



AlUla

Regulatory Guidelines for Parking Sunshade Canopies



TABLE OF CONTENTS

1 - INTRODUCTION..... 7

1.1. Background 8

1.2. Glossary / Term Definitions..... 8

1.3. General Provisions 9

1.4. General Language Rules..... 12

2 - GENERAL REQUIREMENTS 15

2.1. General Requirements 16

2.2. Appropriate Design Application 26

2.3. Accessibility Requirements 28

2.4. Sustainability Requirements 29

2.5. Constructability Requirements..... 30

2.6. Operations & Maintenance Requirements..... 31

2.7. Softscape Application..... 32

3 - SPECIFIC REQUIREMENTS 35

3.1. Private (On-Plot) Car Parking 36

4 - DESIGN APPLICATION SCENARIOS 45

4.1. Design Scenario - 1 46

4.2. Design Scenario - 2 47

4.3. Design Scenario - 3 48

LIST OF FIGURES

Figure 2.1. Canopy overhang and height.....	18
Figure 2.2. Avoid using shading struct. in dedicated parking spaces.....	19
Figure 2.3. Height and overhang specs for shading canopies	20
Figure 2.4. Planting strategy	20
Figure 2.5. Non-Compliant Shade Structure Placement Principles.....	20
Figure 2.2. Compliant Shade Struct. Placement Principles.....	20
Figure 2.3. Parking Shade Struct. Design With Specific Boundaries	21
Figure 2.4. Overlapping to Vehicular Zone.....	21
Figure 2.5. Obstruction of Footpath Flow	21
Figure 2.6. Car Park Structure Integrated With the Boundary	21
Figure 2.7. Parking Shade Struct. Design with Specific Boundaries	22
Figure 2.8. Overlapping to Vehicular Zone	22
Figure 2.9. Obstruction of Footpath Flow	22
Figure 2.10. Car Park Struct. Integrated With the Boundary	22
Figure 2.11. Parking Shade Struct. Design with Specific Boundaries	23
Figure 2.12. Overlapping to Vehicular Zone	23
Figure 2.13. Obstruction of Footpath Flow	24
Figure 2.14. Car Park Struct. Integrated With the Boundary	24
Figure 2.15. Designates Buggy/Golf Car Shaded Parking	24
Figure 2.16. Parking Shade Struct. in Harmony with Architecture.....	24
Figure 2.17. Covering Corners.....	25
Figure 2.18. Covering Partial Sides.....	25
Figure 2.19. Covering Complete Sides.....	25
Figure 2.20. Covering Partial Front.....	25
Figure 2.21. Examples of Unacceptable Shade Structure Design.....	26
Figure 2.22. Examples of Structural Tension Cables.....	26
Figure 2.23. Examples of Excessive Load-Bearing Structure #1	27
Figure 2.24. Examples of Excessive Load-Bearing Structure #2	28
Figure 2.25. Examples of Materials & Design Applicable for Shade	28
Figure 2.26. Illustration of Materials Not Permitted and Permitted.....	28
Figure 2.27. Examples of Acceptable Colour Palette Combinations.....	29
Figure 2.28. Shading Provision Above Disabled Parking Zones	29
Figure 2.29. Suitable Scaled Shade for Taller Vehicles	29
Figure 2.30. Shade Structure Too Low For Purpose	30
Figure 2.31. PV-Panel Car Parking Shade Structure.....	30
Figure 2.32. Shade Struct. Made from Recycled Materials	30
Figure 2.33. Shade Coverage Made of Prohibited Materials.....	31
Figure 2.34. Cleaning the site after construction is complete	31
Figure 2.35. Safety Wear (PPE) Whilst Working On-Site	31
Figure 2.36. Unsafe Construction Conditions	32
Figure 2.37. Damage to the Fabric Awning Sail	32
Figure 2.38. Peeling & Rust of the Painted Metal Finish.....	32
Figure 2.39. Rust at the Base of the Shade Structure Column	32
Figure 2.40. Existing Site Conditions	32
Figure 2.41. Canopy Trees Offer Shade & Reduce the Temperature	36
Figure 2.42. Plantings at Low Height Do Not Offer Shade to Parking	36
Figure 2.43. Lack of Canopy Trees.....	36
Figure 2.44. Parking Zone Shaded By Large Canopy Trees.....	36
Figure 3.1. Existing Site Conditions	36
Figure 3.2. Designed in Harmony with the Architectural Style	37
Figure 3.3. Obstructing of Footpath Flow.....	38
Figure 3.4. Overlapping Vehicular Zone.....	38
Figure 3.5. Incorporated into the Architectural Facade.....	38
Figure 3.6. Wooden louvers car park structure	38
Figure 3.7. Private Residence With Boundary Wall	38
Figure 3.8. Private Residence Without Boundary Wall	39
Figure 3.9. Structure Exceed Height Limit.....	40
Figure 3.10. Overlap outside of the plot	41
Figure 3.11. Integrated with style of the residence.....	41
Figure 3.12. Canopy Shade of Tensile and Wooden Materials	41
Figure 3.13. Tensile Shading.....	41
Figure 3.14. Dedicated Parking Areas Existing Site Condition	41
Figure 3.15. Incorporating Softscape & Shade Structure Elements	42
Figure 3.16. Avoid Full Coverage with Shade Structure	46
Figure 3.17. Avoid to be Fully Unshaded	47
Figure 3.18. Balance Approach of Softscape & Shade Structure	48
Figure 3.19. Harmony of the Softscape and Shade Structure	39
Figure 4.1. Wooden Panel Shade Struct. for Building Car Park	43
Figure 4.2. PVC Tensile Shade Struct. for Private Residence with Wall.....	44
Figure 4.3. Wooden & Tensile Shade Structure for Dedicated Parking	45

AlUla County

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1 – Introduction

The Chapter is subdivided in the following sub sections:

- 1.1 Background**
- 1.2 Glossary / Term Definitions**
- 1.3 General Provisions**
 - 1.3.1 Purpose of This Manual
 - 1.3.2 Authority and Applicability
 - 1.3.3 Users / Stakeholders
 - 1.3.4 Monitoring and Enforcement
 - 1.3.5 General Provisions for Implementation, Enforcement and Monitoring
- 1.4 General Language Rules**

1.1. Background

1.1.1. Overview

The Royal Commission for AlUla (RCU) was established pursuant to Royal Order in 10/26/1438 hijri. The Commission is the supreme authority controlling the work, services and projects provided, including areas related to municipal and rural affairs, within the geographical scope of Al-Ula Governorate, and the heritage and cultural sites. In Khaybar Governorate, the heritage, historical and cultural sites in Taima Governorate, Qal’at al-Mu’atham, and any other sites outside the borders of Al-Ula Governorate will be added to the Commission’s jurisdiction later, and it has full supervision over them, including the administrative and operational aspects associated with them.

1.2. Glossary / Term Definitions

1.2.1	Geographical Boundaries	Al-Ula Governorate, the heritage and cultural sites in Khaybar Governorate, the heritage, historical and cultural sites in Taima Governorate, Qal’at al Mu’atham and any other sites outside the governorate’s borders will be added to the Commission’s jurisdiction later.
1.2.2	Invisible Design	It is the integrated and seamless element that users do not notice or think about by itself.
1.2.3	Shading	It is the difference in light and darkness of a surface.
1.2.4	Parking Sunshade Canopy	It is an independent shed and is usually made of lightweight materials, such as metal or fabric that protects cars parked from sunlight in parking areas.
1.2.5	Tensile Fabric	It is a type of construction material in which the fabric is flexible, lightweight and stretchable, and is often used to create canopy structures.
1.2.6	The Commission	The Royal Commission for Al Ula (RCU)
1.2.7	PV Panels	Also known as solar panels, they generate a flow of electricity when exposed to sunlight and are often integrated into canopy structures as a sustainable design methodology.
1.2.8	Owner	Owner of the property that includes a canopy, any person who owns a common share in it, the person who is a customary agent, and any person transferred ownership is transferred from the original owner
1.2.9	Environmental impact	A natural, chemical, biological, cultural, social or economic change to the ecosystem as a result of the project’s activities
1.2.10	Light Pollution	Discomfort caused by unnatural artificial lighting
1.2.11	Noise Pollution	A discordant mixture of sounds with unwanted continuity
1.2.12	Guide	Regulatory guide for the design of car parking shades



1.3. General Provisions

1.3.1. Purpose of this Manual

This guide was developed as part of the design guidelines that aim to provide specific information to target groups to achieve the goals, policies and framework of the geographical region to set design standards for car parking shades in accordance with the vision of the Royal Commission for Al Ula Governorate, the strategic principles and works of the Authority's framework plans and related master plans.

The guide is a regulating reference for persons of natural and legal status when undertaking work related to car parking shades within the geographical scope that falls within the Authority's jurisdiction.

Objective of this guide:

1. Guaranteeing the quality of installation for both existing and new car shades and their overall urban aesthetic.
2. Confirming the safe placement of sunshades to prevent any hazards to pedestrian pathways and accessibility for people with disabilities.
3. Enforcing the use of car sunshades in accordance with relevant requirements and standards.
4. Ensure good practices for the design, sustainability and construction of parking canopy structures.
5. Provide innovative solutions and options for the design of parking canopy structures in line with AlUla's unique heritage, archaeology and landscape.
6. Design integration of parking canopy structures with the surrounding buildings, landscape and built environment.

1.3.2. Authority and Applicability

1. This guide applies within the geographical boundaries.
2. These instructions apply to both existing and new parking shades in the summary of parking models listed in (Section 4) and should be used when preparing new master plans or additional directions for parking shades.
3. Enclosed parking garages that are added to the total floor area of the building are exempt from the application of this guide.

1.3.3. Users / Stakeholders

01. Owners of residential and administrative buildings

This guide provides owners with the necessary requirements, standards and instructions for organizing car parking shades.

02. Supervisory or regulatory entities

This guide represents a reference for the authorities responsible for all issues related to car parking shades.

03. Professional consultants and designers

This guide for consultants and engineering offices specifies all technical specifications and approved models for implementing and organizing car parking shades.

04. Real estate developers

This guide explains to real estate developers all the necessary requirements, standards and design guidelines for regulating car parking shades.

1.3.4. Monitoring and Enforcement

Inspection Elements

Below are some examples of violations:



Rust at the base of the umbrella



Rust in canopy columns



Rust in the hinges of the installation of bridges



Damage to the canopy sail



Leave the canopy bases exposed



Peeling in the paint



Rust in canopy bridges



Columns outside the property boundary

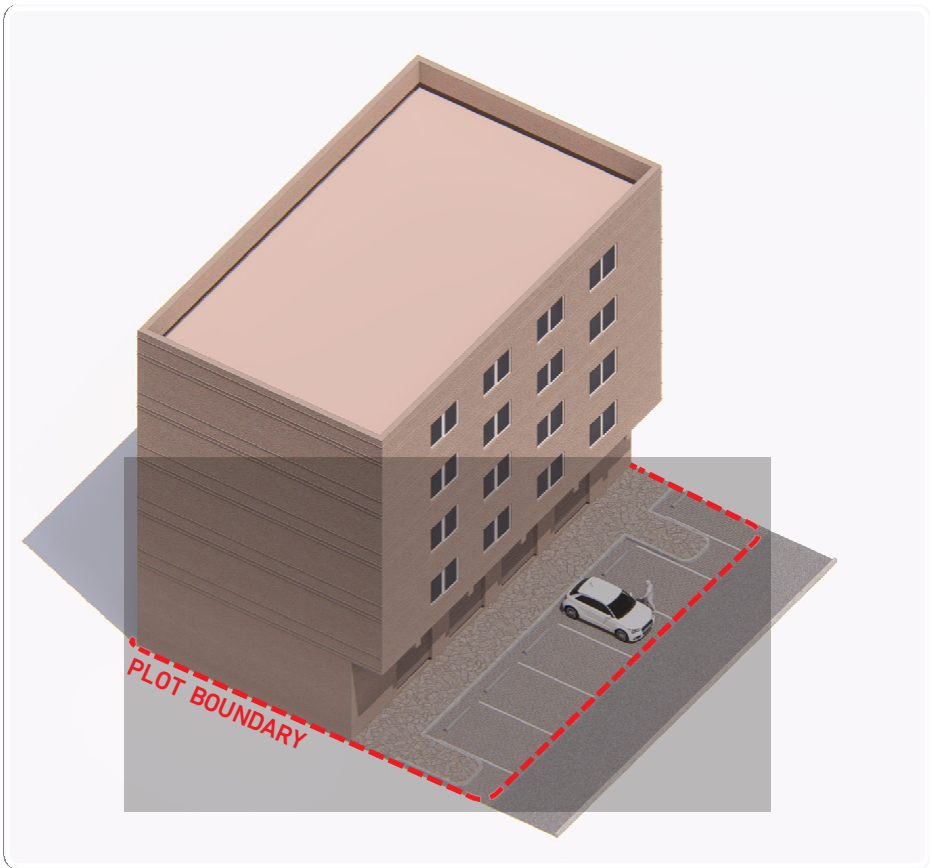


1.3.5. General Provisions for Implementation, Enforcement and Monitoring

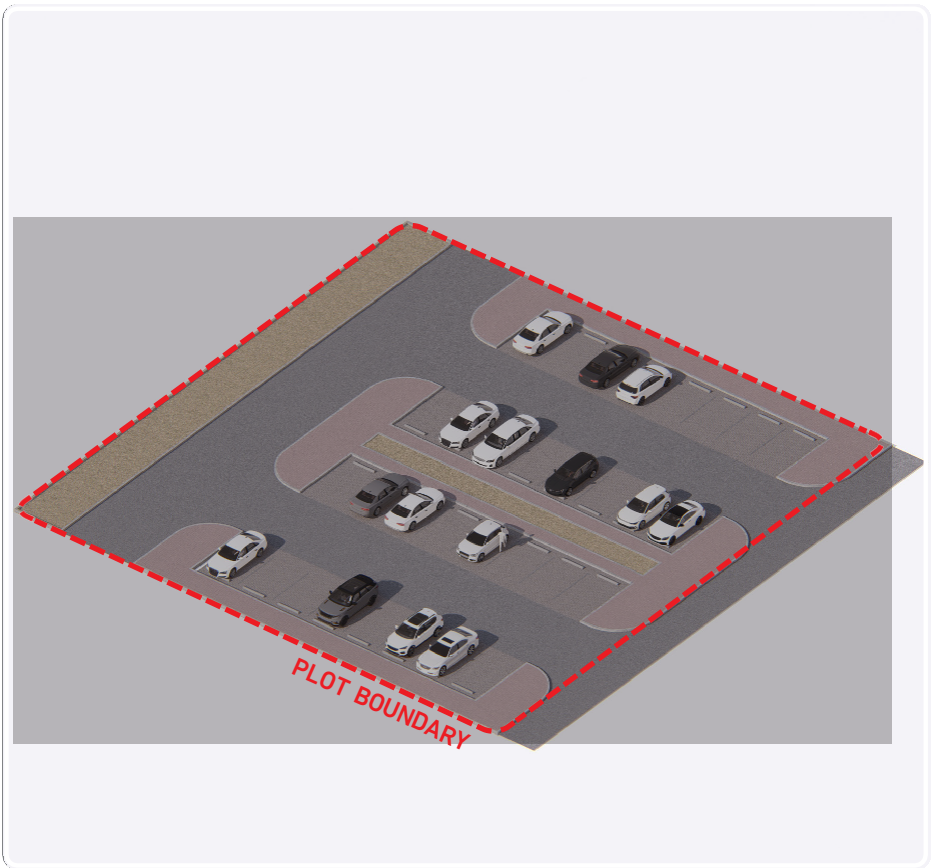
1. Adhere to all instructions in this guide, and you must obtain the necessary licenses from the commission before installing the awnings.
2. Taking into consideration what is stated in Paragraph (1), the rules, regulations and instructions issued by the government agencies related to the activity must be adhered to such as (the Saudi Building Code, the Saudi Standards and Metrology Authority, the Saudi Fire Protection Code, security and safety requirements) etc.
3. These instructions are subject to updating if necessary, and all amendments and additions are an integral part of the guide and are deemed enforceable.
4. This guide is regulatory and may be updated periodically, and property owners should be aware of any amendments or additions.
5. The awning or awnings must be removed by the owner upon the Commission's request to do so in the event that it conflicts with any of the existing or future Royal Commission projects. This does not prejudice the commission's right to remove it on its own initiative in the event that the owner does not comply with the removal, without the license holder having the right to claim any compensation as a result of any of that.
6. In the event of a violation of the requirements or instructions contained in this guide, the penalties stipulated for each violation shall be applied in accordance with what is determined by the Governor by a decision issued by him.
7. The owner is responsible for taking the necessary measures to ensure the safety of the sidewalk and landscaping during the implementation of car shades, and the penalties stipulated by the system will be applied to him in the event of his violation of this.
8. The owner bears full legal responsibility for the umbrella and the damage caused to it or its surroundings.
9. When installing awnings, all matters related to security and safety for workers and passers-by, preserving the nature of the surrounding environment, and adhering to safety precautions during construction mentioned in the general Saudi building code, must be taken into consideration.
10. The owner and the engineering office undertaking the implementation of the awnings are committed to ensuring that these works do not affect the safety of pedestrians, property, vehicle movement, and street paths in any way.
11. The owner is responsible for any damage to the awnings, and is obligated to replace them, as described in (Section 2-2).
12. The owner is obligated to remove all waste resulting from the construction of the awnings and transport them to the designated places at his expense.
13. The Commission is examining the site according to the following:
 - After the completion of the construction of the awnings, to ensure that they comply with the requirements and that there are no damages resulting from their construction.
 - Ensure existing canopies comply with the guidelines in this manual and evaluate the quality and strength of the structure as described in the examples listed in (Section 4.3.1) Inspection Items.
14. The owner and the engineering office contracted to implement the canopies are obligated to address any observation resulting from non-compliance with the requirements and instructions contained in the guide within the period specified by the commission.
15. The commission has the right to remove the canopy if the implementation differs from what was approved within the guide.

1.4. Summary Of Applicable Parking Scenarios

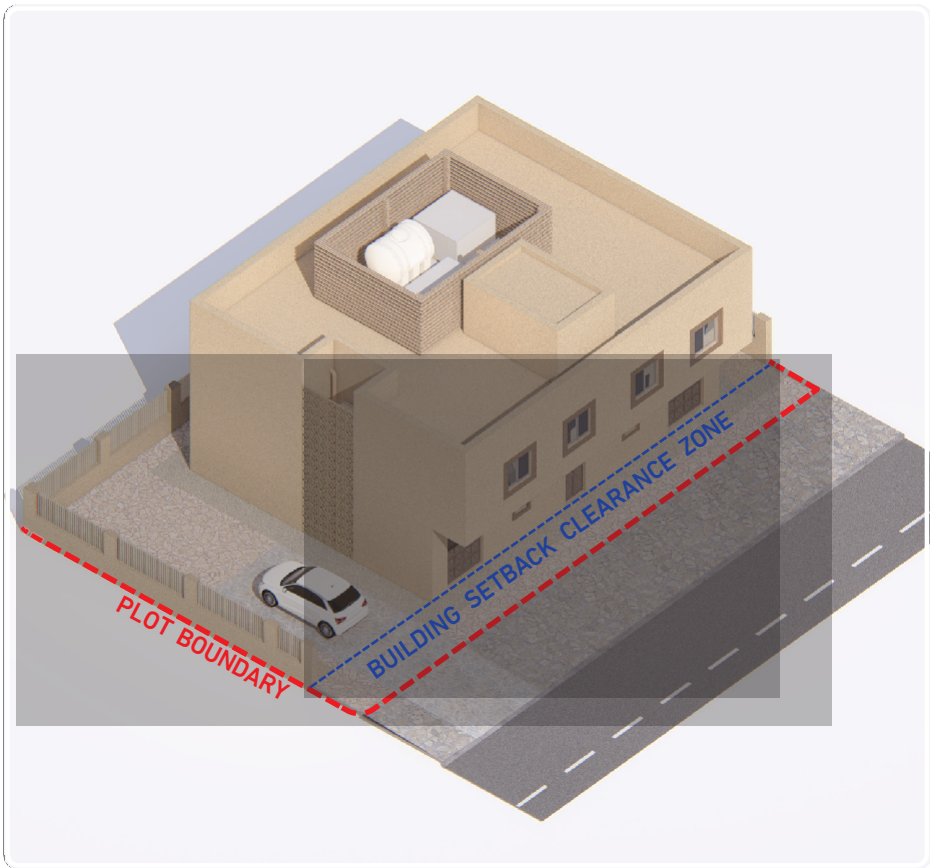
The instructions contained in this guide are based on the following models:



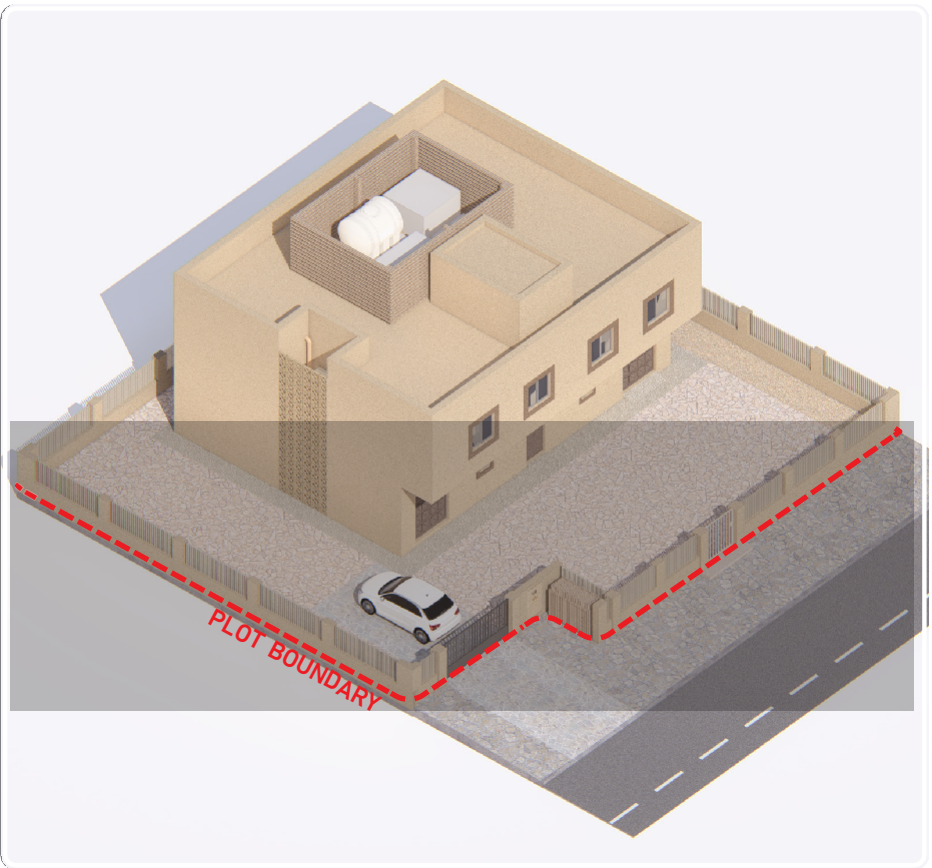
01. BUILDINGS WITH CAR PARKING
(including Mixed-Use, Commercial, Retail, Hospitality, Governmental)



