g. bracing, shear walls etc) to be employed, including for 'stilt' parking under buildings.

Explanatory text

Hazards such as earthquakes and problematic ground are applicable to all areas of Thimphu and not just the TSP 2023 hazard zones. All developments, no matter the location, needs to consider seismic design standards and the suitability of the ground for development. (see TSP 2023 Geohazard Technical Note).

BF11.1.3 Strategies for geohazard resilience

New developments or redevelopments within hazard zones ***must*** implement strategies for the management of vegetation on slopes, including requirements for erosion control and the removal of dead or unstable trees.

Areas at risk of landslides ***should*** consider the planting of slope-stabilising species to prevent erosion by increasing soil strength.

Refer to the Design and Planning Process chapter and TSP2023, chapter 9.

BF11.2 Flood resilience

BF11.2.1 Building strategies for flood resilience

Any new development and all substantial renovations of existing buildings permitted in flood-hazard areas ***must*** be designed with elevated ground floors to a specified minimum height above the latest Base Flood Elevation (BFE). See CX 2.1.2.

Where building structures are below the BFE, only non-vulnerable, non-habitable spaces or uses are permitted.

If non-habitable spaces are located below the BFE, flood-proofing measures to protect against flood damage ***must*** be considered, including watertight building materials, flood vents, and elevated utilities.

Occupants of non-habitable spaces below the BFE ***must*** have safe and reliable means of access and egress during flood events.

Access routes and emergency exits ***must*** be designed to remain functional during flood events.

The design of buildings and structures below the BFE ***should*** limit the negative effect of blank walls on the streetscape. Blank wall mitigation strategies can include:

- Inclusion of landscaping, planters, or vertical gardens along the base of elevated structures to soften the appearance of walls and introduce greenery;
- Variety in design, to create interest and visual stimulation along the streetscape;
- Provision of street-level spaces that remain open, active, and accessible to the public.

Buildings within flood prone areas ***should*** consider the use of flood-resistant construction materials and techniques, such as water-resistant paints and coatings, flood-resistant doors and windows designed to resist water infiltration, protective shutters or barriers that can be deployed to seal off openings during floods, etc.

BF11.2.2 Sustainable urban drainage

Developments ***must*** contribute to managing surface water run-off at the source, reducing the risk of flooding and water pollution. See NE 3.1.2.

For minor developments where sustainable urban drainage systems are not technically feasible, surface water run-off ***should*** be managed on-plot in an appropriate manner (through use of smaller SuDs features such as rain gardens, permeable paving areas, planted areas on real ground, etc.).

BF11.3 Maintaining biodiversity

BF11.3.1 Protection of existing trees

Existing mature trees (+20 years old) within development sites, existing streets and open spaces ***should*** be identified through an arboricultural survey and protected where possible. The survey ***must*** be undertaken by a tree specialist to identify and evaluate the condition, health, structure and risks associated with existing trees.

Site layouts and building designs ***must*** be modified to incorporate existing trees within shared open spaces. A minimum separation of 5m ***must*** be provided between trees and building frontages and ther built structures to minimise potential damage to the tree's root system and canopy. The specific distance ***must*** be provided by a qualified arborist or tree specialist.

For single stem trees, the root protection area ***should*** be calculated as an area equivalent to a circle with a radius 6 times the stem diameter. Built structures ***should*** be located outside the root protection area.

See also NE2.1.1.

Existing trees should be incorporated within developments

Existing trees should be incorporated within developments

Refer to the NE2 and NE3

BF11.4 Building strategies for enhancing biodiversity

BF11.4.1 Enhancing bio-diversity

All developments ***should*** seek to enhance biodiversity on site through introducing new appropriate planting in outdoor areas such as shared spaces, setback areas, along boundaries, or as part of the building's façade or on certain roofs and structures.

Greened roofs:
Vegetated roofs ***could*** be provided to enhance urban greening and the storm water management of development sites.

To preserve the integrity of the Bhutanese roof, greened roofs can be integrated on secondary elements or parts of buildings, on parking podiums and elevated courtyards or on secondary buildings such as garages or parking buildings.

Green / vegetated roof could be provided to maximise the extent of urban greening in appropriate locations

Where included, the planting scheme for green roofs ***should*** include native species and non-natives with proven wildlife value to encourage a mix of flora and fauna within the built environment.

Vertical greening:
Vertical greening ***should*** be encouraged in any proposed building façade, which ***could*** be more light-weight forms, such as simple trellis' on blank ground floor frontages, small planting areas integrated into balconies and roof terraces.

Vertical greening ***should*** be integrated into the design of a façade and ***must*** ensure it does not require excessive irrigation and ongoing management.

Screening:
Planting and other devices ***should*** be considered for screening unwanted views or to highlight important view corridors.

Planting ***should*** be encouraged for screening, however due to scarce water resources and irrigation implications, alternatives to screen planting and planting to guide views ***should*** be explored.

Additional types of screening include architectural screens, such as fences and trellises, or artistic screens, which can incorporate murals, mosaics or other forms of public art. Patterns, perforations or textures ***should*** be considered to create visual interest while providing privacy and shading.

Refer to the NE2 and NE3

BF12 Edge Conditions

To create a positive interface between development and important spaces and edge conditions throughout the city, ensuring an appropriate built form response and a transition from urban areas to open spaces and landscapes.

Important landscapes and open spaces traverse the city and new developments need to form appropriate built form responses to these elements to ensure that nature and bio-diversity can thrive and people can comfortably use and enjoy these natural resources of the city. The Edge Conditions are defined in TSP 2023, chapter 9 and 10 and are as follows:

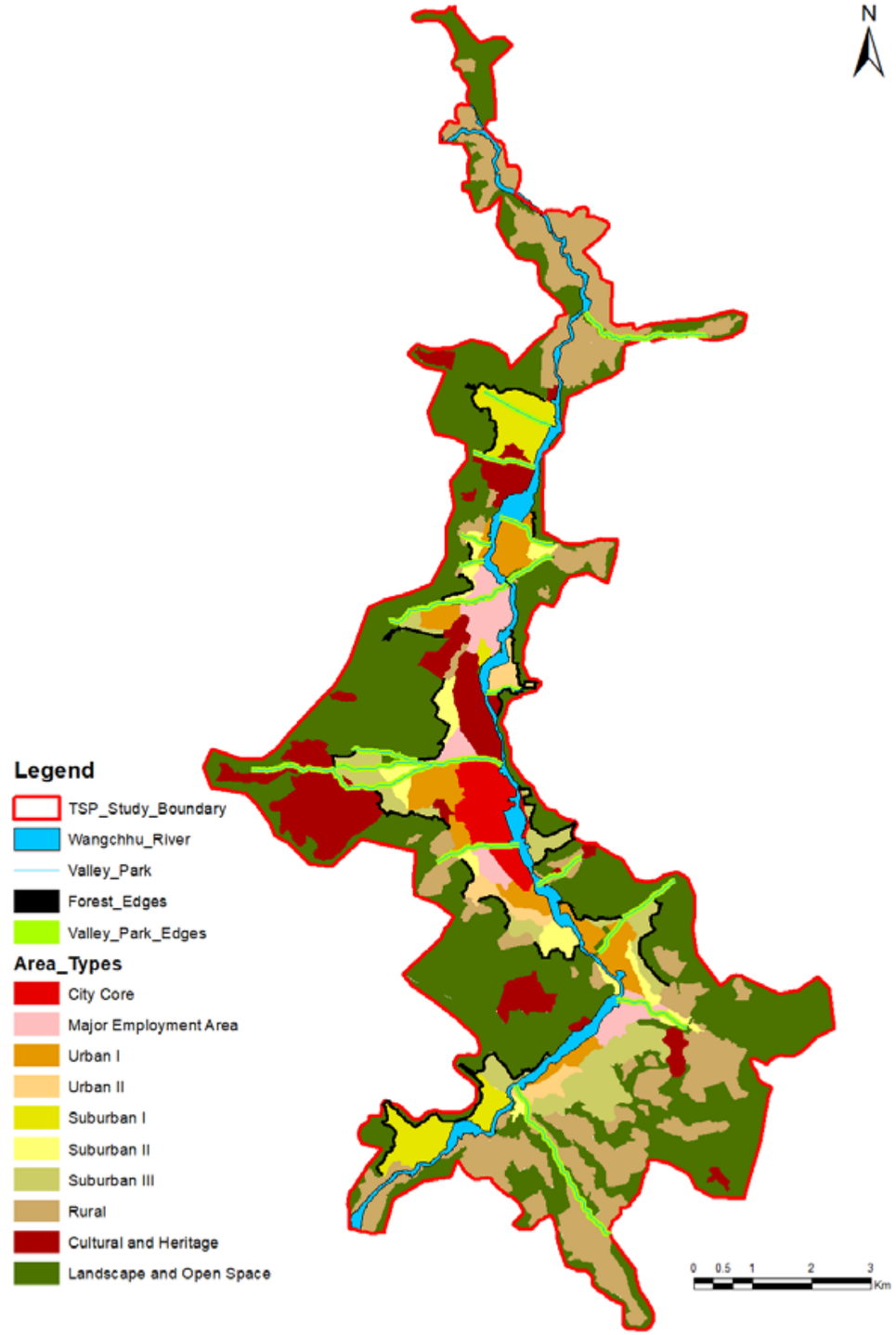
- Wang Chhu River Corridor: runs north to south throughout the city and through most of the Area Types. This corridor incorporates flood hazard zones;
- Valley Parks: these spaces generally follow the major tributaries of the Wang Chhu and run east-to-west across the city. These corridors incorporate flood hazard zones;
- Open Spaces: the hierarchy of public open spaces defined in TSP 2023, chapter 10;
- Forest Edges: the eastern and western edges of the city, located on upper slopes;

The guidance in the table below outlines a series of strategies to guide how building frontages ***should*** respond to each landscape condition. More detailed guidance and Demonstrations of these strategies are described on the following pages.

	Code	Wang Chhu Frontage	Valley Park Frontage	Open Space Frontage	Forest Edge Frontage
Open Space Corridors	BF12.1.1	●	●		
	BF12.1.2		●		●
Natural Surveillance	BF12.2.1	○	○	○	○
	BF12.2.2	○	○	○	
	BF12.2.3	○	○	○	○
	BF12.2.4	○		○	○
	BF12.2.5	○	○	○	○
	BF12.2.6	○	○	○	○
Design Quality	BF12.3.1	○			

● **Must** be applied to this Condition

○ **Should** be applied to this Condition



BF12.1 Open space corridors

BF12.1.1 Flood hazard corridors

New development fronting major rivers and tributaries ***must not*** be located within Flood hazard zones.

New development ***must not*** encroach on the related open space corridors that are defined in TSP2023. See TSP Policy P1 and GI1, GI2 and GI3.

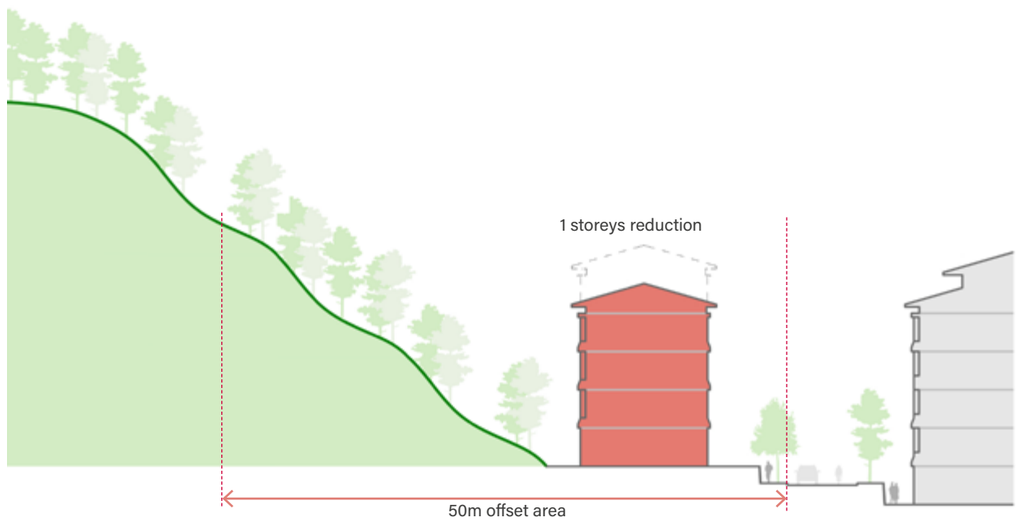
BF12.1.2 Forest Edges and Valley Parks

In City Core, Major Employment, Urban I and II, Suburban I, II and III Area Types, buildings within a 50m offset from the Forest edges or Valley Park edges (as defined in TSP 2023) as shown in the map above ***must*** reduce in height by one storeys.

Explanatory text

Lower building heights along east-west orientated spaces will allow greater levels of daylight into spaces to support bio-diversity and pedestrian activity (especially important at Valley Parks).

Lower building heights at the Forest Edges will allow for a heights transition from urban areas to the edge of the city and allow the forest planting to be more prominent when viewed from within the city.



Building height transition adjacent to forest edges or valley parks

BF12.2 Informal surveillance

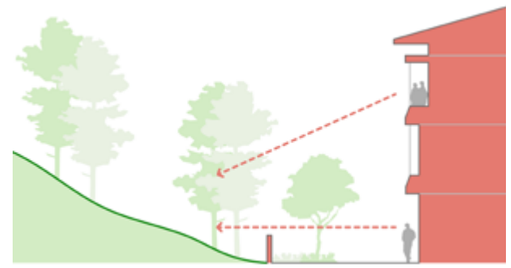
BF12.2.1 Building elements

On frontages facing landscapes and open spaces, development ***should*** provide larger windows, balconies, roof terraces and/or private gardens to take advantage of views to natural assets, and promote the informal surveillance of these spaces.

Balconies ***should*** be provided on these frontages for amenity purposes only. Projecting balconies ***should*** be avoided in favour of inset balconies. Blank walls, servicing or ancillary uses, car parking or service functions ***should not*** be located on frontages overlooking open spaces.

BF12.2.2 Maintaining sightlines

Walls, fences and planting that block sightlines to the open space ***should*** be avoided at ground level. Refer to BF 8.3 for more guidance on boundaries.



Maintaining sightlines to nature and open spaces

BF12.2.3 Defining private spaces

Boundary treatments ***should*** ensure a clear definition between public and private spaces through built form, landscape/hardscape treatment, signage and/or lighting to express ownership and create open space edges that feel safe and well maintained.

Boundary treatments at Edge Conditions ***should*** primarily employ planting and greenery to define spaces.

BF12.2.4 Street and parking design

Where there are streets at open space edges, these ***should*** be designed for very slow speeds. Streets ***should*** be designed to denote a special condition and a slow speed pedestrian priority space.

Where on-street parking is provided, spaces ***should*** be interspersed with landscape and planting. Perpendicular car parking ***should*** be avoided. (See ST 3.2.4 for guidelines on consolidating on-street parking).

BF12.2.5 Active frontage towards open spaces

Any active frontages ***should*** be orientated towards the public open space.

Best Practice

Consider allowing generous setbacks for spill-out that extend activity into the public realm.

Active frontage towards open spaces

BF12.2.6 Doors/entries towards open spaces

Front doors and building entries ***should*** be orientated towards the open space. Design entries to be clearly visible, with architectural features and lighting that accentuate the entrance. Service entries (eg. to serve active uses, waste collection, etc.) ***should*** be avoided along the open space frontage.

BF12.3 Design quality

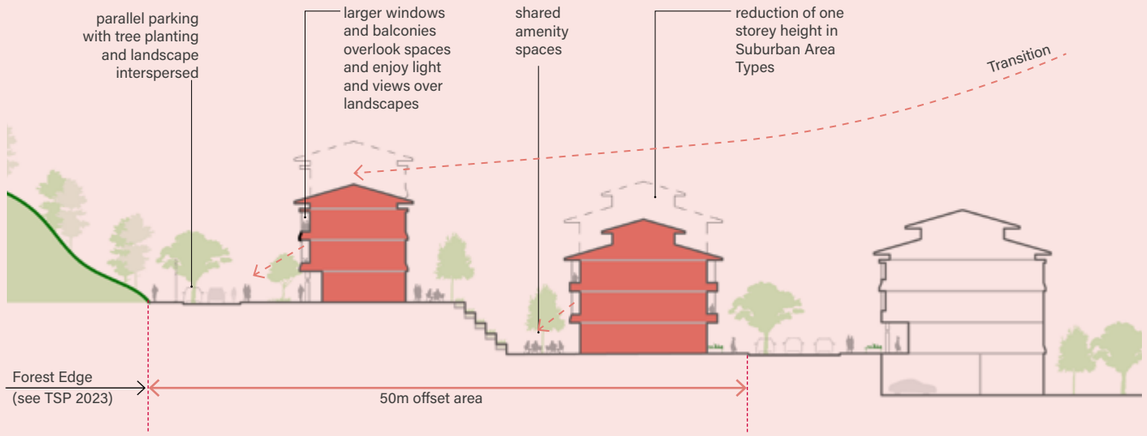
BF12.3.1 The Wang Chhu Corridor

In City Core and Major Employment Area Types developments fronting the Wang Chhu Corridor ***should*** be of exceptional design quality, responding sensitively to the landscape and heritage character of Thimphu's riverside. Designers of these highly prominent frontages ***should*** respond to longer views from opposite river banks and from river crossings and bridges.

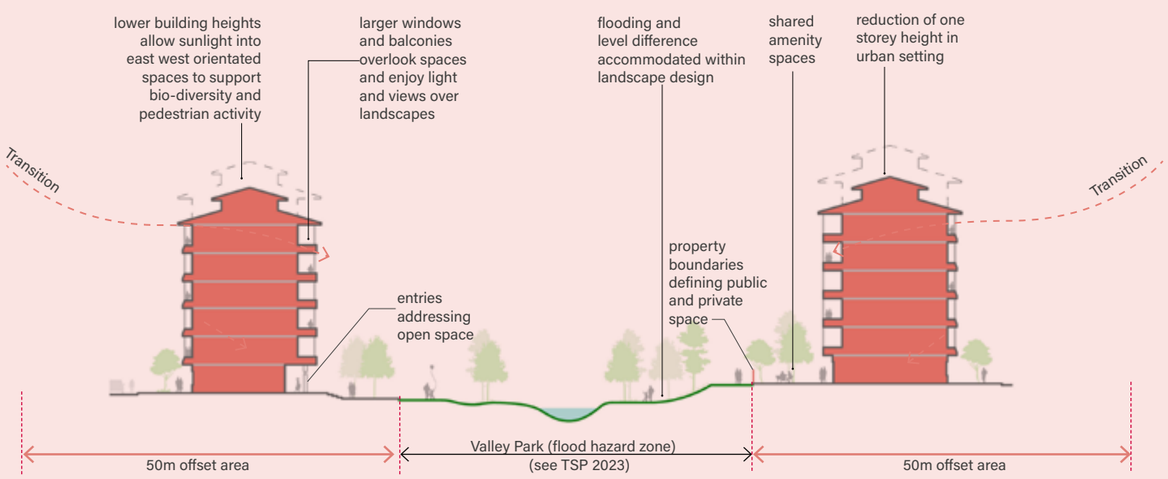
Demonstration 5

The following demonstration provides a set of illustrations of the appropriate built form responses that should be employed at the landscapes and open spaces as described by the requirements and guidelines for the Edge Conditions.

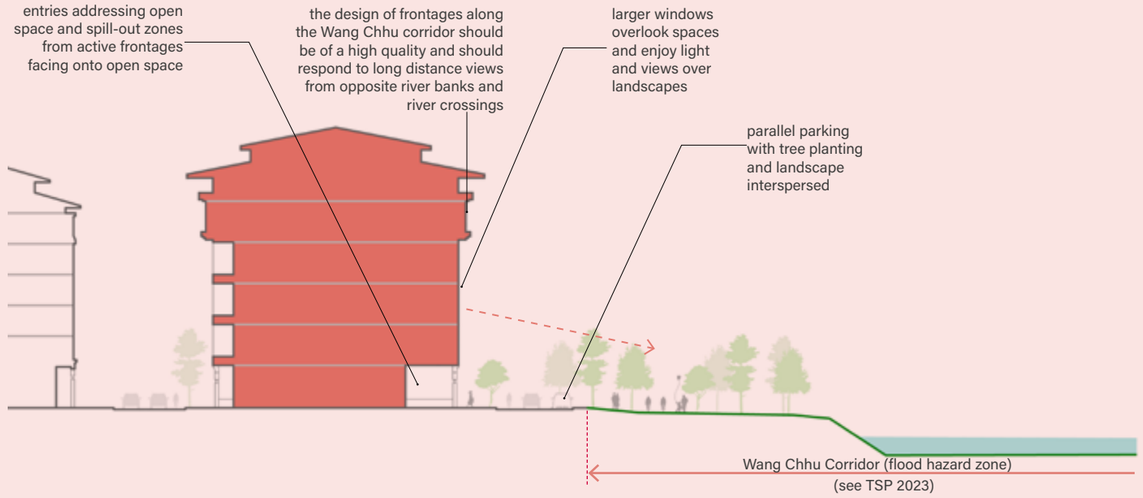
Edge conditions



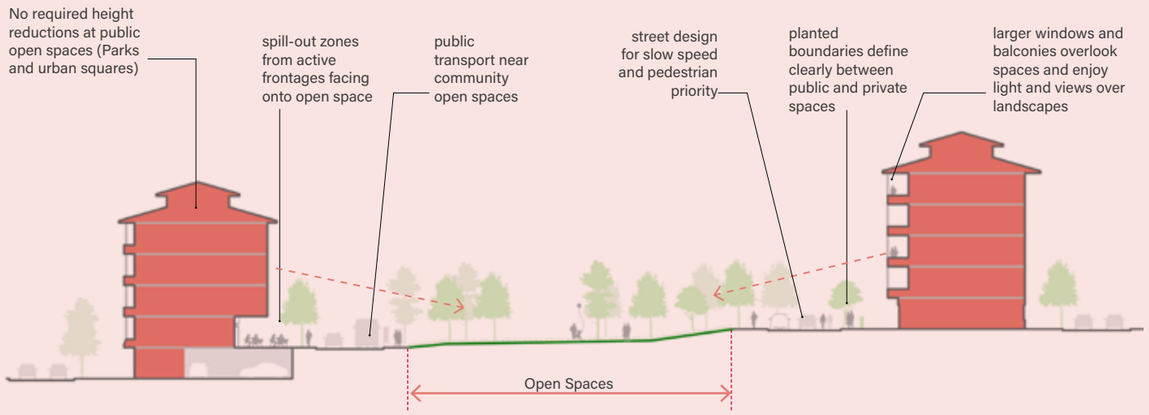
Forest Edge condition in Suburban I and II Area Types



Valley Park edge condition in Urban I and II Area Types



Wang Chhu edge condition in City Core, Major Employment and Urban I and II Area Types



Public Open Space edge condition in Urban I and II Area Types

Comprehensive Development

This chapter provides requirements and guidelines for the urban fabric and built form of the Comprehensive developments including mixed use clusters that will form the new Centres hierarchy across the city.

These codes apply to comprehensive types of developments across the city.

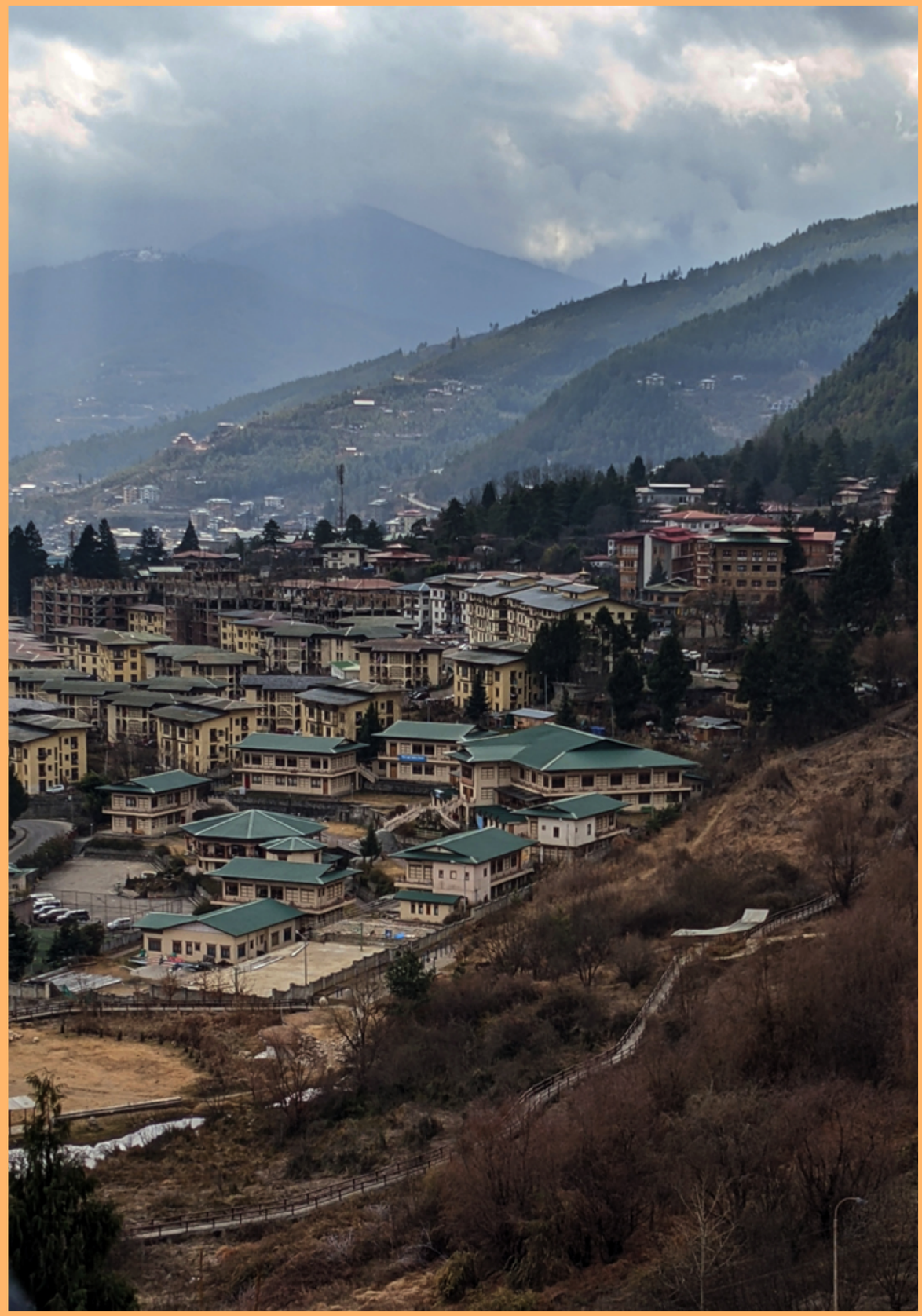
US Urban Structure

LU Clustering of Uses

Note: these codes must be read in conjunction with the BF Codes which also apply to Comprehensive forms of development.

Who must read this section:

- Public authorities, developers and architects/designers engaged in the design of Comprehensive Developments and public realm and open space proposals.



US—Urban Structure

US1 Forming an Urban Structure

To provide a permeable and functional structure of urban blocks and connections, that relates to context, topography, increases permeability across the city and employs orientation to create comfortable places to live and work.

US1.1 Block structure

US1.1.1 Forming urban blocks

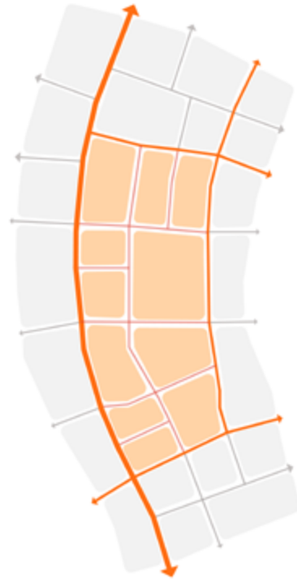
New Comprehensive Development ***must*** form or contribute to forming a permeable urban structure across the city.

Through the arrangement of buildings, clear and legible urban blocks ***should*** be formed to define spatially the hierarchy of streets and public spaces.

Urban blocks ***should*** vary in size and typology in response to existing context, topography, future character and proposed land use, but ***should not*** exceed the maximum block sizes defined in US1.1.2

New street and block patterns ***should*** be laid out to create as rational plots as feasible.

New development ***should*** maintain adjacent existing residential amenity and locate buildings and modulate massing to protect privacy and daylight to existing indoor and outdoor spaces. See BF 1.2 and 1.3.



Urban blocks define spatially the streets and spaces across the city

US1.1.2 Block Size

New urban blocks in City Core, Major Employment, Urban I and II Area Types ***must*** be a maximum of 100m long in their longest dimension.

New suburban blocks in Suburban I, II and III Area Types ***must*** be a maximum of 120m long in their longest dimension.

All new urban blocks ***must*** be a minimum of 50m long in their shortest dimension.

Refer TSP2023 Street Hierarchy and to US1.3 codes

US1.1.3 Forming continuous connections

The arrangement of urban blocks ***must*** form streets and pedestrian connections that extend through the development site.

Streets and pedestrian connections ***must*** be extended through and connected into other streets, forming a dense and interconnected movement network that links origins and destinations within neighbourhoods and across the city.

New streets and pedestrian connections ***should*** be aligned along desire-lines as directly as possible, with clear sightlines to improve legibility and safety.

Culs-de-sacs or streets with dead-ends ***should*** be avoided.

Where vehicular culs-de-sacs can't be avoided these ***should*** be less than 60m in length, with clear sightlines to the end.

Pedestrian and cycle routes ***should*** be extended beyond the end of any vehicular culs-de-sac to provide connection to the wider network.

Culs-de-sacs and dead ends reduce pedestrian permeability and legibility

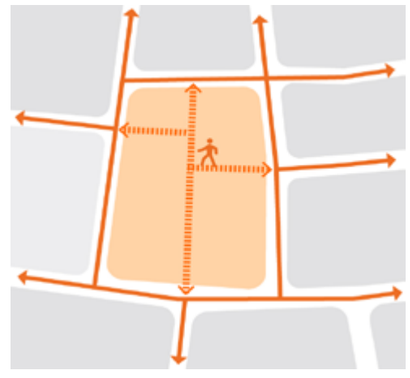
Continuous connections formed through an urban area

US1.1.4 Pedestrian permeability

The arrangement of urban blocks ***must*** support regular pedestrian access throughout the urban area.

The layout of urban blocks ***should*** provide at least 2 continuous routes for pedestrian across the development site.

Existing or blocks which exceed the maximum block sizes defined in US1.1.2 ***should*** provide new cross-block pedestrian only links to improve permeability.



Block structure should facilitate pedestrian permeability and walkability

Refer to US1.3 codes

US1.1.5

Orientation of blocks and buildings

New urban blocks and buildings ***must*** follow and align with topography.

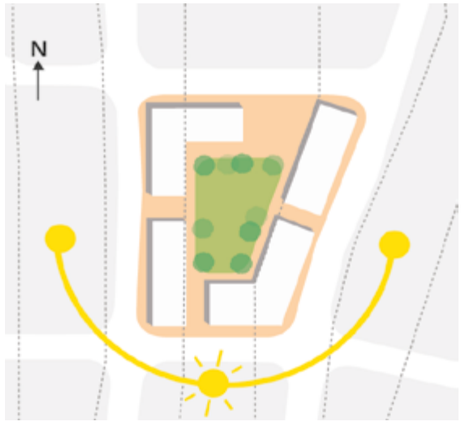
The orientation of blocks and the arrangement of buildings forming blocks ***must*** minimise the amount of spaces facing south only. Spaces facing south only are at risk of overheating.

The orientation of blocks and the arrangement of buildings forming blocks ***must*** minimise the amount of spaces facing north only. Spaces facing north only will receive poorer levels of natural daylight.

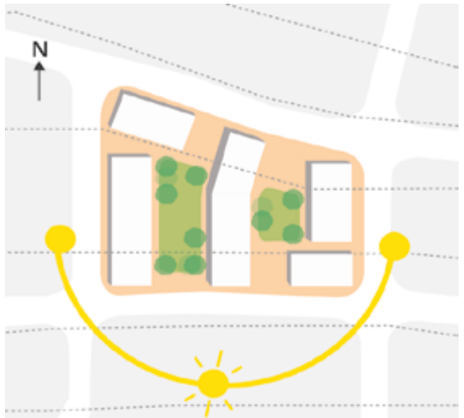
Where topography runs north to south, new urban blocks ***should*** also be orientated north-south (i.e. the longer dimension of the block ***should*** be on a north-south alignment). Blocks orientated north to south naturally ensure a greater amount of daylight and sunlight reaches shared and private outdoor spaces within the interior of the block.

Where topography runs east to west, new urban blocks ***should*** also be orientated east-west (i.e. the longer dimension of the block ***should*** be on a east-west alignment).

To ensure that homes facing south and north only are minimised in east-west orientated blocks, massing and the arrangement of buildings ***should*** be modulated to achieve best conditions for interior and exterior spaces within the block, e.g. by reducing massing and/or providing gaps between buildings to the south of the block



Where topography is aligned north to south, block layout can naturally be orientated to maximise sunlight and daylight into internal and external spaces.



Where topography is aligned east to west, building arrangement and massing is adjusted to maximise sunlight and daylight into internal and external spaces.

