1. Level Design 2
1.1 Level Desing Story 2
1.2 Level Design References 4
1.2.1 Floor 00 10
1.2.2 Floor 01 12
1.2.3 Floor 02 14
1.2.4 Floor 03 16
1.2.5 Floor 04 19
1.3 Level Design Diagrams 21
1.4 Level Design Metrics 22
1.5 Level Design Layout/Maps 23
1.5.1 Share a Thon Demo Level Diagram 31
1.6 Level Design Program/Gameplay Features 31
1.7 Level Design Assets 32
1.7.1 Third-party props 32

Level Design

Link to Level Design Document

Search

Expand all Collapse all

Version	Date	Comment
Current Version (v. 13)	**Nov 24, 2022 00:21**	**Tiago Massochin**
v. 12	Nov 24, 2022 00:11	Tiago Massochin
v. 11	Nov 23, 2022 23:49	Tiago Massochin
v. 10	Nov 23, 2022 23:49	Tiago Massochin
v. 9	Nov 23, 2022 23:48	Tiago Massochin
v. 8	Nov 23, 2022 23:39	Tiago Massochin
v. 7	Nov 23, 2022 23:37	Tiago Massochin
v. 6	Nov 22, 2022 13:56	Farryl Chang
v. 5	Nov 22, 2022 13:25	Farryl Chang
v. 4	Nov 22, 2022 12:56	Farryl Chang
v. 3	Oct 05, 2022 20:53	Tiago Massochin
v. 2	Sep 15, 2022 17:58	Joshua Pritchett
v. 1	Sep 15, 2022 00:57	Tiago Massochin

Level Desing Story

Environment

- Environment
  - Advanced Human Technology
  - An Unknown Alphabet
  - Monstrous Escapees
  - The Victims of the Raid
- Setting
  - Abandoned Facility
- Characters
  - Data
  - Surge
- Features
  - Central Pillar
  - Sefornal Logo
- Objects
  - Circuits
  - Panels
- Themes
  - Electricity
  - Machinery

Advanced Human Technology

The level takes place within a hidden facility owned by the Sefornal corporation. Within this facility they tested advanced technologies and mysterious anomalies on human test subjects. Because of this the player will pass by the remnants of the facilities super structure which surrounds a large column with moving platforms.

Machines and remnants that look unfamiliar to the player will be encountered, which would have served the facility in some way when it was functional.

An Unknown Alphabet

The Devoted are a race of humans that Sefornal hid from the outside world since their introduction to the first colonies of the western world. Because they had been separated from the world, they developed their own alphabet and continued to use it after they were discovered. Later Sefornal found a way for them to speak English, and introduced the numerical symbols we know, while still allowing them to use the lexicon they' re familiar with. This alien alphabet is used on all the symbols, labels, and maps of the facility.

The alphabet is made up of simple shapes and lines that connect in repeating patterns. The use of shapes is limited to squares, circles, and triangles except in the instance of a written name. Names commonly have their own unique shapes with minor variations that family members share in place of a last name.

Monstrous Escapees

The environment is likely marked by previous conflicts, events and combat that took place during the raid. Some of the most dangerous test subjects have left behind bloody stains in corridors, large gashes in the metal or destroyed some pathways throughout the facility.

The Victims of the Raid

After the military raid of the facility, no one came to retrieve the bodies of the soldiers or the Devoted that died. It has been a little over 6 years since the raid, meaning that any bodies that are found in the level are heavily decayed or have become skeletons at this point.

Setting

Abandoned Facility

This once lively testing facility and underground civilization is now dead and abandoned. The facility is still serviced by the remaining Accicorpus constructs that have managed to survive in the absence of other living creatures. Power to the facility still runs off Surge while he is connected in his holding cell. After Data retrieves him from his prison, the facility goes dead and shuts off all the systems that would allow for easy escape.

The level is dark and the sounds of the remaining creatures in the facility can be heard lightly echoing around the open column chamber that makes up the center of the compound. Light is only provided when Surge and Data cooperate to complete puzzles and power segments of the facility to proceed forward. This is a symbolic metaphor for their bond lighting the way through the dark and the dangerous challenge ahead of them.

Characters

Data

Data carries Surge around the level on her back, delivering him to nodes around the map to allow him to complete parts of puzzles she cannot access. She can also manipulate elements around the level by interacting with panels and by physically exerting herself to move objects or bridge gaps in wiring.

Data is a young adult woman who had previously escaped the facility and now returned six years later to save her younger brother who was left behind. She was experimented on with a techno-organic virus that converted most of her living flesh into metal and bionics. Despite this, her only impediment is her reliance on a diminishing power supply. By holding Surge in the battery on her back she remains charging.

Data has returned to save her younger brother and hopefully give them both the familial bond they have been lacking since birth. She holds herself responsible for what has and what will happen to Surge as his older sister.

Surge

Surge is held within the battery on Data's back and cannot survive without being connected to or within an object that can hold an electric current. Surge can be brought to nodes around the map to travel through wires and access areas made up from live wires and circuit boards. He can power objects and cooperate with Data to complete circuits and transfer current to machines and solve puzzles.

Surge is an infant male child who was immediately experimented on and contained since birth. He knows nothing about the outside world, but a strange hibernation-like effect since the facilities abandonment has kept him mentally unaffected by the isolation he has suffered from. He is curious and energetic most of the time and has a deep seeded desire to be with other people because of his lack of exposure to others.

Features

Central Pillar

The level in its entirety revolves around a large central column in a massive cylindrical room. The column serves as a center point of the folding platforms that reach to each of the many doorways along the walls on the different floors. An elevator also exists within the center column and can be used to access different floors if powered.

As the players progress, they will power different petals on the central column that will raise up and create bridges to the next area or ramps to the next level of the facility.

Sefornal Logo

A large metal fixture of the Sefornal Logo used to hang from opening hangar that leads into the facility but has since fallen and crashed to the bottom floor of the facility. The large chunk of metal has remained mostly intact and serves to get to the second floor after a puzzle is solved to make it accessible.

Objects

Circuits

Circuits are the core objects required for Surge's part of any puzzle. This is his main method of moving between locations and powering machines. These circuits can take the form of a single wire that Surge move through, a platform of wires and cables that he can walk on, or a connection of machines and objects that clearly show an electric current moving through them.

In certain areas, Data will need to use her own body to complete a circuit and allow Surge to move forward. She is not hurt by this because of her mechanical replacements.

Panels

Different panels around the level allow Data to interact with machines and other puzzle elements. These panels may need to be powered by Surge to operate and are one of the primary interactions Data must use to solve puzzles and create platforms to move through the level.

Themes

Electricity

Electricity and the science behind electromagnetic currents are a heavy theme in the game. It matches the environment and can be used for multiple interpretations of symbolism for the characters growing sibling bond throughout the game.

Machinery

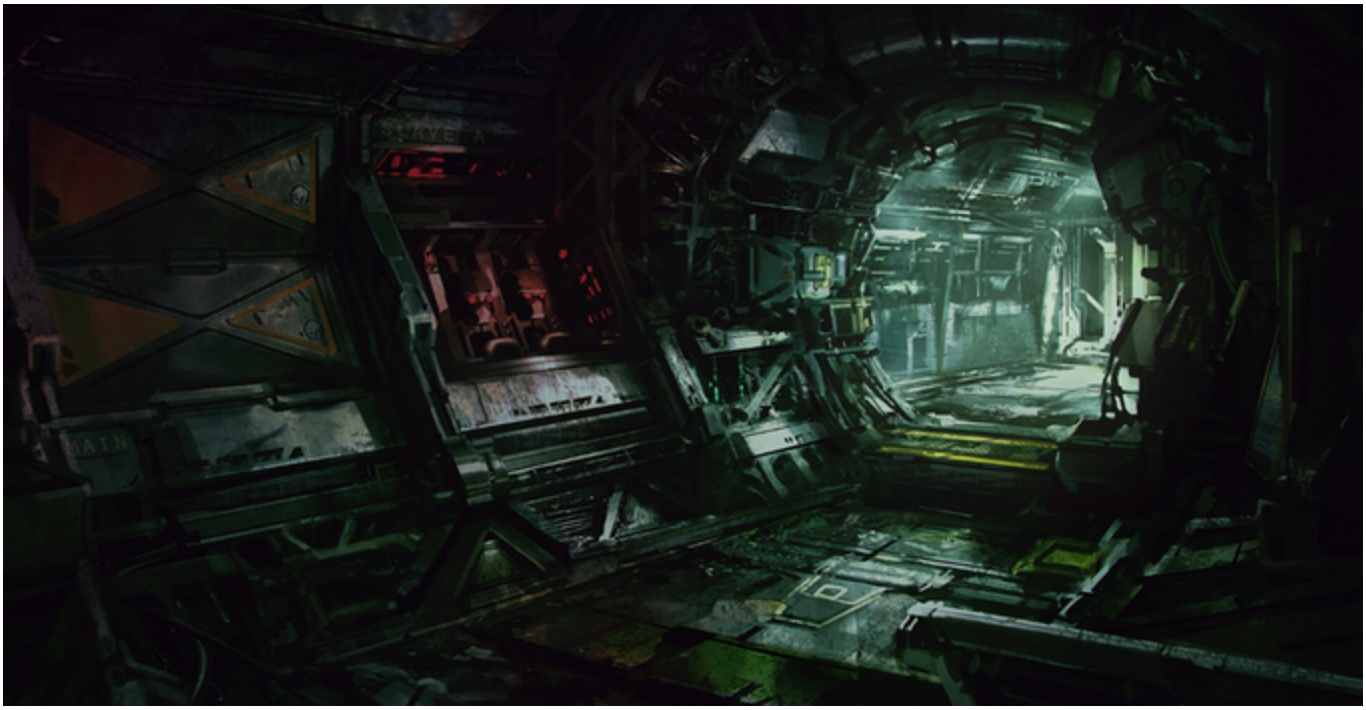
Machinery is the second main theme in the levels design. The old architecture and machinery used to transport objects through this titanic facility can be used as excellent methods of solving problems and puzzles. As the two characters move through the facility and fix the broken machines they find, they slowly work towards fixing their disconnected sibling relationship and build the foundation for their familial love to grow.

