LEVEL DESIGN

Principles and Methods

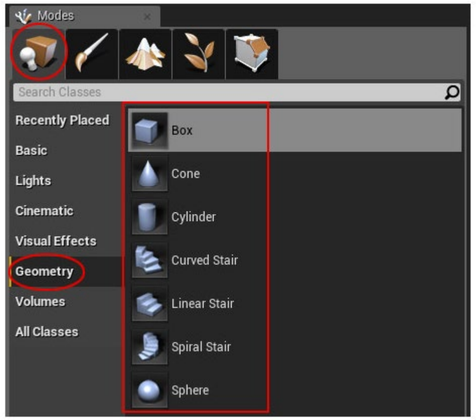
LEVEL DESIGN

The Design Process

Evaluation and Design

When beginning to design a new level, it’s important to step through development methodically. Assess the game you’re developing the level for and identify which game mechanics you can twist and build upon. Evaluate how players see the world and receive information about their surroundings.

- Are there ways that you can develop something unique from this knowledge?
- What kind of gameplay “hooks” could you develop to make the map memorable?
- How should line of sight be factored into your design? Could it be used to encourage close-quarter combat?
- What kind of scale should your map be set in? How does the scale affect player movement and combat?
- Which “rules” in the game can be broken? Which must stay consistent? Be careful when breaking the rules. Make sure you’re never breaking more than one or two at a time until you fully understand the ramifications of breaking them.



WHITE ROOMS

A white room is an environment developed as a simple clean test version of a level that can be quickly tested and iterated that is typically constructed from brushes.

This version of the environment is generally devoid of any aesthetic influence and, in the case of single-player games, often developed in such a way that it can be reappropriated for different points in the game's narrative.

Original white room for the Elemental demo

The final product

Before

The level is blocked out with simple geometry, allowing the level designers to get a feel for the space and make quick iterations if needed.

After

The white room is used as the foundation, with the final detail added in to complete the process.