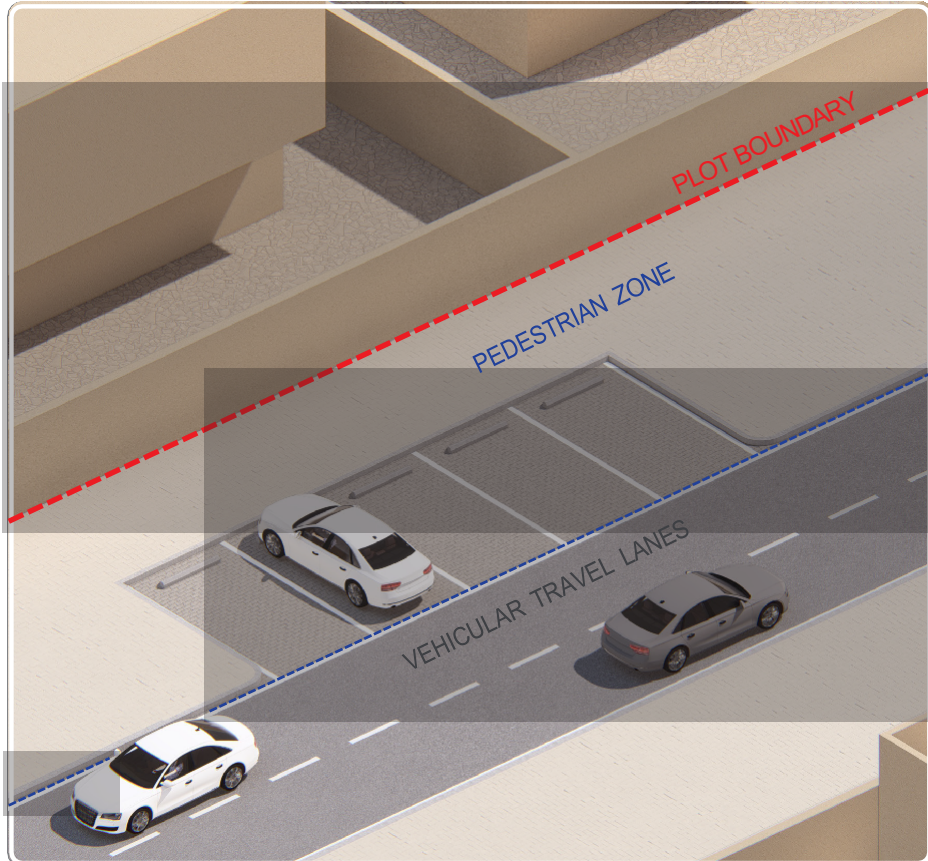
02. DEDICATED CAR PARKING PLOTS
(including Infrastructure, Commercial, Retail, Hospitality, Governmental, Open Spaces)



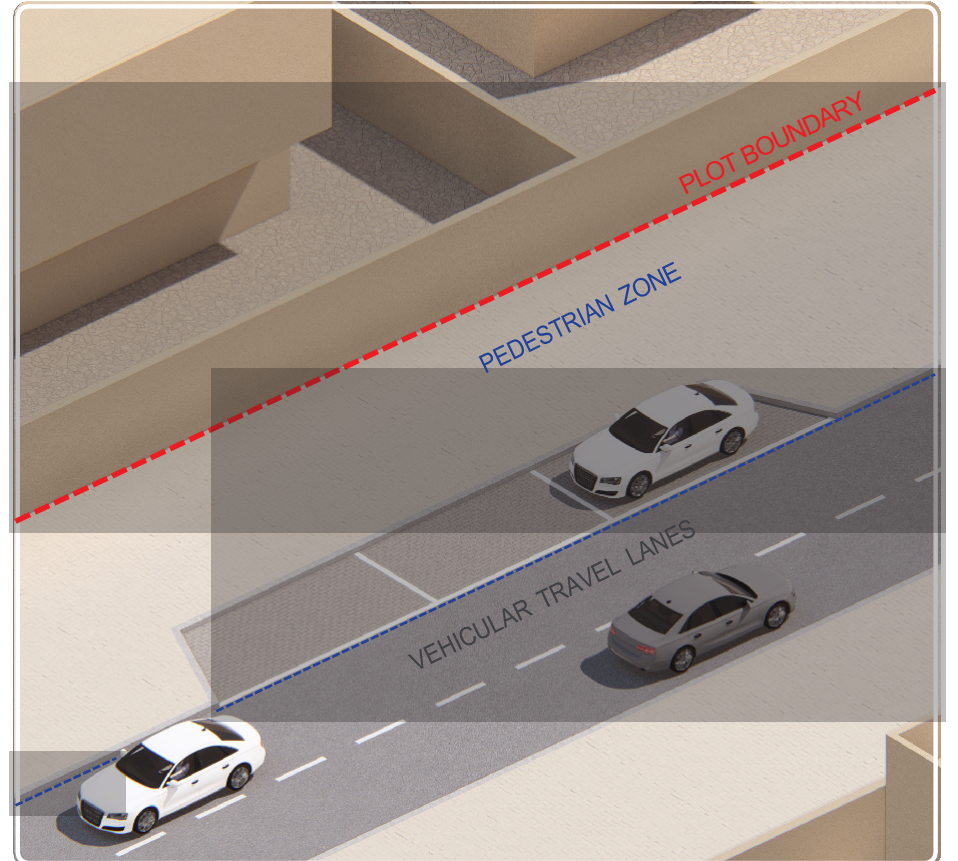
03. PRIVATE RESIDENCE (unfenced)



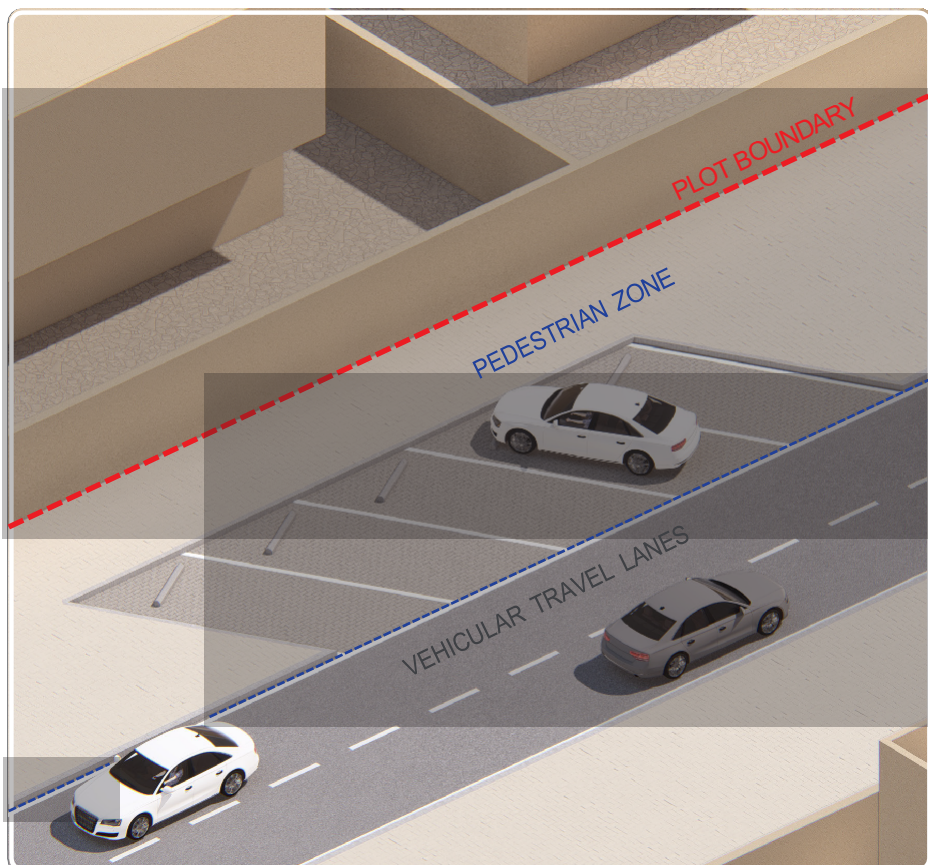
04. Private (gated) residence.



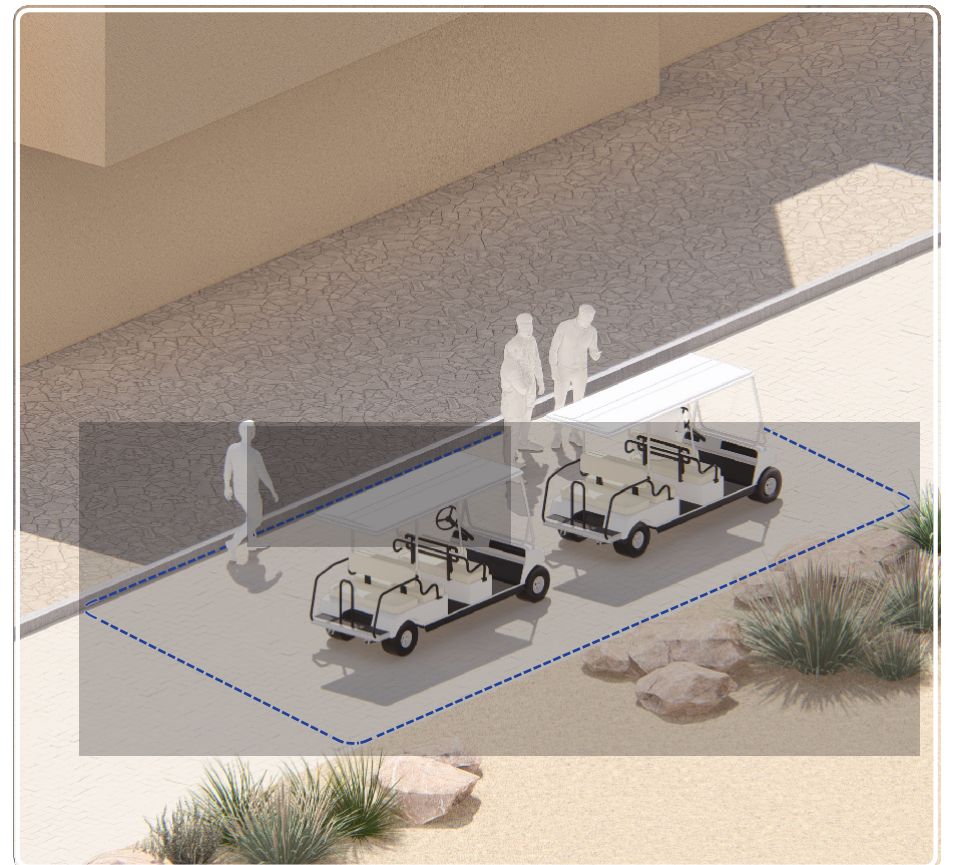
05. PARKING TYPE - PERPENDICULAR PARKING



06. PARKING TYPE - PARALLEL PARKING



07. PARKING TYPE - ANGLED PARKING



08. Types of private shading for golf car parks





2 - General Requirements

The Chapter is subdivided in the following sub sections:

- 2.1 General Requirements
- 2.2 Appropriate Design Application
 - 2.2.1 Materiality and Design Unity
 - 2.2.2 Prohibited Materials
 - 2.2.3 Allowed Materials
 - 2.2.4 Colour Palette
- 2.3 Accessibility Requirements
- 2.4 Sustainability Requirements
- 2.5 Constructability Requirements
- 2.6 Operations & Maintenance Requirements
- 2.7 Softscape Application

2.1. General Requirements

This part of the guide includes instructions for target groups regarding the various elements of car shades and their location.

This section specifies the standards and instructions stipulated as follows:

It is not permitted to install shadings in the following cases:

1. If the awnings obscure the facade of the shops on the ground floor or are not suitable for pedestrian walkways and small means of transportation, and in areas that are not conducive to movement by private cars.
2. Or any current or future contexts that the commission may deem to be inconsistent with the framework plan or vision for the geographical scope. Approving or rejecting requests for parking shades is within the commission's discretionary commission, taking into consideration the unique specifications of each location.

Shading structure:

1. Parking shades are not permitted to be installed outside the boundaries of private property.
2. The projection of the awnings must not exceed a maximum of 3.8 meters. Please see Figure 2.1 on page No. 20 It is necessary to adhere to the dimensional standards when implementing the awnings.
3. Car parking shade structures shall be designed in harmony with the architectural elements of the buildings to blend in with the architectural style and characteristics of the surrounding area see Section 4. The selection of colors from the designated code shall be in accordance with Section 4-2-2 of this guide.
4. The height of the awnings ranges between 2.5 and 3 meters maximum. Please see Figure 2.2.
5. It is prohibited to erect awnings in parking lots located at the setback corner.
6. One model for the structure of parking canopies must be adhered to for the parking lots of the owners of one building. See Section 4.
7. The awning pole must be installed at a maximum distance of 0.2 to 0.5 meters from the edge of the sidewalk.
8. Parking canopy structures must not be built above the main gate.
9. Avoid limiting the shading of large parking lots with awnings, and thus find a balanced approach between shading with trees and awnings.
10. In accordance with Section 6.1.2, it is prohibited to cover the sides of the parking shade structure or the entire structure with sails or otherwise.
11. Car parking shade structures must be constructed within the boundaries of the plot of land in question and not exceed the scope of the area allocated for that plot. Please, see figure 2.1.A

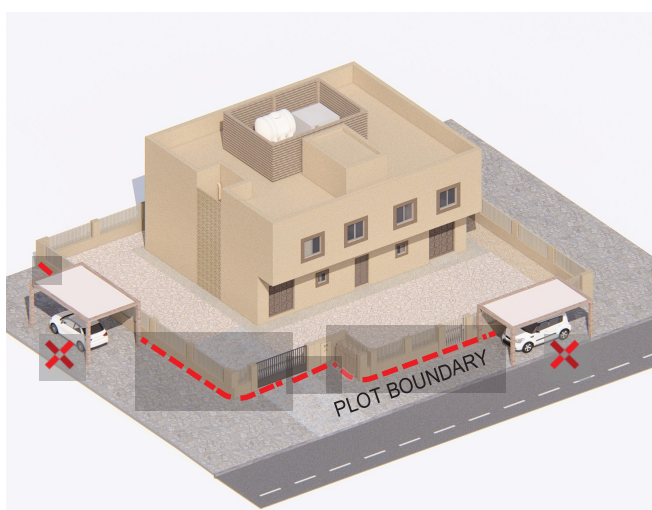


Figure 2.1.A: Car parking shade structures must be constructed within the boundaries of the plot.

12. Parking canopy structures must not obstruct pedestrian path.
13. Do not obstruct the movement of vehicles in front of the main entrances.
14. Parking canopy structures must not interfere with the vehicular path.
15. Parking spaces must be allocated for people with disabilities on a slope no less than 90 cm wide.
16. It is prohibited to establish canopy structures near electrical transformers and electrical room doors and entrances.
17. The ideal pole width of the canopy structure should not exceed 0.35 m. Please, see figure 2.1.B

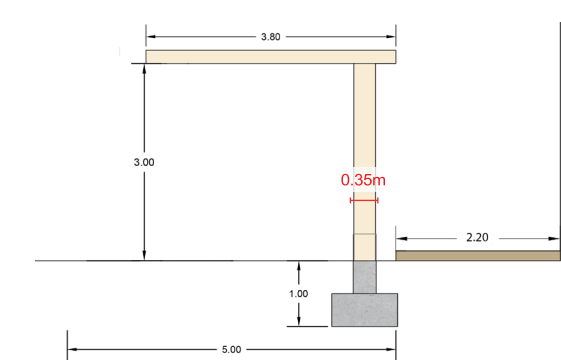


Figure 2.1.B: Ideal pole width of the canopy structure.

Planting:

1. At least one tree must be planted every 6 m on the sidewalk and central islands to provide shade on the sidewalk and when placing parking lots, and fixed planting beds should not be placed in front of the entrances to parking lots and buildings. Please, see figure 2.1.C
2. It is preferable to adhere to local species of plants and trees according to the planting plate that belongs to the geographical scope.
3. Shading must be provided for 40% of the total number of parking spaces either by planting trees or canopy structures.



Figure 2.1.C: Planting

Table 2.1: General Standards

2.1.1. Cross-Section Application

Parking Scenarios Shade Structure Placement above Parking

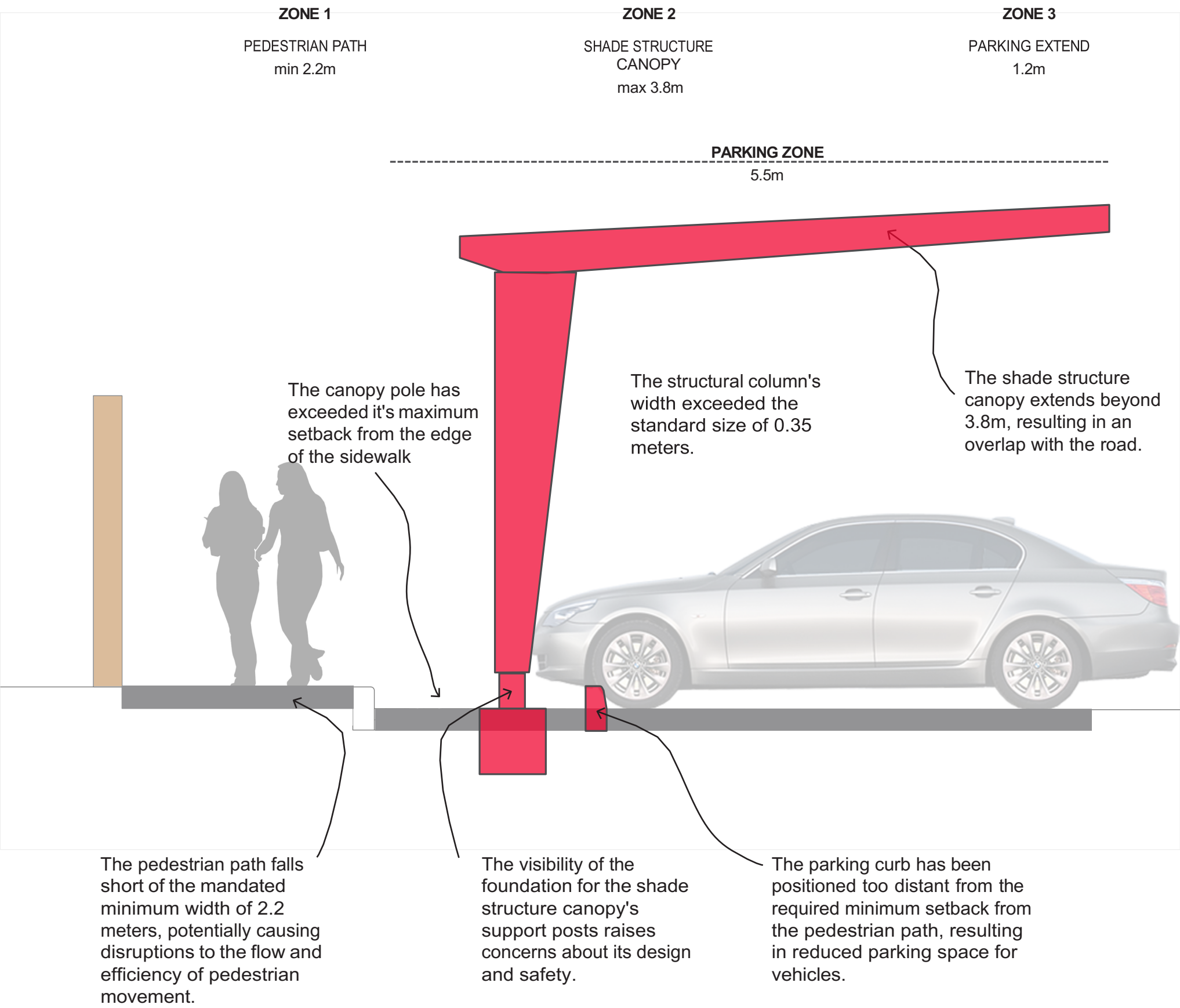


Figure 2.1: Non-Compliant Shade Structure Placement Principles

Parking Scenarios Shade Structure Placement above Parking

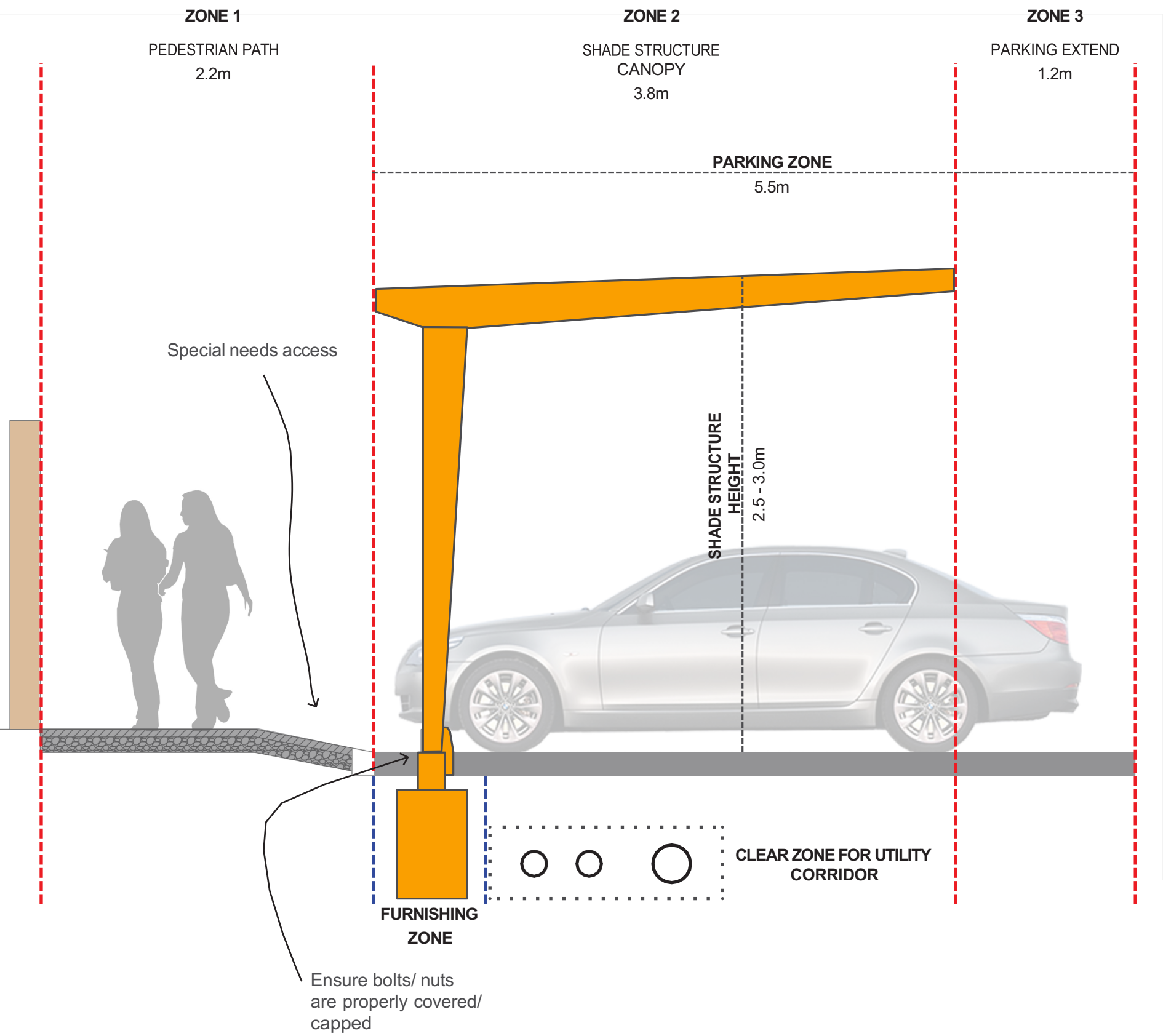


Figure 2.2: Compliant Shade Structure Placement Principles

2.1.2. Parallel Parking Scenario

Follow the [relevant instructions for designing parking spaces](#) approved by the commission for use in parallel parking spaces.

