

## **City Centre Sustainable Housing Design Competition**

### ***Workshop 2***

### ***Housing: Units, density, and self-built***

Date: 27 March 2024

Time: 16:00-18:00

Venue: Online hosted by the CIB

Presenter: Francine van Tonder



City Centre Sustainable Housing

cibworld.org/city-centre-sustainable-housing-design-competition-2024/

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Join the workshops and participate in aspects of the competition brief which may be of interest.

The four workshops are outlined below, and you can register by clicking on the button below.

### Workshop 1

Wednesday 20th March 16:00 – 18:00 SAST(GMT+2)

- Aims of the competition – Jeremy Gibberd
- The site and its context – Riëtte Kotzé
- Competition Processes – Francine van Tonder

The presentations from the workshop are available through the links above and the workshop recording can be viewed [here](#).

### Workshop 2

Wednesday 27th March 16:00 – 18:00 SAST(GMT+2)

- Affordable Housing – Development and Delivery New policy (DHS) – Ntsako Mathonsi
- New initiatives and approaches for Human Settlements – Sijekule Mbanga
- Housing: Unite, self-build and density – Francine van Tonder

July 2023	5
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May 2022	57
April 2022	40
March 2022	25
February 2022	20
January 2022	23

16:16 2024/03/27



## Housing:

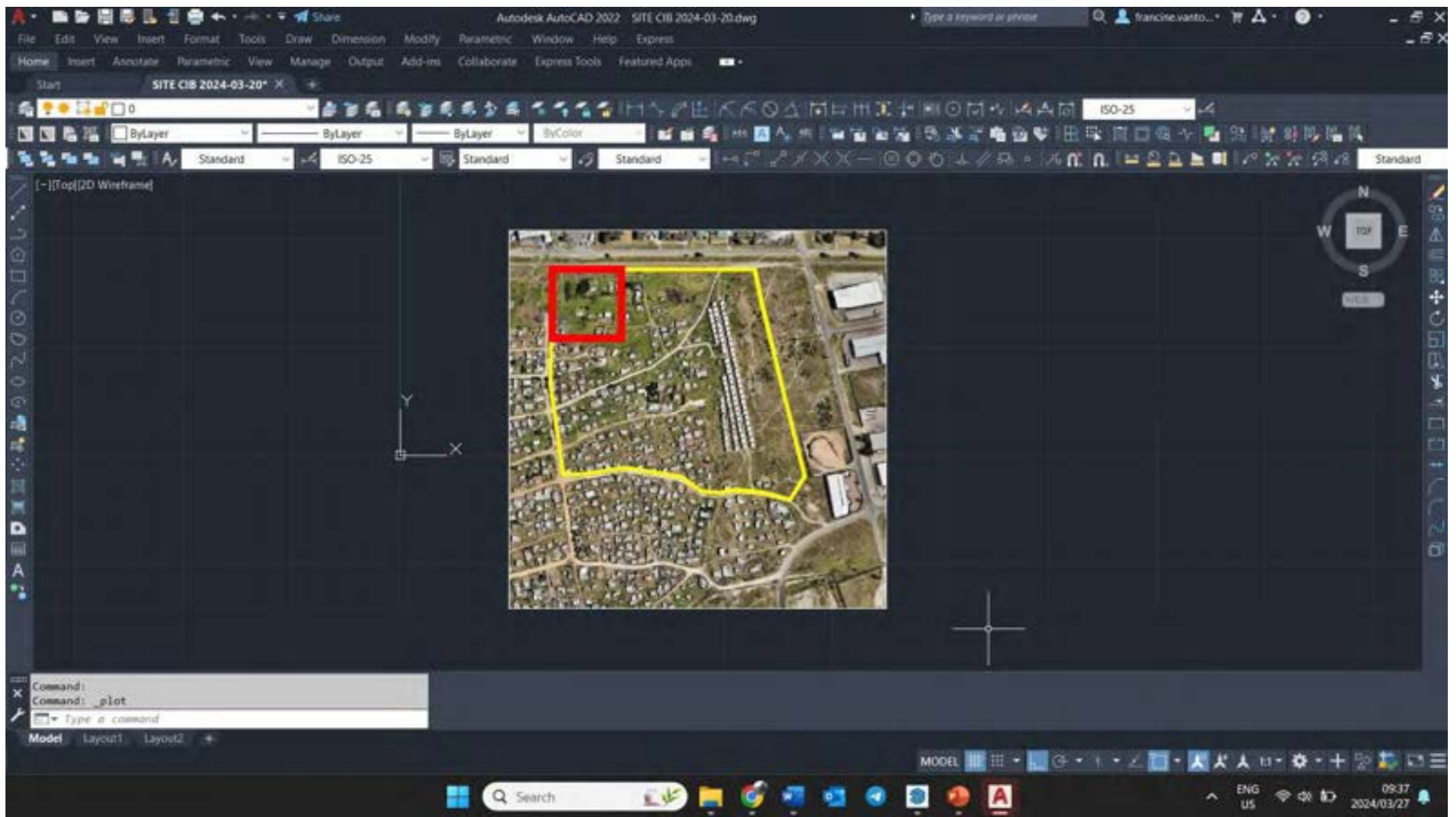
- Density,
- units,
- self-built



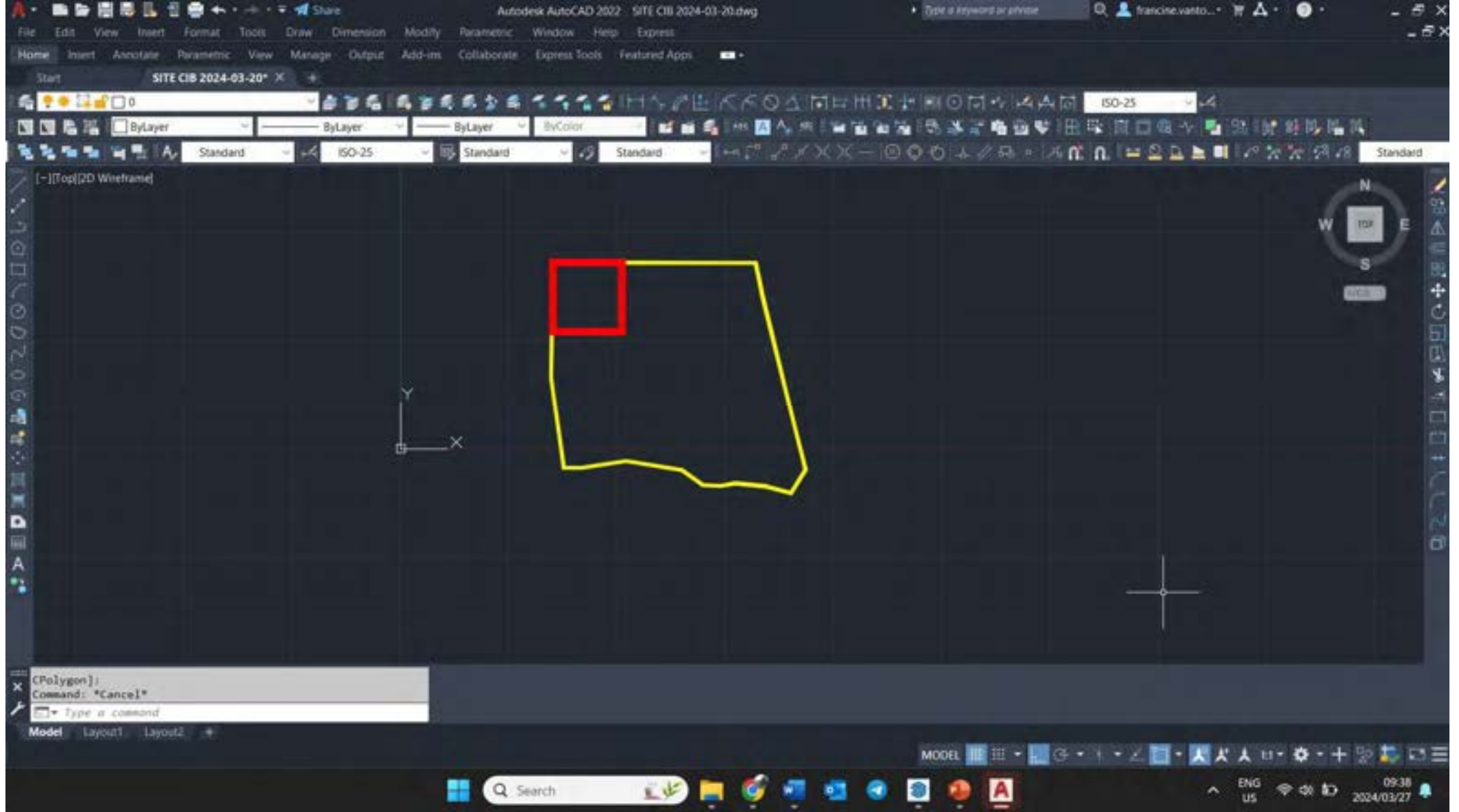
- Last week we looked at the site of 10 ha.
- One hectare is equal to an area of 10 000 square metres.
- Or 100m x 100m.



