



Tuhama Foothills

Architectural Design Guidelines





FIG.1 TUHAMA FOOTHILLS ARCHITECTURAL CHARACTER AREA

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FIG.2 ARCHITECTURAL CHARACTERS MAP OF KSA

INTRODUCTION

Vision

Celebrate and preserve Saudi Arabia's rich architectural legacy inspired by culture, heritage and nature.

I.1 Guideline philosophy

The Architectural Design Guidelines (hence referred to as ADG) aim to foster progressive contemporary design that is rooted in the diverse geographic and cultural contexts of the Kingdom.

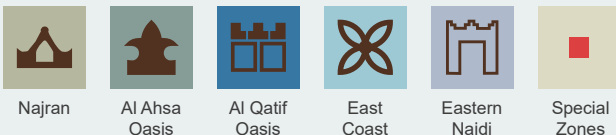
Its propositions are based on the study of historical precedent, taking inspiration from vernacular forms and the embedded knowledge shaped by generations of practice and experience.

The guidelines are forward-looking, intended for a wide range of contemporary development and suited for different levels of prescription. They aim to be succinct, well organized and useful: a positive resource for designers and easy to implement by planning authorities.

I.2 National context

This volume belongs to a suite of 19 documents, each exploring a different geographic context and describing a distinct architectural character within the Kingdom. Together they form a comprehensive portrait of the architectural heritage of the country.

Though application boundaries for the architectural character have been defined (fig. 2), influences may extend across boundaries. Designers are advised to consult adjacent architectural guidelines documents and confirm the status of their building context with facts on the ground.



1.3 **Tuhama Foothills**

Tuhama is a local name for the plains along the Red Sea and its adjacent hills. Tuhama Foothills is a transitional area between the Tuhama coastal plains and the edge of the high Sarawat mountains to the east.

The areas near the edge of the Sarawat mountains act as a watershed between the valleys towards the east, the valleys that descend to the west towards the coastal plains, and the valleys that flow to the Red Sea.

Among the numerous villages in this character area, Muhayil, Al Majaridah, and Bariq are the prominent ones.

The main purpose of Tuhama Foothills ADG is to help raise the overall architectural design quality of the built environment, especially in the expression of the regional character of the Tuhama Foothills zone, for the improvement of both architecture and public realm design. Based on a regional character study identifying key heritage sites, natural environments, as well as typical cultural landscapes, the guidelines are founded on an understanding of the traditions and heritage forming the character zone's sense of style.

Most importantly, the guidelines seek to promote the creation of new and contextually inspired architecture for the Tuhama Foothills, respecting and fostering the character of the respective place.

They are also intended to promote general excellence in landscape design and urban design, and to promote the development of an attractive, representative, and inviting public realm, with a generous and lush landscape environment.

The guidelines are developed with the following main goals:

- 1 Celebrate Tuhama Foothills' natural and cultural landscapes, a foundation of unique architecture for the character zone and its people.**
- 2 Preserve open space and topography remarkable settings.**
- 3 Safeguard the urban and architectural heritage interrelated with the cultural landscape and enhance their relationship.**
- 4 Create lasting connections between people and places with new development that respects and fosters the special character and heritage of the Tuhama Foothills.**
- 5 Inspire the production of a more contextually rooted new architecture for the area.**



Stone buildings in Tuhama Foothills



Vernacular architecture, Al Majared



Stepped parapets



External staircases



Use of colors for highlight



Integration of topography



Use of patterns



Tuhama Foothills landscape

FIG.3 TUHAMA FOOTHILLS

II Topography and landscape

Observations on the links between landscape, climate, culture and the architectural character of Tuhama Foothills.

II.1 Key information

The Tuhama Foothills is a transitional area between the Aseer Escarpments to the east and the Tuhama Coastal Plains in the west. The areas near the edge of the escarpments act as a watershed between the valleys towards the east, the valleys that descend to the west towards the plains, and the valleys that flow ultimately to the Red Sea.

The vegetation is typically arid acacia vegetation or semi-arid acacia woodland dominated by *Acacia ehrenbergiana*. However, the variety of micro-environments has led to high species diversity, and at least seven vegetation groups have been identified. Vegetation coverage is moderate. Overall, soil is typically found to be granite rocky hillsides, aeolian deposits from the mountains, water courses, and disturbed grounds.

II.2 Landscape

The western area mostly features a north-west oriented rocky hill, watercourses, wadi farms and sporadic settlements. Vegetation appears as a moderate coverage and appears intact on hillsides. The transitional area between these two regions, in the northern section, is mostly flat plains typically set between the rocky hills that vary in scale. In many locations, 360 degree views of mountain ridges define the skyline and reinforce the flat yet enclosed experience of the basins. Wide wadis gently wind through these basins

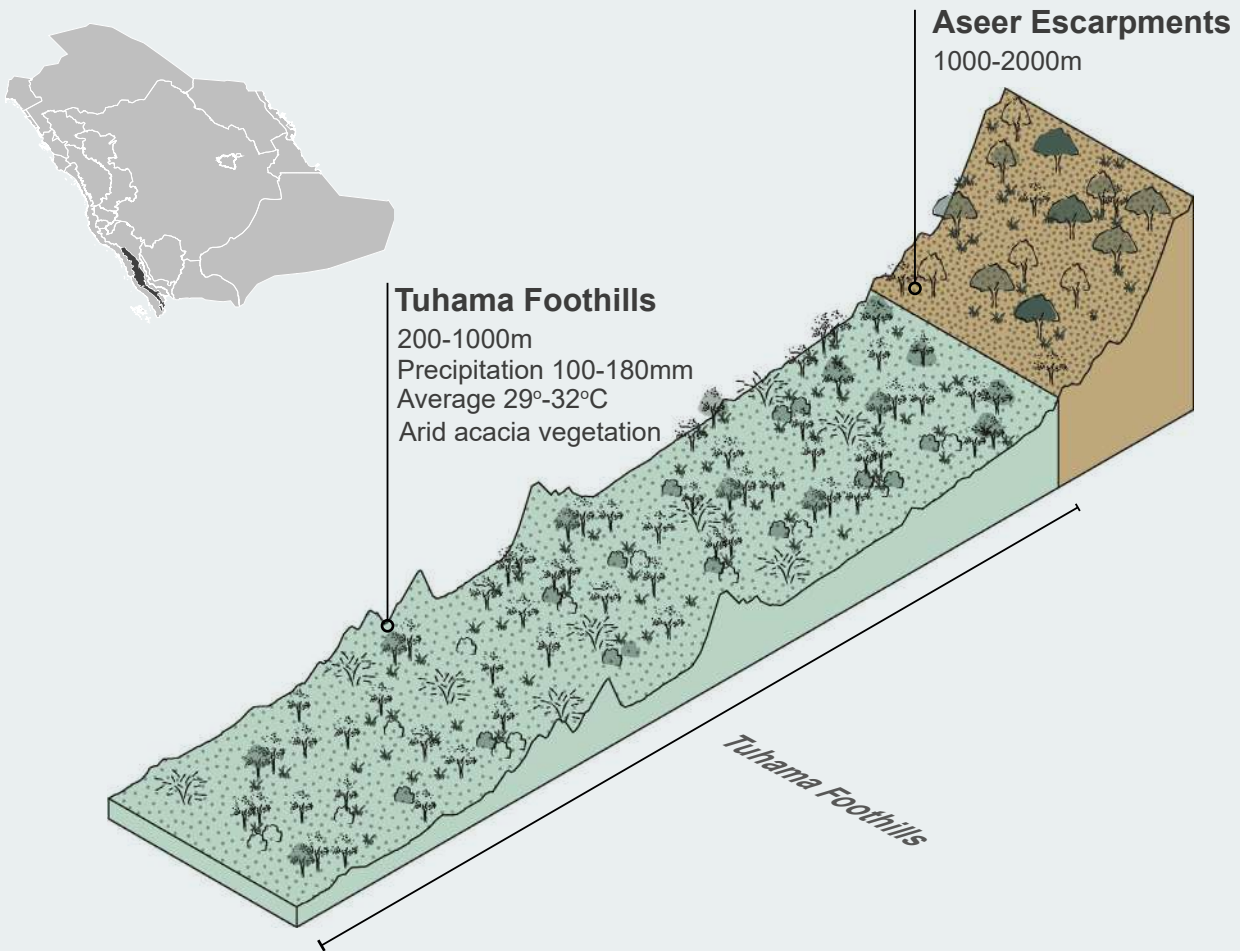
informing settlement patterns. The wadi and wadi tributaries in less urbanized areas, define the valley basins. Vegetation is often sparse due to extensive sprawling urbanization featuring only productive greenery. The soil is typically hard sandy deposits mixed with rocks.

The Wadi corridors are typically boulders, rocks, stones, sand and carry aeolian deposits from the mountains. Along the major wadis, settlement is dominated by productive land and farming patterns. Few natural interfaces remain. Wadi tributaries and stormwater creeks typically appear natural with soft edges and an organic wadi beds where natural hydrological functions, water flow and sedimentation are facilitated. Many stormwater creeks are visible, slowly eroding the mountains.

Generally, summers are long, and arid and can reach 42°Celsius and winters are warm with the lowest temperature of 19°Celsius. Half of the year is mostly cloudy from May to October with high precipitation reaching 40mm in April and low to moderate humidity levels during the year. Wind speed varies mildly during the year from 11 to 13 km per hour, with the highest speed in March.

II.3 Architectural influence

The vernacular architecture in Tuhama Foothills responds to the context, climatic needs and the availability of materials and resources. Based on the topography of the region, the architecture has influences of both, the escarpments and the coastal plains. The settlements are compact within the foothills adapting to the topography with the use of terraces that are also used as places for interactions. Materials used are a unique combination of stone available in the escarpments and plastered buildings, an influence from the coastal plains. Openings are small owing to the defense purposes.



Natural color palette

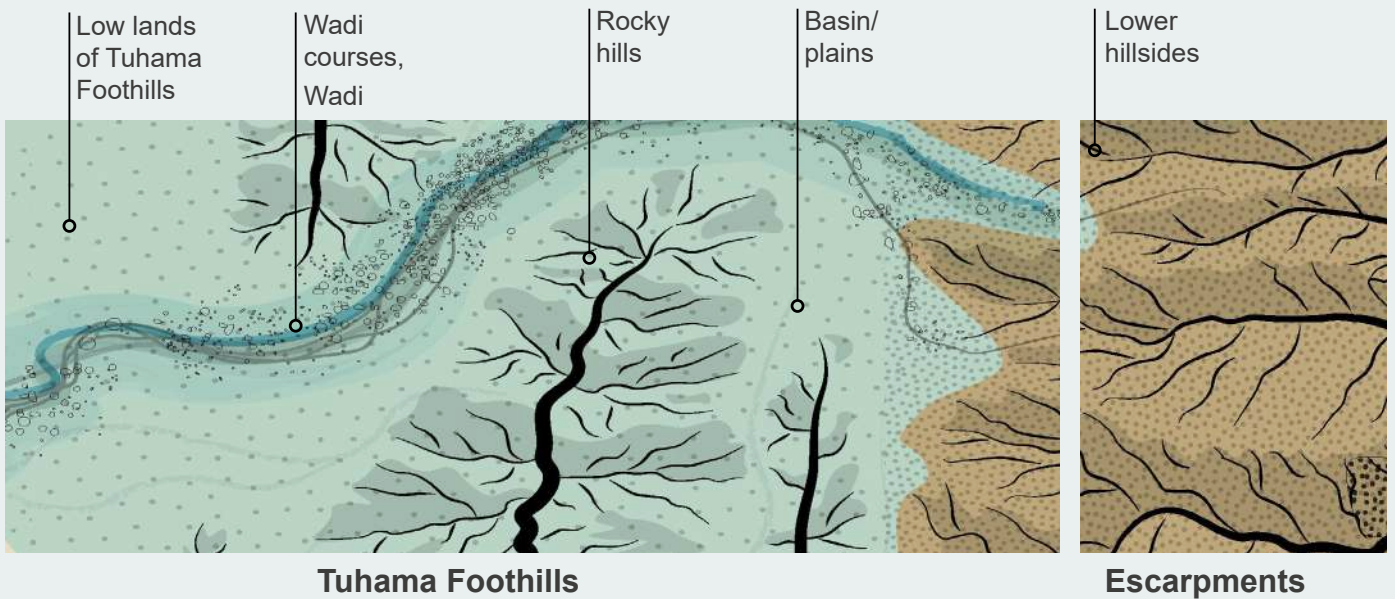


FIG.4 TUHAMA FOOTHILLS LANDSCAPE FEATURES AND TOPOGRAPHY

III Overview of Tuhama Foothills Architecture

A summary of the existing character of traditional architecture and settlements in the Tuhama Foothills.



FIG.5 Settlement pattern in Tuhama Foothills

III.1 Settlement character

The Tuhama Foothills are marked by a distinctive north-south mountain range that define the vast, open Tuhama plains.

The architecture in Tuhama Foothills has influence of the western coast and from the high mountains.

Settlements towards the Tuhama coastal plains and wadis: dispersal of stone or mud houses based on the direction of the prevailing winds in the region from the western sea.

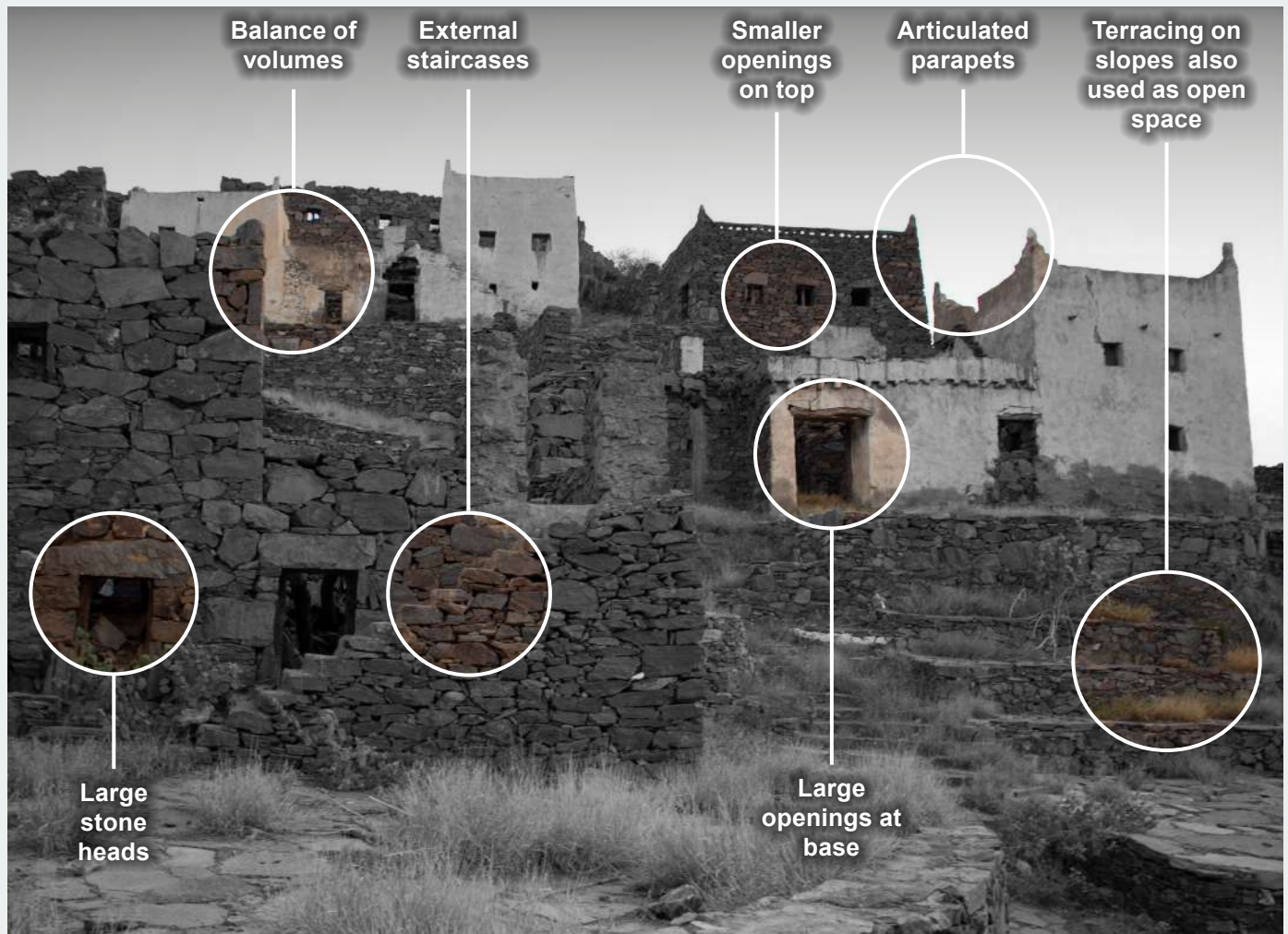


FIG.6 TRADITIONAL SETTLEMENT IN AL MAJARED

Settlements along the foothills and isolated mountains: houses clustered together with narrow alleys and fewer open spaces in the form of terraces.

Slopes were generally terraced. Internal courtyards and terraces functioned as open spaces within the housing cluster.

Market areas were located along the wadis.

Productive and cultural landscapes of terraces and wadi farming.

III.2 Architectural character

Tuhama Foothills share characteristics of the escarpments, mountains and the plains. Features like combination of materials, stone and plaster, external staircases, patterns, terracing are a result of influence of the neighboring styles.

Stone houses, the predominant style, were one to three stories high. One story houses were built with the immediate topography which allowed for horizontal expansion while two and three story houses were built on steep grounds. The walls of the houses were crowned with stone parapets for defensive purposes, in order to prevent attackers from climbing and invading.

Access to upper floors were through staircases which were sometimes built outside the houses.

Variable effects of the kinship system on house structure encourage space expansion, creating primary and secondary household along with a shared space connection between the two households.

