

# FAA Minecraft Airport Design Challenge

Team: Proper Bandits

Airport: Wallops Flight Facility (KWAL)



**Project GitHub Repo (including world):**

<https://github.com/Proper-Bandits/FAA-AVSED-Minecraft-Challenge-2020/>

**Supplemental Flythrough Video:**

<https://youtu.be/-Ur1nHxeXk>

**Presentation PDF Download:**

<https://github.com/Proper-Bandits/FAA-AVSED-Minecraft-Challenge-2020/blob/master/presentation/FAA-AVSED-Minecraft-Airport-Design-Challenge-2020-Team-Proper-Bandits.pdf>

# Airport Ownership and Management

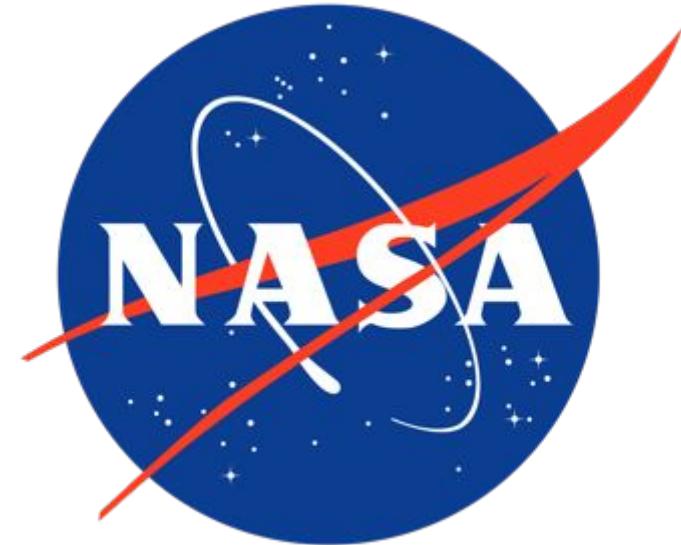
**Ownership:** Publicly-owned

**Owner:** NASA  
WALLOPS FLIGHT FACILITY  
WALLOPS ISLAND, VA 23337

**Phone:** 757-824-1240

**Manager:** ED SUDENDORF  
WALLOPS FLIGHT FACILITY  
WALLOPS ISLAND, VA 23337

**Phone:** 757-824-1250



## Wallops Flight Facility Visitors Guide:

[https://cloud1.arc.nasa.gov/oib/docs/p3\\_wff\\_visitor\\_guide.pdf](https://cloud1.arc.nasa.gov/oib/docs/p3_wff_visitor_guide.pdf)

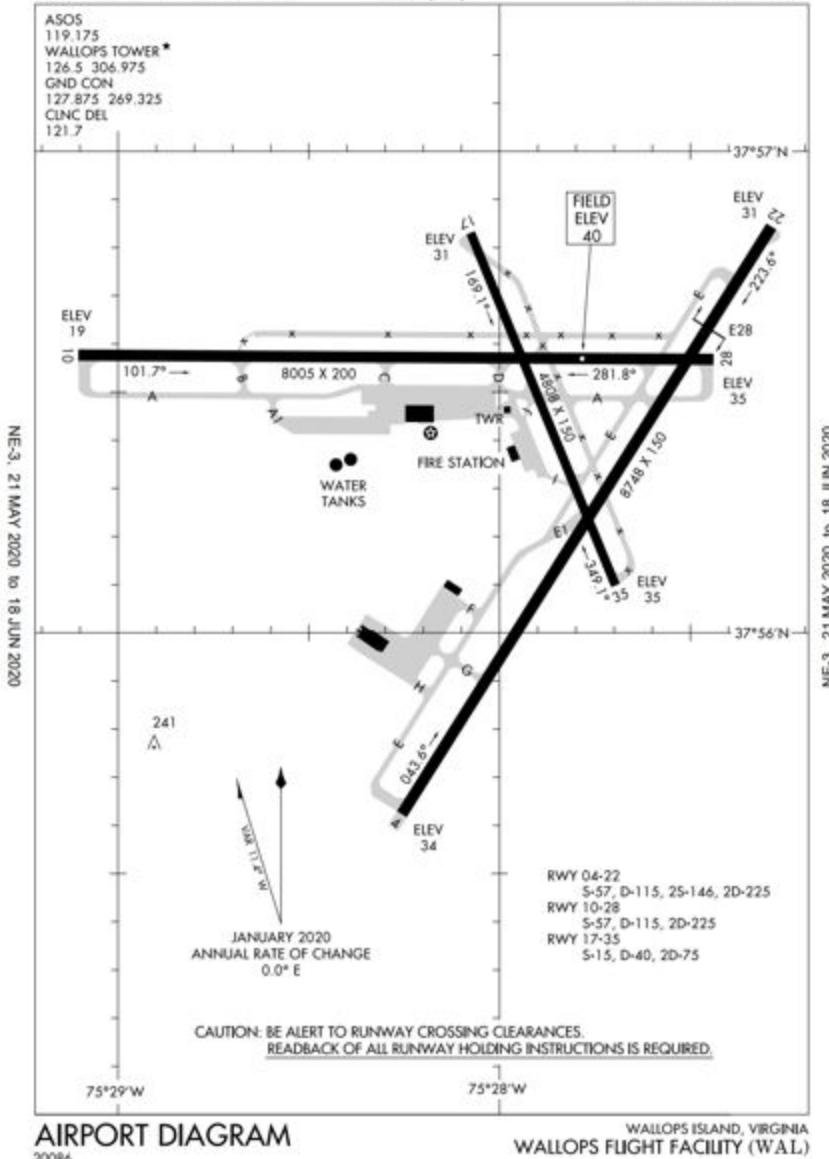
# Wallops Flight Facility (KWAL)



20086  
AIRPORT DIAGRAM

AL-639 (F)

WALLOPS FLIGHT FACILITY (WAL)  
WALLOPS ISLAND, VIRGINIA



# What We Learned

- We learned about all different types of buildings that make up an airport and what their purpose is, like the control tower and the terminal. We found it very interesting that there is so much work going into landing and launching every airplane and making sure everything gets done safely. For instance, we had to build an ARFF station in our airport, add light to taxiways/runways, and create PAPIs so landing aircraft stay on a glide slope.
- We learned about different airport signs and markings and what they mean. One marking consists of four yellow lines and extend across taxiway and runways. For instance, the taxiway markings indicate the difference between aircraft movement areas, places where aircraft shouldn't go, and where aircraft should stop until cleared to take the runway.
- We learned about Imaginary Surfaces are. They are the slope out and up from all sides and ends of the runways, then can also be a horizontal plane or sloping plain above airports. We think Imaginary Surfaces are interesting because it is something we have never thought about it, or heard of it. It helped us understand the obstacle clearances in minecraft, and how to adjust our world. For example, we had to blow up mountains and destroy villages so we could have the perfect area for our runways.
- We learned about lighting around the airport and how it helps pilots safely maneuver around the airport. It was really interesting to figure out how we could make the different types of lights in Minecraft functional, like our beacon, which has rotating lights.

# What Makes Wallops Flight Facility (KWAL) Special

- Wallops Flight Facility is a spaceport that includes an airport with administrative facilities located on the mainland and a rocket launch facility on Wallops Island.
- Wallops is not a commercial airport available for public flights. It is a NASA research facility available for public and private missions. Those missions include launching scientific balloons, rockets, flight testing, and other aerospace research.
- The public can come to visit to tour the airport and even watch rocket launches.
- The runways form the shape of an “A” from above, which is just cool.

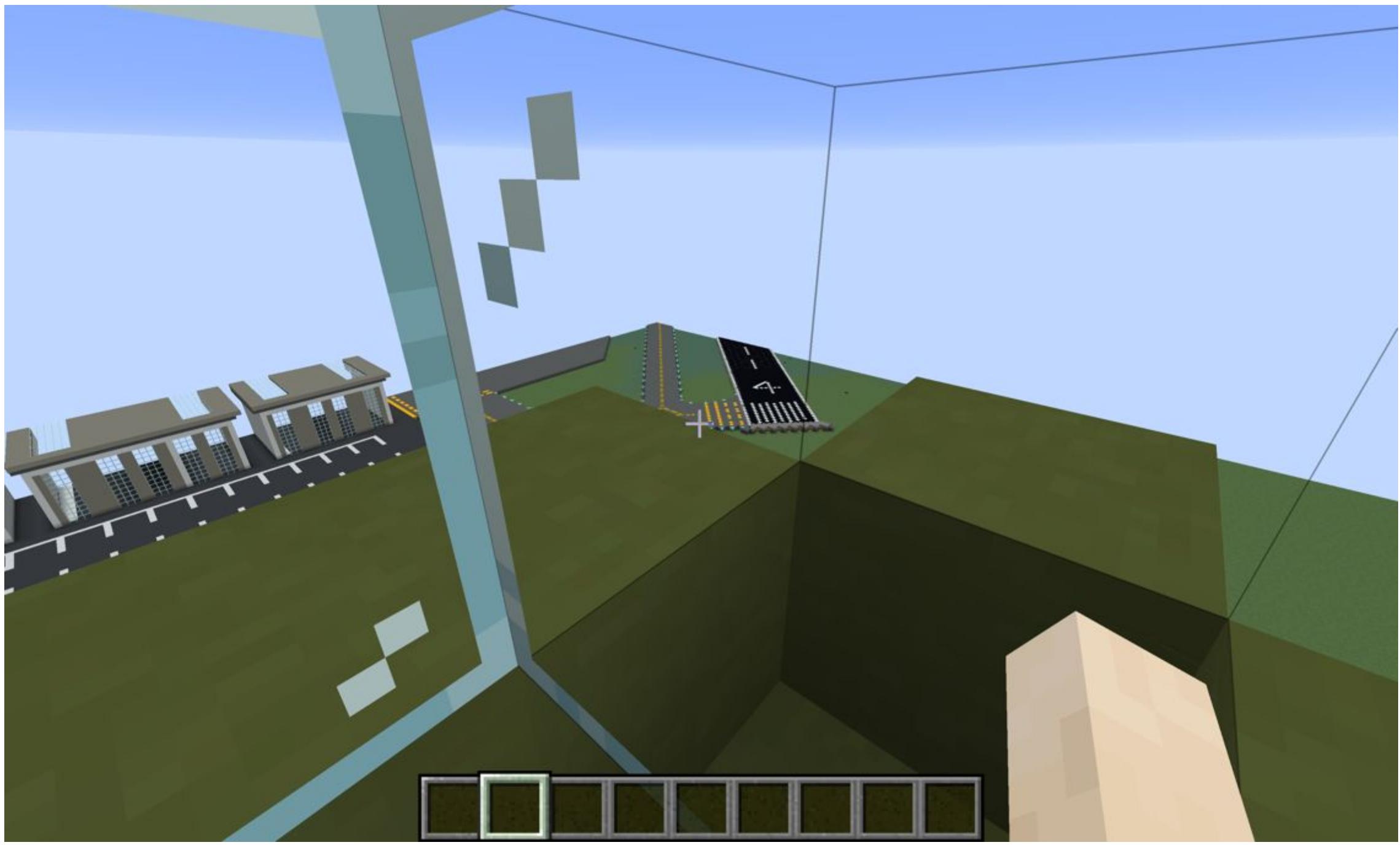
# **What We Liked Most About Making Wallops Flight Facility in Minecraft**