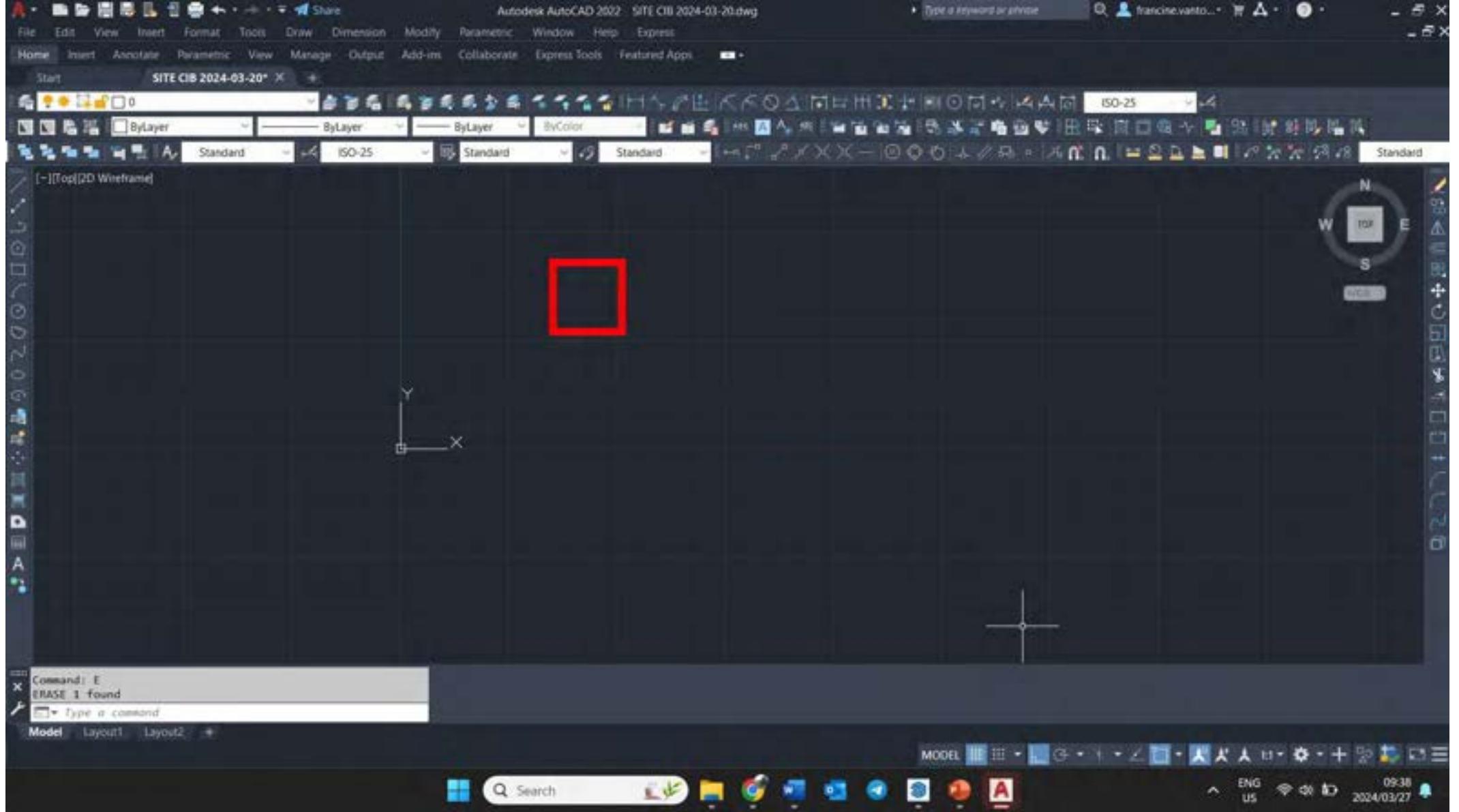
Density



The 2024 site



The 2024 site



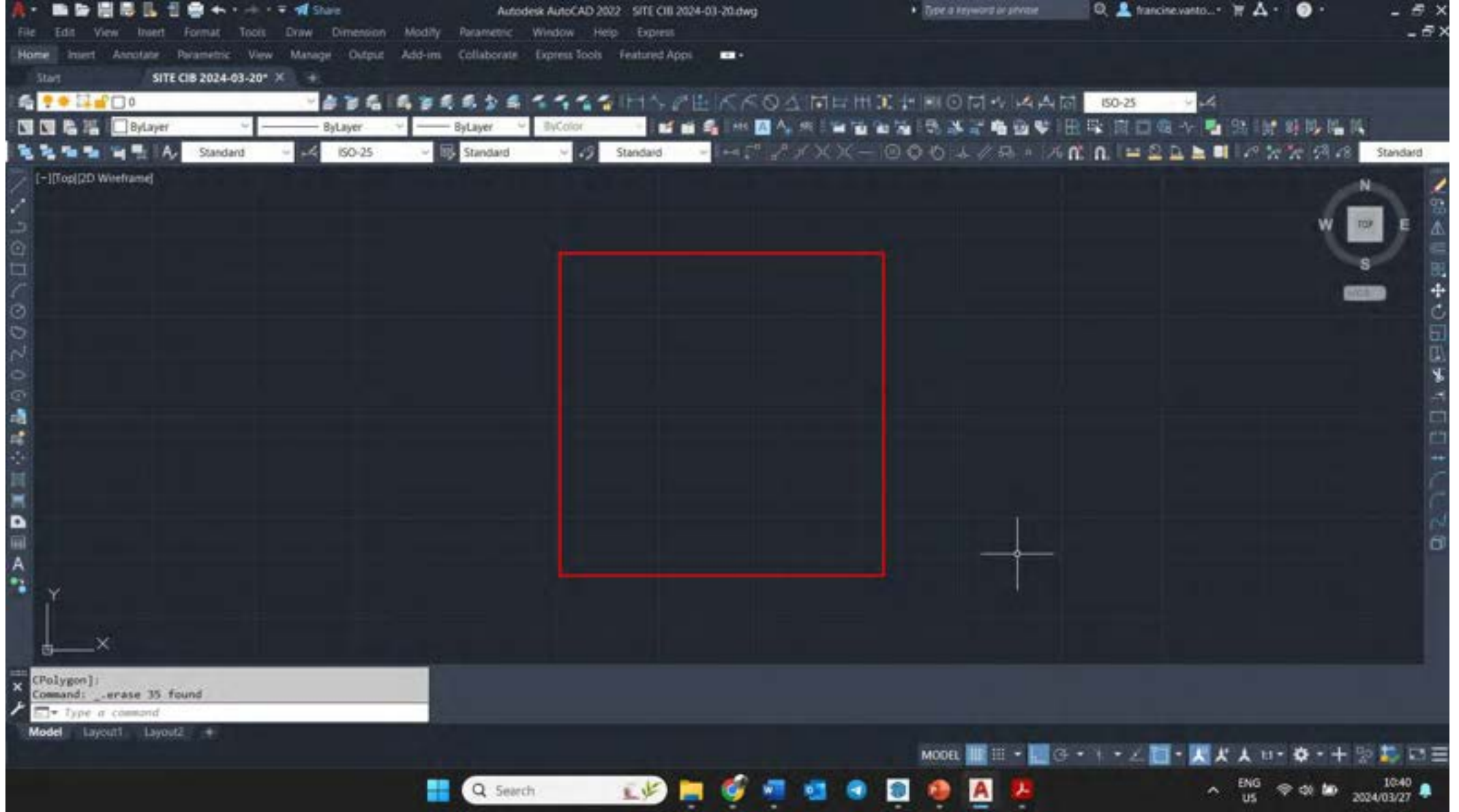
The 2024 site

- Standard RDP housing plots adhere to a minimum size of 250sqm per house (Greyling, 2009; Harrison et al., 2014)
- A low-cost housing unit of min 40 sqm.
- On a min 250 sqm site (14mx18m=252 sqm)