Level Design References

- Environment
- Setting
- Characters
- Features
- Objects
- Themes

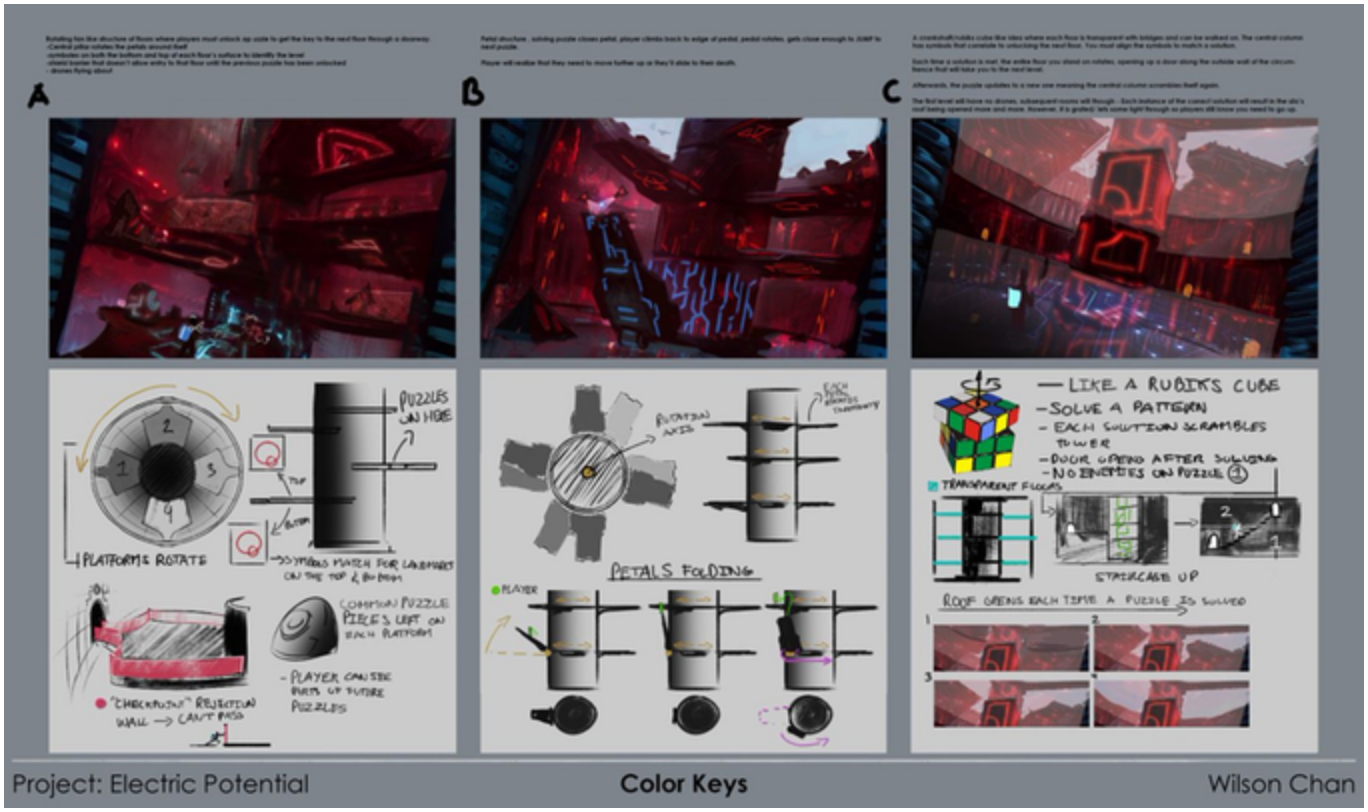
Environment

Setting

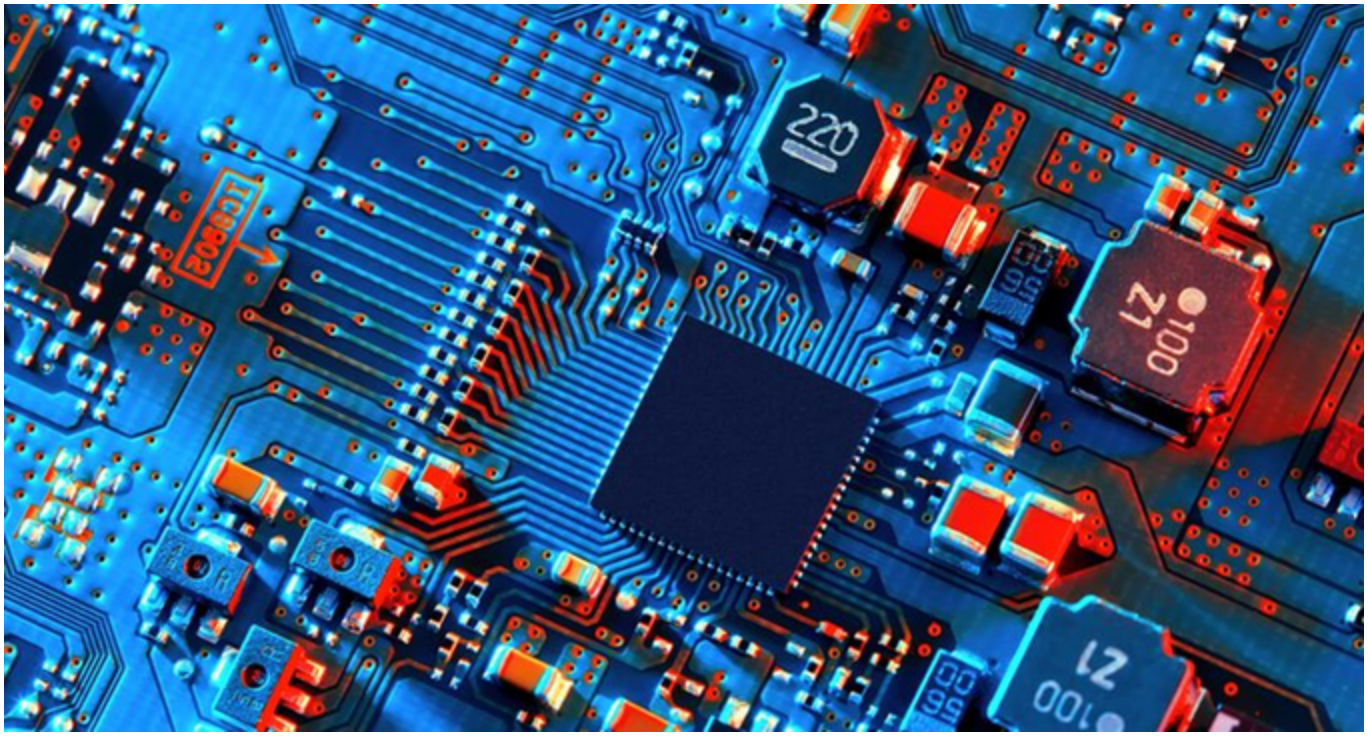


Characters

Features


A
B
C
PLATFORMS ROTATE
PUZZLES ON HERE
PETALS FOLDING
PLAYER
LIKE A RUBIK'S CUBE
SOLVE A PATTERN
STAIRCASE UP
Project: Electric Potential
Color Keys
Wilson Chan