Requirements for Parallel, Perpendicular & Angled Parking

- 1. Use parking shade structures only in areas designated for parking. Please see Figures 2.3, 2.7 and 2.11.
- 2. Car parking shade structures must not interfere with vehicle routes, please see Figures 2.4, 2.8 and 2.12.
- 3. Car parking shade structures must not obstruct pedestrian paths. Please see Figures 2.13, 2.9 and 2.5.
- 4. Car shade structures must be compatible with the requirements and instructions shown in this figure. Please refer to Figures 2.6, 2.10 and 2.14.

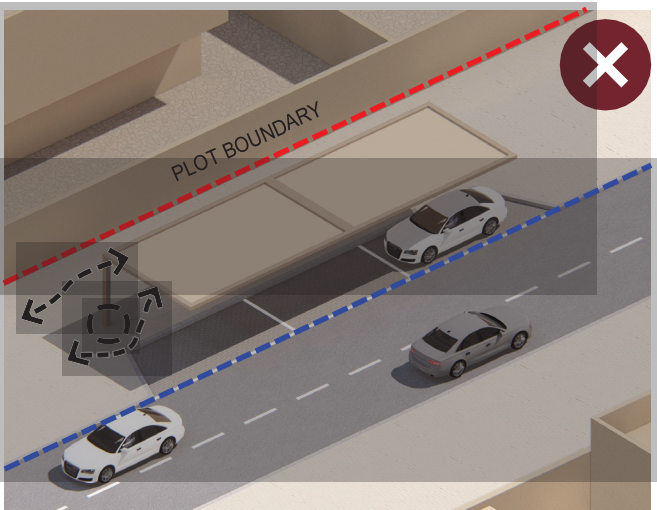
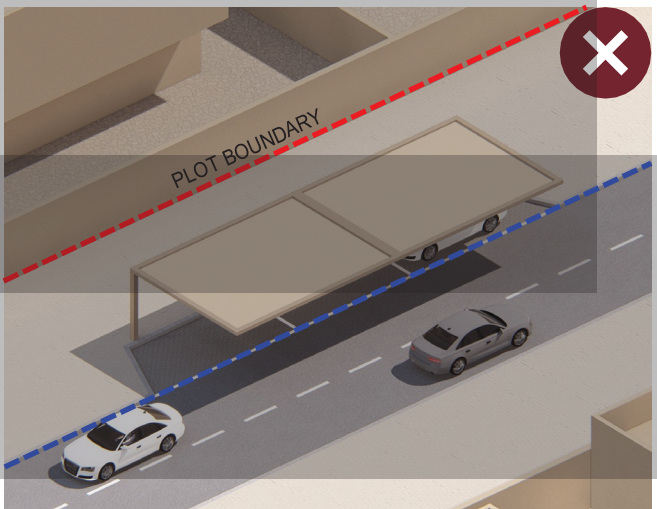
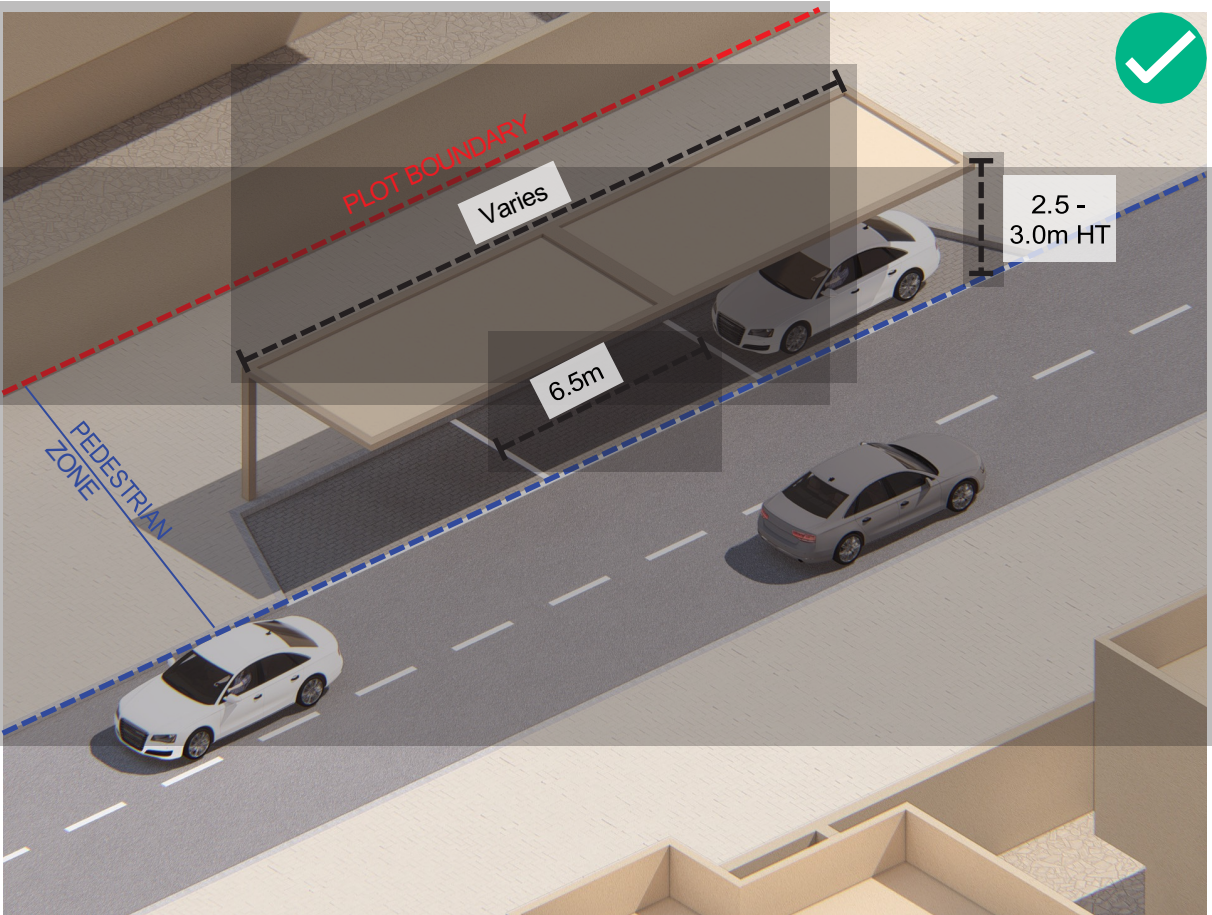
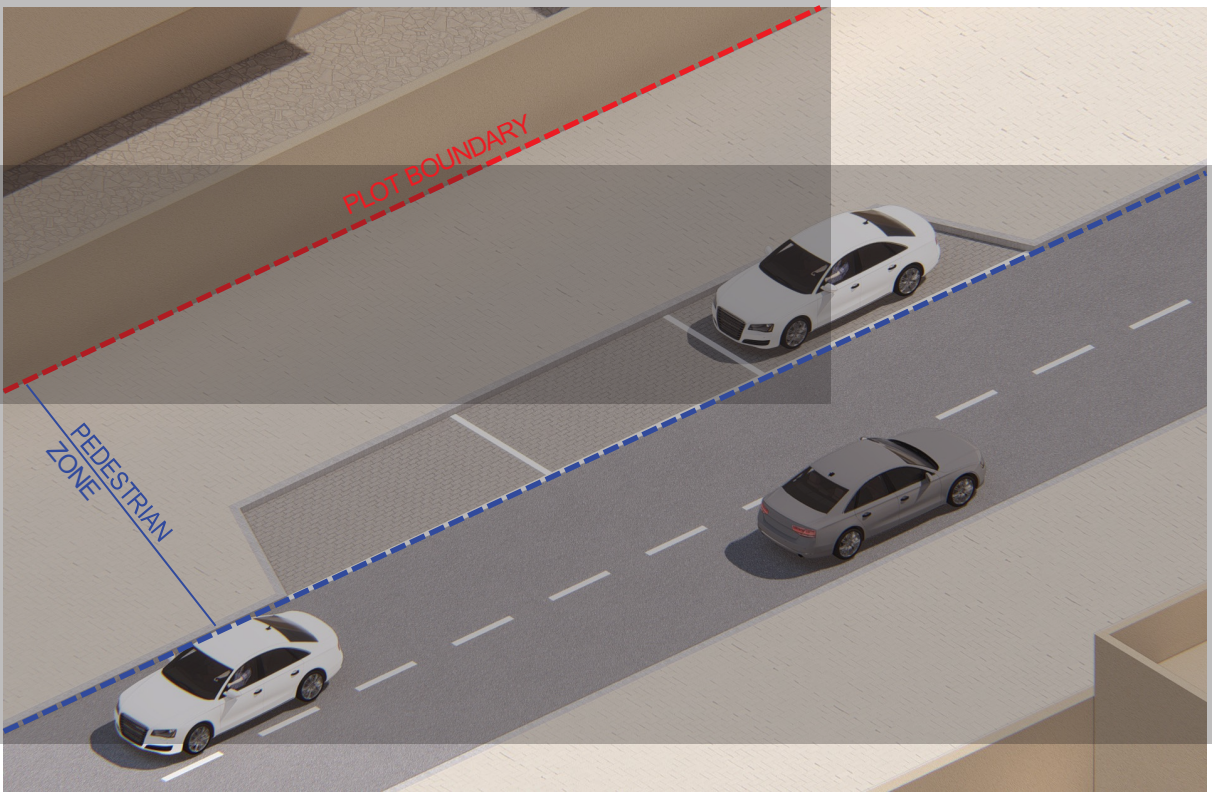


Figure 2.3: Parking shade structure designed within specified boundaries

Figure 2.4: Overlapping to vehicular zone

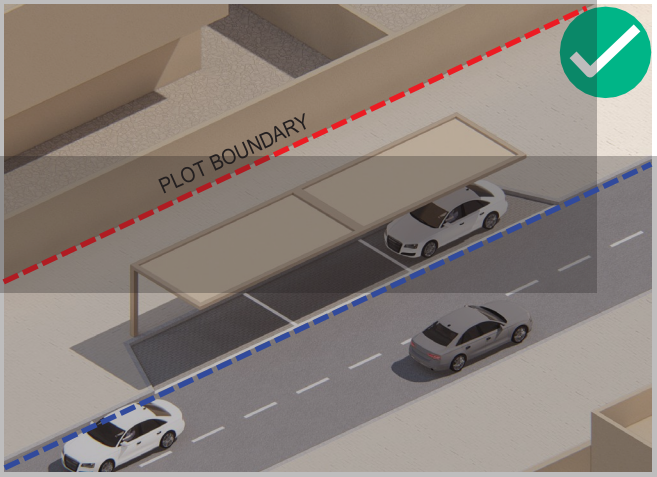


Figure 2.5: Obstruction of footpath flow

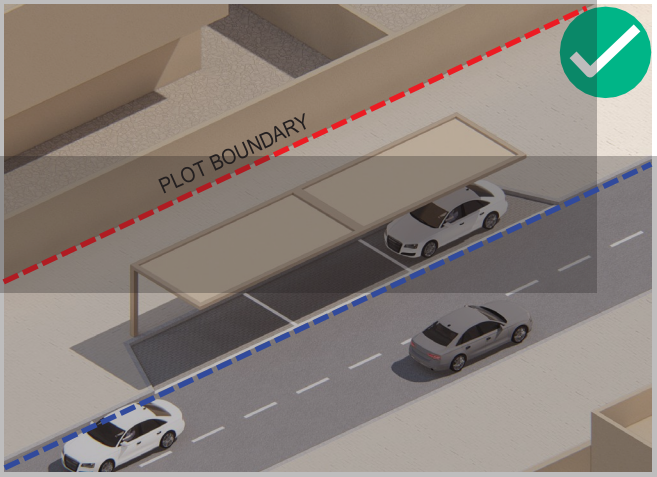


Figure 2.6: Car park structure integrated within the parking boundary

2.1.3. Perpendicular Parking Scenario

Follow the [relevant instructions for designing parking spaces](#) approved by the commission for use in vertical parking spaces.

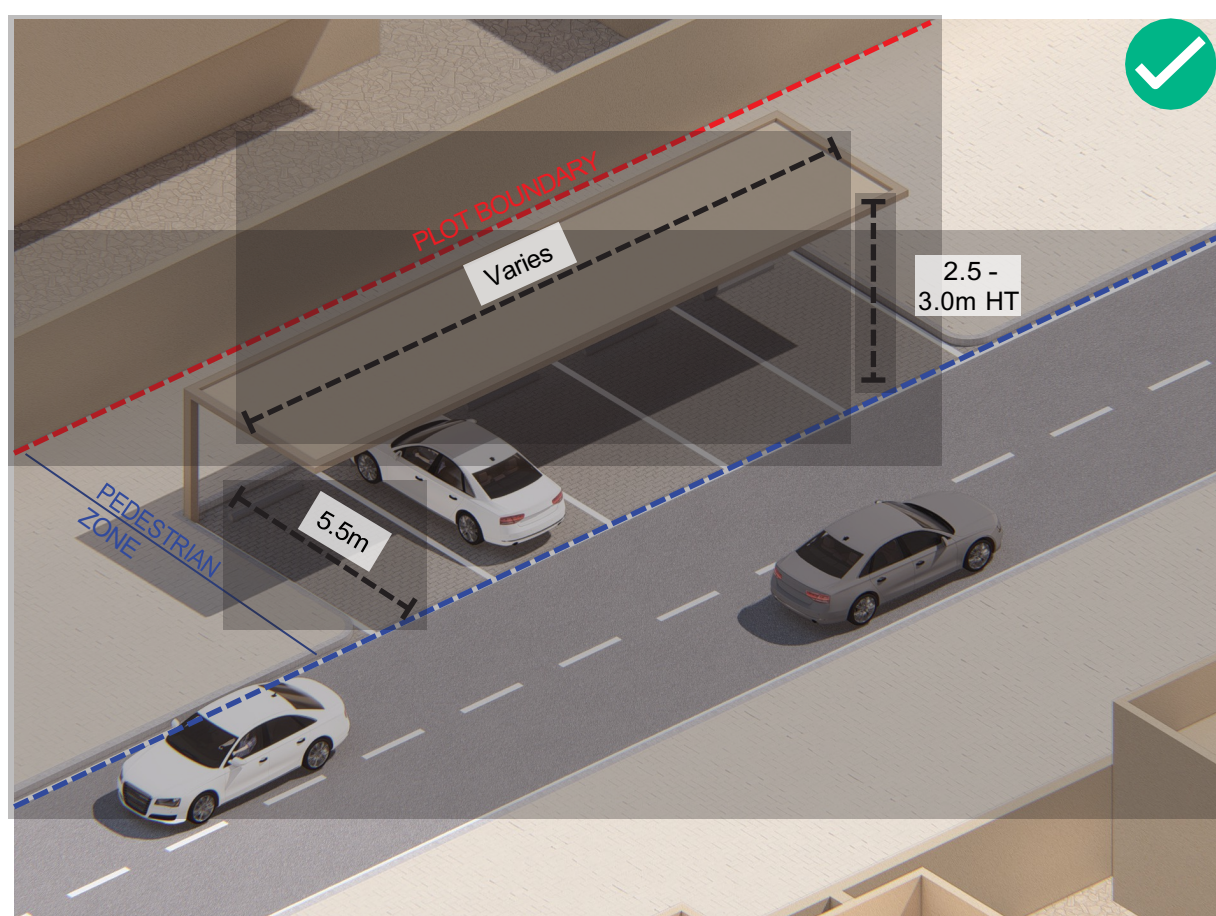
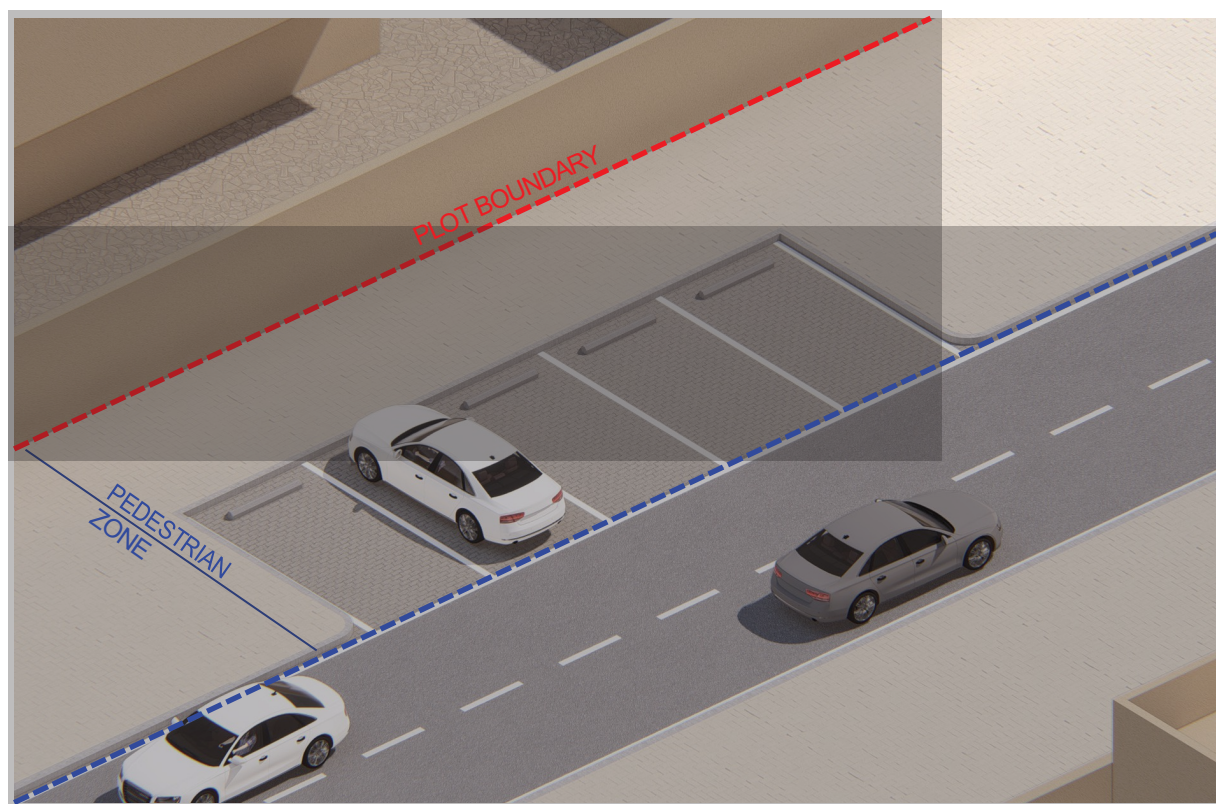


Figure 2.7: Parking shade structure designed within specified boundaries

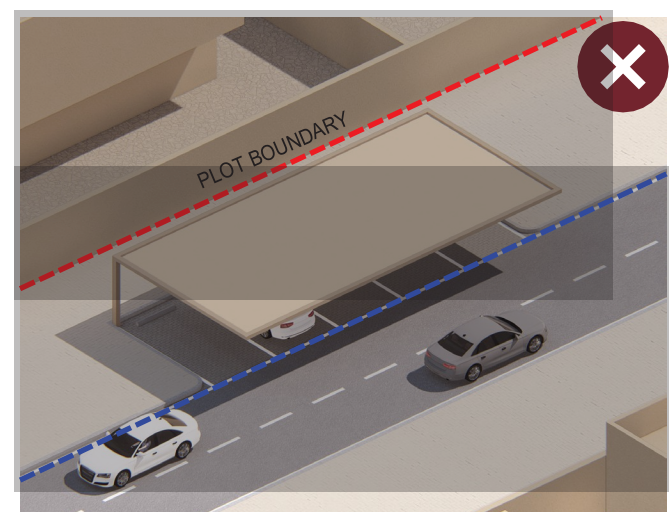


Figure 2.8: Overlapping to vehicular zone

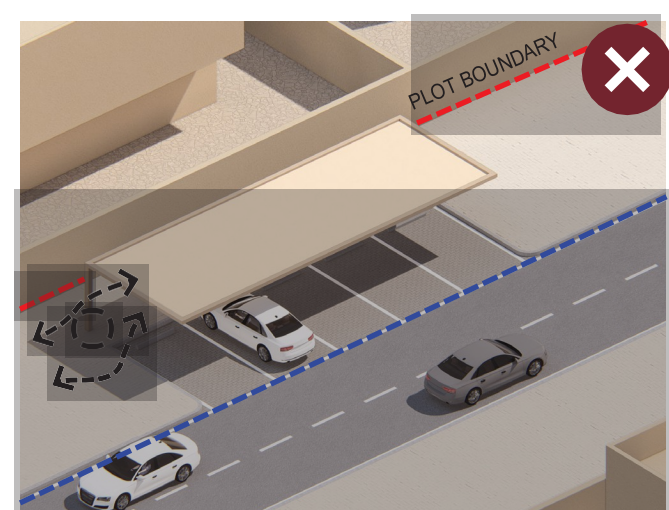


Figure 2.9: Obstruction of footpath flow

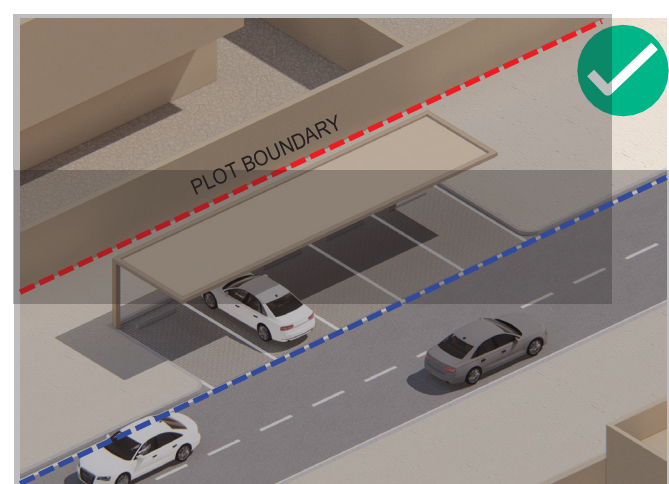


Figure 2.10: Car park structure integrated within the parking boundary

2.1.4. Angled Parking Scenario

Follow the [relevant instructions for designing parking spaces](#) approved by the commission for use in angled parking spaces.