US1.2 Creating legibility

US1.2.1

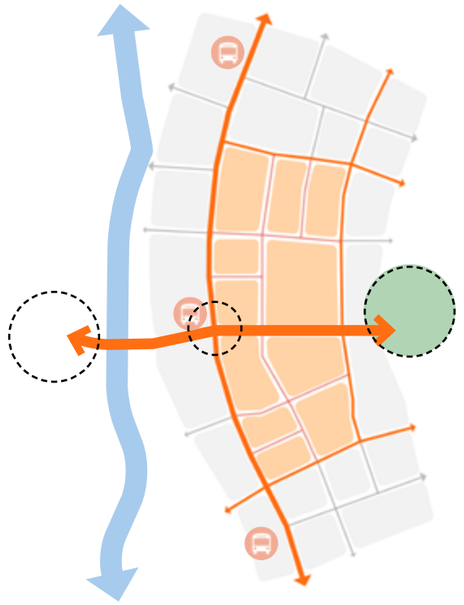
Desire lines

New streets and connections through Comprehensive Developments, ***must*** be aligned along pedestrian 'desire lines' to ensure direct and walkable connections are made to city or neighbourhood destinations.

New development ***must*** form connections that can provide access from urban areas to the Wang Chhu river corridor and/or to the forest/city edges, where appropriate.

New development ***must*** form walkable connections through urban areas that connect to the starting points of long distance Trekking Trails.

Existing streets that provide direct connections to city or neighbourhood destinations ***must*** be given priority for improvements that promote walkability and cycling.



New connections must follow pedestrian desire lines and form connection between the river corridor and the forest/city edges.

US1.2.2

Framing views

When forming new streets and connections through Comprehensive Development sites, these ***should*** be aligned to the defined local views and terminated by local landmarks and destinations.

New development ***should*** be located along these view corridors/streets so that they frame the view and place prominence on the element terminating the view.

Explanatory text

Local Authorities should define local view corridors to destinations and landmarks as part of the Local Area Plan development. Landmarks could include: heritage buildings, chortens, mani walls, locally important buildings. Destinations could include: Centres, Parks, Schools, etc.

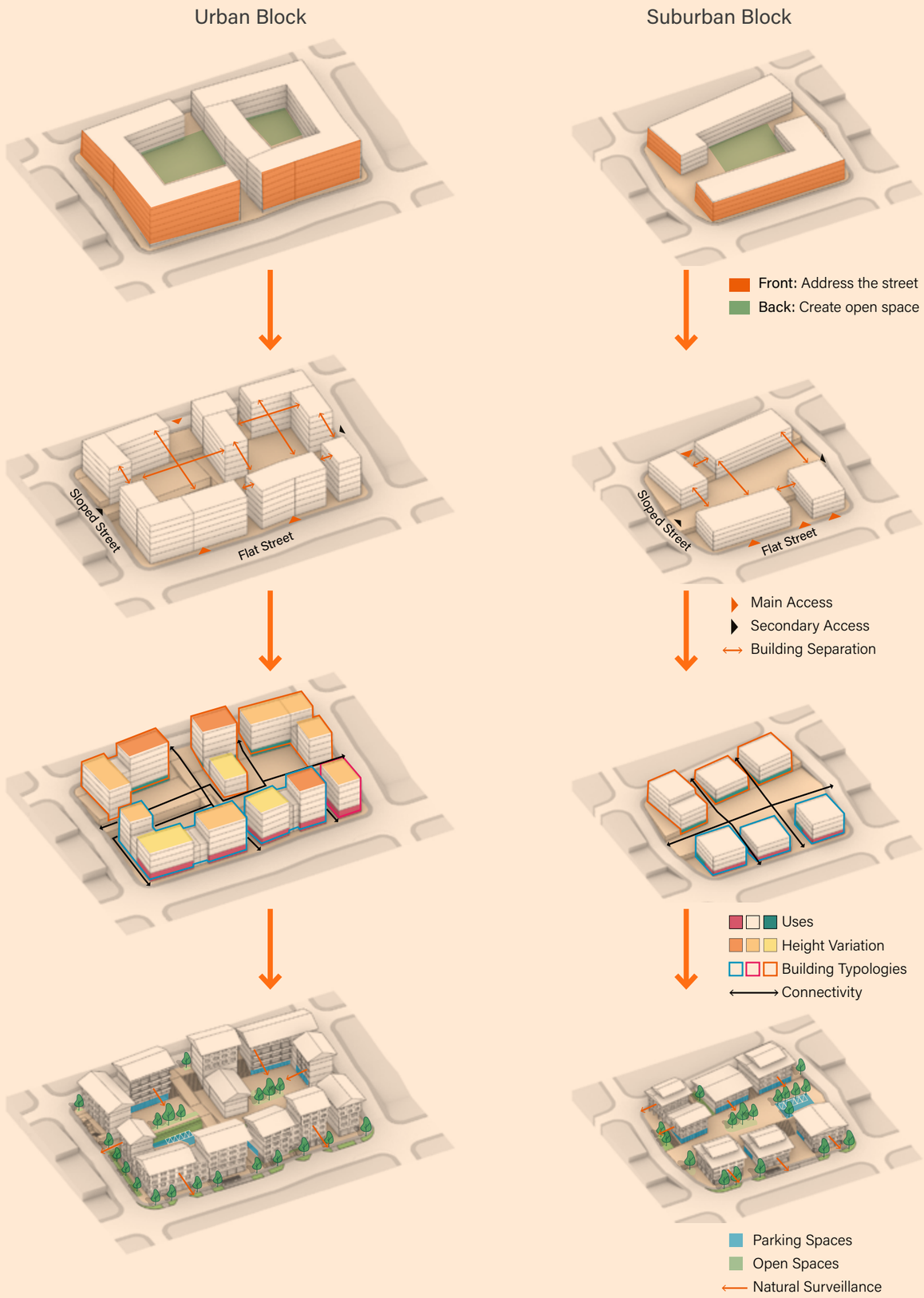
Example of a local view: view from Doebum Lam to National Memorial Chorten.

Demonstration 6

The following demonstration provides a set of illustrations describing the step by step guide to forming urban and suburban blocks.

Forming blocks

Relevant Codes	Urban and Suburban Block Formation
Step 1	
US 1.1.2	Block Size: Form the block with appropriate size.
BF 6.1.1	Fronts & Backs: Shape the initial block massing to address the streets and leaves ample interior room for shared open spaces and amenities. ▪ Urban blocks should strongly form adjacent streets. ▪ Suburban block should more loosely form adjacent streets.
Step 2	
BF 5.1	Responding to topography: Adapt to the site's natural contours by creating platforms at various elevations that blend with the topography, strategically situating buildings for integration.
BF 1.3 BF 6.5	Separations: Adhere to separation guidelines to maintain adequate distance between habitable and non-habitable façades.
US 1.1.3 ST 2.5	Accessibility and connectivity: Breaking down massing to ensure main access from flat streets and secondary access from sloped streets, optimizing both external access and in-plot connectivity.
Step 3	
BF 6.2.1	Height Variation: Within the maximum allowable FAR, introduce height variations, with at least 50% of buildings below the maximum height limit.
BF 2	Uses: Assign massing uses and active frontages based on permissible uses and street hierarchies.
US 1.1.4	In-block connectivity: Facilitate internal connectivity by paths, ramps, and stairs
Step 4	
CS codes BF 7.1.3 BF 7.2 BF 7.3	Architecture: Detail architectural design aligning with the Bhutanese Architecture Guidelines. Informal surveillance: introduce balconies and windows overlooking open spaces and streets.
BF 10.2	Open space: Shared open spaces for various activities in courtyards, backyards, and setback areas to foster green, liveable environments.
BF 9	Parking: Utilize the interior unbuilt space within the block, level changes, stilt and ground floors in buildings, address parking requirements through communal surface parking, podium, or dedicated parking structures.



LU—Clustering of Uses

LU1 Forming Mixed Use Clusters

To create varied and differentiated clusters of mixed use and more intensive areas of activity that align with the Centres Hierarchy defined within the TSP2023. To further define the appropriate placemaking approach to forming urban and rural centre types across the city.

LU1.1 Forming mixed use clusters

LU1.1.1 Locations and activities within mixed use clusters

The location of Comprehensive Developments and individual buildings containing a mixture of uses and community facilities ***must*** support the delivery of a range of accessible Centre types in the locations defined by the TSP2023 Policy US1, US2, CF1 and CF2.

Within these Centre designations, a range of appropriate land uses and community facilities ***must*** be clustered together to form places of greater intensity that form a distinct contrast with other areas of more homogeneous land use.

The range of uses and community facilities that ***should*** be provided in each Centre type relate to the Centres Hierarchy concept, and is described in TSP2023 Policy CF1.

Some of these uses and facilities may already exist in the local area. The Local Area Plan ***must*** review and confirm existing facilities and identify any current deficiency. The specific land use mix and community facilities for a Centre ***should*** be developed in partnership with relevant government organisations and the local community.

Explanatory text

The TSP 2023 allocates Mixed Use land use zones appropriate for economic, residential, cultural and community activities (see TSP 2023 Policy US1). These Mixed Use zones are further classified to form a Centres Hierarchy - a range of highly accessible Centre types of different scale, that serve the full range of communities across the city. The range of uses that are permissible in these Mixed Use zones/Centre types ensure that activity is concentrated, supporting the viability of public transport, local shops, services and local businesses.

The Design Code provides requirements and guidance on the placemaking approach that should be followed in Mixed Use Land use zones to ensure the creation of vibrant and pedestrian-oriented mixed use clusters. The code demonstrates how different uses can be co-located efficiently to deliver facilities adjacent to others, reduce land take and improve cost effectiveness (see TSP 2023 Policy CF1 and CF2).

Refer to TSP 2023 Policies US1, US2 CF1 and CF2

LU1.2 Placemaking approaches

Placemaking Approaches	Urban Mixed Use Clusters	Rural Mixed Use Clusters
Developments and buildings containing mixed uses ***should*** be concentrated and arranged over a series of adjacent urban blocks, within a walkable distance of generally no more than 10 minutes.	●	
Developments and buildings containing mixed uses ***should*** be concentrated and arranged over a series of adjacent development plots, within a walkable distance of generally no more than 5 minutes.	●	●
Greater intensity and mix of uses within the mixed use cluster ***should*** be positioned in closest proximity to public transport stops.	●	●
Ground floor activities and active frontages ***should*** be located to overlook and address any principal public realm within the mixed use cluster and/or be located where key pedestrian routes and public transport routes converge. (See BF 7.2 and Definitions chapter).	●	●
Within a mixed use cluster the placemaking approach ***should*** prioritise pedestrian movement and public transport accessibility. (See US1.1.3, ST1.1.1)	●	●
Urban blocks within and adjacent to mixed use clusters ***should*** be configured to promote increased pedestrian permeability from surrounding areas.	●	
In larger mixed use clusters, a finer urban grain, with a more closely spaced and interconnected network of streets and lanes ***should*** be promoted to enhance permeability and provide a choice of routes and experiences. (See US1.1).	●	
Mixed use clusters ***must*** be closely associated with residential uses to ensure a high level of activity and foot-fall to local shops, services and businesses. (See BF2 and TSP 2023, Policy US2)	●	●
Uses that generate a greater amount of foot-fall (e.g. outdoor markets and market buildings) ***should*** be prominently positioned on principal public realm where access on foot or by public transport is convenient, safe and legible.	●	●
Community facilities such as schools and markets ***should*** have a distinctive architecture to distinguish these as building landmarks.	●	●
Servicing, light industrial and other 'back of house' uses such as waste hubs ***should*** be avoided on principal pedestrian routes and public spaces.	●	●
Ground floor uses that occupy larger floor plates ***should*** be fronted by other smaller uses to avoid creating blank walls and to maintain an interesting pedestrian experience. (see LU 2.1.1)	●	

Refer to TSP 2023 Policies US1, US2, CF1 and CF2

LU1.3 Community facilities

Community Facilities	Urban Mixed Use Clusters	Rural Mixed Use Clusters
The provision of community facilities (whether already existing or newly provided) ***must*** align with TSP 2023 Policy CF1 and ***should*** be located within 5 minute walk of public transport stops.	●	●
Community facilities that occupy large land areas (e.g. hospitals, major enclosed parks and recreation facilities, larger school/education campuses, etc), ***should*** be located closer the edge of mixed use clusters, to avoid forming barriers to pedestrian movement or inactive edges to streets.	●	●

LU1.4 Public realm design in mixed use clusters

Public Realm Design	Urban Mixed Use Clusters	Rural Mixed Use Clusters
The design of public realm within a mixed use cluster ***should*** prioritise pedestrian movement and employ elements within the street design that reduce vehicle speeds within the spaces with greatest pedestrian activity and foot-fall. (See ST 2.4.1).	●	●

Best Practice ● *A unified surface treatment incorporating the carriageway and footways can be used to help delineate a focal public place for a mixed use cluster (e.g. a neighbourhood plaza, a 'high street' or rural 'village green').*

Refer to TSP 2023 Policy CF1 and ST 2.4.1

LU1.5 Parking, access and servicing

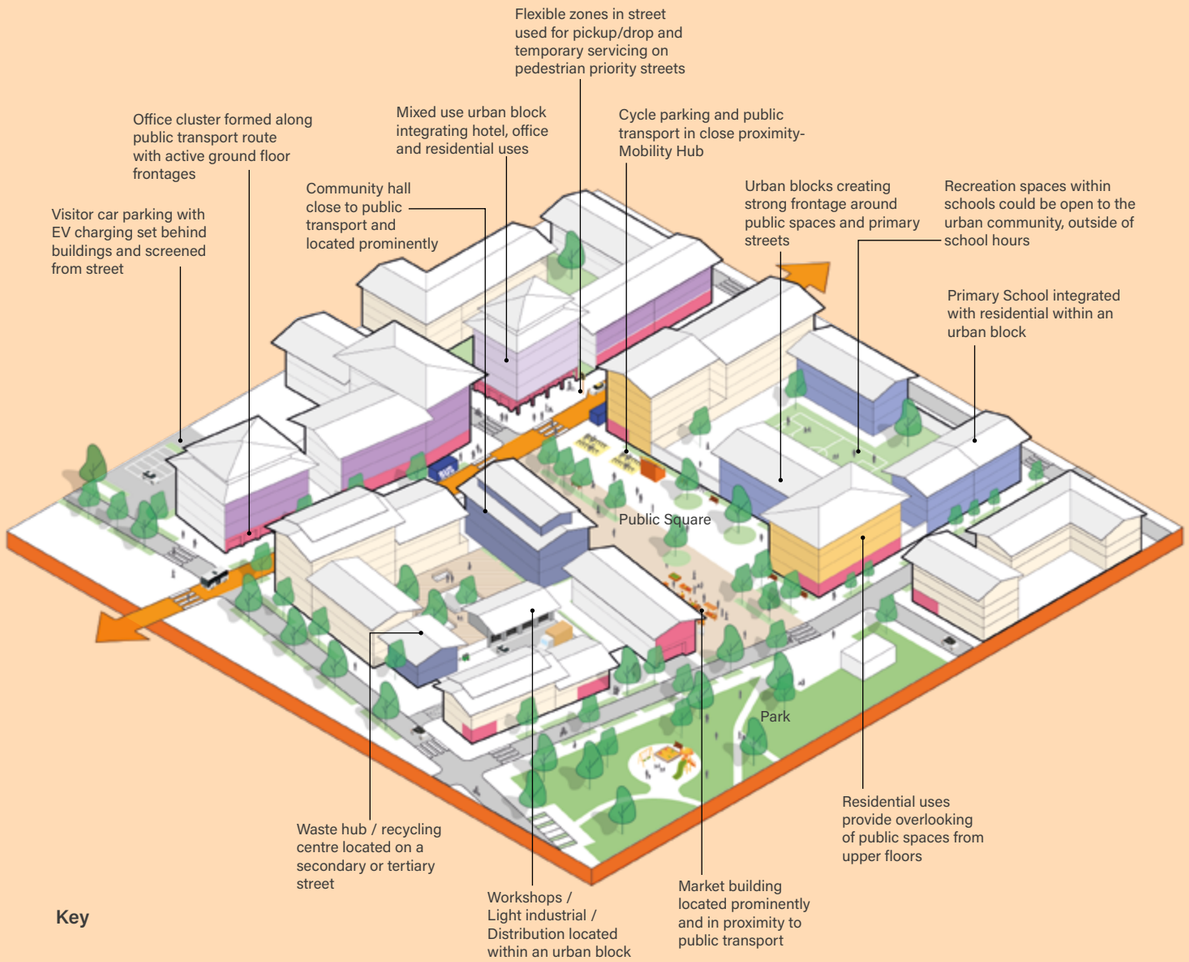
Parking, Access and Servicing	Urban Mixed Use Clusters	Rural Mixed Use Clusters
Vehicular access for servicing and parking ***should*** be separated from primary pedestrian movement and places of high pedestrian activity, and ***should*** be located along service or tertiary streets where possible.	●	
Service functions ***should*** be located where they can be screened from view along streets and public spaces (e.g. located at the backs of buildings or within basements).	●	●
Timed access for servicing in areas and/or spaces with high pedestrian activity ***should*** be considered.	●	
The Flexible Zone can be deployed within street designs to provide vehicular pick-up/drop-off places and temporary/timed on-street servicing to non-residential uses. (See ST 3.2)	●	●
Multi-storey parking structures or parking in basements ***should*** be employed in mixed use clusters to consolidate public/visitor and employee parking provision generated by mixed uses and employment uses. Surface parking ***should*** be avoided. (See Table in BF 9 for Parking Requirements).	●	
Parking ***must not*** be located within the front setbacks of buildings addressing pedestrian spaces or places of high pedestrian activity.	●	●
Parking provision to support mixed use clusters in rural areas ***should*** be consolidated on surface parking courts. Parking ***should not*** be located within setbacks. For guidance on designing surface parking see BF9.6.3.		●
Servicing for large floor-plate uses (e.g.. markets, large floor-plate office) ***should*** be consolidated on-plot to avoid impacting negatively the adjacent public realm.	●	●
Vehicular access along active, pedestrianised spaces that are focal points for mixed use and workplace clusters ***should*** be avoided or time-restricted.	●	●
Mobility hubs ***should*** be conveniently located within principle streets or spaces of a mixed use cluster, to facilitate transit between modes of transport. TSP2023 indicates the location of each type of mobility hub and their components (see TSP 2023 Policy T2). Further guidance on the design of mobility hubs can be found in the LETMP Section 4.8.	●	●

Refer to TSP 2023 Policy T2 and LETMP Section 4.8, US2, CF1 and BF9 codes

Demonstration 7

The following illustration provides a demonstration of a mixed use cluster in an Urban and Suburban Area Type that complies with the guidance in this and other chapters.

An Urban Mixed Use Cluster



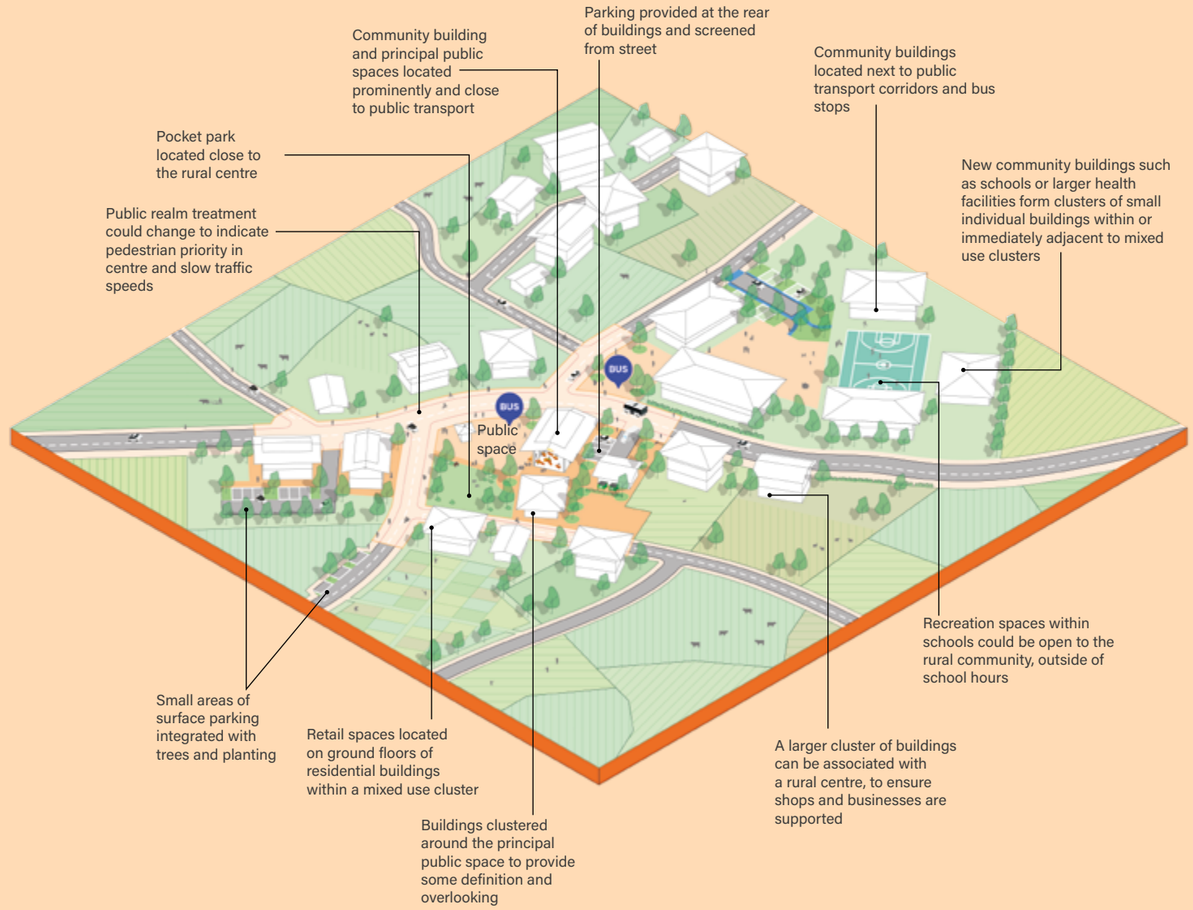
Key

- Residential Urban
- Community Facilities
- Education
- Mixed-Use
- Workplace
- Hospitality
- Industry

Urban Mixed Use Cluster

The following illustration provides a demonstration of a mixed use cluster within a Rural Area Type that complies with the guidance in this and other chapters.

A Rural Mixed Use Cluster



Rural Mixed Use Cluster

LU2 Integrating uses

To ensure that different land uses are successfully located and integrated with each other within mixed use clusters or within buildings.

LU2.1 Integrating uses

LU2.1.1 Co-locating uses

The co-location of uses ***must*** complement each other without causing nuisances. Access arrangements, noise generation and safety issues ***must*** be satisfactorily addressed.

Different uses ***should*** be co-located within a building or and urban block to create vitality and compact development.

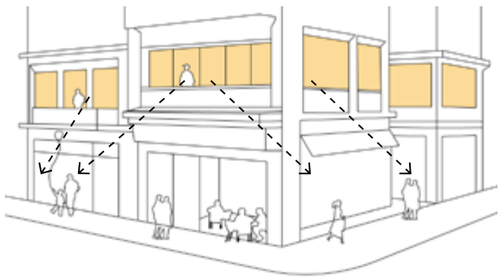
Compatible uses ***should*** be located facing each other across a street. (Noise and safety could be an issue where incompatible uses are adjacent to each other, such as industrial and residential uses.)

The most active uses such as shops, cafés, entrance lobbies and community facilities ***should*** be placed at ground floor, overlooking and accessed from the public realm.

In mixed use clusters, residential ***should*** be included above non-residential uses to ensure overlooking and surveillance throughout the day and evening.

Compact development and co-location of uses

Compatible uses facing each other across a street



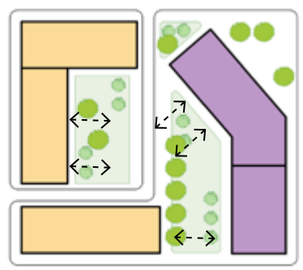
Residential uses providing overlooking of streets

Refer to TSP 2023 Policy CF2

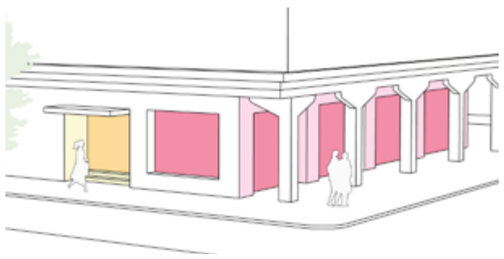
LU2.1.2 Integration with residential uses

Where non-residential uses are co-located with residential use, the building design and block layout ***should*** employ strategies that minimise disturbances (noise, light, odour) and intrusion, while maximising privacy for residential uses. Strategies ***should*** implement one or more of the following:

- Encourage non-residential uses that are compatible with residential living and don't generate excessive traffic or noise, such as local services, shops or local businesses;
- Where necessary, implement construction standards that mitigate noise transfer between residential and non-residential uses. This might include soundproofing, building orientation, and layout design to reduce disturbances;
- Maintain privacy for residential units by ensuring minimum distance between windows overlooking other uses (see BF 1.3. and BF 6.5.);
- Orient buildings in a way that minimises direct sightlines between residential and non-residential uses;
- Provide clear and legible pedestrian access for each use separately. For example, ensure that entrances to ground-floor shops are visually distinctive from residential entryways;
- Locate servicing areas to minimise disruption to residential units. Where possible, take advantage of sites with access from multiple sides to separate vehicular access from pedestrian movement;
- Restrict servicing access times where appropriate;
- Use ancillary uses (such as car parking or cycle storage) to provide a buffer between residential and non-residential uses;
- Clearly delineate between public and private space, and provide clear separation of spaces for controlled accesses. For example, by separating elevators or common areas that can be accessed by residents and non-residents;
- Implement construction standards that mitigate noise transfer between residential and non-residential uses. This might include soundproofing, building orientation, and layout design to reduce disturbances.



Minimise direct sightlines between residential and non-residential uses



Provide visually differentiated entrances to each use

LU3 Block Types and Forms

To demonstrate how urban blocks formed of different uses can contribute to the built form and townscape of an area. To ensure that residential and non-residential buildings can be integrated within urban areas while still accommodating their specific function.

LU3.1 Non-residential typologies

LU3.1.1 Social infrastructure (education and community facilities)

Buildings containing social infrastructure uses ***should*** contribute to creating a legible urban structure and a cohesive street character. These typologies ***should*** have architectural features that contribute a positive civic presence within a neighbourhood, that mark them as important buildings for the community. See Definitions chapter.

The building typologies used can vary from the code to cater to specific use requirements, but they ***should*** follow the guidelines below (A, B, C).

A. Building Layout, Massing and Scale:

Buildings ***should*** :

- be located to define and form strong edges to adjacent streets and public spaces and contribute to forming coherent urban blocks;
- form a pleasing and functional internal and external environment;
- be located to maximise natural light and ventilation into internal and external spaces;
- be planned internally to be as compact as possible, achieve an efficient use of land.

Building heights ***should*** respond to the Area Type maximum height requirements, but ***must*** be a function of the requirements of the facility. The depth of buildings ***should not*** exceed 18m.

In Rural Area Types social infrastructure facilities ***must*** form clusters of small footprint buildings. The footprint of each building forming the facility ***must*** be a maximum of 350 sqm, unless as a specific use requires a greater footprint to function, e.g. a sports hall. Heights of buildings ***must*** be a maximum of 2 storeys.

B. Pedestrian Access and Circulation:

Main pedestrian entrances ***should*** be located on the most primary adjacent public space or street (according to street hierarchy), and be located as close as possible to public transport stops. Main pedestrian entrances ***should*** be clearly visible to any passing vehicular traffic to ensure safety of pedestrians leaving and entering buildings.

Buildings (or parts of buildings) where main pedestrian entrances are located ***should*** be set-back from the plot line to form a more generous space between entrance and roadway to allow for the circulation of larger numbers of people.

Refer to BF XX, Definitions chapter

Interior and exterior circulation spaces within plots ***should*** be generous and inviting. Exterior circulation spaces ***must*** be accessible to all and follow the 'Bhutan Guideline for Differently Abled Friendly Construction.

Best Practice

Ramps and stairs can be designed as social spaces that encourage people to be more physically active, while also promoting increased social interaction and engagement.

C. Parking and Servicing:

Vehicular access points for servicing and parking ***should*** be separated from primary streets, public transport corridors and pedestrian movement routes, to ensure safe walking environments.

In City Core, Major Employment, Urban I and II Area Types where car parking provision is required, parking ***should*** be provided in-structure of buildings or within underground parking.

In Suburban I, II and III and Rural Area Types surface parking ***should*** be employed. Where surface car parking is provided, refer to BF 9.6.3.

Service functions ***should*** be located where they can be screened from streets and public spaces (e.g. at the backs of buildings or within basements). Drop-off zones for occasional servicing ***should*** be located away from main intersections and busier streets.

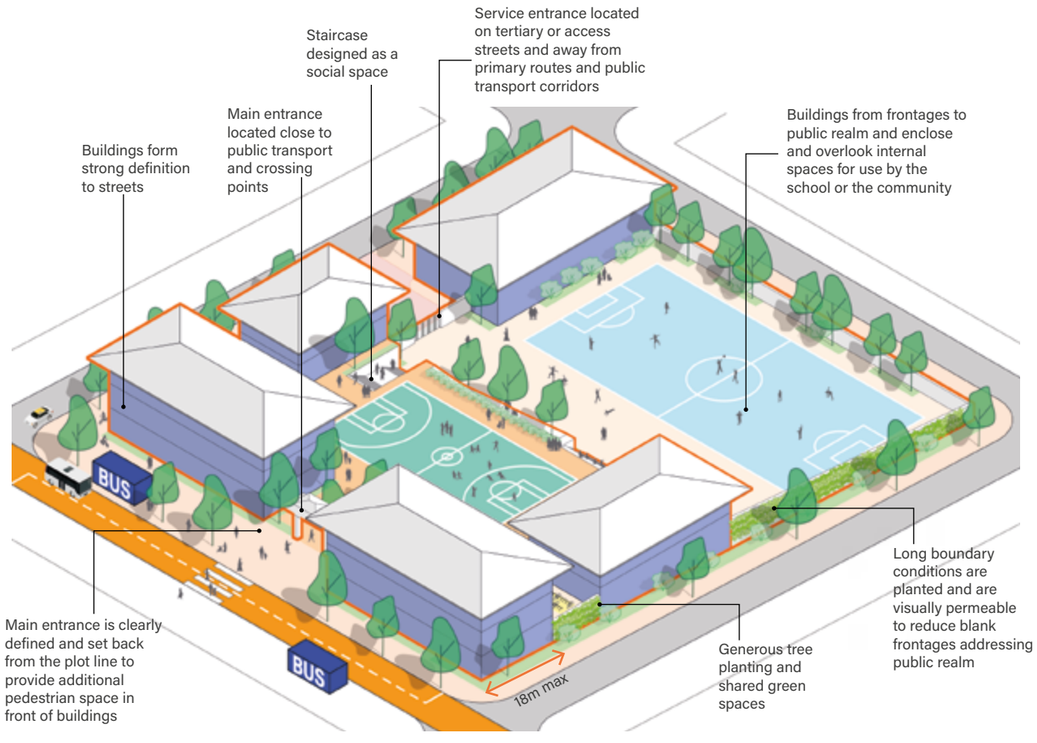


Illustration of a block typology for social infrastructure (education and community facilities)

LU3.1.2

Employment (government, workplace and healthcare)

Buildings containing Employment uses ***should*** contribute to creating a legible urban structure and a cohesive street character. (See Definitions chapter for definition of uses under Employment).

These building typologies used can vary from the code to cater to specific use requirements, but they ***should*** follow the guidelines below (A, B, C).

A. Building Layout, Massing and Scale:

Buildings ***should*** :

- be located to define and form strong edges to adjacent streets and public spaces and contribute to forming coherent urban blocks;
- be located to maximise natural light and ventilation into internal and external spaces;
- be planned internally to be as compact as possible, achieve an efficient use of land

Building heights ***should*** respond to the Area Type maximum height requirements, but ***must*** be a function of the requirements of the facility. (see BF 1.1).

Floor plan designs ***should*** consider modular and adaptable spaces that can accommodate changing employment layouts and work styles.

In Rural Area Types any stand-alone employment facilities ***must*** form clusters of small footprint buildings. The footprint of each building forming the facility ***must*** be a maximum of 350 sqm, unless as a specific use requires a greater footprint to function, e.g. a sports hall. Heights of buildings ***must*** be a maximum of 2 storeys.

The depth of buildings ***should not*** exceed 18m.

B. Pedestrian Access and Circulation:

Main pedestrian entrances ***should*** be located on the most primary adjacent public space or street (according to street hierarchy), and be located as close as possible to public transport stops.

Any ground level active uses, including main entrances and lobby spaces, ***should*** be located to activate the most primary adjacent street.

Interior circulation spaces ***should*** be designed for greater efficiency, for example by adopting centralised cores that provide elevators, stairwells and utility spaces.

Stairwells ***should*** be well-lit by daylight and well-lit artificially during evenings and ventilated.

In larger developments, separate service cores ***should*** be provided.

Spaces ***must*** be accessible to all and follow the 'Bhutan Guideline for Differently Abled Friendly Construction.'

C. Parking and Servicing:

Vehicular access points for servicing and parking ***should*** be separated from pedestrian movement routes and located along service or tertiary streets.

Parking for different buildings and occupiers ***should*** be consolidated into a single space or structure to ensure efficient use of land and a coherent urban structure. Parking ***should not*** be located within building front setbacks. (See also BF 1.2 and BF 6.4.1).

In City Core, Major Employment Areas, Urban I and II Area Types parking for multiple buildings and users ***should*** be consolidated into shared multi-storey parking structures or underground parking. Surface parking ***should*** be avoided.

For Suburban I, II and III and Rural Area Types parking ***should*** be located in-structure of buildings. Where surface car parking is provided, refer to BF 9.6.3.