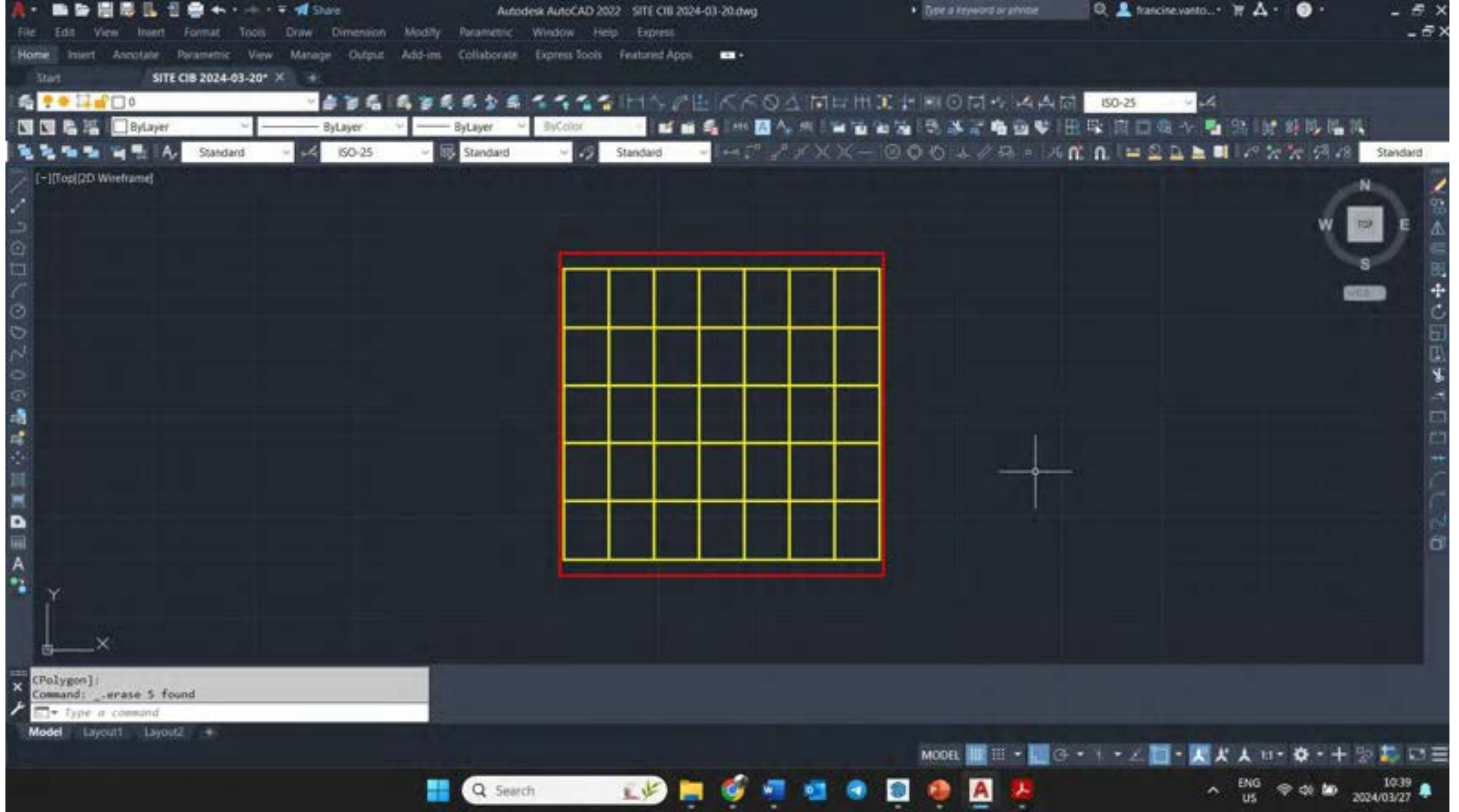


Density

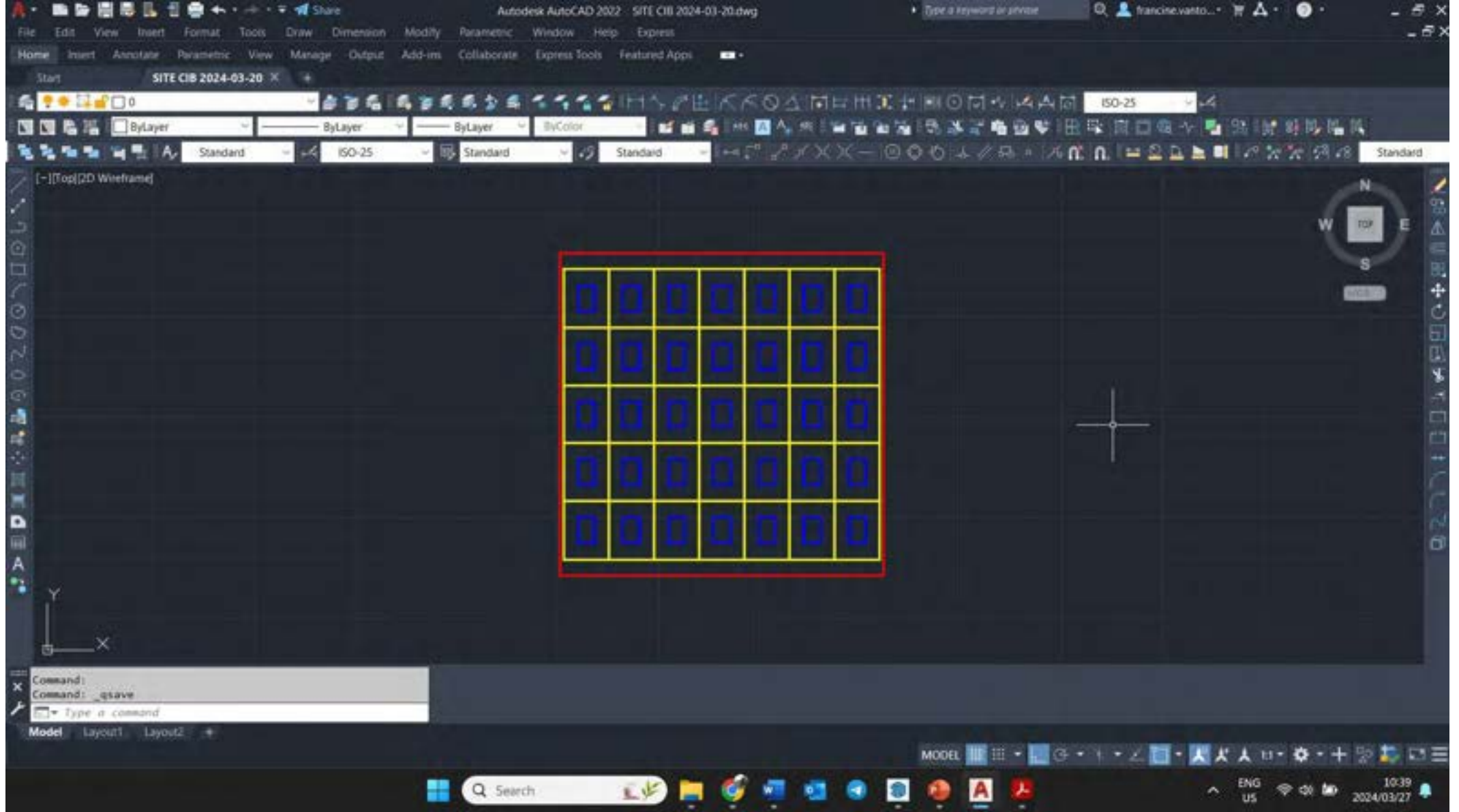




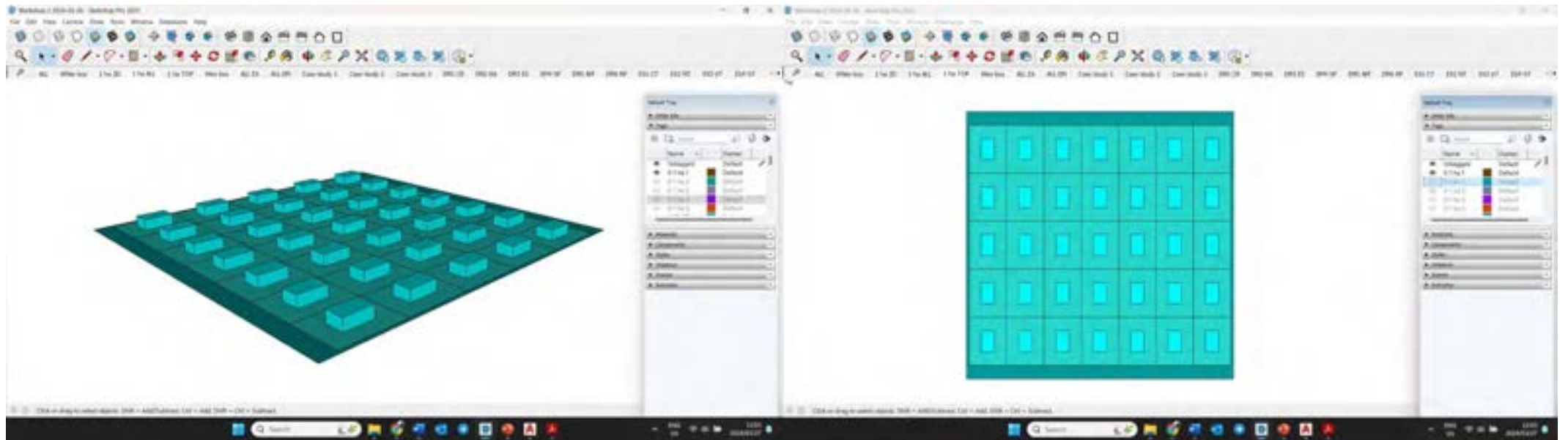
Density



Density



Density



Density

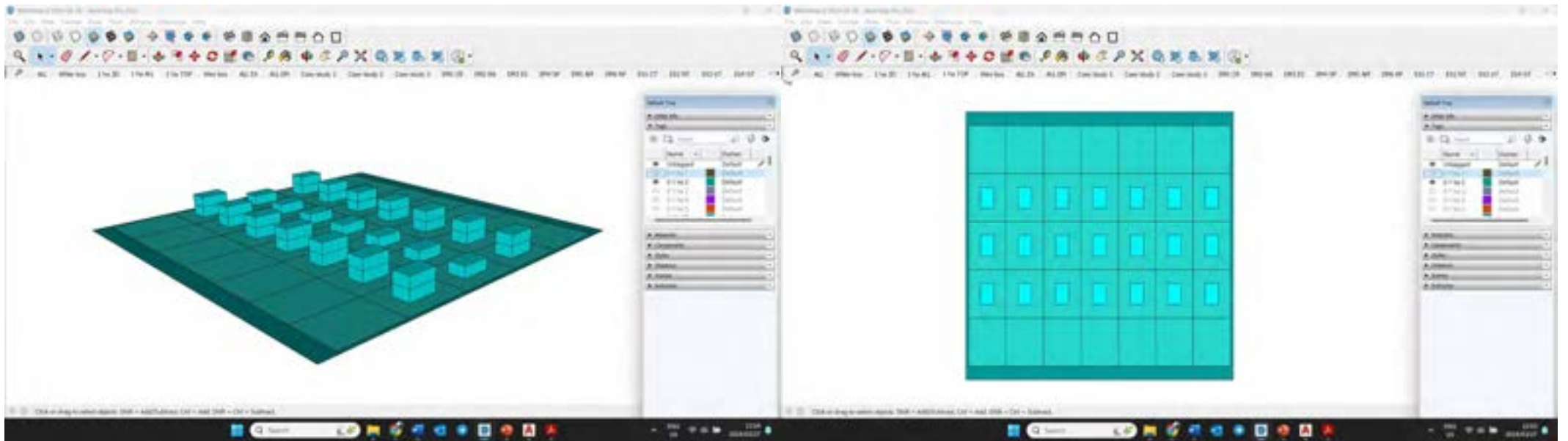
### Accommodation Schedule

For this proposal, our team developed one hectare of the site as per (for example) the image above/ Figure 1.

Function	Description	Overall number (occupants/users)	Overall floor area (m2)	Overall coverage (m2 and percentage, ex. 48%)
Housing units	(Example) 35 no 2 bed, 40 m2 units	3.34 (people) x 35 (units) = 116.9	35 (units) x 40 m2 (per unit) = 1 400 m2	Overall coverage: 1 400 m2  Percentage: 14% (1 400/ 10 000) x 100
Work units	None			
Other amenities and/or activities in your proposal	None			
<b>Subtotals</b>				



Density



Density

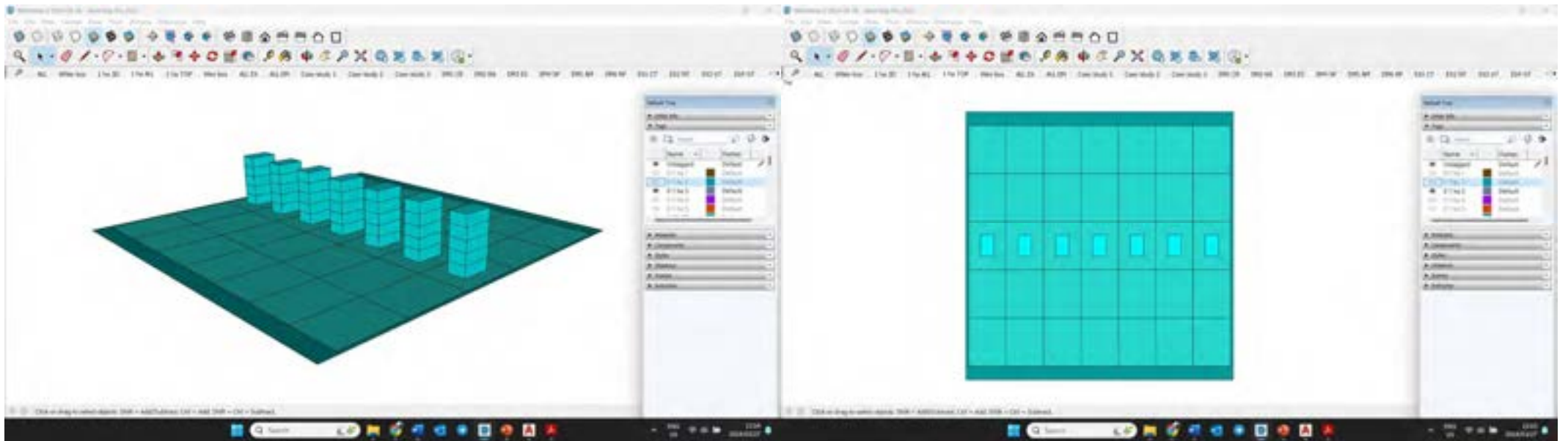
### Accommodation Schedule

For this proposal, our team developed one hectare of the site as per (for example) the image above/ Figure 1.

Function	Description	Overall number (occupants/users)	Overall floor area (m2)	Overall coverage (m2 and percentage, ex. 48%)
Housing units	(Example) 35 no 2 bed, 40 m2 units	3.34 (people) x 35 (units) = 116.9	35 (units) x 40 m2 (per unit) = 1 400 m2	Overall coverage: 840 m2  Percentage: 8.4% (840/ 10 000) x 100
Work units	None			
Other amenities and/or activities in your proposal	None			
<b>Subtotals</b>				

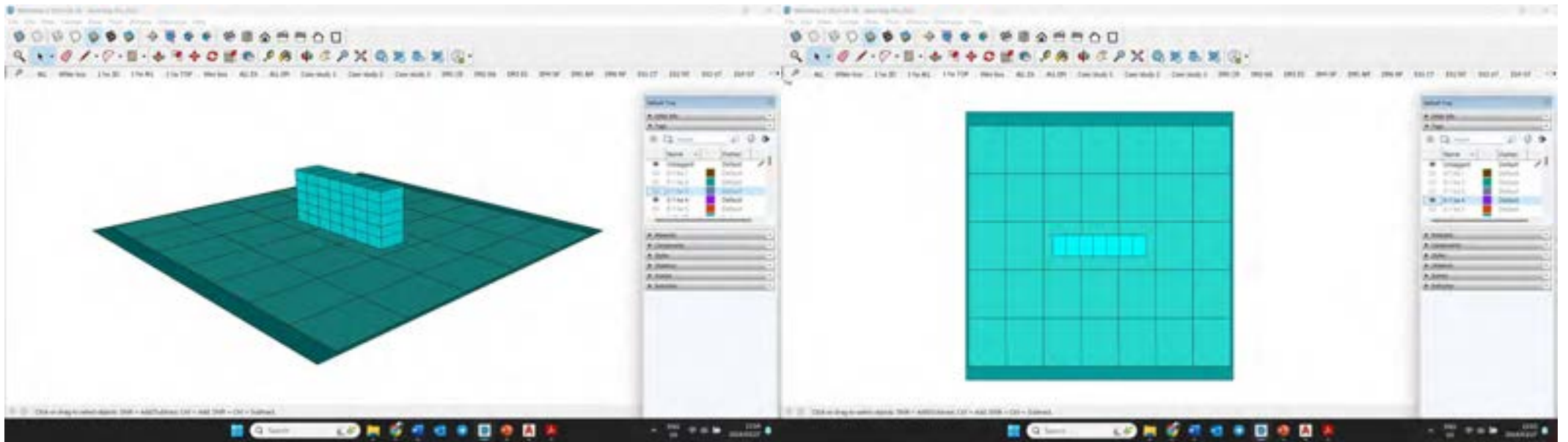


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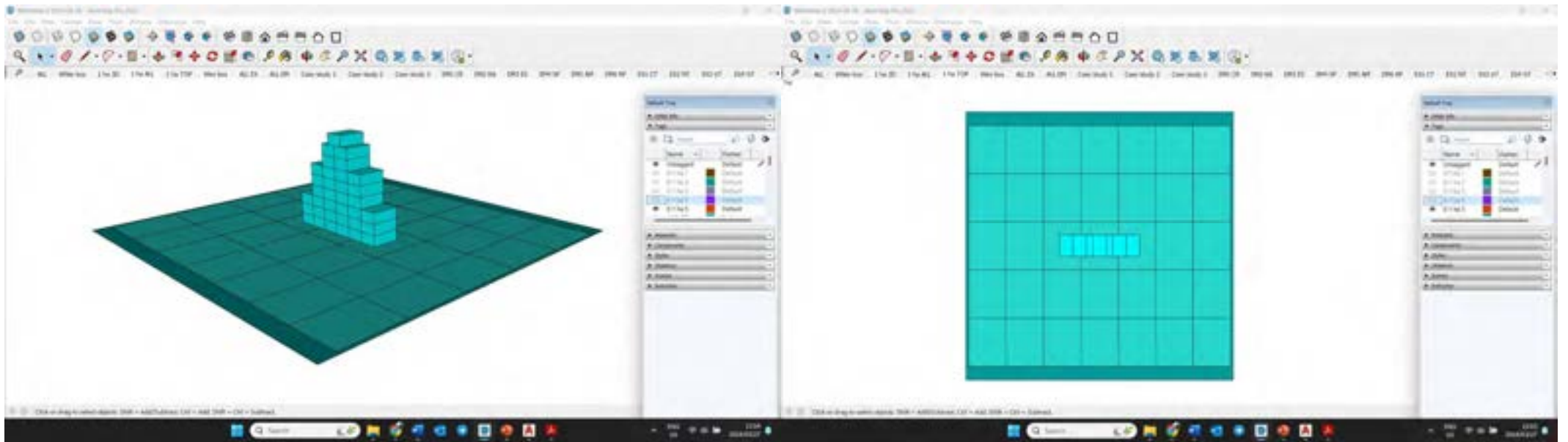


Density





Density



Density

It encourages the exploration of alternatives to existing low-cost housing development models. Highly innovative, lateral approaches, including the application of new environmental, economic, social, and organisational models as well as drawing on self-build, sufficiency, regenerative, circular economy, mixed-use, incremental housing ideas and systems are encouraged.

Designs should show how key sustainability characteristics such as density, social cohesion, access to education, health and work opportunities and sustainable food, water, energy, sanitation and food systems can be developed by responding to local opportunities and working within existing limitations.

Teams can determine the number, arrangement, size, and type of sustainable housing. Conceptual approaches, including data (see below), should be explained to show how high-performance sustainability performance criteria, such as net positive energy and water systems and urban densities over 60 units/ha, are achieved.

The competition has a focus on environmental, economic, and social sustainability, diversity and inclusion, sufficiency, self-build, unit design, strategies for the future and innovative materials. This is reflected in the prizes that will be awarded (see Prizes) and will be addressed in the workshop series (see Workshops).

### Site

The site is located in Gqeberha, Eastern Cape. The closest corner is Community Street and 5<sup>th</sup> Avenue; with Walmer Primary School to the west and the Chief Dawid Stuurman International Airport to the east. The site is 3,2 Km from the Gqeberha city hall. The site is 10 hectares.

- Site coordinates for Google Earth are: 33°59'04"S 25°36'26"E
- Further site information and photos are coming soon.