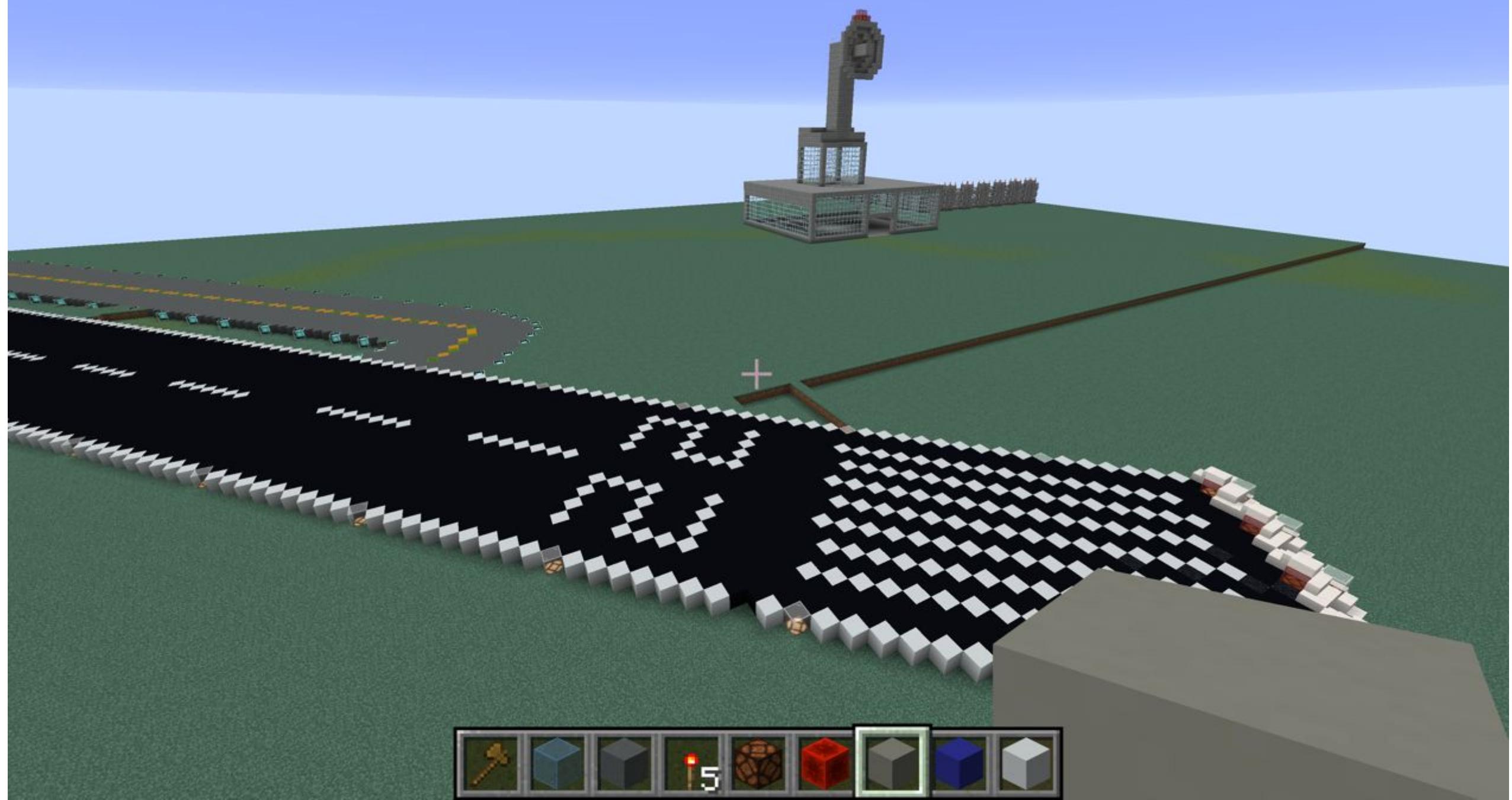
- It was fun decorating and transferring the pictures of the airport to the Minecraft world, and figuring out how to design it with blocks.
- It was fun experimenting what kind of control tower to build, because there were no pictures.
- It was fun to try to solve some of the problems we faced together as a team, like how to light up the beacon, make diagonal runways, and even work together remotely due to the Coronavirus social distancing requirements here in Northern Virginia.
- Not all team members were familiar with Minecraft when starting the project, and creating an airport was a fun and challenging way to learn (and to convince our parents to let us play Minecraft all day).

# KWAL Runway 4/22

<b>Dimensions:</b>	8748 x 150 ft. / 2666 x 46 m
<b>Surface:</b>	asphalt/concrete, in good condition
<b>Weight bearing capacity:</b>	
<b>Single wheel:</b>	57.0
<b>Double wheel:</b>	115.0
<b>Double tandem:</b>	225.0
<b>Runway edge lights:</b>	high intensity
<b>RUNWAY 4</b>	<b>RUNWAY 22</b>
<b>Latitude:</b>	37-55.624190N
<b>Longitude:</b>	075-28.256833W
<b>Elevation:</b>	34.0 ft.
<b>Traffic pattern:</b>	left
<b>Runway heading:</b>	043 magnetic, 032 true
<b>Markings:</b>	non precision, in good condition
<b>Visual slope indicator:</b>	4-light PAPI on left (3.00 degrees glide path)
<b>Runway end ident. lights:</b>	yes
<b>Touchdown point:</b>	yes, no lights
<b>RUNWAY 22</b>	non precision, in good condition
	4-light PAPI on left (3.00 degrees glide path)
	yes
	yes, no lights
<b>Additional Remarks:</b>	E-28 Arresting Gear 1500 Ft Fm the North End of Ry 22 is Rigged/In Battery.



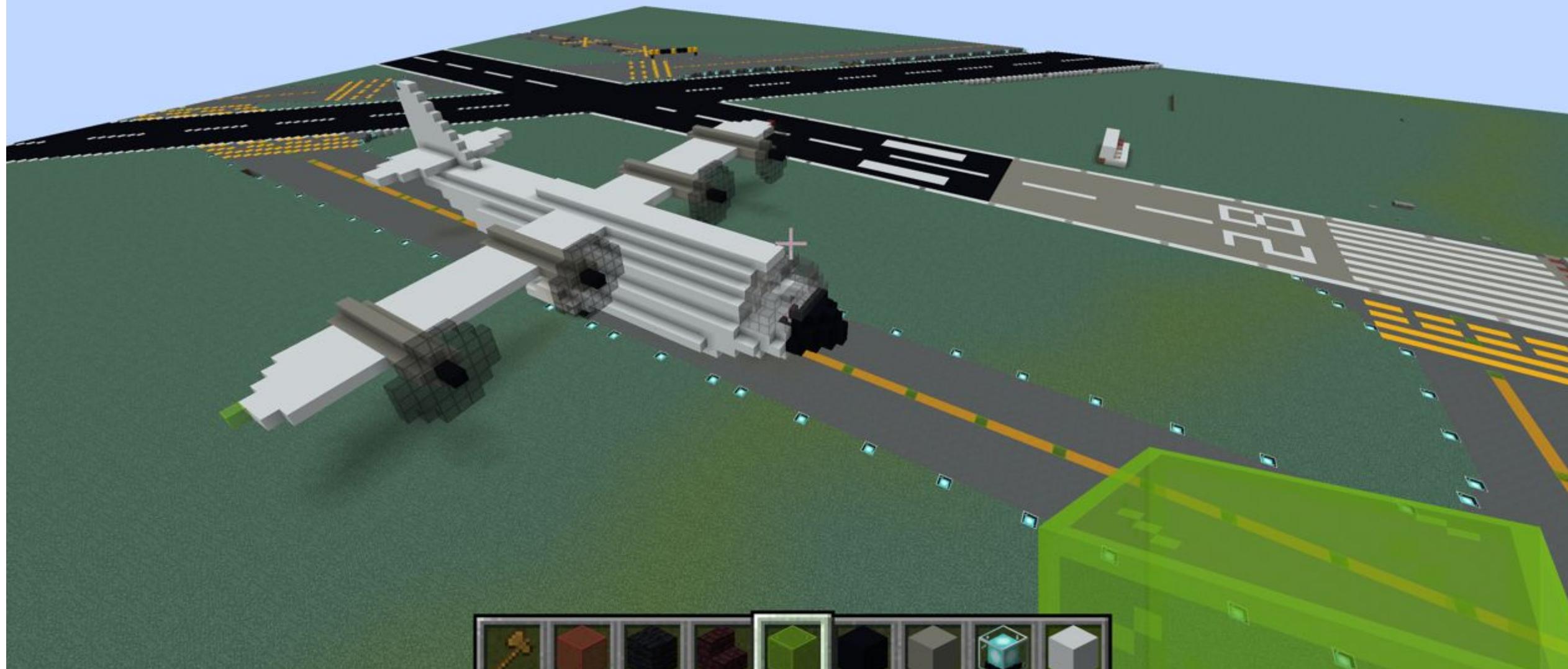




# KWAL Runway 10/28

<b>Dimensions:</b>	8005 x 200 ft. / 2440 x 61 m
<b>Surface:</b>	asphalt/concrete, in good condition
<b>Weight bearing capacity:</b>	
<b>Single wheel:</b>	57.0
<b>Double wheel:</b>	115.0
<b>Double tandem:</b>	225.0
<b>Runway edge lights:</b>	high intensity
<b>RUNWAY 10</b>	<b>RUNWAY 28</b>
<b>Latitude:</b>	37-56.576128N
<b>Longitude:</b>	075-29.104492W
<b>Elevation:</b>	19.4 ft.
<b>Traffic pattern:</b>	left
<b>Runway heading:</b>	101 magnetic, 090 true
<b>Markings:</b>	nonprecision, in good condition
<b>Visual slope indicator:</b>	4-light PAPI on left (3.00 degrees glide path)
<b>Runway end ident. lights:</b>	yes
<b>Touchdown point:</b>	yes, no lights
<b>Additional Remarks:</b>	Fclp Equipment Directly Adjacent to Left Side of Ry 10 1335-1725 Ft Fm Approach End. Fclp Equipment Directly Adjacent to Left Side of Rwy 28 1340-1725 Ft Fm Approach End.