Service functions ***should*** be located where they can be screened from streets and public spaces (e.g. at the backs of buildings or within basements). Drop-off zones for occasional servicing ***should*** be located away from main intersections and busier streets.

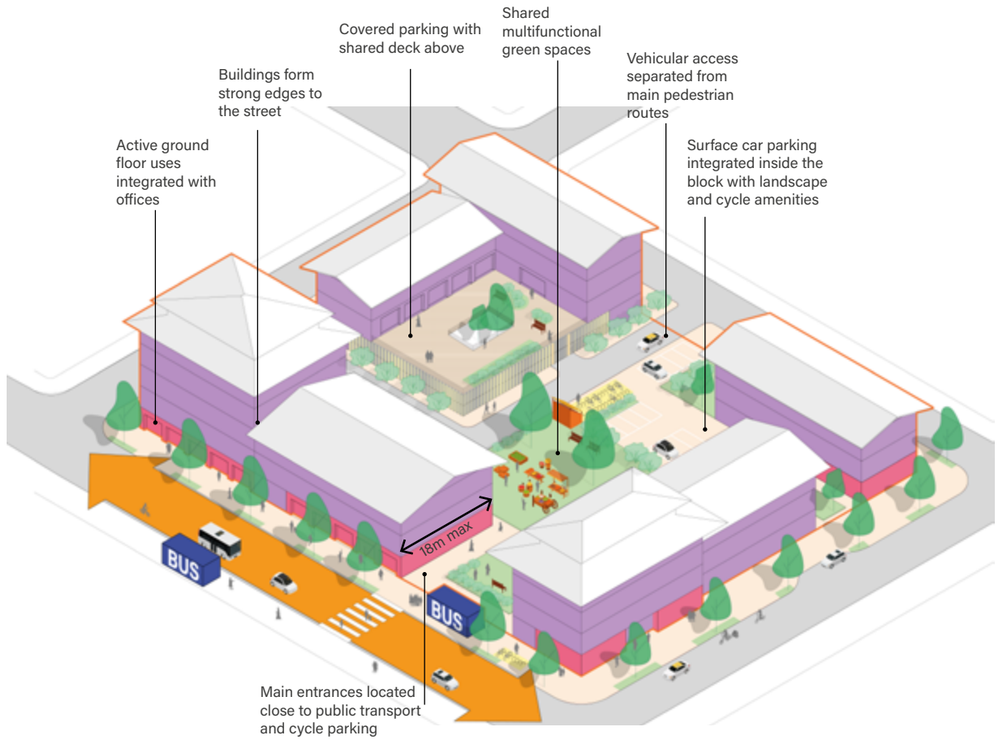


Illustration of a block typology for employment (government, workplace and healthcare)

LU3.2 Residential typologies

LU3.2.1 Integrating different housing typologies

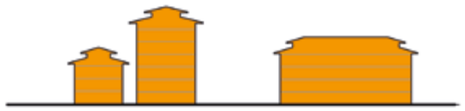
A range of housing types ***must*** be positively integrated within a Comprehensive Development to contribute to creating a legible urban structure and a cohesive street character.

Developments ***should*** follow the guidelines below (A, B, C, D, E, F).

A. Varied Massing and Scale:

The height and scale of buildings ***should*** be varied to create visual interest and avoid a monotonous townscape.

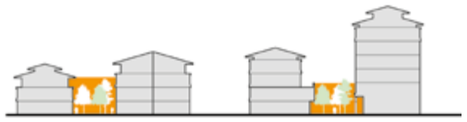
Taller apartment buildings ***should*** be located near public transport stops or within mixed use clusters and a gradual height transition ***should*** be formed to any adjacent to lower-scale buildings.



Varied massing and scale

B. Transitional Zones:

Transitional zones between housing types ***should*** be provided to create a gradual shift in density and scale.



A gradual transition in heights

C. Architectural Compatibility:

Architectural elements and materials in neighbouring housing types ***should*** be complementary.

Neighbouring apartment buildings and houses ***should*** share common design elements like roof lines, facade treatments, or materials to create a harmonious transition between housing types and a consistency along a street.

Contrasting materials between neighbours ***should*** be avoided.

Architectural compatibility

D. Open Space and Amenities:

Shared open spaces for groups of residents, or recreational facilities that are accessible to all residents ***should*** be provided. These ***should*** be located within the centre of blocks, wrapped by development.

E. Integrated Parking:

Shared and consolidated parking solutions ***should*** be provided to optimize land use and reduce the dominance of parking on the streetscape, particularly in higher density areas.

Best Practice

Shared multi-storey car parks or shared parking courts can provide parking for both houses and apartment buildings to ensure more efficient use of land and provide land for alternatives such as landscape and shared spaces.

F. Residential Entrances:

Clear and distinct entry points for each type of residence ***should*** be provided. Entrances ***should*** address the street to ensure activity and provide increased safety. Elements that create visual barriers and uninviting spaces to residential entrances ***should*** be avoided, such as forecourt parking, excessive fencing, high walls and dense landscaping.

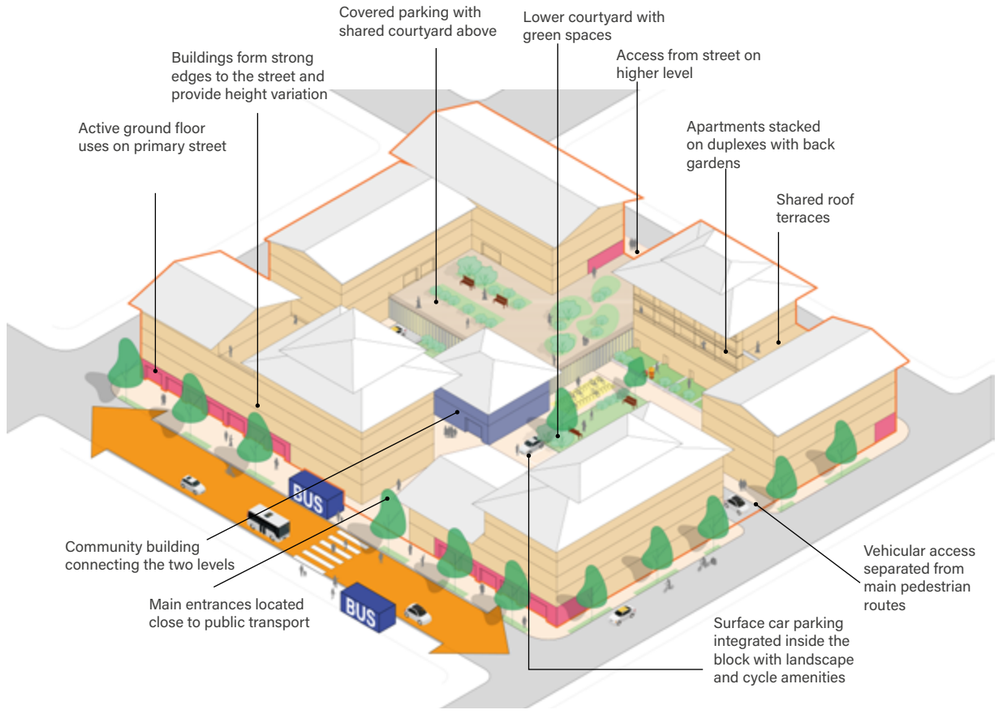


Illustration of a block typology for residential and integrating different typologies

Public Realm

This chapter provides requirements and guidelines for creating attractive and multi-functional streets, open spaces and public realm across the city. These codes aim to ensure nature is brought through the city and bio-diversity is maintained and improved.

These codes apply to new and retro-fitted public realm and open space proposals across the city.

NE Natural Environment

LO Landscape & Public Spaces

ST Streets

ID Public Realm Identity

Who must read this section:

- Public authorities, developers and architects/designers engaged in the design of Comprehensive Developments and public realm and open space proposals.

NE—Natural Environment

NE1 Health and Wellbeing

To create public spaces that foster health and wellbeing in the community through delivering a clean environment, inclusive design, promoting physical activity, mental rejuvenation and social interaction.

NE1.1 Sociability and conviviality

NE1.1.1 Social interaction

The public realm ***should*** be active and encourage social interaction, multi-purpose and provide amenity value. The public realm ***should*** create opportunities for different activities to generate healthy and strong communities. Interventions ***should*** prioritise the protection of sensitive and valuable habitats, balancing social and ecological needs.

The public realm ***should*** provide opportunities to promote environmental stewardship among the local community, workers and visitors to the city by raising awareness of environmental initiatives incorporated into the city. The public realm ***should*** provide open spaces to encourage physical activity, walking, cycling, recreation and participation in community life.

Social spaces for both formal and informal gathering should be encouraged

NE1.1.2 Interaction with nature

The public realm ***should*** promote the strong relationship between quality of life and access to nature. Educational opportunities ***should*** be considered through interpretation, wayfinding and signage.

New and improved connections to natural landscapes beyond the city limits ***should*** be delivered to provide better access to nature.

Interpretation at the Royal Botanical Gardens

NE1.2 Play and recreation

NE1.2.1 Child friendly public realm

Design of the public realm ***should*** encourage spontaneous play and activity, and ***should*** promote the interaction between children and water, biodiversity and nature.

Play for very young children ***should*** be predominantly focused close to the residential neighbourhoods, to enable easy access for parents and their children.

Formal play provision ***should*** be located in areas of public open space.

Seating ***should*** be incorporated to allow for adult supervision.

Existing playground in Thimphu

NE1.2.2 Location and accessibility

Play spaces ***should*** be well connected with the wider built environment, near pedestrian cycling and bus routes, and adjacent to well used building or homes to allow for informal supervision. They ***should not*** be isolated by large expanses of open space.

Play areas which cater to different age groups, as set out below, ***should*** be adjacent to one another where possible.

NE1.2.3 Doorstep playable space (under 5 years)

Doorstep playable spaces ***should*** be located within 100m of all residential units, and be a minimum of 100 sqm.

They ***should*** be within a landscaped space that includes engaging play features for young children under 5, and places for carers to sit and talk.

A combination of formal equipment and informal playable features ***should*** be provided to stimulate and encourage more inventive play.

Mayfield Park, Manchester

NE1.2.4 Local and neighbourhood play (5-11 years)

Local and neighbourhood play spaces ***should*** be located within 400m of all residential units, and be a minimum of 500 sqm.

Play ***should*** be within varied natural spaces with both secluded and open areas, landscaping and equipment so that children aged up to 11 years can play and be physically active, and their carers can sit and talk within close proximity.

Facilities for young people 11+years could be integrated within these areas to allow families with different ages to participate (refer to NE1.2.4).

Claremont Park, London

NE1.2.5 Youth play (12+ years)

Play spaces for teenage children 12+ ***should*** be located within 800m of all residential units and be a minimum of 200 sqm.

Youth play areas ***should*** create social spaces for young people aged 12 and over to meet and take part in informal sport or physical recreation activities.

Al Fay Park, Abu Dhabi

NE1.2.6 Inclusion

All children ***should*** be able to access equipment and play opportunities that are exciting, fun and offer varying levels of challenge.

Sensory experiences ***should*** be incorporated where possible.

Play spaces and routes to play spaces ***should*** be accessible to, and usable by, differently-abled children and parents.

The inclusion of recognisable physical boundaries ***should*** be considered, as they can be beneficial for children with disabilities and neuro-diverse conditions.

Olympic Park, London

NE1.2.7 Access to nature

Access to nature is an important contributor to the health and development of children. Access to new and existing natural spaces ***should*** be prioritised.

Informal, natural play ***should*** be incorporated where possible, whilst ensuring that the delivery of play elements within sensitive areas is balanced with ecological requirements.

Providing access to nature

NE1.2.8 Safety and security

Spaces ***should*** include a degree of challenge and allow for managed opportunities to take risks.

Risk assessments ***should*** consider the risk-benefits between safety and other objectives.

Routes connecting play spaces with communities ***should*** be legible, well connected and accessible.

Shade ***should*** be incorporated to provide refuge from the heat. This could be in the form of tree canopies and shading structures. Water fountains ***should*** be provided.

A sense of enclosure ***should*** be ensured to provide a comfortable and safe space.

Shoreditch Park, London

NE1.2.9 School facilities

School facilities and playing fields ***should*** provide an important contribution for a range of community activities, such as pre or after school cultural, sporting or recreational activities.

Where possible, these ***should*** be accessible beyond school hours and on weekends, helping to reduce any deficiencies in play provision and providing greater choice for play activities within each neighbourhood.

Loselling Middle Secondary School

NE1.2.10

Sport areas and recreation

Green open spaces could provide areas for sports and recreation. The buildings and the public realm ***should*** work together to provide a variety of uses and spaces where people can interact and use the public realm in a variety of ways.

6 acres (2.4ha) of recreational space ***should*** be ensured per 1000 head of population.

The public realm ***should*** be active and multi-purpose to provide spaces for different types of sporting activities.

Orientation of pitches ***should*** be determined by sun path to ensure comfortable playing conditions.

Types of sport and activity ***should*** be defined by a needs analysis to identify deficits within neighbourhoods and the city more broadly.

Sports environments ***should*** be multifunctional and consider seasonal variation in use. These spaces ***should*** also be considered for use as areas for flood management.

Existing sports facilities in Thimphu

Example of multi-purpose sports area. Box Hill Gardens, Melbourne

NE1.3 Safety and security

NE1.3.1

Movement

The public realm ***should*** incorporate safe, well-defined routes, spaces and entrances that provide for convenient movement without compromising security. Design ***should*** consider the needs of all people, including the elderly and differently-abled individuals.

Where footpaths are required, these ***should*** be straight and wide as possible, avoiding potential hiding places, and overlooked by buildings.

Delivering pedestrian crossings at street level ***should*** be prioritised to avoid the creation of intimidating spaces associated with bridges and underpasses, contributing to improved perceptions of safety and security.

Where underpasses are unavoidable, dimensions ***should*** be defined to meet the capacity of pedestrian demand, as per design requirement or standard, and enable direct line of sight to exit where possible.

Different modes of transport ***should*** be delineated appropriately so that different uses do not cause conflict.

Tree canopies ***should*** be a minimum of 2m from ground level, with low level planting a maximum of 1m in height to ensure clear visibility.

NE1.3.2

Informal surveillance

Places that could be vulnerable to crime ***should*** be overlooked by buildings or uses that are busy at all times.

Open spaces ***should*** be designed to encourage activity and social interaction through different times of day.

Windows and doors ***should*** face the street to create active frontages, reducing the number of blank walls.

NE1.3.3

Lighting

Well lit spaces ***should*** be prioritised to make places more 'liveable' and improve perceptions of safety and security.

Public spaces ***should*** ensure adequate lighting.

The design of lighting and the placement of fixtures and columns ***should*** be robust and secure.

NE1.4 Accessibility and inclusivity

NE1.4.1

Designing inclusive and accessible public realm

Movement through the public realm ***should*** be easy, pleasurable and intuitive for everyone.

Streets and spaces ***should*** be designed to be inclusive.

Falls ***must*** be designed to prevent any standing water.

The design of the public realm ***must*** promote a safe and accessible environment for all members of the community and visitors, where everyone can participate equally and independently in everyday activities.

The public realm ***should*** be designed to cater to people of all ages.

Key pedestrian routes and access points ***must*** be designed to accessible standards, with minimum 1:60 gradients to building entrances and 1:40 maximum cross-fall to footways. Ramps ***must*** have the lowest practical gradients within a range of 1:12 and 1:20, with a landing every 0.5m in elevation.

NE1.5 Microclimate

NE1.5.1 Sunlight, shade and wind

In built-up areas or where significant extents of hard landscape surfaces exist, the incorporation of green areas and tree planting ***should*** be considered to control and mitigate the urban heat island effect.

Orientation, arrangement and massing of buildings adjacent to streets and public spaces ***should*** be designed to minimise wind funnelling and canyoning, providing thermal comfort to users.

Shade ***should*** be created for the public realm in a variety of ways, including the following:

- Architectural design: shade structures associated with buildings or the orientation, massing and layout of buildings and streets.
- Tree planting: especially where trees can be planted on grids or closely spaces in areas requiring shade to create closed canopy cover.
- Shade structures: a contemporary family of structures ***should*** be developed to provide a range of functions, including shading and seating.

Shade structure in Dangrena Park

NE2 Ecology and Biodiversity

To protect, enhance and connect existing habitats to improve biodiversity through the city.

NE2.1 Protection and enhancement of biodiversity

NE2.1.1 Protection of existing trees

Existing mature trees (+20 years old) within development sites, existing streets and open spaces ***must*** be identified through an arboricultural survey and protected where possible. The survey ***must*** be undertaken by a tree specialist to identify and evaluate the condition, health, structure and risks associated with existing trees.

In any case that a mature tree has to be removed, two new trees of a suitable species ***must*** be planted elsewhere within the site, vicinity or neighbourhood. Any trees below 20 year maturity ***must*** be replaced with one new tree. See code ID1.3.4.

All existing mature trees located within new parkland ***must*** be protected.

New developments ***must*** maintain an appropriate distance of no less than 5m between buildings and mature trees to minimise potential damage to the tree's root system and canopy. The specific distance ***must*** be provided by a qualified arborist or tree specialist.

For single stem trees, the root protection area ***should*** be calculated as an area equivalent to a circle with a radius 12 times the stem diameter. Built structures ***should*** be located outside the root protection area.

Mature willow tree within the City Core

Existing mature trees at Pangri Zampra Monastery

NE2.1.2 Protection of existing water related habitats

Existing rivers, tributaries and streams ***must*** be protected and enhanced.

Adjacent riparian habitats within the Flood and buffer zone extents as set out in the TSP 2023 ***must*** be retained and enhanced.

Improvements ***should*** aim to protect or enhance biodiversity and help to slow stormwater runoff and improve water quality through filtration.

Existing riparian habitats adjacent to the Wang Chhu

NE2.1.3 Protection of existing natural habitats

A city-wide audit, assigning value to different habitats across Thimphu, ***must*** be undertaken. This ***must*** involve undertaking an ecological survey for all natural habitats to ensure comprehensive understanding of the existing biodiversity. The ecological survey ***must*** record species presence and abundance, habitat diversity, species distribution and ecological patterns. In areas of high biodiversity, development ***must*** be restricted and measures taken to protect and enhance what is there. Some managed access may be appropriate to support health and wellbeing objectives, and to allow people to engage with nature.

NE2.1.4 Establishing habitats

Within all open space typologies (refer to Section LO), opportunities to support existing natural systems and create new ecologically valuable habitats that are appropriate to the region ***should*** be prioritised.

Green open spaces ***should*** avoid monoculture planting and encourage the use of different species of trees, shrubs and ground-cover.

Species ***should*** be selected which positively provide and promote habitat, such as flowering species to support pollinators.

The public realm ***should*** promote the establishment of habitats for targeted or endangered species.

Ludrong Park

NE2.1.5 Enhancing biodiversity

An increase in biodiversity ***must*** be achieved as a result of all major construction projects and larger Comprehensive Developments, demonstrating improvements to habitat based on size, condition, distinctiveness and strategic significance. For developments on Small or Standard Plots an increase in biodiversity ***should*** be achieved where possible.

Beyond planting, other forms of hibernacula such as log piles ***should*** be incorporated to provide habitats for invertebrates. Interventions such as bug hotels can provide educational awareness and allow people to engage with nature.

An improvement in biodiversity ***should*** be achieved through on-site interventions where possible. Where this is not possible off-site interventions, in opportunity areas near the site identified through the city wide audit (refer to NE2.1.3), may be considered.

Where an increase in biodiversiy is required:

- a baseline ecological assessment (refer to code NE2.1.3) ***must*** be conducted to ensure comprehensive understanding of the existing biodiversity on the site, including an evaluation of types of species, ecosystems, and habitats present.
- A development impact assessment ***must*** be undertaken. This includes an evaluation of any habitat loss, fragmentation, and changes in environmental conditions as a result of proposed developments.
- Measures to offset the biodiversity loss caused by the development ***must*** be implemented to ensure a positive outcome. This includes creating new habitats, restoring degraded ecosystems, or enhancing existing green spaces.

Valley Park in Babena

Existing mature trees at Kaja Throm

NE3 Resilience

To embed resilience into the design and planning of the city by developing strategies for flood, air quality, and seismic hazards and risk.

NE3.1 Flood resilience

NE3.1.1 Landscape strategies for flood resilience

Flood resilience strategies ***should*** include interventions along river corridors, in the upper catchments and across the urban environment to help manage runoff flows, provide attenuation capacity and mitigate flood risk.

Flood mapping ***must*** be undertaken across the City to identify areas prone to flooding, classifying hazard levels based on factors such as flood depth, velocity, duration and frequency of occurrence.

Floodplain Preservation:
Natural buffers along river corridors and within the flood risk zone ***must*** be protected. Parks and public spaces within these zones ***must*** be designed to be resilient to flooding and incorporate strategies to accommodate flooding. Flood resilience in parks ***should*** focus on ensuring the space can accommodate a flood in a controlled manner and strategies could include enhancement of riparian habitats, changes to levels to provide space for additional attenuation volumes.

Other areas susceptible to flooding ***should*** be promoted as natural buffers for flood-water storage and conveyance.

Drainage Design:
The landscape ***must*** be designed to avoid ponding. SuDS and permeable materials ***should*** be incorporated in urban areas to manage runoff flows.

Wang Chhu Corridor - By maintaining the natural edge/ buffer of the river it is possible to mitigate the impact in the immediate surroundings.

Temporary Flood Storage Areas:
Open spaces could be designated to function as temporary flood storage areas during flood events. These areas ***should*** be free of permanent structures and designed to minimize damage to landscaping and amenities.

Access:
Open spaces in flood prone areas ***must*** have safe and reliable access and egress routes for pedestrians and emergency vehicles during and after flood events. Primary pathways and bridges along emergency routes ***must*** be designed to maintain functionality during flood events.

Vegetation:
Landscaping features that can withstand periodic inundation and contribute to flood-water absorption ***should*** be prioritised, as well as native or adapted species that are resilient to flooding.

Avoid situations where slopes and soil material are conducive to temporary flooding.

NE3.1.2 Sustainable Urban Drainage Systems (SuDS)

Integration:
Streets and open spaces (and all new developments on plots larger than 607 sqm) ***must*** include measures to reduce and manage stormwater runoff through appropriate integration of SuDS to minimise and manage flooding, improve water quality, complement water efficiency, and enhance biodiversity, place shaping and amenity. For smaller development sites where large scale SuDS are not technically feasible, stormwater run-off ***should*** be managed on-plot in an appropriate manner (through the use of smaller features such as rain gardens, permeable paving areas and planted areas).

Stormwater Management:
SuDS features ***should*** be designed to promote groundwater infiltration where ground permeability and structural considerations allow. Where stormwater is discharged to surface water bodies, SuDS features ***must*** be designed to attenuate and treat stormwater, improving water quality before it is discharged into rivers, streams and water bodies. Developments ***must*** contribute to managing stormwater runoff at the source, reducing the risk of flooding and water pollution with further 'site' and 'regional' control measures on larger developments.

Vegetation that can withstand occasional temporary flooding ***should*** be considered across areas prone to flooding to help filter and clean runoff, improve amenity and enhance biodiversity.

Biodiversity:
SuDS ***should*** be planted with appropriate species to support habitat creation and improve ecological connectivity, where appropriate.

Tree trenches:
Where space allows, tree trenches (linear, interconnected below-ground structures) ***should*** be considered to support stormwater management and maximise soil volume for tree rooting systems.

Rain Gardens and Swales:
SuDS such as rain gardens and swales ***should*** be introduced along streets where appropriate. Vegetation in the channel slows runoff, allows sediments to filter out, and can help remove nutrients. These ***should*** be delivered as part of an interconnected drainage system to support the wider stormwater drainage strategy.

Permeable pavements:
Porous surface finishes ***should*** be prioritised across hard landscape areas to increase permeability and support management of runoff.

All car parking surfaces ***should*** be permeable.

Ponds, Detention Basins, Wetlands:
These SuDS features ***should*** be incorporated on larger Comprehensive Development sites in addition to 'source' and 'site' control measures.

Explanatory text

Sustainable Drainage Systems (SuDS) are a set of practices and techniques used in urban planning and development to manage rainwater and stormwater runoff in a more sustainable and environmentally friendly manner. Providing opportunities for increased amenity value and place making through the utilisation of a nature-based solutions to reduce flood risk and attenuate stormwater runoff. SuDS aim to mimic natural drainage processes, reducing the risk of flooding, improving water quality, and enhancing the overall resilience of urban areas (GreenBlue Urban)

Opportunity to incorporate SuDS

Opportunity for re-naturalisation of water corridors

Note: a detailed SuDS design manual should be developed which is directly applicable to Thimphu. This would include items like design rainfall events / materials, could include sections on ground conditions in different areas within Thimphu. See also the Water Services Masterplan.

NE3.2 Air quality

NE3.2.1 Air quality mitigation strategies

Consideration ***should*** be given to the selection of trees and shrubs for the control and absorption of airborne particles and gaseous pollutants for the most polluted areas.

Key pedestrian routes ***should*** be designed away from busy vehicular routes. Pedestrian-friendly design strategies, such as widened footways and traffic calming measures, ***should*** be implemented in area of high pedestrian footfall to help reduce the impact of vehicular emissions.

Natural Environment

LO—Landscape & Public Spaces

LO1 Green and Blue Infrastructure

To establish an interconnected network of green and blue open spaces and corridors. In the context of Thimphu, this includes the integrated network of open spaces, green corridors, cultural and ecological landscapes and the Wang Chhu Corridor as set out in the Thimphu Structure Plan 2023.

LO1.1 Overarching principles

LO1.1.1 Integrated Green and Blue network

Thimphu's network of green and blue infrastructure ***must*** be protected and enhanced. Green and blue infrastructure ***should*** be planned, designed and managed in an integrated way at the city scale in order to achieve multiple benefits. Refer to TSP 2023 for green infrastructure and open space framework.

LO1.1.2 Ecological connectivity

Thimphu's existing green and blue infrastructure ***should*** be protected, enhanced and celebrated. Provision of new green and blue open spaces and corridors ***should*** be planned, designed and managed in an integrated way at city and catchment scale. This ***must*** incorporate the Wang Chhu and wider network of tributaries and streams. Thimphu's green and blue corridors ***should*** provide and promote ecological connectivity within the city as well as its hinterland. Opportunities ***should*** be explored 1) within and between open spaces such as parks, gardens, nature reserves etc. and 2) alongside linear corridors such as transport, infrastructure, and river.

Native species ***should*** be promoted in public spaces and corridors to enhance biodiversity and ecosystem and climate resilience (refer to ID2.3 for planting strategy).

LO1.1.3 Multi-functionality

The green and blue infrastructure network ***must*** be planned and designed to be multi-functional and act as high performing piece of infrastructure for the city that supports recreation, resilience and disaster risk reduction functions. This includes stormwater attenuation, air quality improvements, urban cooling, landslide mitigation.

Educational elements such as interpretative signage and nature trails ***should*** be incorporated to raise awareness about environmental conservation and sustainable living practices.

LO2 Open Space Types

To establish a hierarchy of multifunctional open spaces across Thimphu that contribute to the wider green infrastructure network, support the health and wellbeing of Thimphu's communities and provide public amenity for people of all ages.

LO2.1 Open space strategies

LO2.1.1 Space provision

Open space provision ***must*** follow guidelines as set out in the TSP 2023 (Table 10.2). Note that this document provides design codes for additional typologies of open space not referenced in the TSP 2023 framework. These include City Squares, Local Squares and Private Green Spaces, which ***should*** be defined spatially in Local Area Plans.

Local Area Plans ***must*** undertake a needs assessment to identify areas of public open space deficiency. Assessments ***should*** take into account the quality, quantity and accessibility of all typologies of open space, including open space that is not publicly accessible, to inform local plan policies and designations.

The function of open spaces ***must*** be related to deficiency of local amenities. Engaging with the community through the design process can support in identifying deficiencies and developing appropriate, place-specific design response.

LO2.1.2 Accessibility

Local open spaces ***must*** be located within a walkable distance from residential areas.

Walking distances to small open spaces ***should not*** exceed 5-10 minutes (approximately 400-800m) for the average pedestrian.

Open spaces ***must*** be accessible to all, both in terms of internal circulation, ensuring step-free access to key spaces and connections into the community.

Local open spaces ***must*** establish a comfortable environment for all users and provide an improved microclimate for users. This can be achieved through architectural arrangements, trees, shade structures or a combination of these elements.

Primary pathways to and within open spaces should be accessible to all, ensuring appropriate gradients and step-free access

LO2.1.3

Community-led greening

When designing or retrofitting public open spaces, the local community, including any relevant community groups and organisations, ***should*** be engaged, (within a guidance framwork set by implementing authorities), as part of the design and planning process and be provided with the opportunity to feed back on emerging designs (see Design and Planning Process chapter and SW 2.1.3).

Small scale community greening initiatives ***should*** be encouraged to support the wider green infrastructure network.

Best Practice

Greening initiatives could include: planting of road verges, greening boundaries to properties, pots outside doorways and shop-fronts and small scale rainwater harvesting for irrigation.

Opportunity for allotments and growing spaces

Community greening initiatives adjacent to the Wang Chhu

LO2.1.4

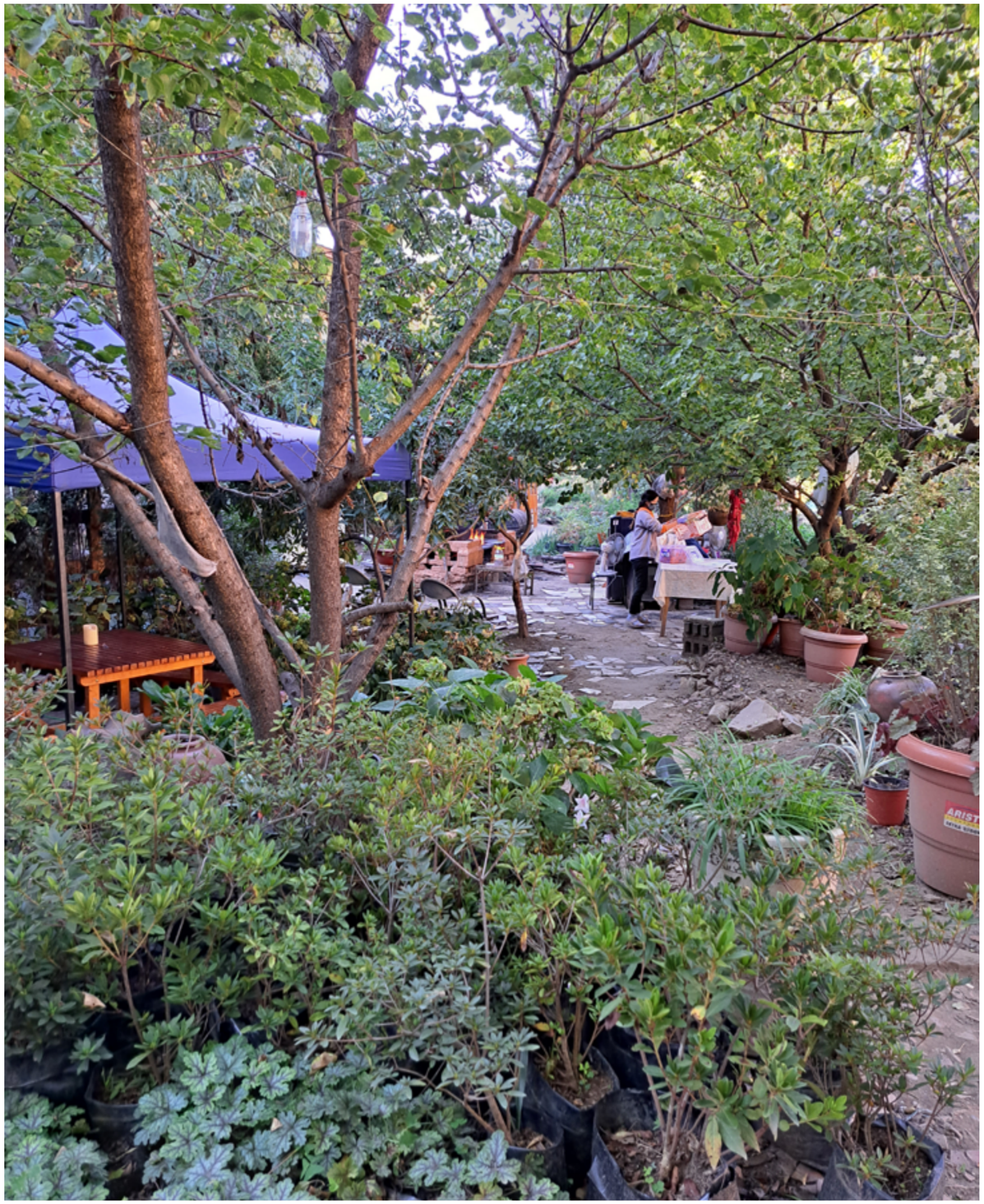
Management and maintenance

Management and maintenance plans ***should*** be developed for all open spaces in the city, and contextualised to the typologies of space, planting and locality.

Any new development in the City ***should*** be accompanied by a management and maintenance plan with clear roles and responsibilities.

Where possible, opportunities ***should*** be identified for communities to be involved in the management and maintenance of their local open spaces.

Refer to the Design and Planning Process chapter, SW2.1.3 and SW2.1.4



Tarayana Park

LO2.2 Metropolitan Park

LO2.2.1 Description

Tashichho Dzong Royal Gardens will be a new Metropolitan Park and international destination at the heart of Thimphu. Comprising four key zones, it ***should*** seek to prioritise multifunctional uses and provide an appropriate landscape setting for the Dzong. People will be able to visit and experience the historical, cultural and environmental heritage of Bhutan. Refer to TSP 2023 for location and extents of Tashichho Dzong Royal Gardens.