DAVOS AGENDA

# Paris or Manhattan: Which type of city is best for reducing emissions?

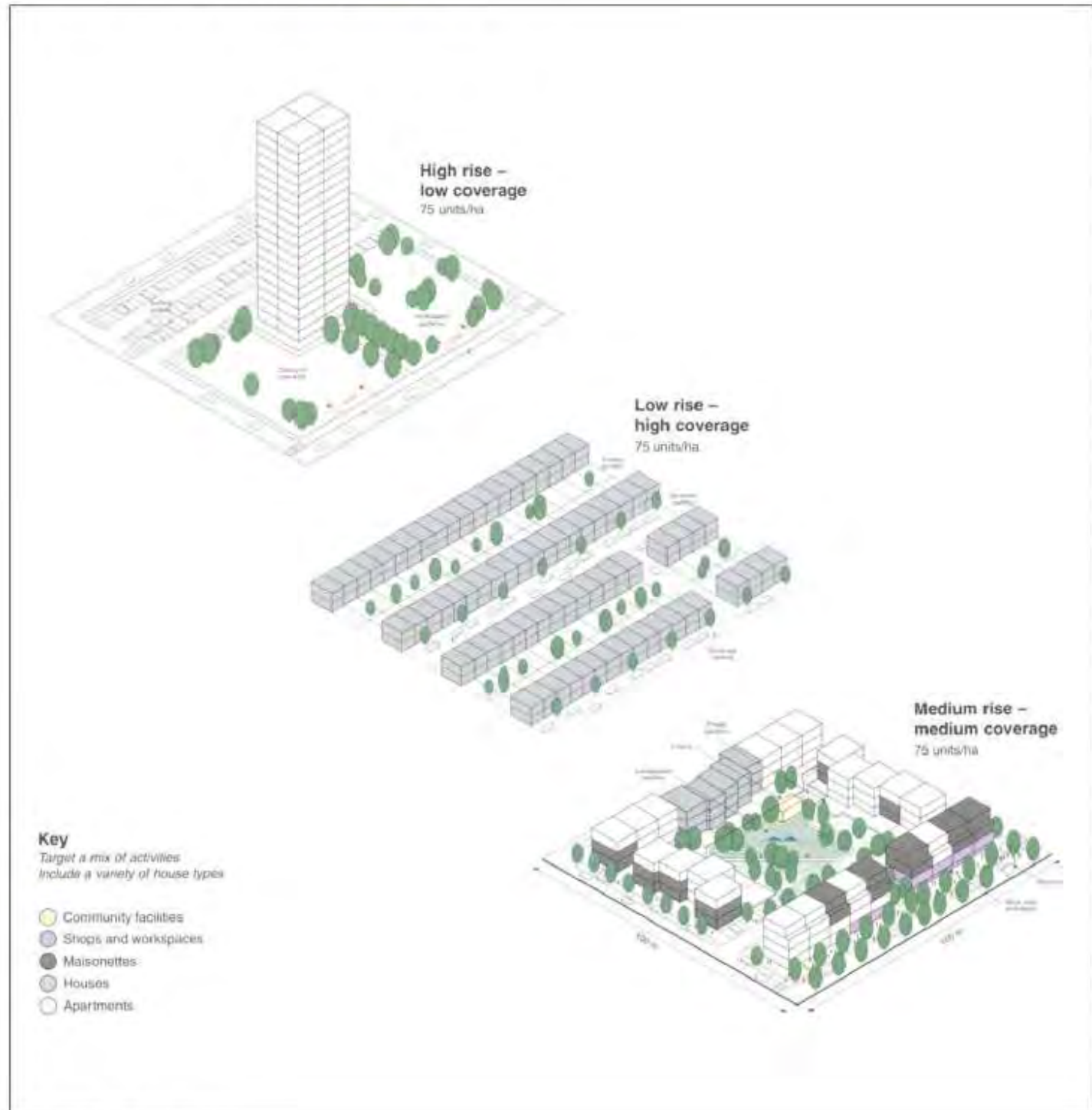
Sep 20, 2021



Low rise, high density

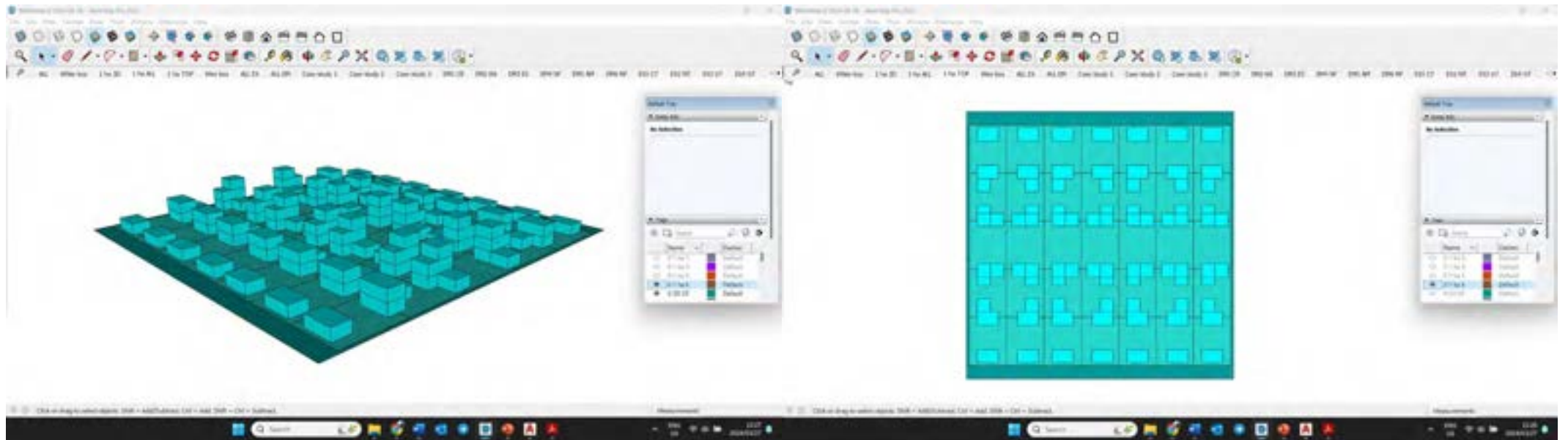
Figure 2.6: Relationship between density and urban form

- 75 units/ha





Density



Density

- What is your strategy to densify towards 60 units/ ha?
- Or to achieve more units per hectare?
- What is your strategy for the unit?
- What is your strategy for the future?
- Can those who live on the site have a hand in the densification of the site?
- Is self-built possible?
- What is your urban planning strategy for the 10 ha?



- There are 3 additional prizes specifically for those who answer these questions with abstract emerging ideas and well-resolved, beautifully presented proposals.



submission from 12 finalist groups	
<b>Exhibition and Prize-giving</b>	<i>Hosted at the 18th Built Environment Conference Construction 5.0: Towards a Collaborative and People-Centered Industry, 15 July 2024 at Nelson Mandela University</i>

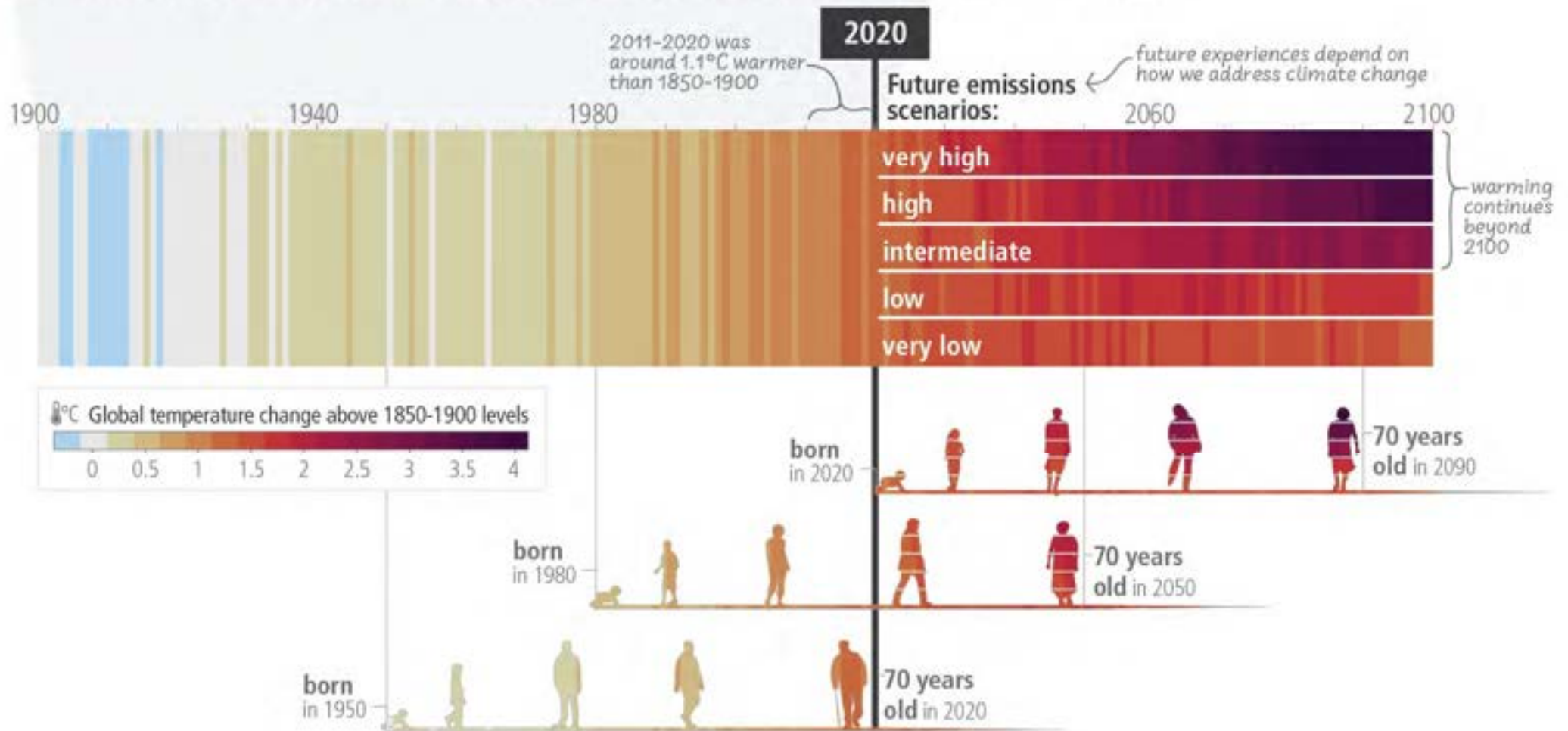
### Prizes

<b>Overall Scheme</b>	<i>South African Rands (ZAR) (75 500-00 total)</i>
First prize	10 000-00
Second prize	7 500-00
Third prize	5 000-00
<b>Sustainability Prizes</b>	
Environmental	7 500-00
Economic	7 500-00
Social	7 500-00
<b>Merit Prizes</b>	
Future strategy	7 500-00
Self-build and sufficiency	7 500-00
Unit design	7 500-00
<b>Sponsors Prize</b>	
Innovative building technologies	8 000-00



Prizes

c) The extent to which current and future generations will experience a hotter and different world depends on choices now and in the near-term



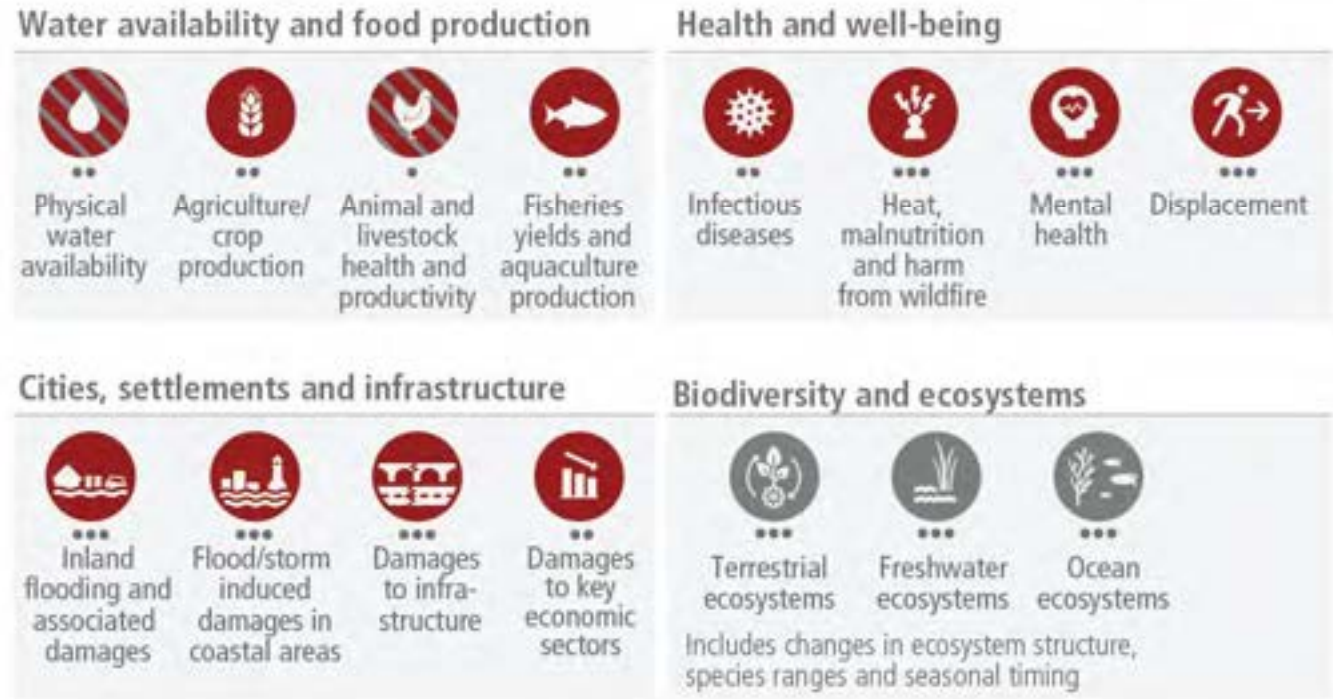
Source: IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, 36 pages. (in press). p7