# KWAL Runway 17/35

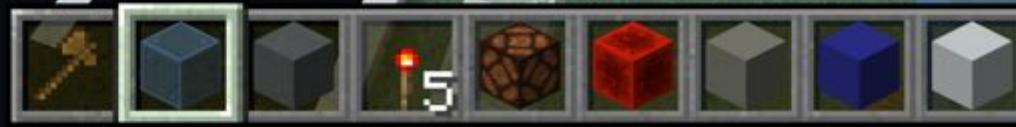
**Dimensions:** 4808 x 150 ft. / 1465 x 46 m  
**Surface:** asphalt, in good condition  
**Weight bearing capacity:**  
**Single wheel:** 15.0  
**Double wheel:** 40.0  
**Double tandem:** 75.0  
**Runway edge lights:** high intensity

	<b>RUNWAY 17</b>	<b>RUNWAY 35</b>
<b>Latitude:</b>	37-56.830780N	37-56.097798N
<b>Longitude:</b>	075-28.075640W	075-27.696255W
<b>Elevation:</b>	30.7 ft.	34.6 ft.
<b>Traffic pattern:</b>	left	left
<b>Runway heading:</b>	169 magnetic, 158 true	349 magnetic, 338 true
<b>Markings:</b>	nonprecision, in fair condition	nonprecision, in fair condition
<b>Visual slope indicator:</b>	4-light PAPI on left (3.00 degrees glide path)	4-light PAPI on left (3.00 degrees glide path)
<b>Runway end ident. lights:</b>	yes	yes
<b>Touchdown point:</b>	yes, no lights	yes, no lights





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# **Taxiways and Aprons**







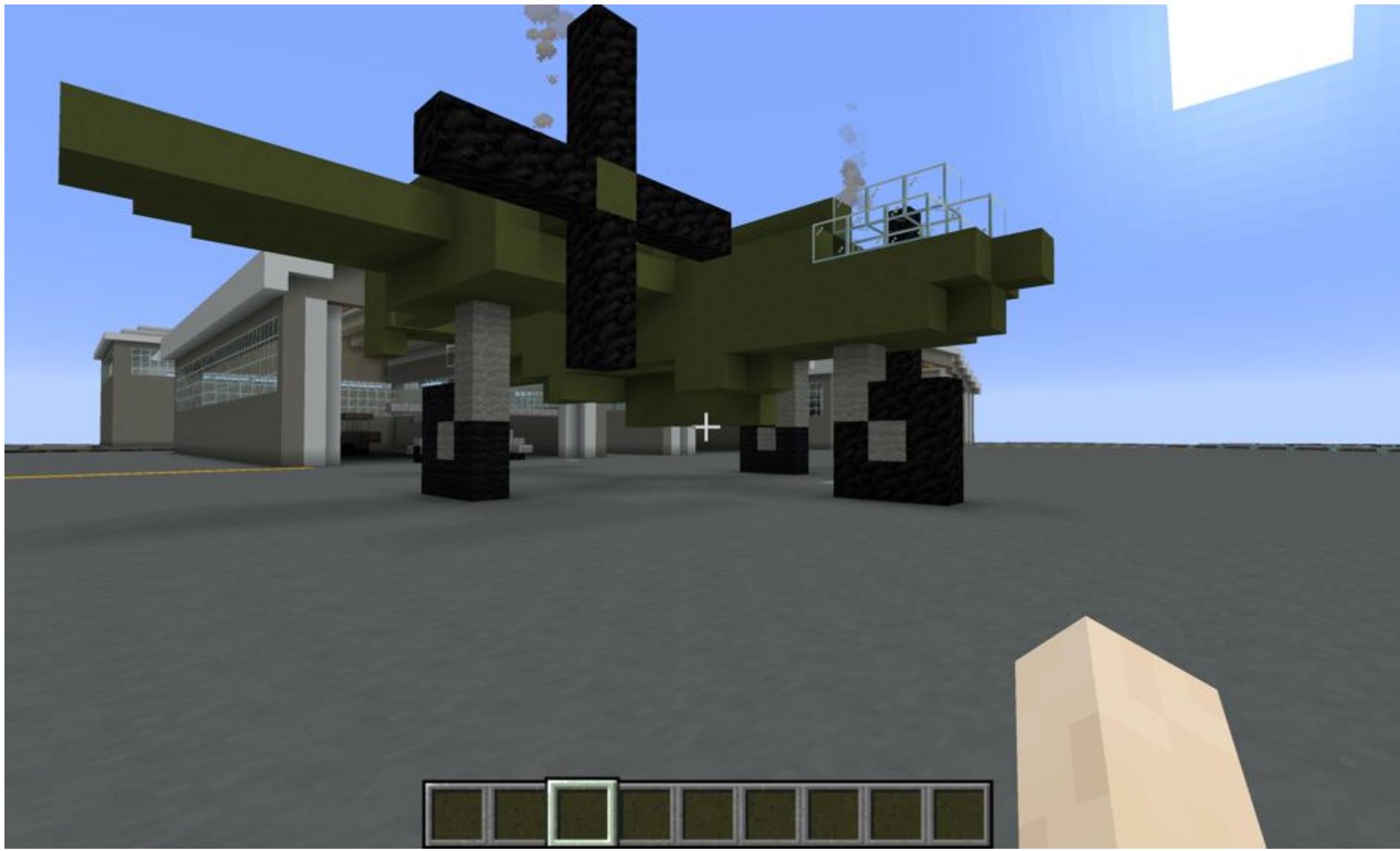


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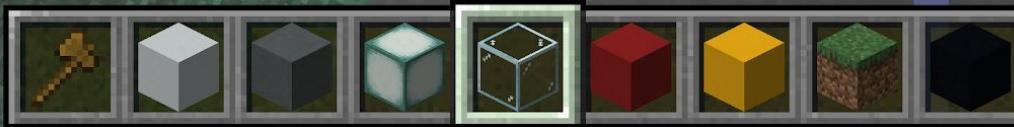


