# Modular Old Town Documentation

Hello,

After a long production process, we are delighted to present the Modular Old Town Asset package to you! This documentation has been prepared to provide you with all the details on the correct use of the package. If you cannot find answers to your questions through this documentation, please feel free to contact us. Assisting you in your game development process brings us joy.

Best regards, CropCraft Studios Team 😊

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# User Guide

The general structure of the package aims to create building structures by taking inspiration from the designs of old towns in the Mediterranean region. Each modular component is named with expressions like 1m-2m-3m for easy use.

Some limitations of the package are as follows: Modular pieces are provided to produce specific building shapes: Square, Rectangle, U shape, and O shape. While the long side of the building can be of any desired length, the short side must be completed using 2m or 3m walls. When constructing a modular structure, <u>it is important to complete the short side of the structure with 2 or 3m walls.</u>
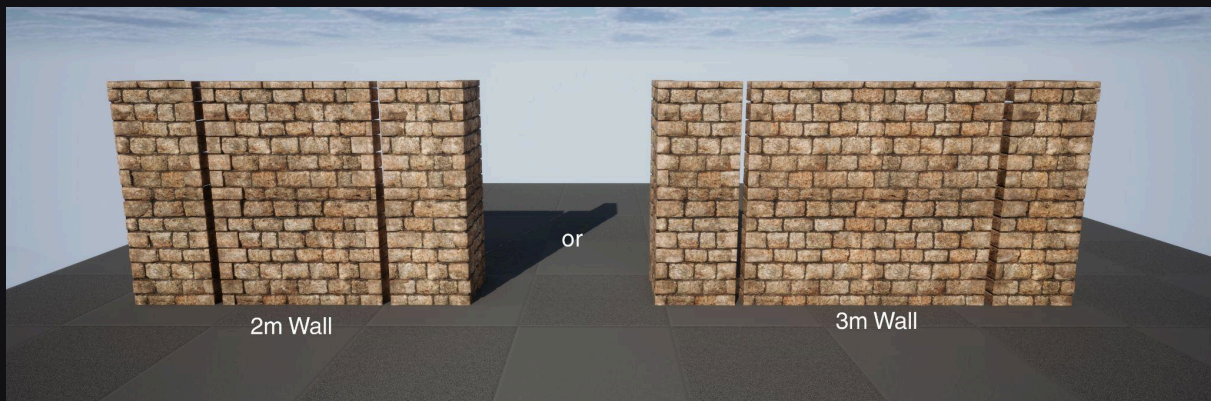


There is no restriction on the number of floors; however, the modular staircase components in the package are designed with outdoor environments in mind. Therefore, if you are creating an enterable building, it is recommended not to use more than the 2nd floor. Using more than the 2nd floor can complicate access to other floors due to the absence of a designed staircase structure.

The package is not suitable for creating attic floors.

Among the parts that require attention, you will find similar models in the Ground folder. These models are crucial for utilizing the interior of the constructed building. Each wall structure comes with its floor, but you need to separately place the ceiling. Ceiling pieces are the most challenging to place, considering the complexity of the modular structure. It's important not to forget to rotate ceiling pieces in the correct direction when placing them. For instance,
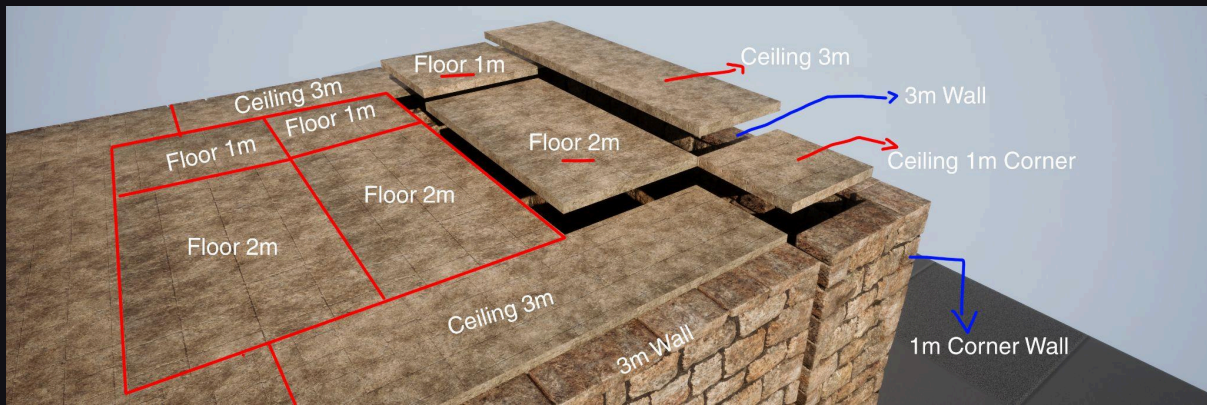
If you want to cover the top of a corner wall with a corner ceiling, the corner ceiling should be rotated in the same direction as the corner wall. You can see the correct examples of ceilings by examining the detailed buildings on the Old_Town map.