Future strategy

# Adverse impacts from human-caused climate change will continue to intensify

## a) Observed widespread and substantial impacts and related losses and damages attributed to climate change



Source: IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, 36 pages. (in press). p7

**Key**

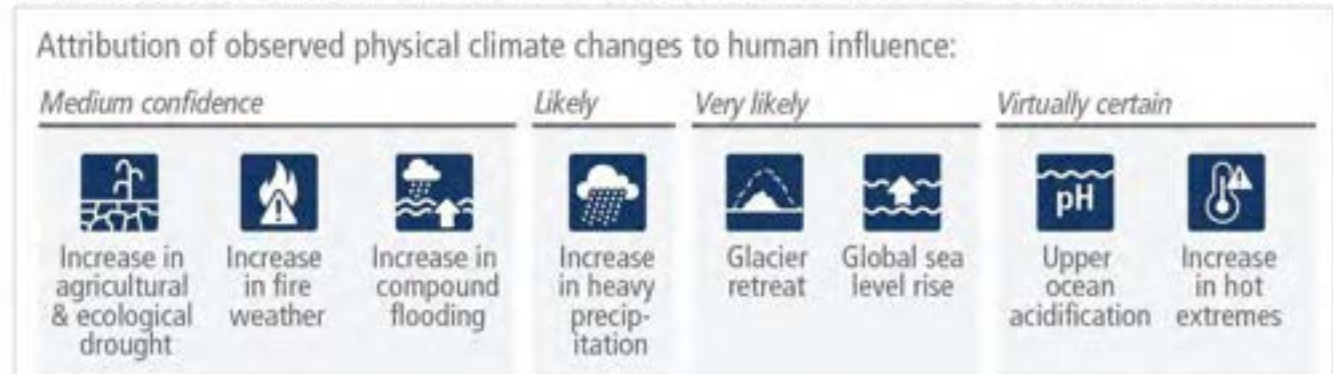
**Observed increase in climate impacts to human systems and ecosystems assessed at global level**

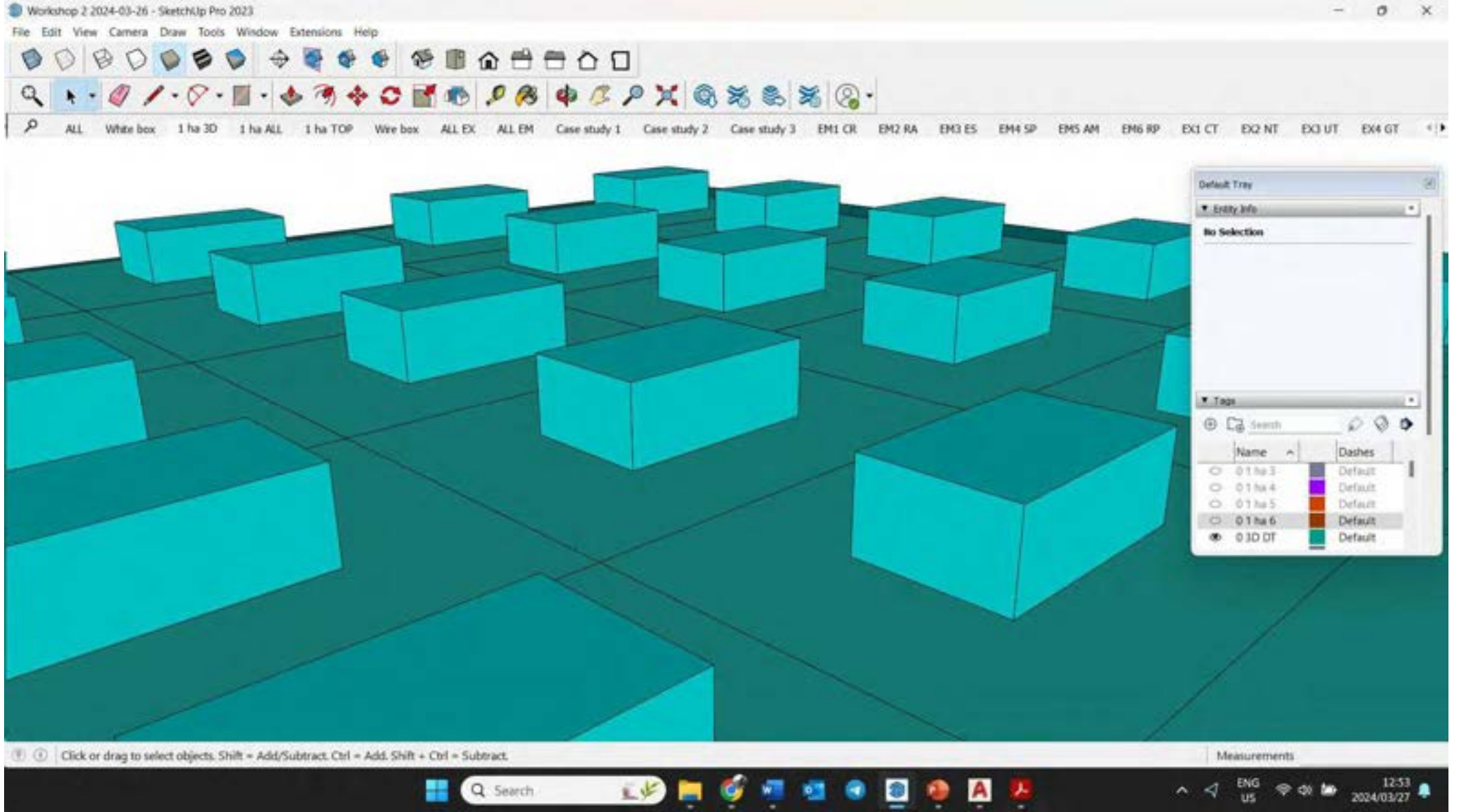
- Adverse impacts
- Adverse and positive impacts
- Climate-driven changes observed, no global assessment of impact direction

**Confidence in attribution to climate change**

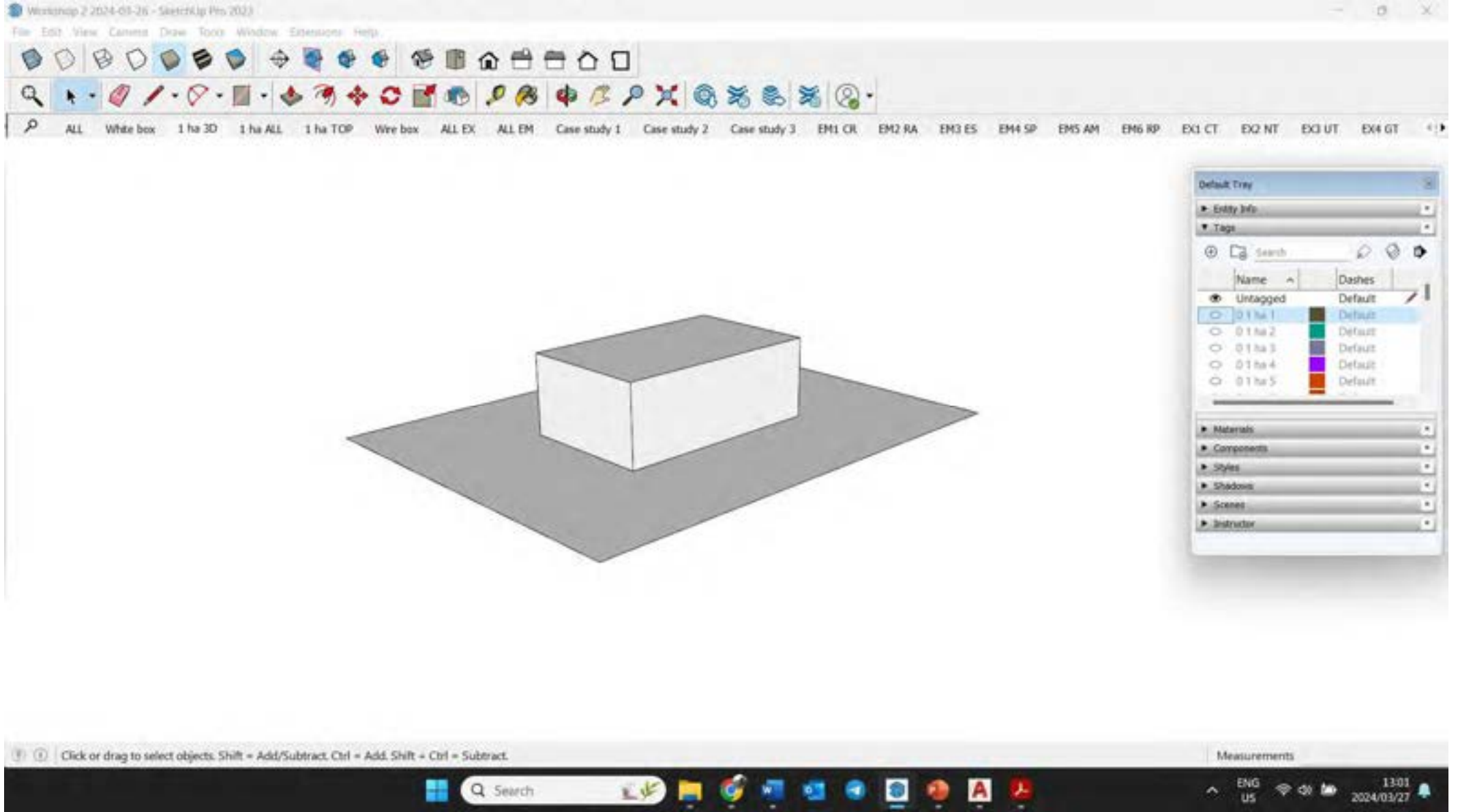
- High or very high confidence
- Medium confidence
- Low confidence

## b) Impacts are driven by changes in multiple physical climate conditions, which are increasingly attributed to human influence





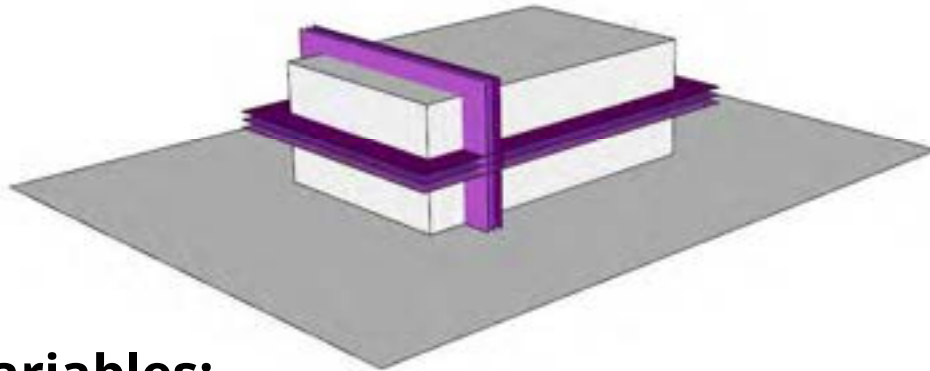
Units



Units

Table 1. Existing and emerging variables that inform the specifics of architectural information in the architectural design process (Adapted from: van Tonder, 2022<sup>3</sup>)

Existing design variable	Emerging design variable
Cultural topology (a)	Climate resilience adaptation (g)
Natural topology (b)	Redress of imperialism (h)
Industrial thinking typology (c)	Economic and social fairness and foothold toward a circular economy (i)
Indigenous thinking typology (d)	Service provision system interception with circular approach (j)
Visual tectonics (e)	Amenities system interception with circular approach (k)
Technology tectonics (f)	Regenerative potential (l)