# **Lighting and Signs**















# **Control Tower and Airport Beacon**



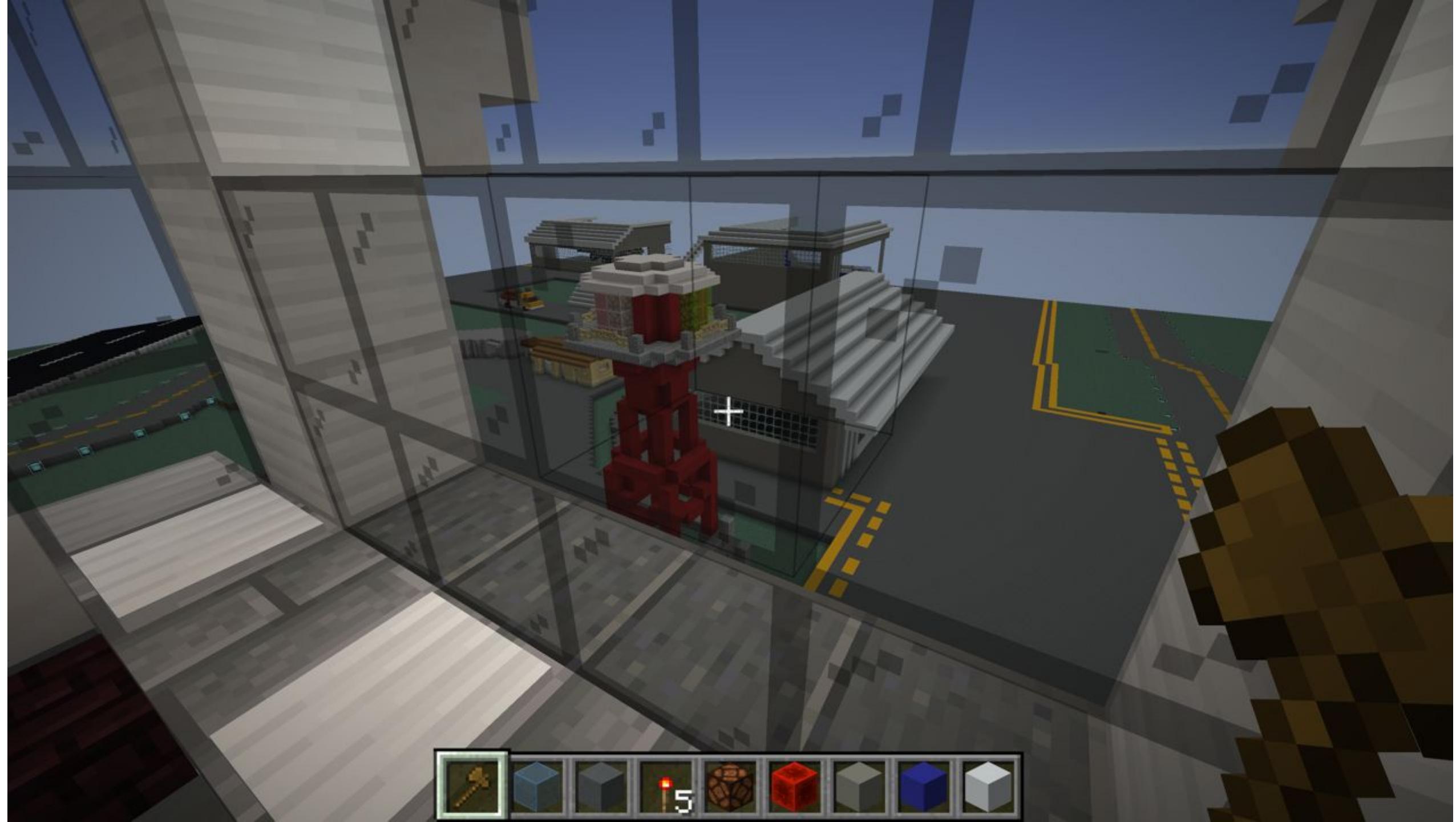
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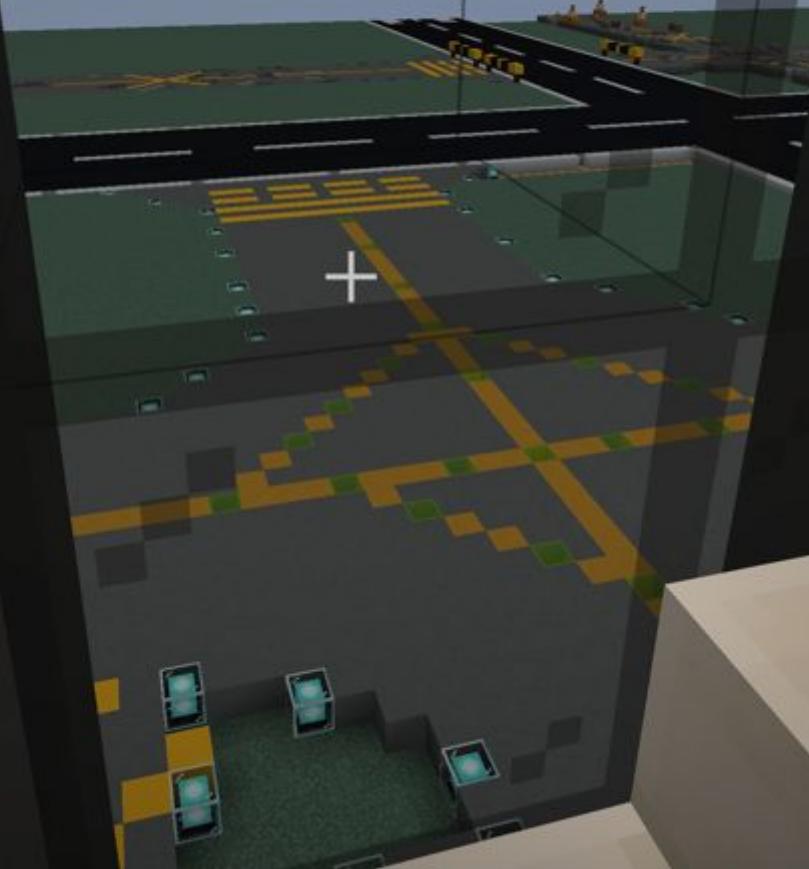


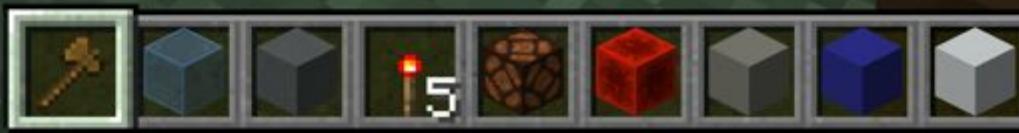


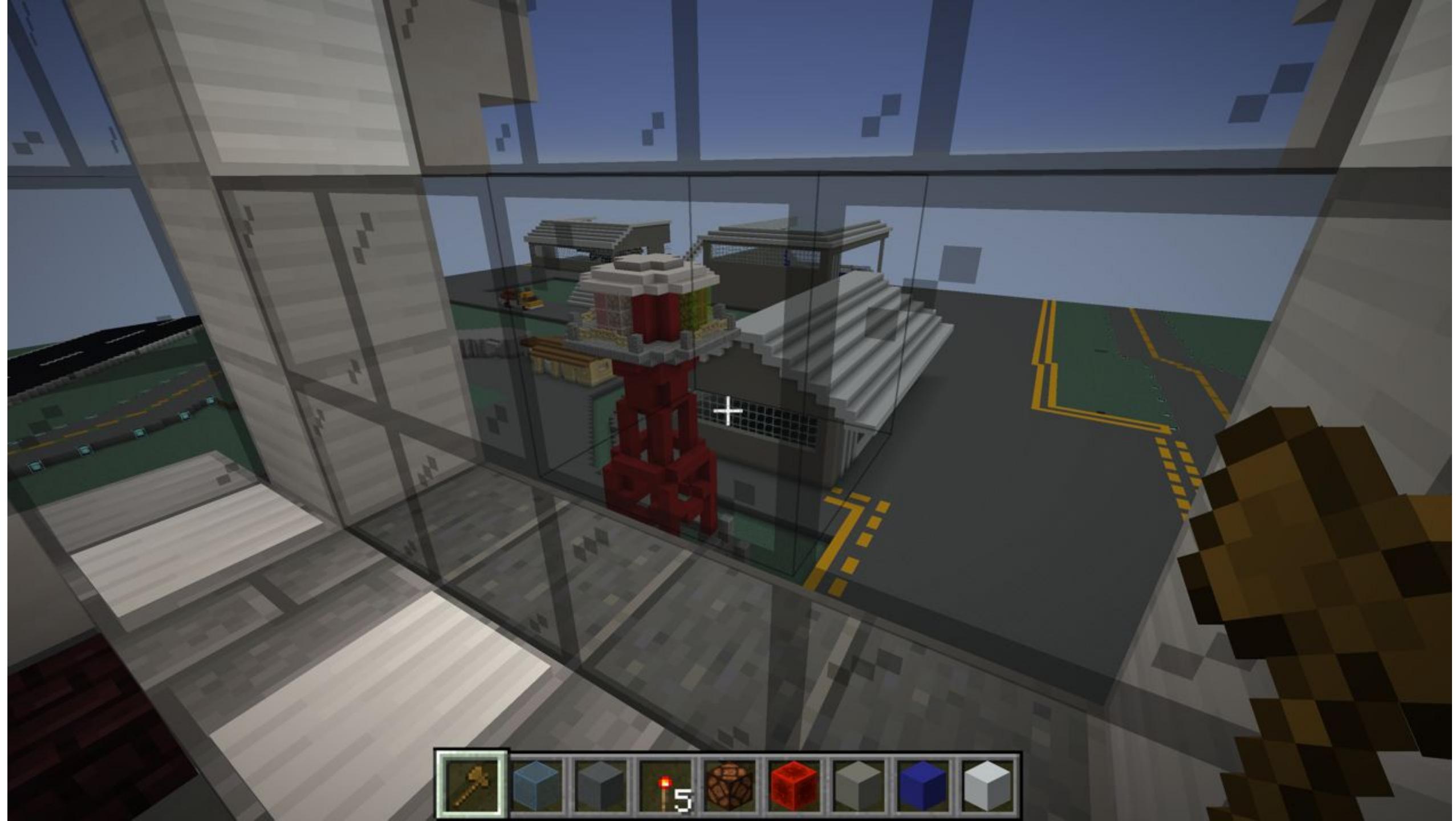
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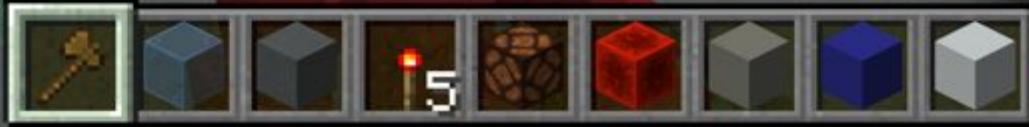