Objects


220
Z1
100

DUAL ACTIVATION REQUIRED
STAGE 3
WARNING
AUTHORIZED ACCESS ONLY

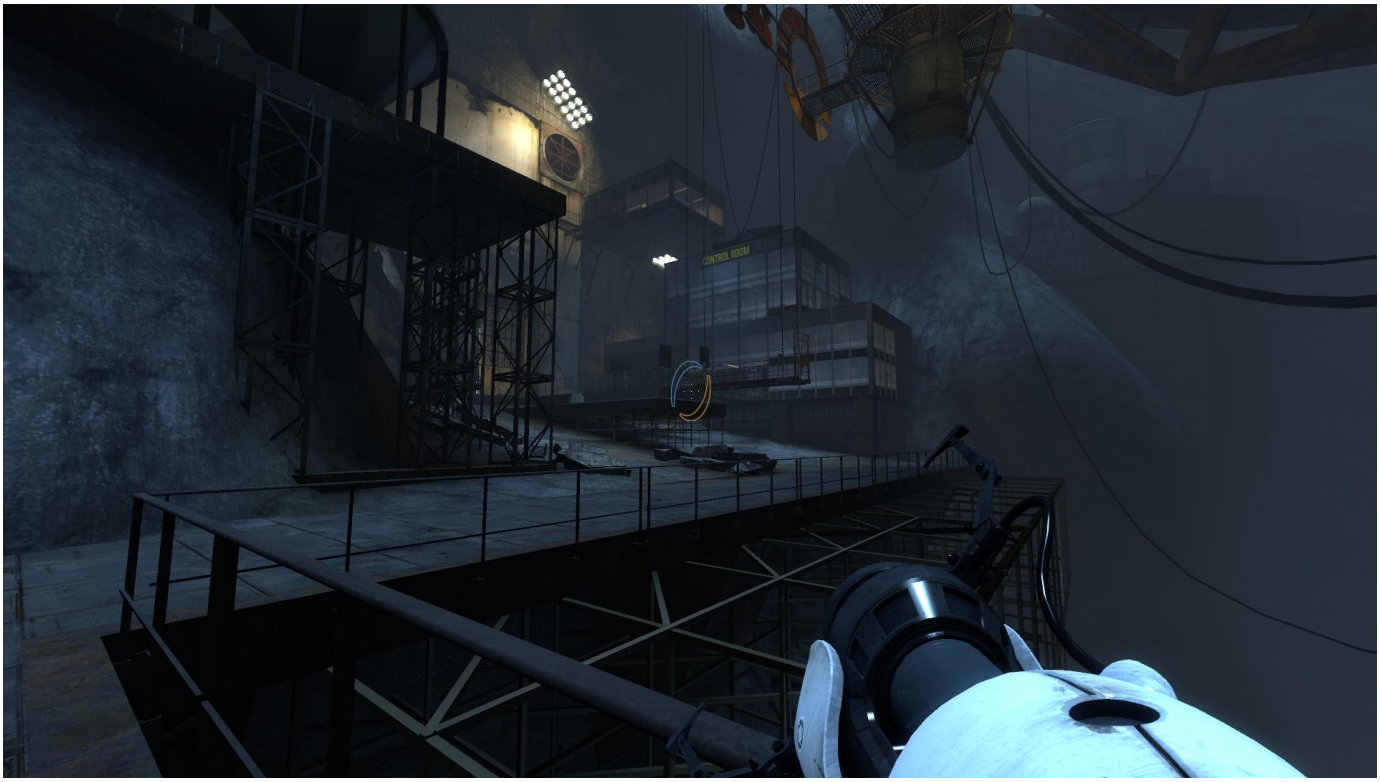
Themes

Floor 00

Grey

- Abandoned
- Industrial
- Concrete
- Dust

APERTURE
SCIENCE INNOVATORS

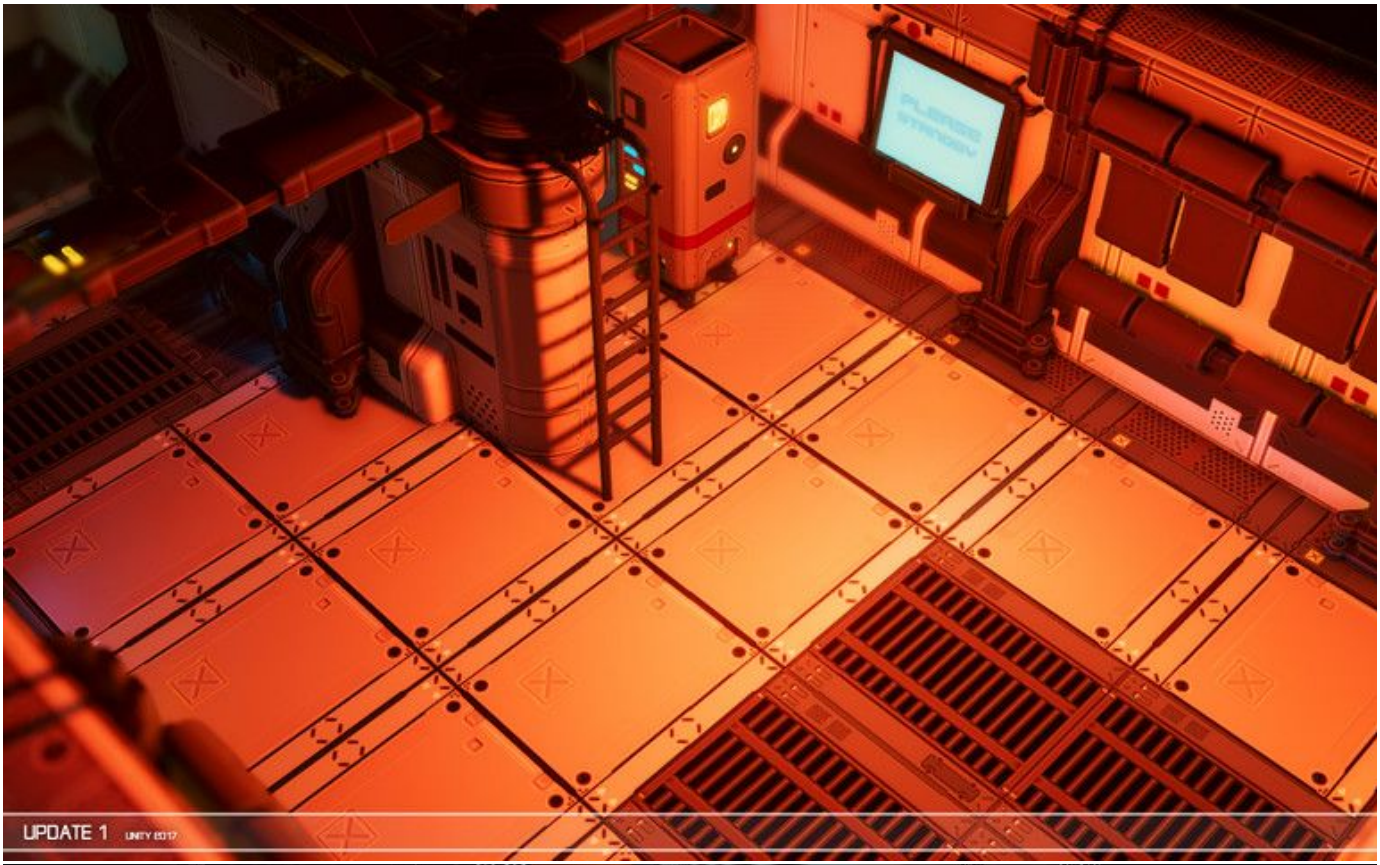


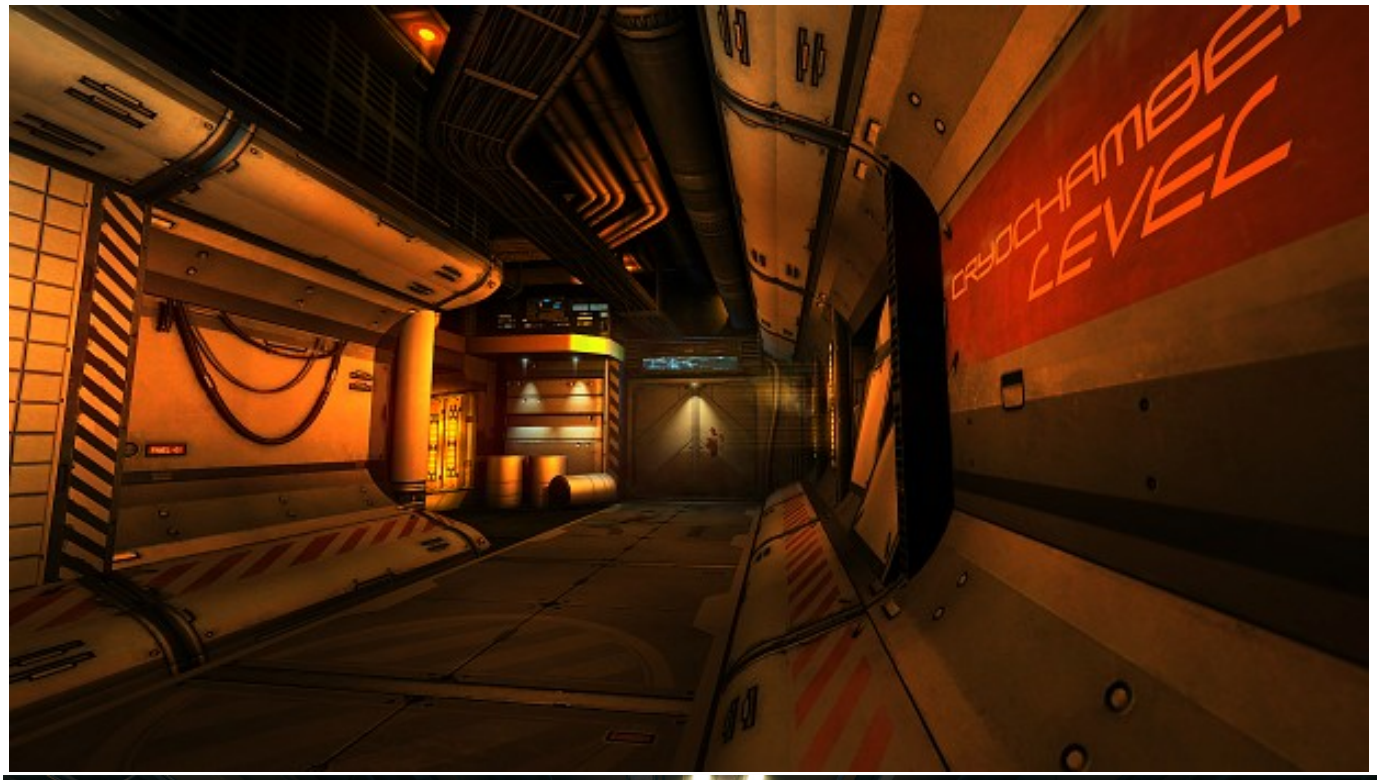
Floor 01

Orange

- Heavy Machinery
- Hangar

- Metal
- Cables

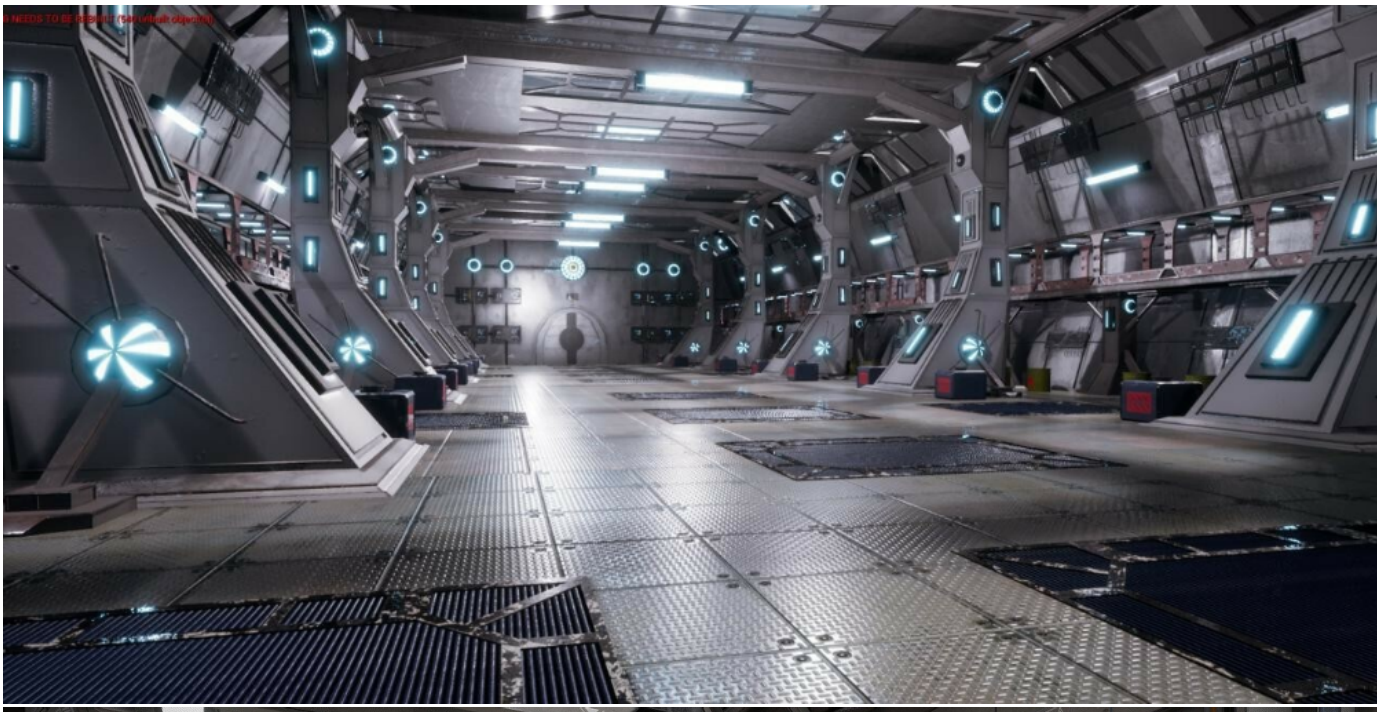


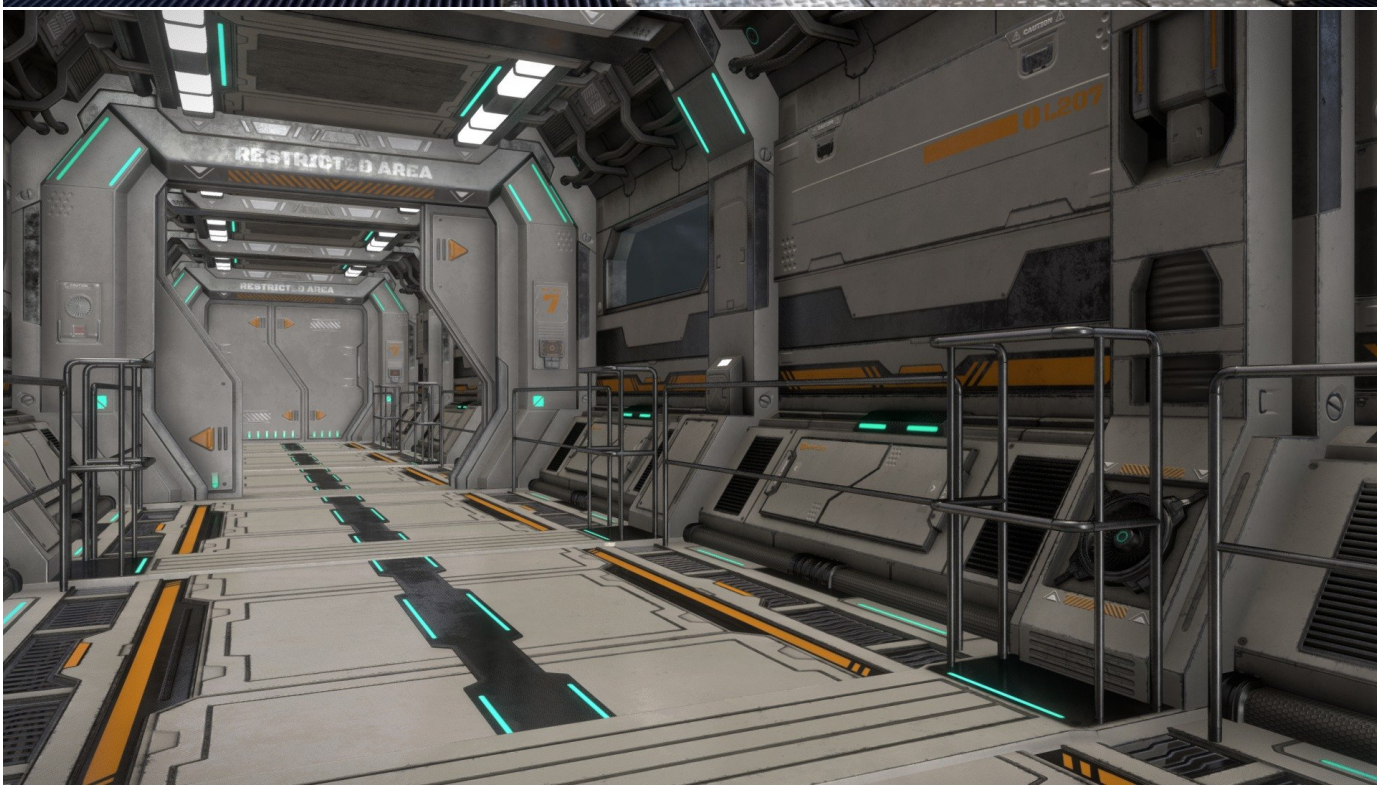


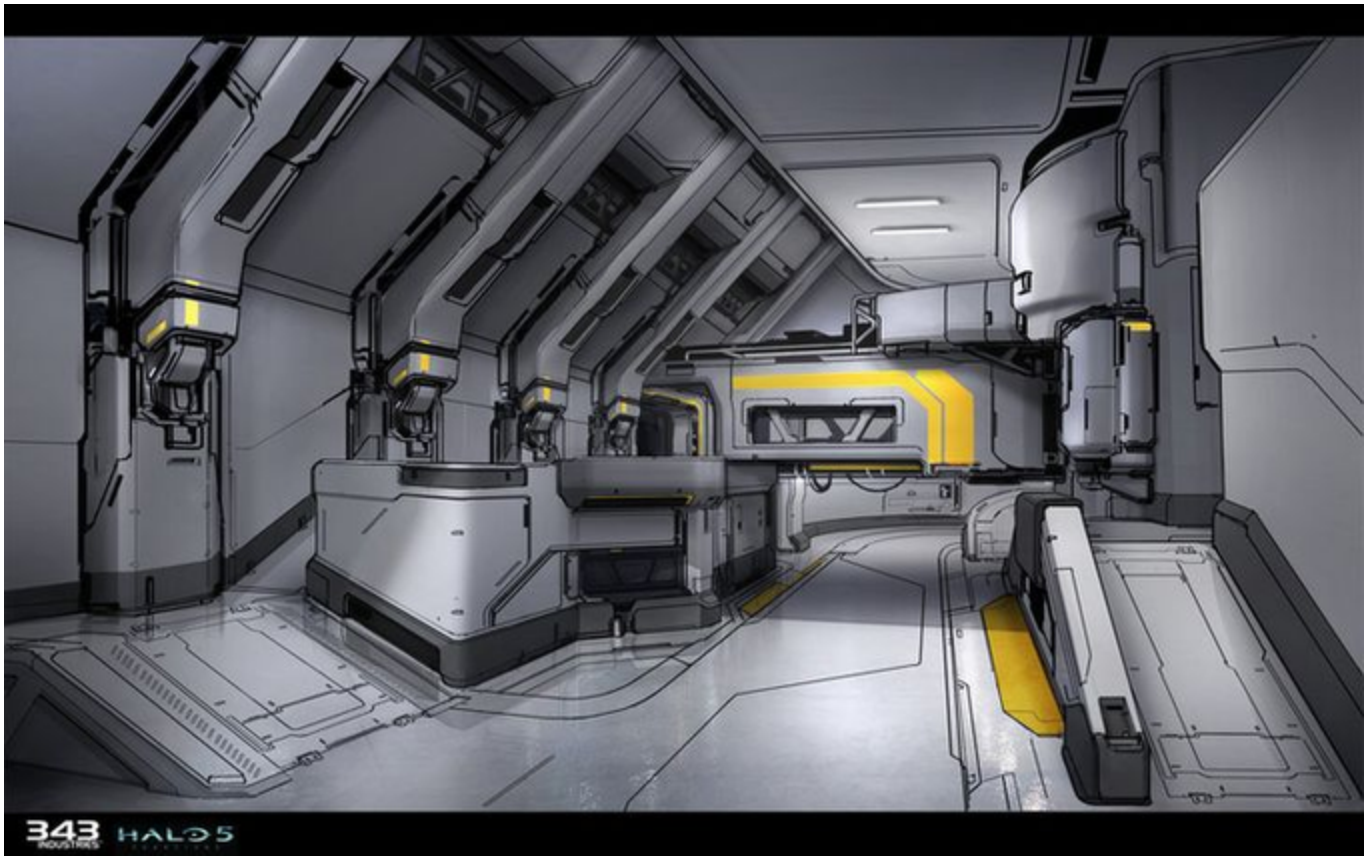
Floor 02

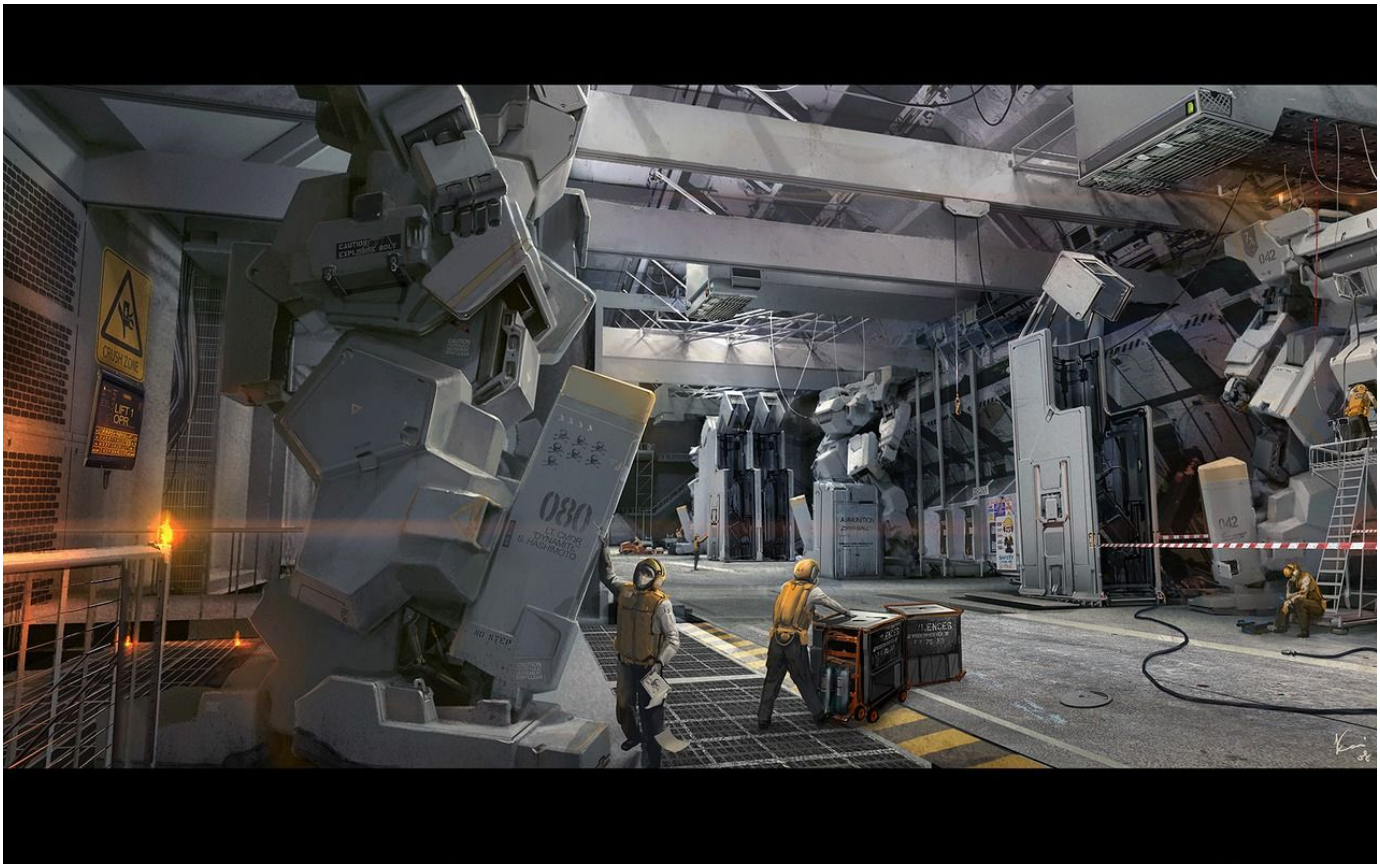
White

- Science Lab
- Clear
- Minimalist
- Tech




RESTRICTED AREA
RESTRICTED AREA
7
CAUTION