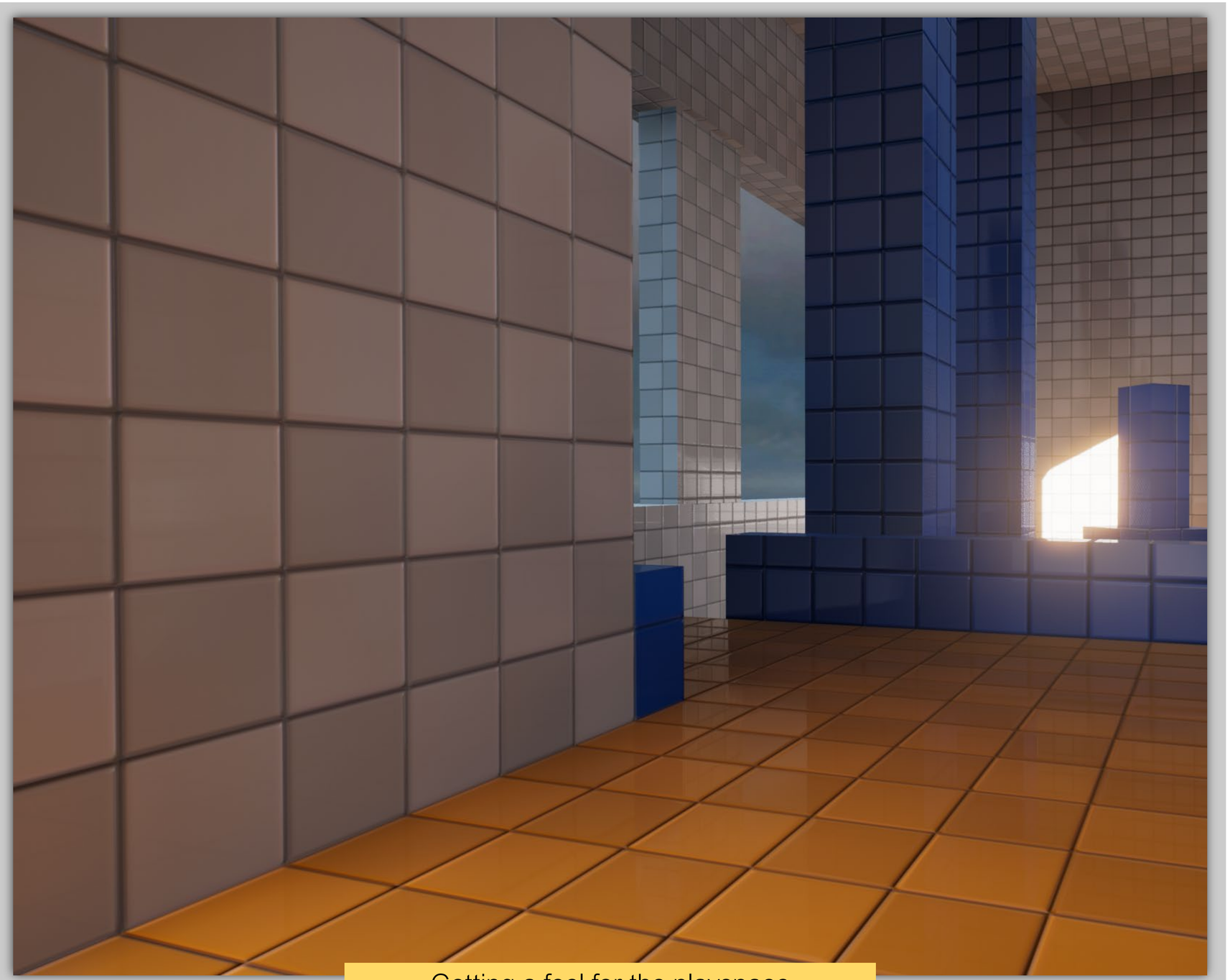
Testing and Iteration

Once a white room is ready for initial testing, a wide range of potential changes need to be made. Following are just a few examples:

- Base-level lighting and coloring will need to be added to guide players through the map. In the final aesthetic pass, similar indicators will also need to be added to the map. Low-level fog is another commonplace addition, as it helps aid in depth perception and environment readability.

- A puzzle or level mechanic that doesn’t “work” in one environment may still be duplicated and reused in another environment.

- Creating multiple versions of a white room for testing in quick succession can be advantageous in comparing slight changes; however, be aware that testers may be exposed to these changes in variable order and inadvertently compromise test data.



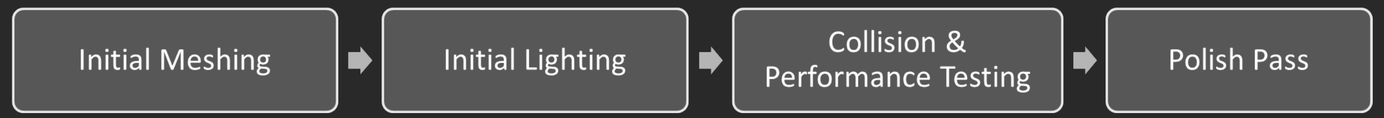
Getting a feel for the playspace

ADVANTAGES OF WHITE-ROOMING

- Allows designers to test spatial environment and gameplay hooks without applying architectural layer
- Allows for quick iteration for play testing and experimental design
- Allows for potentially modular spaces that artists can reappropriate to the section of the game where it’s most appropriate

LEVEL DESIGN

Aesthetics



AESTHETICS:
INITIAL MESHING

After white-rooming has been completed and the level is beyond the primary testing phase, the next thing to do is begin meshing the environment. This process involves adding static meshes to add detail and apply a particular theme to the environment.

Before this phase begins, it’s typical either to have concept art made or to use existing asset kits to develop the look of the map to be consistent with the look of existing levels in the game.