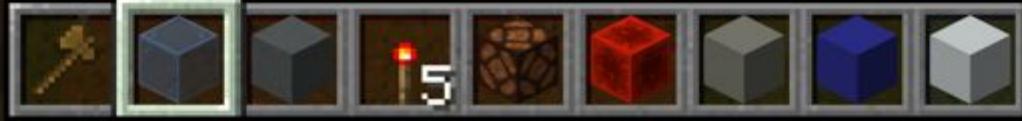


# **Hangars and Terminal Facilities**





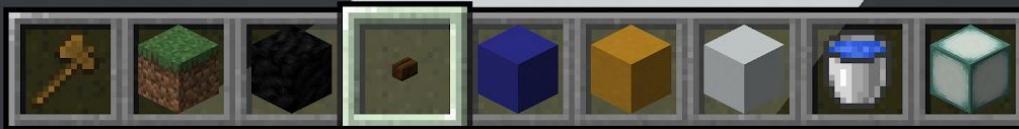
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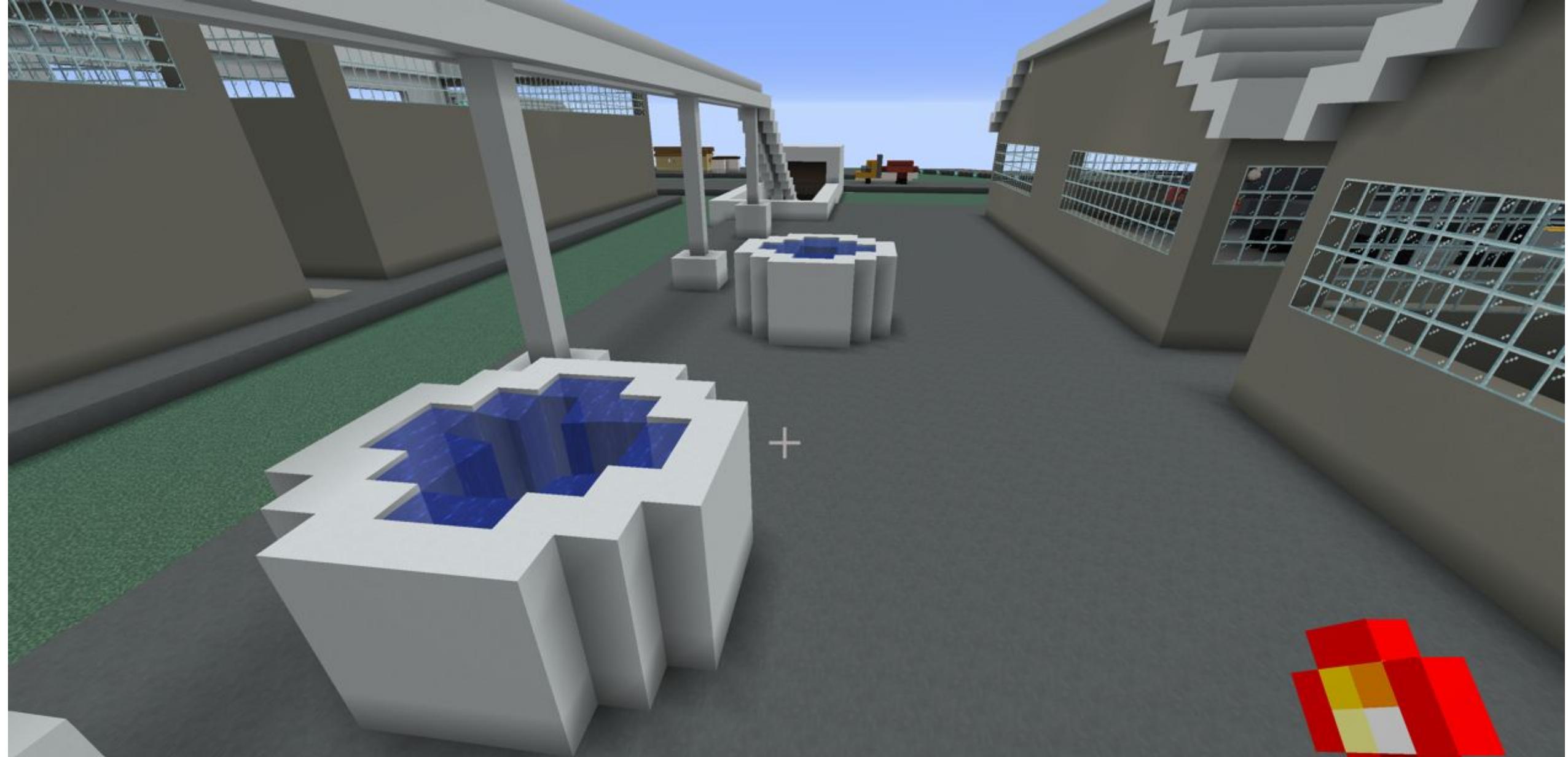




# **Emergency Services, Fuel, and Water**







# **Visitor Center**

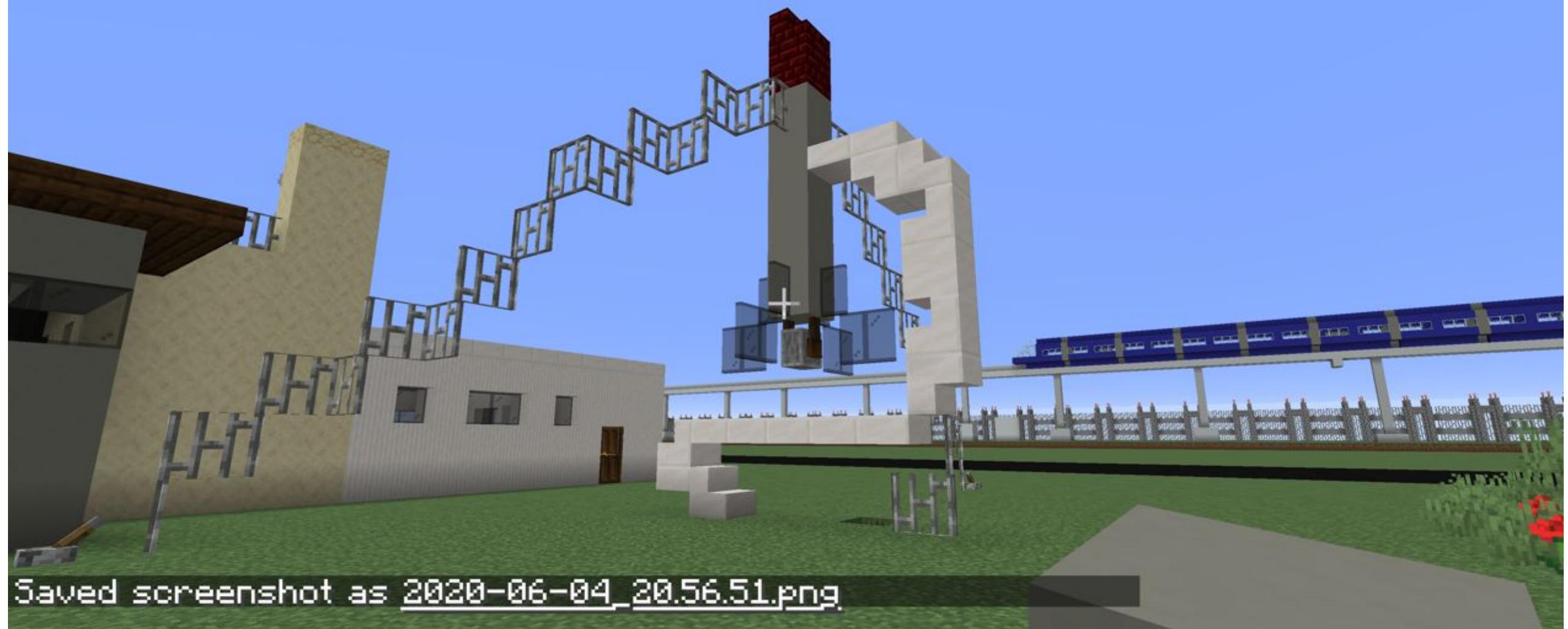


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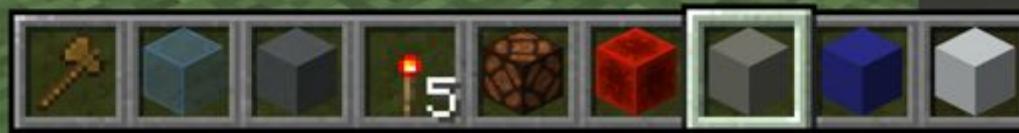
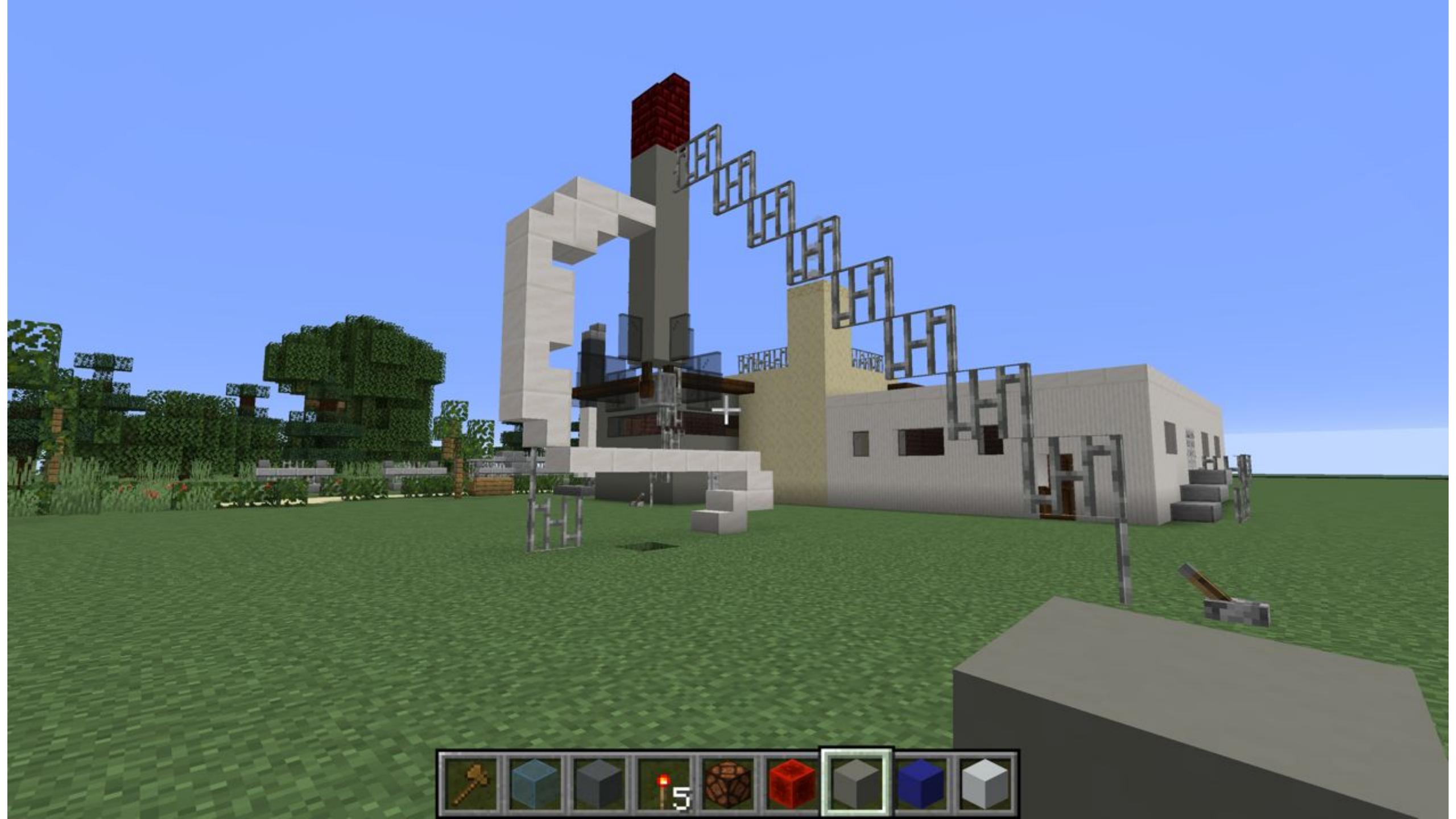






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# **NASA Research Activities**