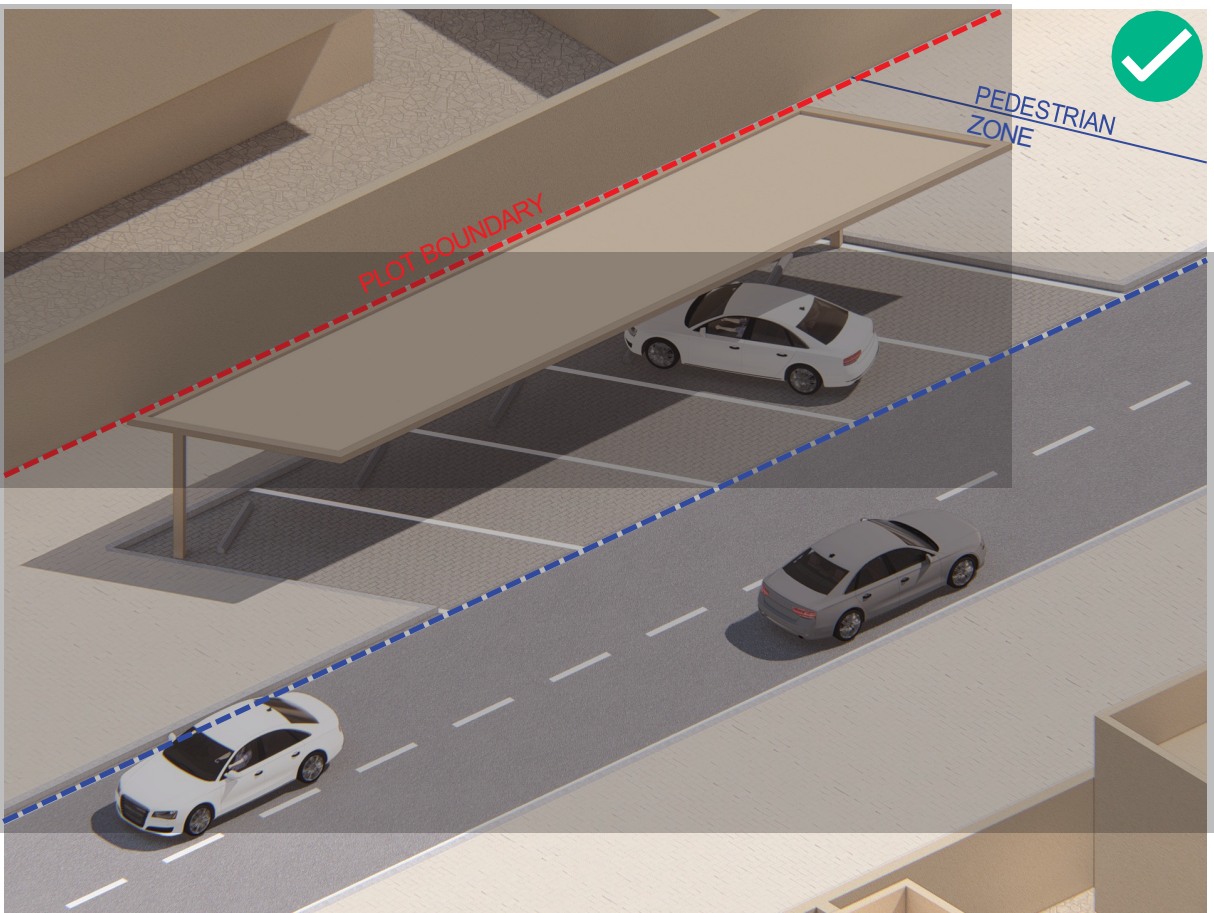
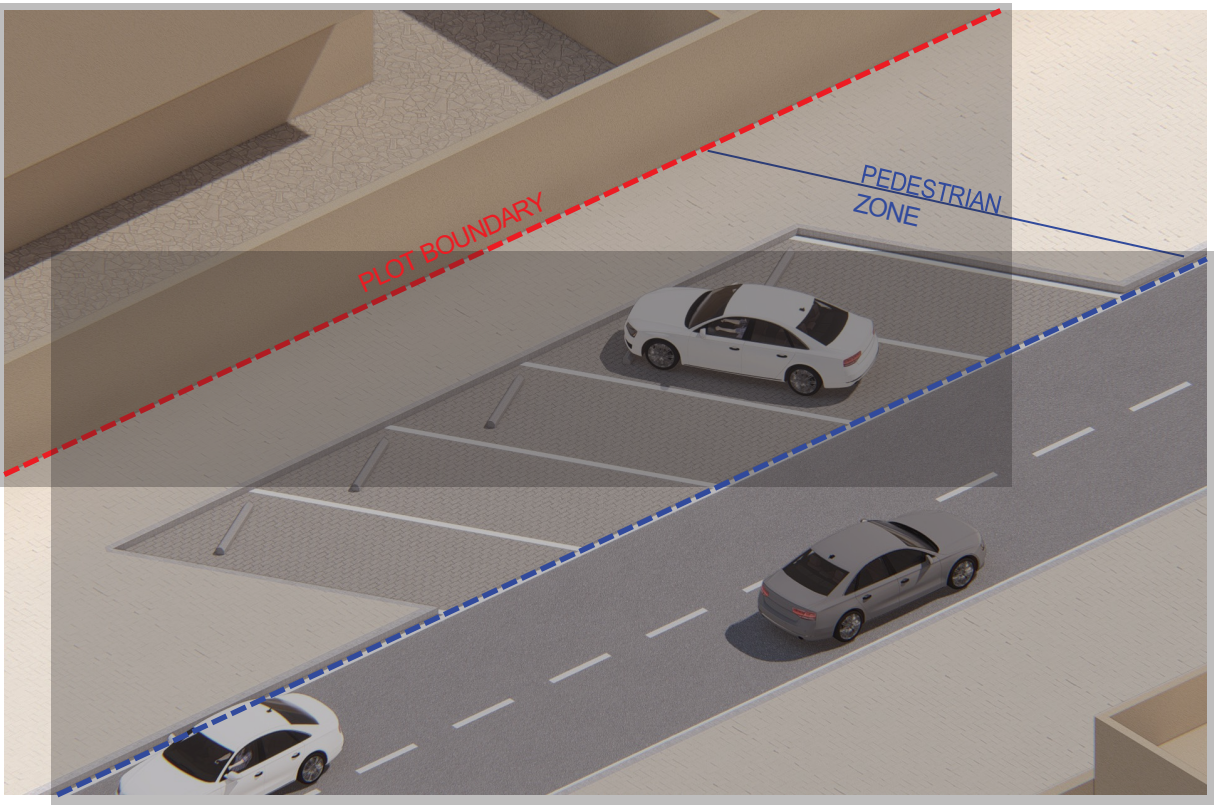


Figure 2.11: Parking shade structure designed within specified boundaries

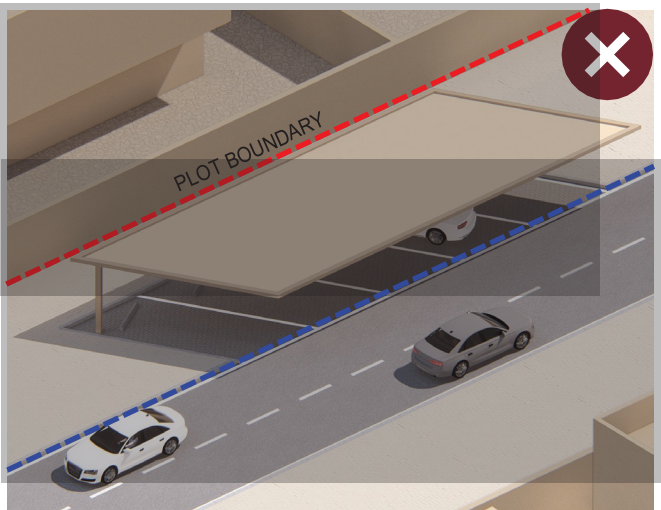


Figure 2.12: Overlapping to vehicular

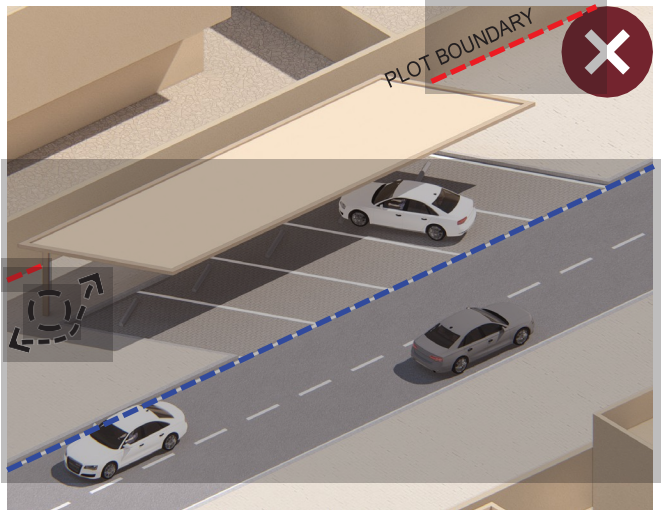


Figure 2.13: Obstruction of footpath flow

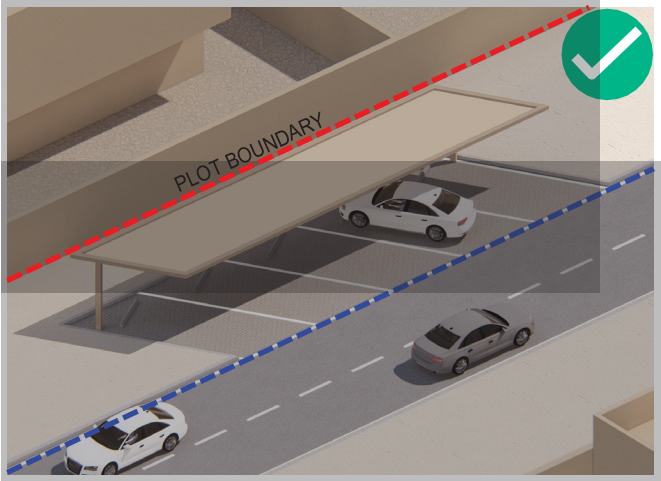


Figure 2.14: Car park structure integrated within the parking boundary

2.1.5. Buggy/Golf Car Stops Scenario

Follow the [relevant instructions for designing parking spaces](#) approved by the commission for use in golf car parks.

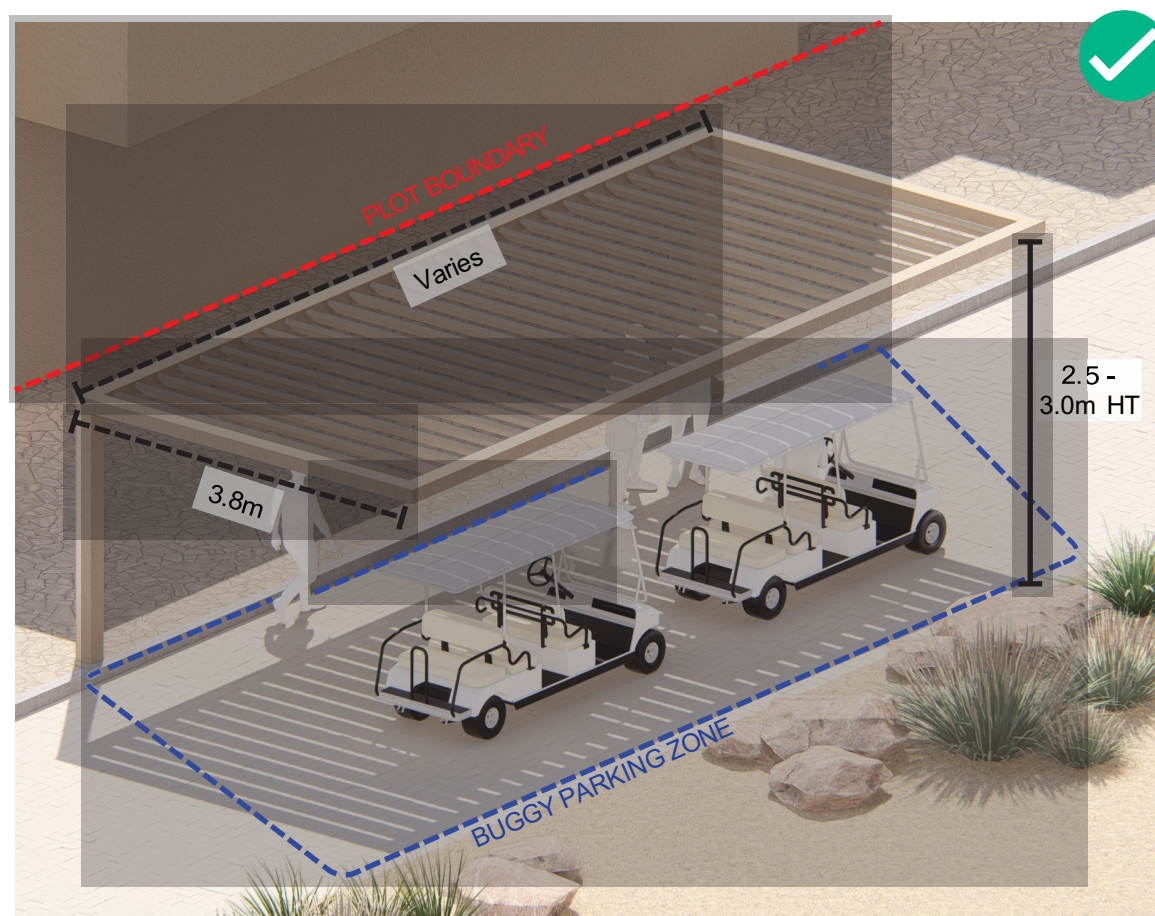
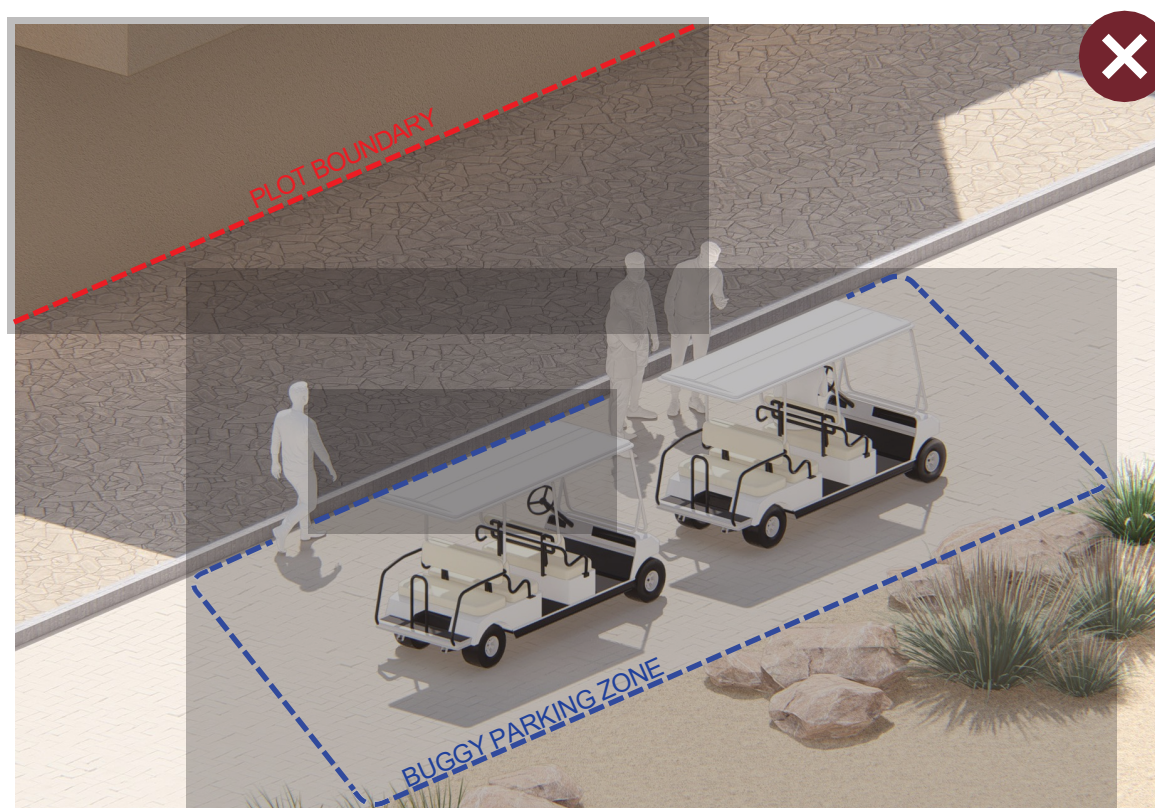


Figure 2.15: Designated buggy:golf car shaded parking

Requirements

1. The design of car parking structures should complement the surrounding landscape and architectural elements using materials and colors that harmonize with the natural environment, see Figure 2.16.
2. The parking arrangement should facilitate entry and exit, and provide paths between parking lots and designated paths.
3. Shaded parking areas should be easily accessible by people with disabilities by providing designated areas in accordance with accessibility standards and regulations.



Figure 2.16: Parking shade structure designed in harmony with the architecture

2.1.6. Prohibited Designs and Conditions

Examples of Prohibited designs and conditions

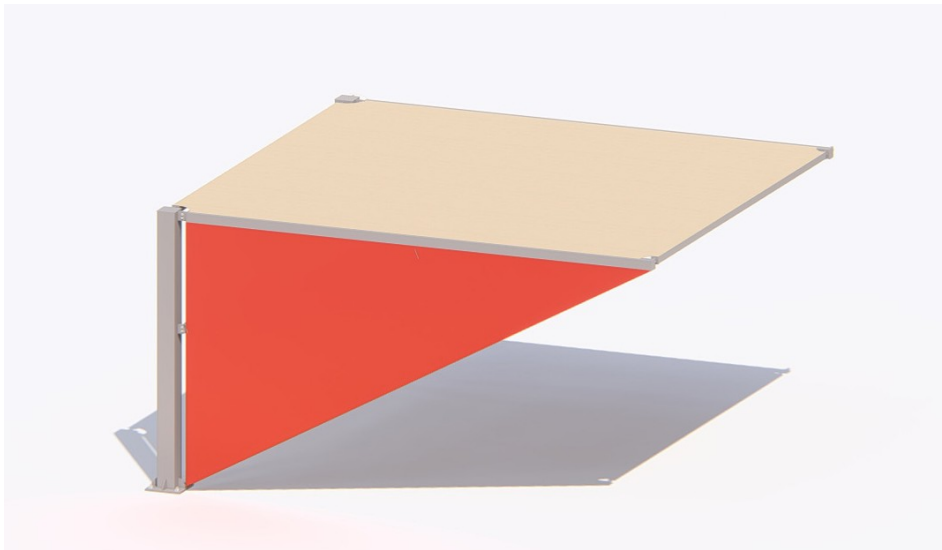


Figure 2.17: Covering Corners



Figure 2.18: Covering Partial Sides

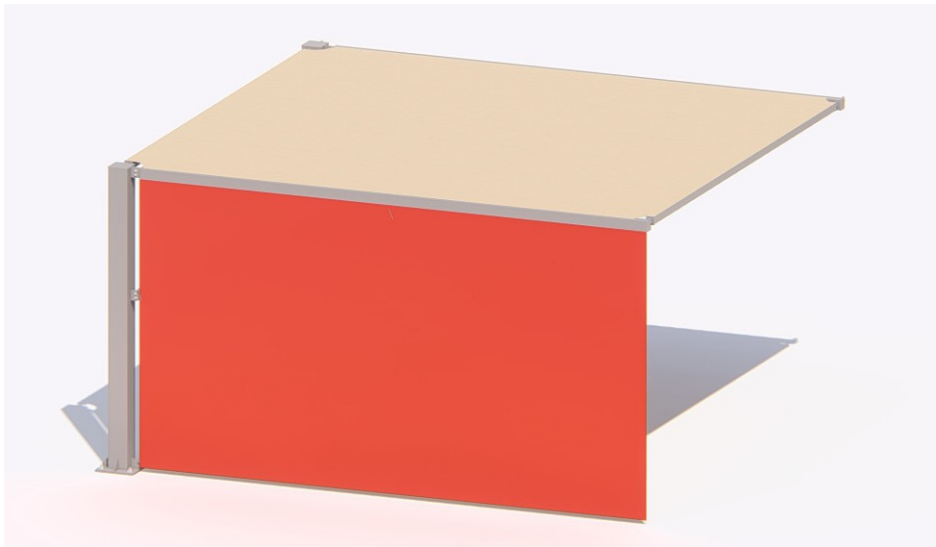


Figure 2.19: Covering Complete Sides

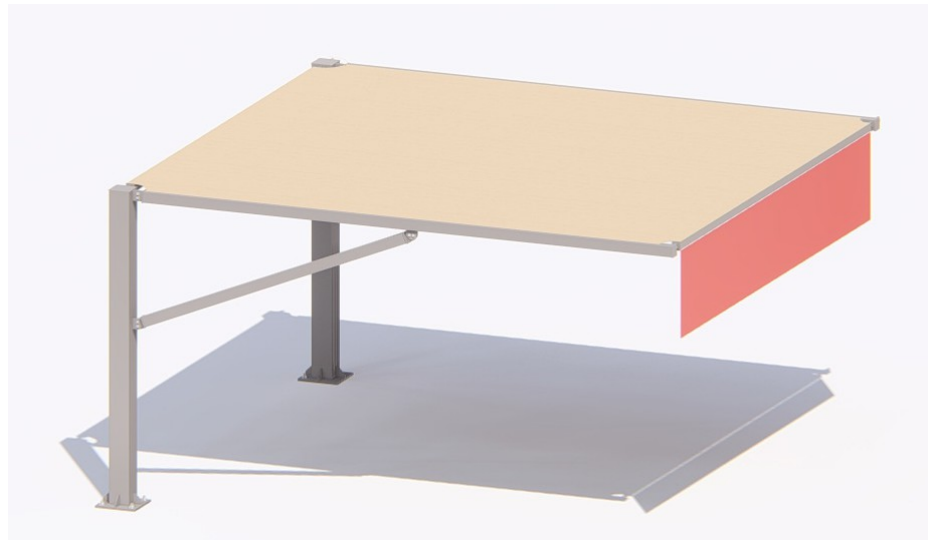
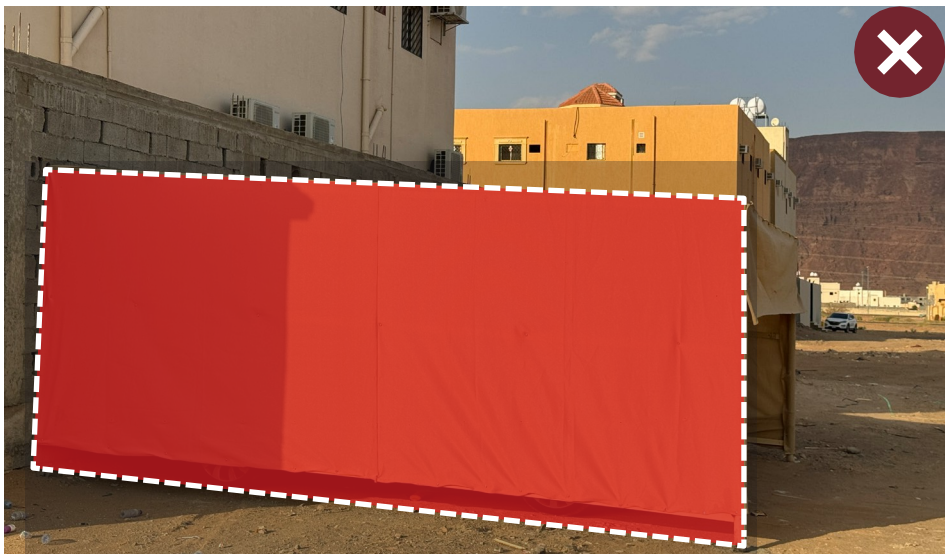