0L207

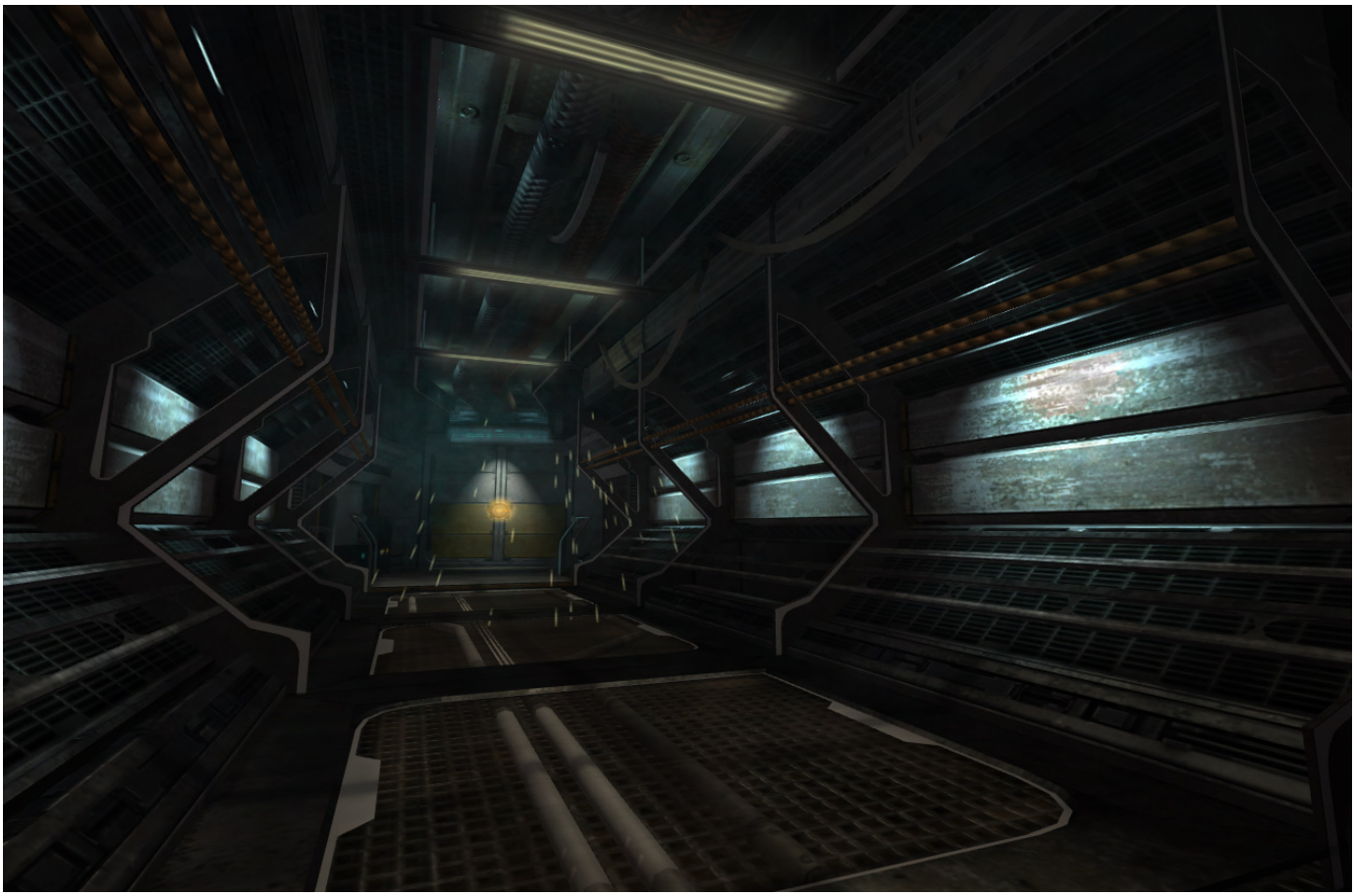


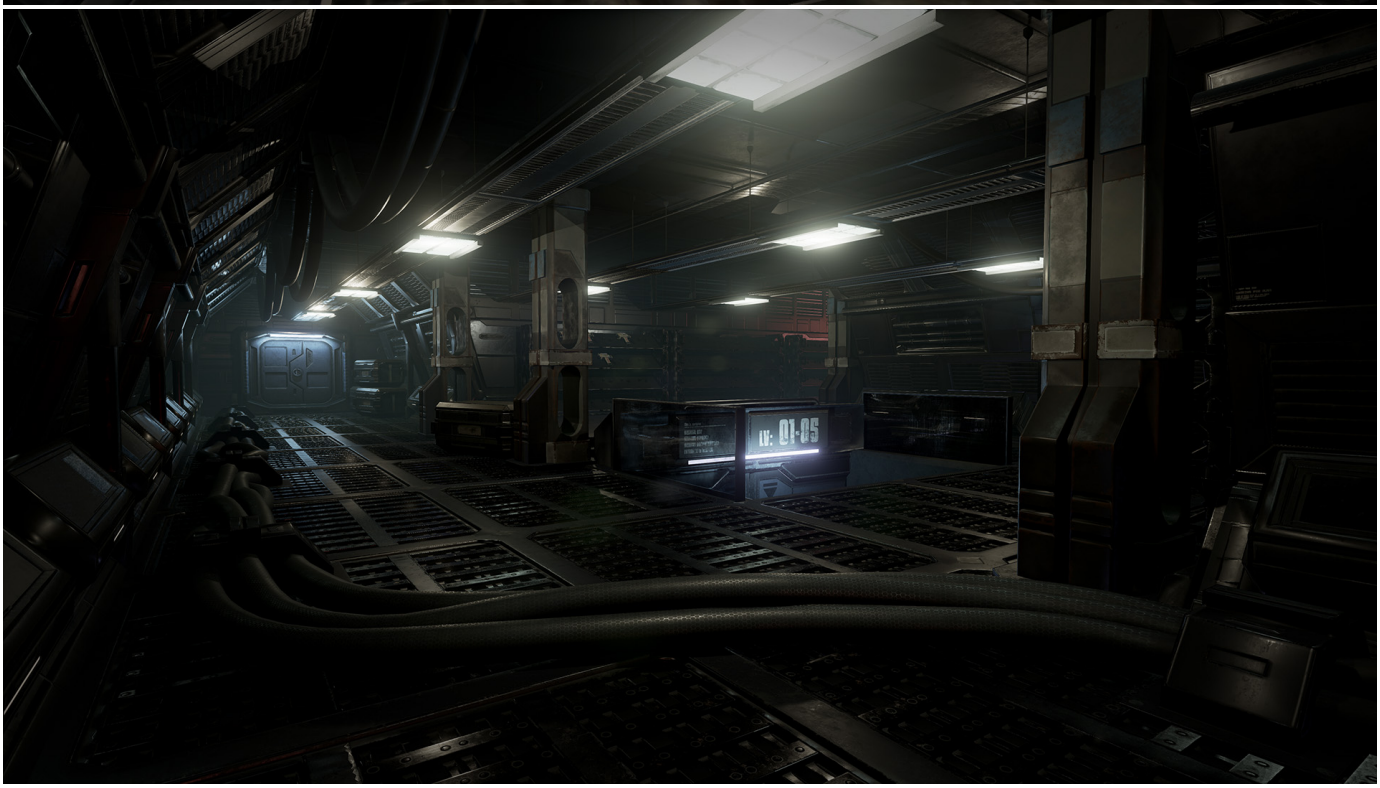


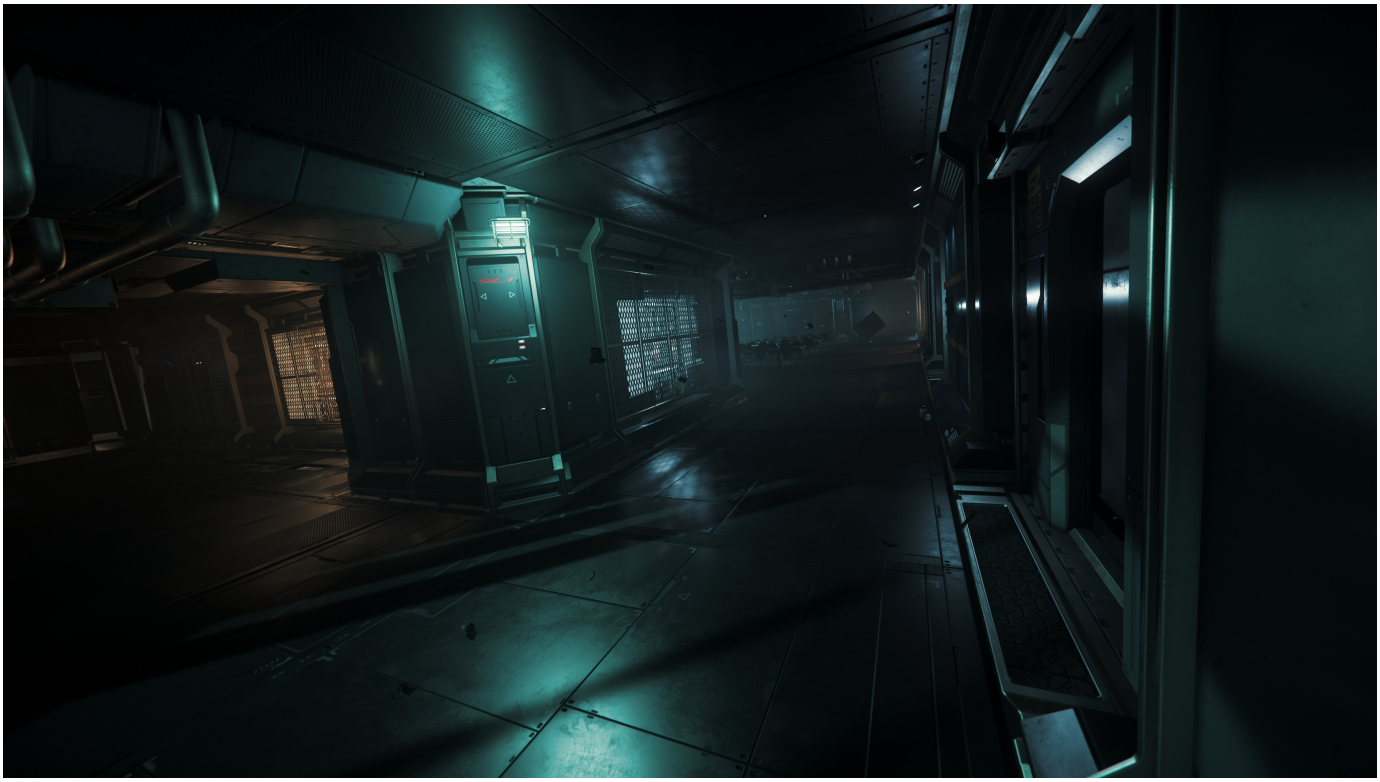
Floor 03

Black

- No energy
- Dark
- Spuke
- Neon



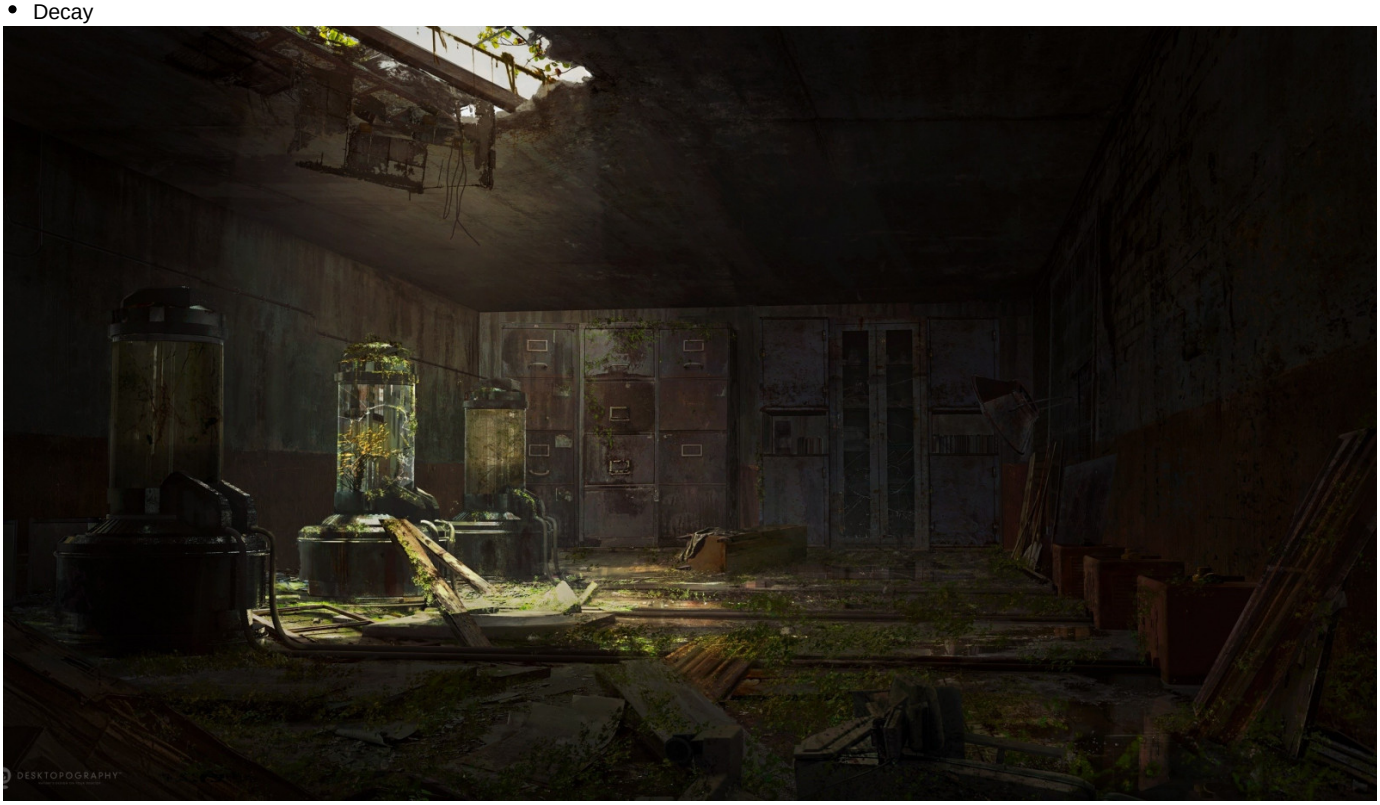

LV: 01-05

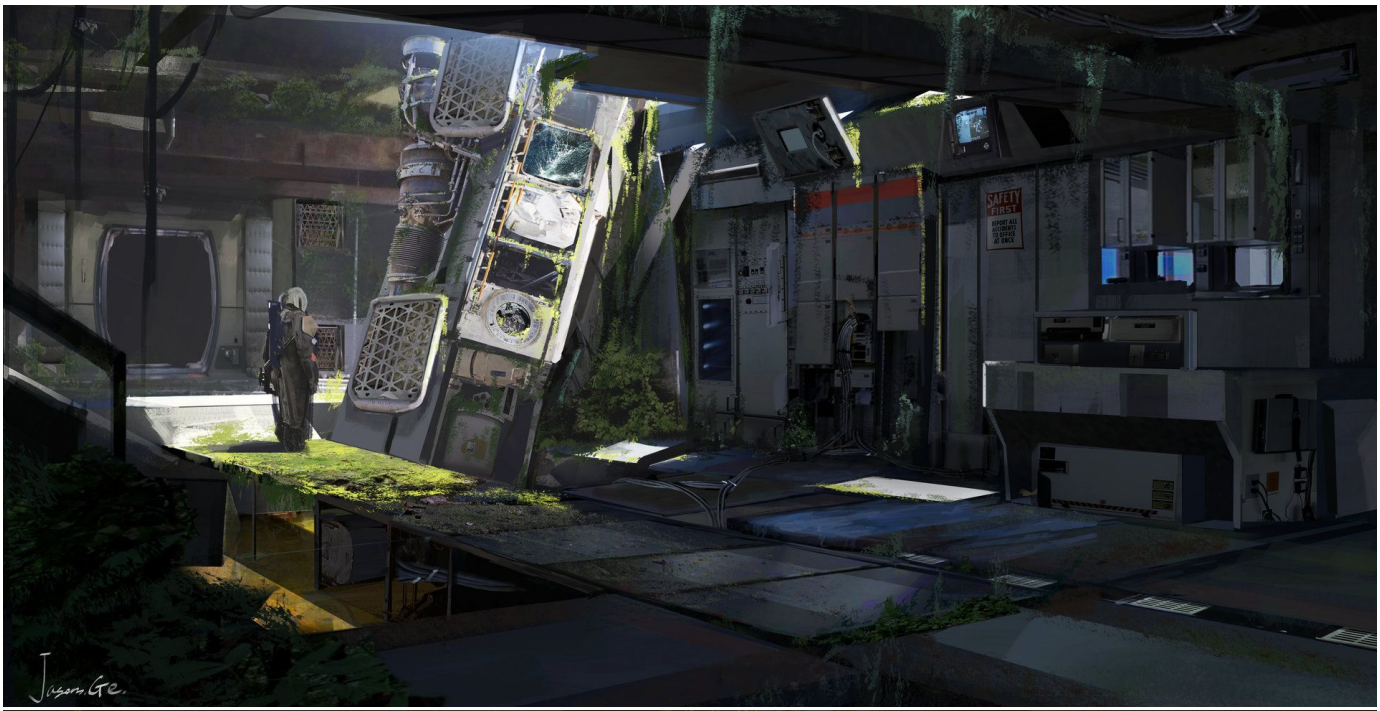


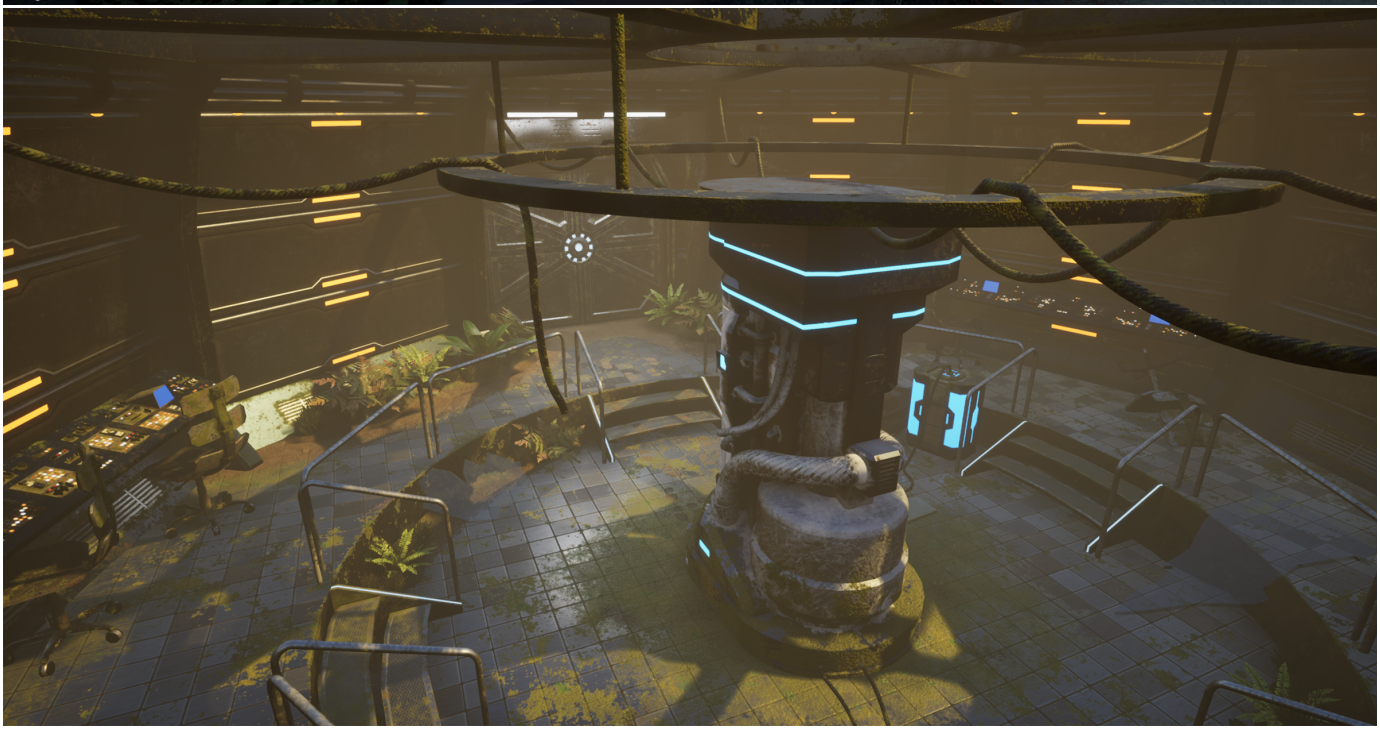
Floor 04

Green

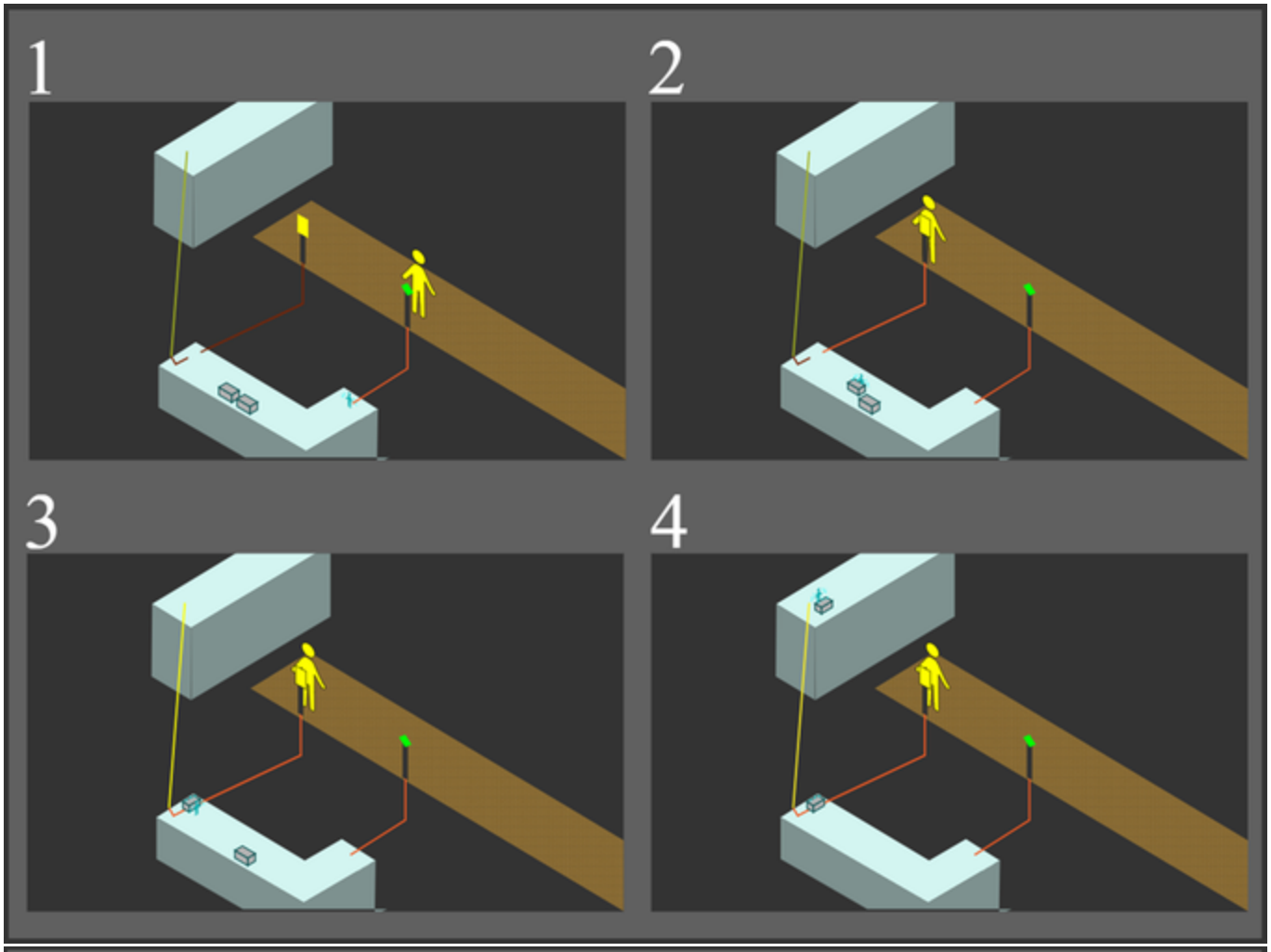
- Abandoned
- Spot Lights
- Nature
- Decay

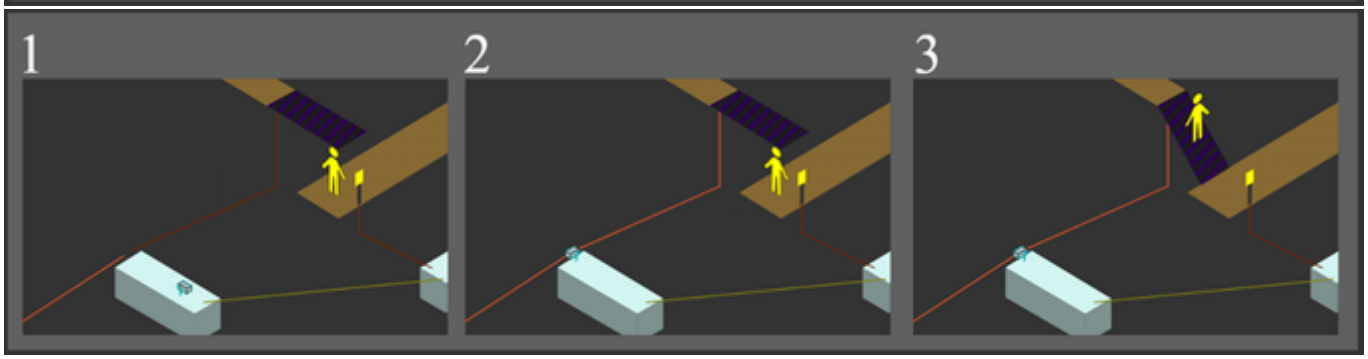



SAFETY FIRST
REPORT ALL ACCIDENTS TO SAFETY AT ONCE



Level Design Diagrams





Level Design Metrics

- Metrics
  - Character
    - Data
    - Surge
  - Camera
  - Controls

Metrics

- **X value is equal to 1m (was 0.4m but due to much of the game being made at a different scale from 0.4, we changed it as it broke the camera system and physics)**

Character

Data

Metric	Value	Additional Notes
Height	1.5m	To accommodate for the character's height, doors in the environment should be around 2.5m tall.
Width	0.5m	To accommodate for the character's width, doors in the environment should be around 1m wide.
Interaction Range	0.5m	Data can interact with objects when she is within 0.5m.
Move Speed	4m/s	Timed events that require the player to move to a certain location within a timeframe should accommodate move speed.