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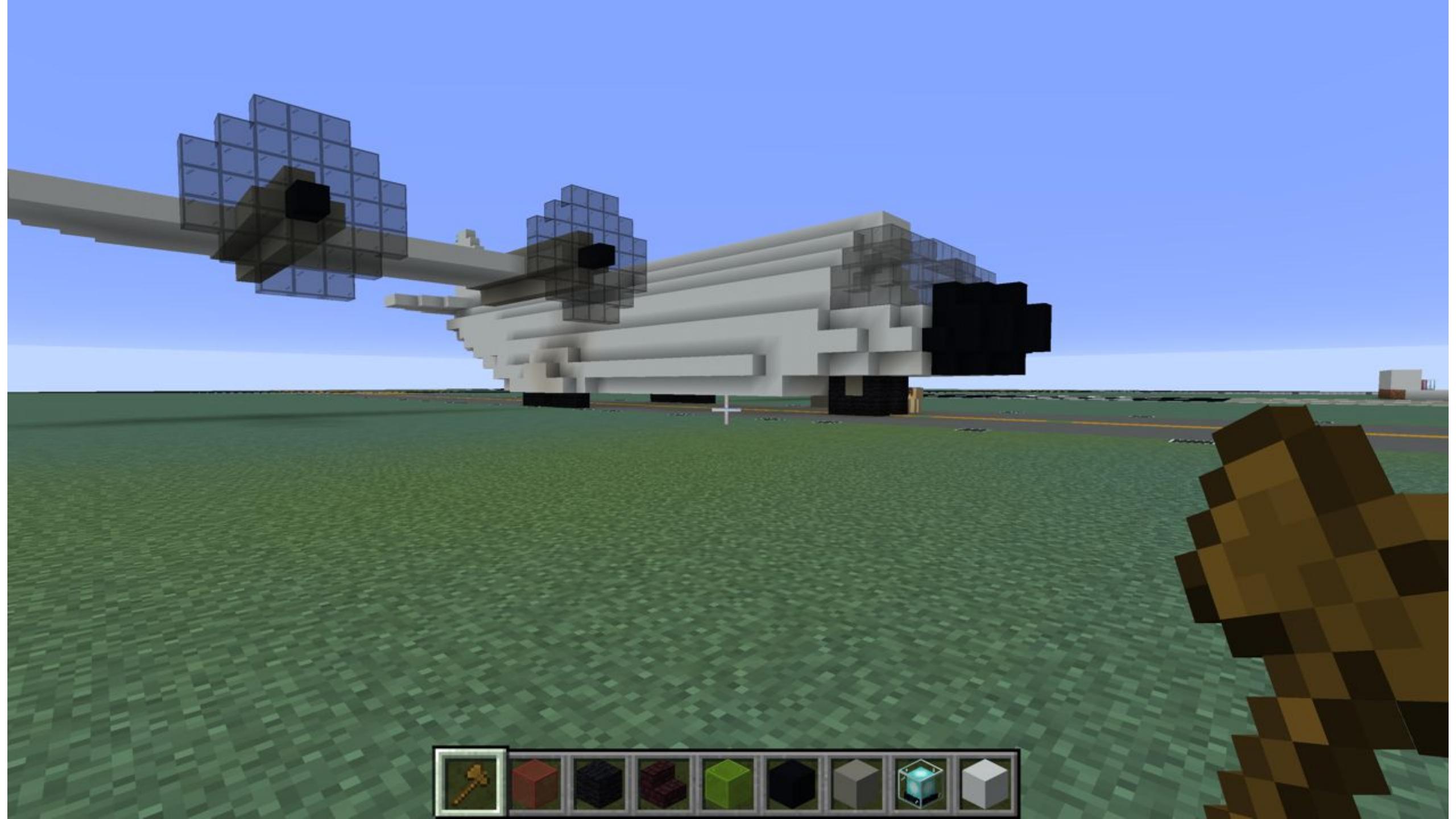








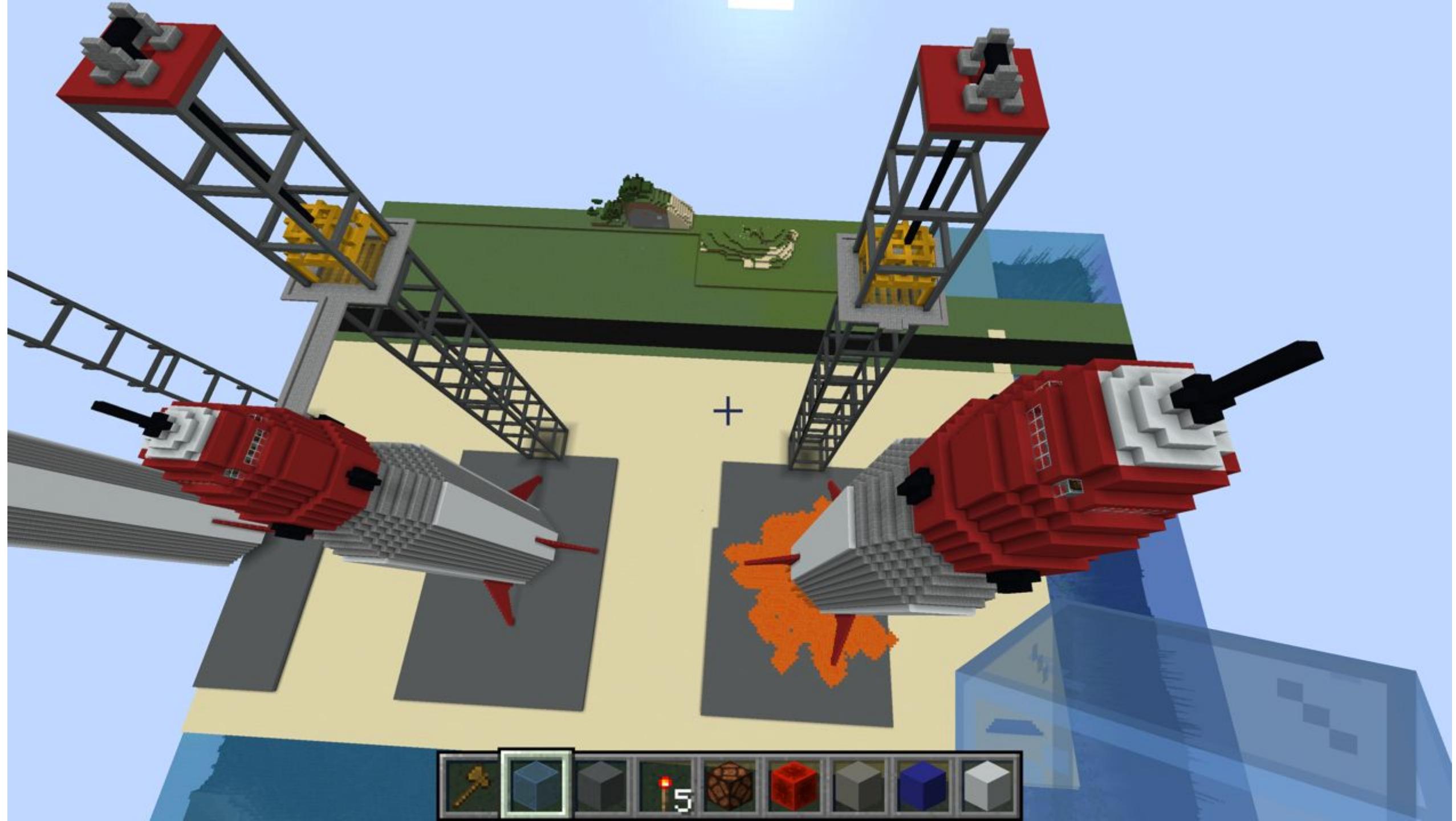




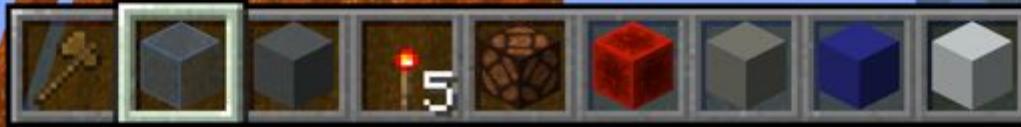




# **Wallops Island Rocket Launch Facility**



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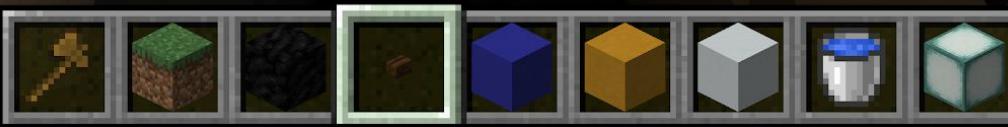