Size: 50ha
Catchment: Thimphu City

Happiness Gardens | Tashichhodzong Royal Gardens

LO2.2.2 Location

Tashichho Dzong Royal Gardens will be the largest green open space in Thimphu, with a central location that serves all residents and communities as well as domestic and international visitors.

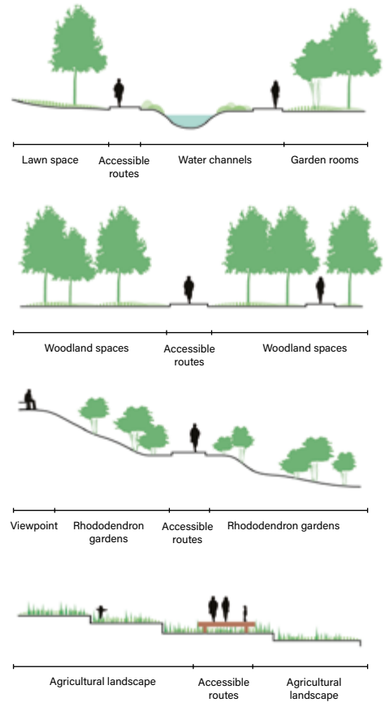
It is located adjacent to the Wang Chhu corridor. New and improved walking and cycling routes ***should*** seek to provide uninterrupted connections to the wider neighbourhoods of Thimphu. The Greenway will extend through the park and link with Northern and Southern sub-districts.

It ***should*** function as the core of the wider green infrastructure network in the city, linking with other open and natural spaces via an integrated network of green corridors that support active travel and biodiversity enhancements.

LO2.2.3 Character

As the central space in Thimphu with a city-wide catchment, Tashichho Dzong Royal Gardens ***should*** incorporate unique features, a high-quality and bespoke design approach, and prioritise historic and cultural references. Tashichho Dzong Royal Gardens ***should*** comprise the following character spaces:

- The Royal Happiness Gardens ***should*** form a core parkland space for both the everyday and the extraordinary. A series of distinct garden rooms, water landscapes and flexible lawn spaces ***should*** be connected by a series of meandering routes.
- The Arboretum ***should*** incorporate a diversity of species in celebration of Bhutanese environmental heritage, providing seasonal interest through shaded routes and spaces.
- The Rhododendron Gardens ***should*** celebrate the diversity of Rhododendron species native to Bhutan, which burst into colour during flowering season. Located on a steep hillside, carefully arranged seating areas and viewpoints ***should*** seek to frame views across Tashichhodzong, the river and its mountain backdrop.
- The Cultural Wetlands ***should*** allow visitors to experience the agricultural heritage of Bhutan through interpretative wayfinding, sensitively integrated routes and spaces that display a variety of crop species and agricultural landscapes.



LO2.2.4 Function

The design ***must*** :

- Be easily accessible and inclusive to the public, with primary pathways at least 2m wide and fully accessible, step-free routes throughout.
- Embed flexibility to host large scale, city-wide events.
- Promote the creation of distinct habitats and landscapes that reflect the environmental and cultural heritage of Thimphu.
- Serve as a major green open space that supports biodiversity, climate resilience and incorporates SuDS as part of a wider stormwater catchment.
- Include a wide range of recreational and amenity space to encourage healthy living and social interaction.
- Include range of formal and informal play features to promote access to nature.
- Be enclosed by a secure boundary to allow managed access, with designated access points and thresholds in strategic locations which link to wider circulation and adjacent destinations and neighbourhoods.

Materials: Palette A

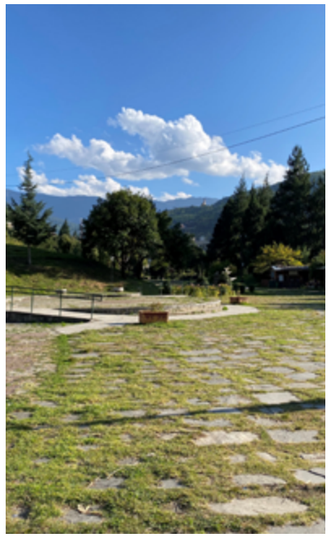
LO2.3 City Parks

LO2.3.1 Description

City Parks refer to large open spaces that serve the three sub-districts of Thimphu, and includes Taba Forest Park, Changlimithang Central River Park and Babesa Ecological Park. Each ***should*** have a distinctive character and design approach that responds to adjacent land use and environmental characteristics. Refer to TSP 2023 for location and extents of City Parks.

Typical Size: 5ha
Catchment: Sub-district, serving a population within a 1200-2000m radius.

Existing riverside forest landscapes in Taba



Existing condition of Changlimithang Park

Riverside landscapes in Babesa

LO2.3.2 Location

City Parks ***should*** :

- Be located in the accessible and well-connected area at the heart of each developed population sub-district, and adjacent to the Wang Chhu corridor.
- Link with the Greenway that extends to the Northern and Southern sub-districts.
- Connect with a wider network of communities, public open spaces and urban amenities via improved walking and cycling network to ensure appropriate access.
- Incorporate gateways positioned in strategic locations and connect with active travel routes.
- Be located in close proximity to public transport connections.

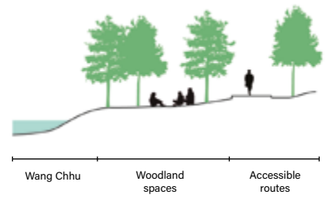
LO2.3.3 Character

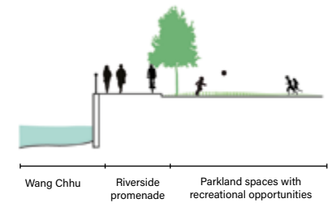
The parks ***must*** respect existing natural landscapes and prioritise the protection and preservation of existing environmental features such as trees, land-form and existing habitats.

They ***should*** tie in with adjacent land use and urban fabric through design approach and material specification. The parks ***should*** be accessible to differently-abled individuals.

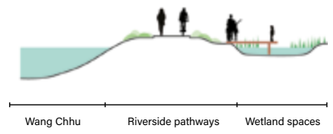
The existing environmental character ***should*** inform the design of the park and be used to develop distinct, unique identity as follows:

- Taba Forest Park ***should*** present a dense, natural woodland character through the preservation of existing pristine forest landscapes.
- Changlimithang Central River Park ***should*** be an active recreational environment that provides a link between the city centre and riverside.
- Babesa Ecological Park ***should*** be a celebration of water, incorporating wetland spaces, and promote the preservation and enhancement of riverside habitats.





Typical sections (right):
A. Taba Forest Park
B. Changlimithang Central River Park
C. Babesa Ecological Park



LO2.3.4 Function

The design ***must*** :

- Protect and enhance existing natural habitats as key components of the wider green infrastructure network.
- Support biodiversity, climate resilience and incorporates SuDS as part of a wider stormwater catchment.
- Prioritise multifunctional, social and recreational uses, ensuring an inclusive environment for people of all ages.
- Be designed to promote access to nature, seeking to deliver educational opportunities through wayfinding and interpretation.
- Embed flexible spaces to accommodate sub-district scale events.
- Incorporate both formal and informal play for children of all ages.
- Include a range of shaded environments for social interactions, such as picnic areas, gathering spaces and comfortable seating.

Materials: Palette A

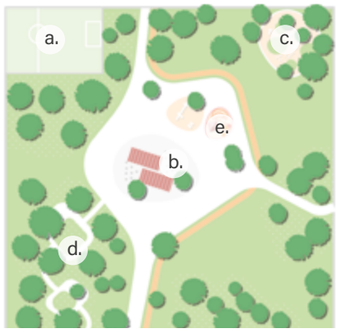
LO2.4 Neighbourhood Parks

LO2.4.1 Description

Neighbourhood parks ***should*** be located close to neighbourhood centres to provide accessible public space amenity for everyday use, ensuring that all of Thimphu's residents have high quality open space within reasonable walking distance. They ***should*** serve as a gathering space for the community, and be designed to encourage active and healthy living, with elements designed to promote social interaction between people of all ages.

a. Spaces for sports and recreation (refer to NE1.2)
b. Flexible gathering spaces. Hard standing paved areas should be designed to accommodate community events and incorporate shaded seating areas
c. Play spaces (refer to NE1.2)
d. Shaded spaces for rest and relaxation, to include lawn spaces and formal seating
e. Opportunities for public art

Typical Size: 2ha
Catchment: Neighbourhood, serving a population within a 15-30min walk or 800-1200m radius



Components of a typical Neighbourhood Park


Neighbourhood Parks should incorporate shaded routes, provide opportunities for play and recreation, and promote social interaction

LO2.4.2 Location

Neighbourhood Parks ***should*** :

- Be positioned centrally in developed neighbourhood centres and link with adjacent community destinations and amenities, such as markets and shopping areas.
- Be connected to the wider walking and cycling network.
- Be located in close proximity to public transport connections.

LO2.4.3 Character

The parks ***must*** preserve environmental and landscape features of value.

Opportunities for sport, recreation and play for people of all ages ***should*** be prioritised.

Design ***should*** be accessible to differently-abled individuals, respond to character and identity of adjacent urban environment.

Existing parks ***should*** be retrofitted following the guidelines set out in this section.


Spaces for nature and enhancement of biodiversity


Natural spaces for rest and relaxation


Engaging, playful landscapes


Spaces for recreation

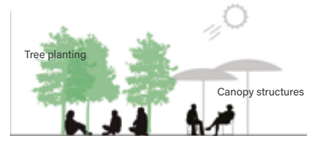
LO2.4.4 Function

The design ***must*** :

- Define specific zones for different activities.
- Include a diversity of plant species, with palettes designed to provide seasonal interest.
- Achieve minimum 60% of soft cover.
- Incorporate play for children of all ages.
- Include shaded environments for picnics and gathering.
- Incorporate flexible spaces to accommodate community events and market uses.
- Be multifunctional and encourage social activities.
- Maximise environmental opportunities and benefits.
- Support biodiversity, climate resilience and incorporates SuDS as part of a wider stormwater catchment.
- Incorporate furniture that encourages social interaction.

Neighbourhood Parks could include garden and growing spaces for community use.

Materials: Palette B



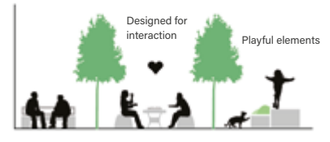
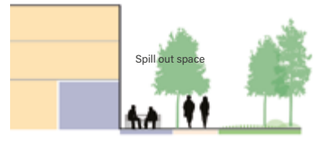


Diagram (right):
A. Seasonal interest
B. Shading
C. Social Furniture
D. Respond to context



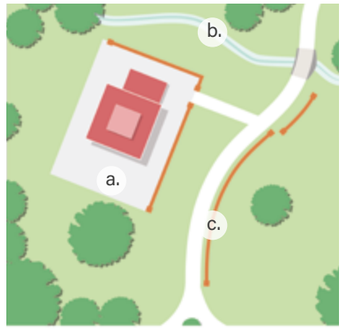
LO2.5 Heritage Open Spaces

LO2.5.1 Description

Heritage open spaces include landscapes around heritage structures and sites of significant cultural relevance. They ***must*** serve to preserve the historical integrity of the site whilst enhancing its aesthetic appeal and function. Spaces ***should*** incorporate focal points and visual connections that highlight the heritage structure.

a. Clutter-free open spaces to provide setting for heritage structure and frame views
b. Incorporation of water landscapes
c. Preservation of existing heritage features

Typical Size: variable
Catchment: n/a



Components of a typical Heritage Open Space

Pangri Zampa Monastery heritage site

LO2.5.2 Location

Heritage Open Spaces ***should*** :

- Be located around heritage structures.
- Act as a buffer between heritage structures and adjacent development.
- Be of a scale proportionate to that of structure.

LO2.5.3 Character

The landscape design ***must*** respect the scale, proportions and architectural features of the heritage structure.

Elements of the site's history and cultural heritage ***should*** be incorporated into the landscape design. This ***should*** include use of appropriate materials, plants that are native or historically appropriate and design details that reference the structure.

Consideration of view corridors

Incorporation of water to contribute to wider drainage system and provide amenity value

Protection of historic trees

High quality paving reflecting traditional construction techniques and prioritising natural materials

LO2.5.4 Function

The design ***must*** :

- Adhere to any local preservation regulations and guidelines associated with heritage structures.
- Integrate hardscape elements such as pathways and walls that blend harmoniously with the structure and its surroundings.
- Use materials and construction techniques that reflect the craftsmanship and materials of the historic period, or modern equivalents that mimic the historic style.
- Incorporate seating areas, interpretative signage and other amenities that enhance visitor experience without compromising the historic character of the site.
- Ensure that any activities in the landscape do not compromise the setting of the structure.

Materials: Palette A

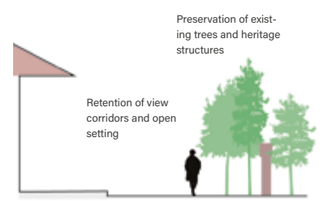


Diagram (right):
A. Principles for landscapes around heritage structures

LO2.6 Small Open Spaces and Pocket Parks

LO2.6.1 Description

Small open spaces and pocket parks ***should*** be located within residential neighbourhoods and aim to provide accessible public green space for everyday use, ensuring local residents have access to open space within 10 minute walking distance.

a. Shaded walking routes, linking seating areas and connecting with wider circulation
b. Flexible lawn spaces
c. Natural attenuation, to be provided in the form of swales and depressions designed to flood and support the wider stormwater drainage system
d. Play spaces (refer to NE1.2)
e. Opportunities for public art

Components of a typical small open space

Typical Size: <1ha
Catchment: Local residential populations within a 10 to 20min walk or a 400-800m radius


Community spaces adjacent to the Wang Chhu riverside

LO2.6.2 Location

Small open spaces and pocket parks ***should*** :

- Be positioned within developed neighbourhood centres and at the heart of residential communities.
- Be connected to the wider walking and cycling network.
- Be located in close proximity to public transport connections.

LO2.6.3 Character

The majority of the space ***should*** be soft landscape, with small paved areas to accommodate seating pockets.

The design ***should*** respond to the character and identity of adjacent urban environment.

The parks ***should*** include a combination of formal and informal landscaped areas to cater for different users and activities.

The parks ***should*** function as active community hubs, providing opportunities for recreation and play.


Opportunities for play and recreation


Planting palettes to support biodiversity


Play spaces for children of all ages


Shaded picnic areas

LO2.6.4 Function

The design ***must*** :

- Promote social interaction.
- Incorporate places to dwell and rest.
- Incorporate play for children of all ages.
- Be designed to provide both physical and mental health benefits for the community.
- Include shaded environments for picnics and gathering.

Materials: Palette C

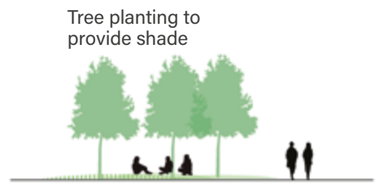


Diagram (right):
A. Flexible lawn space
B. Play for children of all ages

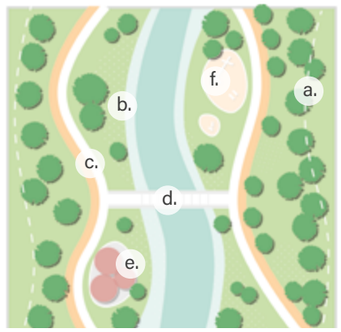
LO2.7 Valley Parks

LO2.7.1 Description

Valley Parks are primary, sub-district scale linear public open spaces that establish important connections between residential forest neighbourhoods on steep wooded slopes and urban centres distributed along the valley floor.

The design ***should*** maximise environmental opportunities and benefits, provide uninterrupted active travel connections, and ensure the protection of existing habitats within a minimum development buffer of 15m from the river edge.

a. 15m buffer restricting development
b. Enhanced riparian habitats
c. Connected routes for active travel
d. Crossings at appropriate locations
e. Spaces for natural play
f. Spaces for rest and contemplation



Components of a typical Valley Park

Typical Size: varies
Catchment: Sub-district, serving a population within a 30-45 minute walk or 1200-2000m radius


Existing tributary to the Wang Chhu

LO2.7.2 Location

Valley Parks ***must*** :

- Be located along major streams and topographical steep wooded slopes.
- Ensure restriction on development within a minimum 15m offset from the watercourse edge.
- Connect with the wider walking and cycling network.
- Connect natural forests in the upper catchment with the Wang Chhu.

LO2.7.3 Character

Valley Parks ***should*** incorporate predominantly natural spaces for informal use that prioritise the protection and enhancement of existing habitats. They ***should*** respond to adjacent residential neighbourhoods through the delivery of active travel connections and recreational spaces.

Lower catchment: Consider a range of edge conditions that allow people to access waterfront spaces in urban environments.

Middle catchment: Connect with adjacent residential neighbourhoods through the delivery of active travel links and recreational spaces.

Upper catchment: Natural spaces for informal use that prioritise the protection and enhancement of existing habitats.


Lower catchment


Middle catchment


Upper catchment

LO2.7.4 Function

The design ***must*** :

- Promote connectivity through improved walking and cycle routes.
- Protect valuable landscapes and riparian habitats.
- Support biodiversity, climate resilience and incorporate flood resilience.
- Incorporate opportunities for walking, cycling, play and recreation.
- Ensure inclusivity and accessibility.
- Deliver educational opportunities.
- Incorporate community facilities, such as toilets, picnic tables, seating and spaces for gathering and events.

Bridges ***should*** be positioned in strategic locations and ***should*** be of a lightweight structure.

Materials: Palette C

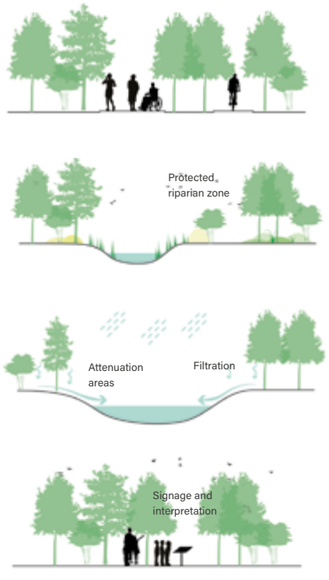


Diagram (right):

A. Accessbility
B. Protected habitat
C. Water attenuation
D. Education

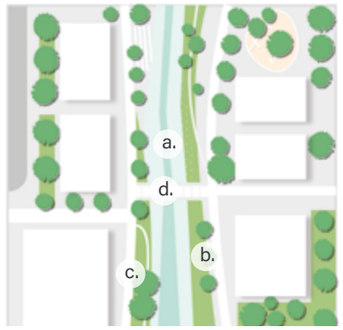
LO2.8 Green Streams

LO2.8.1 Description

Existing covered or culverted streams and waterways ***should*** be 'daylighted' and naturalised to form 'Green Streams' through the urban area. Green Streams ***should*** provide a continuous green ecological link through the urban environment.

a. Deculverting of buried streams
b. Enhanced riparian habitats
c. Connected routes for active travel
d. Crossings at appropriate locations

Typical Size: varies
Catchment: Neighbourhood, serving a population within a 15-30min walk or 800-1200m radius



Components of a typical Green Stream

Existing stream adjacent to Kaja Throm

LO2.8.2 Location

Green Streams ***must*** :

- Be located along secondary tributaries and stream or daylighted culverted water channels between buildings in urban settings.
- Be easily accessible to the public, with legible signage, paths, and connections to surrounding areas.
- Connect with adjacent spaces and wider walking routes.

LO2.8.3 Character

A distinct character for each Green Stream ***should*** be delivered through unique planting palettes to support wider wayfinding and orientation strategy and reinforce identity.

Uninterrupted, continuous walking routes that link communities and urban centres ***should*** be delivered along Green Stream corridors.

A naturalistic character ***should*** be prioritised where possible, incorporating new and enhanced riparian and aquatic habitats.

Within the City Core and Major Employment Areas the waterways ***should*** be daylighted but with a more urban character.

Renaturalisation of culverted streams | New and enhanced riparian habitats | Interventions to manage runoff flows | Incorporation of playful features

LO2.8.4 Function

The design ***must*** :

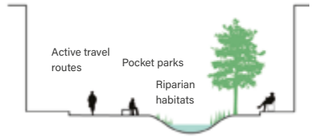
- Support biodiversity, climate resilience and incorporates flood resilience.
- Restore and support potential new aquatic and riparian habitats.
- Provide shaded walking routes through urban environments.
- Incorporate opportunities for recreation and active lifestyle such as walking, running, cycling.

The design ***should*** :

- Include educational features such as an interpretive signage, interactive exhibits and accessible water play.
- Integrate a network of pocket parks that connect with wider walking routes.

Materials: Palette B

Diagram (right):
A. Typical section through urban Green Stream



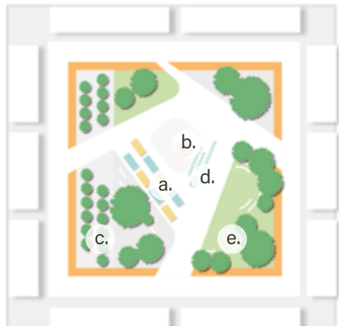
LO2.9 City Squares

LO2.9.1 Description

City Squares are urban spaces for community use at the heart of the sub-district. They are predominantly hard surfacing that can accommodate large gatherings and multiple, flexible uses. City Squares ***should*** form a setting for important focal buildings.

a. Flexible space for major events and markets
b. Public art
c. Shaded seating areas
d. Water features
e. Planted areas for informal use

Typical Size: 2ha
Catchment: Sub-district, serving a population within a 30-45min walk or 1200-2000m radius



Components of a typical City square


Clock Tower Square as primary, city scale square, should ensure flexibility to host major events

LO2.9.2 Location

City Squares ***should*** :

- Link with adjacent public uses such as community facilities, commercial buildings or historic landmarks.
- Be located in the accessible and well-connected area within each sub-district and serve regional local populations.
- Connect with the wider network of open spaces through cycling and pedestrian routes.
- Be located in close proximity to public transport connections.

LO2.9.3 Character

A layout that reflects its cultural context ***should*** be prioritised using paving and planting to structure the space and define different areas.

The design approach ***should*** be accessible to differently-abled individuals, serve to highlight the character and features of surrounding buildings and structures.

A sense of openness ***should*** be maintained to ensure flexibility to accommodate a changing programme of events.

City Parks ***should*** be predominantly hard in character, though pockets of soft landscape and tree planting ***should*** be considered to provide tranquil seating areas.


Interactive water features


Shaded seating areas


Incorporation of water and public art


Provision of shade through planting and structures

LO2.9.4 Function

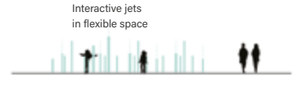
The design ***must*** :

- Be flexible and adaptable to accommodate a busy and active programme of use during city scale events and large gatherings.
- Incorporate a range of amenities, such as shaded seating spaces, water features or art installations to further enhance the user experience.
- Respond to surrounding buildings through the design of spaces and uses.
- Support biodiversity, climate resilience and incorporate SuDS for stormwater management

Public and commercial uses ***should*** be considered on the ground floor of adjacent buildings to promote good natural surveillance and generate footfall.

Materials: Palette A

Diagram (right):
A. Shaded spaces to incorporate seating
B. Interactive water features
C. Flexible space for events



LO2.10 Local Squares

LO2.10.1 Description

Local Squares are small urban spaces located in neighbourhood centres for residents to use for social gatherings, play and local events.

They ***should*** be predominantly hard surface and designed to stimulate interest all year round through careful selection of diverse planting and types of activity.

They ***should*** stimulate social interaction and cater for a variety of community events, and therefore ***should*** embed flexibility and adaptability as core principles.

a. Shaded dwell spaces
b. Spill out areas
c. Elements that encourage play
d. Flexible space for community events

Components of a typical Local Square

Typical Size: < 1ha
Catchment: Neighbourhood, serving a population within a 800-1200m radius


Community event in Thimphu

LO2.10.2 Location

Local Squares ***should*** :

- Be positioned within developed neighbourhood centres.
- Be located near local facilities, amenities or shops, within residential area.
- Be connected to the wider walking and cycling network.
- Be located close to public transport in areas with reduced access by vehicles.

LO2.10.3 Character

Design ***should*** respond to character and identity of adjacent urban environment

An aesthetically pleasing environment ***should*** complement the local architecture and encourage a sense of pride among residents.


Opportunities for cafe amenities


Incorporation of planting


Flexible open spaces


Seating areas

LO2.10.4 Function

The design ***must*** :

- Consider diversity of plant species to ensure resilience and provide seasonal interest.
- Incorporate permeable materials to support stormwater management.
- Consider sustainable water features to activate the space.
- Designate a flexible central area for gatherings, events and community activities.
- Be multifunctional and encourage social activities.
- Include shaded environments for seating and gathering.
- Respond to adjacent buildings and ground floor uses.
- Support biodiversity, climate resilience and incorporate SuDS for stormwater management

Materials: Palette B

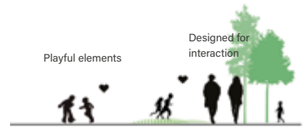
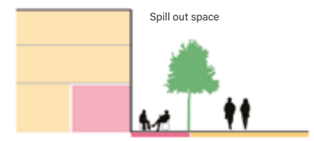


Diagram (right):
A. Seasonal interest
B. Permeable surfaces
C. Shading
D. Respond to context



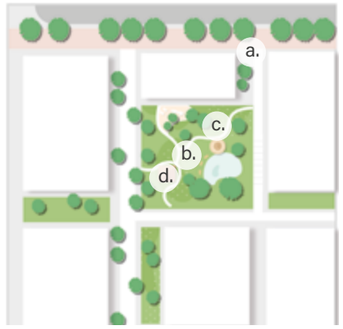
LO2.11 Private Green Spaces

LO2.11.1 Description

Private Green Spaces include any green space owned by private developer or landowner in general, usually located within it's development boundary but sometimes could also include a privately owned, publicly accessible space.

a. Green connections to public realm
b. Social spaces for interaction
c. Community growing spaces
d. Spaces for natural play

Typical Size: < 1ha
Catchment: Serves each development



Components of a typical Private Green Space

New developments should maximise the opportunities to deliver communal open spaces

LO2.11.2 Location

Private green space ***must*** be included in every new development, proportionate to the scale of development.

Private green space ***should*** be made accessible to all residents.

New developments ***should*** maximise the opportunities to explore private open spaces of different scales.

Private green space ***should*** have a clear and appropriate separation to the public realm.

LO2.11.3 Character

Character of the space ***should*** reflect the design, materials and character of surrounding buildings or public realm.

Clear distinction ***should*** be made between communal, semi-private and private green space within private developments. This ***should*** be achieved through managed access within developments and the incorporation of clear boundaries.

A combination of enclosed and open spaces to cater for a variety of uses and events ***should*** be incorporated.

Residents ***should*** be engaged to take ownership of the space and inform a unique character.

Immersive gardens

Allotments and growing spaces

Opportunities for community ownership

Play spaces for children of different ages

LO2.11.4 Function

The design ***must*** :

- Provide inclusive green amenity to different age and user groups.
- Include communal, semi-private space for residents within urban blocks which is not accessible to the general public.
- Promote social interaction.
- Provide an engaging amenity space and encourage biodiversity and pollinators, to allow access to nature.
- Ensure that material specification considers adjacent and interfacing public realm finishes where relevant.

The design ***should*** :

- Incorporate play spaces for children of all ages.
- Include an appropriate amount of flexible space for social events and gatherings. Space required ***should*** be determined by number of residents and scale of development.
- Encourage food growing allotment elements when possible.
- Incorporate amenities that allow for light level of physical activities.
- Provide attenuation and treatment capacity and support the wider stormwater drainage network.

Materials: Palette A/B

LO3 Protected Landscapes

To protect valuable landscapes for their ecological, recreational and aesthetic value, and help the city limit urban sprawl and encroachment from development.

LO3.1 General

LO3.1.1 Overarching Principles

The Protected Landscape strategies aim to protect and enhance the unique landscape setting of Thimphu, a key contributor to the city's character. It aims to achieve the following:

- To support sustainable urban development and limit urban sprawl.
- To protect landscapes of ecological and recreational value, such as Valley Parks.
- To support urban, peri-urban and rural livelihoods.
- To facilitate cultural and religious activities within the city.
- To preserve the valley setting and special character of the city.

Pristine forest landscapes

The Wang Chhu

LO3.2 Wang Chhu Corridor

LO3.2.1 Description

The Wang Chhu is the ecological, movement and recreational spine running through the City. The River Corridor project is a visionary urban regeneration project that seeks to transform Thimphu by combining improved flood protection with the creation of public spaces and active travel routes that connect communities. The project will support community cohesion and interactivity, economic development, health and wellbeing, a cleaner river and flood resilience.

The Wang Chhu and valuable riparian habitats extending across both banks

LO3.2.2 Location

The river corridor along Wang Chhu. Extents ***should*** be defined based on the following parameters:

- Extents of existing development and 'hard' infrastructure.
- Areas of riparian habitat.
- Flood risk zone.
- Areas of new and existing public open space.

LO3.2.3 Function

The corridor ***must*** be protected from further encroachment and inappropriate development or uses.

Programming and design ***must*** respond to local character and heritage of the River as well as adjacent land uses; ranging from vibrant to passive uses that cater to different demographic groups.

The Corridor ***must*** extend to and connect with pristine landscapes to the north and south of the City via active travel links and ecological connections.

The design ***must*** :

- Preserve the River Corridor's naturalistic character.
- Incorporate a network of public open spaces, green corridors and interconnected walking routes.
- Link adjacent urban villages with the City Centre.
- Deliver flood mitigation interventions.
- Preserve elements and structures of heritage and cultural significance and their setting.
- Identify areas for river restoration.

LO3.3 Local Nature Reserve

LO3.3.1 Description

A new network of Local Nature Reserves aims to protect areas of high biodiversity , establish habitats for key target species, and provide people with access to nature within the urban environment.

View across Thimphu Ecological Park

LO3.3.2 Location

Local Nature Reserves ***should*** be established in:

- Natural areas of high biodiversity value within the urban area.
- Areas at risk of encroachment from development.
- Areas where larger or endangered species have been identified.

LO3.3.3 Function

Local Nature Reserves ***must*** :

- Protect areas of high habitat and biodiversity.
- Protect and enhance habitats which support key, target or endangered species.
- Provide people with managed access to nature within the urban environment.
- Link to educational programmes and the school curriculum.
- Enhance the management of existing habitats, including through habitat restoration and avoiding habitat fragmentation.
- Facilitate greater and more equitable access to nature.
- Establish clear designations and boundaries to protect key sites from further degradation as a result of urban sprawl or encroachment.

LO3.4 Forest Pockets

LO3.4.1 Description

Forest Pockets are areas of high value forest habitat or forest, primarily located on steep slopes and in medium and high hazard risk zones. Protecting Forest Pockets across the City aims to support resilience, allow people to interact with nature in an urban setting, and provide ecological connectivity and biodiversity benefits.

Mature, pristine woodland must be protected

LO3.4.2 Location

Forest Pockets ***should*** :

- Include areas of woodland, scrub, grassland or any associated habitats with existing or potential ecological value.
- Include areas of undevelopable forested slopes.
- Be established in areas of medium and high hazard risk (refer to TSP 2023), which ***should*** follow restrictions as recommended in the hazard zones plan and retained as natural forest where appropriate.

LO3.4.3 Function

Forest Pockets ***must*** :

- Protect areas of high habitat and biodiversity value.
- Provide people with access to nature within the urban environment.
- Link to educational programmes and the school curriculum.
- Facilitate greater and more equitable access to nature.
- Establish clear designations and boundaries to protect key sites from further degradation as a result of urban sprawl or encroachment.

Densification of planting ***should*** be encouraged in appropriate locations , prioritising native species to support existing habitats.

A sustainable woodland management plan ***must*** be established for Forest Pockets, outlining strategies for maintaining and managing the landscape.

LO3.5 Agricultural landscapes

LO3.5.1 Description

Protect and promote productive agriculture including paddy cultivation across Thimphu to improve food security, enhance rural livelihoods and protect remaining areas with a rural character. This includes both small holdings and larger farms.

Agricultural landscapes adjacent to Tashichhodzong, part of the Royal Gardens

LO3.5.2 Location

- Agricultural land, including Chhuzhing, ***should*** be protected and retained wherever possible across Thimphu, particularly in flood risk zones.
- Managed access ***should*** be provided to the cultural landscapes surrounding Tashichho Dzong, allowing people to experience the agricultural heritage of Bhutan.
- Any culturally significant agricultural landscape ***must*** be protected, particularly when these lands relate to historic built structures with distinctive architectural style, historic settlement patterns and natural settings and geographical formation.

LO3.5.3 Function

- The restoration of fallow or degraded agricultural lands ***should*** be undertaken where feasible. This will help to reduce the impacts of flooding and landslides on human settlements.
- Programmes to improve the productivity and financial viability of agricultural lands ***should*** be explored, including methods to increase youth participation.
- The continued functioning of rural communities ***should*** be promoted where high value agriculture is the dominant industry.
- Opportunities to integrate and celebrate areas of heritage and cultural significance within agricultural landscapes ***should*** be explored.
- Managed access ***should*** be provided where possible.

Agricultural landscapes

ST—Streets

ST1 Street Hierarchy

To ensure that a clear hierarchy of streets are formed within the city, in alignment with the TSP 2023. Ensure that each street performs its intended functionality and describes clearly its scales and place in the functional hierarchy.

ST1.1 Street hierarchy functionality and dimension

ST1.1.1 Street hierarchy

New and retro-fitted streets ***must*** reflect the required functionality and dimensions defined in "Required Street Functionality" table and conform to the street hierarchy as established by the TSP 2023.