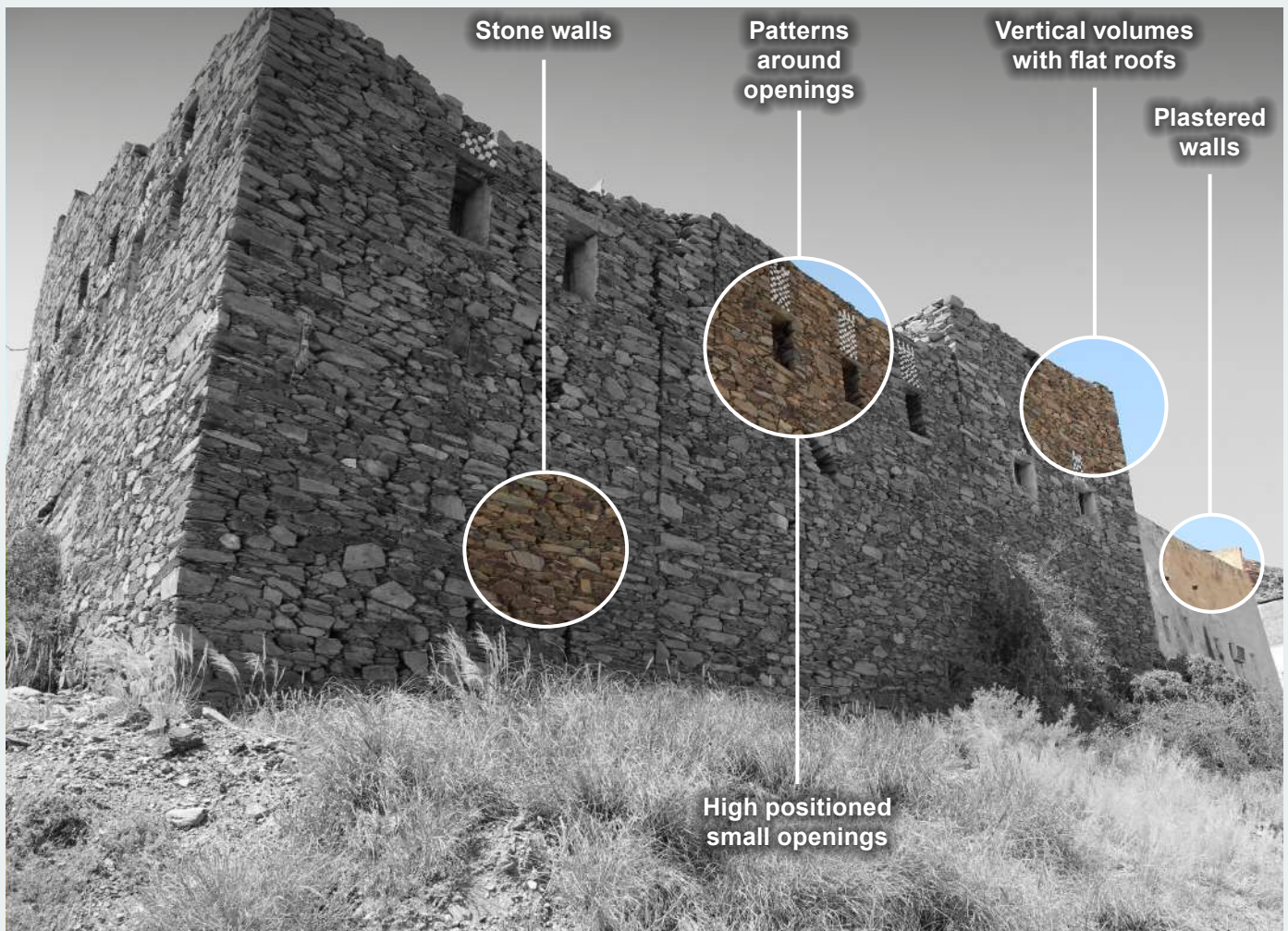


FIG.7 TRADITIONAL SETTLEMENT NEAR MUHAYIL

IV Analysis of Tuhama Foothills Architecture

The evidence and formal analysis upon which the guidelines are based.

To find objective characterizations of the vernacular architecture in Tuhama Foothills, elevation studies were conducted to assess overall building proportions and the solid-to-opening ratio of building facades. A sample of representative buildings, including a range of different use types were selected to arrive at meaningful ranges for each statistic.

IV.1 General typologies

Vernacular buildings typically comprise simple, orthogonal forms, with building heights ranging primarily from 1 to 2-story structures, and buildings rising up to 3 stories near the escarpments.

IV.2 Horizontality

Generally, strong horizontal proportions, indicated by a width-to-height ratio between 1:0.3 to 1:0.7. Horizontal proportions balanced with terraces and vertical volumes on terraces, and articulated parapets are a characteristic of this character area.

IV.3 Solid to opening ratio

The facades are plain, sober with minimal to moderate openings, the 3-18% opening percentage substantiate this observation.

Balanced volumes with moderate openings

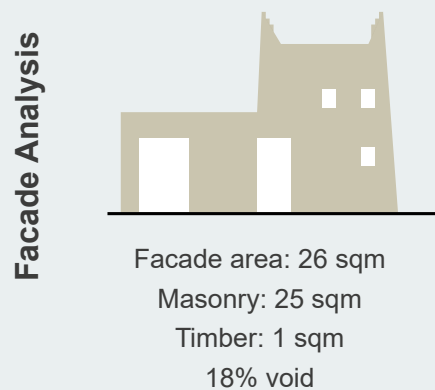
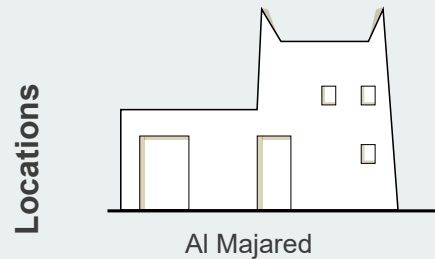
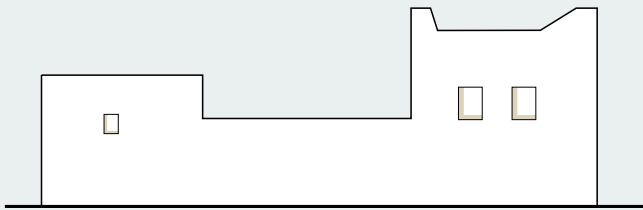


FIG.8 VERNACULAR FACADE STUDIES

Horizontally segmented with minimal openings



Al Majared

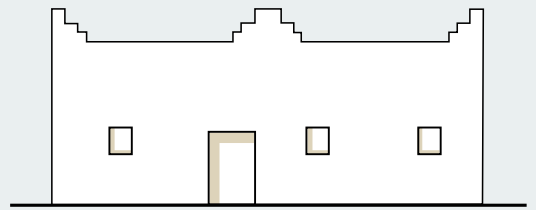


1:0.3

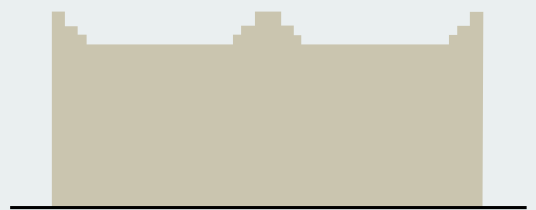


Facade area: 38 sqm
Masonry: 38 sqm
2.5% void

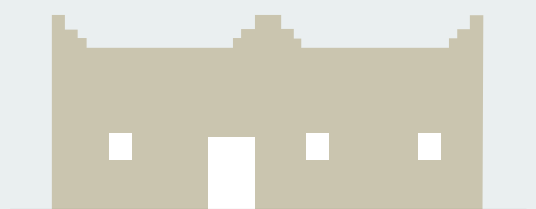
Horizontally continuous



Muhayil



1:0.4



Facade area: 33 sqm
Masonry: 32 sqm
Timber: 1 sqm
7.5% void

IV.4 **Building grouping patterns**

Built form is defensive and fortress like with buildings clustered together.

A general development of one to three stories high. Occasional breaks with difference in massing built on slopes using terracing.

Soft and simple but articulated, sculptural building forms. Thick stone walls to strengthen the base with gently tapering walls towards top with a maximum inclination angle of 5°.

Buildings have flat roofs with terracing used to adapt to the topography.

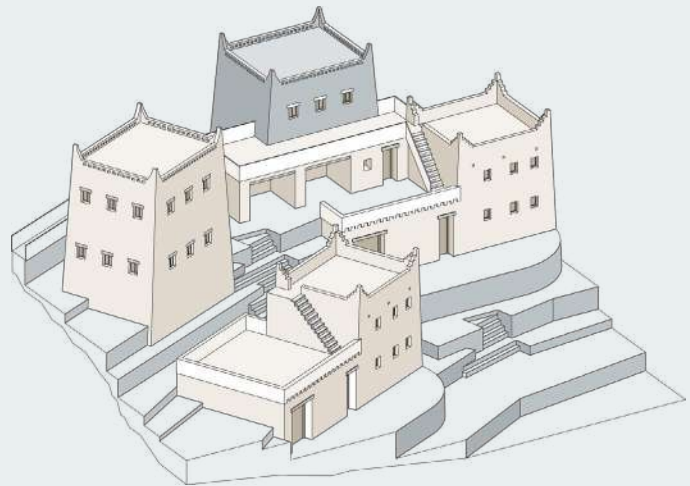


FIG.9 Building grouping patterns

IV.5 **Balanced proportions**

A general development of two to three stories high with gently tapered walls with a maximum inclination angle of 5°.

Stone tower houses may reach up to three to four stories high with thick stone walls to strengthen the base.

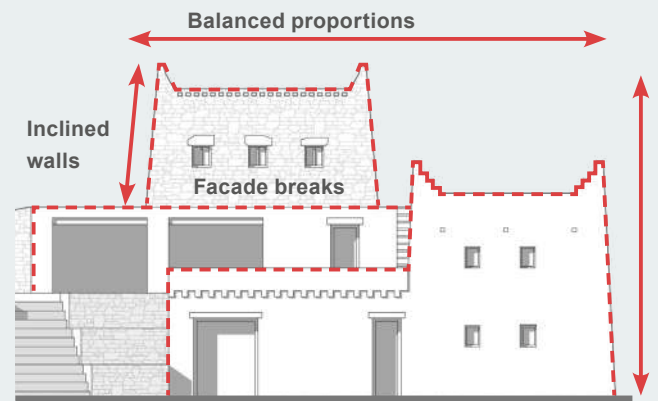


FIG.10 Balanced massing

Horizontal massing facade with breaks. Vertical masses as a result of terracing on the slopes.

IV.6 **Varied symmetries**

Analysis indicates a limited palette of opening types. Fenestrations formed as rectangular and square shaped punched hole openings within solid load-bearing masonry walls. Opening placement follow localized symmetries. Grounded base with large openings typically define the building base, with square and rectangular ventilation openings occur on upper floors in pattern.

Variation in massing is brought through massing and combination of materials like stone and plaster. Typical colors of locally available natural stone, mainly shades of beige, brown and dark brown and complementary colors derived from the landscape of Tuhama plains and wadis are used.

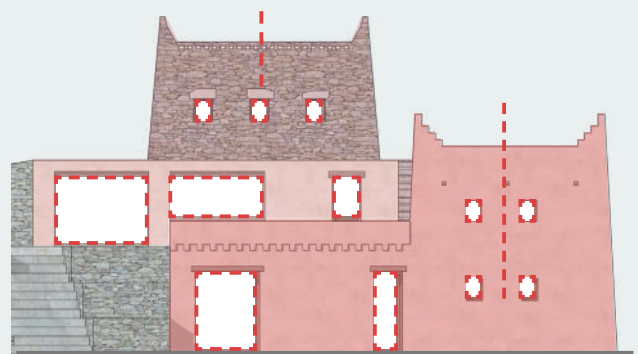


FIG.11 Local symmetries, openings with simple geometries with minimal detail

IV.7 Tripartite articulation

Facades are articulated with a clear base, middle and top. This distinction between base and middle is expressed most clearly through the solid void ratios and articulation.

Base - buildings with large openings at base.

Middle - punched openings with simple regular geometries. Settlements along the foothills of the high mountains: exterior walls have few smaller openings on upper floors for defense and privacy purposes

Openings do not cover more than 20% of the overall facade.

Top part features articulated parapets.

Local stone is dominant within the Tuhama Foothills. Combinations are frequent and characteristic of the area with use of stone masonry and plastered buildings.

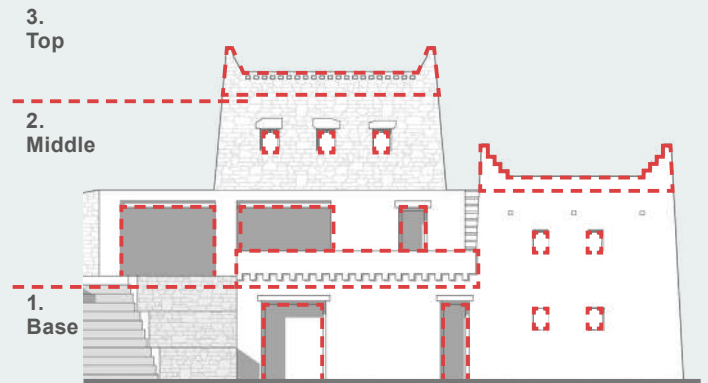


FIG.12 Tripartite articulation
Facades are typically split into 3 separate tiers with large openings at base, small openings in the middle of articulated parapets at the top.

IV.8 Roof character

Flat roofs with articulated parapets. Variation in skyline visible owing to topography.

Roofs are often used as social spaces as they are part of the terrace massing.

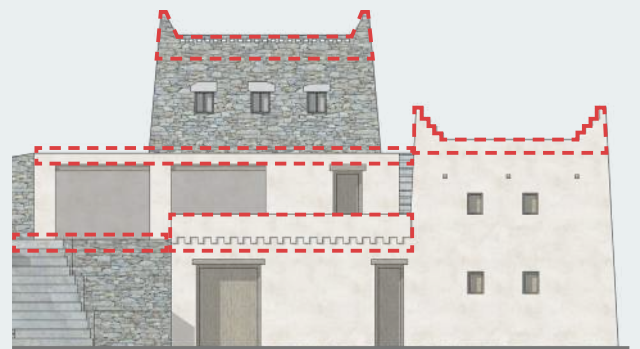


FIG.13 Flat roofs composed of terraces

IV.9 Special features

Use of terraces to respond to the terrain of the foothills is one of the characteristic of the region.

The terraces are also used as part of the open space hierarchy and social interactions.

Stepped compound walls connected to the base, use of external staircases is also common feature of foothills.

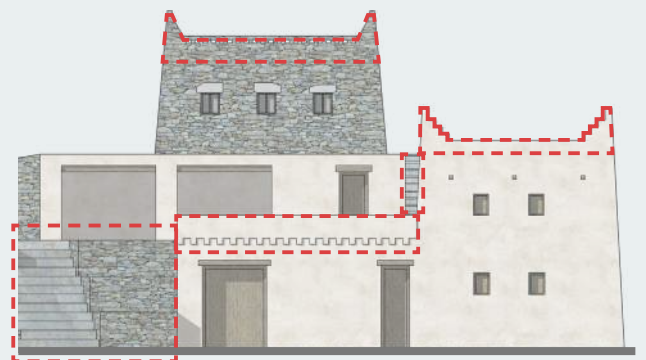


FIG.14 Special features

V Evolution

The connection of contemporary design with traditional forms to strengthen the architectural character of a place.

V.1 Connecting past to future

The guidelines aim to provide architectural roots for contemporary buildings so that they connect to their historical context, draw upon their local culture and reflect the spirit of a place.

At the same time, a balance between continuity and innovation is needed. Advances in construction technology, material science, patterns of development and specifications for new building uses require buildings that can accommodate these changes while preserving the essence of local architecture.

V.2 Connecting environment to form

The guidelines also aspire to connect buildings to their geography. Physical context has traditionally influenced the materials available, the patterns of development and the climate response required from architecture.

These environmental constraints have created a matrix of related, regional building typologies. The guidelines aim to provide a layer of stylistic influence to accentuate these regional building types into distinct characters that can be gathered into a diverse yet related national 'family portrait' of architectural character across the Kingdom.

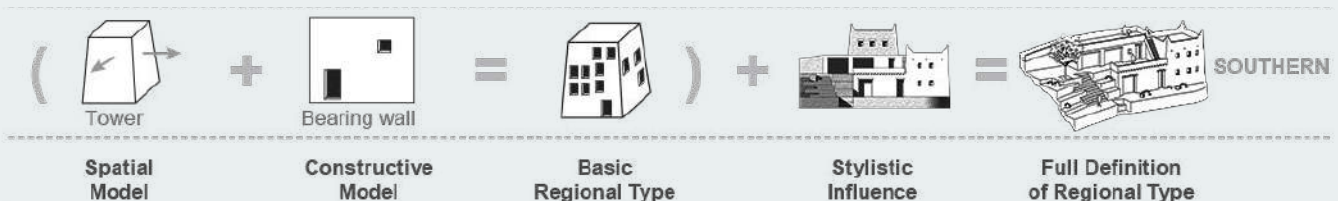
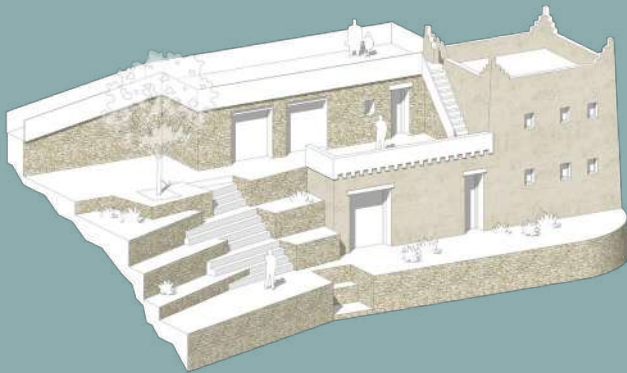


FIG. 15 Character equation for the Tuhama Foothills (after Ishteeaque & Al-Said 2008)



Traditional building

TRADITIONAL

The massing and design of the new building should foster the architectural character by adopting in a sensible way the traditional forms and patterns, elements and decorations, materials and colors.

Walls with tapering geometric profile, small openings, articulated parapets, variation of locally specific materials like stone and plaster. Grounded base with large openings, play of volumes with terracing.



Transitional building

TRANSITIONAL

The form and style to be adopted for transitional style should distill the most essential qualities and character giving architectural elements, such as the use of appropriate material and color palette and interpretation of dominant architecture features.

Terraced volumes, use of materials and colors bringing variation, integral windows. Interpretation of parapet articulation, traditional elements, rhythms of architectural elements.



Contemporary building

CONTEMPORARY

The form and style of contemporary style should distill the essential qualities and values of vernacular architecture in a new and ever contemporary expression.

Abstraction of geometric planes and forms, adapting to a range of building types and increased daylighting. Balance of volumes, interpretive use of patterns, screens and setbacks for shade.

FIG. 16 Evolution of styles

VI How to use the guidelines

The guidelines have been organized to present the rules of architectural character in a clear, efficient and useful way.

VI.1 Chapter organization

The first chapters sort the guidelines into different dimensions that help define architectural character:

- 1 **Key features** - The most essential qualities for the architectural character.
- 2 **Composition** - The rules by which buildings are shaped and elements are related to one another.
- 3 **Elements** - The individual parts that are the building blocks of the architectural character.
- 4 **Material and color** - The prevalent materials used and color range found within the architectural character.
- 5 **Pattern** - Common motifs and patterns used in the traditional craftsmanship and material culture of the character.

These chapters are followed by two sections focused on guideline implementation:

- 6 **Applying the architectural character** - Guidance for the proper interpretation and use of architectural character in new buildings.
- 7 **Worked examples** - Design studies that illustrate the use of architectural character at different scales and strengths.