# **Wallops International Spaceport 2030**

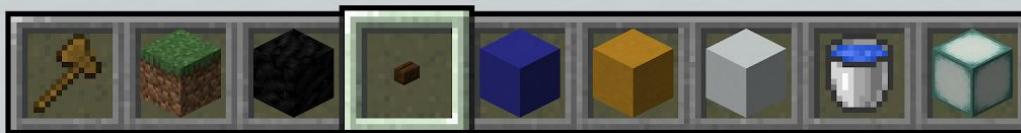
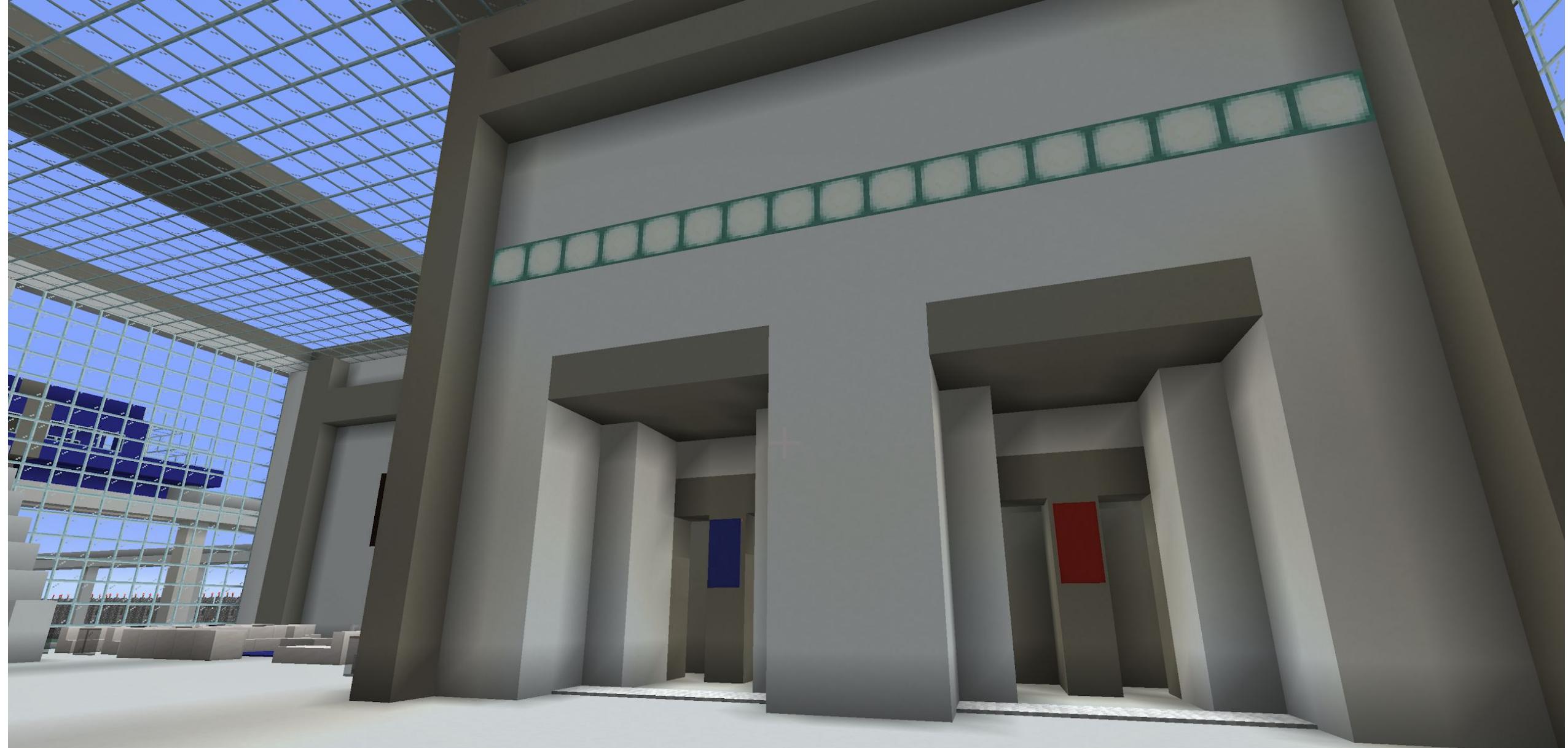