Streets ***must*** be designed or retrofitted to reflect the modal hierarchy described in the adjacent illustration to focus the design of streets around the needs of people first, rather than vehicles.

Individual street elements ***must*** comply with the dimensional requirements defined in the ST3 codes within this chapter.

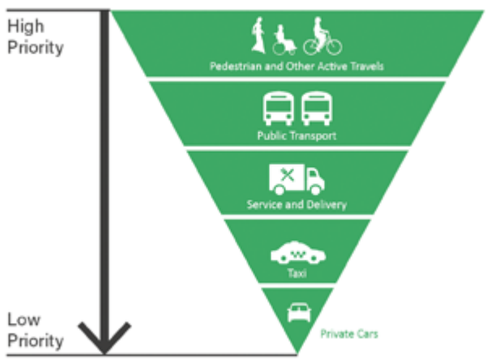
Local Authorities when developing Local Area Plans and designers of Comprehensive Developments ***should*** seek to form continuous connections (at the least for pedestrians) to increase permeability and accessibility for pedestrians.

Note: more detailed guidance on street design will be provided in the forthcoming Street Design Guidelines.

Explanatory text

Local Area Plans should confirm a Street Hierarchy for a local area or neighbourhood which defines a more fine-grained definition of role, function and character for existing and any new streets.

Street hierarchy from TSP2023



Modal hierarchy

	Primary	Secondary	Tertiary	Access	Pedestrian Priority
Street Function	Roads of strategic importance which connect a sub-district centre to a road of same or higher classification, or which provides connectivity between two sub-district centres.	Roads linking neighbourhood centres to each other, or to other roads of equal or higher classification. They also connect key employment or industrial areas to other roads of equal or higher classification.	Roads linking urban local centres to each other, or to other roads of equal or higher classification. As key routes within urban areas they should have adequate infrastructure for pedestrians and micro-mobility users.	Roads linking individual locations to other roads of equal or higher classification.	Streets promoting active travel and economic activity. Access for loading and service vehicles will be limited to times of low pedestrian activity, with pedestrians maintaining priority. Emergency vehicles will have a clear path of access at all times.
Footpath	**2.0m minimum.** In urban areas, must be provided on both sides.	**1.8m minimum.** In urban areas, must be provided on both sides. In rural areas outside of Rural Local Centres footpaths and roadway maybe shared providing traffic levels and speeds can be reduced.		1.5m minimum. Where ever possible, must be provided on both sides. In rural areas outside of Rural Local Centres footpaths and roadway maybe shared providing traffic levels and speeds can be reduced.	**6.0m minimum desirable.**
Vehicular Lane	**At least one 3.25m** lane per direction. Median 1.2m - 2.2m (if employed). Refuge Island 1.8m minimum.	**Maximum one 3.25m** lane per direction.	**Maximum one 2.75m** lane per direction.		**Minimum 3.70m** clear path for EVA* access.
Public Transport	**Minimum 3.25m** bus lane each way. **Minimum 2.00m** bus shelter zone at bus stops or interchanges. (2.70m minimum bus shelter zone desirable in the City Core or busier areas)			N/A	N/A
Cycle	**Minimum 1.5m** protected cycle lane each way.	**Minimum 1.5m** dedicated cycle lane each way.	Shared vehicular/cycle roadway (cycling priority).		N/A
Landscape	**Minimum 1.5m** landscaped zone adjacent to footpath desirable.	**Minimum 1.5m** landscaped zone adjacent to footpath desirable – can alternate with other elements in Flexible zone.		N/A	N/A
Parking & Servicing	On-street parking not permitted. Limited on-street servicing.	Prioritise loading and unloading (**minimum 2.2m lay-by lane**), and accessibility parking. Limited on-street parking.		On-street parking and services permitted on designated spaces (**minimum 2.2m**).	On-street parking not permitted. Limited and controlled on-street servicing where required (**minimum 2.2m**).
Design Speed	max 50km/hr. To be determined based on safety assessment.	max 30km/hr in areas of high activity. To be determined based on safety assessment.	max 20km/hr in residential and rural areas. To be determined based on safety assessment.		max 20km/hr. To be determined based on safety assessment.

* EVA - Emergency Vehicle Access

Required Street Functionality Table

Demonstration 8

The following demonstration provides a set of illustrations describing the difference in scale, configuration and material treatment of different street types depending on the area type they are in.

Area Type Street Hierarchy

Urban Area Types (City Core, Major Employment, Urban I and II)

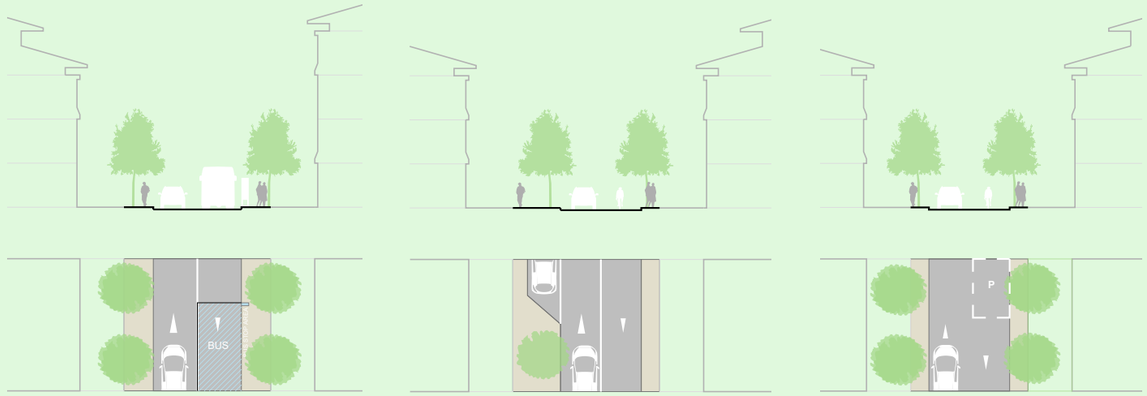
Generally streets in City Core and Major Employment Area Types should provide a very strong definition of the public realm and have a very compact enclosure ratio (e.g. 3:2 ratio, where height of buildings are greater than width of street), high levels of activity and a strong relationship between building setbacks and the street. Materials should be heavy-duty and robust, with clear delineation between street elements, public and private realm. In busy areas, a more generous space for pedestrians should be provided.

Streets in Urban I and II Area Types should provide a strong definition of the public realm, with a compact enclosure ratio (e.g. 1:1 ratio, where height of buildings and width of street are similar).

Primary Street | Secondary Street | Tertiary Street

Suburban Area Types (Suburban I, II and III)

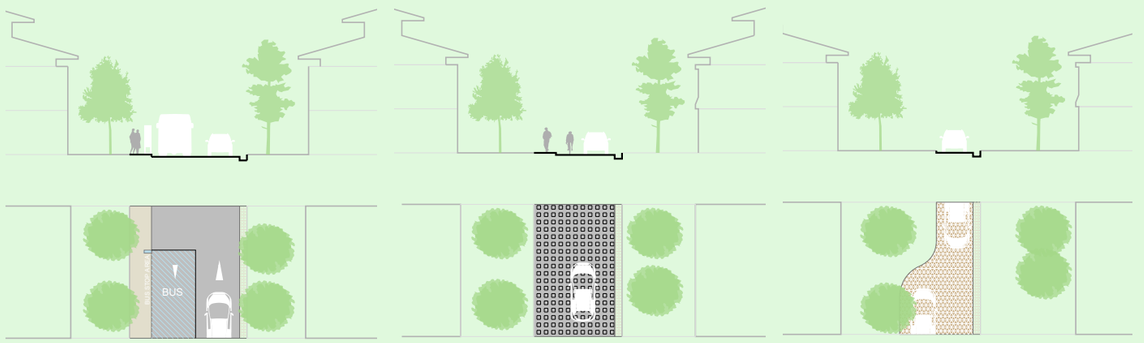
Streets generally should have a more open feel with a generous enclosure ratio (e.g. 1:1.15 ratio). Streets should have concentrated pockets of activity, and a subtler delineation between privately owned building setbacks and the public realm and between street elements and avoidance of segregated street allocations should be promoted. Streets should have more space for substantial greenery.



Primary Street | Secondary Street | Tertiary Street

Rural Area Types

Streets generally should have a very open enclosure ratio (e.g. 1:1.3 ratio), with limited activity and large private setbacks loosely delineated from the public realm. The street treatment can be very informal, with little delineations between street elements.



Primary Street | Secondary Street | Tertiary Street

ST2 Forming Good Streets

To ensure that new and retro-fitted streets perform well for people and vehicles and contribute to forming a distinctive character and sense of the place.

ST2.1 Contributing to character

ST2.1.1 Street character

Street design and layout ***must*** contribute to forming the character of the Place in which they are located (see CS chapter).

Streets ***should*** create an activated, overlooked and well defined public realm in conjunction with development forms. Streets ***should*** prioritise people over cars, providing high quality, continuous and accessible pedestrian realm.

Streets ***should*** include multi-functional green infrastructure, including integrated planting, trees and SuDs.

Streets ***should*** seamlessly integrate utilities.

Streets in City Core and Major Employment Area Types ***should*** provide a very strong definition of the public realm, generally be narrow, with a very compact enclosure ratio (e.g. 3:2 ratio, where height of buildings are greater than width of street), high levels of activity and a strong relationship between building setbacks and the street. Materials ***should*** be heavy-duty and robust, with clear delineation between street elements, public and private realm. In busy areas, a more generous space for pedestrians ***should*** be provided.

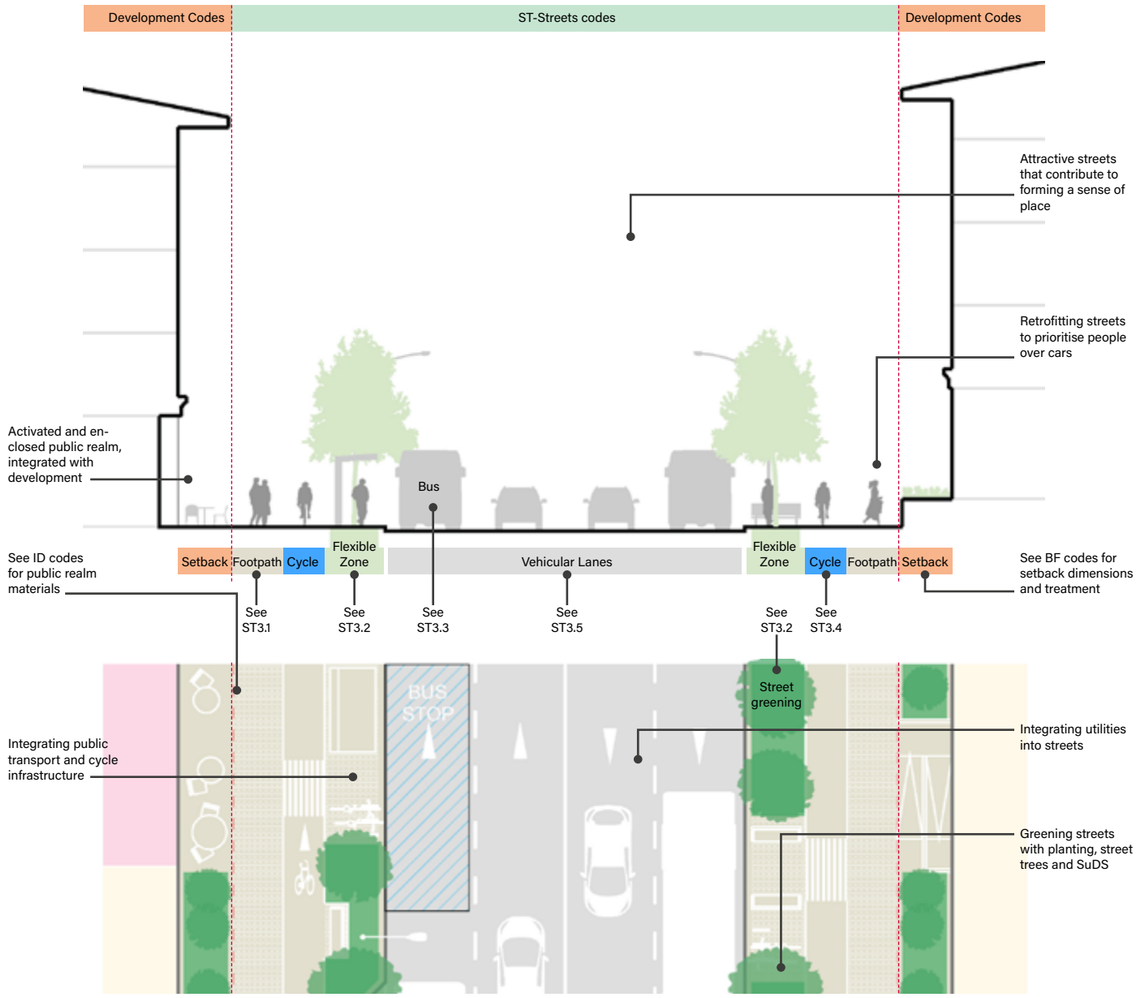
Streets in Urban I and II Area Types ***should*** provide a strong definition of the public realm, with a compact enclosure ratio (e.g. 1:1 ratio, where height of buildings and width of street are similar) and a strong relationship between building setbacks and the street. Materials ***should*** be robust, with clear delineation between street elements.

Streets in Suburban I and II Area Types ***should*** have a more open feel with a generous enclosure ratio (e.g. 1:1.15 ratio, where width of street is greater than height of buildings). Streets ***should*** have concentrated pockets of activity, and a subtler delineation between privately owned building setbacks and the public realm and between street elements and avoidance of segregated street allocations ***should*** be promoted. Streets ***should*** have more space for substantial greenery.

Streets in Suburban III and Rural Area Types ***should*** have a very open enclosure ratio (e.g. 1:1.3 ratio), with limited activity and large private setbacks loosely delineated from the public realm. The street treatment can be very informal, with little delineations between street elements.

Refer to ID 1.1 Public Realm Identity, for more detailed guidance on street materials.

Refer to CS-Character Chapter and ID 1.1.



Street design principles and the Street Elements

Enclosure Ratio : compact (1:1) | Enclosure Ratio : generous (1:1.2) | Enclosure Ratio : open (1:1.4)

Examples of enclosure ratios (Distance or width of street:Height)

ST2.2 A multi-modal approach

ST2.2.1 An integrated transport network

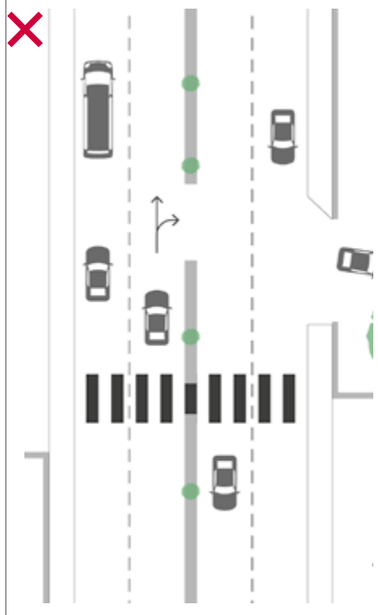
The design of streets ***must*** re-prioritise space for pedestrian facilities. The needs of pedestrians ***must*** be considered first, then public transport and cyclists (where they are required). A balance ***must*** be struck between the needs of pedestrians and vehicular circulation.

Pavements and pedestrian crossings ***must*** be included on all streets. Pavements ***must*** provide a continuous path which is paved, even and unobstructed.

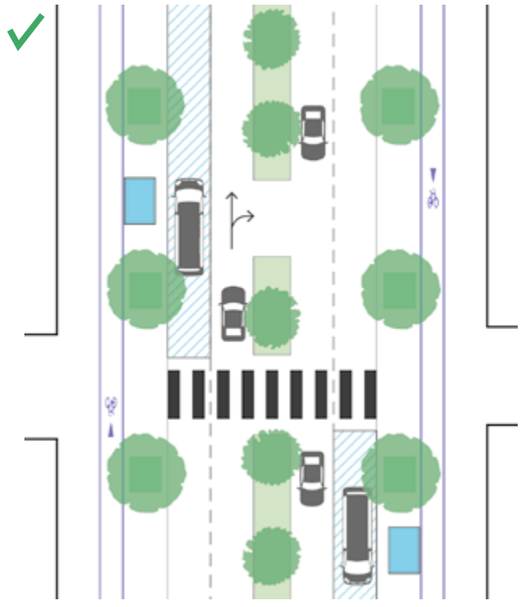
The design and integration within the streets of Mobility Hubs, bus interchanges and bus stops ***must*** ensure the safety and comfort of pedestrians and users, e.g. lighting, clear signage and public transport information (e.g. timetables), associated crossing points, shelter from rain and seating, to ensure safe and accessible transit nodes for all users. All bus stops ***must*** have an associated pedestrian crossing facility no more than 40m away.

Continuous, direct pedestrian and bicycle routes ***must*** be provided from the surrounding neighbourhood to public transport stops, interchanges and the hierarchy of Centres (See TSP US2). Cycle routes may not require dedicated cycle lanes, when availing of low speed, low volume streets which are cyclable.

Wayfinding facilities, including signage and good lighting ***should*** be enhanced from surrounding locations to Mobility Hubs and bus stops to improve pedestrian accessibility.



A street designed for cars



A multi-modal street for pedestrians, cyclists, public transport and cars

Refer to TSP 2023, Policy US2

ST2.3 Retro-fitting existing streets

ST2.3.1 Retro-fitting existing streets

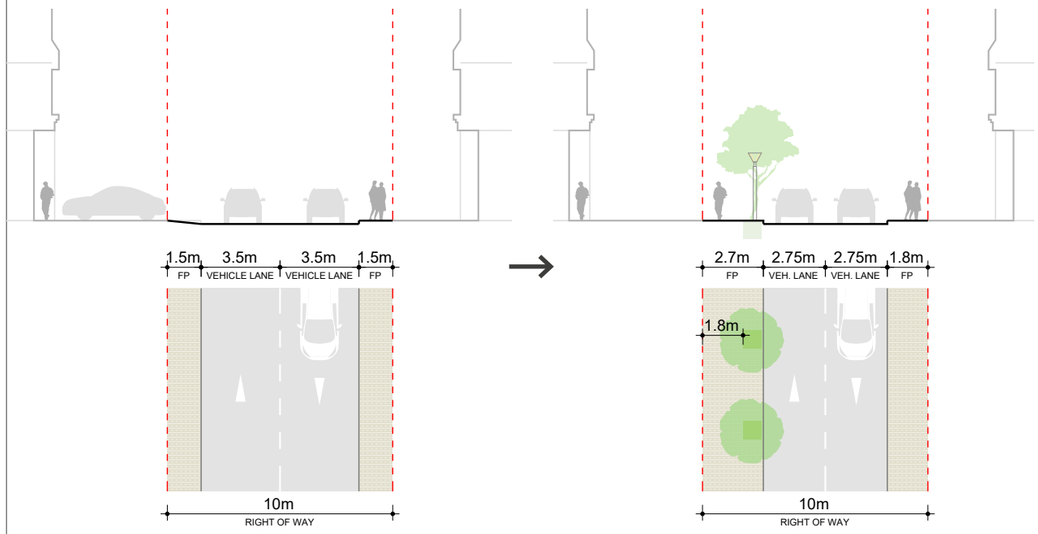
Existing streets ***must*** be retrofitted in order to comply with the required functionality and dimensions defined in Required Street Functionality Table (See ST 1.1.1) as well as the dimensional requirements for individual street elements as defined in ST3.

Where existing streets provide narrower widths than described in the typical sections, a decision process ***must*** be undertaken to determine the critical functionality, which will inform the Street Elements to be prioritised - see Demonstration 8.

Where existing streets provide wider vehicular lanes than described in ST3.5.1, a decision process ***must*** be undertaken to determine the critical functionality, and space ***must*** be re-allocated for other Street Elements in accordance with the priorities established.

When streets are re-designed, existing trees ***must*** be retained, where possible. If existing trees are removed, the same number of trees ***must*** be re-planted within the same street.

If existing trees obstruct the route for pedestrian movement, the footpath ***must*** be extended beyond the tree line to create additional space or adequate alternative arrangements for pedestrians ***must*** be provided.



Retro-fitting an existing street (left) to incorporate required elements (right)

Refer to ID 1.1 chapter

Demonstration 9

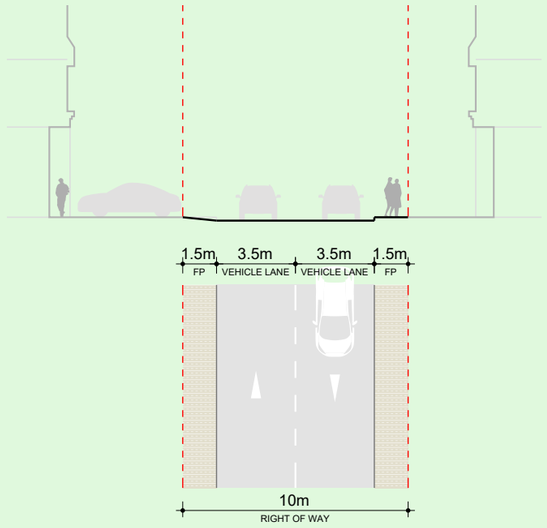
The following demonstration provides a set of illustrations describing the step by step guide to retrofitting existing streets to comply with codes and best practice guidelines.

Retro-fitting existing streets

Step 1: Identify the existing street conditions, designated street type and required functionality

Identify property boundaries, existing public ROW, dimensions of individual street elements, and functional requirements

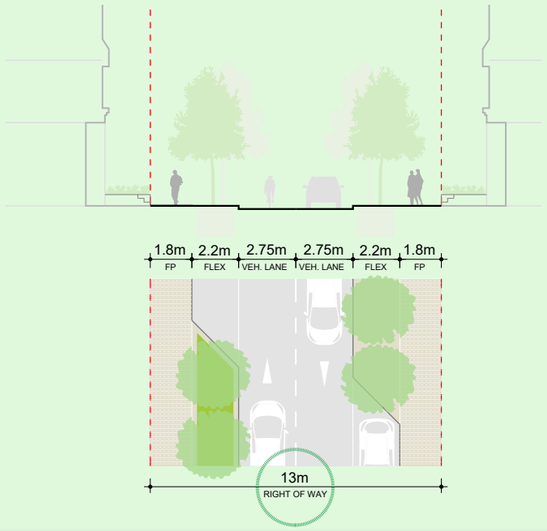
Example tertiary street in Babesa:
tertiary street, requiring two-way vehicular lanes and footpaths on both sides



Step 2: Review the code for requirements and best-practice guidelines

Review the typical section for streets designated type, including minimum and maximum dimensions for individual street elements.

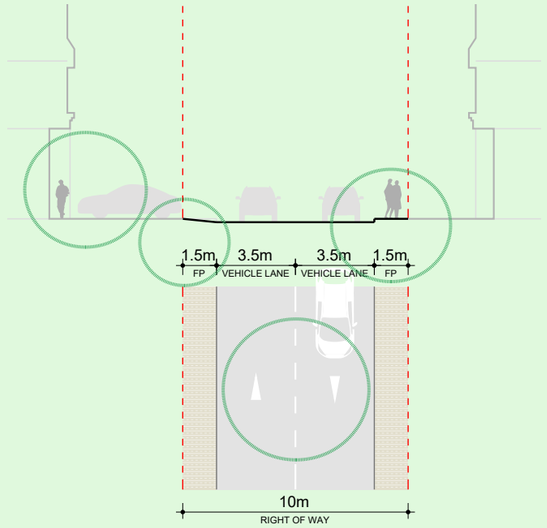
This will likely exceed the ROW width of the existing street. Therefore the typical section needs to be adapted to the constrained reality.



Example typical tertiary street:
13m ROW, with 1.8m wide footpaths, 2.75m wide vehicular lanes and 2.2m flexible lanes

Step 3: Identify critical constraints and issues, and decide on functionality priorities

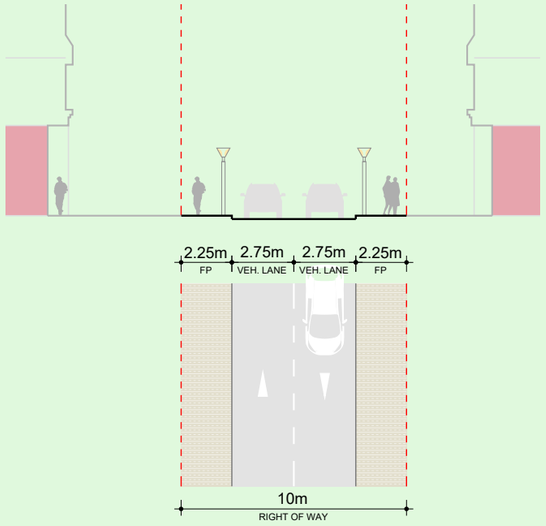
Role and functionality	What are the main existing/future uses along the street? How do existing/future edge conditions contribute to the experience of the street?
Footpath	How important is pedestrian connectivity? Is this street along an existing/future key pedestrian route? Will the street expect to have high or low footfall?
Vehicular Lanes	How many vehicular lanes are required? How can the design of the street enforce the speed limit? Is access for emergency vehicles required?
Public Transport	Are there any existing/future bus routes? Will buses require a dedicated vehicular lane? Is there enough space for bus facilities?
Cycling/ Micro-mobility	Are there existing/future cycle routes? Can cycles share the space with vehicles or will they require dedicated lanes?
Landscape	Is there potential to incorporate landscape and street greening? Can this street contribute to the green/blue infrastructure network?
Parking & Servicing	Is there existing/future demand for on-street parking and servicing zones?



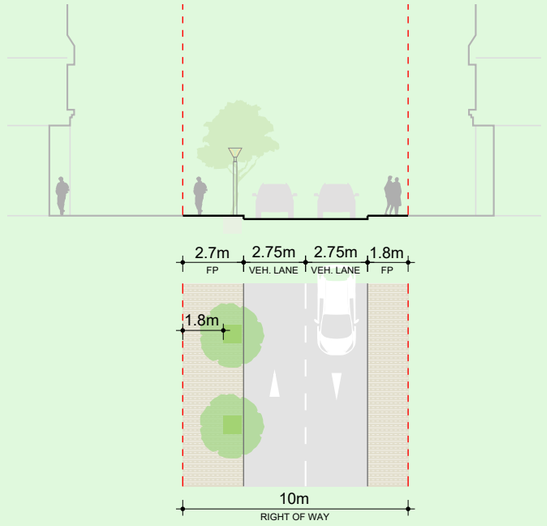
Example tertiary street in Babesa:
footpaths don't meet minimum 1.8m width, vehicular lanes are too wide for the street function, parking is located within the front setbacks, pedestrian zone is frequently interrupted by car ramps

Step 4: Adjust street elements to available ROW width based on priority

Apply minimum standards for the required street elements. Any remaining space can be allocated to prioritising certain functionality. This will depend on context and intended use.



Example tertiary street in Babesa:
wide footpaths are prioritised to support the active frontages which line the street



Example tertiary street in Babesa:
asymmetrical footpaths enable planting on one side of the street to provide shade and storm water attenuation

ST2.4 Design speed

ST2.4.1 Design speed

Streets ***must*** be designed to passively enforce a usable 'design speed' that drivers are intended to travel at, rather than the maximum speed legally allowed for that street.

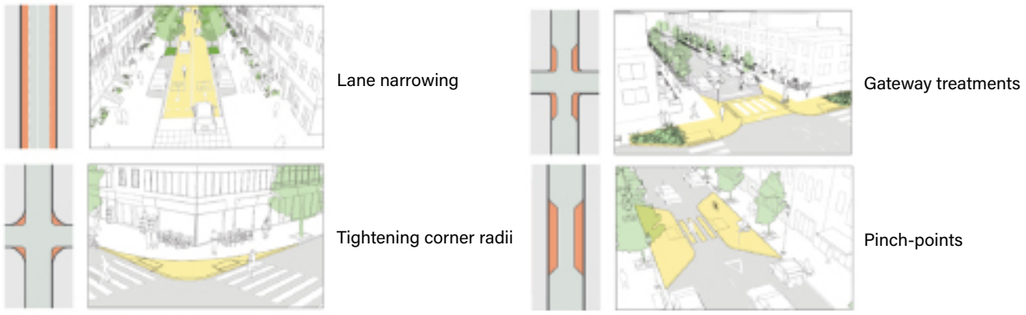
Priority traffic calming strategies described below ***should*** be introduced into streets to effectively implement the intended design speed and if they are considered not suitable, the secondary strategies ***should*** be explored.

The "Required Street Functionality Table" provides design speeds based on street hierarchy.

Factors which ***should*** be considered when defining an appropriate 'design speed' include: street widths; on-street car parking; vertical deflections (e.g. raised pedestrian crossings); urban furniture and landscaping; the existing and/or anticipated level of pedestrian activity; the number and frequency of junctions and vehicular plot access points; and the intended character of the street.

Explanatory text

Higher design speeds generally mandate larger kerb radii, wider vehicular lane widths, guardrails and buffer zones, which can reduce pedestrian accessibility. Streets designed to passively enforce lower design speeds deploy elements that reduce vehicle speeds, providing a safer place for people to walk and cycle.



Priority strategies for traffic calming
Source: NACTO Global Street Design Guide

Secondary strategies for traffic calming
Source: NACTO Global Street Design Guide

ST2.5 Responding to topography

ST2.5.1 Responding to topography

Streets ***must*** minimise gradients as much as possible, responding to site topography and aligning with contours to maximise accessibility and reduce site disturbance.

Streets ***should*** be designed with a maximum gradient of 7% (1:15) to ensure pedestrian accessibility, where possible.

Best Practice

Streets could be designed with adaptable sections that accommodate changes in grade, including stepped sidewalks, retaining walls, or sloped green spaces.

Switchback or serpentine designs could be used to navigate steep slopes gradually, reducing the overall grade and making it easier for pedestrians and cyclists.

Staircases could be integrated into pedestrian footpaths in areas where the gradient is too steep for standard footpaths or roads.

The topography could be used to integrate sustainable urban drainage systems, such as bioswales or permeable pavements into natural drainage.

Pedestrian infrastructure can be partially detached from carriageway, to minimise impact on landscape.

The impact of new roads in steep locations ***must*** be minimised. Tree and vegetation removal ***must*** be avoided and re-forming the earth ***must*** be minimised by reducing the heights of cuts into hillside.

New access roads in steep locations ***should*** be narrow, with a maximum width of 4.5m.

Best Practice

To reduce the impact of new roads in steeper areas, single lane roads could be used with wider sections for vehicles to pass at suitable locations.

Adaptive streets accommodating grade change
Source: Vladimir Guculak

Incorporation of switchbacks

Integrated staircases and ramps
Source: Atelier de paysages Bruel Delmar

SuDS which accommodate grade change
Source: CIWEM

ST2.5.2

Accessible streets

Streets with gradients less than 1:21 (5%) ***must*** be defined as 'Accessible Streets.'

Streets defined as 'Accessible Streets' ***should*** be designed to provide a high level of accessibility and comfort for differently-abled pedestrians and ***should*** be designed to encourage cycle movement.

If topography allows, Comprehensive Developments, ***should*** have at least 25% of new streets created as 'Accessible Streets,' with a gradient of 1:21 (5%) or less.

Inclusion of accessible ramps
Source: Clay Holden

ST2.5.3

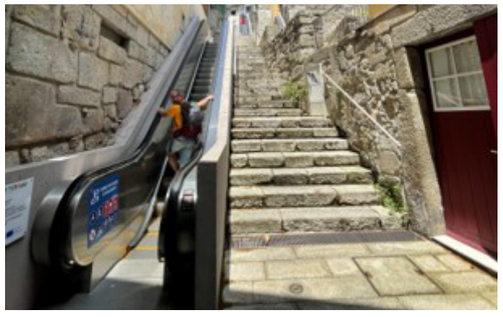
Steep gradients

New or existing streets which provide critical pedestrian connection to key neighbourhood or City-wide destinations, that have a gradient greater than 1:21 (5%) gradient ***should*** incorporate alternative means of increasing accessibility for differently-abled pedestrians.

Best Practice

Accessibility could be prioritised by incorporating ramps, public elevators or escalators, or other features that make streets usable for people with disabilities.

Cable cars could be used to traverse steep topographies and create accessible connections between high-trafficked locations.



Outdoor escalators for accessible access
Source: Porto, Portugal

Potential long-term transport modes for steep topography
Source: Cerro de Monserrate

ST2.6 Integrating utilities

ST2.6.1

Integrating utilities into streets

Utilities ***must*** be integrated within the Public Right of Way, in coordination with requirements for green infrastructure and overall street design in order to deliver safe and functional streets with high quality public realm. Utility services ***must*** be located within the street considering long-term installation, maintenance, and repair requirements and their impact on the wider street network and re-instatement of street surfaces. Public realm interventions within Hazard Zones ***must*** require the reinforcement and redundancy of critical utility infrastructure to minimize service disruptions.

Priority utilities which require more frequent access ***should*** be located under footpaths wherever feasible to minimise traffic interruptions, particularly to primary and secondary streets, those with high-capacity traffic and public transport corridors. Priority utilities include communications and electric services.