The document concludes with:

- 8 **Public realm** - An overview of public realm character in Tuhama Foothills.

VI.2 Guideline formatting

Individual guidelines are formatted graphically to make them more useful:

- 1 **Chapter number and heading** - Guidelines are gathered into major categories for ease of reference.
- 2 **Guideline number and heading** - Guidelines are given a unique 2-digit decimal number and heading for ease of reference and to provide precision in enforcement.
- 3 **General description** - Descriptive text to introduce the guideline topic.
- 4 **Guideline actions** - Instructions clearly identifying the actions to be taken by designers. Each action is numbered for ease of reference and to provide precision in enforcement.
- 5 **Rationale** - Set in colored text and highlighted by a side bar are the objectives and reasons for the guideline. This gives the applicant an opportunity to propose designs that meet the rationale through alternative ways. Alternatives require the approval of the relevant local authority.
- 6 **Illustrations** - Illustrations, photos and diagrams that help explain the guidelines. They are examples only: where contradictions arise between illustrations and guideline text, the text shall overrule the illustration.

The items above correspond to the figure on the facing page.

Link to the Contents page

Tuhama Foothills Architectural Design Guidelines

1 Chapter number and heading

2 **Composition**

In contemporary parameters, the different compositional elements of layout, open space, massing, design, and facades described in chapter 1 should translate into the following provisions.

2 Guideline number and heading

2.1 **Townscape groupings**

Guidance for layout aims to achieve and contribute to factors like topography of site and its context, figure ground qualities, and public realm.

3 General description

- 1 Human-scale, socio-cultural and family values, with different levels of privacy should be fostered in the design.
- 2 Spatial enclosures should be promoted to achieve a sense of place with a clear hierarchical variety of open spaces.
- 3 Walkable and non-car dominated environments with attractive public realm should be prioritized.
- 4 Land use should promote a mix of uses.
- 5 Large blocks (>100m in any direction) should in general be avoided, or provide mid-block passages for walkability.

4 Guideline actions

A permeable block structure with mix of uses is essential to create a walkable and vibrant urban space.

2.2 **Relationship to landscape**

- 1 Conservation and enhancement of environmental and cultural resources on site should be prioritized.
- 2 Built form should respect the natural terrain, flattening of slopes should be avoided. Terracing should be encouraged.
- 3 In general, a usable open space should be provided within the plot oriented toward public frontage.

5 Rationale

To respect and respond to the natural landscape context, climate and environment of the foothills.

20 GUIDELINES

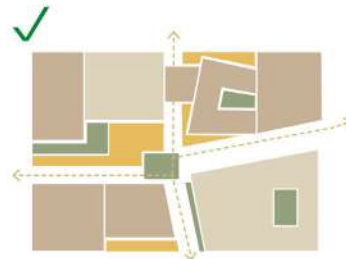


FIG. 21 Permeable fabric with hierarchy of open spaces, mixed uses, and continuous pedestrian network should be encouraged



FIG. 22 Large blocks / consolidated blocks without pedestrian permeability should be discouraged

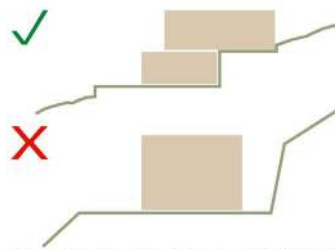


FIG. 23 Built form respecting the natural terrain to be encouraged; large flattening of sites should not be permitted

6 Illustrations

FIG. 17 Typical guideline structure

GUIDELINES

1 Key features

The form and style of contemporary architecture of Tuhama Foothills should distill the essential qualities, key features and the values of vernacular architecture.

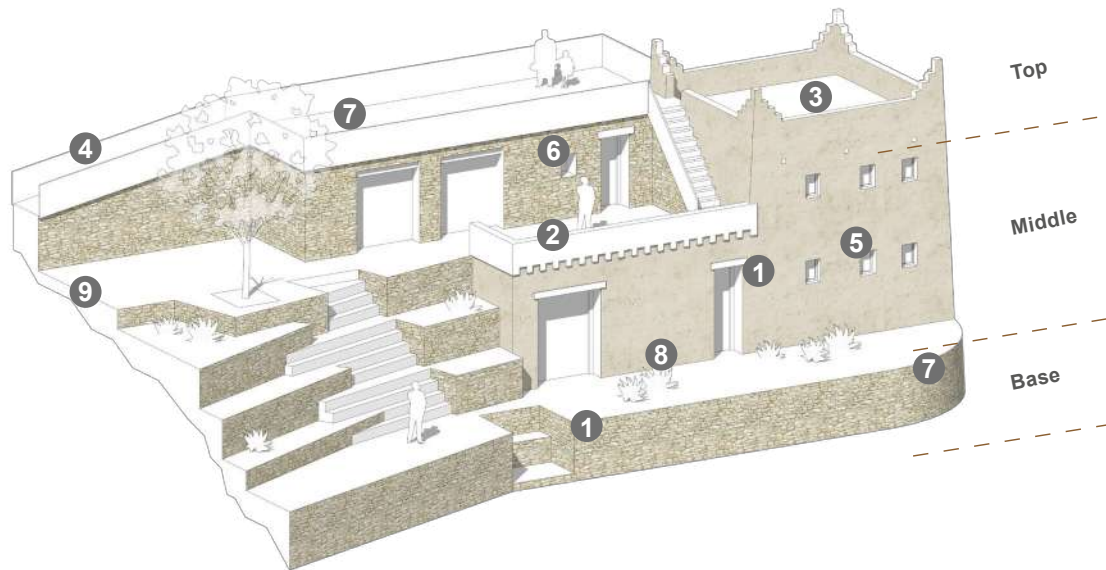


FIG. 18 Tuhama Foothills key features

Key features:

- 1 Massing broken into balance of horizontal and vertical volumes, clustered together, built on slopes using terracing.
- 2 Facades formed with closely knit buildings with occasional breaks with difference in massing and materials.
- 3 Flat roofs with parapets articulated with pointed corners or stepped crenelations. Water spouts also feature in the facades. Windows are occasionally highlighted with white plaster.
- 4 Gently tapered walls with a maximum inclination angle of 5°.
- 5 Openings do not cover more than 20% of the overall facade.
- 6 Settlements along the foothills of the high mountains: exterior walls have few smaller openings on upper floors for defense and privacy purposes.
- 7 Local stone is dominant within the Tuhama Foothills. Combinations are frequent for stone masonry and plastered buildings.
- 8 Occasional use of local art for decorative patterns for highlighting elements.
- 9 Internal courtyards and terraces function as open spaces within the housing cluster.

1.1 Character summary

The vernacular architecture design, proportions, patterns, and architectural features in Tuhama Foothills evolved primarily based on local climatic conditions, materials available, traditions, and for defensive purposes.

The design of vernacular architecture distinguishes itself from the other character zones with a play of volumes, terraces optimizing the natural topography of the foothills, and building facades having a balanced combination of stone and plastered finish. Openings do not cover more than 20% of the overall facade.

Stepped parapets and water spouts feature with flat roofs. External staircases to navigate through the various levels are also one of the features of Tuhama Foothills.

Contemporary architecture in the Tuhama Foothills may be achieved by re-interpreting in an innovative way vernacular forms and patterns, architectural elements and decorations, and materials and colors while retaining the values of the local culture.



FIG. 19 Example of Tuhama Foothills vernacular architecture, in Muhayil

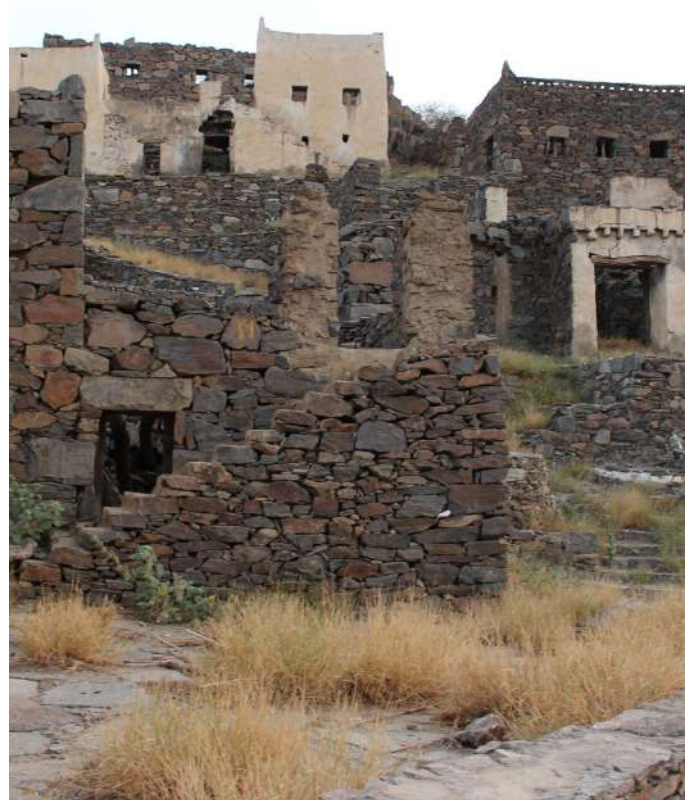


FIG. 20 Example of Tuhama Foothills vernacular architecture, in Al Majared

2 Composition

In contemporary parameters, the different compositional elements of layout, open space, massing, design, and facades described in chapter 1 should translate into the following provisions.

2.1 Townscape groupings

Guidance for layout aims to achieve and contribute to factors like topography of site and its context, figure ground qualities, and public realm.

- 1 Human-scale, socio-cultural and family values, with different levels of privacy should be fostered in the design.
- 2 Spatial enclosures should be promoted to achieve a sense of place with a clear hierarchical variety of open spaces.
- 3 Walkable and non-car dominated environments with attractive public realm should be prioritized.
- 4 Land use should promote a mix of uses.
- 5 Large blocks (>100m in any direction) should in general be avoided, or provide mid-block passages for walkability.

A permeable block structure with mix of uses is essential to create a walkable and vibrant urban space.

2.2 Relationship to landscape

- 1 Conservation and enhancement of environmental and cultural resources on site should be prioritized.
- 2 Built form should respect the natural terrain, flattening of slopes should be avoided. Terracing should be encouraged.
- 3 In general, a usable open space should be provided within the plot oriented toward public frontage.

To respect and respond to the natural landscape context, climate and environment of the foothills.

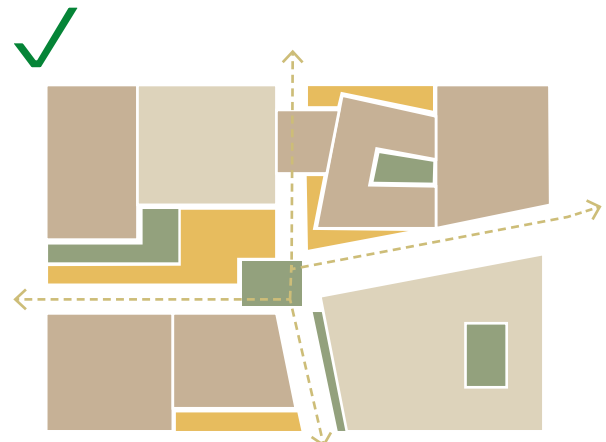


FIG. 21 Permeable fabric with hierarchy of open spaces, mixed uses, and continuous pedestrian network should be encouraged

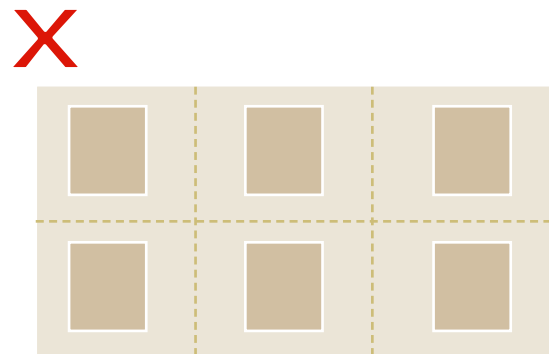


FIG. 22 Large blocks / consolidated blocks without pedestrian permeability should be discouraged

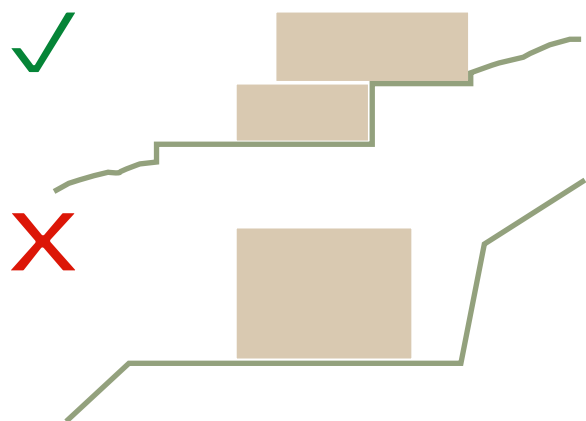


FIG. 23 Built form respecting the natural terrain to be encouraged; large flattening of sites should not be permitted

2.3 **Balanced building forms**

Building form guidelines aim to contribute to the contemporary interpretation of factors like scale of buildings, heights and proportions.

- 1 Generally, building massing should adopt a balanced form comprising of horizontal and vertical buildings, responding to the immediate context of the foothills topography, while also fostering human scale.
- 2 Forms should be compact with strong geometric and inclined (max. 5 degrees) shapes and provide a well-balanced variety that adds to the skyline.
- 3 Large building massing should be avoided; typically, larger floor plates should be broken by means of full breaks and/or recessed to introduce variation and foster human scale.

To retain the typical variety found in massing of traditional settlements.

2.4 **Terraced, occupied rooftops**

Roofscape guidelines significantly contribute to the character of the place through contemporary interpretation of roof line, views and skyline.

- 1 Building massing should be designed to have flat roofs. Terraces should be provided, well integrated within the massing or as stepped co-joined units.
- 2 Design of terraces should allow for various uses such as social interaction, green roof depending on the level of privacy.
- 3 MEP equipment, utilities, delivery, refuse containers, and other types of utilities should always be screened by parapets or located underground / internalized.

To maintain the traditional terraced form of the settlement.

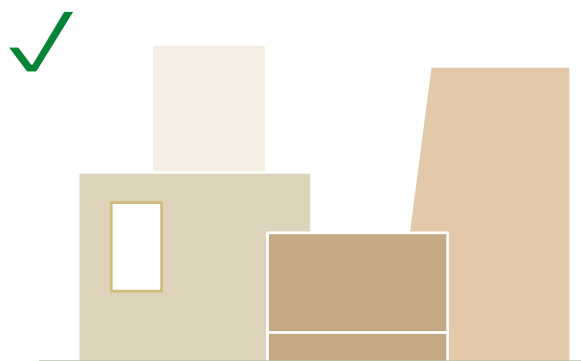


FIG. 24 Masses broken into horizontal and vertical volumes to achieve human scale and variation in skyline



FIG. 25 Large monolithic building blocks, non contextual roof profiles should be avoided

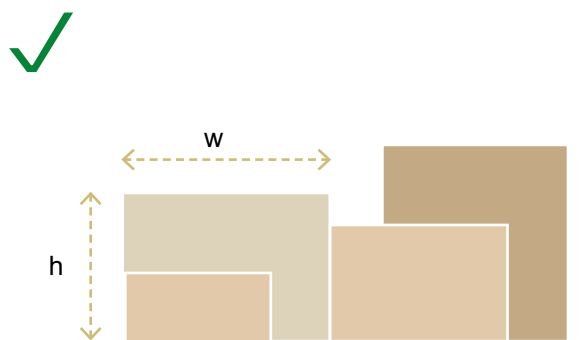


FIG. 26 Width-to-height ratio, facade breaks promoting balanced massing



FIG. 27 Terraced and occupied flat rooftops

2.5 Asymmetrical frontages

The guidance for elevations and frontages aims to achieve and contribute to the contemporary interpretation of factors like, use of traditional facade elements, ratio of solid and openings/voids, placement patterns, and privacy requirements.

- 1 Frontages are generally asymmetrical. Localized symmetry should be maintained in the placement, rhythm and patterns of the openings, interpreting the general asymmetry of houses from the vernacular architecture.
- 2 Facade design should be integral to all public sides (i.e. with the same level of design quality and a consistent treatment).
- 3 Facade design should always ensure privacy of neighboring residential buildings.
- 4 Large-scale symmetry should be reserved for only the most important of civic and religious buildings.
- 5 Variation in materials should be used to bring variation in the facade.

To observe simple asymmetry defining the traditional architecture.

2.6 Simple openings

Facades should be articulated by openings, horizontal and vertical breaks and also by finishes, recessed entries, fenestration pattern and projections.

- 1 Generally, openings should consist of small to medium sized windows of simple geometry. Small ventilation windows may be used to bring variation to the facade.
- 2 Windows should be relatively square / rectangle with relatively balanced proportions.
- 3 Generally, openings should have a maximum share of 30 to 50% of the overall facade surface, according to their solar and wind exposure.

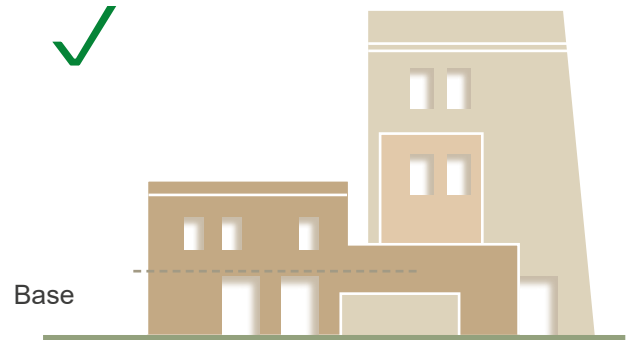


FIG. 28 Facades with distinct base with large openings. Multiple volumes with terracing

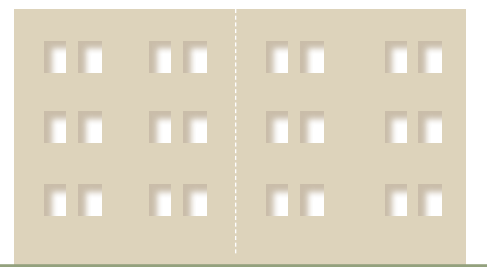


FIG. 29 Long monotonous facades, large-scale symmetry without facade breaks should be avoided



FIG. 30 Variation of moderate sized openings with localized symmetry should be encouraged. Max. 30-50% openings. Loggias and terraces incorporated in facade design. Privacy for neighboring plots

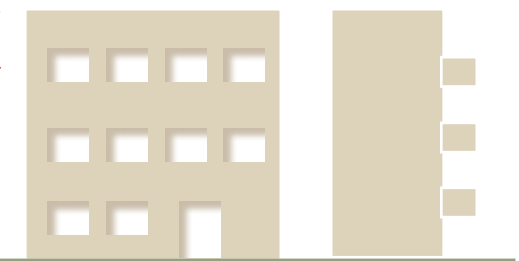


FIG. 31 Large openings, arranged in grid patterns, projected balconies should be discouraged

- 4 Loggias may be incorporated in frontages and should be preferred over abutting balconies.
- 5 Variation in openings and articulation providing evenly transitioned tripartite character to the facade.