Figure 2.20: Covering Partial Front



Examples of Prohibited Designs Perimeters

1. It is prohibited to cover any side of the parking lots as shown in Figures 2.17, 2.18, 2.19, and 2.20.2.15.
2. It is a must adhere to the design's instructions in Section 4
3. It is prohibited to have structural tension cables, such as: Figure 2.22
4. Prevents structural columns carrying excessive loads, such as: Figures 2.23 and 2.24

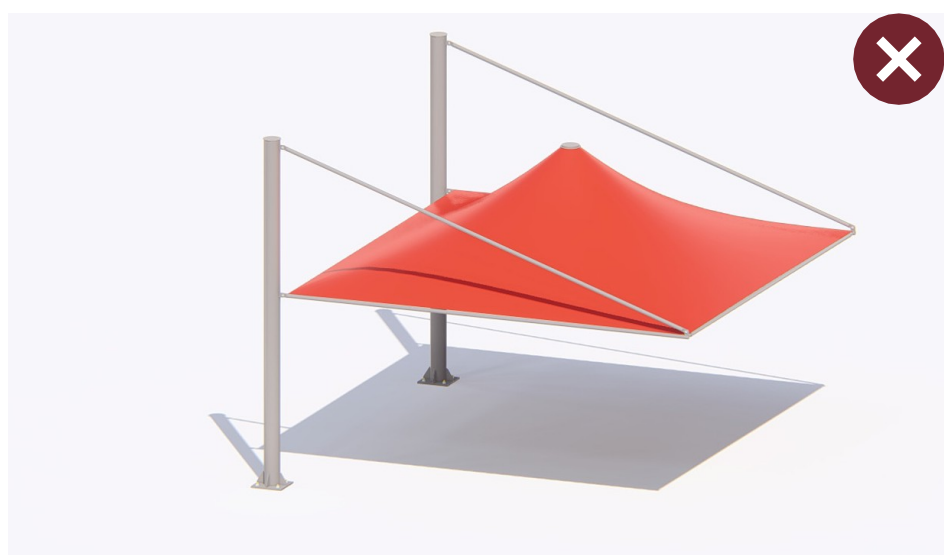


Figure 2.21: Example of unacceptable shade structure

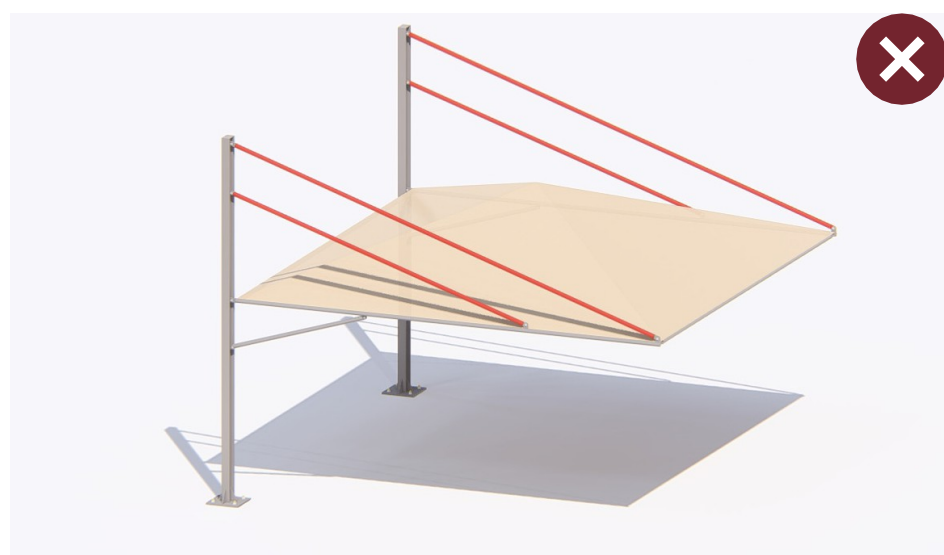


Figure 2.22: Example of Structural Tension Cables.

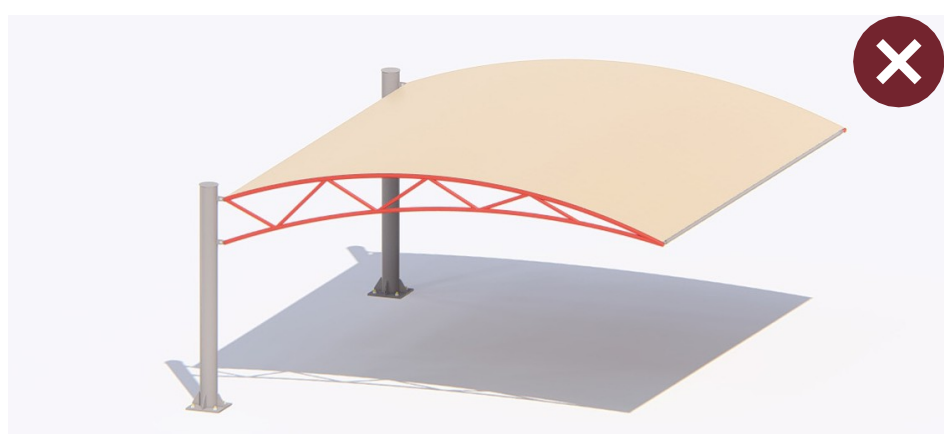


Figure 2.23: Example of Excessive Load-Bearing Structure :1.

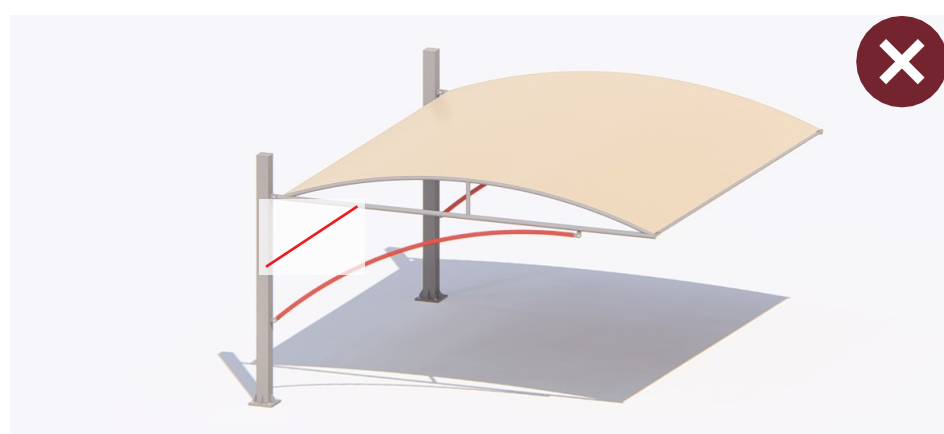


Figure 2.24: Example of Excessive Load-Bearing Structure

2.2. Appropriate Design Application

2.2.1. MATERIALITY & DESIGN UNITY

The design must contribute to the excellence and quality of the local character and support sustainability. Local building materials can be used. The selection of building materials and technologies is an essential aspect of the design process. Please see Figure 2.25.

Designers must take advantage of the region's climate, which is known for its temperature differences between day and night, by choosing appropriate materials, and they can also benefit from local sources.



Figure 2.25: Example of materials and design applicable for shade structure

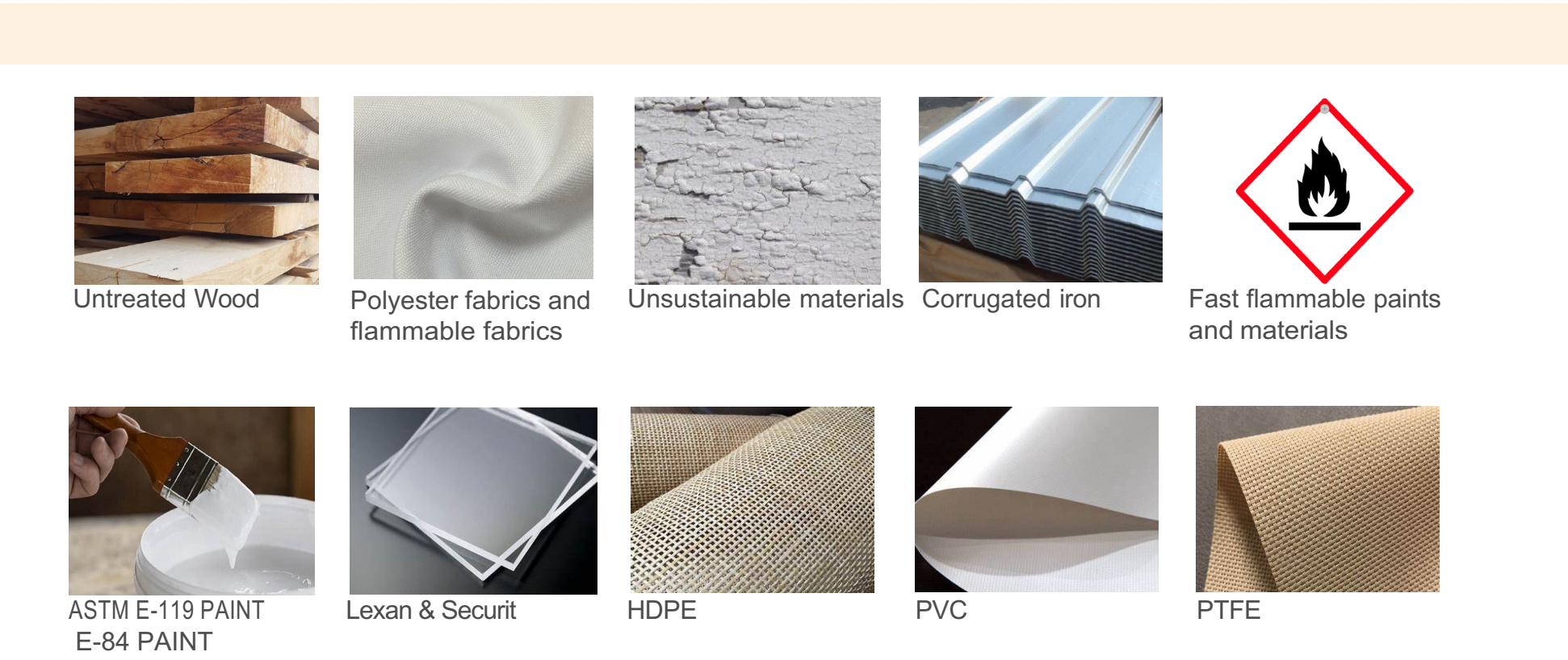


Figure 2.26: Illustration of Materials Not Permitted

2.2.2.

COLOUR PALETTE

All car sunshade proposals must explain the following:

- Sandy desert, sandy colors and shades of green are acceptable because they blend in with nature and the non-urban environment.
 - White, grey, black, blue, and strong bright colors such as: red and yellow, including different shades of color and shades, should be avoided.
 - Concrete block/aluminum sheet/column work prevents unfinished and/or unpainted frames.
- Colors must be harmonious when more than one color is used, and the main color combination as shown below must provide the majority of the colors applied to the structure.
 - The same or similar colors can be used on existing and new buildings to unify a group of buildings/structures, please see Figure 2.27.
 - Contrasting colors or materials can be used to highlight specific architectural features, or to divide large surface areas.

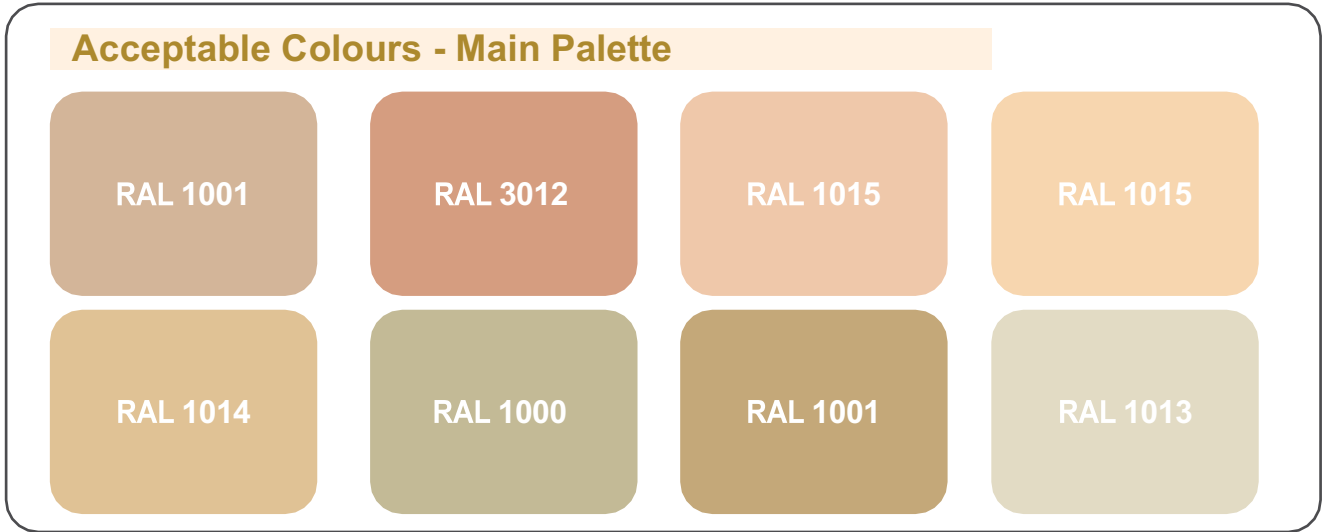


Figure 2.27: Example of an Acceptable Colour Palette Combinations

2.3. Accessibility Requirements

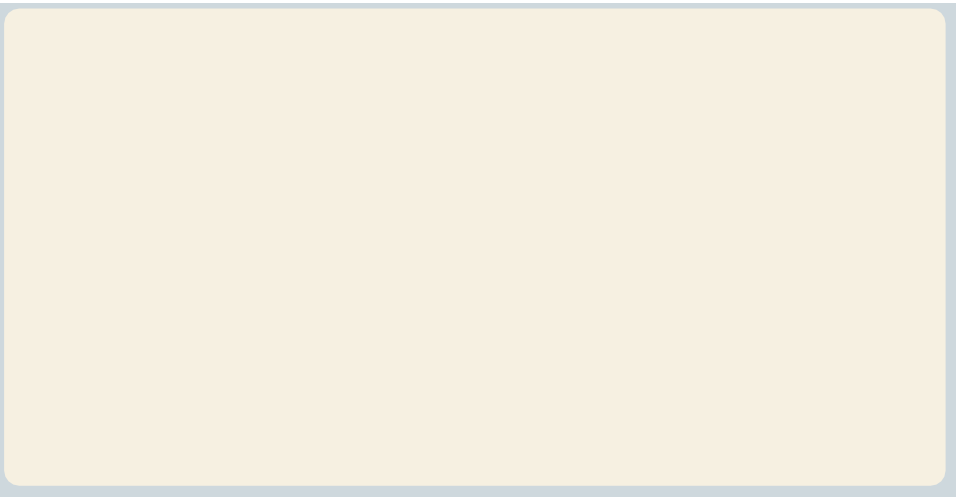


Figure 2.28: Shading provision above Disabled Parking



Figure 2.29: Suitable scaled Shade for taller vehicles



Figure 2.30: Shade Structure too low for purpose

Requirements

All car sunshade proposals must explain the following:

1. Design canopy structures with inclusivity in mind so that they suit all people regardless of age, ability or condition. Please see Figure 2.28.
2. The path leading to and from shaded parking must be wide enough to accommodate wheelchairs and wheelchairs Aided on mobility.
3. Use gentle ramps, handrails, and non-slip surfaces instead of stairs, and connect them to parking lots designated for people with disabilities.
4. Ensure the stability of ground surfaces under and around canopies and must be non-slip with materials consistent with the architectural context.
5. Commitment to the minimum canopy height to prevent obstacles for long cars and ambulances - minimum 2.5 m maximum 3.0 m, please see Figure 2.29
6. Signs and supporting elements, such as the sign for people with disabilities, must be designed in a way that achieves accessibility for all segments of society.
7. Providing sufficient movement space within the canopy area for wheelchairs, strollers, and mobility aids.
8. Avoid overcrowding the area with many equipment and means.
9. Illuminate the umbrellas adequately in times of low light without glare.
10. Place lighting devices to reduce shadows and ensure safe movement.
11. Comply with accessibility guidelines issued by the King Salman Center for Disability Research.
12. Surveillance cameras should be placed on canopy poles when required by the area or government instructions.
13. Ensure that these structures do not obstruct security systems such as surveillance cameras
14. It is advisable to provide shading on the site as much as possible, taking into consideration possible parking constraints.

NOTE :

Please see the King Salman Center for Disability Research

2.4. Sustainability Requirements

Rationale

Sustainability is important in all aspects of design including the construction of canopy structures, and the local environment, weather and community needs must be considered when designing to ensure the positive impact of canopies.



Figure 2.31: PV-Panel Car Parking Shade Structure



Figure 2.32: Shade Structure made from Recycled Materials



Figure 2.33: Shade coverage made of Prohibited Materials

Requirements

1. Prioritize the use of recycled/recyclable materials in material selection, see Figure 2.32.
2. Choose durable, long-lasting, low-maintenance materials to minimize alternatives.
3. Preferably source building materials locally to minimize carbon footprint.
4. Design shade structures for multiple purposes such as placing photovoltaic panels, see Figure 2.31.
5. Shade structures with photovoltaic panels are permitted in commercial parking lots and must be designed and installed by a qualified person in compliance with regulations and instructions.
6. Enhancing natural airflow in the design of canopies to reduce the need for artificial cooling.
7. Designing canopy structures to be easily dismantled and reassembled to reduce waste.
8. Choosing environmentally friendly and harmless finishes and materials.
9. Harmony of structures with the natural environment and local architectural specifications.
10. Using prefabricated materials as much as possible to reduce on-site waste and energy consumption.
11. Choose materials with high solar reflectance index values to reduce the impact of heat waves.
12. Provide shade for at least 40% of parking spaces.
13. Avoid reflective surfaces such as concrete in parking lots.
14. Consider using demountable shade structures for flexibility.
15. Choose durable and weather-resistant materials such as fabric shades or retractable shades.
16. Ensure easy access for vehicles with appropriate permits.
17. Size canopy structures based on the number and size of vehicles and mobility.
18. Canopy structures materials should be free from noise and light pollution.

2.5. Constructability Requirements

Rationale

The constructability requirements will help ensure that shade structures are constructed effectively, safely, and durably, meeting the needs of users while enhancing the environment in which they are placed. Best practice and local guidelines/regulations in regards to safety, design and Implementation.



Figure 2.34: Cleaning the site after construction is complete



Figure 2.35: Safety Wear :PPE: whilst working on-site



Figure 2.36: Unsafe construction conditions

Requirements

1. Conduct a comprehensive site analysis prior to construction, including understanding soil type, sun direction, wind patterns, and checking any underground utilities or barriers.
2. Ensure that all structures must be able to withstand weather events and strong winds
3. Obtaining all required permits and adhering to the Saudi Building Code and the Saudi Fire Protection Code.
4. Choose sustainable materials that can withstand local climate conditions including UV-resistant choices Violet for effective shading.
5. Giving safety priority by following safety guidelines and using appropriate equipment, please see Figure 2.35 and Figure 2.36.
6. Reducing the environmental impact through waste management, protecting plants, preventing soil erosion, and using environmentally friendly materials as much as possible.
7. Consider hiring specialists and competent companies to create complex designs.
8. The structure must be inspected for defects and a third-party verification process must be undertaken after construction.
9. Use adjustable designs if possible, especially for structures created with moving elements.
10. Maintain records of construction process details, materials, and modifications for future maintenance or repairs.
11. The site must be thoroughly cleaned after construction by removing debris and waste materials, please see Figure 2.34.

2.6. Operations & Maintenance Requirements

Rationale

Shade Structures are long-term solutions to ensure adequate shading facilities above permanent car parking locations. These structures are to ensure safe, efficient and manageable maintenance requirements, which is to be regularly actioned to ensure the longevity of the elements.