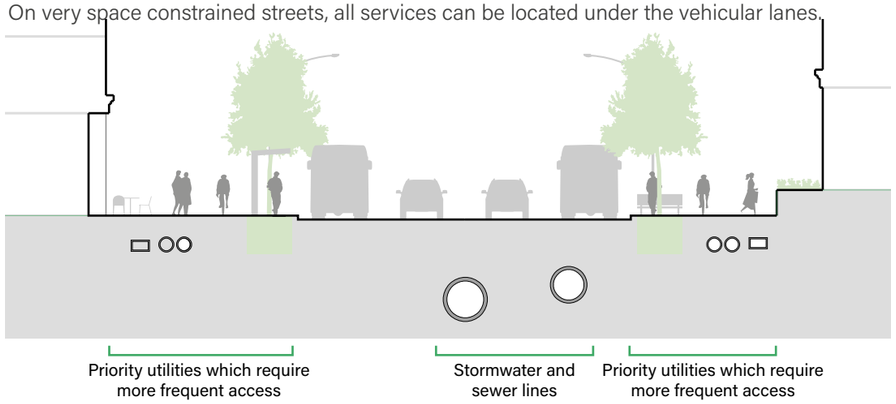
Less frequently accessed utilities, such as sewer and stormwater drains, ***should*** generally be located under the vehicular lanes. On Primary and Secondary streets, all services ***should*** be located under the footpath to avoid disruption during maintenance. It could also be located under flexible zone.

Relevant agencies, authorities and utility companies ***should*** coordinate to ensure street designs accommodate space for new utilities without impeding accessibility.

Utilities with surface components (such as manhole covers) ***must*** align with the finished road and footpath elevations to avoid tripping hazards or risk of injury. Manholes ***should not*** be placed on pedestrian crossings, in the kerb or on cycle paths. Smaller valve or hydrant covers can be located on cycle paths, where necessary. Manhole covers ***should*** generally be located within the Flexible Zone and avoid the footpath where possible.

Above ground utilities such as lighting poles and service boxes ***must*** be located within the Flexible Zone so that the footpath is clear and free of obstructions. A minimum of 1m separation ***must*** be provided between services and on-street planting zones to avoid conflicts with roots. Where this is not possible, root barriers ***should*** be installed around tree pits to direct growth downward.

On very space constrained streets, all services can be located under the vehicular lanes.



Integrating utilities within the street

ST3 Street Elements

To provide guidance around the function, dimension and design layout of each of the elements that could make up the components of a street. The different combinations of these elements will serve to create differentiated streets according to function, role, hierarchy and existing dimension.

ST3.1 Footpath

ST3.1.1 A clear path for pedestrians

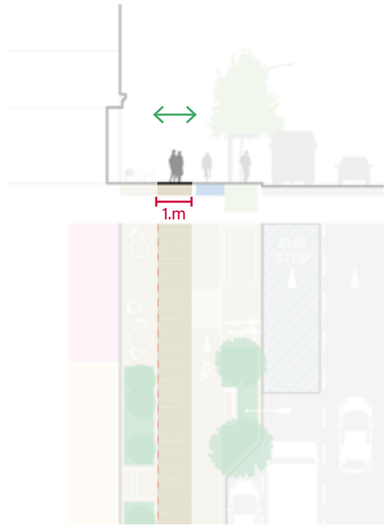
The footpath ***must*** provide a continuous path (minimum 1.5m width) for pedestrians to move along which is paved, even and unobstructed.

Footpaths ***must*** be provided on at least one side of every street.

+-

In City Core, Major Employment, Urban I and II and Suburban I, II, III Area Types footpaths ***must*** be provided on both sides of every street. However, there are some conditions within urban areas where a single footpath is appropriate e.g. where there is development only on one side.

In Rural Area Types outside of Rural Local Centres footpaths and roadway maybe shared providing traffic levels and speeds can be reduced.



Discontinuous & large level change

Too narrow and inconsistent paving

Obstructions within footpath

Footpaths ***must*** be a minimum width of 1.5-2.0m depending on street hierarchy. However footpath widths are expected to exceed the minimum dimension and ***should*** provide space proportionally with expected pedestrian volume.

Pedestrian facilities ***must*** be provided between bus stops and nearest pedestrian crossing, where footpaths are not on both sides.

Kerbs ***must*** be provided along all primary and secondary streets to create a structural edge between the footpath and adjacent travel lanes.

Footpaths ***must*** be a maximum of 0.3m vertically separated from travel lanes. However a 0.15m vertical separation is expected to be achieved where-ever possible to maximise accessibility and safety.

Any construction project that obstructs the pavement ***must*** be mitigated by providing a temporary pavement with a safe and convenient passage or a clearly marked detour. Adequate lighting ***should*** also be provided beneath scaffolding and other construction sites.

Streets with existing or expected high levels of activation such as within Neighbourhood Centres or the City Core, ***should*** aim to provide 3m wide footpaths to support pedestrian activity.

Refer to ID-Public Realm Identity chapter for appropriate materiality.

Generous and continuous footpath free of obstructions

Refer to ID chapter

ST3.2 Flexible Zone

ST3.2.1 Flexible Zone

The Flexible Zone ***should*** be located at the same level as the adjacent footpath.

The Flexible Zone ***should*** provide space for amenities such as lighting, benches, kiosks, utility poles, and cycle parking to be located within the street without obstructing the clear path for pedestrians.

Bus Stop and on-street Mobility Hub elements ***should*** also be located within the Flexible Zone.

Opportunities for people to pause and rest ***should*** be provided in high footfall areas.

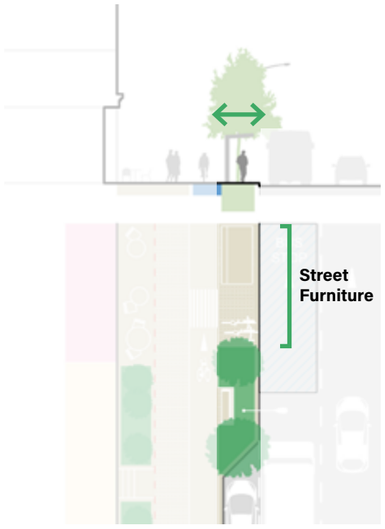
ST3.2.2 Street furniture

Street furniture ***must*** be located within the Flexible Zone and ***must*** :

- be sufficiently robust, which means being long lasting, low maintenance and vandal resistant;
- be user friendly and attractive;
- work collectively as a 'visual family' of furniture;
- work comfortably with the existing built fabric.

Waste receptacles ***should*** be located within the Flexible Zone and conveniently placed along a street to help maintain a clean and enjoyable pedestrian environment. Receptacles ***should*** be sized in accordance with expected use and local collection and maintenance plans.

Refer to the ID chapter for more detailed guidance on public realm furniture and lighting.



Inadequate street furniture to support pedestrian demand

Refer to ID chapter

Pedestrian-scaled lighting ***should*** be positioned along all streets, ensuring appropriate illumination levels and spacing to avoid dark spots between light sources. Well-lit spaces are critical to pedestrian safety, creating lively, inviting spaces at night and preventing crime.

Major intersections and pedestrian safety islands ***should*** be adequately lit with pedestrian-scaled lights to ensure visibility.

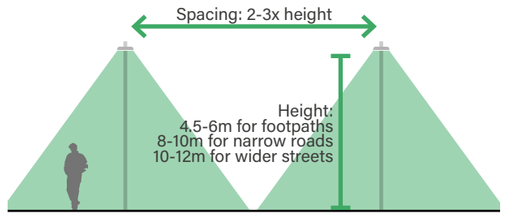
Lighting ***should*** be focused from light poles and fixtures directly onto the street to minimise glare and light pollution that could negatively impact wildlife and human well-being.

Street light height for footpaths ***should*** be 4.5–6m. Street light height for vehicular lanes ***should*** vary according to street typology and land use. Generally, for narrow streets in residential, commercial, and historical contexts heights ***should*** be 8–10m. Taller poles of 10-12m are appropriate on wider streets in commercial or industrial areas.

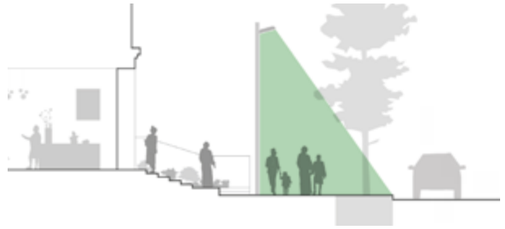
Spacing between adjacent street lights ***should*** be approximately 2–3 times the height of the pole. Shorter light poles ***should*** be installed at closer intervals.

Brightness levels ***should*** be greater along commercial streets and softer in residential areas.

In very narrow streets, lighting ***should*** be located on the frontages of buildings rather than independently on lighting poles within the street.



Street light height and spacing



Lighting focused onto street

ST3.2.3 Street greening

Green infrastructure elements such as trees, planters and Sustainable Drainage Systems (SuDS) ***must*** be integrated into streets to manage flooding and water pollution by slowing water runoff velocity, absorbing and filtering stormwater. These elements ***should*** be located in Flexible Zones.

Planting zones ***must*** be a minimum width of 1.0m. Planting zones with street trees ***must*** be a minimum width of 1.5m. Planting zones ***should*** be consolidated and continuous where possible to increase functionality.

Planting zones ***must*** be a minimum depth of 1.0m. Additional depth ***should*** be provided where possible to support larger trees to be planted, allow smaller trees to grow to a maturity and ensure plant health and reduced need for irrigation.

Where SuDS are located on streets with gradients in excess of 10%, check dams, berms, weirs and geotextiles ***must*** be utilised to create a stepped gradient to prevent soil erosion.

Trees ***must*** be appropriately spaced to allow for mature canopies. A minimum separation of 3m ***must*** be provided from building frontages.

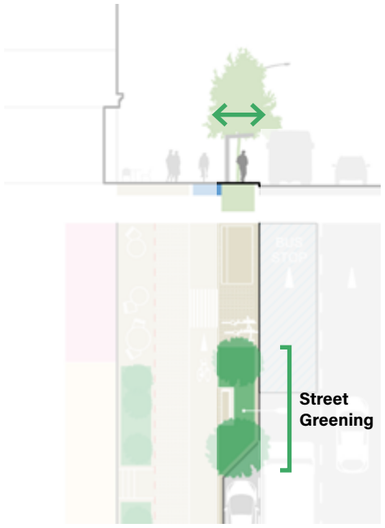
On-street planting ***should*** provide shade and a sense of enclosure to the street.

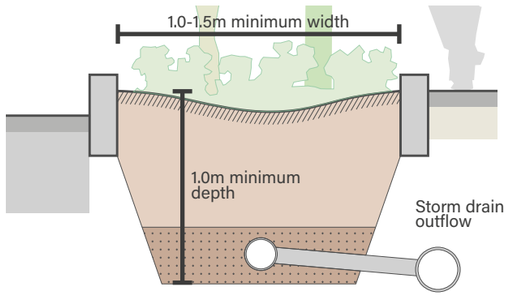
Tree planting ***should*** be coordinated with other infrastructure elements to avoid conflict, particularly with transportation and underground utilities.

Green infrastructure ***should not*** be an obstacle to safe and adequate pedestrian movements, particularly near junctions or in areas of higher pedestrian volumes

When streets are retro-fitted existing trees ***should*** be retained where possible. If existing trees ***must*** be removed, the same number of new trees ***should*** be planted within the street.

Also see ID chapter.





Planting zone integrating SUDs

Incorporation of planting zones with frequent street trees

Refer to ID 1.1 chapter

ST3.2.4 Parking and servicing

On-street zones for parking and servicing ***must*** be a minimum width of 2.4m. Where parallel parking is introduced the width ***should*** be reduced to 2.2m minimum.

On-street parking zones ***must*** be consolidated into efficient runs of multiple spaces, with a minimum of two and maximum of five consecutive parking spaces. These parking runs ***should*** be interspersed with planting, street trees and furniture zones.

On-street zones ***should*** be prioritised for servicing and loading, with limited short-term parking in designated locations. They ***should*** be located nearby businesses to facilitate the efficient pick-up and drop-off of goods and away from intersections to reduce conflicts.

Loading/servicing access to dense urban areas ***should*** be restricted to off-peak periods such as early mornings or late evenings.

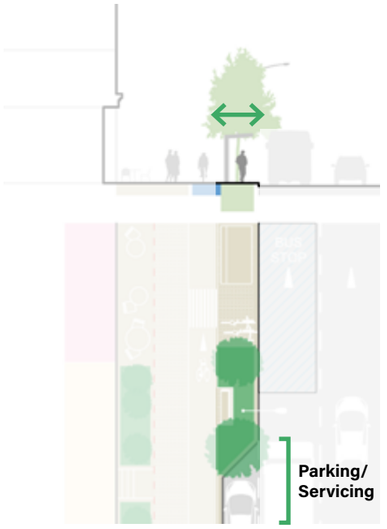
Parking spaces ***should*** be parallel to the roadway and ***should*** form a buffer between the footpath and vehicular lanes.

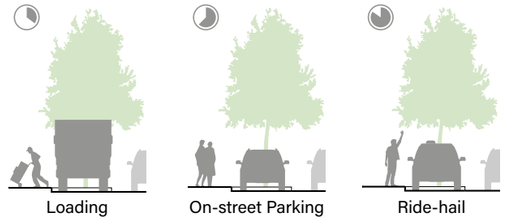
Unregulated on-street parking ***should*** be deterred through the design and layout of streets, and through inclusion and enforcement of parking restrictions.

On-street parking zones ***should*** be located away from cycle infrastructure where possible. If they have to be directly adjacent, a minimum buffer of 0.8m ***should*** be provided for opening of doors and unloading without conflicting with passing bicycles.

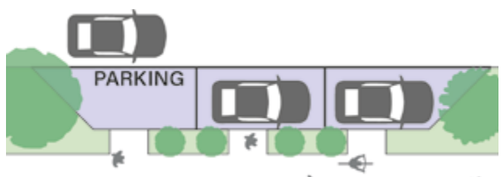
Parking zones ***should*** utilise permeable paving where possible.

Functionality of the parking/servicing zone ***could*** vary depending on the time of day or other events.





Adaptive functionality depending on the time-of-day



Integrated parking on street

Chaotic on-street parking in un-designated areas

ST3.3 Public transport

ST3.3.1 Mobility Hubs

Mobility hubs ***must*** refer to TSP 2023 for location and type of Mobility Hub to be provided in a particular location. The facilities and amenities provided will vary across city locations, in accordance with the TSP 2023. (Refer to TSP Policy T2 and Strategy 7 in the LETMP).

Mobility Hubs ***must*** be integrated into public realm, generally within the Flexible Zone.

Mobility Hubs ***should*** be co-located with active uses and busy public spaces to ensure high levels of usage, passive surveillance and safety.

Elements of a Mobility Hub ***should*** be distributed through the public realm within short walking distance to avoid over-concentration of facilities at one point.

Best Practice

Certain elements could be located within ground floors of adjacent buildings, provided they remain accessible for the general public, for example:

- *Parcel and Delivery Lockers;*
- *Toilets;*
- *Changing rooms.*

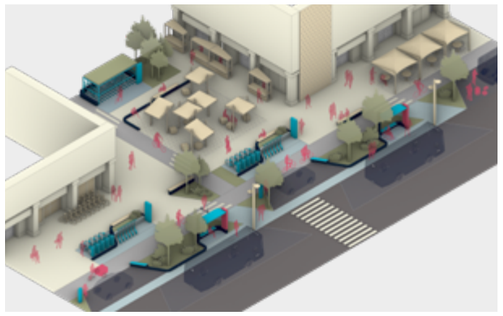


Diagram illustrating a mobility hub in an urban neighbourhood

Co-location of EV charging, bus stop and waiting area

ST3.3.2 Bus Lanes

Vehicular lanes which are also public transport routes ***must*** be a minimum width of 3m if the street provides additional, separate vehicular lanes, or 3.25m wide if cars and buses share the lane..

Dedicated or preferential lanes for buses ***should*** have different surface colours/treatment to indicate their priority.

Bus lanes ***should*** be located closest to footpath, unless associated with left- or right-turning lanes.

Refer to TSP 2023, Policy T2 and LETMP strategies

ST3.3.3 Bus stops

Bus stops ***should*** be located within the Flexible Zone, ensuring they are not obstructing the footpath zone for pedestrians.

A bus shelter zone with a minimum width of 2.0m ***should*** be provided at each bus stop. Where streets are significantly space constrained, a narrower bus shelter zone width is permitted with a reduced number of facilities e.g. no bench.

High quality, safe pavement access and places for people to wait ***must*** be provided.

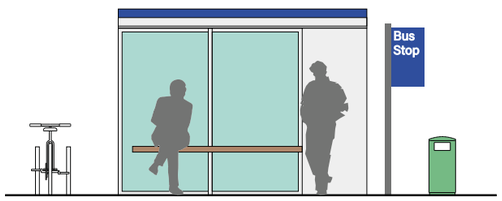
All bus stops ***must*** have pedestrian crossings co-located with them, ideally behind the departing transit vehicle, so that people can safely reach bus stops and transfer between buses. co-located with safe pedestrian crossings,

Bus Stops ***should*** have clearly marked areas that indicate where a given transit line stops and provide sufficient space for vehicles to load to the footpath from the vehicular lane.

Bus stops ***should*** be located to enable approaching pedestrians and public transport drivers to clearly see the stop. Bus stops ***should*** be visible from nearby buildings to maximise informal surveillance.

Seating, weather protection, adequate lighting and integrated travel information displaying bus arrivals and departures ***should*** be considered depending on boarding volume.

A minimum bus shelter zone width of 2.7m ***should*** be provided at highly trafficked stops including within Local and Neighbourhood Centres, City Core, Sub District Centres and main transport interchanges.



Seating, shelter, bike parking, signage and waste receptacles integrated into a bus stop

Lack of seating or shade at a bus stop

ST3.4 Cycle facilities

ST3.4.1 Minimum dimensions (for all dedicated cycle lane types and standalone paths)

One-way dedicated cycle lanes ***must*** be a minimum width of 1.8m.

Two-way dedicated cycle lanes ***must*** be a minimum width of 3m.

Buffers between cycle lanes and vehicular lanes ***must*** be a minimum width of 0.5m.

Cyclists benefit from feeling safe and protected from moving traffic. Cycle lane configuration ***should*** be chosen based on street hierarchy, width, vehicle speed and volume and anticipated cycle volume.

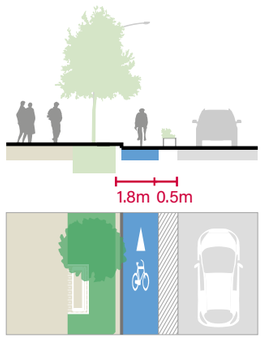
ST3.4.2 Protected dedicated cycle lane

Protected cycle lanes ***should*** be provided on primary cycle routes with high anticipated volumes of vehicular traffic to provide additional safety and comfort.

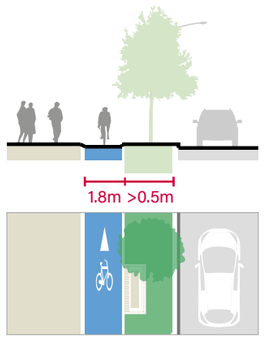
On-street facilities ***should*** be located with a buffer to the roadway of at least 0.5m, ideally provided with physical barriers or planting.

Off-street protected cycle lanes ***should*** be located adjacent to the pavement with the planting/furniture zone providing a buffer from the roadway.

Adequate buffers ***should*** be provided from parked cars and bus stops considering opening doors and pedestrian conflicts.



On-street Protected Lane

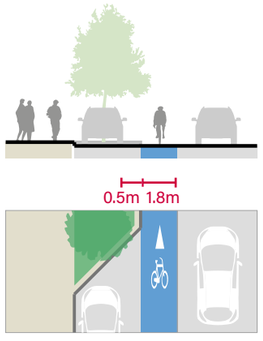


Off-street Protected Lane

ST3.4.3 Dedicated cycle lane

Dedicated cycle lanes ***should*** be provided on secondary cycle routes or routes where street space is constrained.

Cycle lanes ***should*** be located adjacent to the roadway and ***must*** always flow in the same direction as vehicular traffic.



Refer to TSP 2023, Policy T1 and LETMP strategies

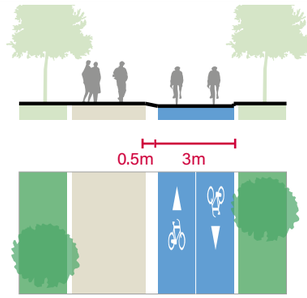
ST3.4.4 Shared roadway

Shared roadways for vehicles and cycles ***should*** be provided on streets. Shared roadways ***should*** ensure safety for cyclists through encouraging low flow, slow speed traffic while allowing cycles to flow alongside.

These ***should*** only be applicable where street width prevents dedicated cycle routes.

ST3.4.5 Standalone cycle path

Standalone cycle paths ***should*** be provided within parks, where footpaths and cycle lanes are provided with a buffer in-between.



ST3.4.6 Cycle facilities

Cycle facilities including parking racks and secure storage ***must*** be located within the Flexible Zone.

Cycle racks ***should*** be provided near major destinations, bus stops and in commercial areas, and each cycle rack ***should*** be placed at least 0.75m apart.

Co-locating cycle facilities with bus stops
Source: NACTO Transit Street Design Guide

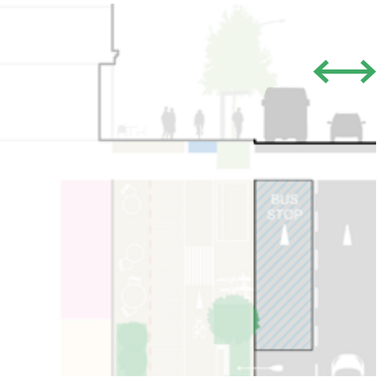
ST3.5 Vehicular lane

ST3.5.1 Vehicular lane

Vehicular lanes ***must*** be between 2.75-3.25m wide depending on design speed and street hierarchy, and ***must not*** be wider than 3.25m.

A maximum of one lane per direction ***must*** be provided.

Refer to ID chapter for guidance on materiality.



Refer to ID chapter

ST3.6 Pedestrian crossings

ST3.6.1 At grade pedestrian crossings

Safe and direct pedestrian crossings ***must*** be located at all primary and secondary street intersections in addition to mid-block points where they ***should*** be located to coincide with key pedestrian paths or desire lines to destinations such as schools, parks, urban centres and public transport nodes.

Pedestrian crossings ***should*** be integrated with bus stop locations.

Pedestrian crossings ***must*** provide direct, continuous and step-free paths across vehicular lanes.

Crossings ***must*** always be marked on all street surfaces, regardless of paving pattern or material.

Pedestrian crossings ***must*** be at least as wide as the footpaths they connect to.

Dropped kerbs ***must*** be located at all pedestrian crossings to provide an accessible transition from the footpath to roadway grade. They ***must*** be built of non-slip materials and have a maximum slope of 1:10 (10%), and ideally 1:12 (8%). They ***must*** be aligned perpendicularly to the pedestrian crossing.

See ST 3.1.1 for more detailed guidance on maximum permitted level change between footpath and roadway.

Footpath width ***should*** be maximised as much as possible at street corners and street intersections to facilitate increased pedestrian activity (these are 'points of decision' where pedestrians may need to pause). Other pedestrian realm elements including furniture and planting ***should*** be offset from the intersection to provide more free space for footpath.

Kerb extensions and refuge islands ***should*** be used to shorten crossing distances and provide protected areas for pedestrians waiting to cross.

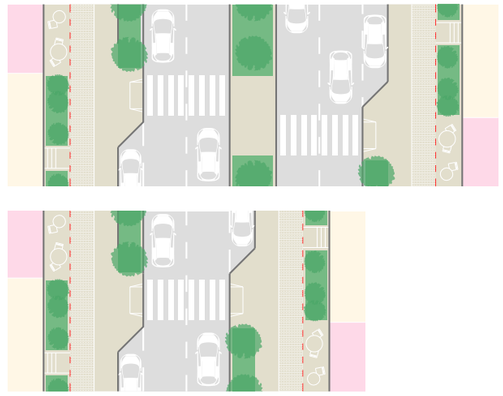
Safe, accessible and level pedestrian crossing
Source: NACTO Urban Street Design Guide

Discontinuous pedestrian crossing with level changes

Refuge islands ***should*** be provided in streets where pedestrians have to cross three or more lanes or where vehicular speeds and volumes make single stage crossings dangerous. Medians ***must*** have a minimum width of 1.2m.

Intersections ***should*** be designed for clear visibility between street users, ensuring that obstructions such as trees, planting and kerbside facilities do not impede sightlines. Parking ***should not*** be located within 5m of a pedestrian crossing.

At vehicular access points, the pedestrian zone ***must*** be extended and clear paths ***should*** be continuous and step-free through the conflict zone.



Pedestrian crossings depending on street width

ST3.6.2 Other pedestrian crossings

Overpasses and underpasses ***should*** be avoided in favour of at-grade crossings. These dramatically increase walking distance and remove pedestrians from the natural surveillance of the street, raising personal safety issues.

Emphasis ***should*** be placed on slowing traffic speeds and forming streets that balance the needs of pedestrians with vehicles. At-grade crossing points serve to slow traffic and remove pedestrian barriers, providing improved conditions for pedestrians.

Under unavoidable circumstances, underpasses could be provided, as determined by the design requirements and standards where possible.

ST3.7 Shared streets

ST3.7.1 Shared streets

Shared Streets ***should*** be utilised in space constrained or very high pedestrian volume streets which anticipate low or restricted vehicle access.

Shared Streets ***should*** be pedestrian priority spaces which permit vehicles as guests. Cyclists ***should*** be expected to slow down or dismount completely.

Shared Streets ***should*** have a low design speed which reflects this pedestrian priority, including careful consideration of material treatment and other traffic calming strategies. More detailed guidance on design speed strategies is provided in ST 2.4.1.

Vehicles as guests, with very slow speeds
Source: Gehl Architects (UK)

ID—Public Realm Identity

ID1 Public Realm Identity

To establish a clear and consistent visual and aesthetic language for the public realm across the City which reflects local materials and native planting.

ID1.1 Materials and colours

ID1.0.1 Materials strategy

Materials selected ***must*** create design unity through the City by using a complementary palette of paving materials, acting as a unifying element between the architecture and the public realm.

A hierarchy of material palettes ***must*** be developed to define and reinforce typology of space.

New public realm features and materials ***must*** respect historic and cultural character, as well as scale of the area.

Materials ***should*** be sustainable, locally sourced, durable and climate-appropriate.

Hard landscape design ***must*** seek to maximise physical accessibility for all users.

Detailing, format, layout, colour and material specification should, where appropriate, take reference from historic and cultural landscape features.

Examples of existing paving in historic, cultural landscapes

Examples of existing historic walls

ID1.1.1 Visual appearance

- A palette of understated, natural hues ***should*** be used for public spaces (refer to ID1.1.4 for hierarchy).
- More vibrant colours ***should*** only be used where specific contrast is required, or as part of the public art strategy.
- Utilities covers and manholes ***should*** be recessed and aligned with paving in pedestrian areas

ID1.1.2 Sustainability considerations

- Locally sourced materials ***must*** be prioritised
- Hard landscape design ***must*** seek to reduce heat island effect through the specification of light materials and cool finishes.
- Material specification ***must*** seek to reduce embodied carbon, considering circular economy principles and material re-use.
- Porous surfaces ***must*** be considered to support the stormwater drainage strategy and slow surface runoff.
- Materials specification ***should*** ensure glare and solar radiation is minimised.
- Materials ***should*** be durable and easy to maintain.

ID1.1.3 Materials hierarchy

Aesthetic qualities, texture, colour and finish ***should*** be determined to ensure visual appeal and harmony with the surrounding environment.

A paving palette hierarchy ***should*** be considered, to define a clear and legible network of routes and spaces.

Palette A - Excellent quality materials and detailing in prominent public spaces.

Palette B - Good quality materials, simple and understated with an emphasis on practicality, durability, robustness and cost effectiveness.

Palette C - Functional, durable and cost-effective materials for utilitarian spaces.

The images opposite are intended to indicate example materials associated with the above descriptions. Prescriptive palettes ***should*** be determined for individual projects considering the above hierarchy, character of the local area and availability of local materials.

Palette A

Palette B

Palette C

ID1.1.4

Types of hard surface

Paving design ***should*** consider the following hard landscape surface types:

- Pedestrian hard surfaces, including: all public realm concourses, plazas, squares, courtyards and gathering areas, pedestrian walkways and routes.
- Shared hard surfaces, including: maintenance, service and emergency routes, pedestrian priority roads, cycle routes and cycle lanes included between pedestrian footpaths and roads.
- Vehicular hard surfaces, including: all street carriageways, medians, crossing points, drop-offs and parking bays.
- Specialist hard surfaces, including: specialist play surfaces to all public realm play areas and recreational spaces.

Pedestrian hard surfaces

Shared hard surfaces

Vehicular hard surfaces

Specialist hard surfaces

ID1.2 Boundaries

ID1.2.1

Boundary walls for public open spaces

The use of traditional materials and construction techniques ***should*** be prioritised for boundary walls.

Boundary wall materiality and style ***should*** be coordinated with adjacent buildings and/or landscapes on site.

Wall height ***should*** be of a human scale and proportionate to the scale of surrounding buildings and public spaces. Adjacent land use ***should*** be assessed to determine specific heights. Tall blank walls ***should*** be avoided adjacent to small or constrained spaces to avoid a sense of enclosure. See also BF8.3 for guidance on wall heights for different Area Types.

Abrupt changes in wall height ***should*** be avoided where there is a risk of disrupting the visual coherence of the built environment.

Wall heights ***should*** be adapted to changes in topography or slope, with terracing or stepping to follow contours and maintain a good visual profile.

The potential impact of wall orientation and heights on microclimate, wind patterns and sunlight exposure ***should*** be evaluated.

Elements of transparency or visual or physical permeability ***should*** be incorporated where possible to maintain visual connections and allow light and views to penetrate boundaries.

Landscaping and planting ***should*** be used to articulate boundaries in a softer manner.

Aggressive-looking defensive measures such as razor wire or barbed wire ***should not*** be used.

Walls ***should*** be designed to minimise any adverse effects on adjacent vegetation, habitats and natural drainage patterns.

Contemporary boundary wall incorporating heritage features with rendered finish - Tashichhodzong Royal Gardens

Boundary wall and access with stone finish - Changzamtog Park

ID1.3 Planting

ID1.3.1 Planting strategy

Existing trees and habitats of value ***must*** be identified by a specialist within initial site assessment and protected where possible. Refer to protection of existing trees and habitats in code NE 2.1.1 and NE 2.1.3.

Planting design ***should*** comprise the following types (refer to ID2.3.3):

- Trees (Large, Medium and Small)
- Shrubs
- Ground cover
- Grasses

Planting ***should*** be designed to support climate change adaptation.

Planting design ***should*** seek to improve local biodiversity and establish new habitats.

Planting ***should*** be designed to provide an appropriate landscape setting for buildings and facilities.

A mix of species ***should*** be specified to enhance resilience to disease.

Planting ***should*** be designed to provide seasonal interest, colour and variety, contributing to the identity of individual neighbourhoods and districts.

Interpretation and signage ***should*** be considered to provide educational opportunities and community engagement.

Trees with more significant maintenance requirements (such as Cypress and Eucalyptus) ***should*** only be considered as feature trees in key public spaces and heritage landscapes.

A comprehensive list of invasive plant species ***should*** be developed, along with associated strategies for controlling and eradicating invasive species.

Planting and displaying native species – Rhododendron planting in Tashichhodzong Gardens

Protecting what is there – Mature cypress tree at Pangri Zampa Monastery

Education, interpretation and awareness – Royal Botanic Gardens

ID1.3.2 Planting function

Shading and microclimate: Planting ***must*** contribute to microclimate strategy, providing shade, shelter and thermal comfort in outdoor areas.

Habitat creation: Habitat creation ***should*** be prioritised through careful specification of plants to enrich biodiversity value.

Edges and transition zones ***should*** be maximised where possible to enhance biodiversity, using natural devices such as planting to minimise public access from sensitive areas of high biodiversity. Delivering appropriate planting along the edges of spaces will support the reinforcement of green infrastructure corridors.

Planting ***must*** be delivered to compensate for any losses that result from development, ensuring an increase in biodiversity for all construction projects.

Colour and form: Planting design ***should*** consider structural form, flowering and aesthetic value.

Wayfinding and legibility: Ornamental feature trees ***should*** be planted at strategic locations to support wayfinding and legibility across the City. Distinct species ***should*** be considered for different neighbourhoods and spaces to reinforce character and identity.

Screening: Where appropriate, planting ***should*** be considered as screening device, framing key views and vistas. Façade greening ***should*** be considered to screen blank façades and provide visual amenity. Living façades can also contribute to energy savings within the building, as well as provide ecological value.

Maximising habitat creation

Diversity of colour and form

Ensuring shade and thermal comfort

Contributing to wayfinding and legibility

ID1.3.3

Planting design

Protecting trees: Street trees ***must*** be supported by stakes in the first few years of growth while root systems establish to protect them from strong winds and accidental damage. The stakes ***must*** be embedded at least 60cm into the ground and secured to the tree.

Root anchor systems could be used as an alternative to staking. These provide permanent support without the visual impact of stakes and do not need to be removed. However, they ***must*** be specified and installed by a specialist and can only be used on larger root balls.

Tree roots ***must*** be contained and deflected away from buildings and utilities through the implementation of suitable root barriers.

Tree sizing: The parameters have been included as typical and ***should*** be used to guide selection of tree sizes and associated spacing, location and soil volume requirements.

LARGE TREES:
>12m height to establish design structure and support wayfinding and legibility

MEDIUM TREES:
7.5-12m height to create flowering interest, provide shade and design structure

SMALL TREES:
<7.5m height to create intimate spaces, support food production and contribute to sensory environments

SHRUBS AND GROUNDCOVER:
Up to 2m in height to establish visual interest, flowering interest and texture

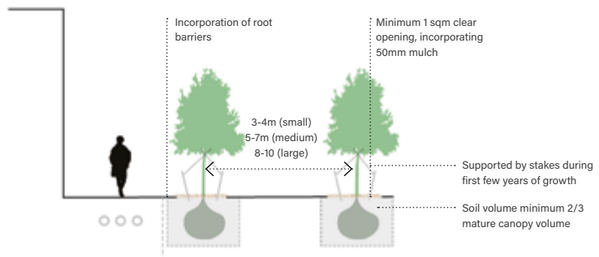


Diagram (above):
Tree sizing parameters

Diagram (left):
Typical planting guidelines

Utilities: Trees ***should*** be located away from existing utilities and services where possible to avoid conflict and constraining the growth of trees. In environments where the below-ground space does not allow for healthy tree growth, alternative planting ***should*** be considered, e.g. shrubs or elevated planters.