Surge

Metric	Value	Additional Notes
Move Speed (Wires)	TBD	Surge's move speed when travelling through wires.
Move Speed (Power Grid)	TBD	Surge's move speed when moving around on a power grid.
Electric Arc Range	TBD	Range of Surge's Electric Arc ability.

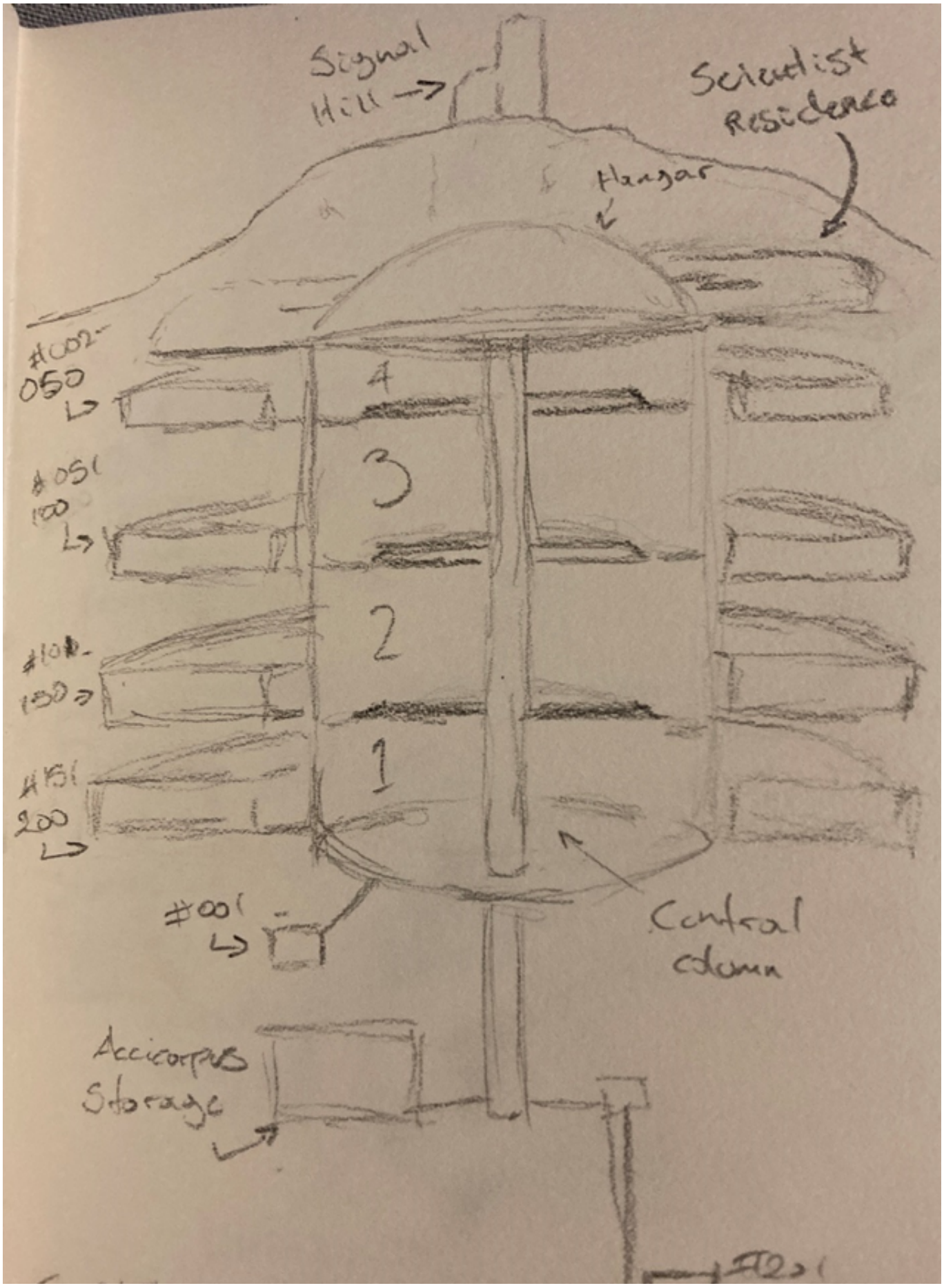
Camera

Metric	Value	Additional Notes
Height (Above Character's Head)	0.5m	When building the level, be careful not to place objects near the camera's height as it can cause the camera to clip through the object.
Follow Distance (Behind Character)	1m	Elements in the level should accommodate the follow distance of the camera.
Render Distance	TBD	When building the level, be careful not to place signifiers and other information outside of the player's render distance when they need it.
Rotation Speed	TBD	Elements in the level should accommodate the rotation speed of the camera to ensure the player doesn't miss information.

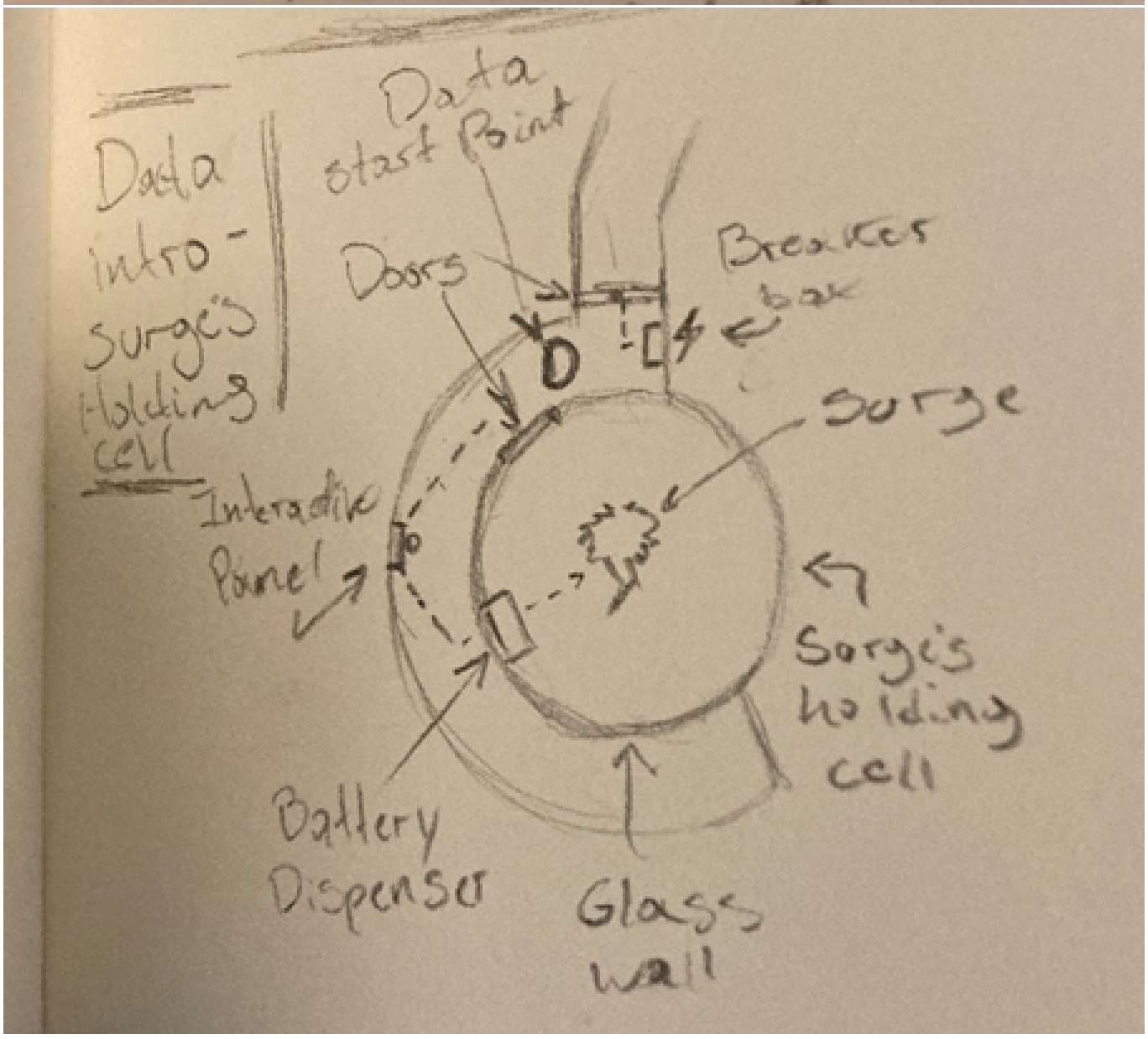
Controls

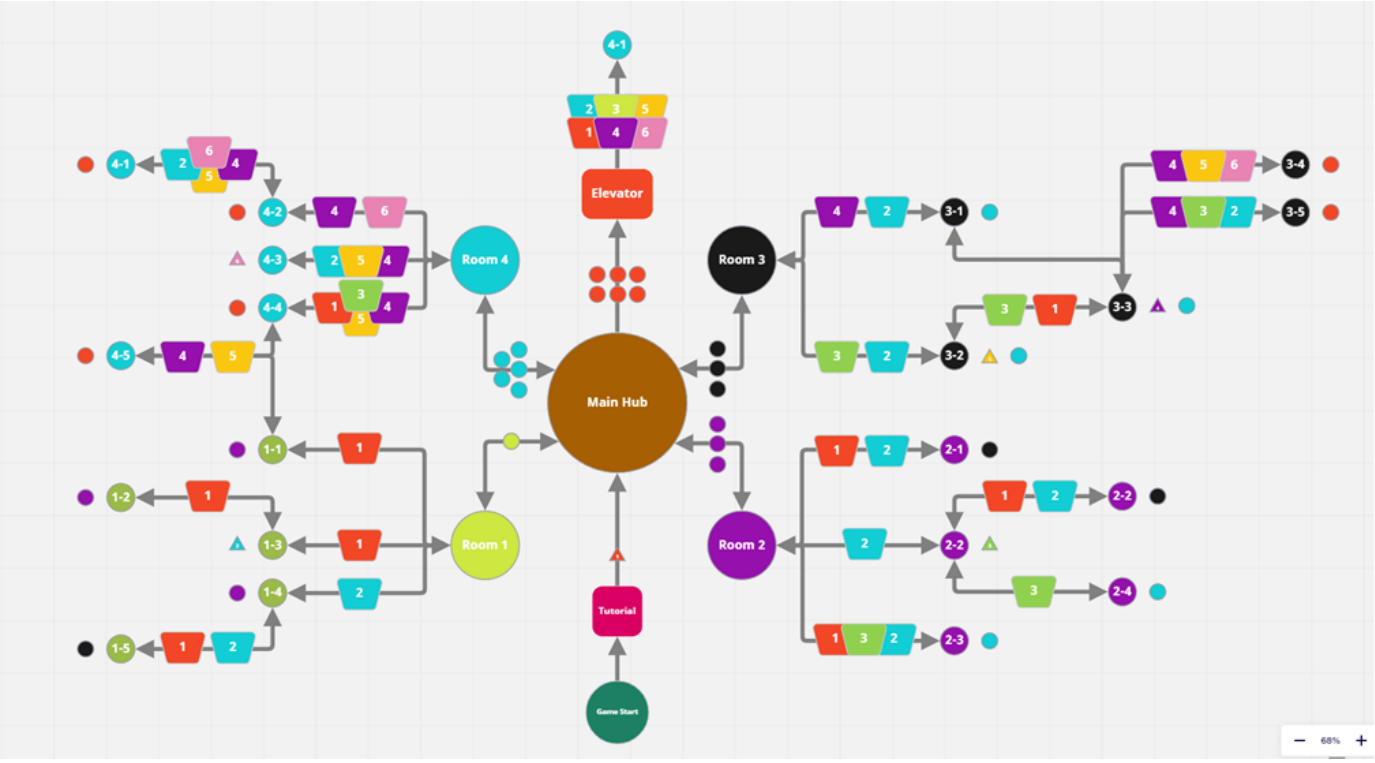
Metric	Value	Additional Notes
Character Movement	WASD	When building puzzles that require Data to move an interact at the same time, ensure controls do not become confusing.
Interact (Data)	Q/E/Ctrl/Space	Q/E control left/right interactions while Ctrl /Space control down/up interactions.
Use Ability (Surge)	Left/Right Mouse Click	The left and right mouse buttons each controls a different ability.