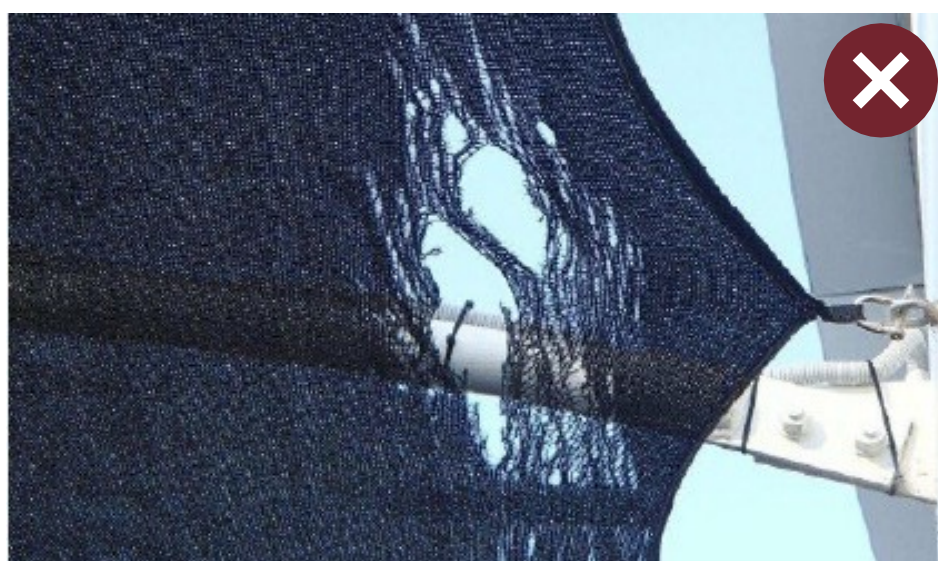


Figure 2.37: Damage to the Fabric Awning Sail



Figure 2.38: Peeling : Rust of the Painted Metal Finish



Figure 2.39: Rust at the Base of the Shade Structure Column

Requirements

1. The joints, bolts, materials, finishes and general integrity of the awning structures should be inspected regularly by a professional inspector.
2. Keep the awning structures clean with soap and water to prolong their life and maintain their appearance, avoiding harsh chemicals.
3. Cover all metal materials with anti-rust paint/paint, see Figure 2.38.
4. Ensure that all screws and nuts in the base are covered with caps.
5. Evaluate the UV protection capacity periodically, especially for materials sensitive to sunlight. Address any damage, even minor problems, immediately to prevent larger problems. When there is doubt about safety, access to the site is restricted until evaluation and repair are carried out.
6. Consider using UV-reducing materials if signs of corrosion appear.
7. Address any damage, even minor problems, immediately to prevent bigger problems. When there is any doubt about safety, restrict access to the site until it is evaluated and repaired.
8. Replace worn parts or sections instead of temporary repairs for long-term structural integrity, see Figure 2.37.
9. Ensure secure installation by checking brackets, screws and fastening systems, see Figure 2.39.
10. Check for nests or insect infestations, especially in natural materials or near trees, and these must be treated by specialists. The stability of the structure is checked after extreme weather events to ensure that there are no signs of structural weakness.
11. Use insect repellent and environmentally friendly materials when needed.
12. Know the expected life of the umbrella structure materials and provide an alternative when nearing the end of their useful life.
13. Monitor physical damage, such as: fading, thinning, and fragility and take the necessary measures to address any of these.
14. The stability of the structure is checked after severe weather phenomena to ensure that there are no signs of structural weakness.
15. Ensure that all metal materials are treated with anti-rust powder coating.
16. Ensure that the slope is appropriately designed to prevent water from accumulating under the umbrellas.

2.7. Softscape Application

2.7.1. Integration of Natural Shading

Due to the lack of sufficient natural shading, this leads to a high degree Earth's surface temperature and planting trees and placing them on sidewalks and parking lots will be one of the most sustainable practices for parking, which can reduce surface temperatures and increase the comfort level for pedestrians in the geographical area. Please see Figure 2.41.

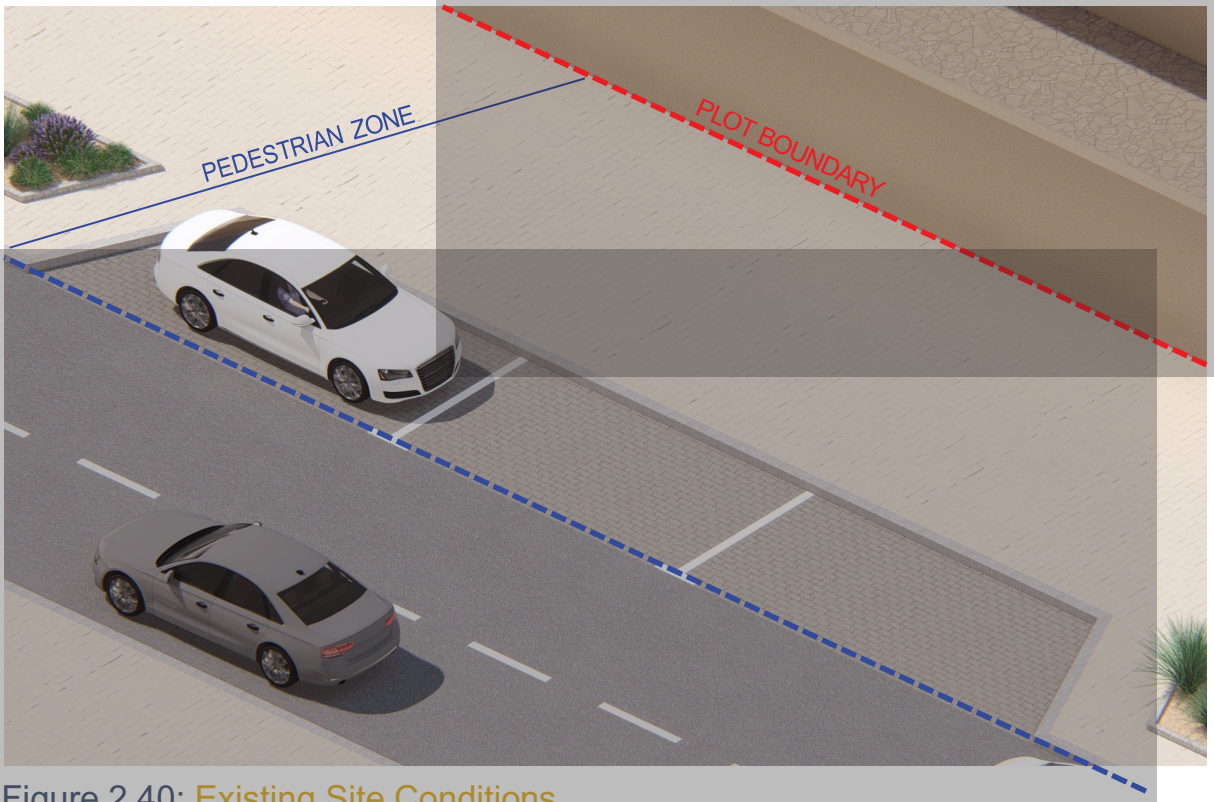


Figure 2.40: Existing Site Conditions



Figure 2.41: Canopy trees offer shade and contribute to reducing the temperature at ground level

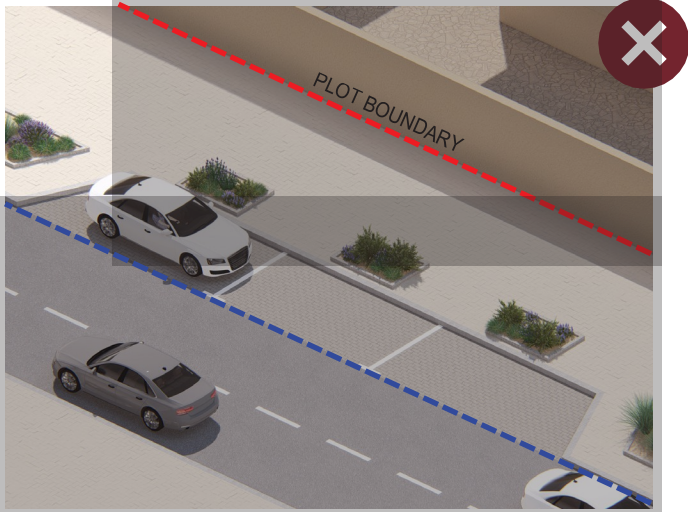


Figure 2.42: Plantings at a low height do not offer shade to the parking area

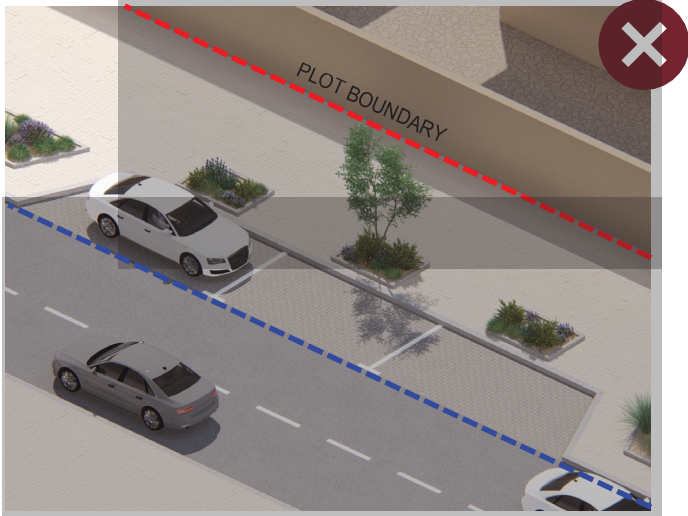


Figure 2.43: Lack of canopy trees

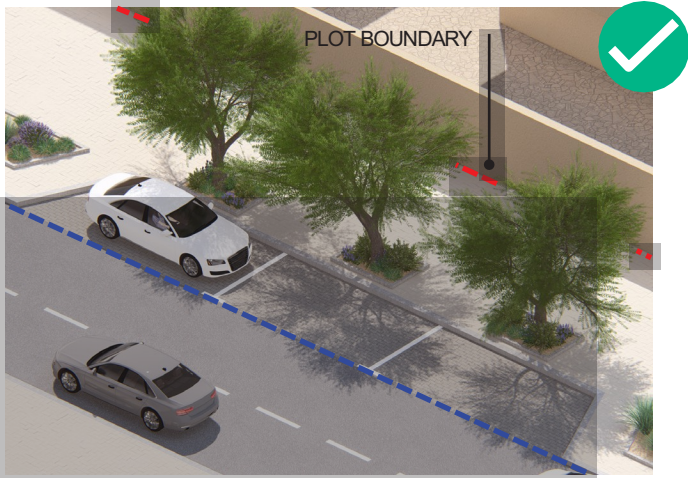
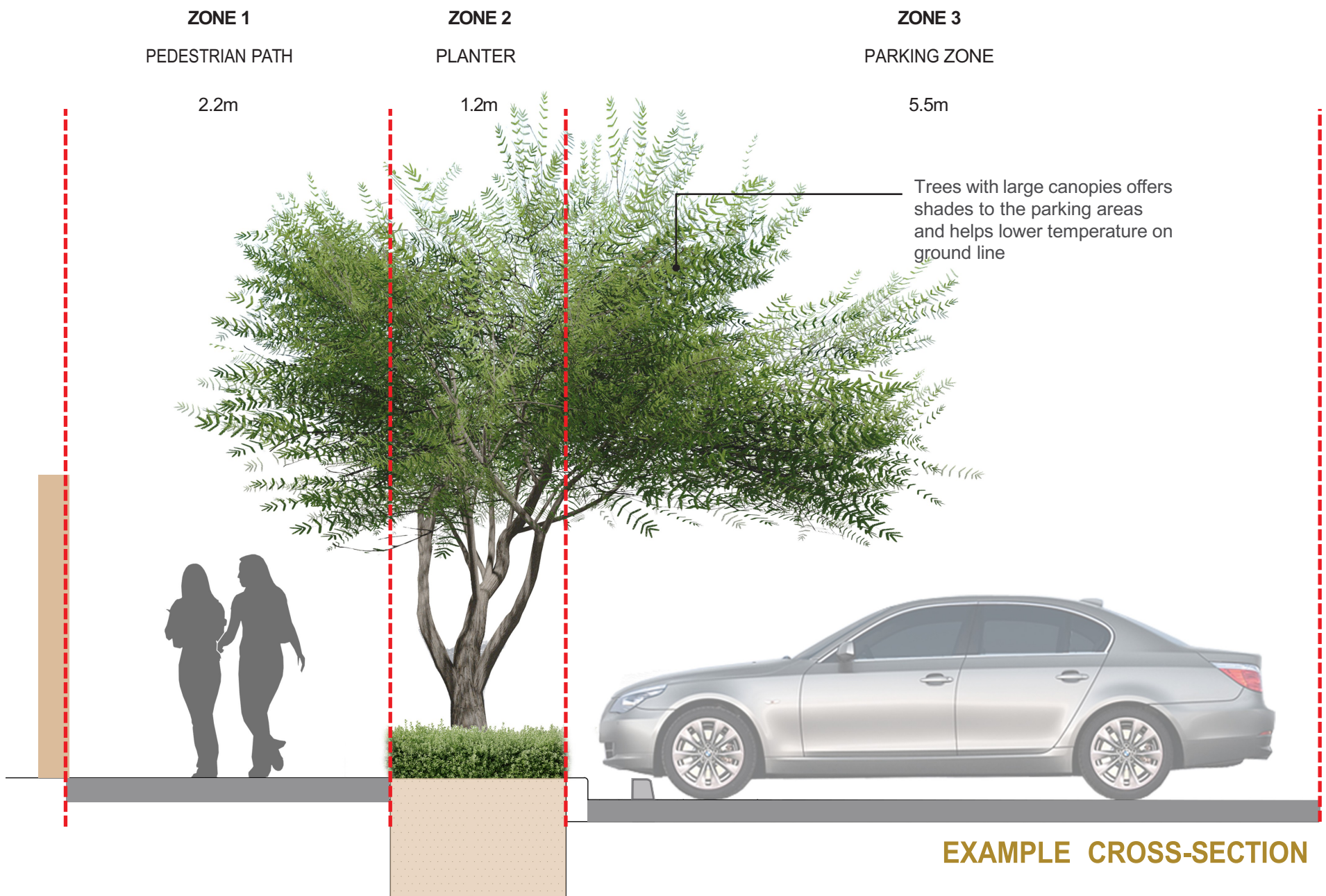


Figure 2.44: Parking zone shaded by large canopy trees.



Requirements

1. Use perennial trees with high specifications to ensure sufficient shade from the first day of implementation. Please see Figure 2.44
2. Use only local trees from the mentioned group to avoid using excess water in the irrigation process.
3. At least one tree should be planted for every 6m on sidewalks and planting beds to provide shade for sidewalks and future parking lots.
4. Trees should be planted taking into consideration underground facilities/passages to ensure adequate root area.
5. Consider the distance of tree locations in relation to other structures

SHADING PLANTS PALETTE [EXAMPLES]



Ziziphus Spina-Christi



Acacia Raddiana



Acacia Gerrardii



Acacia Tortilis



3 - Specific Requirements

The Chapter is subdivided in the following sub sections:

- 3.1 Private (On-Plot) Car Parking
 - 3.1.1 Multi-Story Building
 - 3.1.2 Private Residence
 - 3.1.3 Dedicated Parking Areas



3.1. Private (On-Plot) Car Parking

3.1.1. Multi-Story Buildings

Design guidelines must be followed for canopy structures to be consistent and uniform throughout the geographic range and to avoid contamination.