Note: Modular building structures are designed entirely based on the Unreal Engine Grid system. Issues may arise when pieces are meant to connect while the grid system is closed.

# Package Included

Package contains 35 modular wall pieces for building construction. These wall pieces are divided into two groups: FlatWalls and FlatStoneWalls.

## Flat Stone Walls

Each stone structure on the walls appears prominently modeled, resulting in a higher triangle count compared to FlatWalls. Despite this, these wall types offer a satisfying visual quality. When used in the construction of the initial floors of a building, they can significantly enhance the visual appeal of your game.

## Flat Walls

These wall types offer high performance and provide more diversity compared to FlatStoneWalls. They can be painted with different textures thanks to seamless UV structures. Decals can be added. Additionally, they include two different window and door types: Wood and Marble.

## Roof Pieces

This package provides you the opportunity to create two different types of roofs: 2-sloped and 4-sloped roofs. There are a total of 16 roof pieces in the package. Regarding the correct use of the roofs, you need to pay attention to the following: The first roof pieces you place on top of the walls must be of the same length as the underlying wall. For example, a 3m wall should have a 3m_edge roof piece placed on it, or a 2m wall should have a 2m_edge roof piece. Roofs ending with ''_Edge'' are the ones that come after the walls and include a wooden roof skeleton. After covering the tops of all walls with the correct roof pieces, you will need to assemble the upper layer of the roof. Here, it's essential to use 2m and 1m pieces, pay attention to corner pieces at corners, and if the short side of your building is 3m, use pieces named 3m_Top.





## Ground

This folder generally consists of ground pieces, including cobblestones, main ground materials, and ceiling pieces. Please do not skip the topics mentioned above regarding the use of ceiling pieces.

The Floor piece has been used for various purposes in different areas of the package. Besides its use as a ground piece, you can also use it as a concrete material between stone walls by changing its material instance for decal

purposes. Two different instances, Floor_1m_Decal_Dark and Floor_1m_Decal_Light, have been prepared for these situations. This usage enhances the appearance of older and worn-out stone walls, adding diversity to the overall visual.

### Decoration Parts

The decoration section includes objects aimed at adding variety to buildings. Among these objects, special attention should be paid to the Great Balconies. These objects share the same dimensions as 3m walls, and you can place a Great Balcony in place of any 3m wall in the building. They are available for both interior and exterior structures. Additionally, the Exterior Column mesh serves as a complementary feature, and the 3m_Arch piece, found among the FlatStoneWalls parts, is supported by Exterior Columns. You can find the correct example in the Old_Town map.

### Props

The props in the package are entirely designed with outdoor environments in mind. Various marketplace objects, shutters, types of chairs and tables, and door models are found in this folder. When used correctly, they will assist you in creating the best outdoor environments.

### Rocks,Cliffs,Vegetation

The Mediterranean region, featuring steep mountains that descend sharply into the sea, inspired the addition of Rocks and Cliffs pieces to the package. These pieces are taken from another package of ours, the Stone Pine Biome package. Using both packages together, you can create stunning Mediterranean landscapes and towns in these regions. Additionally, the plants in the package are suitable only for use within the towns you create. They have a high polygon count and should be used sparingly. When used correctly, they provide excellent visuals without significantly impacting performance.

# Material System

There are a total of 7 master materials. Initially, the number may seem a bit high, but considering the different structures in the package, this is normal. Unreal Engine 5 currently does not allow the use of translucent materials with Nanite Objects, so the Glass material used for windows is prepared to be compatible

with Nanite. We tried to mimic the appearance of glass as much as possible. However, since we couldn't achieve a transparent appearance, unless Unreal Engine releases a new update, it's not possible for the other sides of the windows to be visible.

If you wish, you can cancel Nanite on the object and use transparent Glass material on windows by switching to the classic LOD system. However, this may significantly impact performance. Still, if you choose this route, within our Master Materials, there is a Glass material named M_Glass designed for this purpose. The primary use of this material is for the glass of Lamp Posts. Additionally, the material includes an option called Open Lights. When selected, the lights of Lamp Posts turn on.