Spacing: Spacing and offset from buildings ***should*** be dependent on proposed species and mature canopy sizes. For small trees, spacing ***should*** typically be at 3-4m centres. For medium trees, spacing ***should*** typically be at 5-7m centres. For large trees, spacing ***should*** typically be at 8-10m centres.

Engaging the community: Proposals ***should*** consider community engagement for design and adoption for maintenance.

Irrigation: Overall irrigation water demand ***should*** be minimised via native plant selection suitable for the climate and working with alternative water sources where possible.

Irrigation rings, root drenchers or other suitable systems ***should*** be installed on trees in hard landscapes. These will allow effective irrigation of the root ball which is essential in the first few years after planting. Specifying appropriate irrigation equipment will maximise the system's efficiency. Long term irrigation ***should not*** be required. Stormwater drainage in hard landscapes ***should*** be designed to irrigate planting and trees.

Canopy cover: Specification of trees ***should*** ensure adequate canopy cover to provide shade to rest spaces and pedestrian routes.

Ensuring resilience: A mix of species ***should*** be provided for resilience and biodiversity following the 10-20-30 rule as a guideline, whereby an urban tree population ***should*** include no more than 10% of any one species, 20% of any one genus, or 30% of any family.

Strips of mown lawn adjacent to roads ***should*** be replaced with naturalising planting communities or wildflower meadow to enhance biodiversity and reduce maintenance requirements.

Tree pits: It is essential that adequate space is provided for the tree to grow and accommodate their typical mature canopy size. Advice ***should*** be sought from an early stage of design on height, crown spread and stem diameter to ensure these requirements of trees are fully factored into design. Soil volume ***should*** be 2/3 of mature canopy volume, with a minimum of 30 cubic metres to give trees a viable chance of establishing successfully.

Tree pits in hard surfaces ***should*** have a surface opening that is as large as the space allows but ***must*** be a minimum of 1 sqm. The pit ***should*** be left open and incorporate layers of ground cover planting.

Tree pits ***should*** be covered with a minimum of 50mm mulch (such as bark or gravel) to help the tree establish and to support regulation of temperature and moisture. Alternatively options for grating a wider area to promote infiltration while not impacting on space for pedestrians and footpaths ***should*** be explored.

Specification: Tree species ***should*** be selected on site-specific factors to ensure suitability, including climate suitability, soil conditions, sunlight requirements and space constraints. By selecting the right plant for the right place and considering environmental conditions of any given location, landscape in the public realm will be delivered in harmony with its surroundings.

ID1.3.4

Planting palette

Native species ***must*** be used for the majority of planting. They are best suited for the local climate and provide habitats for birds, insects, and other species. Locally grown trees ***must*** be prioritised.

Species with positive additional benefits such as pollution absorption and shading ***should*** be prioritised.

Selection ***should*** factor in future weather conditions and the impact of climate change.

Species ***should*** be selected from the relevant agency's plant list for permanent planting, ensuring availability of stock from local nurseries.

Rhododendron Gardens - Celebrating key species

Opportunity for interpretation

Use of native species

ID1.4 Furniture and lighting

ID1.4.1

Furniture strategy

Street furniture ***should*** include the following elements: Benches, Cycle racks, Litter bins, Bollards and Lighting

A consistent style of furniture ***should*** be delivered across different areas to support the identity and character.

Before any major public realm works are undertaken, a street audit ***should*** be carried out by a qualified professional to provide a comprehensive assessment of the urban environment. This ***should*** identify existing public realm elements that may be affected by proposed development, including physical infrastructure, pedestrian facilities, landscape elements, safety, accessibility and overall functionality.

Street furniture ***must*** be placed where it will provide the most utility. For example, seating ***should*** be located where people find it most comfortable to sit. This is generally at the edge of public spaces, not backing onto busy roads, close to amenities or somewhere with an attractive view.

Street furniture ***should*** be located within a 'furniture zone' (refer to Streets codes) to provide continuous width of pavement, ensuring this is not reduced below 1.8m.

Street furniture such as cycle racks, planters and bins can serve a useful dual purpose by preventing vehicles encroaching onto pavements.

Example bench, incorporating backrest

Example cycle infrastructure

Example bollard

All furnishings ***must*** follow recognised industry standards.

Street furniture elements ***should*** be consolidated and integrated where possible in order to minimise clutter in the public realm. Placement of elements ***should*** optimise functionality and ensure that it does not impede on pedestrian circulation.

Seating provisioned for general street use ***must*** be designed with easy maintenance in mind, utilising smooth surfaces that are graffiti-resistant and easy to clean. Durable, weather-resistant materials ***should*** be prioritised.

Seats ***must*** be placed at regular centres in public areas, a minimum of every 100m along key pedestrian routes, so that they are visible, accessible and encourage proper use. The placement of litter bins in close proximity can be helpful. Litter bins ***should*** be placed in close proximity.

Seating ***must*** be accessible, comfortable and ergonomically designed. Seating ***should*** incorporate armrests and a backrest, especially in key dwell zones such as squares, parks, promenades and riverfront spaces.

Seating ***should*** be incorporated with landscaping elements where relevant, such as planters or shade structures, to create a visually appealing, clutter free and comfortable environment for users.

Seating design arrangements ***should*** accommodate varying group sizes and configurations to cater to different users.

Seating design ***must*** be sympathetic to local character. Local motifs and public art could be incorporated to strengthen sense of place.

Pedestrian guard rails ***should not*** be used to separate the pavement and carriageway. Instead, softer and more permeable solutions such as trees and greenery, ***should*** be considered.

Public toilets ***should*** be located within a maximum walking distance of 500m from areas of high pedestrian footfall, such as transport hubs, parks and spaces, retail areas and attractions.

Bollards ***should*** be minimised. Where required to ensure pedestrian safety, the use of street furniture such as planters ***should*** be considered to provide user friendly and pedestrian focused public realm.

Water fountains ***should*** be located in areas of high pedestrian footfall, with multiple drinking spouts at varying heights to cater to people of different groups and ages.

Cycle infrastructure ***should*** be designed to support the aspirations of the Low Emissions Transport Master Plan (LETMP) for Thimphu, ensuring that secure racks are placed where they are likely to be used without causing obstruction or clutter.

Charging points ***should*** be incorporated to allow provision for e-bikes.

Cycle racks ***should*** be located in close proximity to access points to maximise natural surveillance.

Wayfinding and signage ***should*** be designed with a uniform approach to ensure legibility. Units ***should*** be placed in strategic locations, such as decision points, intersections, entrances and key destinations.

Incorporating wifi connectivity and charging points into furniture elements ***should*** be considered in order to future-proof primary urban spaces and ensure that they remain adaptable, accessible and technologically advanced.

The locations of bins ***should*** be determined according to demand - adjacent to seating, retail, public transport stops and dwell areas, ensuring placement does not obstruct movement. Bin storage areas ***should*** be designed to fit within new developments so that they do not clutter the street environment.

Example of furniture incorporated with landscape elements

ID1.4.2 Lighting strategy

Lighting ***must*** enhance safety, promote wayfinding and contribute to the overall aesthetic of a new development or public space.

Lighting systems ***should*** be energy-efficient and encourage the use of LED or other energy-efficient technologies. They ***could*** consider motion sensors, timers, and dimming controls to minimise energy consumption.

Design of lighting in the public realm ***should*** minimise light pollution and adhere to Dark Sky principles.

The use of lighting in or near sensitive natural habitats ***should*** be minimised to preserve ecological balance and biodiversity.

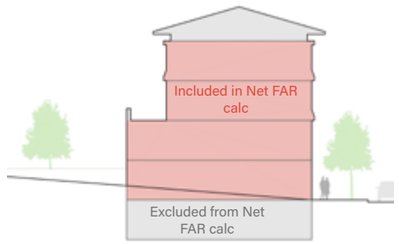
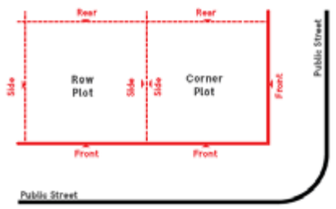
Public spaces ***should*** consider lighting intensity levels for different areas and ensure uniformity of lighting to avoid dark spots or overly bright areas.

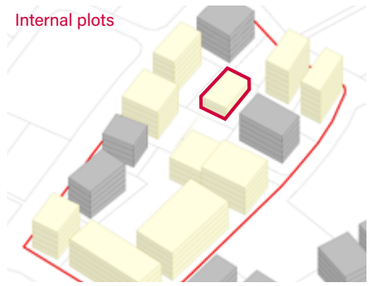
Where lighting columns have been included to illuminate pathways and public spaces, it ***should*** be ensured that tree planting is offset appropriately to mitigate any potential obstruction.

Illuminating key spaces and routes

Low level lighting to illuminate secondary routes and balance ecological requirements

Definitions

Development control	
Building Height	The distance from the lowest ground level of the building to the ceiling of the highest occupied floor (excluding occupiable roofs) 
Plot Size/Area	The extent of the site up to the property boundary, including setbacks and open spaces
Gross External Area (GEA)	The total enclosed occupiable space within the building, measured up to and including the exterior walls. This includes all enclosed balconies. It excludes parking, basements, jamthog and staircases . Can also known as gross floor area (GFA).
Net Floor Area Ratio (net FAR)	Net Floor Area Ratio of the building. Calculated by dividing the building's gross floor area (the Gross External Area or GEA, see above) by the plot area (see above). Car Parking, basements, lift and lift shaft, service ducts, balcony, stilt, jamthog and staircase is excluded from the FAR calculation. Enclosed balconies are included in the FAR calculation. 
Front, side and rear plot lines (and setbacks)	Front plot line: plot line that direcly abuts a public street. Rear plot line: plot line which may or may not directly abut a public street, often parallel with, but on the opposite side of the plot from the front plot line. Side plot line: a plot line other than front and rear plot line, which may not directly abut a public street. 
Standard Plot	Plots between 283-2,000sqm in size, generally promoted by private entities such as families and small developers on individual plots or contiguous consolidated plots
Comprehensive Development	Development on plots larger than 2,000sqm in size, promoted by public or large private entities, on large plots in a single ownership or on multiple, contiguous and consolidated plots. These developments may contain multiple buildings on one plot and are large enough to form small urban blocks.
Storey	The portion of a building included between the surface of any floor & the floor next above it
Plot Coverage	The area of a plot which is occupied by a building or group of buildings. Expressed as a percentage of the plot area.
Building Footprint	The area of a plot which is occupied by a single or individual building. Expressed as an area.

Architectural elements	
Basement	All floors of a building completely below the lowest natural ground level of the plot, irrespective of the topographical conditions of the site
Jamthog	A traditional Bhutanese architectural roof feature, comprising of a raised gable roof over the main gable roof
Occupiable Roof	A Jamthog roof that is fully enclosed and utilised as habitable space
Party Wall	A shared structure between two landholdings and between two conjoined buildings, which is fire-rated and acoustically insulated. Buildings can directly adjoin to adjacent buildings with discrete ownership through the use of party walls along ownership boundaries.
Building separation	
Habitable Façade	A habitable facade is the side of a building with primary windows or openings for habitable spaces, facilitating access to daylight, fresh air, and external views.
Non-habitable Façade	A non-habitable façade is the side of a building which may have secondary windows/ openings from internal spaces or no windows/openings.
Primary Window/ opening	A primary window/opening is typically larger and strategically located to act as the main source of natural light, ventilation, and external views for an internal space, aiming to optimize daylight, air circulation, and visibility within habitable areas.
Secondary window/ Opening	A secondary window/opening supplements the primary window by offering extra light, ventilation, and possibly views. It is usually smaller and positioned less strategically than the primary window.
Habitable Spaces	Habitable Spaces encompass areas such as living rooms, dining rooms, bedrooms, study rooms, offices, and living balconies—spaces that form part of the building's living or working accommodation with regular occupancy.
Non-habitable Spaces	Non-Habitable Spaces include bathrooms, utility rooms, storage areas, circulation spaces, kitchens, utility balconies, and other areas not for regular occupancy.
Urban structure	
Plot	An area of land contained with property lines under a single ownership
Block	A contiguous development area defined by a series of related public streets, with development (whether a single building or multiple) forming frontages to these streets.
Internal Plot	A plot which is located within a block, and doesn't have any direct public street frontage (and may only be accessed by an access way or cul-de-sac). The plots are generally surrounded by other plots/ developments on all sides. 
Plot Consolidation	The process of combining and consolidating two or more smaller discrete plots together to create a single, larger plot

Plot Subdivision	Plot subdivision is the process of dividing a single, larger plot into two or more smaller, distinct plots.
Living neighbourhoods	
Tenure	The financial and ownership conditions under which someone has the right to live in a home e.g. private ownership, private tenancy, public affordable housing
Lettable Floor Area (LFA)	The area of a building that is exclusively available to be leased or rented out to tenants. It excludes common areas such as lobbies, stairwells, elevators, and shared facilities like rest-rooms and mechanical rooms
Amenity/Utility Balconies	An Amenity Balcony is a private outdoor space, for purposes of relaxaton, amenity and sociability. Outdoor balconies used for service functions such as clothes washing/drying would be considered an Utility Balcony.
Building interfaces	
Informal Surveillance	Informal and passive observation, from the street or adjacent buildings, provided by people as they go about their daily activities. This can deter criminal activity or anti-social behaviour and make places feel safer.
Active Frontage	Ground floor uses which provide active visual engagement with the street or public realm to create interest and activity. This includes retail, small healthcare, entertainment, workplace, hospitality, commercial and some residential uses including larger residential lobbies, shared amenities, community spaces and fitness facilities.
Front Setback	A building setback that is measured from the front plot line to the front of building.
Side Setback	A building setback that is measured from the side plot line to the outermost projection of the building on the side.
Rear Setback	A building setback that is measured from the rear plot line to the the outermost projection of the building on the rear.
Edge Conditions	Interfaces between plots and certain geographic features, including Green Streams, Forest Edges, Valley Parks and which have special controls on built form
Street	
Right-of-way (ROW)	The width of a publicly owned street, measured as the distance between private plot lines
Enclosure Ratio	The ratio between the vertical building height and the horizontal distance, including ROW and setbacks, between buildings
Land use	
Land Use	Designated categories as outlined in the TSP which control allowable uses
Entertainment Uses	Uses such as but not limited to karaoke, bowling alleys, night clubs, bars, pubs, indoor games parlour, pool and billiard halls, cinema halls, other night time recreational activities
Light Industrial Uses	Workshops, service stations and car repair services and warehouse/storage spaces
Community Uses	Playing fields, gymnasiums, swimming pools, libraries, crèches/daycare facilities and community halls
Retail Uses	Food and drink, shops
Employment Uses	Government, institutions, offices, home offices, art studios and creative spaces, co-working, and offices for small businesses, clinics and educational services
Hospitality Uses	Hotels, hostels, lodging and tourism facilities
Educational Uses	Schools, colleges, research institutions, training facilities and public libraries
Laws, Regulations, Standards and Guidelines	
Local Area Plan (LAP)	A public planning document which provides further spatial planning guidance at the neighbourhood level. These are developed in line with the policies set out at Structure Plan level but provide more detail on the direction of development and regeneration.
Thimphu Structure Plan (TSP)	The companion statutory planning document to the Design Code guiding decisions on development and regeneration activity within Thimphu up to 2047, including development control plans, polices and regulations
Other definitions	
Implementing Authority	An administrative body empowered to regulate, enforce and determine applications for construction, development and improvements to the built form and public realm of the urban/rural juristiction it oversees.
Innovative Architecture	Innovative architecture allows for the exploration of new technological or design-related approaches. It provides a way for architecture to reflect and embody the evolving technical and cultural context within which it is located.
Contemporary/ contextual Architecture	Contextual/contemporary architecture offers a greater degree of flexibility to interpret and abstract traditional features, respond to distinctive contexts and contemporary lifestyles, whilst reflecting modern materials and methods of construction.
Smart Meters	Energy and Water Smart metering requires Meters, Communications and Software which need to be compatible with one another. The specific systems to be used have not been defined as part of this Design Code. A developer will need to provide a 'boundary box' within an internal space within the building to house the meter which would be supplied/ installed by the water/energy utility.
Rural Clusters	Buildings within rural areas have developed over time a specific morphology which is fundamental to the rural character and sense of place. Buildings in rural areas generally form small clusters along the main rural road, with forests covering the slopes above the cluster and agricultural fields extending below it. These clusters are separated by landscapes of a natural or agricultural character.
Green and Blue Infrastructure	Blue Green Infrastructure is defined as a 'strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem service' (European Commission).
Sustainable Urban Drainage (SuDS)	Sustainable Drainage Systems (SuDS) are a set of practices and techniques used in urban planning and development to manage rainwater and surface water runoff in a more sustainable and environmentally friendly manner. Providing opportunities for increased amenity value and place making through the utilisation of a nature-based solutions to reduce flood risk and attenuate surface water runoff. SuDS aim to mimic natural drainage processes, reducing the risk of flooding, improving water quality, and enhancing the overall resilience of urban areas (GreenBlue Urban)

Compli-
ance

Duties of Owner, Qualified Persons, Certified Builder and Site Supervisor

Duties of Owner
An owner or developer of building works ***must*** :
(1) appoint a certified person to prepare the plans and designs of the building works in accordance with this Code and other relevant laws in force;
(2) appoint qualified person to supervise the carrying out of building works;
(3) appoint a certified plumber and electrician to carry out the plumbing and electrical works respectively;
(4) maintain documents from the start of the process of construction till the issuance of the occupancy certificate; and
(5) take greening initiatives around the construction site such as planting trees, as per the provisions of the code and directed by the Implementing Authority.
(6) Avoid use of part or whole of building and its premise for purpose that would cause health, hygiene and safety issues unless approved by the Implementing authority.

An owner ***must*** appoint a certified builder to carry out building works, if the owner decides not to execute the building works.
If a qualified person, certified builder, plumber and electrician appointed is unwilling or unable to act for any reason, the owner ***must*** , within 14 days appoint a replacement.
In the absence of a site supervisor, the owner ***must*** take all reasonable steps and exercise due diligence in supervising the concreting, or other critical structural works to ensure that those critical structural works are being carried out in accordance with this code.

Duties of Qualified Persons
A certified person appointed to prepare the plans of any building works ***must*** take reasonable steps and exercise due diligence to ensure that the building works are designed in accordance with this code and other relevant laws in force.

A qualified person appointed to supervise the carrying out of any building works ***must*** :
(1) take reasonable steps and exercise due diligence in supervising and inspecting the building works to ensure that the building works are being carried out in accordance with this code.

Duties of Certified Builder
A Certified Builder appointed to undertake any building works ***must*** :
(1) ensure that the building works are carried out in accordance with this code and other laws in force; and
(2) appoint an appropriate qualified person to supervise the carrying out of the building works.

Plumbing and Electrical Work
A work involving repair or installation of sanitary fittings ***must*** be carried out by a certified plumber.
All electrical works ***must*** be conducted by a certified electrician.

Supervision of building works
All building works ***must*** be carried out under the supervision of an appropriate qualified person;
The structural elements of all building works ***must*** be carried out under the full-time supervision of a site supervisor, or a team of site supervisors, working under an appropriate qualified person's control and direction; and

Concreting, and construction of earth retaining and stabilising structures ***must*** be carried out under the immediate supervision of an appropriate site supervisor, or a team of site supervisors, working under an appropriate qualified person's control and direction.

Compliance with design and construction requirements

A building ***must*** be designed and all such works ***must*** be carried out in compliance with the requirements set out in the Building Codes in force and any other requirement in this Code.

Power of Inspection

The Implementing Authority is vested with the following powers:
- appoint officers to monitor on-going construction works;
- direct officers to inspect building sites with or without notice; and
- direct the inspection of public properties in the immediate vicinity of the construction site.

An officer under this Code is responsible for providing advice and inspection services to homeowners, builders, and developers.

A person ***must not*** obstruct or prevent an official from inspecting a building construction site.

A proponent of building works ***must*** notify the Implementing Authority at each mandatory notification stage which include:

(1) layout stage;
(2) prior to pouring of concrete for foundations;
(3) for multi-storey buildings, prior to commencement of construction of each level of the building;
(4) on completion of framework; and
(5) upon completion of all building works.

A proponent of building works ***must*** during the mandatory notification stage, submit a request to the respective Implementing Authority for inspection, a week in advance of the inspection.

An officer appointed by the Implementing Authority ***must*** conduct on-site inspection to ensure that the development is compliant with current code, approved plan and laws in force.

For the purpose of mandatory notification stage, the Implementing Authority ***must*** prepare a minimum standard for inspection and preparation of inspection report in order to provide advice on technical matters.

A landowner ***must*** ensure adherence to occupational health and safety requirements, provide suitable signage, equip workers with safety gear, and comply with Ministry regulations during construction, alteration, or demolition.

	Directon to fix building work After inspecting building works, if an officer is of the opinion that the building work fails to comply with this code or the building permit, the official ***must*** report the matter to the Implementing Authority with recommendations. Upon review of the report, if the Implementing Authority so considers fit, it ***should*** give a written notice to the proponent to carry out remedial works within a stipulated time. A written notice could require: (1) a person to obtain a building permit; or (2) to undertake specific remedial building works. A person who is given a direction to fix building works ***must*** comply with the notice or in case of any grievance, the person may appeal to the Technical Committee.
	Stop-work order A Competent Authority could, on the recommendation of the person appointed for inspection direct the proponent to stop building works and ***must*** ensure that the breach: (1) contravenes this Code or other laws in force; (2) is a danger to any property or life, safety or health of any member of the public or any person using such building, land or space; (3) affects any adjoining property; or (4) damages any public properties like roads, footpaths, drains, etc. The Implementing Authority could issue a stop work order with or without prior notice to the proponent and the order ***must*** be in writing, setting out the reasons for the making of the order. If a stop work order is made, the person to whom it is directed ***must*** immediately cease all building works. The Implementing Authority ***must*** along with the stop work order, issue a show cause notice to the proponent and ***must*** consider any written submission made in response to that notice within the time specified in the notice. If the Competent Authority is of the opinion that the case warrants cancellation of a Building Permit, the Implementing Authority ***must*** forthwith cancel the Permit.
	Demolition of unsafe or unauthorized structures The implementing Authority ***must*** direct the demolition of the whole or part of a structure, if the structure or part of it is found unsafe and cannot be safely repaired and ***must*** serve a show cause notice to the owner of the structure. An owner of the structure ***must*** within the time mentioned in the SOP provide justification as to why the structure ***should not*** be demolished. Upon review of the response, if the Implementing Authority is not satisfied with the response, it ***must*** issue an order directing the preparation of demolition plan and specifying a definitive timeline. Noncompliance with the order could result in the Implementing Authority demolishing the structure at the cost and risk of the Owner.

Occupancy Certificate

	A person ***must not*** occupy a whole or part of the building: ▪ if an occupancy certificate has not been issued by the Implementing Authority; or ▪ if the occupation is in contravention to the conditions of the current occupancy certificate for the building.
	An owner of a building ***must*** apply to the Implementing Authority for an occupancy certificate: (1) upon completion of the whole or part of the building; (2) after a major maintenance, improvement or alteration of a building, as determined by the Implementing Authority, has been carried out; (3) upon the change of use; and (4) where an occupancy certificate has lapsed or was not issued earlier. An owner ***must*** be responsible for renewing the occupancy certificate one month before the expiry of the occupancy certificate.
	An application for the first occupancy certificate ***must*** be accompanied by the following documents: (1) as-built drawing with respect to floor plans of each level, plumbing works and electrical works; (2) duly signed certificate from Qualified Person ascertaining he or she was responsible for supervision of construction works; (3) duly signed certificate from Certified Plumber ascertaining he or she was responsible for execution of plumbing and sanitation works; and (4) duly signed certificate from Certified Electrician ascertaining he or she was responsible for execution of all electrical works.
	The Implementing Authority ***must*** inspect the building and verify that: (1) The building or portion of the building (in the case of renovation) has been constructed in accordance with this Code and the construction approval without any unauthorized construction; (2) The building or portion is fit and safe for the proposed use. (3) Septic tanks with soak pits or sewage connections are installed in accordance with the approved drawings. (4) Construction debris around the building or portion, the abutting road, and the abutting land has been cleared. (5) Damages caused to adjacent plots and properties, including public properties such as drainage systems, sewer and water lines, footpaths, roads, parking spaces, electric poles, cables, and other facilities, have been reinstated. (6) Greening initiatives have been undertaken by the owner, as instructed by the Implementing Authority. (7) Parking spaces are maintained as per the approved drawings. (8) Gutters and building stormwater drains are properly connected to the main drain. (9) Fire extinguishers are installed in commercial and institutional buildings as required.
	The validity of the occupancy certificate ***must*** be 5 years for the first fifteen years, and three years thereafter. An application for an occupancy certificate for a building that is older than 50 years ***must*** be accompanied by a report prepared by a certified engineer certifying the building is safe for habitation.

Post-Construction Responsibilities

Building Maintenance
An owner of a building is responsible for the regular upkeep of the building and the compound.
A person appointed under Power of Inspection of this code ***should*** conduct inspection of buildings to:
(1) determine change of use;
(2) establish baseline functionality of the building's structure;
(3) check for any health and safety violations; and
(4) uncover potential hazards that could put tenants and building occupants at risk.

A person could lodge a written formal complaint with the Implementing Authority relating to:
(1) safety of a building;
(2) unsatisfactory water supply and sanitary conditions;
(3) improper or deteriorated electrical wiring;
(4) improper or deteriorated septic tank or soak pit; and
(5) unsatisfactory surface drains and surrounding environment.

The Implementing Authority could, suo moto, schedule risk-based inspections to review the condition of a structure, including mechanics of the homes or change of use and determine deficiencies or areas that may need to be addressed.

Subject to the compliant, an investigating officer appointed ***must*** conduct an investigation and prepare an investigation report for the Implementing Authority.

The Implementing Authority ***must***, based on the investigation report, issue a maintenance order to the building owner:
(1) specifying the location of the building;
(2) describing the nature of the maintenance which is required; and
(3) specifying a date by which the maintenance works must be completed.

Change of Use

Building Maintenance
A person ***must not*** change the use of a building, unless approved by the Implementing Authority in accordance with this Code and the Building Codes in force.

Rehabilitation and demolition of unsafe buildings
The implementing Authority could based on risk, direct a building owner to have a building inspected by a certified engineer for safety.

If a certified engineer considers that the building is unsafe, the owner ***must*** take action to rehabilitate the building.

If the owner fails to take action to rehabilitate the building, the Implementing Authority could order the owner to demolish the building on or before a specified date. If an owner fails to demolish a building on or before the specified date, the Competent Authority may demolish the building, at the risk and at the cost of the owner.

Offenses and Enforcement

In addition to potential non-compliance observed during the five mandatory stages when an owner ***must*** notify the implementing authority during construction, non-compliance could also be detected in, but not limited to, the following instances:
(1) a formal written compliant is lodged;
(2) Issuance and renewal of occupancy certificate;
(3) Site inspections; and
(4) Third-party audits or assessments

A person who commences building construction in breach of this Code is liable for penalties as set under:

(1) Payment of Ngultrum Two Hundred Thousand and regularisation of the deviation, for construction without building permit but the construction conforms to the standards under this Code;

(2) payment of Ngultrum One Hundred Thousand and removal of the structure, for construction without building permit and the construction does not conform to standards under this Code;

(3) payment of Ngultrum Fifty Thousand and regularisation of the deviation, for deviation from approved building permit, and the deviation conforms to standards under this Code;

(4) payment of Ngultrum Thirty Thousand and removal of the deviation, for deviation from approved building permit and the deviation does not conform to standards under this Code.

A person who uses a basement for a purpose other than the approved use is liable to pay a fine not exceeding Ngultrum Two Hundred Thousand and the person must be required to revert to previously approved use, if the floor area ratio and maximum allowable height is exceeded.

A person who fails to give notice to neighbours of proposed building work or fails to notify the Public Utilities of demolition works must pay a fine not exceeding Ngultrum Ten Thousand respectively.

A person who fails to notify the Implementing Authority of the mandatory notification stages must pay a fine not exceeding Ngultrum Twenty Thousand.

A person who obstructs or prevents a person from performing duties under this Code is guilty of the offence of obstruction of lawful authority and shall be dealt in accordance with the Penal Code of Bhutan.

A person who fails to fix building work as required by a notice under this code must pay a fine not exceeding Ngultrum Forty Thousand.

A person who carries out plumbing works or electrical works, not being licensed or under supervision must pay a fine not exceeding Ngultrum Twenty Thousand.

A person who occupies a building without an occupancy certificate or in breach of a condition of an occupancy certificate must pay a fine not exceeding Ngultrum Fifty Thousand.

A person who fails to comply with a maintenance order must pay a fine not exceeding Ngultrum Fifty Thousand.

Infringement Notices

The Implementing Authority could issue an infringement notice, if the Authority believes that an offence has been committed.

A person who has been issued an infringement notice could:
(1) pay the applicable penalty, in accordance with the notice; or
(2) appeal to the Technical Committee providing justification within five days of receipt of the notice.

If the Implementing Authority receives payment, no further proceedings may be commenced, nor penalty imposed, in respect of the offence.

A Competent Authority could move the courts in case a person fails to pay the fine specified in the infringement notice.

Prohibited Construction Materials

The following materials must not be used in any building works:

1. Asbestos and Asbestos Containing Materials (ACM): Asbestos is often found in products such as cement fibre boards and roofing and sprayed as fireproofing or insulation.

2. Cadmium products.

3. Chlorides: Calcium chloride and sodium chloride.

4. Chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs) and Hydrofluorocarbons (HFCs) are considered to be 'greenhouse' gases.

5. Lead and Lead Containing Materials (LCM) are hazardous materials which are neuro-toxic. Lead in paint is far more widespread than is realised.

6. High alumina cement: Used as an accelerator for quick setting of concrete.

7. Mercury, which can now be found in Compact Fluorescent Lamps (CFLs)

8. Pentachlorophenol: Most commonly found in paint and wood preservatives.

Compliance Checklist

Compliance Checklist Introduction

The following checklist is included for the use of all applicants and designers to ensure their proposals for development and public realm interventions are in compliance with the requirements and guidelines held within this Design Code.

It is intended that a completed Compliance Checklist is submitted as part of the Stage 2 - Design Approval of the Planning and Design Process and will be part of a set of information, documents and drawings that will be submitted and considered by authorities when making decisions around applications.

This checklist is provided as a working tool for decision making, to be used throughout the iterations of the design process, so that applicants and their designers can themselves judge the compliance or not of their proposal. This checklist could also be used as a tool to inform discussions in any pre-application meetings with authorities in the interests of transparency and fostering dialogue (especially for more complicated or larger developments).

Not every chapter of the Code is relevant to every type of development (please see Fig. 21 opposite). Applicants are only expected to complete the relevant part of the checklist. The exact checklists to be completed will be agreed with the implementing authorities at the end of Stage 1 - Planning Permit of the Design and Planning Process. For guidance it is expected that:

- All applicants: to complete the checklist for the City-wide codes (RS-Resources and SW-Stewardship).
- All applicants: to complete the checklist for the Place codes (CX-Context and the relevant CS-Character checklist).
- Developers of Small and Standard Plots: to complete the checklist for Development codes (BF-Built Form). However those with proposals within a mixed use centre designation may need to complete parts of LU-Clustering of Uses checklist.
- Developers of Comprehensive Developments: to complete the checklist for Development codes (BF-Built Form) and Comprehensive Development codes (US-Urban Structure and LU-Clustering of Uses). Elements of the Public Realm codes checklist will be relevant for these developers if there are new streets and/or spaces proposed as part of their development.
- Those engaged in the design or upgrade of public realm: to complete the relevant Public Realm codes checklist (NE-Natural Environment, LO-Landscape and Open Spaces, ST-Streets and ID-Public Realm Identity) depending on what type of space is proposed.

How to use this Checklist

Musts: these codes will be complied with in full. Where this is the case a tick can be placed within the 'must' column. Where appropriate or necessary, a short written justification or commentary can be provided to demonstrate compliance. Where all 'musts' are not achieved or considered not relevant, a short written justifcation or explanation has to be provided.

Shoulds: it is expected that the majority of this guidance will be complied with or followed. Where this is the case a tick can be placed within the 'should' column. Where appropriate or necessary, a short written justification or commentary can be provided to demonstrate compliance. Where signifcant amounts of 'shoulds' are not achieved or considered not relevant, a short written justifcation or explanation has to be provided.

The same colour themes used throughout this document are used on the left and right hand sides of the checklist pages for navigation.

Structure of the Design Code chapters

City-wide Codes

RS Resources

SW Stewardship

Provides requirements and guidelines for all types of proposals to encourage the sustainable use of critical resources such as materials, water, energy and waste. Provides guidelines for the fuller participation of the community in the design, management and maintenance of proposals and parts of their city.

Place Codes

CX Context

CS Character

CS1 Central Thimphu

CS2 Northern Thimphu

CS3 Southern Thimphu

CS4 Dechencholing

CS5 Rama & Depsi

CS6 Rural Valley

Provides requirements and guidelines to guide appropriate design responses to existing (CX codes) and future (CS codes) contexts, including heritage responses. Ensures alignment with TSP 2023.