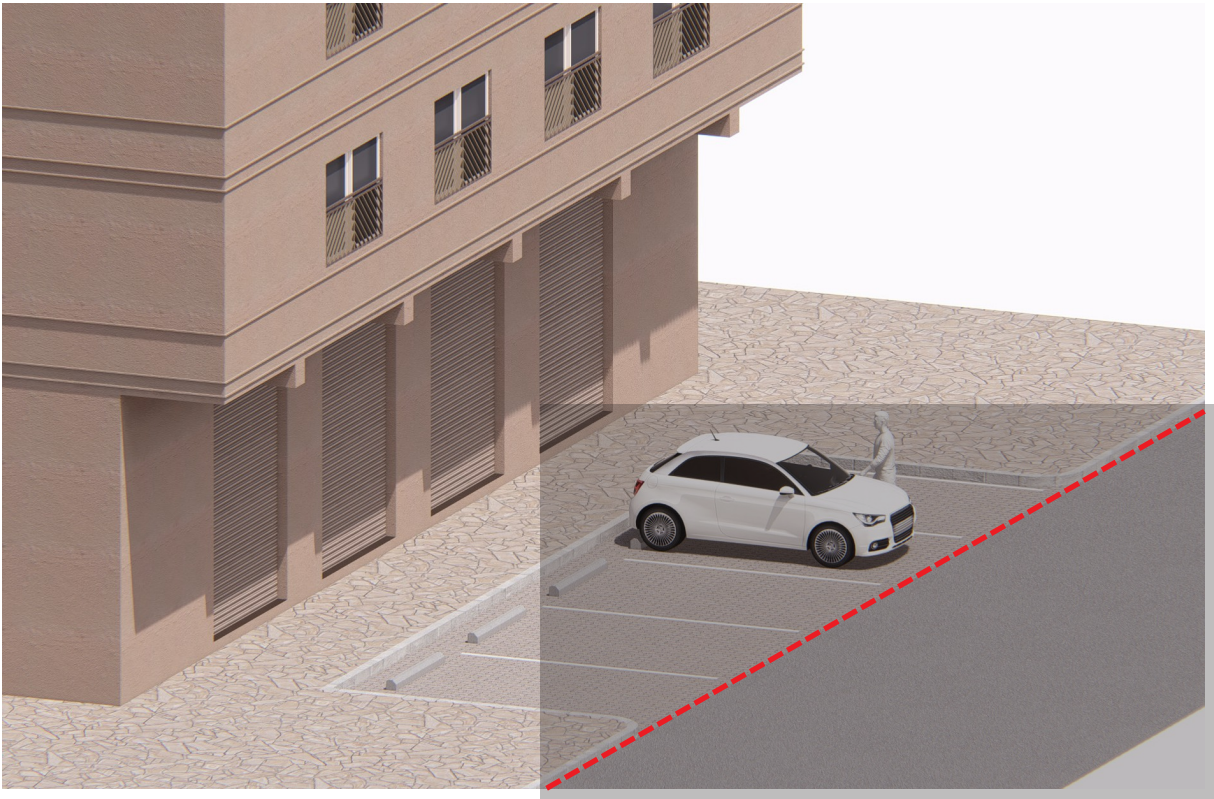


Figure 3.1: Existing Site Conditions

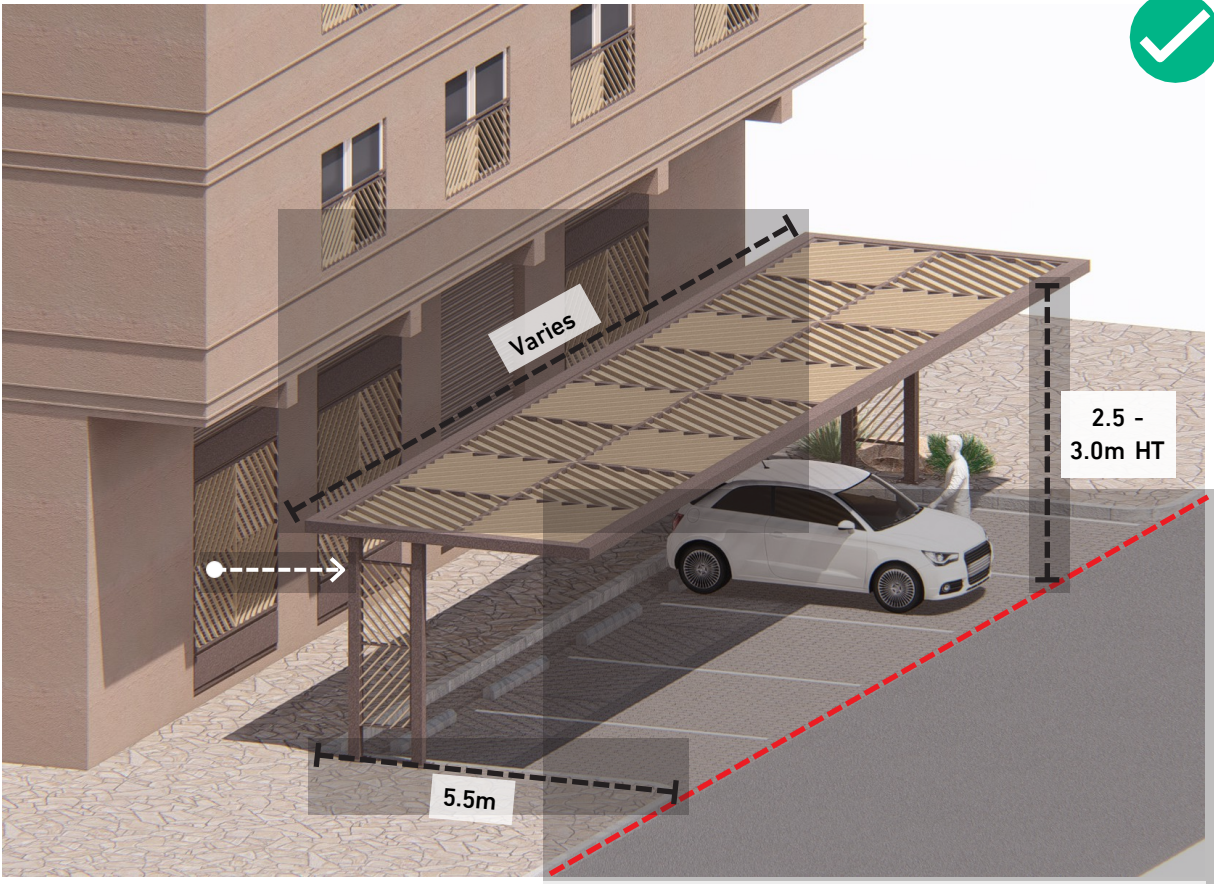


Figure 3.2 Designed in harmony with the architectural style

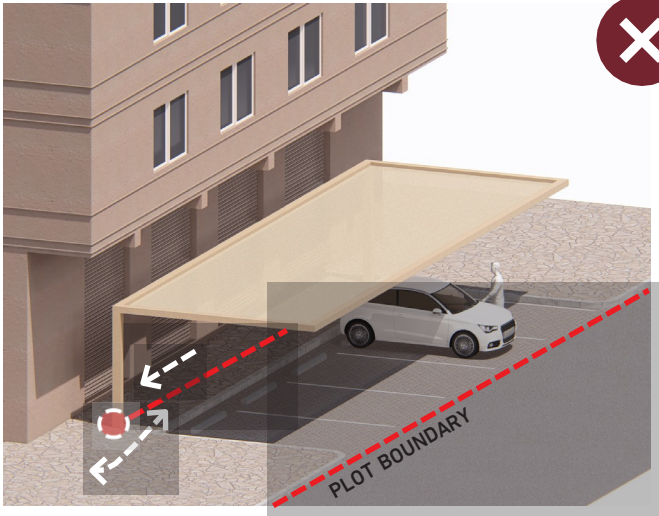


Figure 3.3: Obstructing of footpath flow

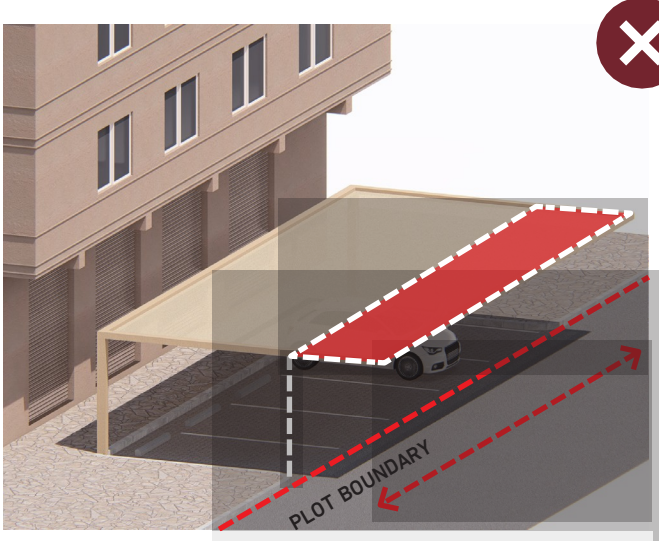


Figure 3.4: Overlapping vehicular zone

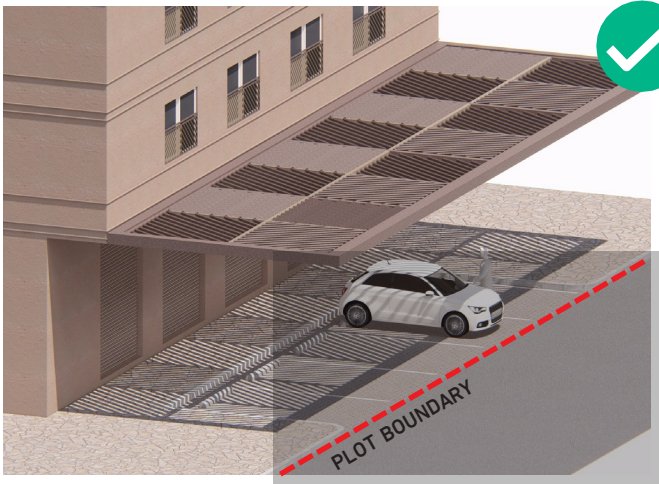
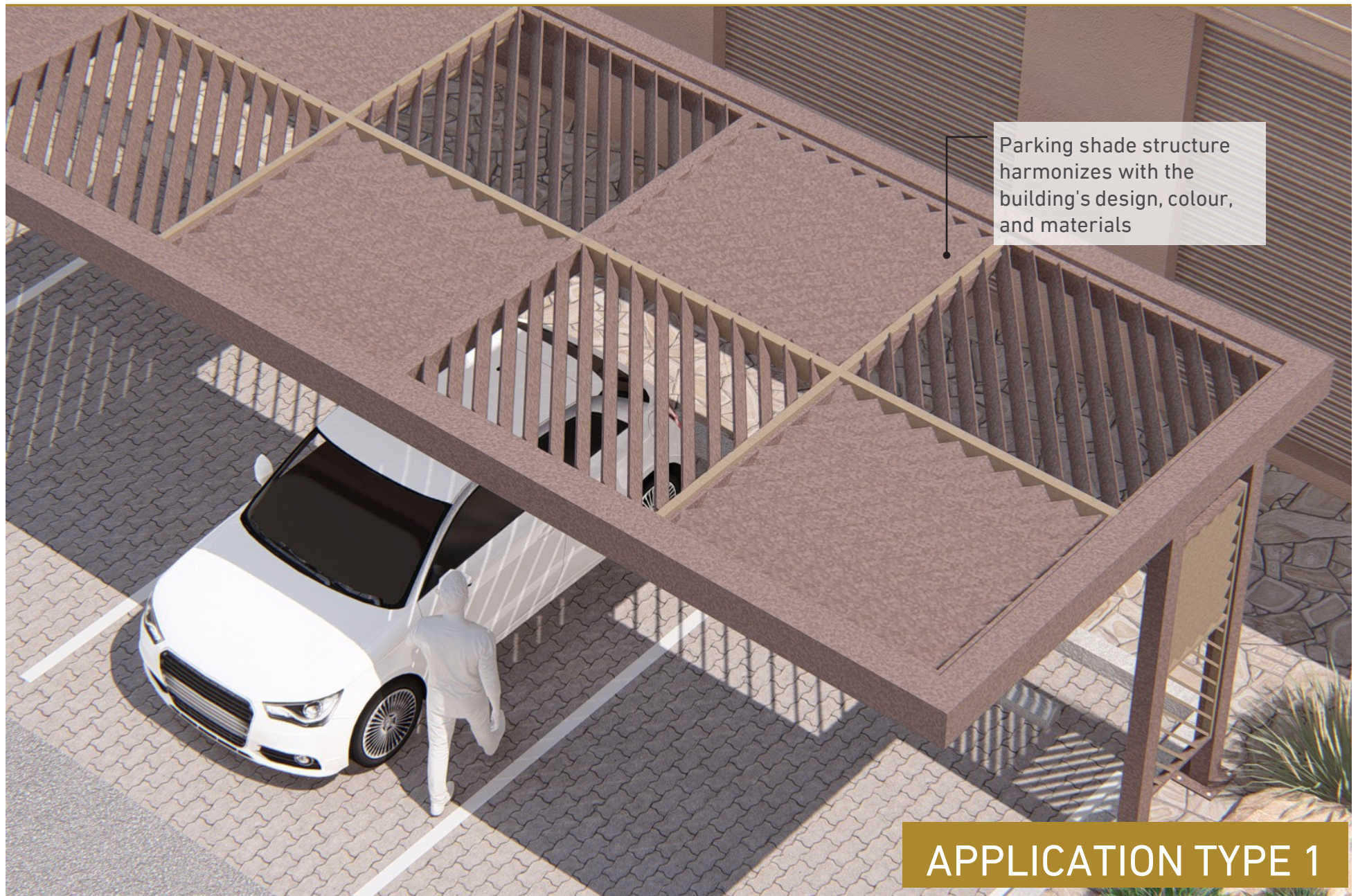


Figure 3.5: Incorporated into the architectural facade while enhancing the design.



Requirements

1. The length of the front setback must be a minimum of 6m.
2. The width of the pedestrian path in the front setback must be a minimum of 2.2 m.
3. The parking area must be paved with interlocking tiles.
4. The difference in the level of sidewalks where the new sidewalk meets the old one must be addressed.

NOTE :

Parking shade designed for implementation in a multi-story urban area

ELEMENTS

Reference Image and Pattern

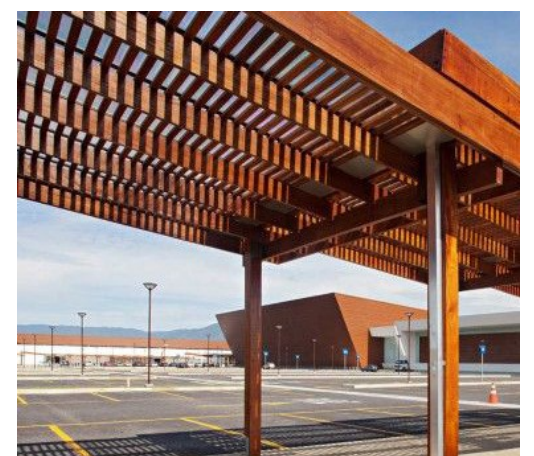


Figure 3.6: Wooden louvers car park shade structure

3.1.2. Private Residences without / with boundary wall

Design guidelines must be followed for canopy structures to be consistent and uniform throughout the geographic range and to avoid contamination.

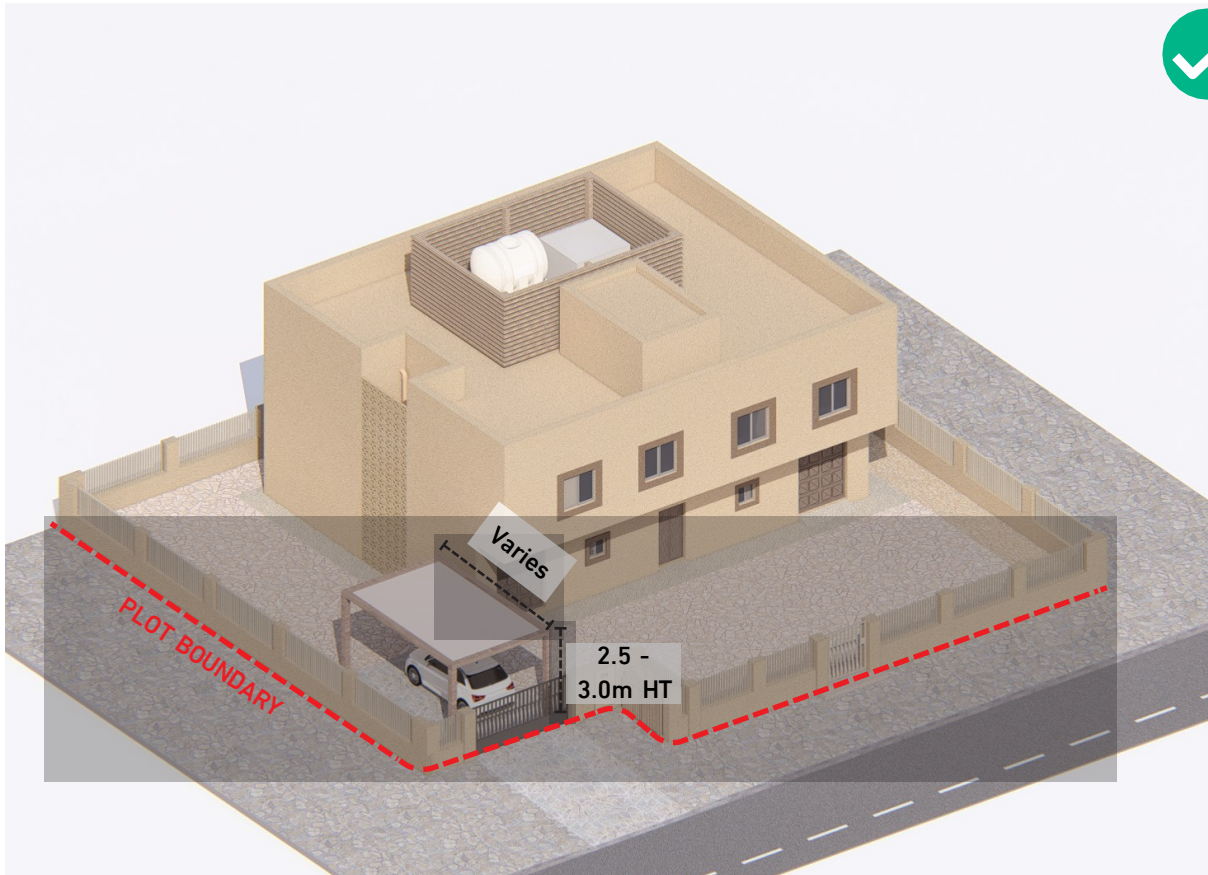


Figure 3.7: Residential area with a boundary wall that incorporates structures within its limits

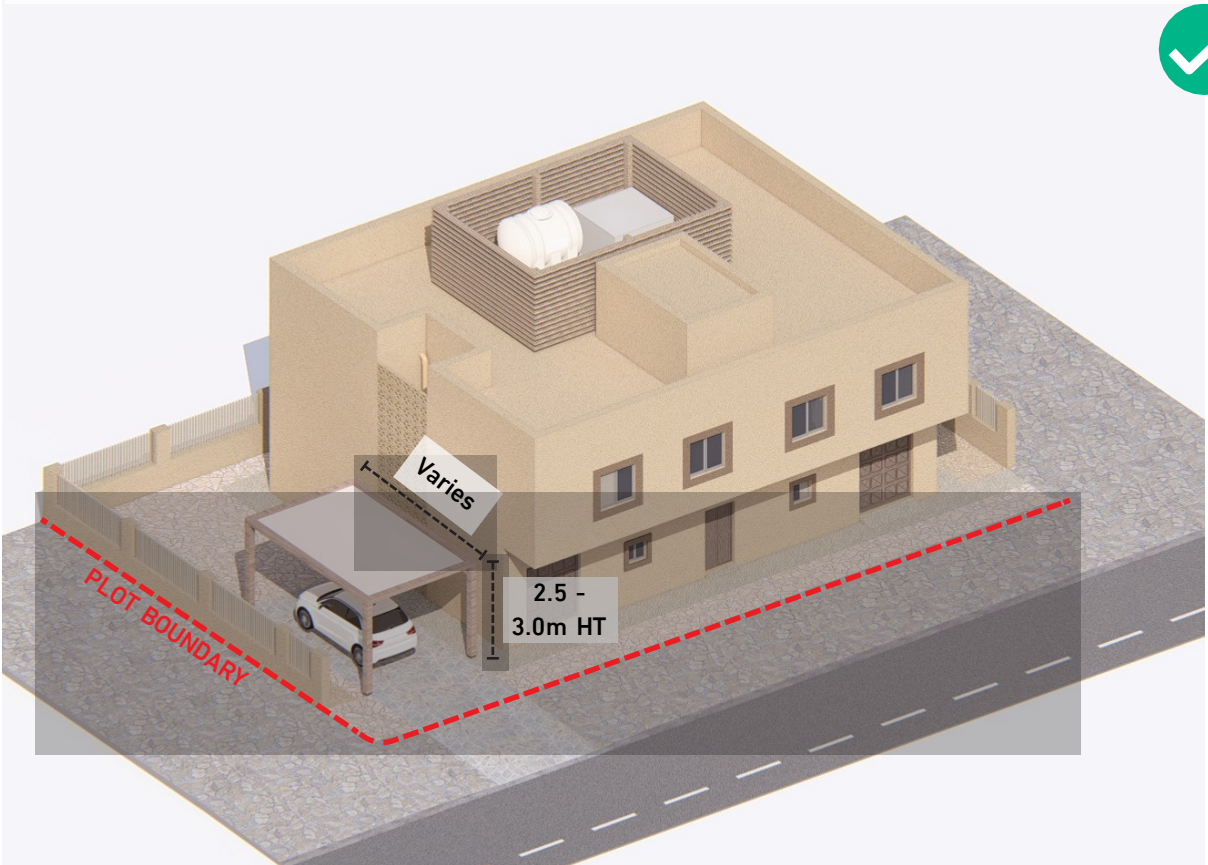


Figure 3.8: Residential area without a boundary wall that incorporates structures within its limits

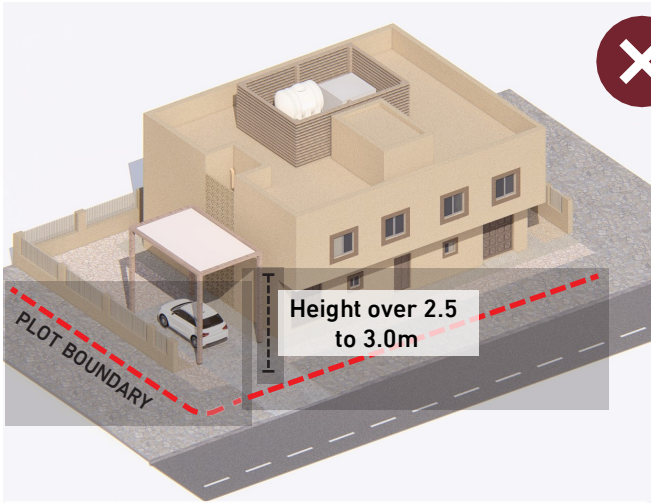


Figure 3.9: Structure exceed height limit extending high above boundary wall

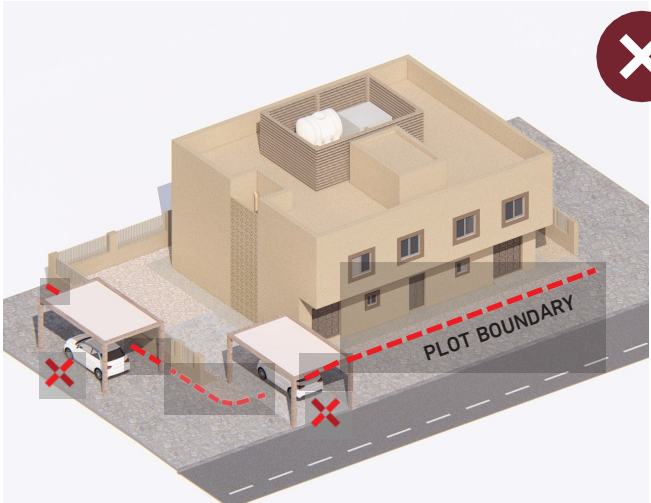


Figure 3.10: Overlap outside of the plot

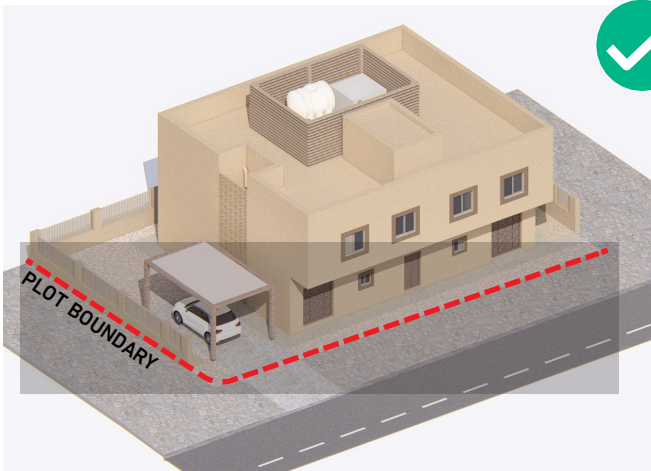


Figure 3.11: Integrated with style of the residence



Requirements

1. Colors and materials must be selected from the custom color palette described in Section 2.
2. The model of canopy structures with uniform basic dimensions must be adhered to in all residential villas.
3. Do not use the fence as a support for structures in the design of canopies.
4. The coverage of canopy structures should not exceed one piece.

NOTE :

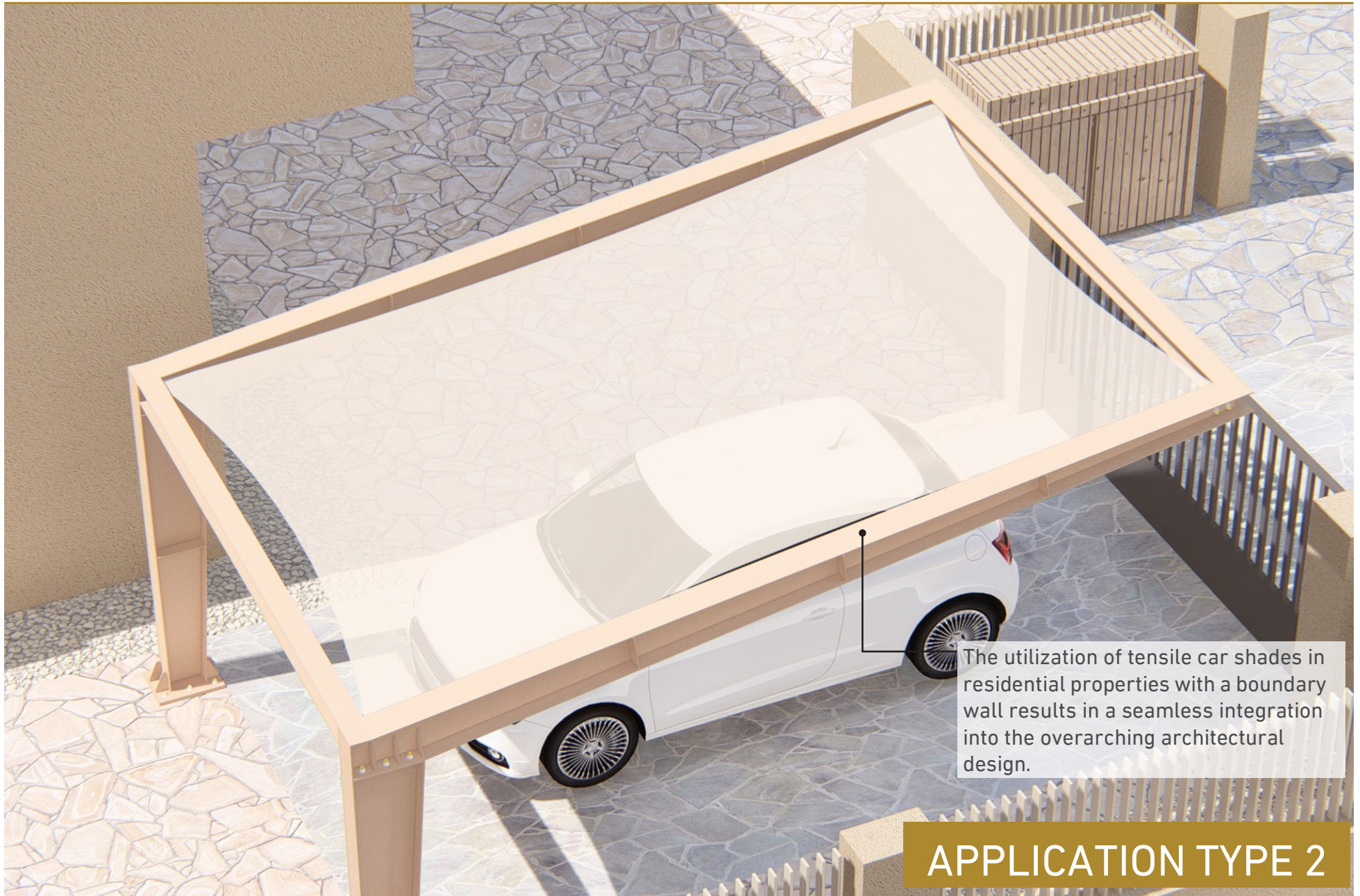
Parking shade designed for implementation in a private residence in an urban area.

ELEMENTS

Reference Image and Pattern



Figure 3.12: Canopy shade of tensile and wooden materials



Requirements

1. The colors and materials shall be selected from the color palette specified in Section 2-2-4.
2. The model of the canopy structures shall be adhered to with the basic dimensions standardized in all residential villas in accordance with Section 2-1-3.
3. The height of the canopy structures shall not extend above the fence.
4. The coverage of the canopy structures on the plot shall not exceed 20% of the plot itself.

NOTE :

Parking shade designed for implementation in a private residence in an urban area.