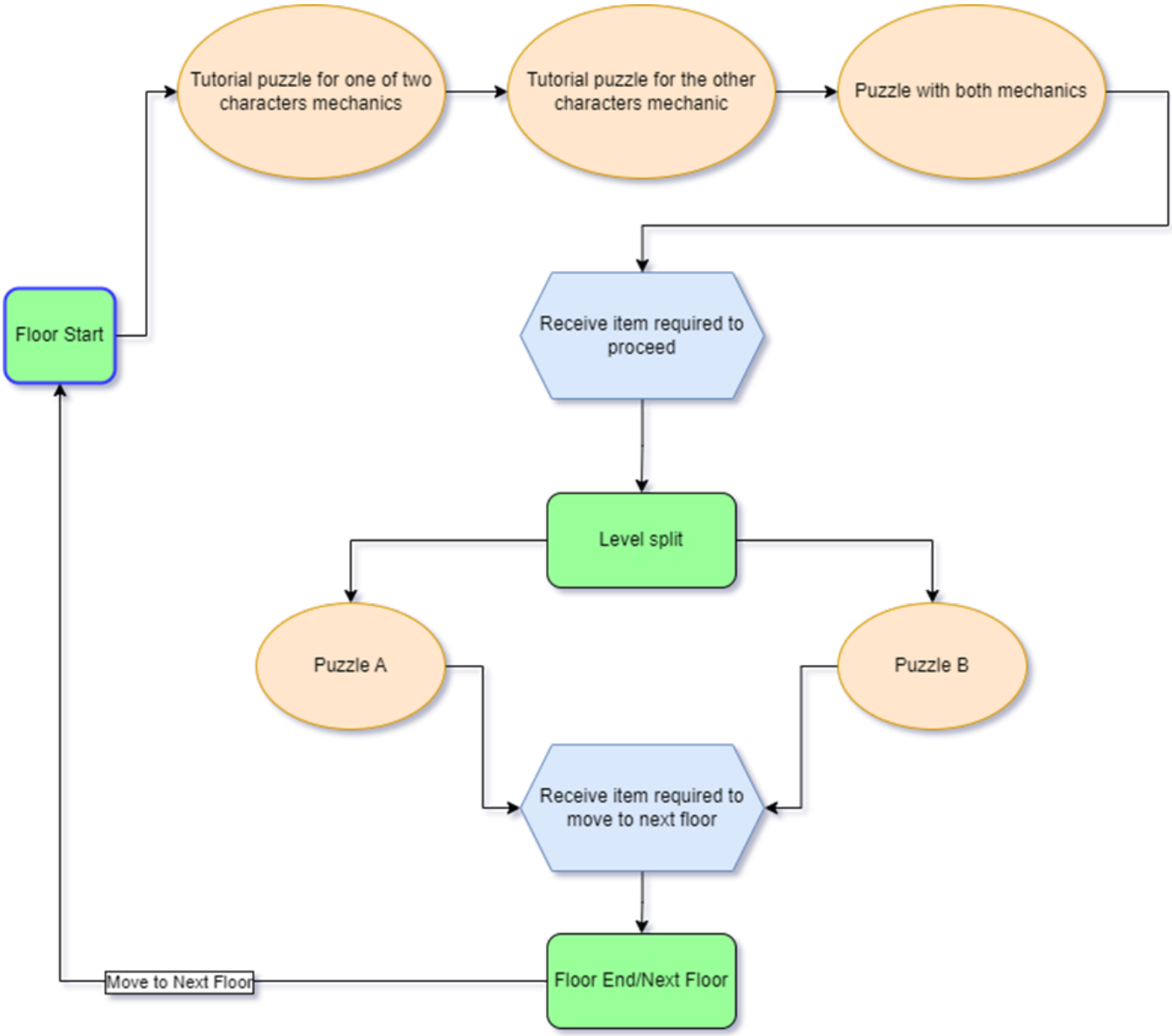
Level Design Layout/Maps

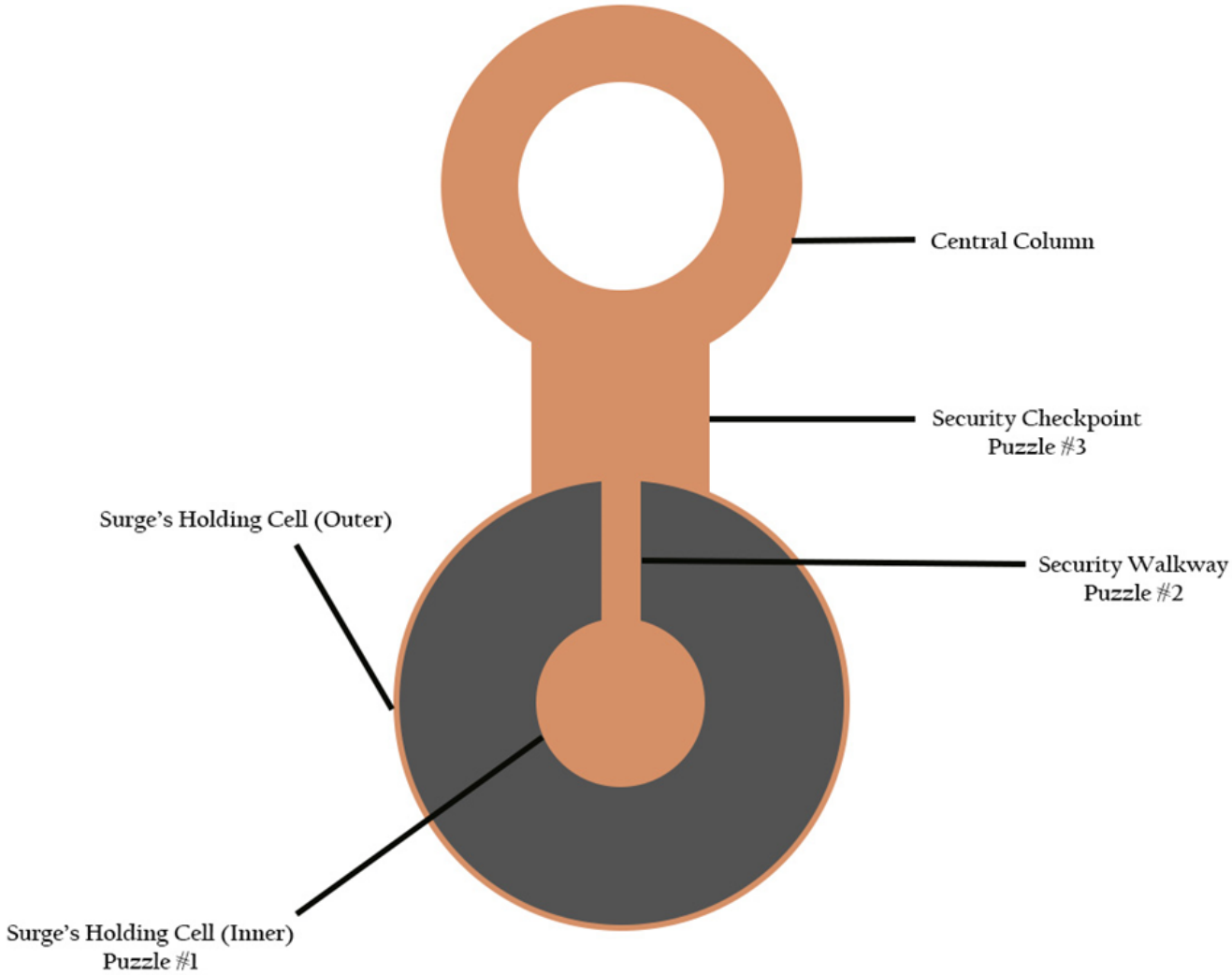

Signal Hill
Scientist Residence
Hangar
#002-050
4
#051-100
3
2
#101-150
1
#151-200
#001
Central column
Accicorps Storage