To observe the simple aesthetic character of the foothills.

2.7 Solid facades and active ground floor

- 1 Generally, facades should express external solid walls that are grounded to the street level.
- 2 Large openings / colonnades are encouraged for active frontages on ground floor and along terraces.
- 3 Ground floor facade treatment should foster a high-quality interface between the building and the street, with active frontages.
- 4 Facade materials should be hard-wearing and robust.

Design of ground floors should express the architectural intent and character of the place.

2.8 Articulated parapets and patterns

- 1 Parapets should be articulated using contemporary interpretations of traditional parapets of stepping, pointed parapets, friezes, and banding to distinguish as a top part of the building.
- 2 Patterns and art should be used in balanced proportions to highlight features.

To highlight the character of the foothills while creating attractive facades.

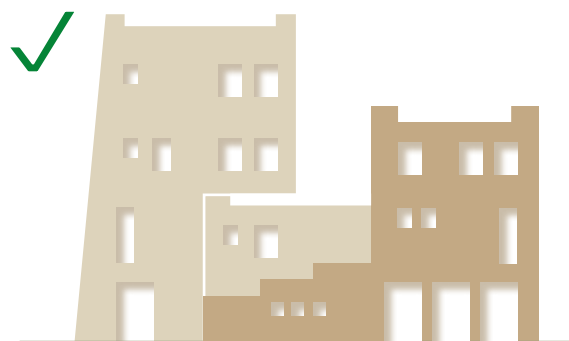


FIG. 32 Large openings on ground floor for active frontages, maintaining grounded base

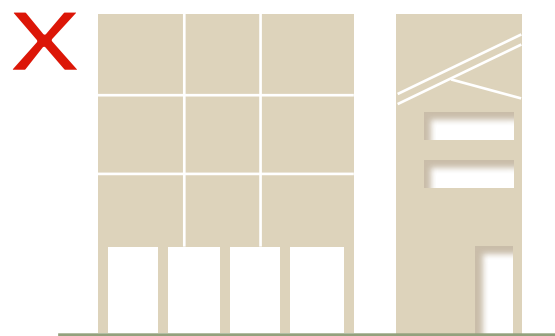


FIG. 33 Very large openings at base, thin columns, blank, non-integral facades, facades not respecting privacy, should be avoided

3 Elements

The individual parts that are the building blocks of the Tuhama Foothills architecture.

TAB. 1 Tuhama Foothills architectural elements



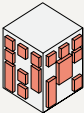


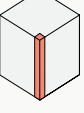
GENERAL ELEMENTS

	Key characteristics	Balanced massing with terraces, combination of materials, gently tapered walls mostly on the upper part, with an inclination angle between 1.5° and 5° are key features of this area. Refer to section “1 Key features” on page 18 for key characteristics.
	Facade proportion	Human scale massing and design of the new building that responds to context and history, have a compact form, strong geometries and a balance of horizontal and vertical volumes.
	Window-to-wall %	Openings should generally not exceed 30-50% of the overall facade surface and propose a similar window-to-wall % to the heritage site, if located adjacent to it.
	Opening proportions	Opening proportions should interpret the traditional character of openings in the region / heritage site, intended use as well as the environment. Refer to expanded guideline “3.3 Windows and openings” on page 29.
	Composition	Depending on overall building size, the base may be characterized by as much as the first 1 - 3 stories of the building above ground. For taller buildings, stepping the massing at lower floors may help establish a sense of horizontality at street level.

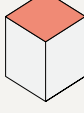
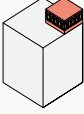
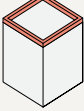
BASE ELEMENTS

	Entrances	Entries should be recessed from the building facade and well proportioned for a pedestrian scale. They should be well defined, clearly visible, and universally accessible from the sidewalk. Vehicular entrances should be placed at the back of the building. Refer to expanded guideline “3.2 Doorways and entrances” on page 28.
	Shop fronts	Active frontages between ground floor and main street should be emphasized. Solid base with simple geometry openings is encouraged with occasional use of colonnades.
	Arcades	Arches should not be permitted. Occasional colonnades maybe allowed for active frontages.
	Curtilage	Curtilage: small court or yard. Buildings’ exterior ground floors, particularly arcades’ covered exterior area, should strive for material and design integration with the surrounding public realm. The transition from the public domain to the curtilage should be universally accessible, with no abrupt changes in level, single steps, or other trip hazards. By optimizing the micro climate around buildings, it is possible to ensure a favorable pedestrian experience.

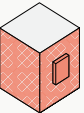
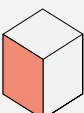
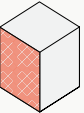
MIDDLE ELEMENTS

	Wall articulation	Facades should incorporate variation in materials like stone finish and plaster. Terraces, articulated parapets (stepping, pointed, friezes, banding), traditional patterns and regular breaks (generally at maximum 30 meters intervals) along building facade creating a visual rhythm along the streets is recommended. Wall breaks should be a minimum of 1.5 meters deep and 3 meters in length and extend to at least 70% of the facade vertically.
	Windows and openings	Openings should follow a pattern and rhythm contributing to the character of the place, as well as designed for human comfort. Window and opening design are subject to a large number of compositional guidelines. Refer to expanded guideline “3.3 Windows and openings” on page 29.
	Projecting elements	Projecting features should reference historic examples, if used, being appropriately sized for the rooms they serve. For Tuhama Foothills, projecting elements such as balconies should be generally discouraged, or should be well integrated within the massing.
	Recessed elements	Recessed elements are set inwards from the building facade; they extend access or perception of the public realm inside the plot boundary. This may include: recessed entrances, arcades, overhangs and chamfered corners.
	Shutters and Shading	Shading may be achieved by recessing openings from the facade, or by providing perforated or latticed screens. Should adapt to the vernacular language. Complementary color palette may be used to highlight shutters as special feature, based on the vernacular language.
	Corner features	Building corners should be well defined and positively contribute to the public realm and help pedestrian movement.

TOP ELEMENTS

	Roofscape	Active, accessible roof space is encouraged. Roofscapes should be used as amenity space and to incorporate sustainability and green roof measures. Roofscapes forming terraces are encouraged.
	Rooftop elements	Should be set back min.4m from the parapet/building facade and be of a lighter expression of construction (i.e. materiality or color). Rooftop rooms derived from vernacular architecture are encouraged. Temporary fabric shading also permitted. Rooftop elements usually, should not extend more than 33% of the frontage.
	Parapets	Parapets should be horizontal, and typically low in height. Articulated parapets are encouraged, not necessarily duplicated based on the vernacular style.

OTHER ELEMENTS AND ORNAMENTATION

	Materiality	Materials should match the local character area zone and reference the near-by heritage; be consistent in nature, minimum 50% of facade should feature one material. Combination of materials is encouraged to bring variation in facade. Excessive layering of multiple materials and generally, use of low quality materials is discouraged. See expanded guideline “4 Materials and Colors” on page 30.
	Colors	Generally, approximately 70% of facade should be in one light earth tone color. Variation in colors is encouraged for facade breaks. Complementary colors, integrated in design composition may be used to highlight features, generally up to 30% of total facade surface. See expanded guideline “4 Materials and Colors” on page 30.
	Pattern	Local art and patterns should be integrated in design composition, generally up to 20% of total facade surface. See expanded guideline “5 Patterns” on page 34.

Top



Parapets with articulations



Parapet with crenelations



Stepped parapets



Stepped parapet



Pointed parapet



Pointed stepped parapet

Middle



Small windows with stone top



Windows with patterns on top



Framed openings



Punched openings



Defense / ventilation openings



Punched openings

FIG. 34 Examples for top, middle, base, ornamentation and other elements

Base



Doors with heads



Large openings for shops



Exterior staircases



Simple openings with stone top



Wooden columns



Terraces and compound walls

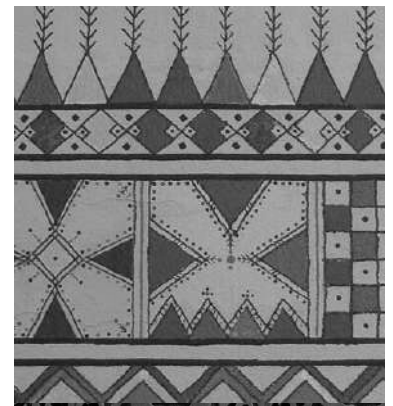
**Ornaments
and other
elements**



Highlighted doors



Opening overhead patterns



Patterns and colors used in local art



Patterns and colors used for door and window highlight



Stone layering pattern

3.1 General details and considerations

Details and construction techniques guidance provides standards and guidelines for use of traditional elements, provisions to translate these details to contemporary parameters, types and percentage of elements on the facade, protection and enhancement of traditional building features. Elements depicted should be used as starting points for interpretation rather than direct copying.

- 1 In general, architectural elements like the rooftop elements, openings, entrances, and construction techniques should express a plain, simple and elegant style.
- 2 A vocabulary of architectural details should celebrate or re-interpret the traditional architectural elements, as per identified in Section 1.
- 3 Traditional architectural elements should be combined with contemporary and new technologies in an innovative way.
- 4 Contemporary architectural elements and construction techniques should be appropriately selected to respond to climatic conditions as per identified in Section 1 (i.e. shading strategy and use of non-reflective surfaces, wind directions, rain harvesting, green roofs).
- 5 Contemporary adaptation of traditional building techniques and materials, should be proposed (i.e. limestone, mud colored plaster, beige metal/ high-pressure laminate HPL cladding).

Architectural elements are the unique details and component parts that working together with specific construction techniques form the architectural style of buildings.

3.2 Doors and entrances

- 1 Generally, doors and entrances should consist of simple orthogonal geometries.
- 2 Door width-to-height ratio are 1:1.6 to 1:2.
- 3 Entrances on ground floor may be wider with width to height ratio of 1:1.3.

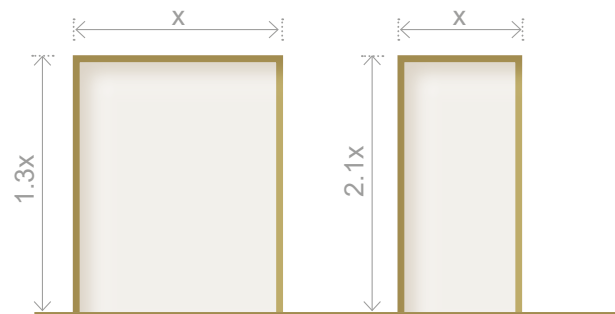


FIG. 35 Traditional door elements proportions

3.3 Windows and openings

- 1 Openings should be articulated with change in materiality and/or color, occasionally as white or lighter colored surrounds that differ from the main facade.
- 2 Opening surrounds may be recessed or projected from the main facade to increase compositional layering and the play of light on the facade.
- 3 Generally, openings should consist of small windows of simple geometry.
- 4 Generally, traditional windows have the proportion of 1:1 - 1:2.
- 5 Informal groupings; alignments related to interior room layouts rather than external facade composition.
- 6 Locally symmetric and aligned openings are preferred. To generate bigger orders and levels of hierarchy on the facade, windows on different floors should adopt axial alignments.

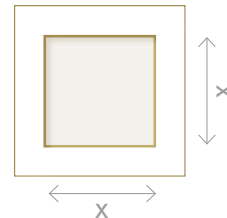
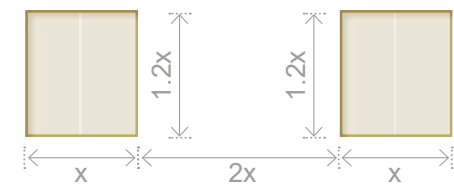


FIG. 36 Traditional window elements proportions

3.4 Roofscape

The traditional roofscape of the Tuhama Foothills is characterized by the use of articulated parapets and occupied rooftops.

- 1 The traditional parapets are generally pointed, stepped or articulation using crenelations as shown in the figure.
- 2 Contemporary roofscape may feature articulated parapets and/or articulated roof elements. It should clearly define the top part of the building with articulation, materials or features.
- 3 The rooftop design is recommended to preserve the values of traditional architecture, promoting social interactions, while addressing privacy needs and screening for contemporary buildings.

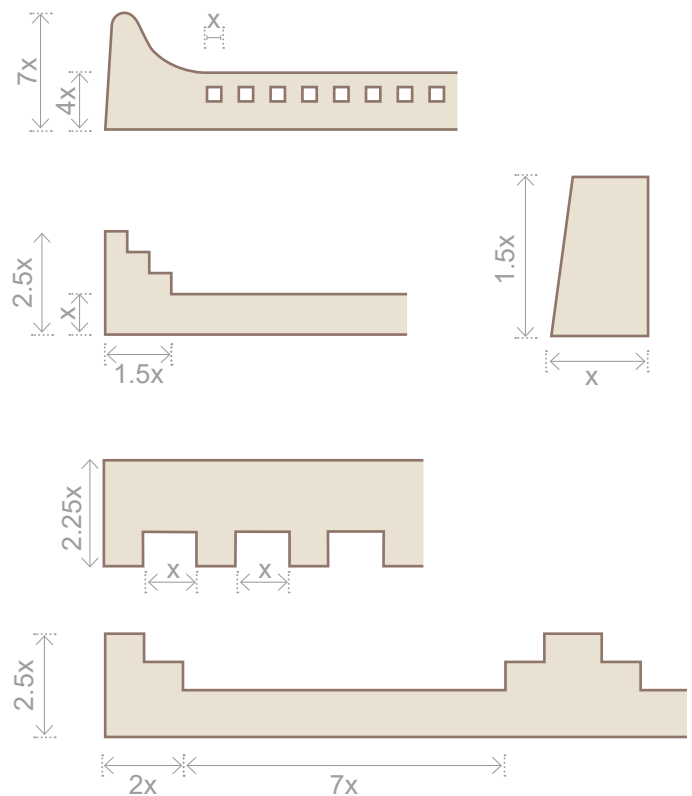


FIG. 37 Traditional parapet elements

Contemporary interpretation of architecture through factors like ratio of solid and openings/voids, proportion and size of openings maintain the traditional architectural source of the Tuhama Foothills.

4 Colors and materials

The skillful interpretation, application and interplay of light, shadows and colors, so characteristic of Tuhama Foothills traditional architecture, can convey additional meaning and contribute to providing a rich and contextual experience of the space.

In contemporary parameters the use of colors for new buildings should focus on:

- 1 A limited spectrum of natural colors and materials to be preferred.
- 2 Limited use of complementary colors may also be used for public realm, hardscape and softscape elements.
- 3 For all public frontages, typically, 70% to 90% range of the project's colors palette to be composed of light gradations of earth tones, with a maximum of 10% to 30% of the total composition reserved for stronger gradations and complementary colors.
- 4 Intensified and/or contrasting colors to be reserved for accentuating important elements, such as entries, arcades, openings and others. The range for intensified and/or contrasting colors should be maximum 5% of the total composition.
- 5 Changes of exterior color, texture or material may be used to reinforce the architectural formal idea and are best accompanied by changes in plane or occur at an inside corner (i.e. at vertical recesses, or horizontal step-backs), or accommodated via architectural detailing, such as gaps, or other changes in plane.

Appropriate colors derived from the local landscape and heritage vernacular palette should be used to contribute to an esthetically pleasing, and distinctive while more uniform urban environment.

RAL Color codes

RAL codes are part of a universal color-matching system used to provide consistency in architectural finishes. It is recommended that teams verify colors with a physical fan deck. For more information visit www.ral-farben.de/en/



FIG. 38 Tuhama Foothills color palette



Mud plaster walls , stone for paving



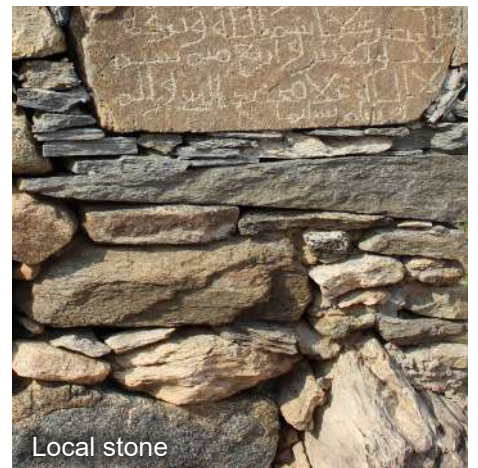
Combination of stone and plaster



Plaster finish



Local stone



Local stone



Wooden painted shutters



Stone facade



Local stone



Stone compound walls

FIG. 39 Tuhama Foothills materials and colors mood board

In contemporary parameters the use of construction materials and finishes should focus on:

- 1 Generally, materials finishes and colors treatment should be integral to all sides of the building and particularly along public frontages.
- 2 Solid materials and clear shaped geometries should be preferred.
- 3 Use of locally available traditional materials should be preferred.
- 4 Materials should convey a sense of quality and durability and that are able to retain their appearance over time.
- 5 High-quality durable materials should be used particularly for public facades. Since the lower part of a building, typically the first 4 levels, has the greatest visibility at ground level and while driving, its materials should be of enhanced quality and durability.
- 6 Changes of exterior color, texture or material may be used to reinforce the architectural formal idea and are best accompanied by changes in plane or occur at an inside corner (i.e. at vertical recesses, or horizontal step-backs), or accommodated via architectural detailing, such as gaps, or other changes in plane.
- 7 Generally, the use of min. 50% of facade treatment with one consistent material should be required.
- 8 Generally, the use of metal cladding and curtain walls should be limited to max. 20% of the total facade area.

Material and finishes should aim to achieve and contribute to the Tuhama Foothills architecture through factors like quality of new materials, hierarchy, proportion and palette of materials responding to the local context.

Recommended materials

Recommended materials are those durable and quality materials that give the building a sense of authenticity, weight, texture, and mass, such as:

- Local stone / natural stone.
- Colored concrete.
- Terra cotta.
- Mud brick (full or face brick).
- Rammed earth.
- Cementitious panel siding.
- Green walls.
- Smooth plaster.
- Terrazzo.
- Robust stone veneer.
- Low reflectivity clear glass.
- Limited use of high-quality metal panels.
- Durable tensile fabric for shading structures.

Discouraged materials

Use of low-quality building materials and elements are discouraged, such as:

- Metal cladding.
- Colored and mirrored glass.
- Plywood siding, T-1-11 plywood siding.
- Vinyl siding.
- Thin layers of stone or unit masonry that appear veneer-like.
- Corrugated plastic sheets.

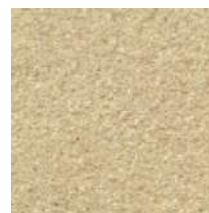
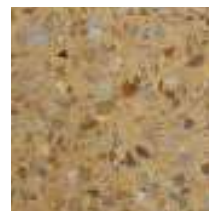
From the tradition



Contemporary interpretation



Earth base



Other materials limited to 10% - 20%



FIG.40 TUHAMA FOOTHILLS - RECOMMENDED MATERIALS

5 Patterns

Common motifs and patterns used in the traditional craftsmanship and material culture of the Tuhama Foothills.