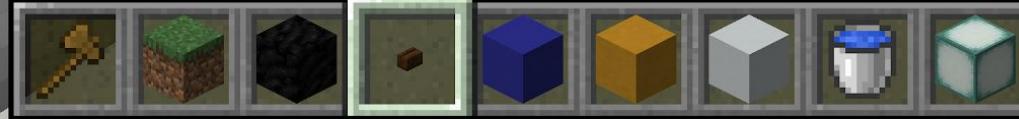


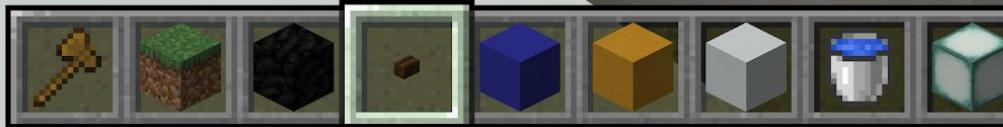


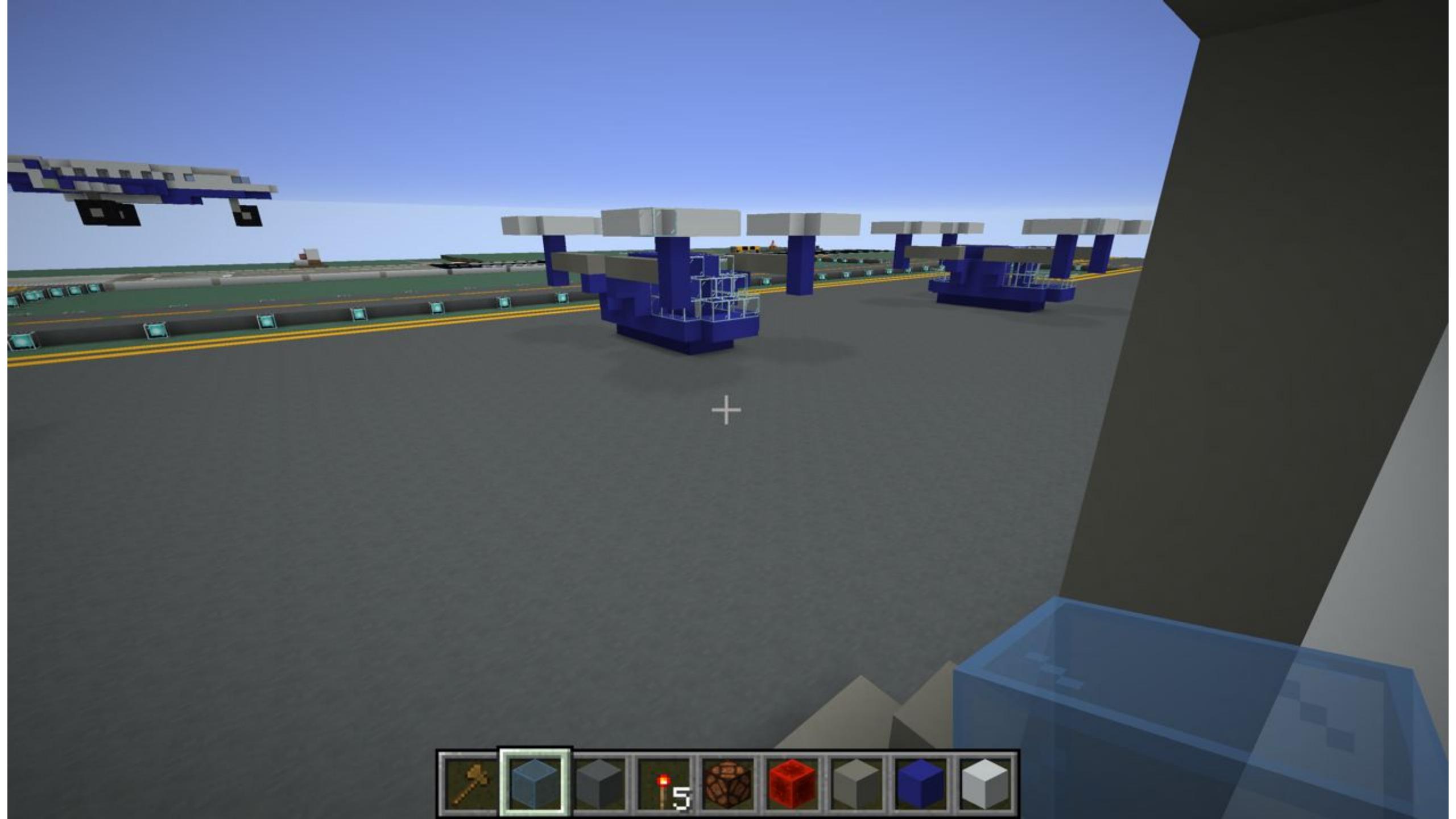


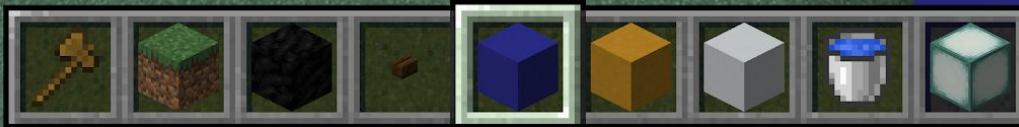


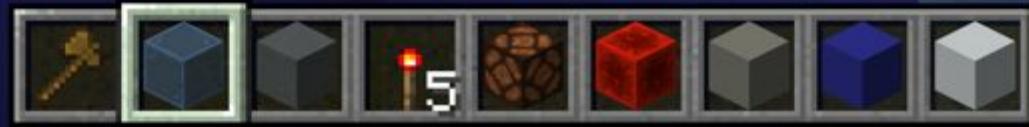


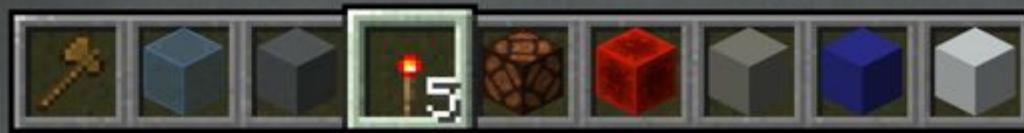






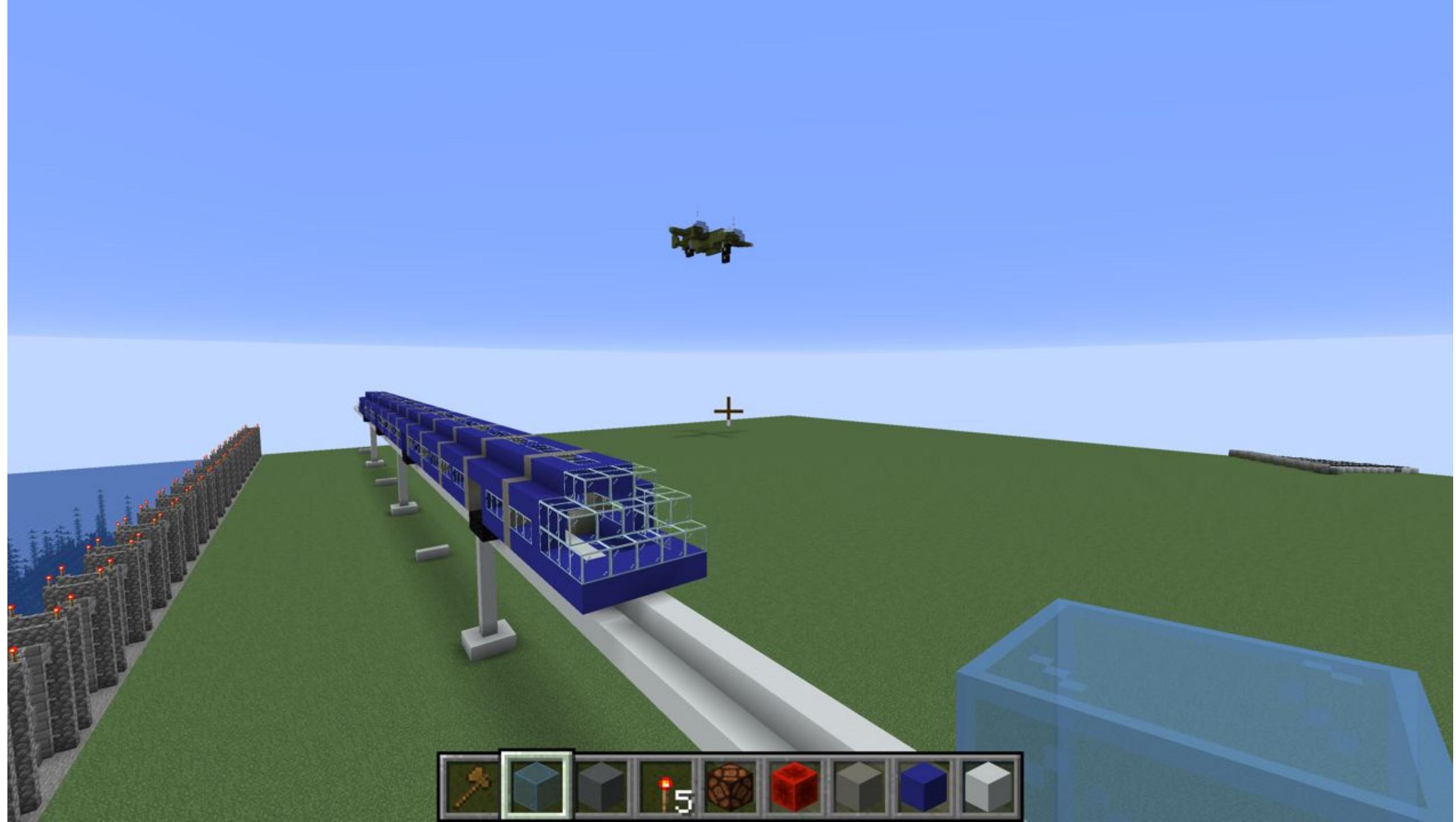








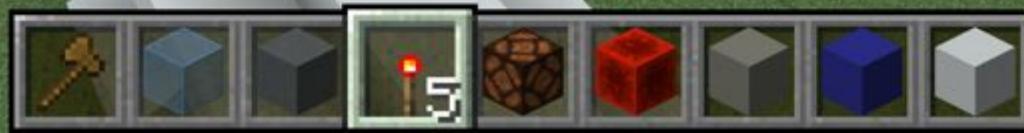
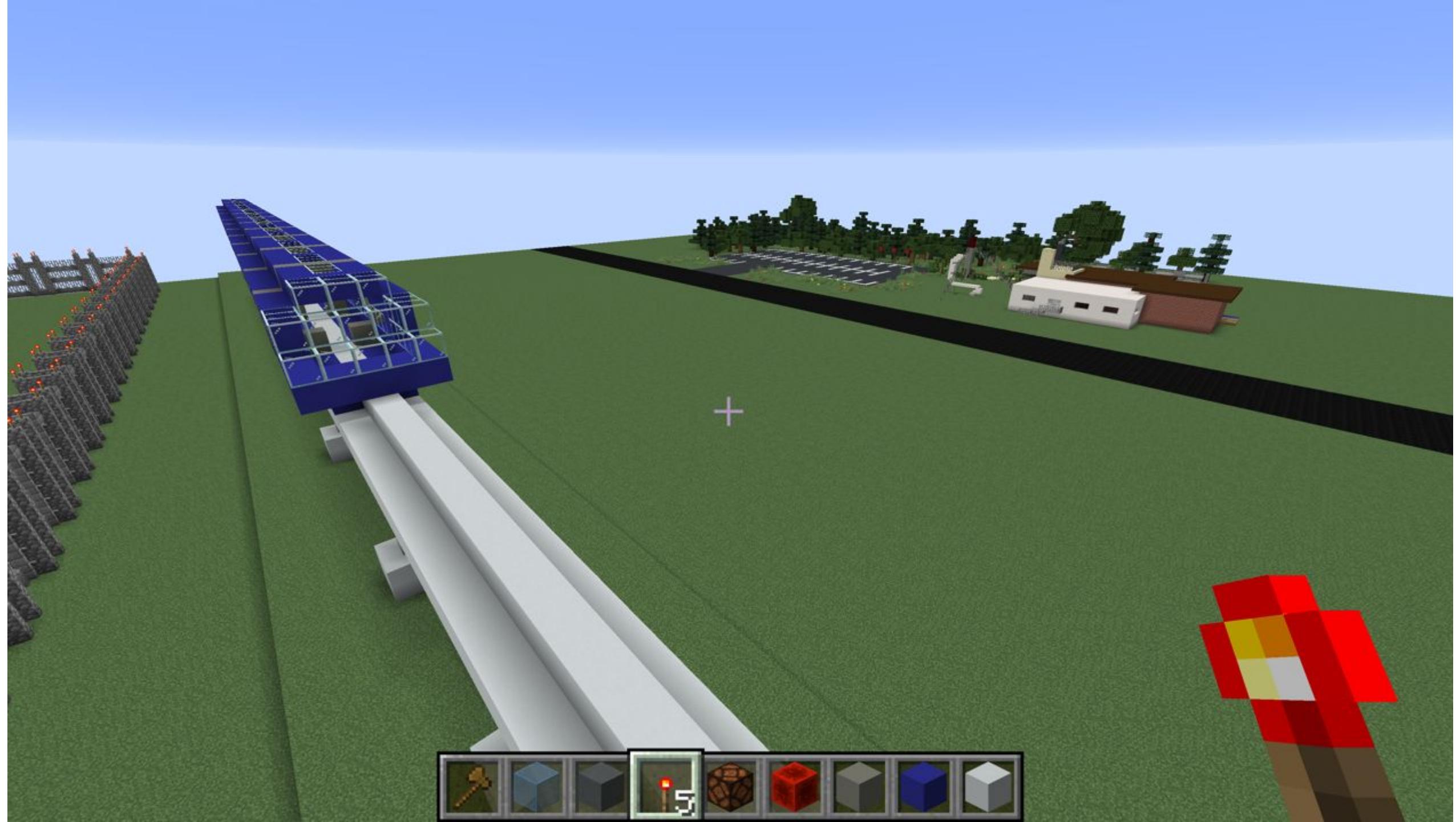


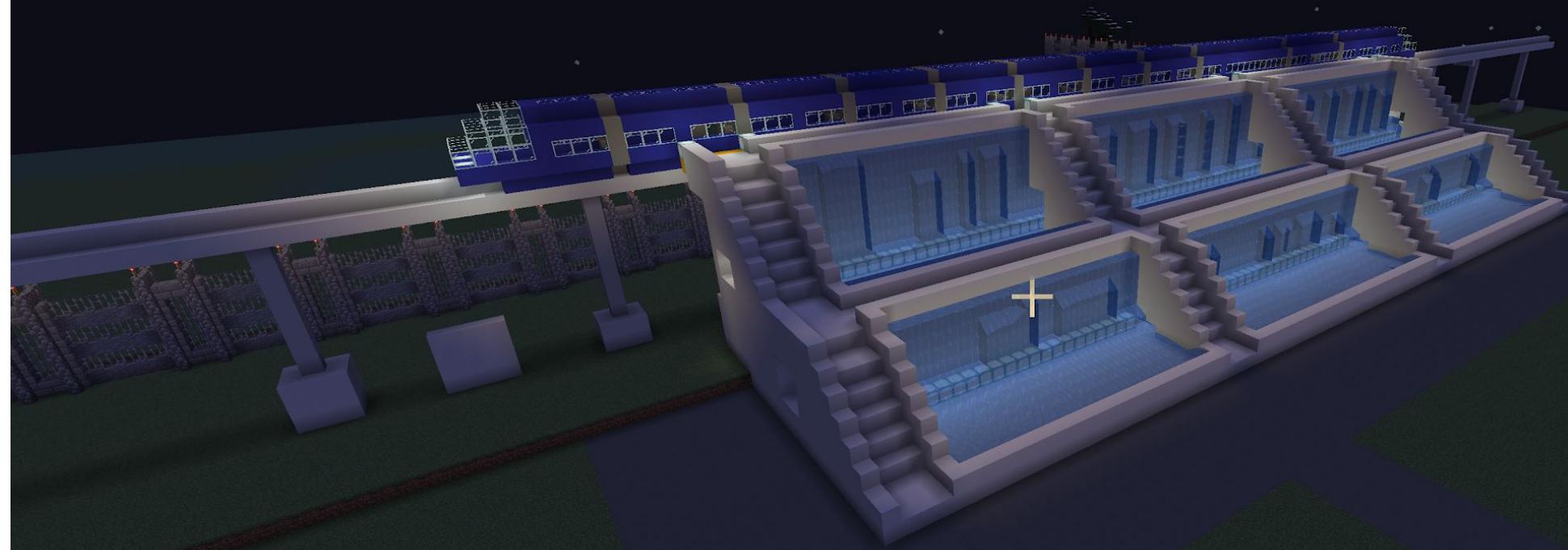


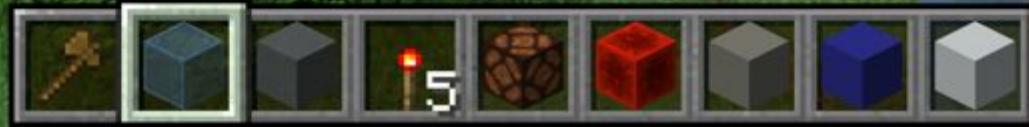


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# **Thank You FAA AVSED for a Fantastic Learning Opportunity!**

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