## Hard Surface Material

This is the most commonly used material type, providing you with various options. To briefly overview these options:

1. **UV Rotation, Scale, and Offset Settings:** You can adjust the rotation, scale, and offset settings for UV mapping.
2. **Blend Mask Option:** Activating this option allows you to add various stains to the material using an RGB mask file (1 file is available in the package). By choosing from the R-G-B channels, you can apply different stains to the material through the mask color.
3. **Use Detail Normal Option:** When selected, the Detail Normal Map tab will open. Here, you can add a Normal Map and adjust its size using the Detail Normal UV Scale to add extra detail to the material.
4. **Additional Color Adjustments:** Extra color adjustments such as Color Overlay, Desaturation, and Brightness are also available.
5. **Wetness Mask Option:** This option, when selected, adds extra wetness to the material.
6. **Use Moss Option:** If you choose this option, detailed Moss settings will appear, allowing you to cover the material with moss by configuring the Moss settings.

## Decals Material

This material is designed for the decals included in the package and can also be used for adding extra decals externally. It includes settings such as Opacity, Brightness, Normal Strength, UV size, as well as Color Blend and UV Offset. Additionally, there is an option called Opacity Mask Basecolor Alpha. When

selected, this option makes the Opacity Mask map work from the Alpha of the Basecolor map.

### FlatStones Material

This material is specifically designed for Flat Stones, so it doesn't provide as many options as the Hardsurface Material. It includes settings such as Brightness, Normal Strength, and UV Scale. Additionally, there is an option to add Moss. What sets this material apart from others is the ability to add an Overlay Texture. This feature allows for the addition of extra color depending on the position of the Overlay Texture mesh. With this capability, FlatStone Walls break away from uniformity and capture different color tones based on their positions.

### TriplanarUVs Material

This material, covering the stones at the points where FlatStone Walls merge, uses classic triplanar UVs. This is because the key stones that ensure the connection on each wall piece differ. Instead of using dozens of texture maps for these stones of varying sizes, the triplanar UV option is employed. It includes features like Blend Mask, Brightness, Color Overlay, Normal Strength, UV Scale, Moss, similar to other materials.

### Glass and Nanite Glass

The primary difference between these two materials is the material structure, as mentioned above. Glass Material is a classic translucent glass material. In addition to the classic settings of any glass material, it offers an option called Open Lights. This option causes an emissive burst and makes the lights of Lamp Posts appear as if they are turned on.

Nanite Glass, on the other hand, is designed to be the closest material to real glass. It includes a tab where you can add an HDR. This HDR is used to mimic glass reflections.

### Vegetation Material

This is CropCraft Studios' classic vegetation material. It includes settings such as Brightness, Desaturation, Normal Strength, Roughness, SSS Brightness, and SSS Desaturation. It is designed to represent plants as realistically as possible.

# Technical Details & Recommended Usage

- The package is ideal for Unreal Engine users who aim to develop realistic Mediterranean Town-themed games.
- Various wall materials and different decal structures are used to create two buildings with the same meshes, making them appear as distinct structures.
- This package is designed to create small Mediterranean towns. If your goal is to build large cities, you may need to go for different optimization settings.
- Modular building structures are designed entirely based on the Unreal Engine Grid system. Issues may arise when pieces are meant to connect while the grid system is closed.
- It allows you to create vastly different buildings purely based on your imagination. Remember to create your designs without bypassing the constraints mentioned in the User Guide.
- This package is designed entirely with outdoor spaces in mind. While it allows for indoor construction, creating different designs indoors can be challenging. The package does not include indoor walls and props.

Note: The recommended usage can be subject to change according to your own creativity and objectives during the game development process.

## Triangle counts

- **Lowest triangle count: 2 (Decals)**
- **Highest triangle count: 182,373 (Bougainvillea_02)**
- **Average triangle count: 8700**

Note: All objects in the package utilize Nanite, When using this package with Unreal Engine 5.2 and above, it is strongly recommended to utilize the Nanite and Lumen systems.

https://docs.unrealengine.com/5.0/en-US/lumen-global-illumination-and-reflections-in-unreal-engine/

## Performance

System : Amd Ryzen 7 5800x - 16gb Ram - Nvidia GeForce RTX 3080 - Epic Settings

Old_Town Map 65 - 85 fps
Showcase Map 90 - 120 fps                              to full screen Editor Mode

System : Amd Ryzen 9 7950x - 32gb Ram - Nvidia GeForce RTX 4090 - Epic Settings

Old_Town Map 120 fps
Showcase Map 120 fps                    to full screen Editor Mode


Note: The FPS rates mentioned above are based on the maps prepared for the purpose of accurately presenting the package to you

Old_Town Map 120 fps
Showcase Map 120 fps                    to full screen Editor Mode