Traditional patterns help to express the architectural character and preserve its socio-cultural values, customs and traditions. The Tuhama Foothills, a region steeped in tradition, showcases the enduring power of cultural expression through stonework patterns.

White quartz stones were used to create intricate patterns to highlight doorways, entrances, parapets and window openings. These patterns, often geometric in nature, range from simple linear arrangements to complex grid-like structures, reminiscent of a chessboard.

The outline of the pattern can take a square or triangular, linear or rectangular form, contributing to the overall aesthetic balance and harmony of the building.

- 1 The color palette and motifs of traditional art forms may be represented through use in façade treatment, public realm and hardscape elements.
- 2 Art pattern should be used to reinforce the architectural formal idea, accentuate openings, entrance areas and for special architectural elements. Art patterns may also be used for enhancing a blank facade. In public plazas and open spaces, local art may be used to theme public realm elements.
- 3 In general, the range for decorative patterns should be between 10%-20% of the total facade area.

Patterns inspired from traditional art forms and stone patterns are used in ornamentations in the Tuhama Foothills for highlighting elements.

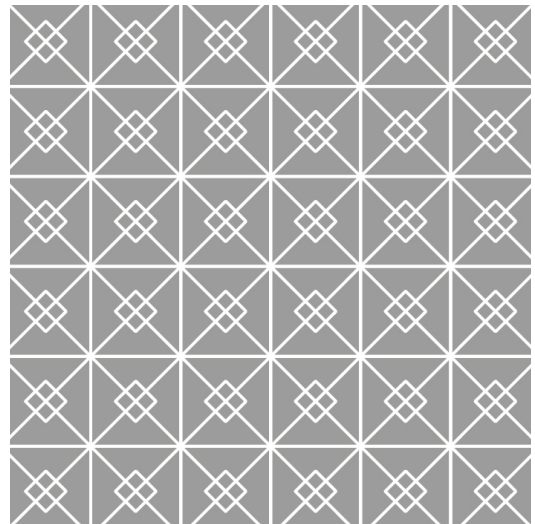
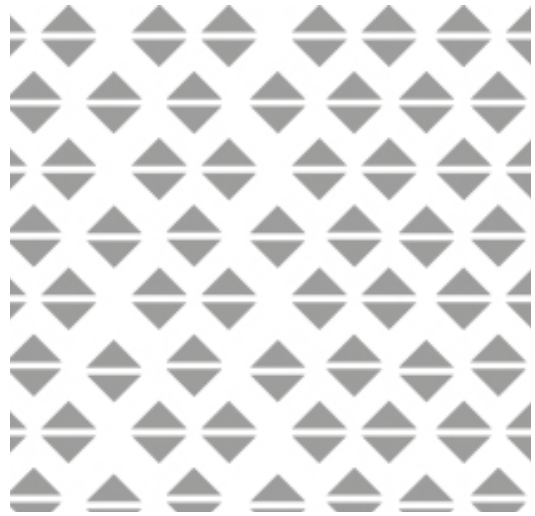
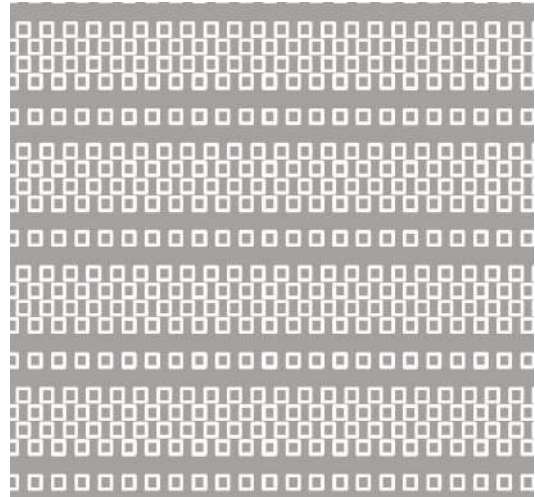


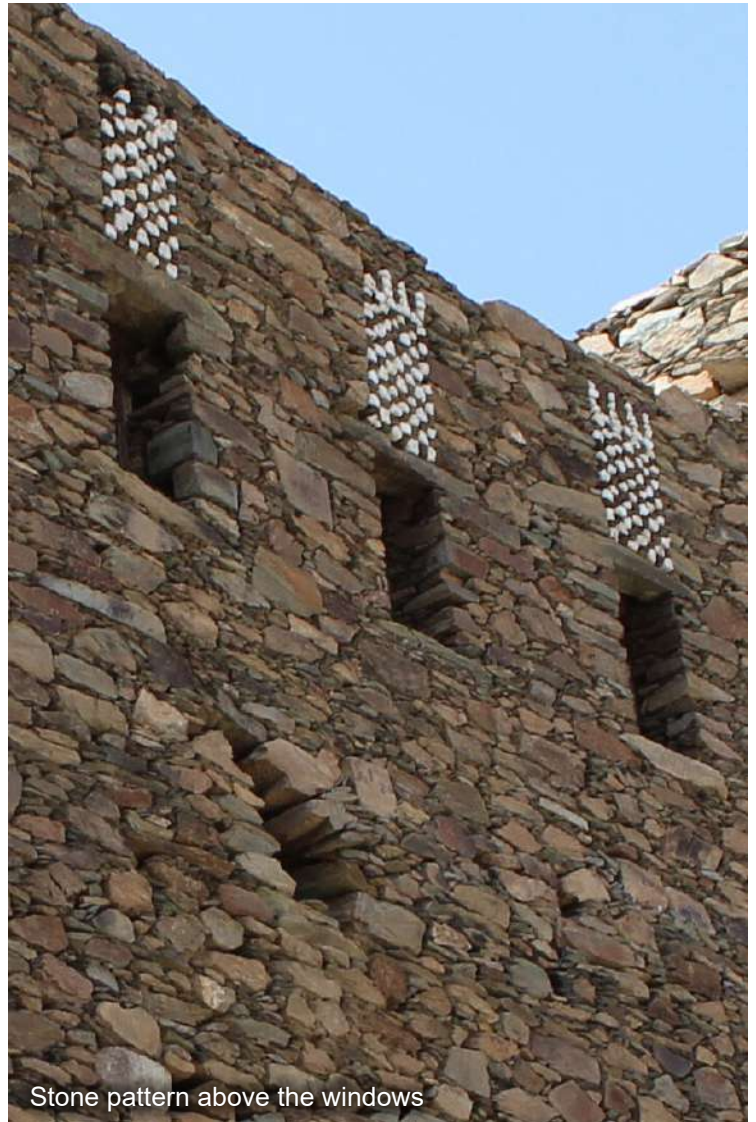
FIG. 41 Example of abstraction of decorative patterns and motifs



Parapet patterns present in Tuhama Foothills



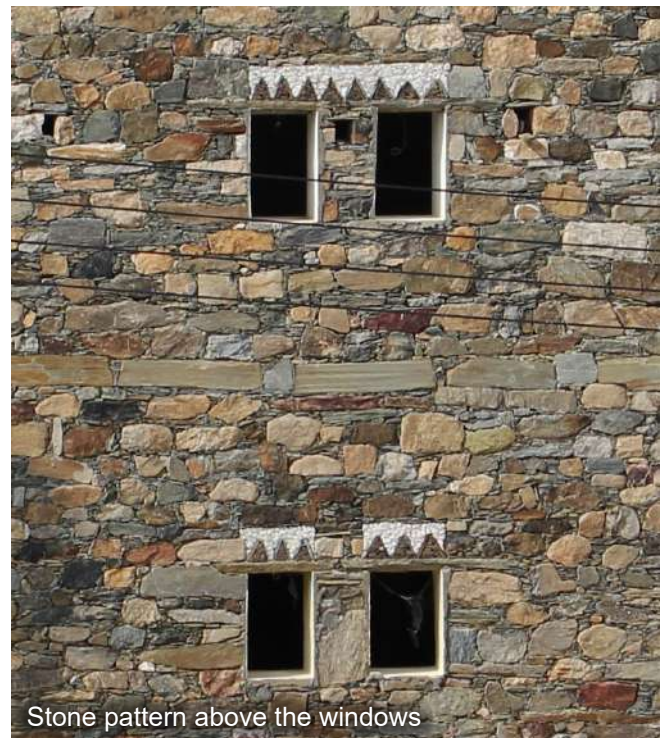
Stone patterns above doors and entrances



Stone pattern above the windows



Art work present in the Tuhama Foothills



Stone pattern above the windows

FIG. 42 Traditional patterns present in Tuhama Foothills

6 Applying the architectural character

Guidance for the careful interpretation and application of architectural character to contemporary developments.

6.1 Interpretation

Good application of architectural character does not mean direct copying of historical examples. Their contemporary use should involve interpretation: a selective emphasis of characteristics to create meaning and beauty in its new context. Designers can selectively use formal characteristics such as:

- Color (hue, tonality, tint).
- Shape (figure, outline, 2-D geometry).
- Form (volume, 3-D geometry).
- Texture (physical surface quality).
- Line (verticals, horizontals, diagonals, zigzags, curves, dashes, etc.).
- Value (lightness to darkness).

Interpreted elements can be further transformed in the way they relate to one another. Designers can play with compositional rules such as:

- Balance (equality or harmony of parts).
- Contrast (difference of parts).
- Emphasis (strengthening of parts).
- Movement (change, directionality).
- Pattern (repetition, symmetry).
- Rhythm (even and uneven spacing).
- Unity/variety (degrees of variation).

Designing with architectural characters is an interpretive art, an effort to express the spirit and essence of the original architecture in new yet familiar ways.

To encourage contextually sensitive contemporary design.

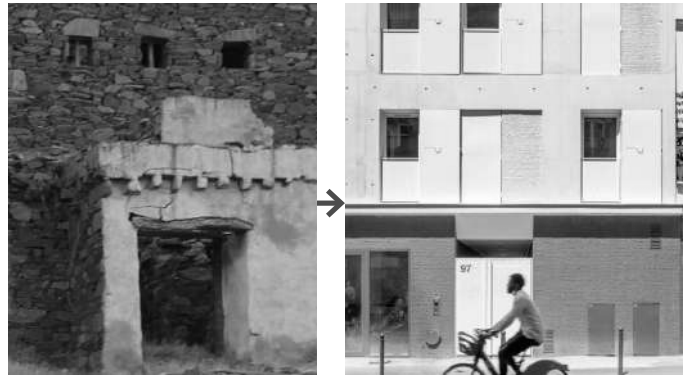


FIG. 43 Example of building material abstraction

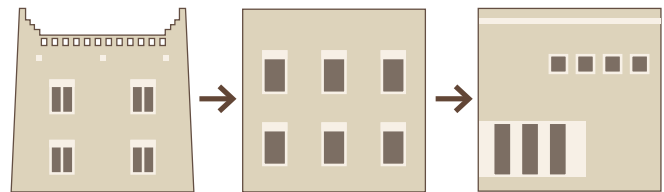


FIG. 44 Example of window shape abstraction

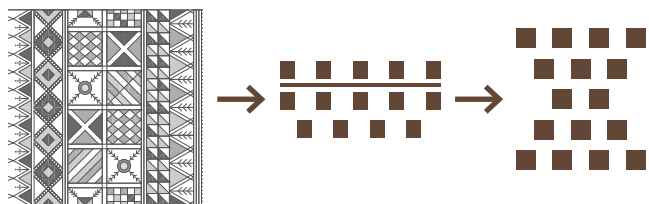


FIG. 45 Example of pattern abstraction

6.2 Scaling

Architectural characters often come from historical building types of a particular size. When applied to new developments of a dramatically different size, the original character can become distorted or repeated in a way where their quality and craftsmanship are reduced.

When applying architectural characters to new developments, designers should:

- 1 Be sensitive to the challenges of large project sizes. Break down building massing into smaller, more diverse and interesting massing that can better fit traditional elements of architectural character.
- 2 Observe the way elements are related to one another and to interior layouts in the source examples of architectural character.
- 3 Avoid mechanical repetition of elements without a clear design intention.
- 4 Respect the proportion, size and construction logic of the original architectural elements.
- 5 Do not scale and distort small elements into oversized graphic features that ignore the principles behind the use of the original element.
- 6 Pay special attention to building elements visible from the public realm, especially at the ground floor. The closer the element is to the public, the greater the fidelity and quality it should be. Conversely, elements farther away from public view may be more highly abstracted.

To successfully apply elements of traditional architectural character to large contemporary buildings.

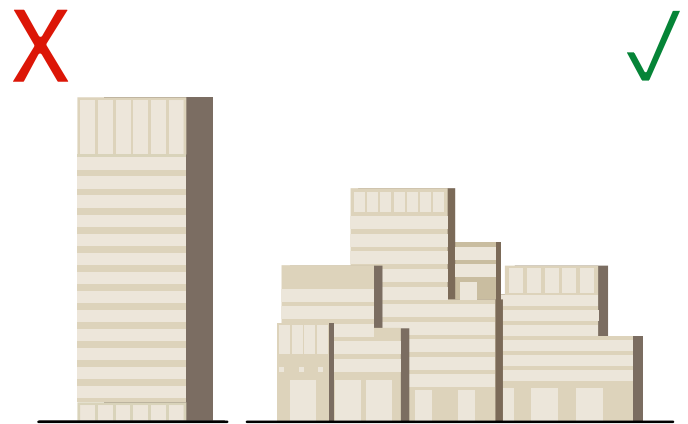


FIG. 46 Break down building massing to better fit traditional architectural elements

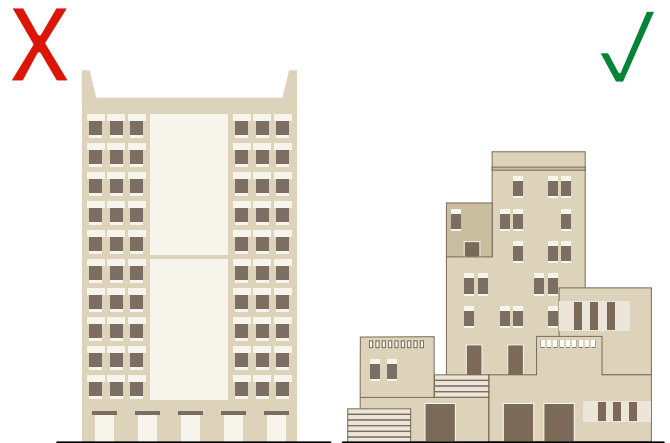


FIG. 47 Do not scale and distort smaller elements into oversized graphic features

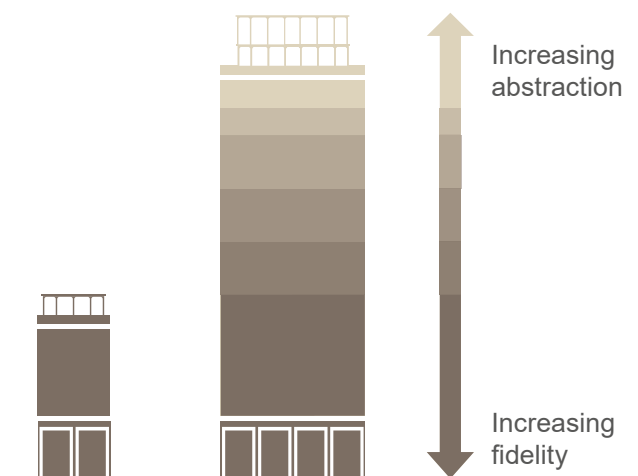


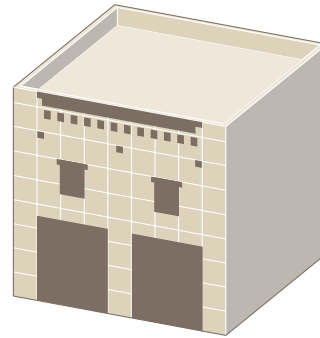
FIG. 48 Pay attention to building elements near the public realm, especially at the ground floor

6.3 Functionality

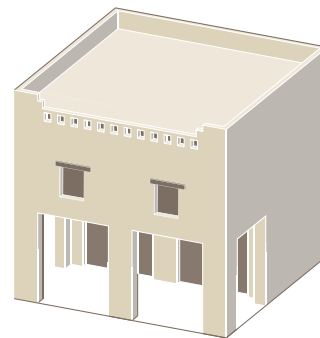
Architectural elements should perform functionally like their traditional counterparts, and not be applied superficially like graphic signage.

- 1 Architectural elements should be purposeful, contributing to the climatic or technical performance of a building for example: shutters should be operable, providing shading and privacy.
- 2 Architectural characters should not be applied in a superficially like wallpaper on an unrelated building form.
- 3 Architectural elements should not employ material fakery for example: the use of one material that pretends to be another.
- 4 Ornamental architectural elements are permitted where they strengthen the character and improve the quality of the building.

To maintain the functionality of architectural elements.



Superficial arcade and window screens



Functional arcade and window screens

FIG. 49 Example of functional architectural elements

6.4 Adaptation

The application of traditional architectural characters to new building types requires sensitive adaptation.

- 1 Precious materials from the original may need to be substituted with suitable replacements.
- 2 Some architectural elements may need to be adapted for new building systems or methods of construction.
- 3 Some new building systems may clash with an architectural character, and should be avoided (for example: large space frames, spider-joint glazing, and large areas of curtain wall).

To apply architectural character through contemporary means.

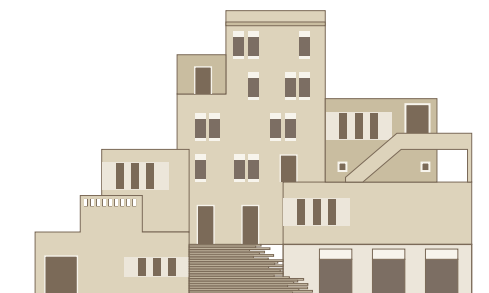
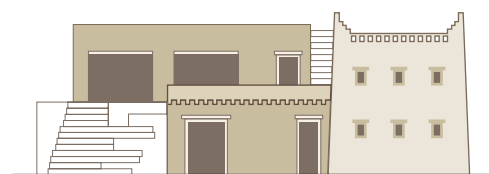


FIG. 50 Adaptation of traditional architectural elements to a contemporary building

6.5 Mixing

Architectural characters are part of living cultures that continually grow and change. The boundaries defining architectural character areas should be understood as provisional, open to influences from all around, rather than as fixed borders. This invites the possibility of styles and character strengths mixing together in large projects, and particularly in sites located on the edge of two or more character areas.