A set of related CX-Checklists are held within Section 4 of the document.

Development Codes

BF Built Form

Provides requirements and guidelines for developments on Small and Standard Plots as well as for Comprehensive Developments.

Comprehensive Developments

US Urban Structure

LU Clustering of Uses

Provides requirements and guidelines for Comprehensive Developments only, including guidance for forming 'mixed use clusters' to support the creation of the Centres Hierarchy described within the TSP 2023.

Public Realm Codes

NE Natural Environment

Provides guidelines for improving biodiversity and nature in the city, including guidelines for sustainable drainage.

LO Landscape & Open Spaces

ST Streets

ID Public Realm Identity

Provides requirements and guidelines for forming new or upgrading ('retro-fitting') existing streets and public spaces. These codes support and align with the Transport, Green Infrastructure and Protections Policies within TSP 2023.

Fig.21Structure and content of the Design Code: Section 3, The Code Chapters

Generally, the CITY WIDE CODES will contain more Guidelines than Requirements. These will apply to all types of developments, across the whole TSP 2023 area.

The PLACE CODES apply across the whole TSP 2023 area. CX-Context codes and the relevant CS-Character codes will apply to all types of developments. All applicants should demonstrate compliance with these.

The DEVELOPMENT CODES will be most relevant to landowners, developers and architects. These will provide codes that will drive different built form responses for each Area Type and more specific Edge Conditions.

The PUBLIC REALM CODES will be most relevant to public authorities and entities engaged in Comprehensive Developments. These will apply to all types of developments, across the whole TSP 2023 area.

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
Scope of the Design Code	**6**				
Vision	**8**				
Relationship to TSP 2023	**10**				
Navigation	**12**				
How to use the Design Code	**16**				
Purpose of the Design Code	**20**				
Design and Planning Process	**30**				
RS—Resources	**36**				
RS1 Adaptable and Flexible Buildings	36				
RS1.1 Adaptability and re-use	36				
RS1.1.1 Re-use of existing buildings	36				
RS1.1.2 Adaptability of new constructions	36				
RS1.1.3 Designing in adaptability	37				
RS2 Construction Methods	38				
RS2.1 Off-site construction	38				
RS2.1.1 Pre-fabrication	38				
RS3 Materials	39				
RS3.1 Materials	39				
RS3.1.1 Embodied energy	39				
RS3.1.2 Locally sourced materials	39				
RS3.1.3 Bio-building	39				
RS3.1.4 Healthy materials	39				
RS4 Resource Efficiency	40				
RS4.1 Energy efficiency	40				
RS4.1.1 Passive design of buildings and sites	40				
RS4.1.2 Active Design Measures	41				
RS4.1.3 Rooftop solar projects	41				
RS4.2 Reducing waste & maximising re-use	42				
RS4.2.1 Reducing waste in design & construction	42				
RS4.2.2 Reducing waste in demolition	42				
RS4.3 Water efficiency	43				
RS4.3.1 Water saving	43				
RS4.3.2 Water supply	43				
RS4.3.3 Water re-use	43				
SW—Stewardship	**44**				
SW1 Management and Maintenance	44				
SW1.1 Management plans for developments and public realm	44				
SW1.1.1 Management of streets and public spaces	44				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
SW2 Community Participation	45				
SW2.1 Participation in design	45				
SW2.1.1 Comprehensive Developments	45				
SW2.2 Community interventions and management by community	46				
SW2.2.1 Community interventions	46				
SW2.2.2 Community management	47				
CX—Context	**50**				
CX1 Understanding the Existing Site and Context	50				
CX1.1 Responding to the site context	50				
CX1.1.1 Context study	50				
CX1.2 Responding to the site	50				
CX1.2.1 Site study	50				
CX2 Alignment with Plans and Policies	51				
CX2.1 Alignment with plans and policies	51				
CX2.1.1 Alignment with the Thimphu Structure Plan 2023	51				
CX2.1.2 Hazard and Risk Assessments	51				
CX3 Architectural Identity	53				
CX3.1 Architectural approach	53				
CX3.1.1 Approach	53				
CX3.1.2 Traditional architecture	54				
CX3.1.3 Contextual/Contemporary architecture	54				
CX3.1.4 Innovative architecture	55				
CX3.1.5 Architectural features	56				
CX4 Heritage	57				
CX4.1 Heritage assets	57				
CX4.1.1 Registered or Designated Cultural Heritage	57				
CX4.1.2 Cultural elements of local importance	57				
CX4.1.3 Chortens, Mani Walls, Lue, Nye and other small heritage elements	57				
CX4.2 Traditional Buildings and buildings with cultural value	58				
CX4.2.1 Re-use of Traditional Buildings and buildings with cultural value	58				
CX4.2.2 Demolition of Traditional Buildings and buildings with cultural value	58				
CX4.2.3 Identification of buildings and features with cultural value	58				
CX4.3 View corridors	59				
CX4.3.1 City-wide view corridors	59				
CX4.3.2 Local view corridors	59				
CS—Character Statements	**61**				
Dechencholing	**63**				
Northern Thimphu	**67**				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
Central Thimphu	**71**				
Southern Thimphu	**75**				
Rama and Debsi	**79**				
Rural Valleys	**83**				
BF—Built Form	**93**				
BF1 Development Controls	93				
BF1.1 Building height and density (Net FAR)	93				
BF1.2 Building setbacks	95				
BF1.3 Building separations	95				
BF1.4 Open space coverage for comprehensive development	96				
BF2 Permissible Land Uses	97				
BF3 Development in Urban Areas	102				
BF3.1 Compact development	102				
BF3.1.1 Effective use of land	102				
BF3.1.2 Party walls	103				
BF3.2 Reconfiguration, subdivision and consolidation	**104**				
BF3.2.1 Minimum plot size	104				
BF3.2.2 Existing smaller plots	104				
BF4 Development in Rural Areas	105				
BF4.1 Rural morphology	**105**				
BF4.1.1 Forming Rural Clusters	105				
BF4.1.2 Clusters in Rural Area Types	105				
BF4.2 Development in rural areas	**106**				
BF4.2.1 Rural buildings	106				
BF4.2.2 On-plot configuration of rural buildings	107				
BF4.2.3 Agricultural buildings	107				
BF5 Responding to Topography	108				
BF5.1 Responding to topography	**108**				
BF5.1.1 Site Layout	108				
BF5.1.2 Building design	108				
BF5.1.3 Retaining walls	109				
BF5.1.4 Development on valley sides	109				
BF6 Building Form	110				
BF6.1 Building layout	**110**				
BF6.1.1 Forming fronts and backs	110				
BF6.1.2 Façade modulation	110				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
BF6.2 Building height	**111**				
BF6.2.1 Maximum building height	111				
BF6.2.2 Minimum floor-to-floor heights	111				
BF6.2.3 Basements	111				
BF6.2.4 Ground floor level	112				
BF6.3 Bhutanese roofs	**112**				
BF6.3.1 Overhangs and separations	112				
BF6.3.2 Jamthog	113				
BF6.4 Setbacks	**113**				
BF6.4.1 Front setbacks	113				
BF6.4.2 Side setbacks	114				
BF6.4.3 Rear setbacks	114				
BF6.4.4 Vertical clearance for building projections	114				
BF6.5 Building separation	**115**				
BF6.5.1 Minimum separations	115				
BF6.5.2 Window treatment and positioning	115				
BF7 Building Interfaces	**116**				
BF7.1 Treatment of front setbacks	**116**				
BF7.1.1 Integrating with the public realm	116				
BF7.1.2 Accommodating level change	116				
BF7.1.3 Pedestrian experience	117				
BF7.2 Interfaces at active ground floors	**117**				
BF7.2.1 Location of active frontages	117				
BF7.2.2 Setback treatment/spill-out zones	117				
BF7.2.3 Ground floor frontage treatment	118				
BF7.2.4 Colonnades	118				
BF7.2.5 Building entries	118				
BF7.3 Interfaces at residential ground floors	**119**				
BF7.3.1 Setback treatment	119				
BF7.3.2 Ground floor frontage treatment	119				
BF7.3.3 Lobbies and front doors	119				
BF7.4 Side setbacks	**120**				
BF7.3.4 Setback treatment and functionality	120				
BF7.5 Rear setbacks	**123**				
BF7.5.1 Setback treatment and functionality	123				
BF8 Architectural Treatment	**124**				
BF8.1 Materials and colours	**124**				
BF8.1.1 Materials	124				
BF8.1.2 Colours	125				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
BF8.2 Signage	125				
BF8.2.1 Commercial signage	125				
BF8.2.2 General guidelines	125				
BF8.3 Boundary treatments	126				
BF8.3.1 Provision of boundary walls	126				
BF8.3.2 Boundary walls heights	126				
BF8.3.3 Boundary wall design & treatments	127				
BF8.3.4 Treatment of retaining walls	127				
BF9 Parking Requirements	128				
BF9.1 Non-residential uses: visitor car parking requirements	128				
BF9.2 Non-residential uses: employee car parking requirements	129				
BF9.3 Residential uses: car parking requirements	129				
BF9.4 EV requirements	131				
BF9.4.1 EV requirements	131				
BF9.5 Cycle parking requirements	131				
BF9.5.1 Cycle parking in residential developments	131				
BF9.5.2 Cycle parking in mixed use areas	131				
BF9.5.3 Cycle parking in employment areas	131				
BF9.6 Integrating parking within developments	132				
BF9.6.1 Car parking provision	132				
BF9.6.2 Car parking treatment	132				
BF9.6.3 Integrating car parking within developments	133				
BF9.6.4 Multi-level car parks (MLCPs)	134				
BF9.6.5 Surface car parks	135				
BF9.7 Servicing	135				
BF9.7.1 Integrating servicing within public realm	135				
BF9.7.2 Vehicular access to servicing	135				
BF10 Living Neighbourhoods	136				
BF10.1 Health and wellbeing	136				
BF10.1.1 Residential space standards	136				
BF10.1.2 Accessibility	137				
BF10.1.3 Residential aspect	137				
BF10.1.4 Noise	138				
BF10.1.5 Ventilation	138				
BF10.1.6 Community vitality	139				
BF10.2 Outdoor amenity space	139				
BF10.2.1 Minimum requirement	139				
BF10.2.2 General guidance for outdoor amenity space	139				
BF10.2.3 Private amenity balconies and roof terraces	140				
BF10.2.4 Shared roof terraces	140				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
BF10.3.2 Shared or private front gardens	141				
BF10.3.3 Shared or private rear gardens (or courtyards)	141				
BF10.3 Housing tenures	**141**				
BF10.3.1 Tenure mix	141				
BF10.3.4 Tenure-blind design	142				
BF10.4 Housing mix	**142**				
BF10.4.1 Meeting housing needs	142				
BF10.4.2 Housing mix distribution	143				
BF10.5 Housing typologies	**144**				
BF10.5.1 Housing typology distribution	144				
BF11 Resilience	**151**				
BF11.1 Geohazards	**151**				
BF11.1.1 Permitted development in Hazard Zones	151				
BF11.1.2 Seismic standards	151				
BF11.1.3 Strategies for geohazard resilience	151				
BF11.2 Flood resilience	**152**				
BF11.2.1 Building strategies for flood resilience	152				
BF11.2.2 Sustainable urban drainage	152				
BF11.3 Maintaining biodiversity	**153**				
BF11.3.1 Protection of existing trees	153				
BF11.4 Building strategies for enhancing biodiversity	**154**				
BF11.4.1 Enhancing bio-diversity	154				
BF12 Edge Conditions	**155**				
BF12.1 Open space corridors	**157**				
BF12.1.1 Flood hazard corridors	157				
BF12.1.2 Forest Edges and Valley Parks	157				
BF12.2 Informal surveillance	**158**				
BF12.2.1 Building elements	158				
BF12.2.2 Maintaining sightlines	158				
BF12.2.3 Defining private spaces	158				
BF12.2.4 Street and parking design	158				
BF12.2.5 Active frontage towards open spaces	159				
BF12.2.6 Doors/entries towards open spaces	159				
BF12.3 Design quality	**159**				
BF12.3.1 The Wang Chhu Corridor	159				
US—Urban Structure	**164**				
US1 Forming an Urban Structure	**164**				
US1.1 Block structure	**164**				
US1.1.1 Forming urban blocks	164				
US1.1.2 Block Size	164				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
US1.1.3 Forming continuous connections	165				
US1.1.4 Pedestrian permeability	165				
US1.1.5 Orientation of blocks and buildings	166				
US1.2 Creating legibility	**167**				
US1.2.1 Desire lines	167				
US1.2.2 Framing views	167				
LU—Clustering of Uses	**170**				
LU1 Forming Mixed Use Clusters	**170**				
LU1.1 Forming mixed use clusters	**170**				
LU1.1.1 Locations and activities within mixed use clusters	170				
LU1.2 Placemaking approaches	**171**				
LU1.3 Community facilities	**172**				
LU1.4 Public realm design in mixed use clusters	**172**				
LU1.5 Parking, access and servicing	**173**				
LU2 Integrating uses	**176**				
LU2.1 Integrating uses	**176**				
LU2.1.1 Co-locating uses	176				
LU2.1.2 Integration with residential uses	177				
LU3 Block Types and Forms	**178**				
LU3.1 Non-residential typologies	**178**				
LU3.1.1 Social infrastructure (education and community facilities)	178				
LU3.1.2 Employment (government, workplace and healthcare)	180				
LU3.2 Residential typologies	**182**				
LU3.2.1 Integrating different housing typologies	182				
NE—Natural Environment	**186**				
NE1.1 Sociability and conviviality	**186**				
NE1.1.1 Social interaction	186				
NE1.1.2 Interaction with nature	186				
NE1.2 Play and recreation	**187**				
NE1.2.1 Child friendly public realm	187				
NE1.2.2 Location and accessibility	187				
NE1.2.3 Doorstep playable space (under 5 years)	187				
NE1.2.4 Local and neighbourhood play (5-11 years)	188				
NE1.2.5 Youth play (12+ years)	188				
NE1.2.6 Inclusion	188				
NE1.2.7 Access to nature	189				
NE1.2.8 Safety and security	189				
NE1.2.9 School facilities	189				
NE1.2.10 Sport areas and recreation	190				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
NE1.3 Safety and security	**190**				
NE1.3.1 Movement	190				
NE1.3.2 Informal surveillance	191				
NE1.3.3 Lighting	191				
NE1.4 Accessibility and inclusivity	**191**				
NE1.4.1 Designing inclusive and accessible public realm	191				
NE1.5 Microclimate	**192**				
NE1.5.1 Sunlight, shade and wind	192				
NE2.1 Protection and enhancement of biodiversity	**193**				
NE2.1.1 Protection of existing trees	193				
NE2.1.2 Protection of existing water related habitats	194				
NE2.1.3 Protection of existing natural habitats	194				
NE2.1.4 Establishing habitats	194				
NE2.1.5 Enhancing biodiversity	195				
NE3.1 Flood resilience	**196**				
NE3.1.1 Landscape strategies for flood resilience	196				
NE3.1.2 Sustainable Urban Drainage Systems (SuDS)	197				
NE3.2 Air quality	**198**				
NE3.2.1 Air quality mitigation strategies	198				
LO—Landscape & Public Spaces	**200**				
LO1 Green and Blue Infrastructure	200				
LO1.1 Overarching principles	**200**				
LO1.1.1 Integrated Green and Blue network	200				
LO1.1.2 Ecological connectivity	200				
LO1.1.3 Multi-functionality	200				
LO2 Open Space Types	201				
LO2.1 Open space strategies	**201**				
LO2.1.1 Space provision	201				
LO2.1.2 Accessibility	201				
LO2.1.3 Community-led greening	202				
LO2.1.4 Management and maintenance	202				
LO2.2 Metropolitan Park	**204**				
LO2.2.1 Description	204				
LO2.2.2 Location	204				
LO2.2.3 Character	205				
LO2.2.4 Function	205				
LO2.3 City Parks	**206**				
LO2.3.1 Description	206				
LO2.3.2 Location	206				
LO2.3.3 Character	207				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
LO2.3.4 Function	207				
LO2.4 Neighbourhood Parks	**208**				
LO2.4.1 Description	208				
LO2.4.2 Location	208				
LO2.4.3 Character	209				
LO2.4.4 Function	209				
LO2.5 Heritage Open Spaces	**210**				
LO2.5.1 Description	210				
LO2.5.2 Location	210				
LO2.5.3 Character	211				
LO2.5.4 Function	211				
LO2.6 Small Open Spaces and Pocket Parks	**212**				
LO2.6.1 Description	212				
LO2.6.2 Location	212				
LO2.6.3 Character	213				
LO2.6.4 Function	213				
LO2.7 Valley Parks	**214**				
LO2.7.1 Description	214				
LO2.7.2 Location	214				
LO2.7.3 Character	215				
LO2.7.4 Function	215				
LO2.8 Green Streams	**216**				
LO2.8.1 Description	216				
LO2.8.2 Location	216				
LO2.8.3 Character	217				
LO2.8.4 Function	217				
LO2.9 City Squares	**218**				
LO2.9.1 Description	218				
LO2.9.2 Location	218				
LO2.9.3 Character	219				
LO2.9.4 Function	219				
LO2.10 Local Squares	**220**				
LO2.10.1 Description	220				
LO2.10.2 Location	220				
LO2.10.3 Character	221				
LO2.10.4 Function	221				
LO2.11 Private Green Spaces	**222**				
LO2.11.1 Description	222				
LO2.11.2 Location	222				
LO2.11.3 Character	223				
LO2.11.4 Function	223				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
LO3 Protected Landscapes	224				
LO3.1 General	224				
LO3.1.1 Overarching Principles	224				
LO3.2 Wang Chhu Corridor	225				
LO3.2.1 Description	225				
LO3.2.2 Location	225				
LO3.2.3 Function	225				
LO3.3 Local Nature Reserve	226				
LO3.3.1 Description	226				
LO3.3.2 Location	226				
LO3.3.3 Function	226				
LO3.4 Forest Pockets	227				
LO3.4.1 Description	227				
LO3.4.2 Location	227				
LO3.4.3 Function	227				
LO3.5 Agricultural landscapes	228				
LO3.5.1 Description	228				
LO3.5.2 Location	228				
LO3.5.3 Function	228				
ST—Streets	**230**				
ST1 Street Hierarchy	230				
ST1.1 Street hierarchy functionality and dimension	230				
ST1.1.1 Street hierarchy	230				
ST2 Forming Good Streets	234				
ST2.1 Contributing to character	234				
ST2.1.1 Street character	234				
ST2.2 A multi-modal approach	236				
ST2.2.1 An integrated transport network	236				
ST2.3 Retro-fitting existing streets	237				
ST2.3.1 Retro-fitting existing streets	237				
ST2.4 Design speed	240				
ST2.4.1 Design speed	240				
ST2.5 Responding to topography	241				
ST2.5.1 Responding to topography	241				
ST2.5.2 Accessible streets	242				
ST2.5.3 Steep gradients	242				
ST2.6 Integrating utilities	243				
ST2.6.1 Integrating utilities into streets	243				
ST3 Street Elements	244				
ST3.1 Footpath	244				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
ST3.1.1 A clear path for pedestrians	244				
ST3.2 Flexible Zone	**246**				
ST3.2.1 Flexible Zone	246				
ST3.2.2 Street furniture	246				
ST3.2.3 Street greening	248				
ST3.2.4 Parking and servicing	249				
ST3.3 Public transport	**250**				
ST3.3.1 Mobility Hubs	250				
ST3.3.2 Bus Lanes	250				
ST3.3.3 Bus stops	251				
ST3.4 Cycle facilities	**252**				
ST3.4.1 Minimum dimensions (for all dedicated cycle lane types and standalone paths)	252				
ST3.4.2 Protected dedicated cycle lane	252				
ST3.4.3 Dedicated cycle lane	252				
ST3.4.4 Shared roadway	253				
ST3.4.5 Standalone cycle path	253				
ST3.4.6 Cycle facilities	253				
ST3.5 Vehicular lane	**253**				
ST3.5.1 Vehicular lane	253				
ST3.6 Pedestrian crossings	**254**				
ST3.6.1 At grade pedestrian crossings	254				
ST3.6.2 Other pedestrian crossings	255				
ST3.7 Shared streets	**255**				
ST3.7.1 Shared streets	255				
ID—Public Realm Identity	**256**				
ID1 Public Realm Identity	256				
ID1.1 Materials and colours	**256**				
ID1.0.1 Materials strategy	256				
ID1.1.1 Visual appearance	257				
ID1.1.2 Sustainability considerations	257				
ID1.1.3 Materials hierarchy	257				
ID1.1.4 Types of hard surface	258				
ID1.2 Boundaries	**259**				
ID1.2.1 Boundary walls for public open spaces	259				
ID1.3 Planting	**260**				
ID1.3.1 Planting strategy	260				
ID1.3.2 Planting function	261				
ID1.3.3 Planting design	262				
ID1.3.4 Planting palette	264				
ID1.4 Furniture and lighting	**265**				

Code	Pg no	Must	Should	Compliance Yes, No or N/A	Justification
ID1.4.1 Furniture strategy	265				
ID1.4.2 Lighting strategy	267				
Compliance Checklist	**283**				
CX—Checklists	**309**				

CX—Checklists

	Checklist 1: Responding to the existing site context
	All development and public realm proposals ***must*** demonstrate an understanding of the built form and landscape of the surroundings and context and demonstrate how proposals have responded to the surrounding heritage, natural and urban features (including utilities). Context analysis and the associated design response ***must*** be demonstrated within material submitted as part of the Design & Planning Process. This CX-Checklist 1 ***must*** be followed to ensure a robust analysis of context. See code CX 1.1.1.
	Location: Define the context for the site - the extent should cover neighbouring developments, access routes, local facilities. Consider the character of the surrounding area - is the context urban, suburban or rural in character?
	Topography: Understand the existing topography around the site. Does this affect drainage, access or other considerations?
	Heritage: Locate existing Heritage buildings and features, including local features such as Mani Walls and Chortens that surround the site. Locate and review any Management Plans for heritage buildings that exist. Locate any other notable local buildings, uses or spaces that may hold importance for the surrounding community. This could be done through public consultation or conversations with local community groups Consider/identify any intangible heritage features, activities or events in the local area. Identify any views at a city level (refer to TSP 2023) or local level.
	Built Form: Understand the built form and urban grain of the surrounding area: consider the general types of buildings, building heights, any establised or consistent frontage line/setbacks from ROW, formal/informal layout and arrangement. Understand the local land use pattern. Locate any existing local shops and community facilities within easy walking distance (400-800m) of the proposal site.
	Character: Consider the character of surrounding buildings: the architecture, proportion, facade pattern, the materials, colours, textures and patterns used. The buildings immediately adjacent to the site, the other buildings which form the same street and any adjacent area with high character and townscape should be considered. Consider the character of surrounding streets: are they busy or quiet, used by pedestrians, the type of planting and/or materials used? Consider any boundary treatments already used in the area: walls, fences, planting/hedges. Consider the materials, colours, textures and patterns used.
	Nature: Locate any natural features: street trees, groups of trees, single mature trees, other planting, water courses and other water features, etc. around the site that contribute to forming local character and distinctiveness, and may have an impact on the design of the proposal e.g. set backs to ensure retention of existing trees. Identify any potential flood areas not identifed in TSP 2023 or Local Area Plans.
	Spaces: Understand the location of and characteristics of local open spaces. Are these public open spaces, nature spaces, play or recreations spaces? What facilities do they offer? How would a resident best access these spaces from the site - identify walkable routes to these spaces?
	Community: Understand the characteristics of the existing local community. Is this an area with a predominance of a particular demographic (e.g. young or old or families)?
	Utilities: Locate and map existing utilities adjacent to the site and confirm any access or easement requirements. Consider how these constraints might affect development response.
	Streets: Understand and define the existing surrounding street hierarchy. The TSP 2023 provides a redefined Street Hierarchy for the future of the city - see CX-Checklist 3. New Local Area Plans may also further define a future street hierarchy and future role/functions of existing streets. Understand the existing public transport accessibility - define if site within 5 minutes walk/400m of a Mobility Hub or bus stop. The TSP 2023 provides a re-defined bus and mobility network for the future of the city. See CX-Checklist 3. Understand the existing and proposed walking and cycling routes. The TSP 2023 provides a re-defined movement network for the future of the city. See CX-Checklist 3.
	A Preliminary Report is required as part of the Stage 1 - Planning Permit application which will include a Context Area plan that highlights the location of the site within the city. *As part of the Stage 2 - Design Approval, a Design Statement will be submitted that includes a Context Analysis and a description of Site Characteristics consisting of a series of maps, diagrams and photos that highlight the key context considerations in the area that surrounds the site. Proposals will demonstrate a response to these context considerations as part of the Design Statement (Design Vision and Summary of Design Approach).*

	Checklist 2: Responding to the site
	All development and public realm proposals ***must*** demonstrate an understanding of the site and demonstrate how these proposals respond to specific site features (inc. utilities) and the opportunities that arise to develop character and distinctiveness. Site analysis and the design response ***must*** be demonstrated within material submitted as part of the Planning Process. This CX-Checklist 2 ***must*** be followed to ensure a robust analysis of the site and its existing features. See code CX 1.2.1.
	Topography: Understand the existing topography of the site, including drainage run off. If more than a 2m depth excavation is required, for basements or forming level site platforms, designers must develop mitigation plans.
	Location: Locate existing Heritage buildings and features, including local features such as Mani Walls and Chortens that exist within the site. Locate and review any Management Plans for heritage buildings that exist. Identify any intangible heritage features, activities of events that might occur within the site. Consider and define any potential local views that could be created across the site to any national or local heritage feature.
	Utilities: Locate and map existing utilities entering or crossing the site and confirm any access or easement requirements. Demonstrate the approach to connecting to and accommodating these services.
	Character: Identify any existing buildings, walls or built features within the site that contribute to forming local character and distinctiveness.
	Detailed Topo Survey: Sites outside of the Indicative Hazard Area, as defined in the TSP 2023, require a detailed topo survey. See TSP2023, Policy P1. See code CX2.1.2.
	Site Specific Hazard and Risk Assessment (inc. Topo survey): Sites within the Indicative Hazard Area, as defined in the TSP 2023, require a site-specific Hazard & Risk Assessment (inc. Ground Investigation) in advance of proposals being developed. See TSP2023, Policy P1. See code CX2.1.2.
	Access: Locate opportunities and options for access points into the site - for vehicles and pedestrians. Consider any potential pedestrian 'desire-lines' across the site that could increase accessibility on-foot to local destinations such as local centres, schools, parks, community buildings.
	Climate: Understand the existing orientation, sun-path, areas of shade. This analysis should be an influence on the positioning of buildings and open spaces within the site.

	Checklist 3: Alignment with the TSP 2023
	Applicants ***must*** demonstrate understanding of, and compliance with, the Development Policies and Spatial Layers described in the Thimphu Structure Plan 2023. A design response ***must*** be demonstrated within material submitted as part of the Design & Planning Process. This CX-Checklist 3 ***must*** be followed to ensure a robust understanding of the development requirements held within the Thimphu Structure Plan 2023. See code CX 2.1.1. This ensures that applicants: ▪ prepare proposals that are compliant with the Policies within the TSP 2023; ▪ understand and respond to the future context of their site/proposal; and ▪ understand the potential opportunities held within the TSP 2023.
	Policy US1-Land Use: This policy and map provides the approved future land use for the city, please also refer to Table 5.7 provides permissible uses. Identify the Land Use zone for the site and the permitted functions and the predominant land use allowable within that land use zone. This Design Code provides additional requirements around permissible uses within each of these Land Use zones - see BF2, BF4 and LU Codes. If site falls within a Flood Hazard or Restricted Zone please refer to Protections (Policy P1).
	Policy US2-Centres Hierarchy: Identify if site falls within a designated Centre type - this Design Code provides requirements and guidelines for how to integrate the necessary mixture of uses within Centres and mixed use locations - see LU Codes. If site is located outside of a Centre location, identify the nearest proposed Centre to the site - consider if walkable or public transport access between the site and the centre can be facilitated and improved.
	Policy US4-Density: Identify if the site is located within areas where density uplift will be promoted or if it is located where additional density is restricted.
	Policy US5-Building heights: Identify the maximum building height allowed for the site. This policy and map provides the absolute maximum possible height (in storeys). The Design Code provides more specific restrictions on height, according to Area Type and Edge Conditions - see BF Codes.
	Policy US6-Area Types (and Places): Identify the Area Type for the site. The Design Code provides 'Variations' that describe requirements for different Area Types, where necessary. The aim of the Area Types and their associated Code Variations is to promote differentiation in built form in each of the different parts of the city. See BF, US and LU Codes. Identify the Place within which the site is located - refer to the relevant Place Codes: Character Statements and Place Checklists held within this Design Code. Codes in this section seek to initiate the creation of places with differentiated character. See CS Codes.

	Policy E2-Employment Distribution: Identify if site falls within a designated Centre or Workplace cluster type. If any employment space is proposed within your development, identify the indicated proposed employment sector that is to be promoted in this location (if any). This may provide opportunities for the development not yet considered or define the types of commercial spaces that could be provided within your development, if permitted by this code. This Design Code provides requirements and guidelines for how to integrate mixed uses within developments located in Centres - see LU Codes.
	Policy H2-Housing Models: This policy promotes the delivery of housing through diverse models, providing choice for residents and more balanced communities. It seeks to encourage community vitality through the creation of shared spaces, community facilities and the promotion of inter-generational living within housing developments. Consider how your development could contribute to this. See BF Codes.
	Policy H3-Housing Quality: This policy promotes high standards in housing quality. Your development should contribute to improving conditions for residents such as privacy, daylight and sunlight, reducing overheating, dampness, odour and noise - this Design Code provides requirements and guidelines for how to achieve these priorities. See BF Codes.
	Policy H4-Affordable Housing: This promotes the definition of and delivery of affordable housing within Thimphu. This Design Code provides guidance for development that is 'tenure blind', with the requirements and guidelines applying to affordable housing in the same way as privately developed housing. See BF Codes.
	Community Facilities - Policies CF1-4: These policies together describe the different types of centres to be provided within Thimphu, the uses that should be clustered together within and adjacent to centres. Locations of centres are provided in Urban Structure Chapter (policy US4). This Design Code provides requirements and guidelines for how to co-locate and integrate well the necessary mixture of uses expected within Centres and mixed use locations - see LU Codes.
	Policy P1-Geohazards: This policy defines areas of Indicative Hazard Zones (for flood and landslide) and indicative High, Medium and Low Hazard zones. The TSP 2023 recommends that no development is advanced in High Hazard Zones. More detailed site-specific hazard and risk assessments are recommended for Low and Medium Hazard Zones and a justification test is also recommended for Medium Hazard Zones only. This Design Code provides requirements and guidelines for forming development within the different Area Types, but the results of the required Hazard and Risk Assessment and any recommended mitigations will take precedence over requirements and guidelines.
	Protections - Policies P2-6: These policies together seek to protect and enhance the landscape and heritage assets within Thimphu. These policies should be read in association with the Context and Natural Environment sections of this Design Code. See CX and NE Codes.
	Policy GI1-Open Space: This policy provides the designation and location of the different types of public open spaces that will be provided across the city. This Design Code provides requirements and guidelines for the order of scale, the necessary components, layout and design of different types of spaces. See LO Codes.

	Green Infrastructure - Policies GI2-5: These Policies together provide recommendations for the protection and enhancement of key Green Infrastructure elements within the city. The Design Code builds on this and provides requirements and guidance. See NE, LO and ST Codes. This policy and map also describes the locations of the spaces that the built form Conditions relate to. See BF Codes.
	Policy GI6-Agriculture: This policy seeks to protect and promote productive agriculture across Thimphu, improve food security and enhance rural livelihoods and protect the remaining areas with a rural character. This Design Code provides requirements and guidelines for development in the Agricultural land use zones. See BF Codes.
	Transport - Policies T1-6: These Policies together provide recommendations for a transport system for Thimphu that prioritises pedestrians and active forms of travel, and reduces carbon emissions, while enhancing the city's economy and attractiveness. Policy T1 and T3 provide a proposed future network for walking and cycling and a redefined road hierarchy that should be understood as part of a site assessment process. This redefinition of routes may change the relationships that the site has to its surroundings. Policy T2 provides the indicative location of bus routes, mobility hubs, bus stops and public transport interchanges across the city. This redefinition of the public transport network may change the relationships that the site has to its surroundings. Applicants should understand the proposed public transport accessibility and define if the site lies within 5 minutes walk/400m of a future Mobility Hub or bus stop. The Low Emissions Transport Masterplan 2023 also provides information on future transport strategies.
	Utilities - Policies U1-6: Together these policies set out the proposals for Utilities Infrastructure across the city: managing demand for potable water, managing wastewater and the sewer network, managing storm water, reducing waste and facilitating the transition to a circular economy, as well as fixed and mobile networks and equitable and resilient climate neutral energy supply. These policies should be read in conjunction with the Resources chapter (RS) of this Design Code which provide guidelines for reducing energy demand, maximising energy efficiency through layout and design of buildings, measures for water efficiency, managing/reducing waste in construction and demolition.
	The TSP2023 and this Design Code sets out preliminary invesigations that will need to be carried out at the outset of the development process and the TSP 2023 provides mapping and guidance to enable identification of the types of assessment required. *As part of the Stage 2 - Design Approval, a Design Statement will be submitted that includes a Context Analysis consisting of a series of maps, diagrams and photos that highlight the key context considerations in the area that surrounds the site. This Context Analysis will also demonstrate an understanding of the future changed context promoted by the TSP 2023. Proposals will demonstrate a response to these future context considerations, where pertinent, as part of the Design Statement (Design Vision and Summary of Design Approach).*