ELEMENTS

Reference Image and Pattern



Figure 3.13: Tensile shading

3.1.3. Dedicated Parking-Areas

The shapes of current canopy structures vary, in terms of materials and colors, and instructions must be followed for designated parking lots so that the canopy structures are consistent and uniform throughout the geographic scope, to achieve a better visual aesthetic, and to ensure public safety.

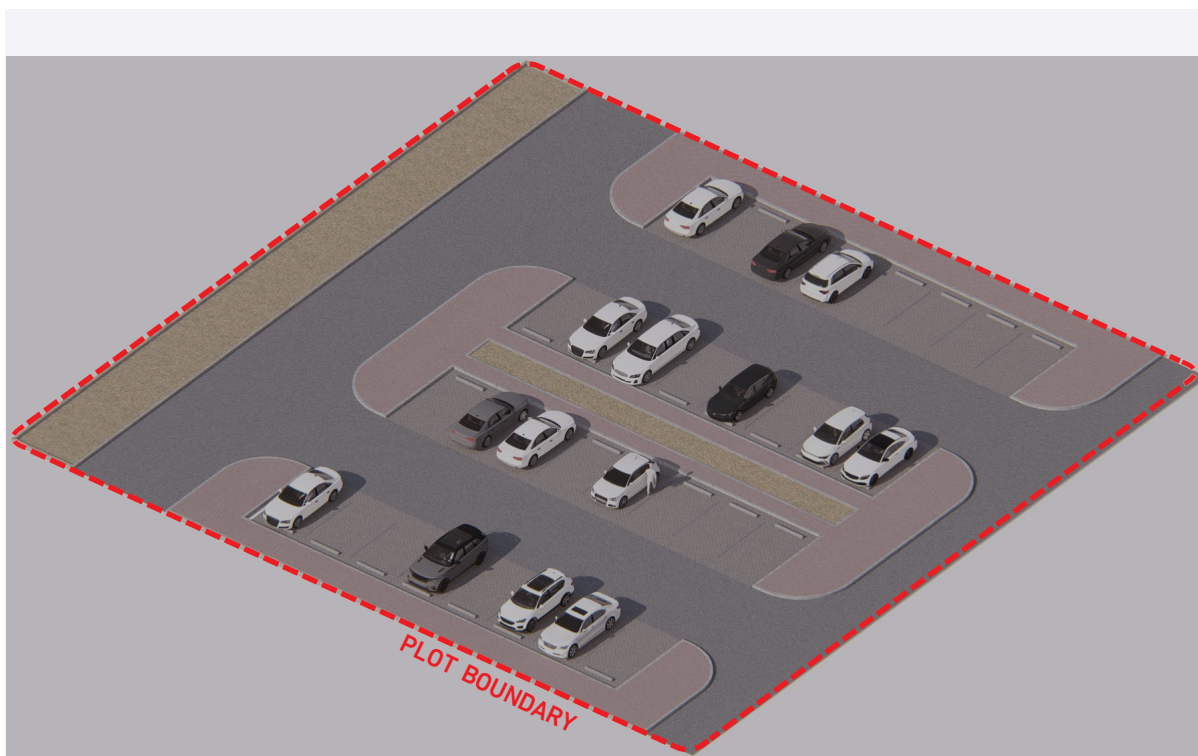


Figure 3.14: Existing Site Conditions



Figure 3.15: Incorporating softscape and shade structure elements

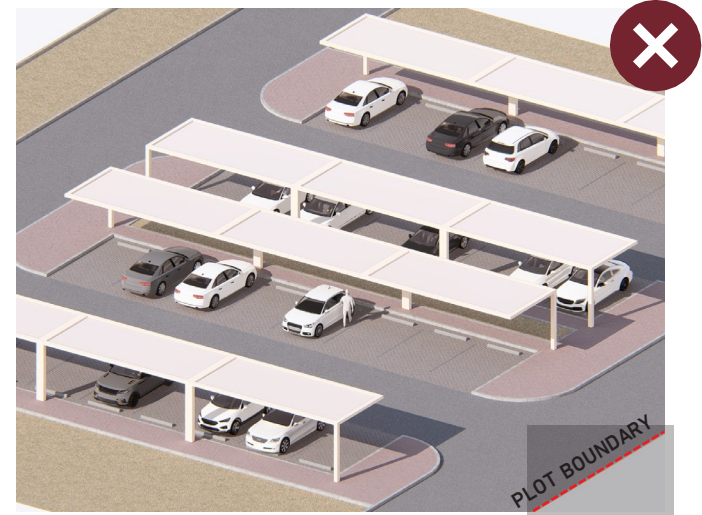


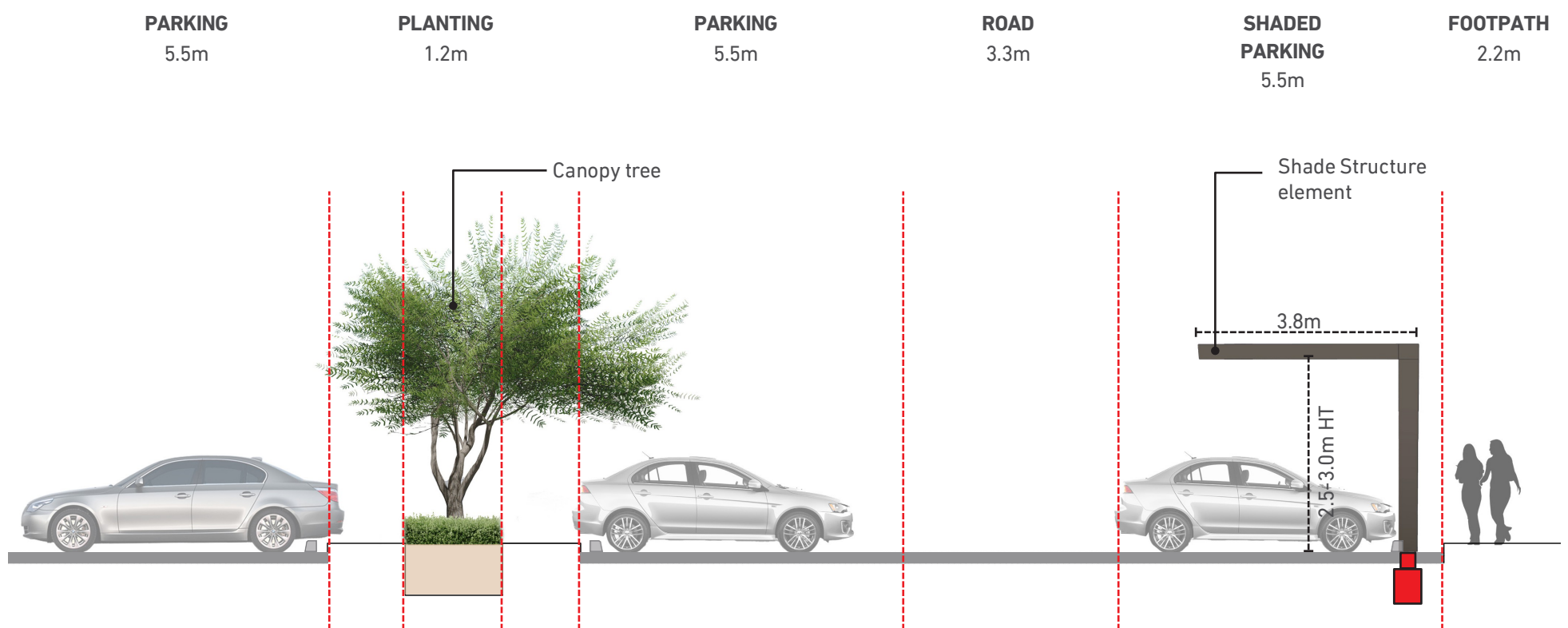
Figure 3.16: Avoid full coverage with shade structure



Figure 3.17: Avoid to be fully unshaded



Figure 3.18: Balance approach of softscape and shade structure



EXAMPLE CROSS-SECTION

Requirements

1. Parking must be provided for people with disabilities at all entrances.
2. Ramps and handrails must be provided for easy access to parking lots for people with special needs.
3. The roofs of canopy structures must be integrated with the design of the surrounding area and must be consistent with it without obscuring the landscape around it.
4. Canopy structures should be avoided as the only option in areas designated for parking, and a balance approach between natural elements and canopy structures should be applied.
5. Ensure alignment between general guidelines and public domain guidelines.
6. Ramps must be allocated to facilitate accessibility for people with special needs in parking lots, in addition to awnings.

NOTE :

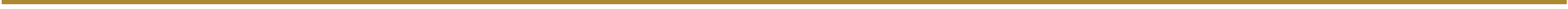
Refer to Chapter 2, Section 2.7 - Softscape Application for Plant Palette

ELEMENTS

Reference Image



Figure 3.19: Harmony of the softscape and shade structure







4 - Design Application Scenarios

The Chapter is subdivided in the following sub sections:

- 4.1 Design Scenario - 1
- 4.2 Design Scenario - 2
- 4.3 Design Scenario - 3

4.1. Design Scenario - 1

4.1.1. Application within Building Car Park

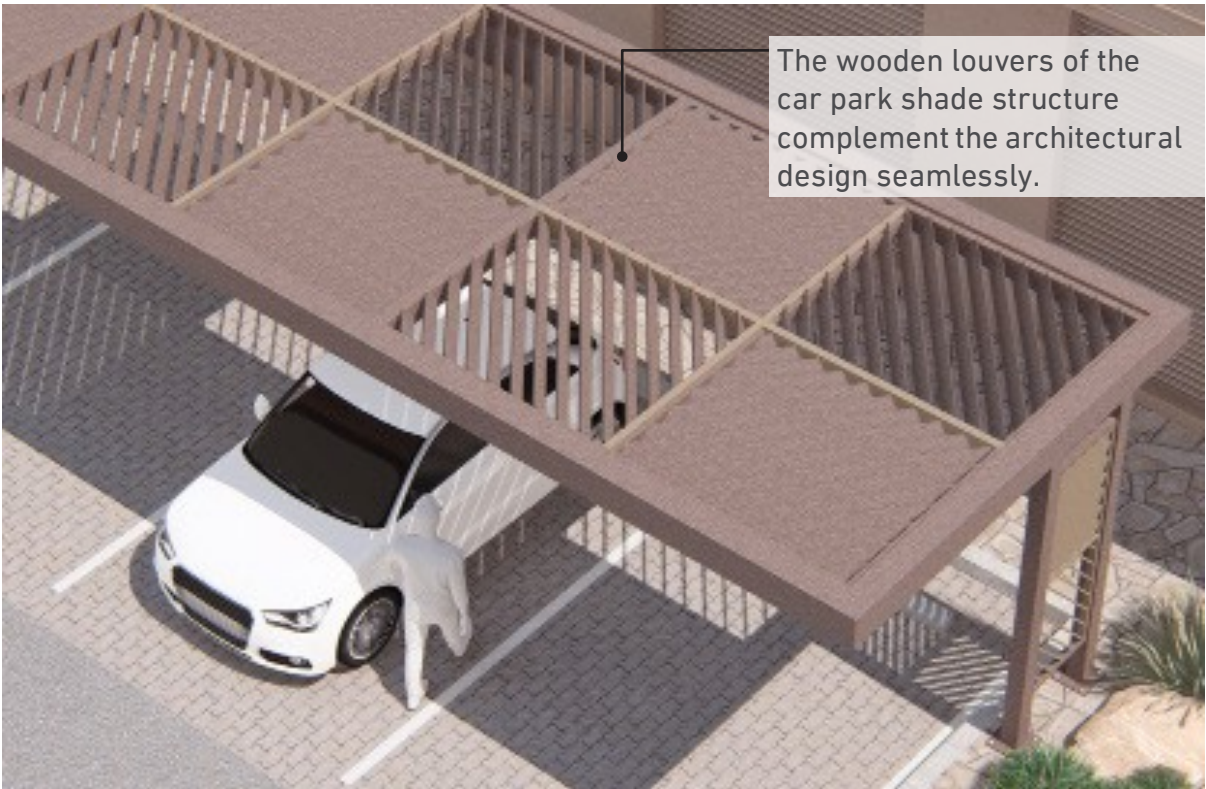
Design Proposal Explanation

Design implementation of a prefabricated canopy frame model. This type is characterized by quick on-site installation and easy use of painted steel bars and wooden panels. Please see Section 5-2 Construction Instructions.

Design Application

- 1. Remove any obstructions in the designated area and check the underground utilities on site to avoid any interference.
- 2. Obtaining any necessary permits or approvals from local authorities.

- 3. Digging holes for the foundation of the foundations and pouring concrete on them to provide a stable base for the steel columns.
- 4. Lifting steel columns and beams painted according to the structural design and color finishes approved by the main group Figure. 4.1
- 5. All finished materials are treated with protective materials to enhance sustainability and weather resistance.



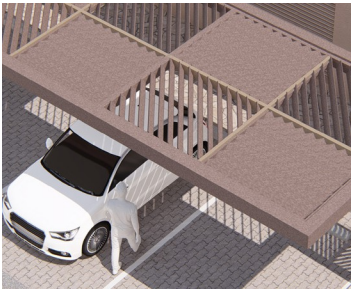
Galvanised Steel Post
Finish : Powder Coated Steel
Colour : Beige



Wood Panel
Finish : Wooden Coated Steel
Colour : Brown



Concrete
Finish : Grey
Colour : Trowel



Wooden Louvers
Finish : Natural Wood
Colour : Brown

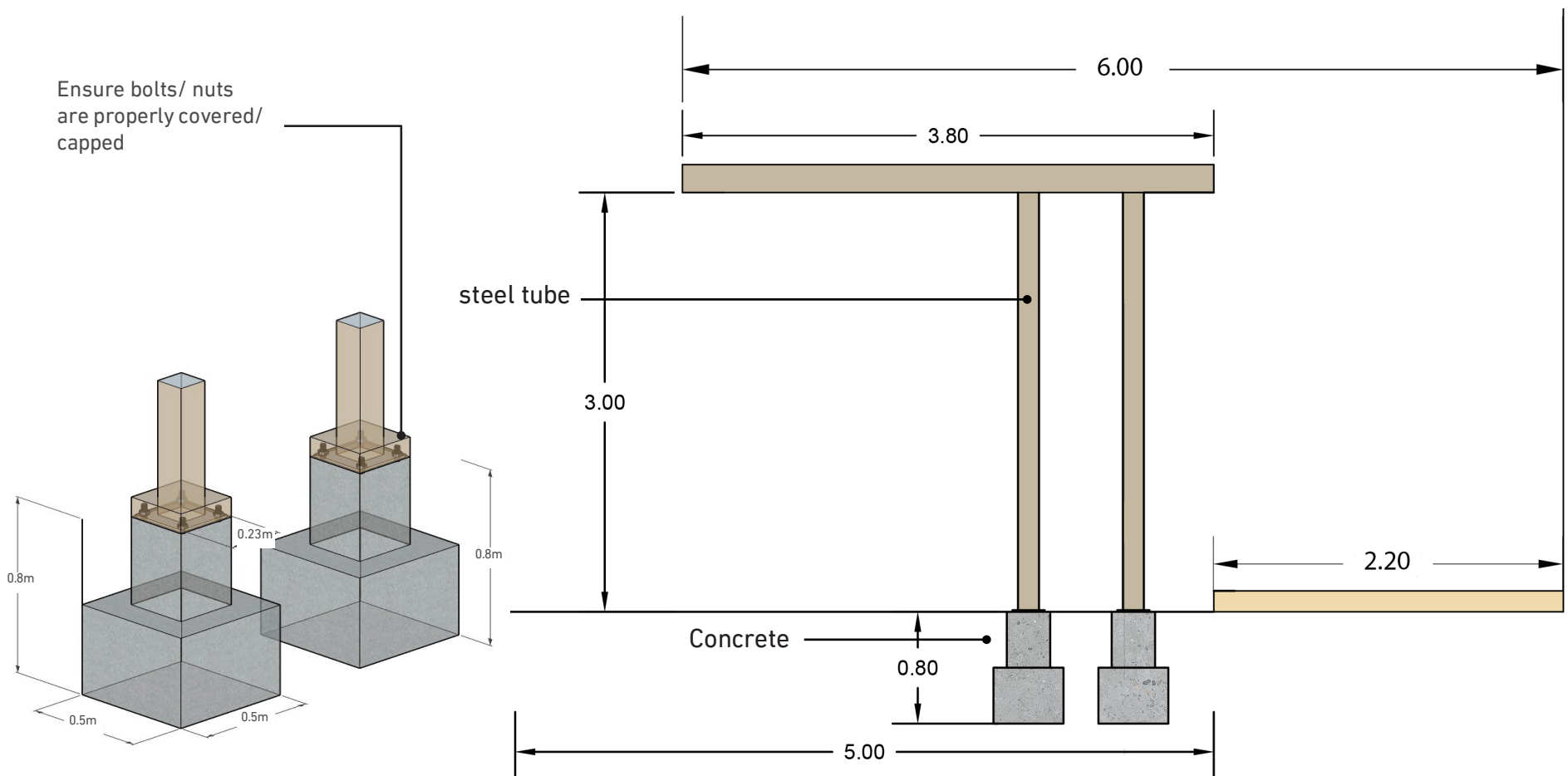


Figure 4.1: Wooden Panel Shade structure for Building Car Park Section

4.2. Design Scenario - 2

4.2.1. Application within Private Residence with Boundary Wall

Design Proposal Explanation

Implementation of the design for a model of prefabricated canopy structures. This type is characterized by quick installation on site and the ease of using tensile structures and UV-resistant roofs. Please see Section 5-2 Instructions for Possibility of Construction.

Design Application

1. Remove any obstructions in the designated area and check the underground utilities on site to avoid any interference.
2. Obtaining any necessary permits or approvals from local authorities.
3. Installation of anchor plates, bases or foundation points based on design requirements and engineers' recommendations.
4. Lifting essential structural elements, such as: painted steel columns with color finishes approved by the main group Fig. 4.2
5. Apply tension to fabric membranes over support structures to achieve desired shape and shading.
6. Use fixtures and tensioning systems to attach the fabric to support structures, ensuring the fabric is securely

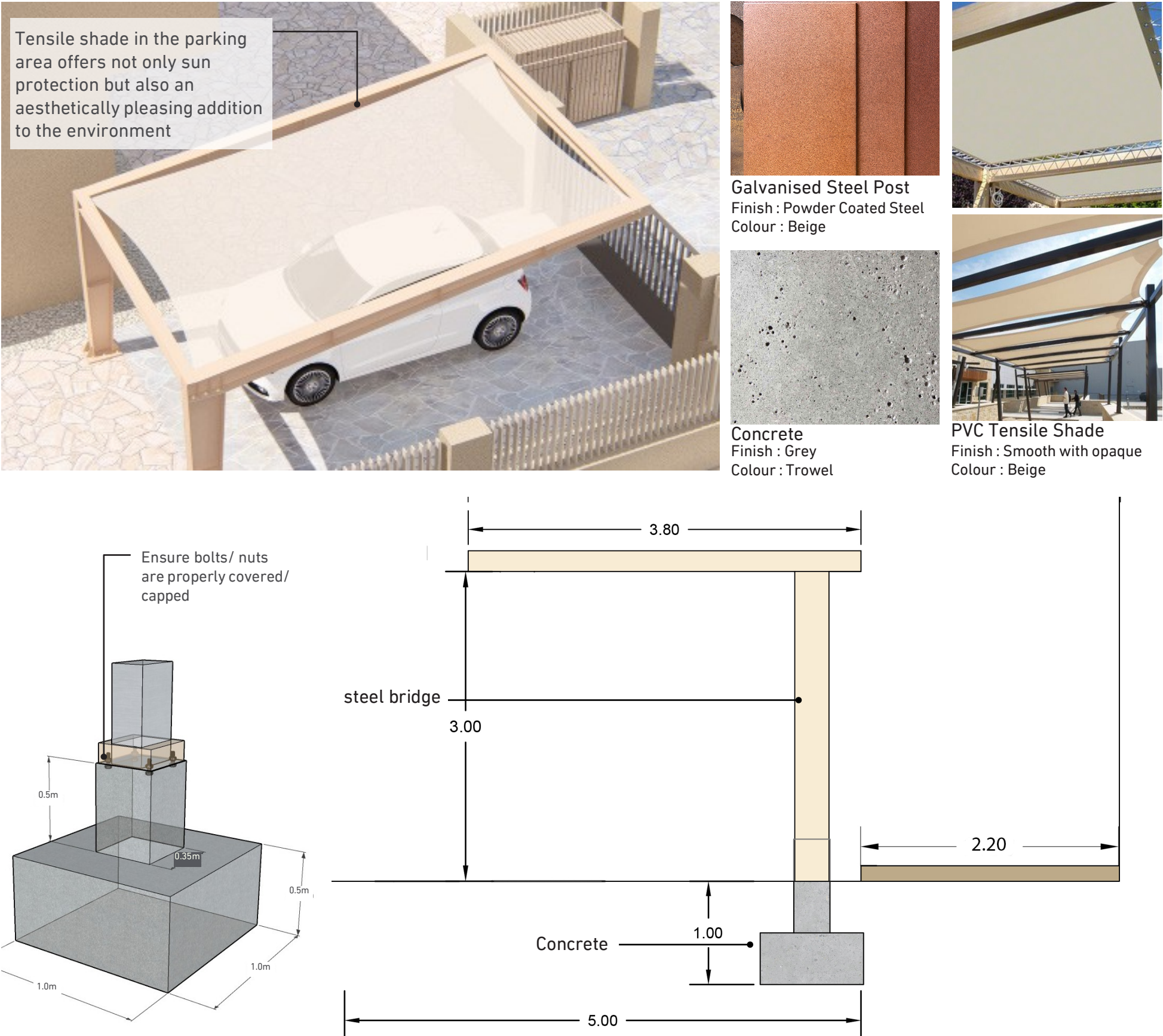


Figure 4.2: PVC Tensile Shade structure for Private Residence with Boundary Wall Section

4.3. Design Scenario - 3

4.3.1. Application within a Dedicated Car Parking Plot

Design Proposal Explanation

Implementation of the design for a model of prefabricated canopy structures. This type is characterized by quick installation on site and the ease of using steel bars covered by wood and UV-resistant roofs. Please see Section 5-2 Construction Possibility Instructions.

Design Application

1. Remove any obstructions in the designated area and check the underground utilities on site to avoid any interference.
2. Obtaining any necessary permits or approvals from the local authorities.
3. Digging holes for the foundation of the foundations and pouring concrete on them to provide a stable base for the steel columns.
4. Installation of steel columns and beams according to the structural design and with an acceptable color finish from the main panel, Figure 3.4.
5. Install wood panels on a steel frame using appropriate fasteners.
6. All finished materials are treated with protective materials to enhance sustainability and weather resistance.



Figure 4.3: Wooden and Tensile Shade structure for Dedicated Car Parking Plot Section

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