- 1 In large projects, when the project site is located at the edge of two or more character zones, the adjacent characters can influence the project by mixing the characters in different buildings, while prioritizing one above the other based on an analysis of the local context.
- 2 Avoid mixing more than one character within a single building; instead, the mixing should occur across different buildings depending on their location within the project and their functional use.
- 3 When mixing characters, the permitted style (traditional, transitional, or contemporary) should be taken into consideration based on the specified level.
- 4 Exercise informed creativity. Do not slavishly copy architectural characters.

To propose a clear method for the mixing and blending of architectural characters in large projects.

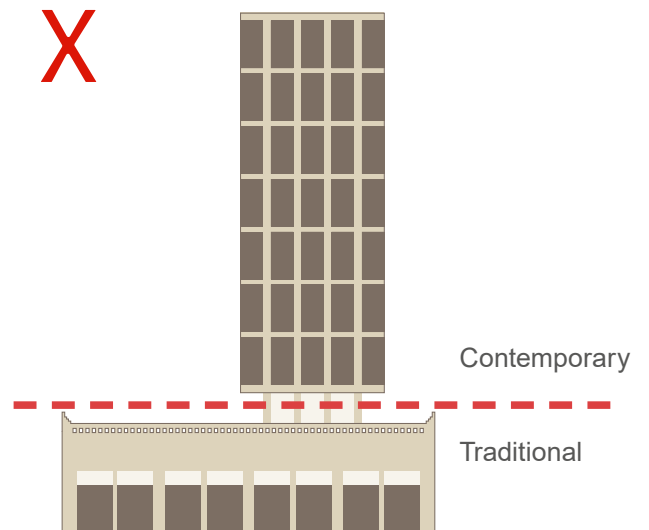


FIG. 51 Do not create hard breaks between mixed sources

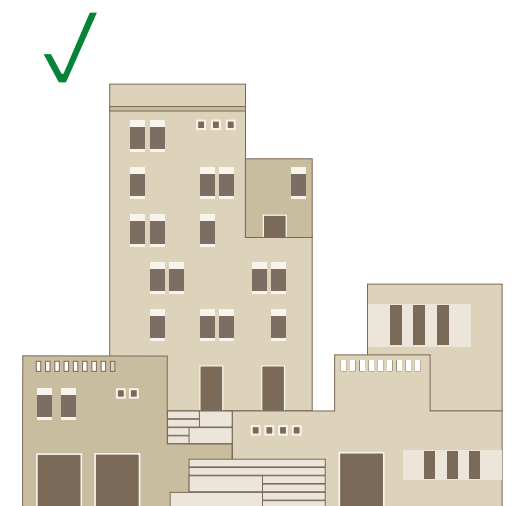


FIG. 52 Create gradual transitions between mixed sources and strengths of character application

7 Worked examples

This section provides examples for three styles, ranging from traditional, transitional to contemporary, for Tuhama Foothills character zone, showcasing application of key compositional elements as described in chapter 1.

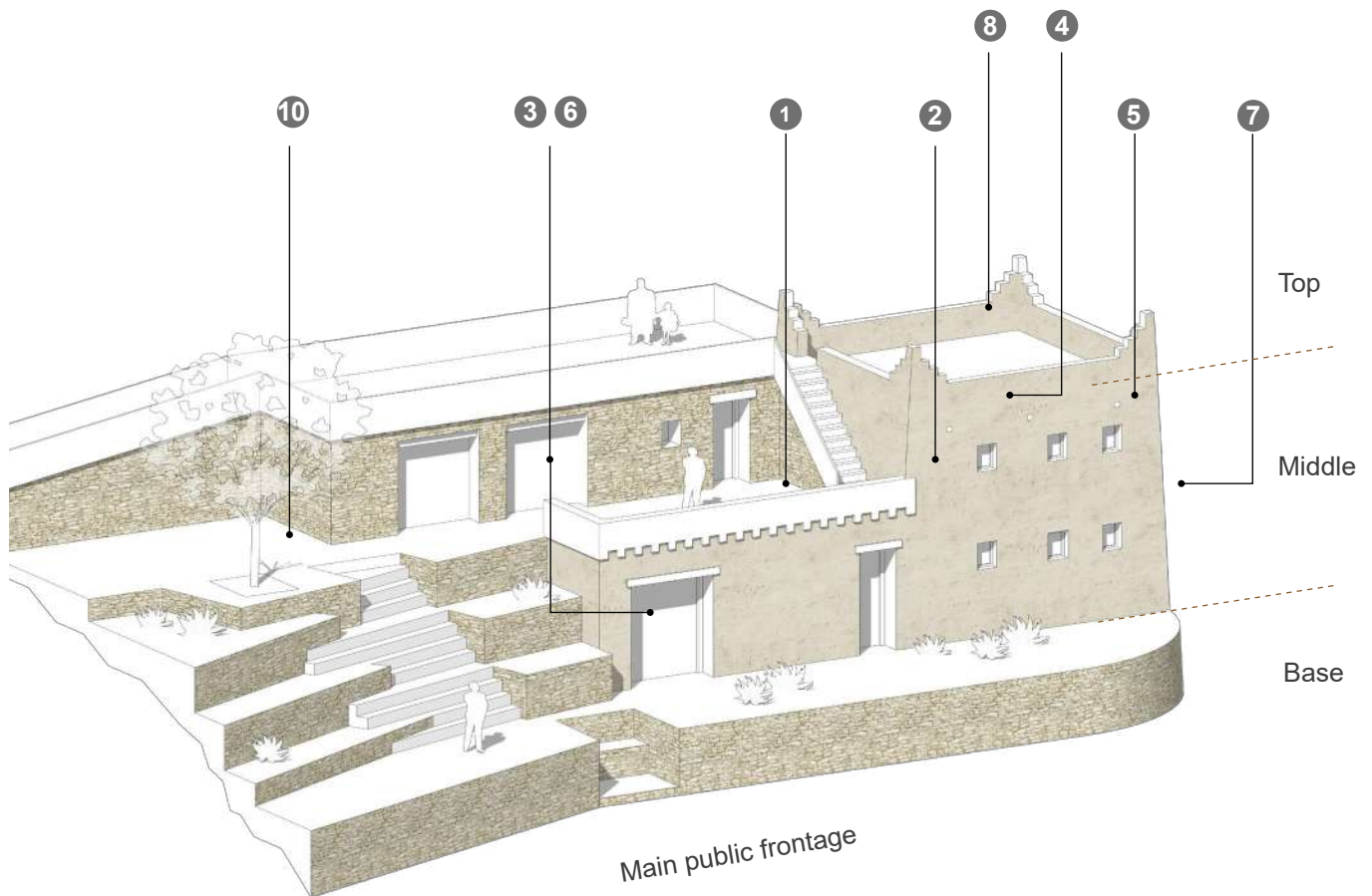


FIG. 53 Medium size building

0m 2.5m 5m

7.1 Traditional

The massing and design of the new building should foster the character, by adopting in an innovative and sensible way the traditional forms and patterns, elements and decorations, materials and colors.

Walls with tapering geometric profile, slanted walls, large openings at base with simple articulation above them, pointed parapet corners, variation in materials like stone with plaster.

- 1 All key compositional features of traditional architecture should be applied for the traditional style of architecture.
- 2 Massing broken into balance of horizontal and vertical volumes, clustered together, adapted to topography using terracing.
- 3 Facades formed with closely knit buildings with occasional breaks with difference in massing and materials.
- 4 Well ordered, balanced, evenly transitioned base, middle and top part of the building.

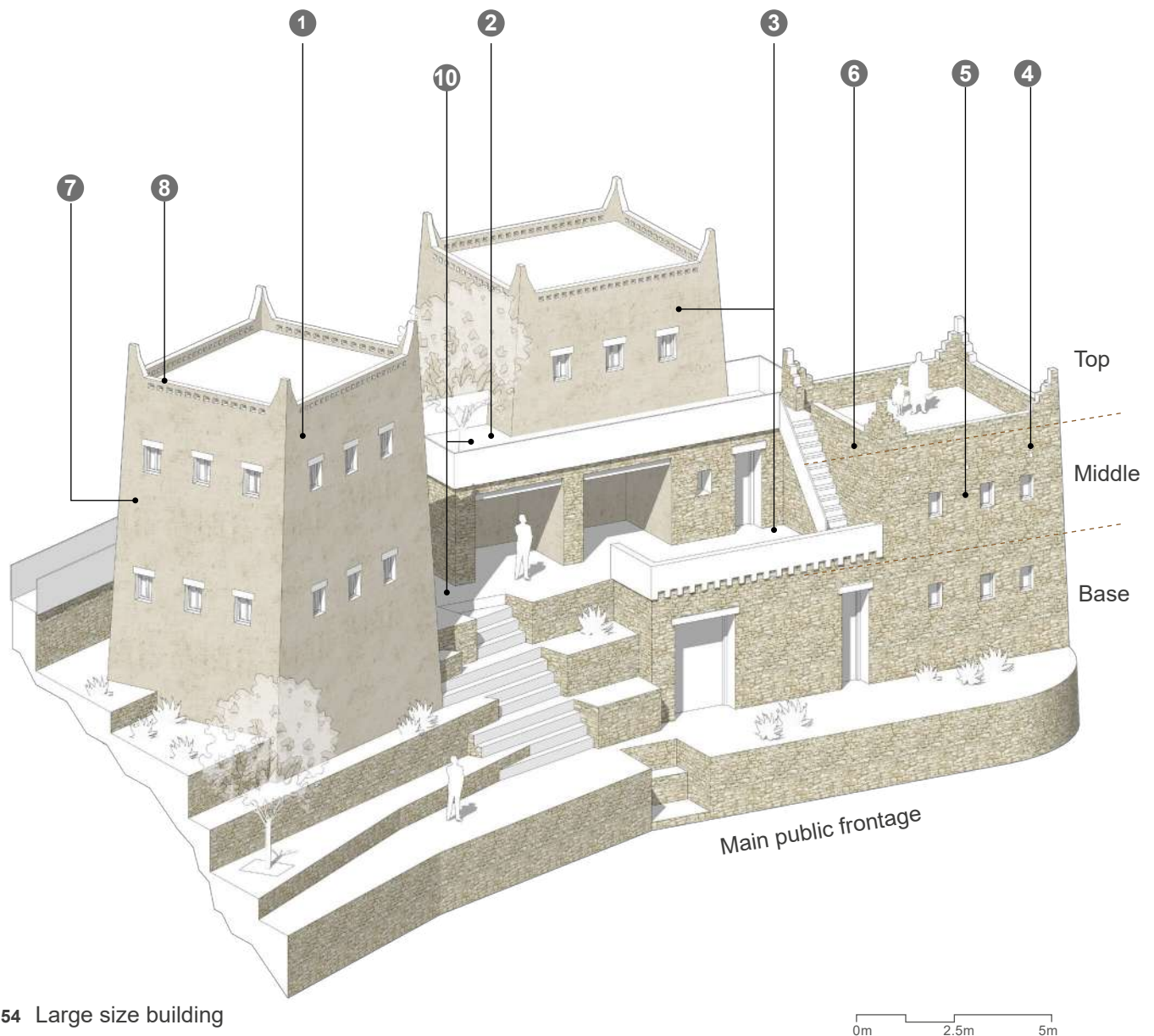


FIG. 54 Large size building

- 5 Low window to wall ratio: largely solid areas of wall with small windows in middle part of the facade. Openings do not cover more than 30% of the overall facade.
- 6 Local stone is dominant within the Tuhama Foothills. Combinations of stone masonry and plastered buildings are frequent.
- 7 General palette of beige, brown, and white.
- 8 Flat roofs with parapets articulated with pointed corners or stepped crenelations.
- 9 Water spouts also feature in the facades. Windows are occasionally highlighted with white plaster.
- 10 Local art is used for decorative patterns for highlighting elements and on interior walls.
- 11 Internal courtyards and terraces form special features of Tuhama Foothills.
- 12 In general, traditional building style should be used only in heritage districts, restoration, and buildings of special importance.

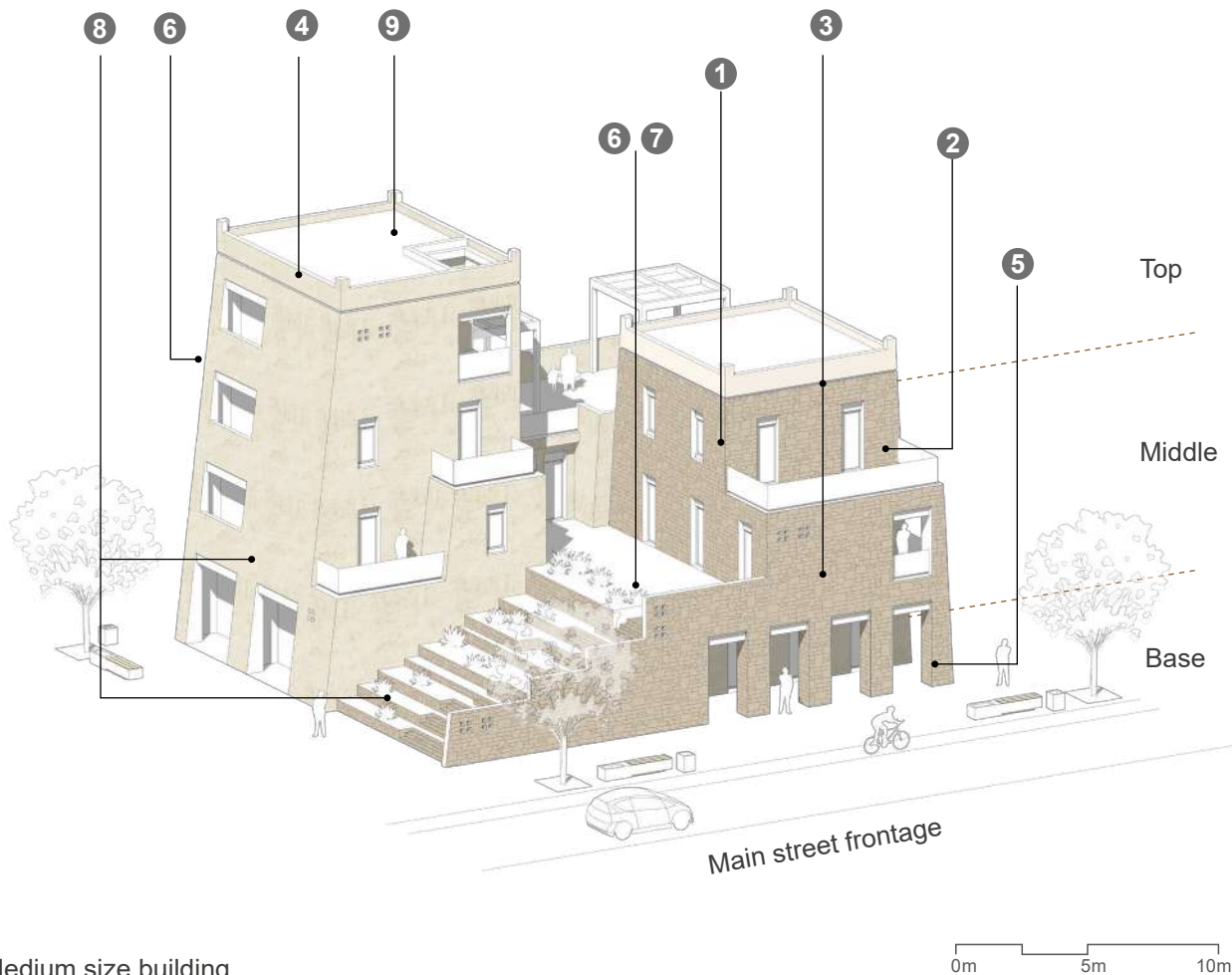


FIG. 55 Medium size building

7.2 Transitional

The form and style of transitional style should distill the essential qualities and values of vernacular architecture addressing the need of new ways of living yet reflect a strong character respecting and celebrating the local character and traditions; providing a sense of belonging.

The form and style to be adopted for transitional style should distill the most essential qualities and character giving architectural elements, such as the dominant features and use of appropriate material and color palette.

- 1 Compact massing with strong geometric shapes, flat roofs and balance of horizontal and vertical volumes.
- 2 Varied size of openings/entrances. Max. 40% openings of the overall facade surface.
- 3 Well ordered, balanced, evenly transitioned base, middle and top part of the building.
- 4 General balance of volumes, use of vertical elements to bring variation to the skyline.
- 5 Active ground floors with large openings. Integrated shopfronts, shutters and screens. Perforations and patterning in surfaces.

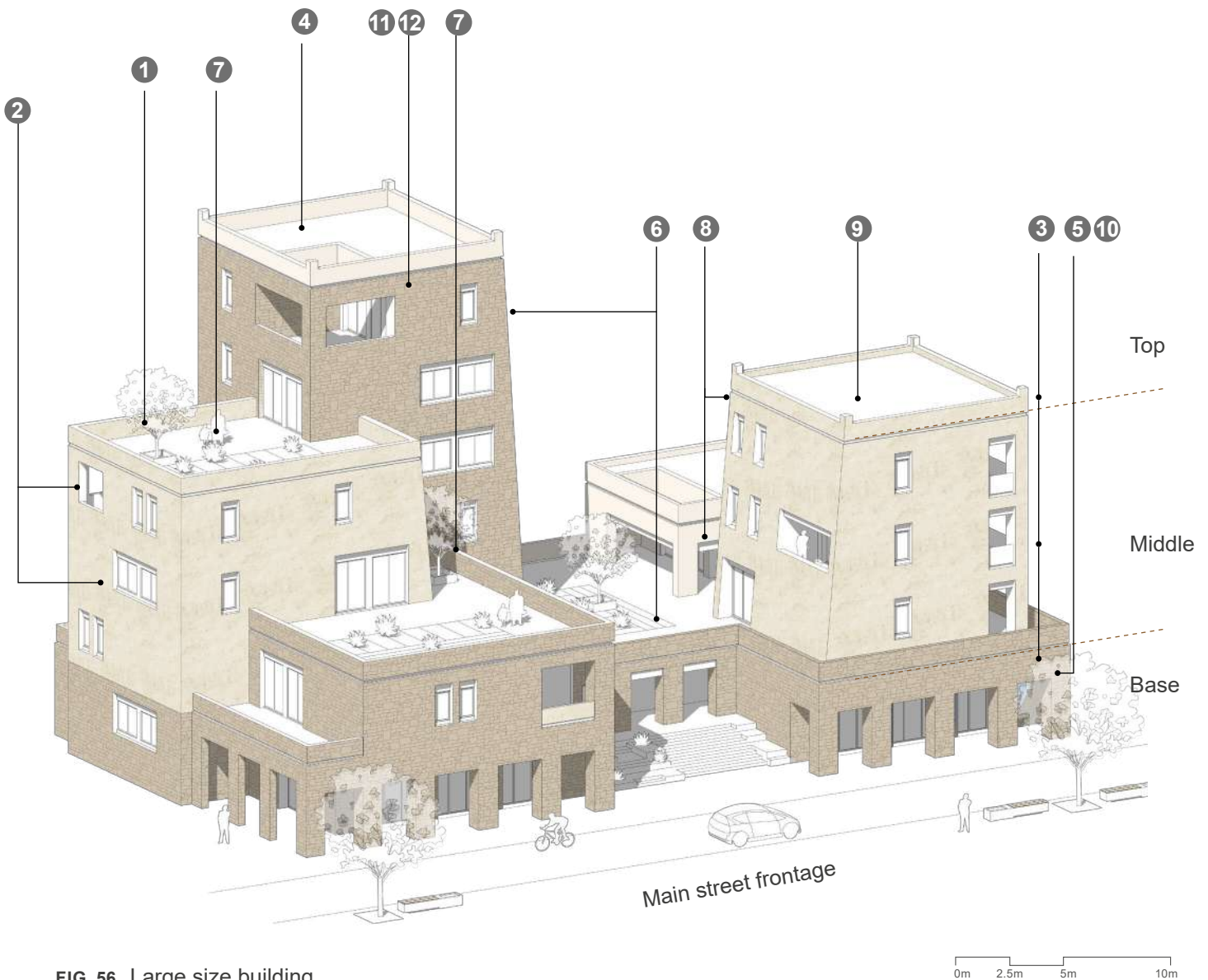


FIG. 56 Large size building

- 6 Interpretation of terraces, inclined walls, external circulation, parapets and openings.
- 7 Volumes with terracing, bringing variation to massing.
- 8 Combinations of stone masonry and plastered buildings are frequent. General palette of light earth tone colors (beige, brown, and white) using recommended palette of materials, colors and finishes.
- 9 Flat roofs with articulated parapets, supporting privacy requirements and hiding rooftop equipments.
- 10 In tall buildings, height of podium should establish street wall and reinforce the human scale and character of the area.
- 11 Large buildings/ towers shall be tall, slender structures that enhance the skyline, large, elongated, boxy or slab like floor plates should be avoided.
- 12 Articulation of top zone should positively contribute to the skyline and design may be used to create landmarks.