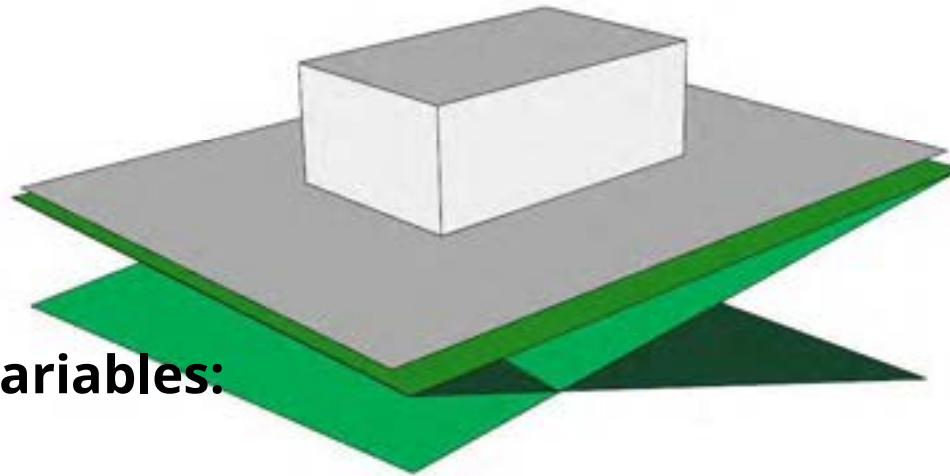
## Existing variables:

- Cultural topology (a)



Units





## Existing variables:

- Natural topology (b)



Units



## Existing variables:

- Industrial thinking typology (c)



Units

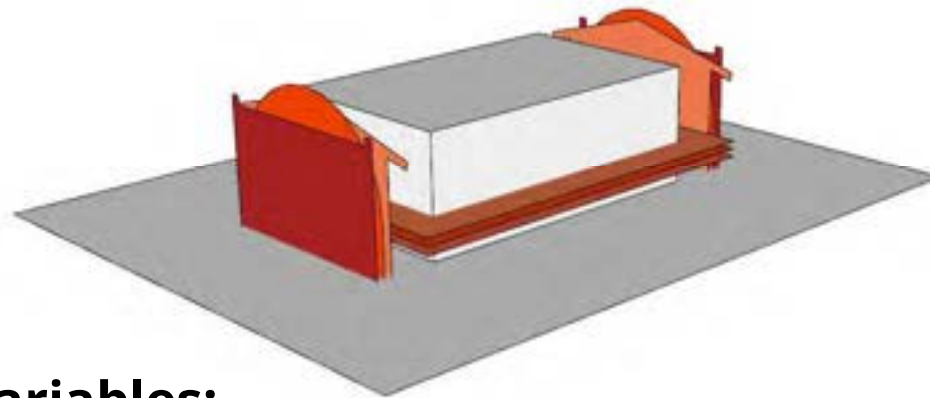


## Existing variables:

- Indigenous thinking typology (d)



Units

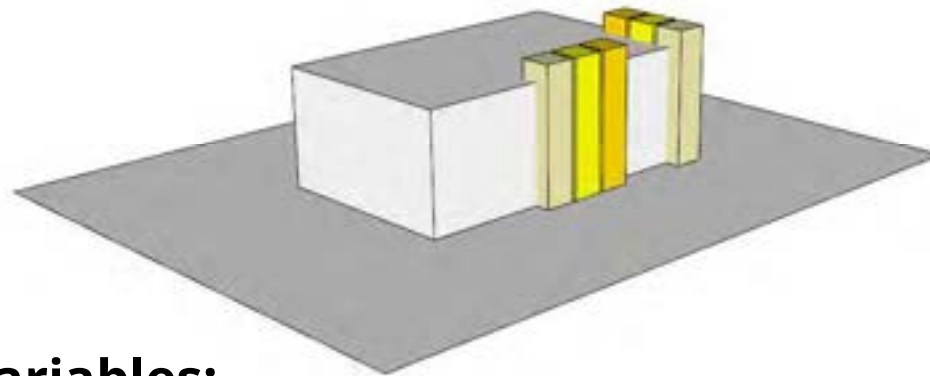


## Existing variables:

- Visual tectonics (e)



Units



## Existing variables:

- Technology tectonics (f)



Units

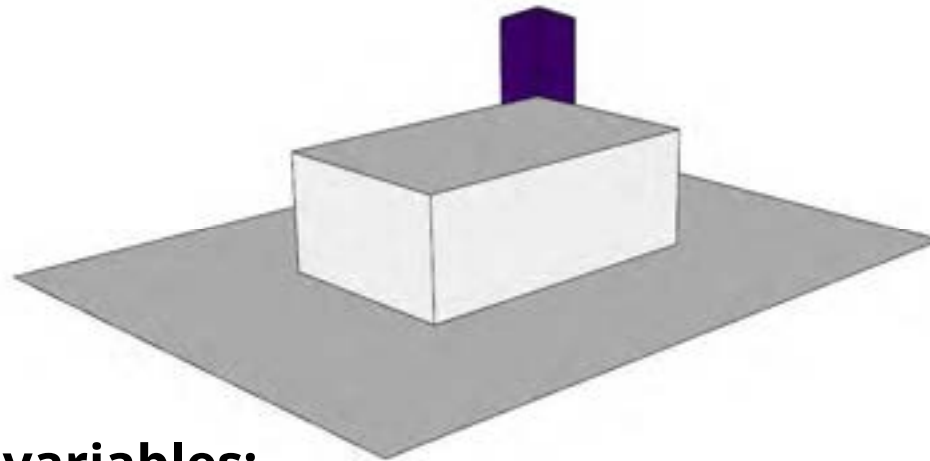


## Emerging variables:

- Climate resilience adaptation (g)



Units



## Emerging variables:

- Redress of imperialism (h)



Units



## Emerging variables:

- Economic and social fairness and foothold toward a circular economy (i)



Units





## Emerging variables:

- Service provision system interception with circular approach (j)



Units

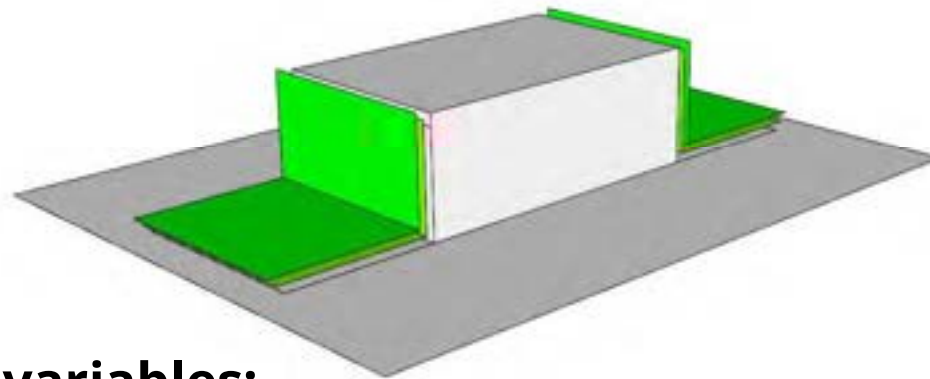


## Emerging variables:

- Amenities system interception with circular approach (k)



Units

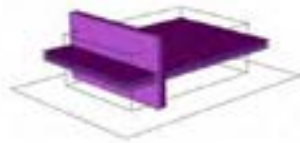


## Emerging variables:

- Regenerative potential (I)



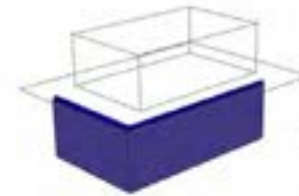
Units



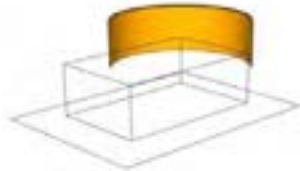
(a)



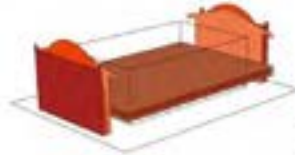
(b)



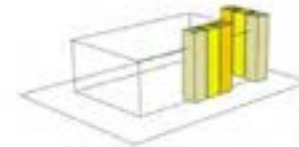
(c)



(d)



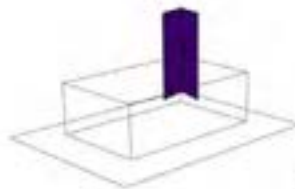
(e)



(f)



(g)



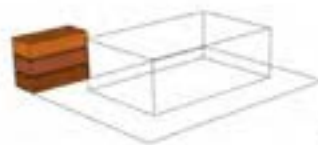
(h)



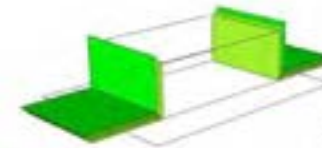
(i)



(j)



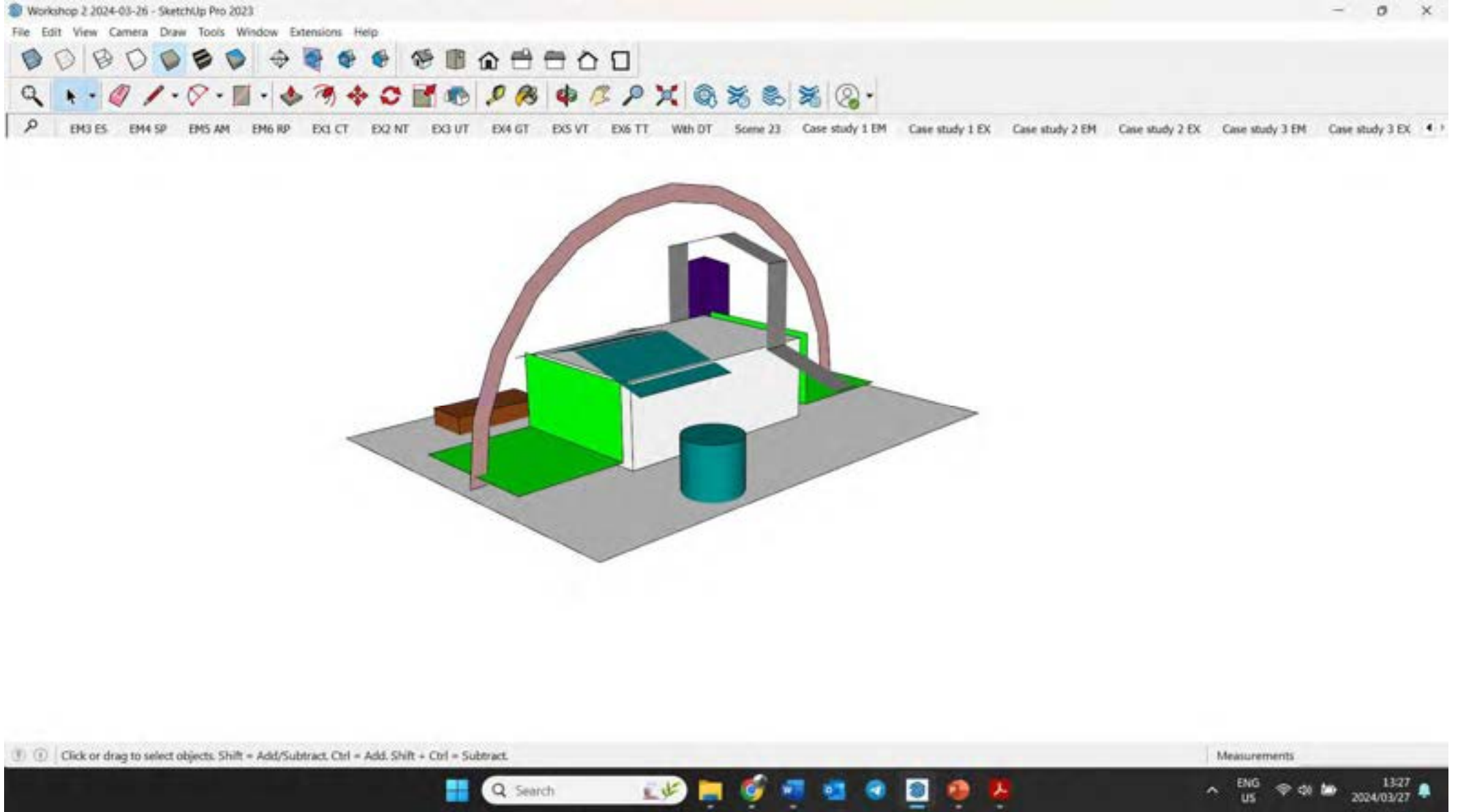
(k)