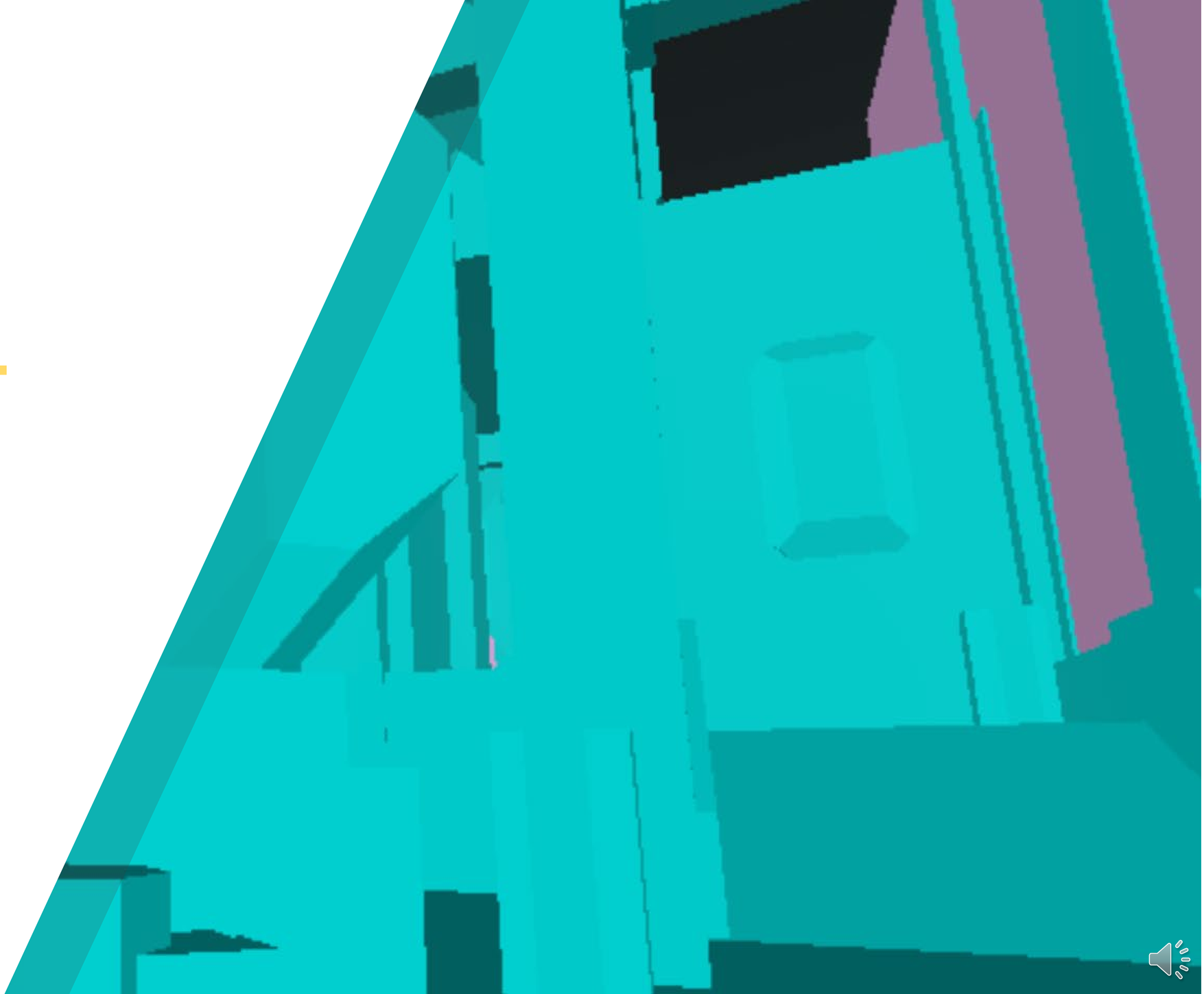
AESTHETICS:
INITIAL LIGHTING

In the lighting pass, the final lights are placed throughout the level. These lights will have their settings tweaked to match the final desired look and feel of the level, rather than simply serving to provide basic illumination. Post process effects are also adjusted at this stage, again to match the final look and feel of the level.

The changes in the lighting and post process effects may mean that changes to the materials applied throughout the level are also necessary. Finally, some particle effects may be added to the level. For instance, if the lighting in a level is done with torches, the particle effects for the torch flames can be added during this pass.

AESTHETICS: COLLISION & PERFORMANCE TESTING

During production of a level, and especially during the final aesthetics phase, it’s important to perform performance profiling and collision testing. It’s common for seemingly innocuous assets to damage performance or block the players intended path through an environment.



AESTHETICS:
POLISH PASS

The polish pass is the point where any finishing touches are added to the level and minor changes are made throughout the environment. Effects, Reflection Capture Actors, and any other final meshes or lighting can be added to the level.

General Tips

The following tips and tricks can help you create great levels:

- Remember your *z* axis (a world doesn't exist on a flat plane), but be aware that some players can find the *z* axis disorientating. A nice in-between is to use catwalks and raised open structures to give the feeling of height but to keep consistent navigation points of reference.
- Visuals aren't just about looking pretty. Large structures and environmental features are instrumental in providing players with obvious landmarks to aid in navigation.
- Wherever possible, try and make your entrances to each area visibly different from their respective exits. It helps keep the player from becoming disoriented.

General Tips

The following tips and tricks can help you create great levels:

- Effects like Volumetric Fog not only look great but also can be used to suggest pathways, pickups, or danger to players.
- Be aware when using assets or effects with high amounts of overhead for any critical roles. You don’t want players with low-specification machines to have problems because they can’t see core visuals.
- Don’t forget audio. It’s easy to remember “important” audio like announcements and explosions, but subtle layering of ambient audio throughout your map can act as player guides, warn of danger, or suggest a much bigger world than what the player can see.
- While games are designed with rules in mind, it’s okay to “twist” the rules to create a unique map as long as you understand which rules you’re twisting, the ramifications of doing so, and *why* you’re twisting a specific rule.

OPEN-WORLD VERSUS LINEAR DESIGN

Depending on the intended play experience, it’s common for development studios to focus on developing open-world experiences over traditional, more linear environments.

In this situation, multiple level designers typically work together to craft an environment that allows for certain play experiences to potentially occur.

Where are players likely to approach from? How much of the world could they have explored before reaching a location? What kind of enemies or hazards should be used to prevent inexperienced players from approaching the area?