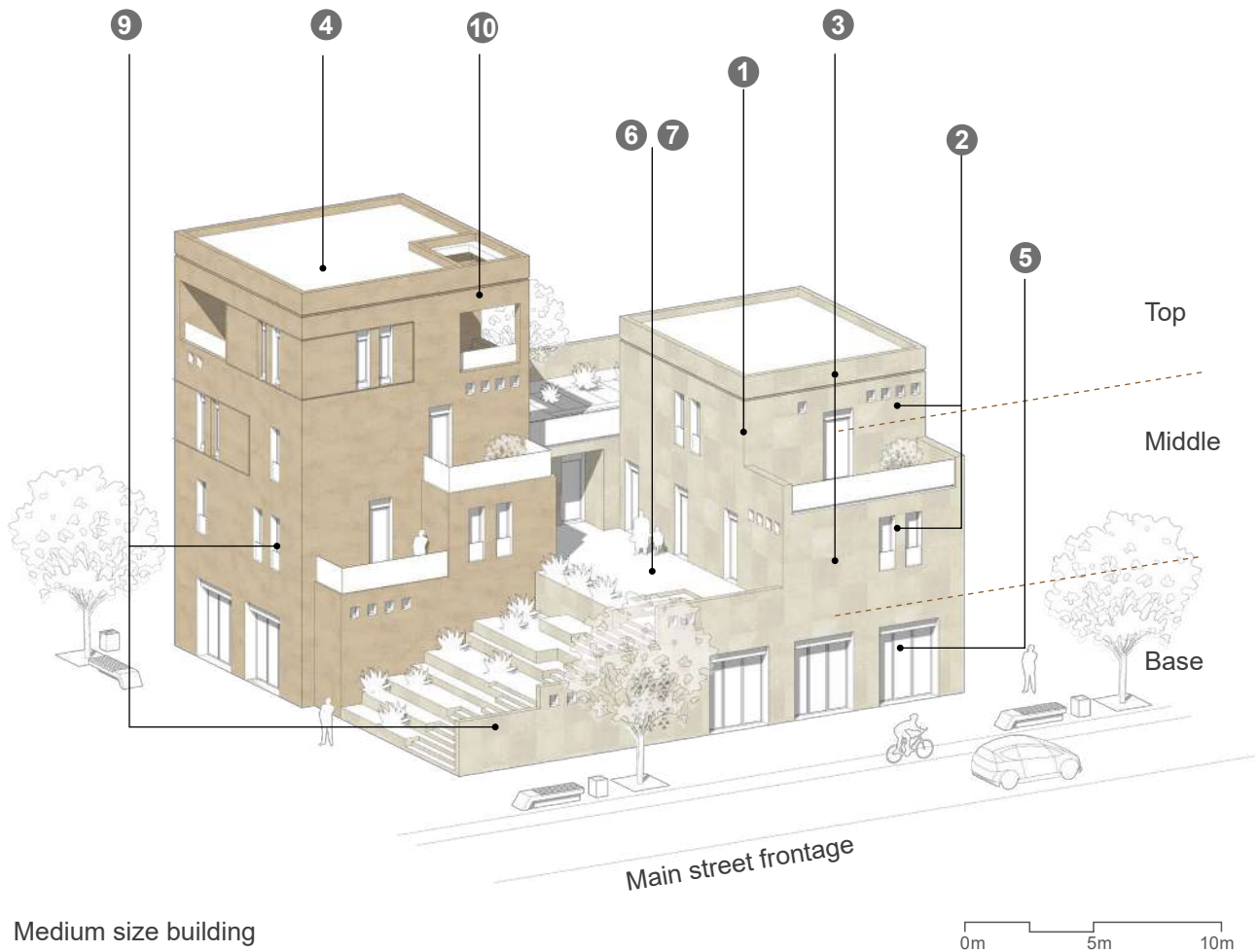


FIG. 57 Medium size building

7.3 Contemporary

The form and style of contemporary style should distill the essential qualities and values of vernacular architecture in a new and ever contemporary expression. It should address the need of contemporary living yet respect and celebrate the local natural character and traditions; providing a unique character to the built form and a sense of belonging.

Contemporary style may be achieved by re-interpreting in an innovative way traditional forms and patterns, traditional architectural elements and decorations, traditional materials and colors.

- 1 Compact massing with strong geometric orthogonal shapes, flat roofs and balance of horizontal and vertical volumes.
- 2 Varied size of openings /entrances. Max. 50% openings of the overall facade surface.
- 3 Well ordered, balanced, evenly transitioned distinct base, middle and top part of the building.
- 4 General balance of volumes, use of verticals to bring variation to the skyline.
- 5 Active ground floors with large openings. Integrated shopfronts, shutters and screens. Perforations and patterning in surfaces.

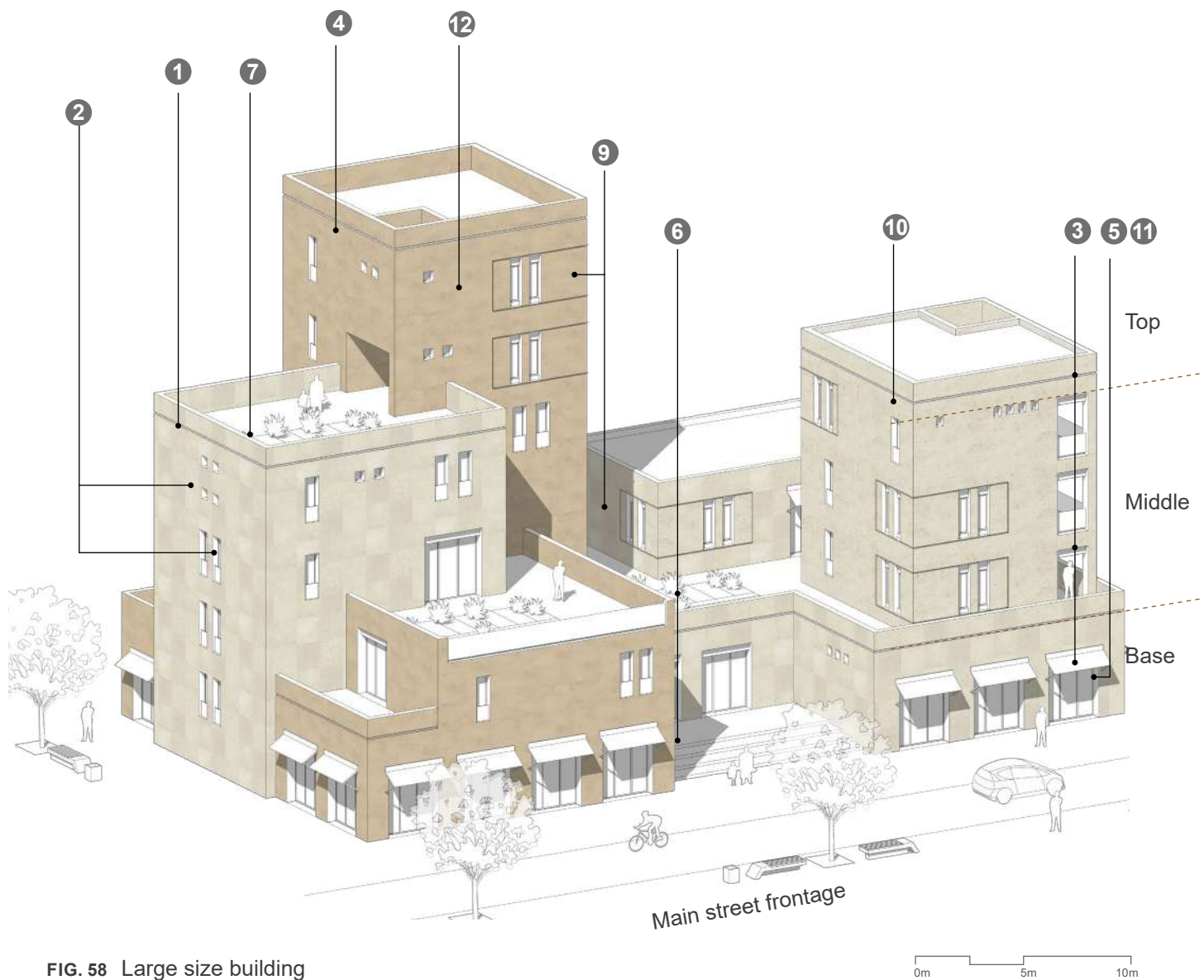


FIG. 58 Large size building

- 6 Interpretation of terraces, inclined walls, external circulation, parapets and openings.
- 7 Simplified detailing and accents.
- 8 Generally, the use of maximum 2 architectural compositional motives for the design derived from the sources is recommended.
- 9 Combinations of stone masonry and plastered buildings are frequent. General palette of light earth tone colors (beige, brown, and white) using recommended palette of materials, colors and finishes.
- 10 Flat roofs with simple/ articulated parapets, supporting privacy requirements and hiding rooftop equipments.
- 11 In tall buildings, height of podium should establish street wall and reinforce the human scale and character of the area.
- 12 Large buildings/ towers shall be tall, slender structures that enhance the skyline, large, elongated, boxy or slab like floor plates should be avoided.
- 13 Articulation of top zone should positively contribute to the skyline and design may be used to create landmarks.

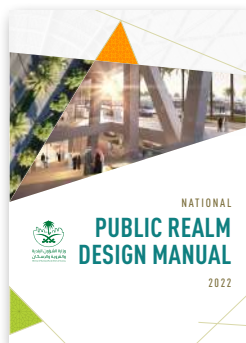
8 Public realm

An overview of public realm character in Tuhama Foothills.

8.1 Overview

The focus of the public realm guidelines within this document is to strengthen local character by identifying and enhancing distinct characteristics of public realm in Tuhama Foothills. It is meant to provide high-level principles and recommendations to be further developed in masterplans and public realm strategies within the Character Area.

These guidelines are not intended to be a comprehensive technical resource. For this the designer should consult the National Public Realm Design Manual prepared by the Ministry of Municipalities and Housing, and support the five key principles identified in it.



- 1 Human scale
- 2 Pedestrian mobility
- 3 Sustainability
- 4 Culture and heritage
- 5 Visual appeal

FIG. 59 National Public Realm Design Manual and its five key principles

This chapter is organized as follows:

- **General character** - a narrative summary and photographic overview of the qualities of public realm found in the character area.
- **Types of public space** - a selection of spatial types that provide the built environment distinctive character.
- **Materials** - a summary of hardscape character for the area.

- **Planting** - a summary of softscape character for the area.
- **Street furniture** - suggestions and precedents for suitable street furniture.
- **Lighting** - high-level lighting principles for the enhancement of the public realm.
- **Signage** - high-level signage principles for the enhancement of the public realm.
- **Parking** - high-level parking design principles for enhancement of the public realm.
- **Worked examples** - visualizations that illustrate the combined intentions of the public realm guidelines.

Together the sections above aim to give a broad overview of public realm that will reinforce the character of Tuhama Foothills.

8.2 General character

The adjacent photographs summarize the typical characteristics of public realm and local landscape in Tuhama Foothills. As set out in the introduction, the Tuhama Foothills area is characterized by a long narrow area of Red Sea plains and adjacent foothills on the edge of the Tuhama Foothills.



Rocky hills and mountains



Villages on highlands



Sloped terrain



Narrow covered zuqaq



Palm groves and agricultural lands



Baraha



Narrow zuqaq shaded by tall walls



Boundary walls

FIG.60 PUBLIC REALM ELEMENTS

8.3 **Types of public space**

Tuhama Foothill’s public realm is characterized by clustered dwellings with narrow alleyways (Zuqaqs) and smaller open spaces (Baraha). Slopes are generally terraced. Internal courtyards and terraces functioned as open spaces within the housing clusters. Towards the coastal plains the dispersion of settlements are increased, with additional open space for livestock and local gatherings, their orientation often based on the prevailing winds. Wadi corridors are often sited with markets and community spaces for and the selling of produce and livestock (Saha). The general characters and hierarchy of the public realm are distinguished by their scale, character, and relationship with the surrounding topography and predominant land uses. Collectively these spaces create a diverse public realm which contributes to the community for both residents and visitors alike and reinforces the distinct character of the area.

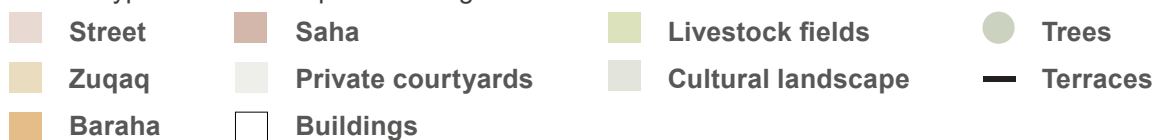
The following plan illustrates a typical hierarchy of urban spaces and streets in the Tuhama Foothills. The following categorizations are considered the principal typologies:

- Street- primary routes which define the edges of smaller settlements, mediating between green oasis areas, and buildings.
- Zuqaq- local alleys, generally narrow and of varying width and footfall which connect spaces and streets across settlements.
- Baraha- local public open space, usually found in a residential neighborhood. Often appear as a widening of streets and the confluence of several streets.
- Saha- larger local open space with a public function, such as public gatherings or markets.

Specific areas might include additional variations in these typologies, reflecting local scale, character and use. Parks and recreation areas should also be provided.