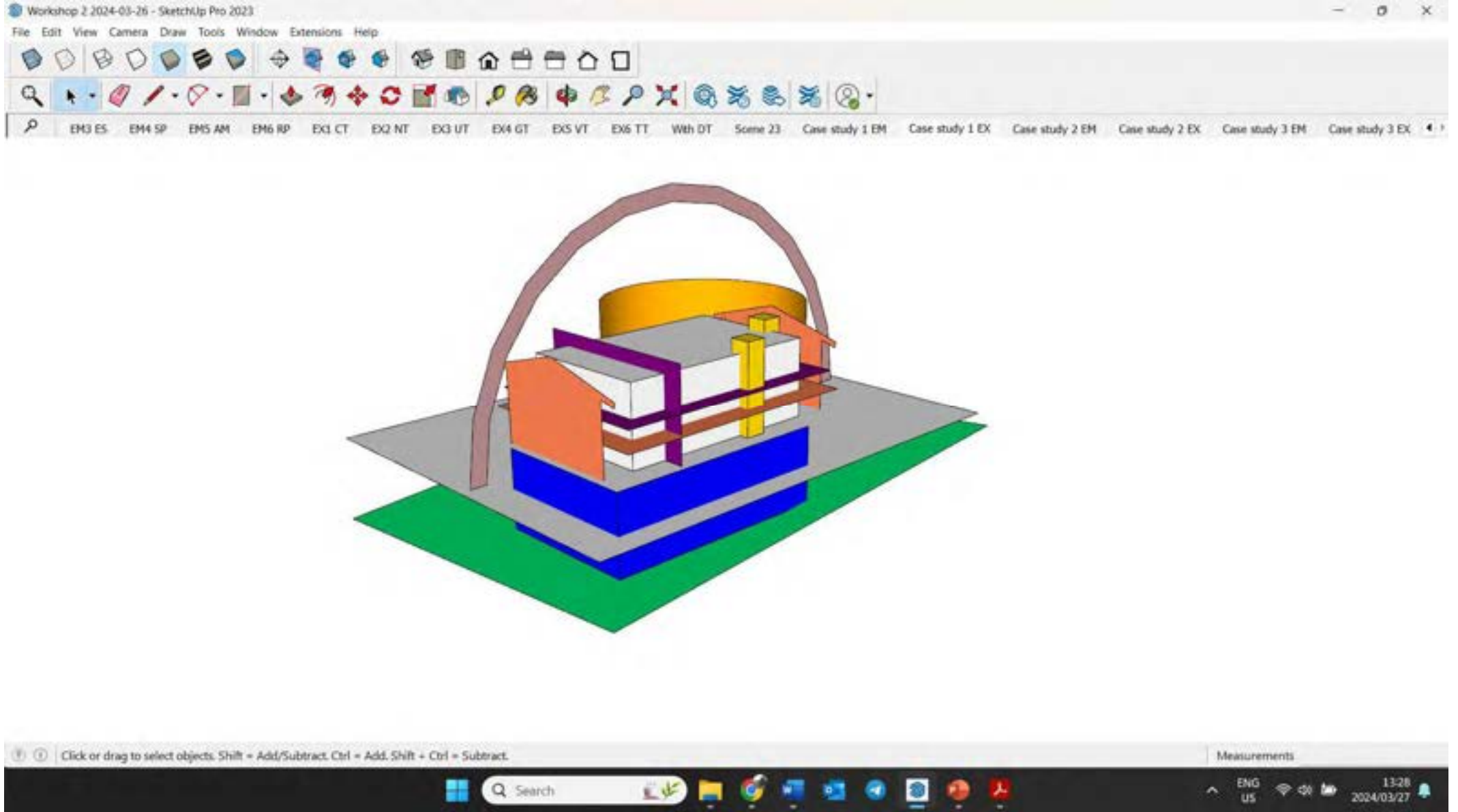
(l)



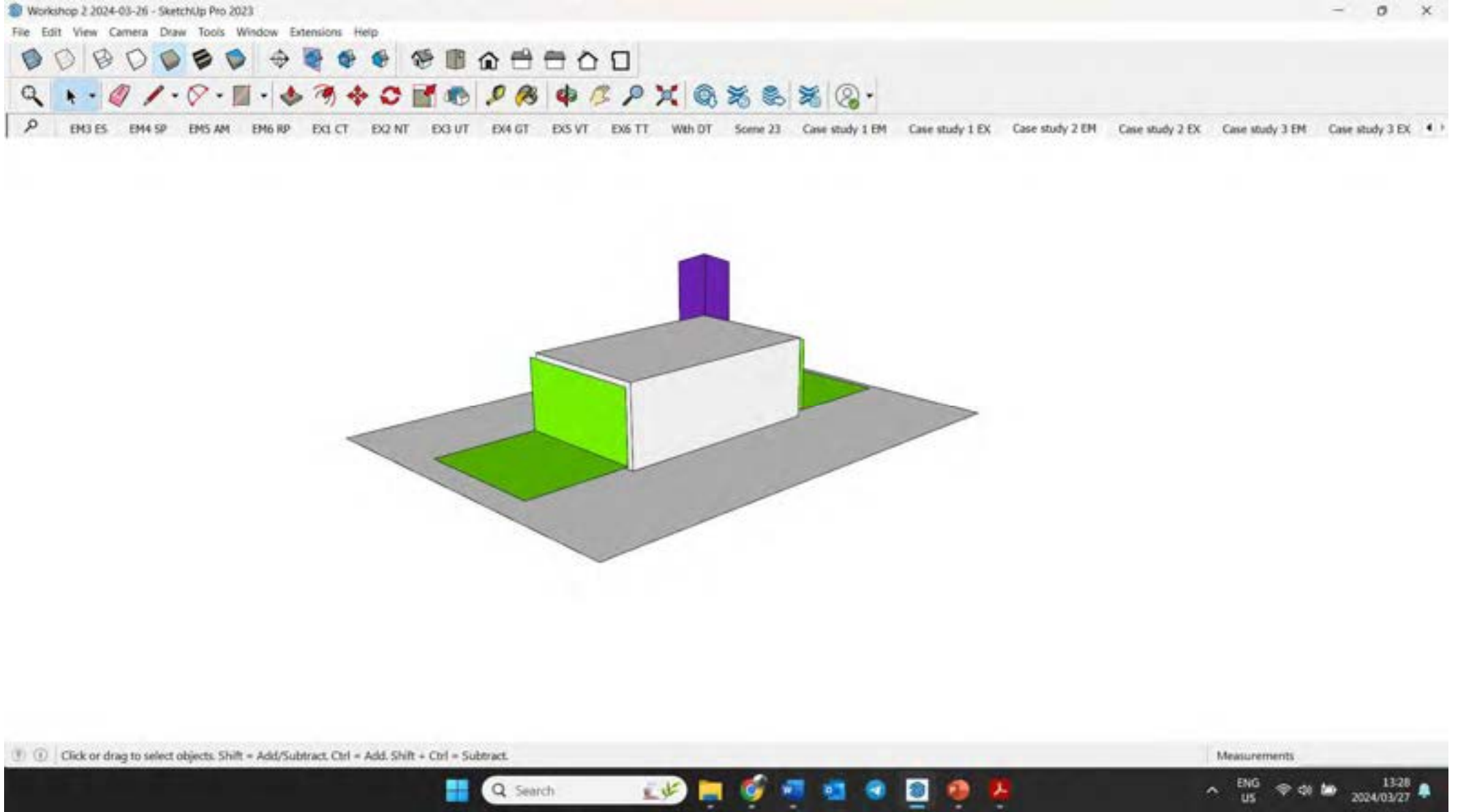
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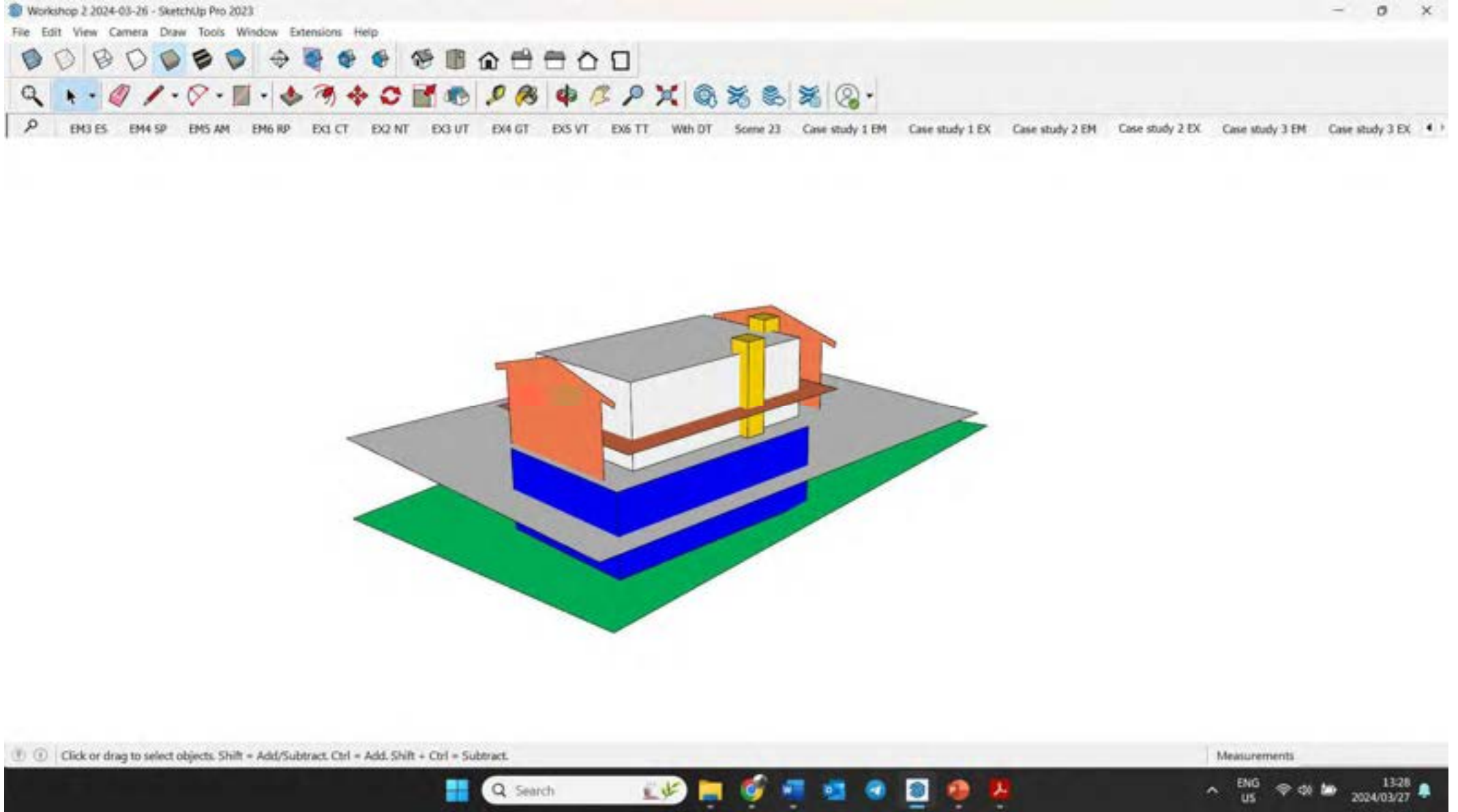
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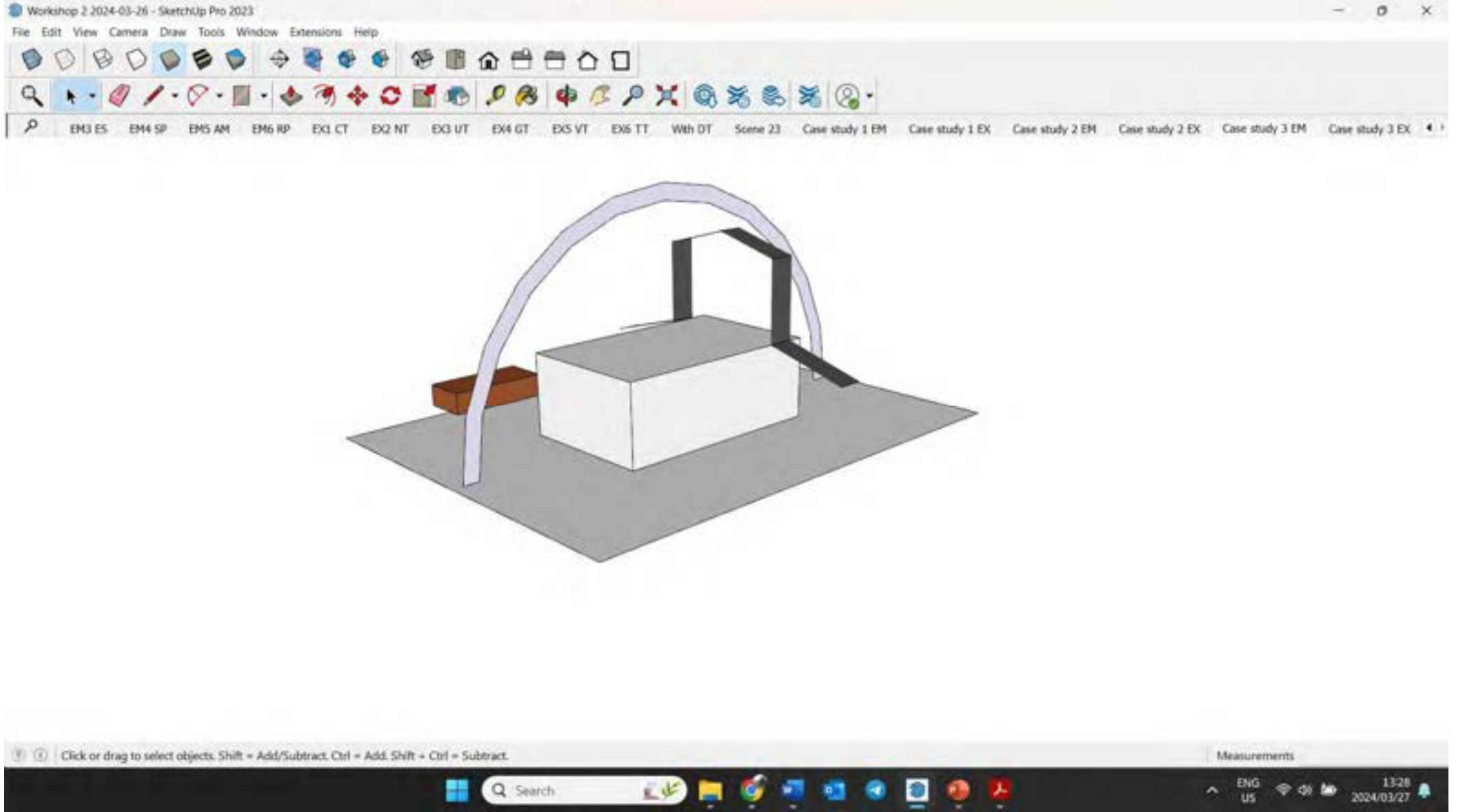