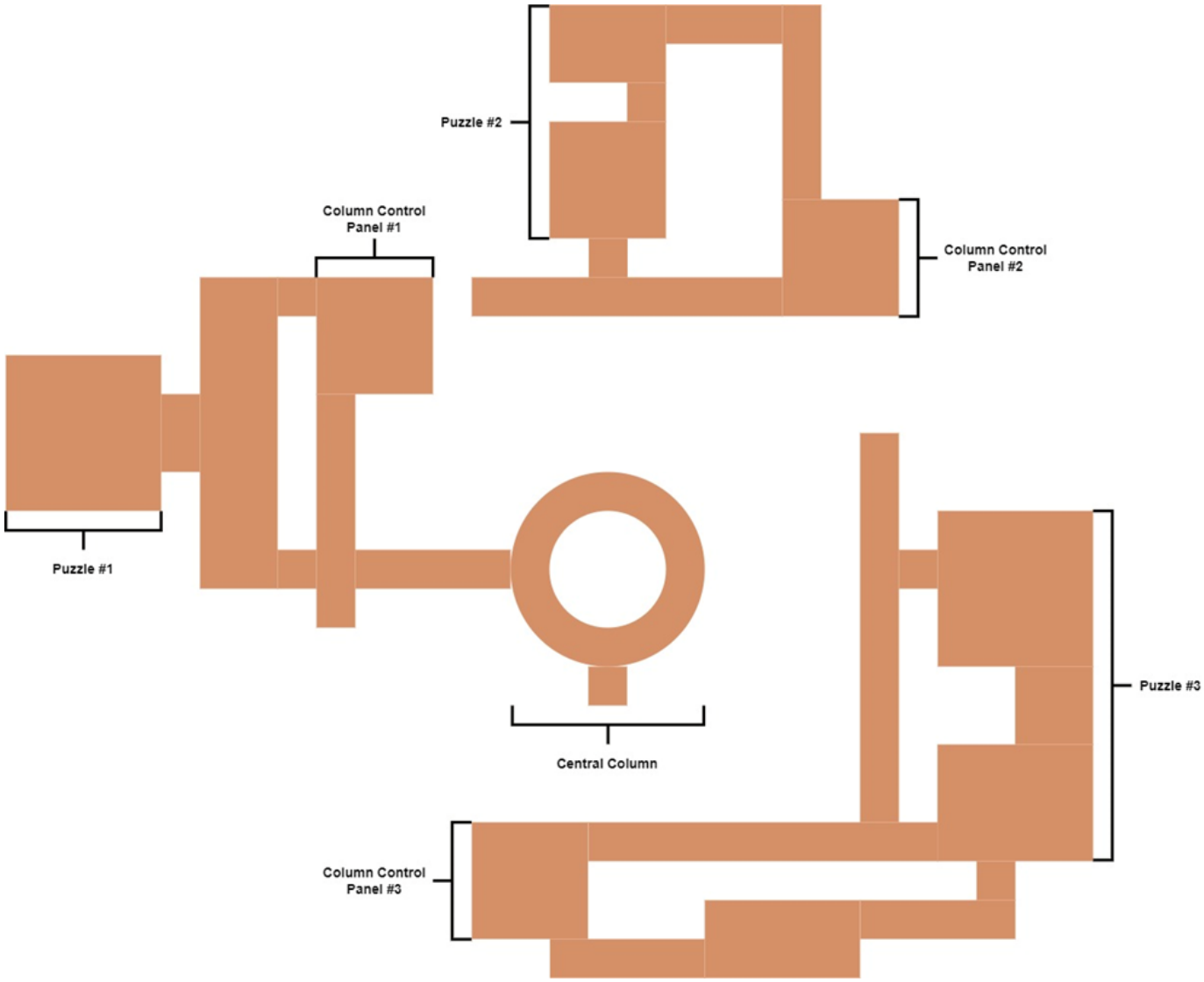
Facility Circuit
Map Breakout

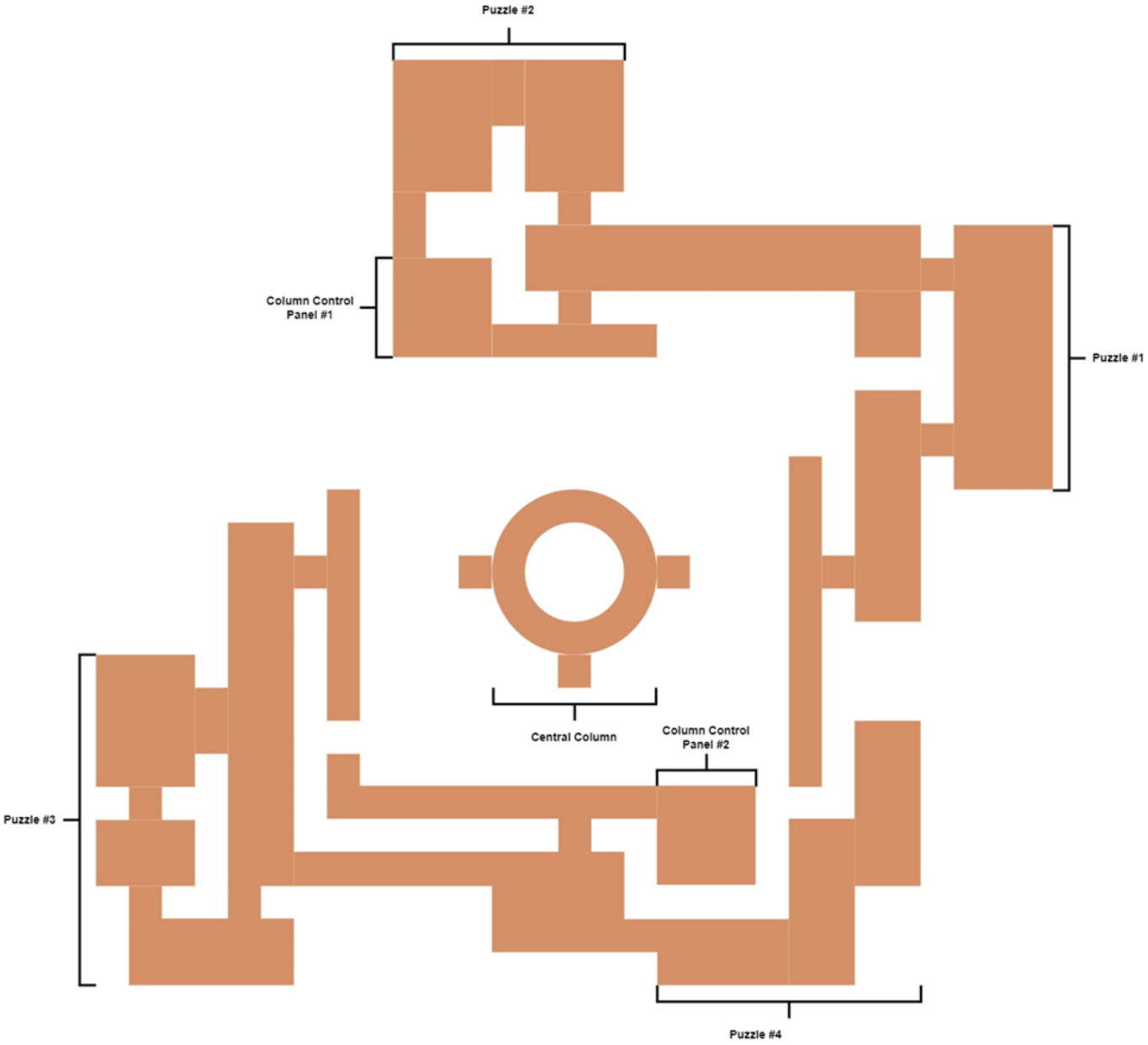


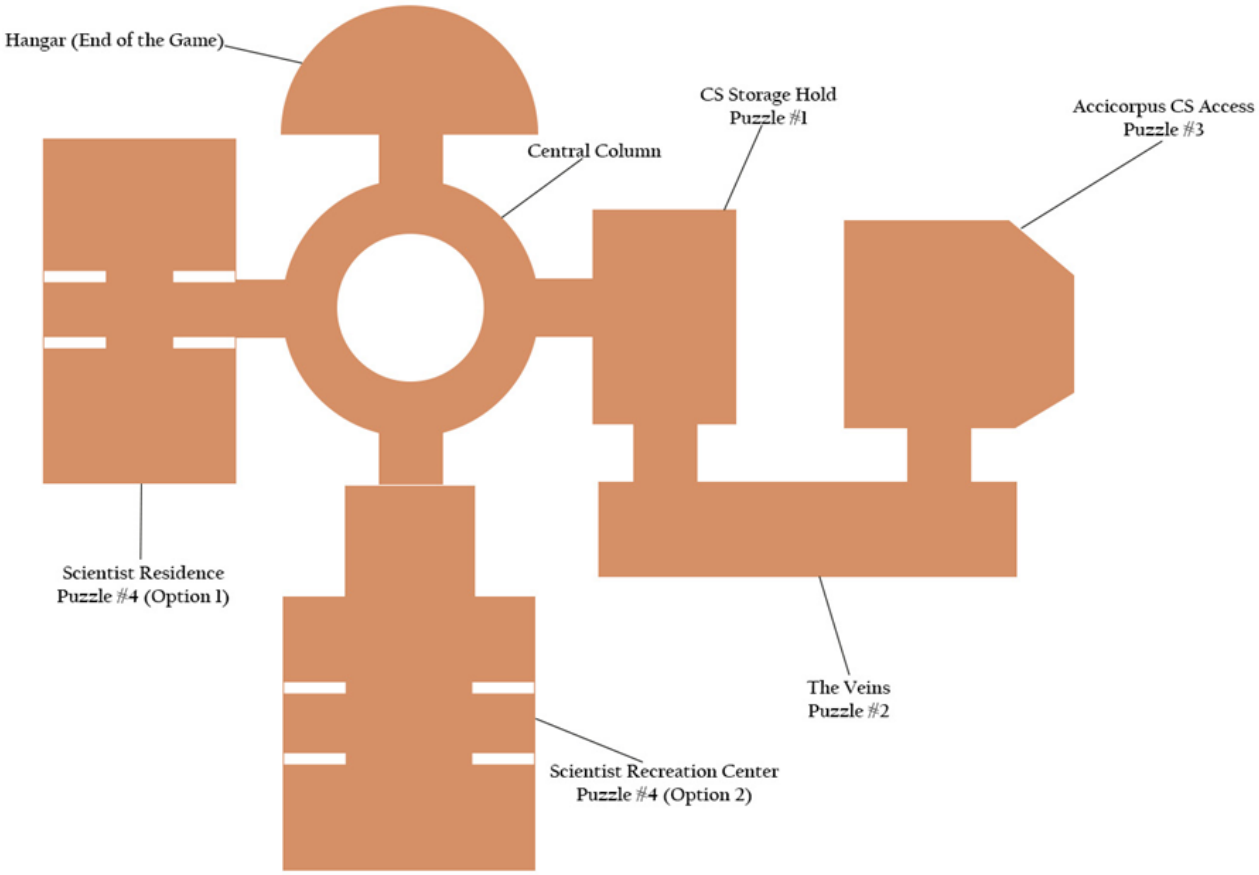

Elevator
Room 4
Room 3
Main Hub
Room 1
Room 2
Tutorial
Game Start
4-1
4-2
4-3
4-4
4-5
1-1
1-2
1-3
1-4
1-5
3-1
3-2
3-3
3-4
3-5
2-1
2-2
2-3
2-4
68%


Tutorial puzzle for one of two characters mechanics
Tutorial puzzle for the other characters mechanic
Puzzle with both mechanics
Floor Start
Receive item required to proceed
Level split
Puzzle A
Puzzle B
Receive item required to move to next floor
Move to Next Floor
Floor End/Next Floor


Central Column
Security Checkpoint
Puzzle #3
Surge's Holding Cell (Outer)
Security Walkway
Puzzle #2
Surge's Holding Cell (Inner)
Puzzle #1


Puzzle #2
Column Control Panel #1
Column Control Panel #2
Puzzle #1
Central Column
Puzzle #3
Column Control Panel #3


Puzzle #2
Column Control Panel #1
Puzzle #1
Central Column
Column Control Panel #2
Puzzle #3
Puzzle #4



Share a Thon Demo Level Diagram

https://miro.com/welcomeonboard/aWpMS0h5UmV0TDd2VDUwOWs5bVVVNkJRRmk4dDhSSlN6TUN0cU91ZGVkRFVnem9PNDJjMG1uUFdqQzllUTFKWHwzMDc0NDU3MzY1NDAzODc0MDczfDI=?share_link_id=174066902062

https://miro.com/app/board/uXjVPst1HiE=/

Level Design Program/Gameplay Features

Feature	Details
Central Pillar	The player is able to travel up and down the central pillar across four floors. The exit to the facility lies at the top of the pillar and the player completes the game once they reach that exit. The central pillar serves as a landmark for the player to get a sense of where they are in the level. It is also used to convey narrative through environmental storytelling. The game's levels should be built around this central pillar.

Power Grids	Across the facility, there are power grids scattered around. Each power grid is connected to at least one electrical panel that the player can interact with as Data. Data will then put Surge into the power grid, where he can move around freely (in contrast with wires where Surge's path is pre-determined). These power grids serve as the basis for the game's puzzles as the player will be able to use Surge's abilities while on a power grid. When building the level, ensure that the power grids are clearly visible to the player so that the player can understand where and how they are meant to interact with the puzzles.
Surge's Room	Surge's room is located at the bottom of the facility. The game begins with the player exploring the bottom floor and stumbling across Surge's room. Here, the player acquires Surge as a playable character. Surge's room serves as a tutorial area where the player is introduced to Data's character movement and interaction mechanic. Once the player acquires Surge, they are introduced to Surge's character movement when they solve a simple puzzle to escape the room.

Level Design Assets

Level	Asset Name	Quantity	Gameplay Notes
1st Floor	Floor Tile	100	Data walkable
1st Floor	Facility Wall	400	Physical obstacle
1st Floor	Facility Wall (Corner)	80	Physical obstacle
1st Floor	Catwalk Stairs	12	Data walkable
1st Floor	Catwalk Railing (Straight)	20	Data walkable
1st Floor	Catwalk Railing (Corner)	8	Data walkable
1st Floor	Catwalk Railing (T-Shape)	2	Data walkable
1st Floor	Catwalk Railing (Cross)	1	Data walkable
1st Floor	Electrical Panel	1	Data interactable
1st Floor	Generator	1	Surge interactable
1st Floor	Power Grid	8	Surge walkable
1st Floor	Metal Object	12	Surge interactable with Electric Arc
1st Floor	Electric Wire	40	Surge traversable
1st Floor	Extending Stairs	2	Data walkable
1st Floor	Moving Platform	1	Data walkable
1st Floor	Central Pillar (Bottom)	1	Landmark

Third-party props

- https://assetstore.unity.com/packages/3d/vegetation/plants/pbr-low-lying-plant-pack-150823
- https://assetstore.unity.com/packages/3d/vegetation/plants/yughues-free-bushes-13168
- https://assetstore.unity.com/packages/vfx/shaders/world-space-trees-free-shader-117088
- https://assetstore.unity.com/packages/3d/vegetation/yughues-free-stylized-foliages-13392
- https://assetstore.unity.com/packages/3d/vegetation/plants/exaggerated-and-unique-foliage-145037
- https://assetstore.unity.com/packages/3d/environments/sci-fi/sci-fi-construction-kit-modular-159280

- https://assetstore.unity.com/packages/3d/environments/sci-fi/sci-fi-old-rusty-props-pbr-200267
- https://assetstore.unity.com/packages/3d/environments/sci-fi/modular-sci-fi-corridor-142811
- https://assetstore.unity.com/packages/3d/environments/sci-fi/extreme-sci-fi-lite-50727
- https://assetstore.unity.com/packages/3d/environments/3d-scifi-kit-starter-kit-92152
- https://assetstore.unity.com/packages/3d/environments/sci-fi/sci-fi-battery-pack-free-19738
- https://assetstore.unity.com/packages/3d/environments/sci-fi/free-lowpoly-scifi-110070
- https://assetstore.unity.com/packages/3d/environments/sci-fi/sci-fi-base-assets-free-demo-pack-131284
- https://assetstore.unity.com/packages/3d/environments/3d-free-modular-kit-85732
- https://assetstore.unity.com/packages/3d/environments/sci-fi/destroyed-city-free-6459
- https://assetstore.unity.com/packages/3d/environments/sci-fi/bridges-3d-basic-pack-21302
- Yughues Free Metal Materials | 2D Metals | Unity Asset Store
- 50 Free PBR Materials | 2D Textures & Materials | Unity Asset Store
- Real Materials Vol.0 [FREE] | 2D Textures & Materials | Unity Asset Store
- Yughues Free Pavement Materials | 2D Roads | Unity Asset Store
- Yughues Free Stone Materials | 2D Stone | Unity Asset Store
- Breakable Floor Tiles | 2D Tiles | Unity Asset Store
- Basic Metal Texture Pack | 2D Metals | Unity Asset Store
- Stylized Sci-fi Texture | 2D Textures & Materials | Unity Asset Store
- Yughues Free PBR Metal Plates | 2D Metals | Unity Asset Store
- Yughues Free Nature Materials | 2D Nature | Unity Asset Store
- Sci-Fi Texture Pack 1 | 2D Textures & Materials | Unity Asset Store
- Yughues Free Architectural Materials | 2D Textures & Materials | Unity Asset Store
- Yughues Free Precious Materials | 2D Textures & Materials | Unity Asset Store
- Yughues Free Grids & Nets Materials | 2D Textures & Materials | Unity Asset Store
- Yughues Free Manmade Materials | 2D Textures & Materials | Unity Asset Store
- Sc-Fi Wall Damaged | 2D Textures & Materials | Unity Asset Store
- eU Sci-Fi textures set Volume 1 | 2D Textures & Materials | Unity Asset Store
- 20 Texture Sets 'Industrial 01' | 2D Textures & Materials | Unity Asset Store
- 20 Ground Material Sets SCI FI | 2D Textures & Materials | Unity Asset Store
- Yughues Free Pills Materials | 2D Textures & Materials | Unity Asset Store

- https://www.unrealengine.com/marketplace/en-US/product/research-environment
- https://www.unrealengine.com/marketplace/en-US/product/modular-sci-fi-office
- https://www.unrealengine.com/marketplace/en-US/product/modular-sci-fi-village
- https://www.unrealengine.com/marketplace/en-US/product/modular-scifi-season-1-starter-bundle
- https://www.unrealengine.com/marketplace/en-US/product/modular-scifi-season-2-starter-bundle
- https://www.unrealengine.com/marketplace/en-US/product/polar-sci-fi-facility
- https://www.unrealengine.com/marketplace/en-US/product/spaceship-interior-environment-set
- https://www.unrealengine.com/marketplace/en-US/product/storage-house-set
- https://unrealengine.com/marketplace/en-US/product/underground-subway