FIG. 61 Typical settlement pattern along foothills



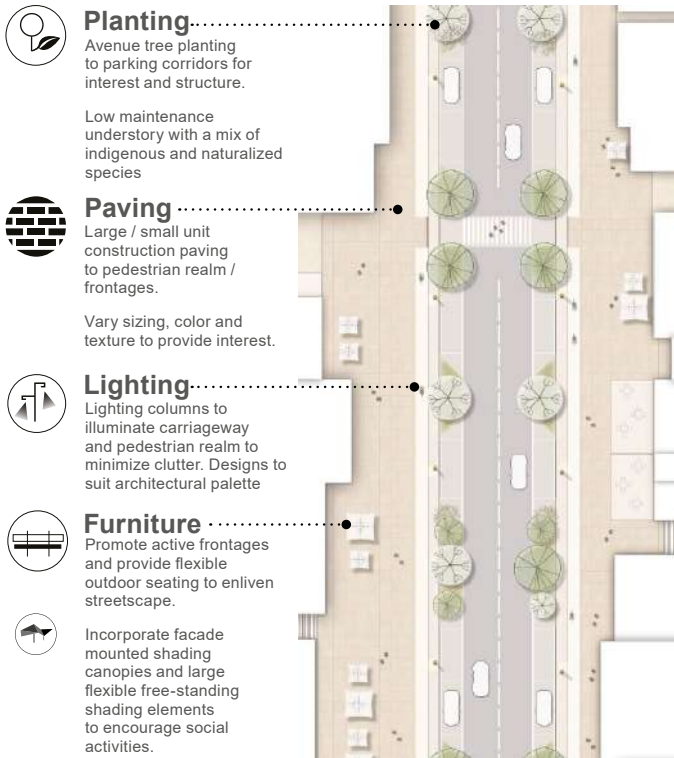


FIG. 62 Street
Vehicle corridor with adjacent pedestrian realm

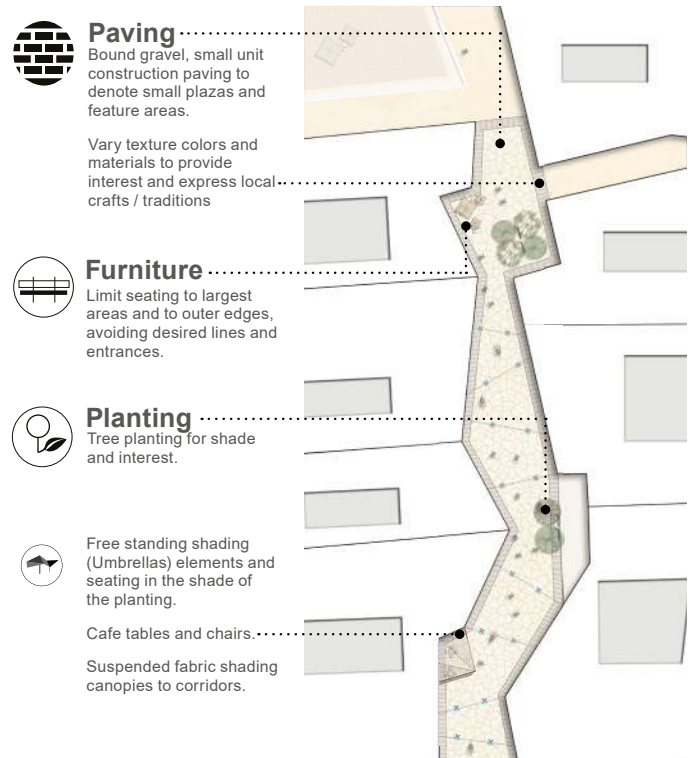


FIG. 63 Zuqaq
Pedestrian realm, no vehicular access or shared access

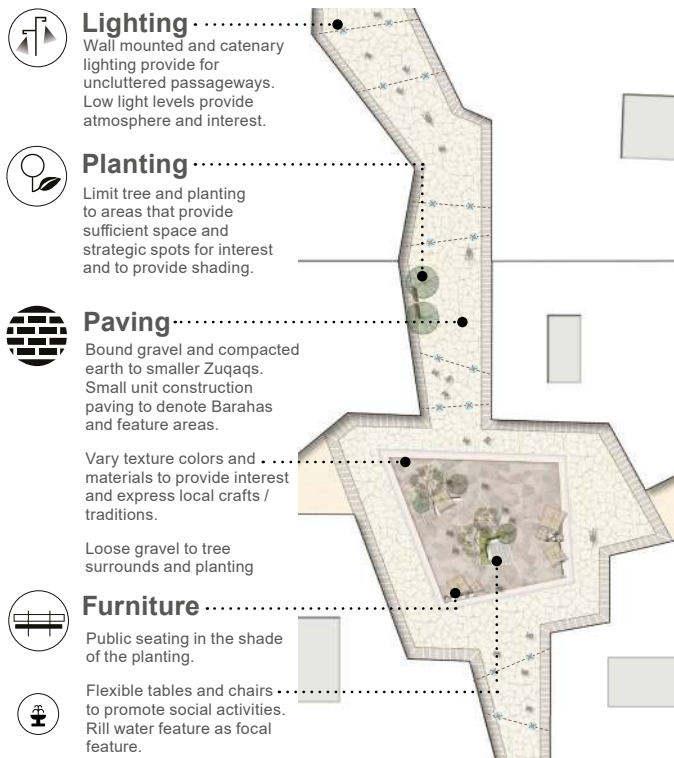


FIG. 64 Baraha
Pedestrian realm, no vehicular access or shared access

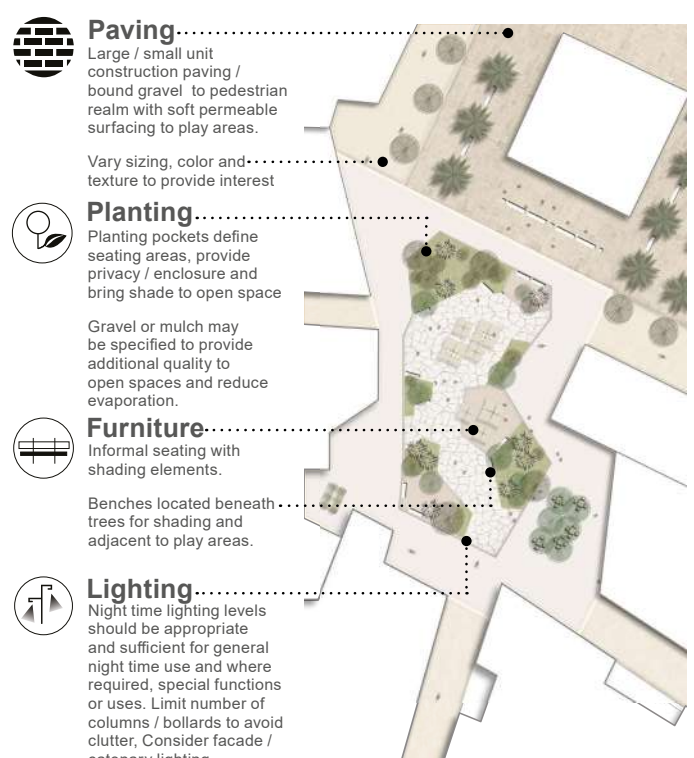


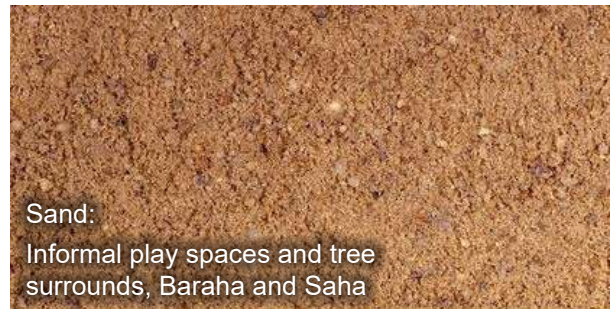
FIG. 65 Saha
Pedestrian realm, no vehicular access or shared access

8.4 Materials

The materials palette for the Tuhama Foothills has been designed to be simple and sensitive to the existing character of the area.

Key considerations

- 1 Select locally sourced KSA materials with low embodied carbon and high content of reused or recycled aggregates (for non-natural materials).
- 2 Areas with higher footfall demand paving should have a higher specification and durable materials, fit for purpose, minimizing the need for regular repair and replacement.
- 3 Re-use materials where possible formed from waste material.
- 4 Deliver materials to site using sustainable means of transport, where possible.
- 5 Select materials that are robust and have longevity and that can be easily cleaned, repaired, and sourced – so high-quality materials can be replaced like for like. Maintain a nominal extra supply of materials to enable quick replacement of damaged or missing units.
- 6 De-pave where possible to improve the micro-climate and use suitable sands / aggregates or suitable hydro zones in place of non-permeable paving.
- 7 Materials should provide varying textures within a simple color palette to compliment the area's architectural character.
- 8 Employ subtle changes to paving to highlight difference between typologies.
- 9 Make good and renovate existing streetscapes, ensuring materials are replaced only when necessary to minimize carbon footprint.
- 10 Using a larger paving format to emphasize more prominent routes.
- 11 Consider incorporating special patterns or textures to emphasize important places or spaces.



8.5 **Planting**

Tree and shrub planting should complement the overall character of the Tuhama Foothills area, helping to define places and enable planting habitats through sustainable methods.

Key considerations

1 Water must:

- Be considered carefully, responding to the local micro-climate and water availability.
- Use drought tolerant species and consider Xeriscapes principles to minimize water consumption.

2 Trees should:

- Adopt, informal arrangements, avoiding overly linear (unless forming street avenues), or formal compositions. Semi mountainous foothills, basins, and wadi corridors, reflect the natural tree habitats.
- Only be planted where shade can be best utilized for pedestrian comfort and interest.
- Make a characterful contribution to the quality of routes and spaces. Consideration should be given to how a tree is seen and how trees can be used as wayfinding markers and frame important views and routes.

3 Planting should:

- Be limited to Xeriscape solutions within urban areas, mainly in gathering spaces (Saha / Baraha). Contribute to maintaining and enhancing wadi corridors, using multi-layered, informal planting where appropriate, comprising a variety of indigenous species.
- Minimize ornamental planting outside urban areas.
- Consider additional habitat value such as fruits for birds, etc.
- A varied mix of indigenous and naturalized species will help create an appropriate response to rural or urban applications.

Trees

Acacia asak
(Senegalia asak)



Acacia ehrenbergiana
(Salam tree)



Salvadora persica
(Miswak)



Zizipus spina christi
(Sidr tree)

Shrubs

Aloe rubroviolacea
(Arabian aloe)



Psiadia arabica
(Psiadia)



Lavandula dentata
(Lavender)



Pennisetum setaceum
(Fountain grass)



Plumbago zeylanica
(Wild leadwort)



Ruellia prostrata
(Bell weed)

8.6 **Street furniture**

Street furniture should be carefully selected to provide continuity and co-ordination, limiting clutter. Colors and style of furniture should blend into the context rather than stand out as features. In general, the design of street furniture should explore opportunities to utilize local materials, respond to the local landscape and cultural heritage and celebrate local crafts, traditions, and skills.

Key considerations

- 1 Be distributed evenly across all areas with reference to space types above.
- 2 Not obstruct pedestrian movement, cycle paths nor clutter public open spaces.
- 3 Consider color and material consistency.
- 4 Be integrated into the public realm, flexible and movable where required.
- 5 Feel ephemeral and informal, acknowledging the historic condition of street furniture in the region.
- 6 Consider accessibility with seating distributed at suitable intervals and have suitable heights and have backs or armrests.
- 7 Be of high quality, coherent, and rationalized to minimize street clutter.
- 8 Have a co-ordinated appearance, with a consistent materials and color palette to compliment character of the public realm.
- 9 Avoid duplication by rationalizing and combining elements.
- 10 Be easily maintained and repaired with easily available / replaceable components.
- 11 Be retained and renovated / improved where existing furniture has heritage value.
- 12 Boundary walls should contribute to the landscape character and scale and contribute to the character and setting of the space.



FIG. 66 Contextual designed seating elements. Riyadh, KSA



FIG. 67 Accentuating materials and colors in high use areas. Jebel Jais observation deck, Ras Al Khaimah, UAE



FIG. 68 Walls, steps and ramps built of local materials. Rijal Almaa, KSA



FIG. 69 Unique paving design / hoarding inspired from the local patterns and colors as an “identity” strategy. Al Ula, KSA

8.7 Lighting

A coordinated lighting strategy should create an appropriate and distinctive atmosphere for different areas to reinforce Tuhama Foothill's architecture. Lighting should not be distracting, the focus should always be on the setting, mood or character and quality of the space and buildings.

Key considerations

- 1 Light levels should be kept as low as possible to minimize light pollution and adverse effects on ecology and habitats.
- 2 Utilize lighting to increase overall safety and enjoyment at night.
- 3 Provide lighting and light levels that are appropriate to patterns of use, character, and context.
- 4 Utilize lighting temperature to reinforce difference between routes and to define contrast between character areas.
- 5 Sensitive highlight historic buildings, mosques and public buildings after dark, subtly revealing their architecture without over-use of light.
- 6 Utilize lighting that is appropriate to scale and context of routes and spaces- e.g. lower mounted lights on smaller lanes and in historic conditions to highlight textures.
- 7 Utilize contemporary lighting elements which are low energy, low heat, and dust resistant with a long life expectancy.
- 8 Manage private light spill, light pollution, or trespass - particularly over-lighting of shopfronts on souqs and streets - producing diffuse, soft and warm light.
- 9 Design of lighting fixtures should be authentic to the area - simple, sensitive to the setting, not historically pastiche or using imported historic forms.
- 10 Introduce a lighting control system that allows variable light levels.



FIG. 70 Lighting elements with shielded lights, highlighting facade features and accentuating the landscape. Al Bujairi Heritage Park, Diriyah, Riyadh, KSA



FIG. 71 Contemporary lighting bollards complementing the architectural vernacular.



FIG. 72 Example of lighting arrangement to emphasize design and patterns.

8.8 Signage

Signage and public information system design, including materials, should respond to the character and environmental elements within the Tuhama Foothills area.

Signage elements should be seen as part of a wider strategy that seamlessly integrates with the furniture, lighting elements and landscape, reflecting and complimenting the hardscape materials palette.

Key considerations

- 1 Should include a combination of unified and integrated elements that are simple, concise, legible, and consistent that help and orient people to find their way, educate, entertain or to provide relevant information.
- 2 These can include, landmarks, points of interest, sculptural designs integrated with architecture, materials, landscape, lighting, furniture, and digital information.
- 3 Robust, flexible, and hard wearing with high quality durable finishes which adopt sustainable processes.
- 4 Allow for upgrading / updating and possible customization (e.g. special events).
- 5 Consider minimizing the amount of visual clutter by keeping fittings and support elements to a minimum by utilizing lighting columns, buildings and other structures in lieu of standalone columns and supports.

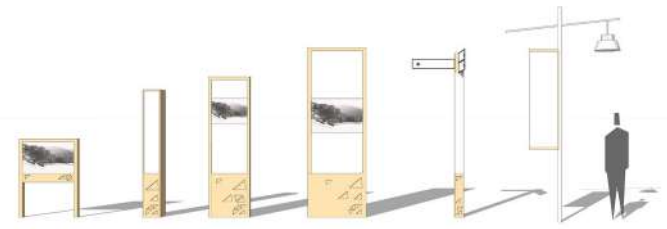


FIG. 73 Example of a signage family illustrating how contextual elements of traditional patterns and colors could be expressed within the lighting and signage elements



FIG. 74 Mixture of local and recycled materials complementing the local context. Al Ula, KSA



FIG. 75 Integrating colored led lighting into signage. Al Ula, KSA

8.9 Parking

Parking areas are divided into two distinct groups, off-street parking which is predominantly private and on-street parking which is dedicated to public parking.

Consideration of parking layouts within the public realm can be designated into three types:

- Perpendicular parking.
- Parallel parking.
- Angled Parking.

The design of parking areas should be integrated into the overall design of the public realm, considering, requirements of the user, pedestrians, urban mobility, landscape, and hardscape elements.

Key considerations

- 1 Consideration shall be given to the needs of all users, with design solutions for ease of accessibility to parking for the physically impaired.
- 2 Clear legible, defined, and safe pedestrian links between parking areas and adjacent destinations should be planned.
- 3 The screening of large areas of parked cars shall be considered, with trees, hedging and landscape berms helping to minimize views of parked cars.
- 4 Consider introducing planting in regular parking spaces, to break up the expanse of cars and introduce shading.
- 5 Large canopy trees should be considered for the shading of vehicles.
- 6 Consider adopting sustainable urban drainage solutions for surface storm water runoff. The use of permeable surfacing materials and bioswales to parking medians with suitable planting should be encouraged.



FIG. 76 Example of parking & pedestrian route improvement with private development setback area



FIG. 77 Example of an attractive public realm, incorporating parking, pedestrians and planting



FIG. 78 Generous pedestrian realm with clear definition of zones, shared micromobility/footway, planting, furniture.

8.10 Public realm worked examples

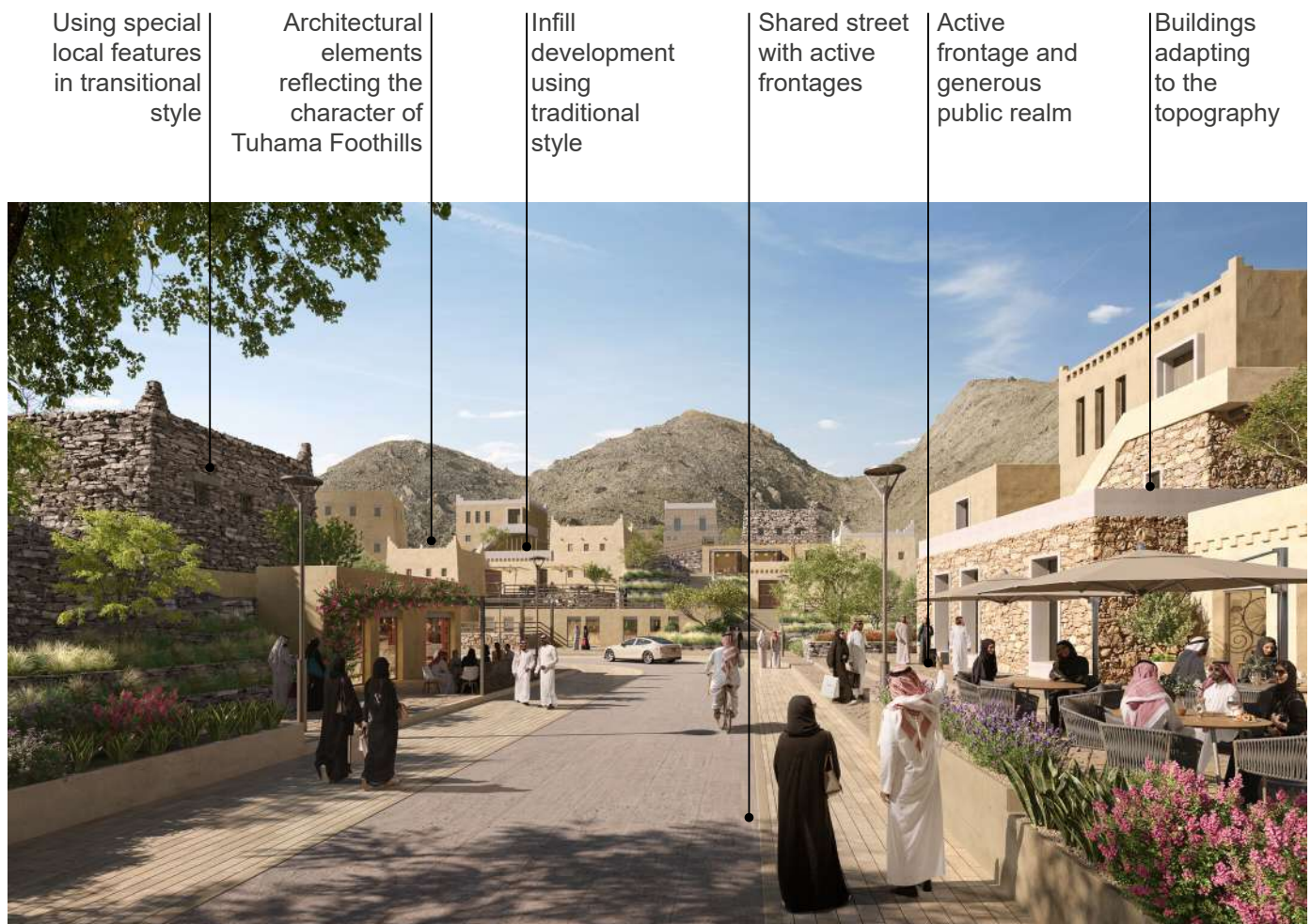


FIG. 79 Proposed view of old village center in Tuhama Foothill

The above illustrations are an example of a holistic vision for an old village center and a main street in the urban center in the Tuhama Foothills, with displays a of attractive public realm, active frontages, restoration of heritage buildings, contemporary interpretation of contextual architecture elements, high standard architectural materials and finishes, a color palette reflecting the local context, use of local art and patterns, and the enhancement of natural features.

- 1 Whilst the materials and colors should be limited within the spectrum of the natural context of the Tuhama Foothills, complimentary colors and contemporary patterns may be used to highlight destinations, routes and help reflect adjacent architectural elements.
- 2 Contemporary building massing should respond to the immediate context and to the history of the place fostering human scale.
- 3 Progression of privacy, from private to public in open space design, the relationship between spaces should be dependent on the local culture of the place.

Contextual landscape elements

Implementation of complete streets

Articulated built form and design with local materials

Architectural elements displaying the character of Tuhama Foothills

Attractive public realm



FIG. 80 Proposed view of local street in Tuhama foothills

- 4 Vegetation palettes in traditional zones to primarily reflect the contextual indigenous planting, including diversity, naturalistic arrangements, and coverage.
- 5 Hard paved areas should contribute to character and ensure functionality as well reflecting the material and color palette of the adjacent architecture and built form. Paving materials, unit size, textures and laying bond can express a contemporary or traditional design rationale and provide additional interest through variety and inclusion of art.
- 6 Primary paths may be accented with boulevard planting and trees, used to highlight destinations or points of interest

and importance. Softscape design in contemporary urban areas shall be predominantly indigenous species with a percentage of ornamental planting to provide variety and interest.

The main aspiration in promoting a more contextual driven architectural character is to produce building form and spaces reflecting the learnings from tradition, enhancing the proper character of the place, and thus creating a sense of belonging.

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