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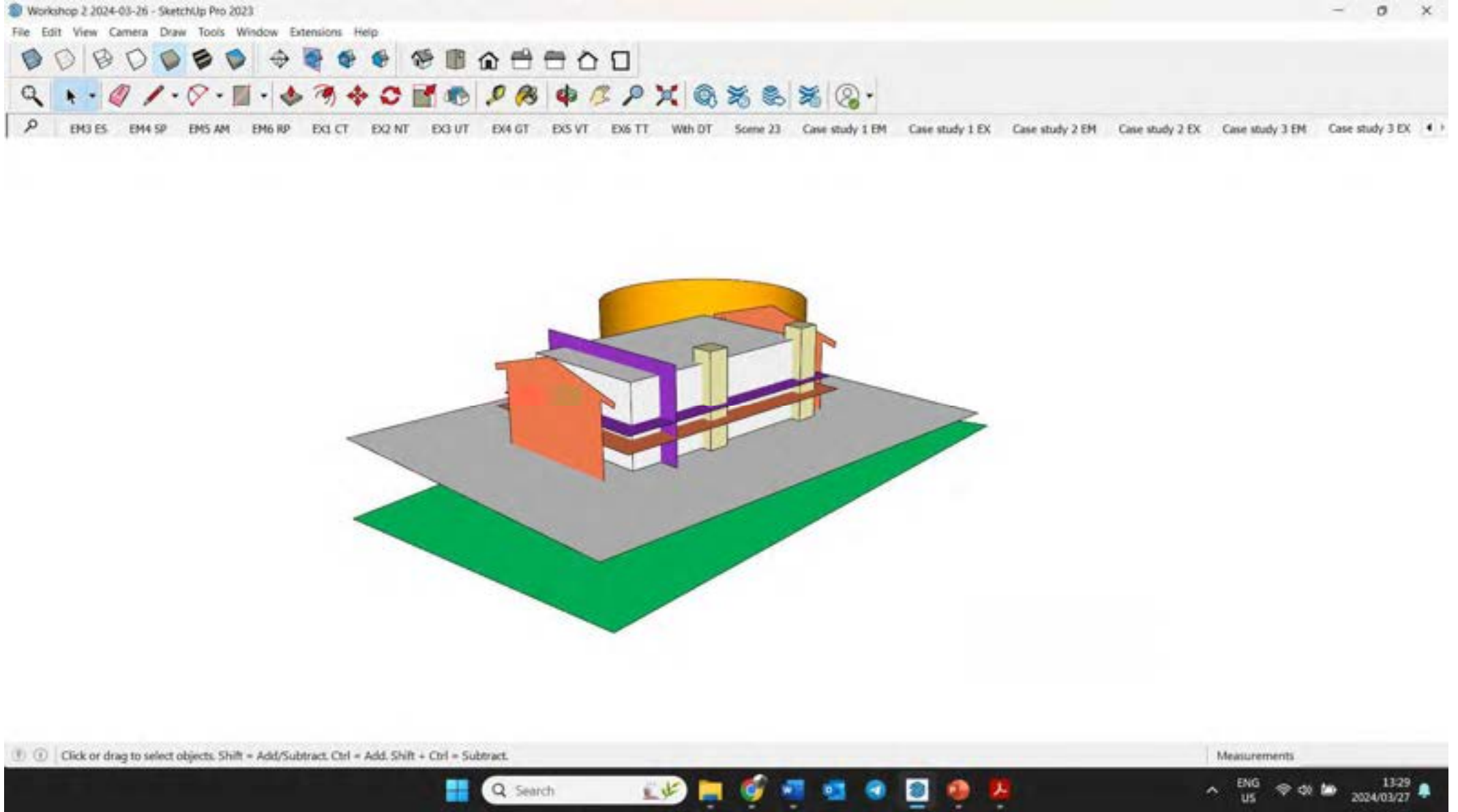


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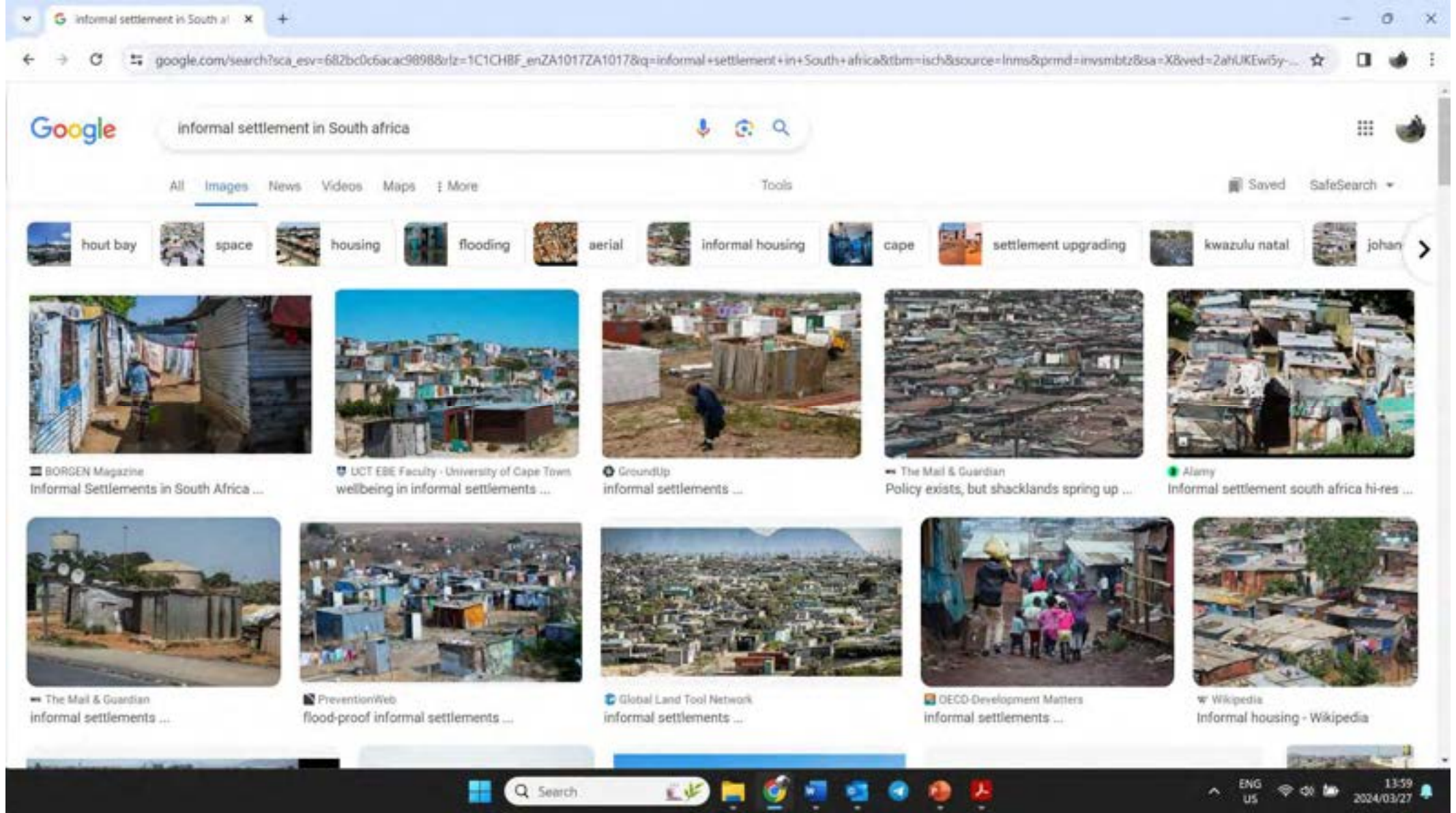


Self-built

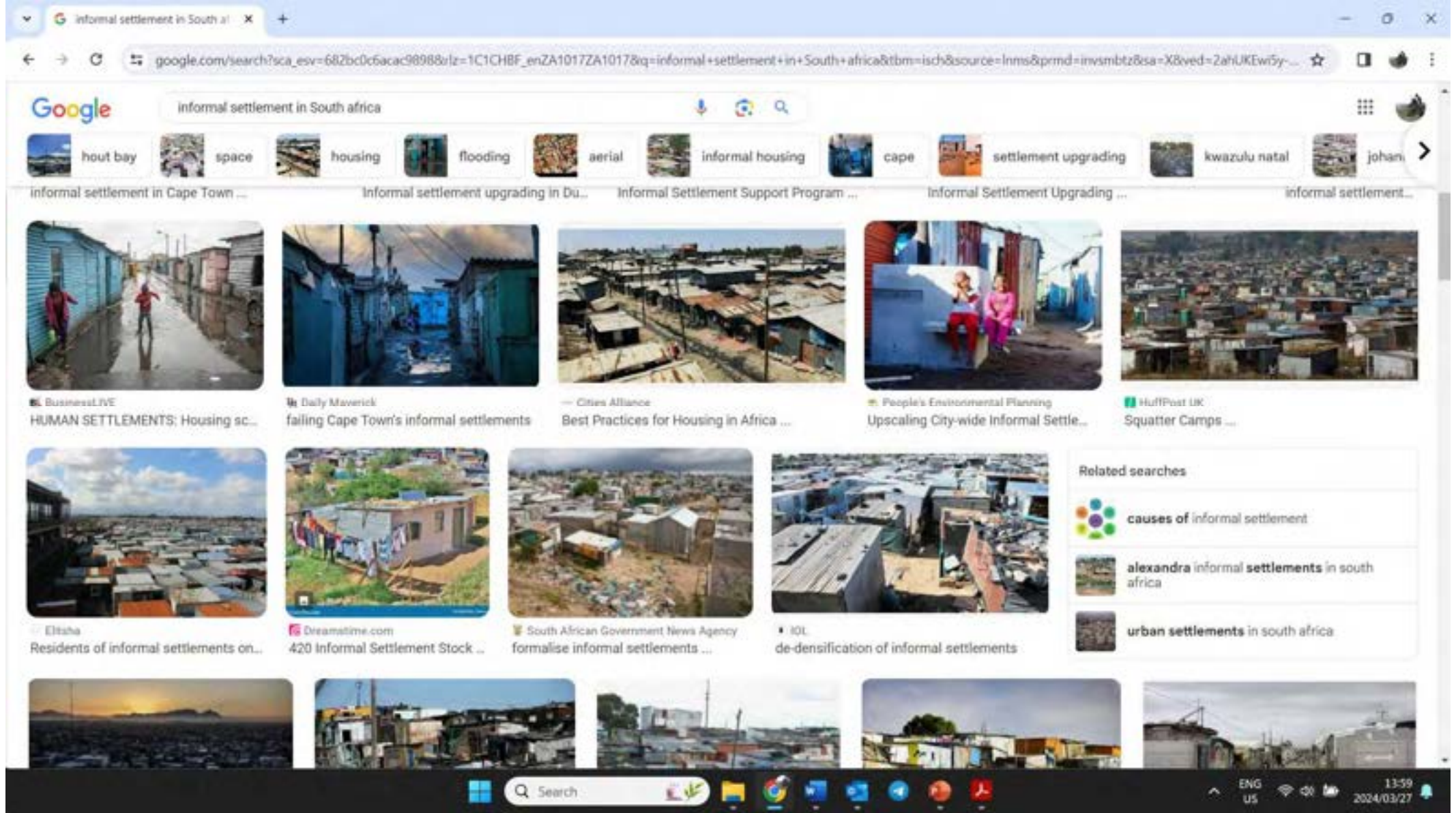
**It is estimated that between 4 and 5 million people currently reside in informal settlements in South Africa.**



Self-built



Self-built



Self-built

informal settlement in South africa

Google informal settlement in South africa

More informal settlements could pop up ...

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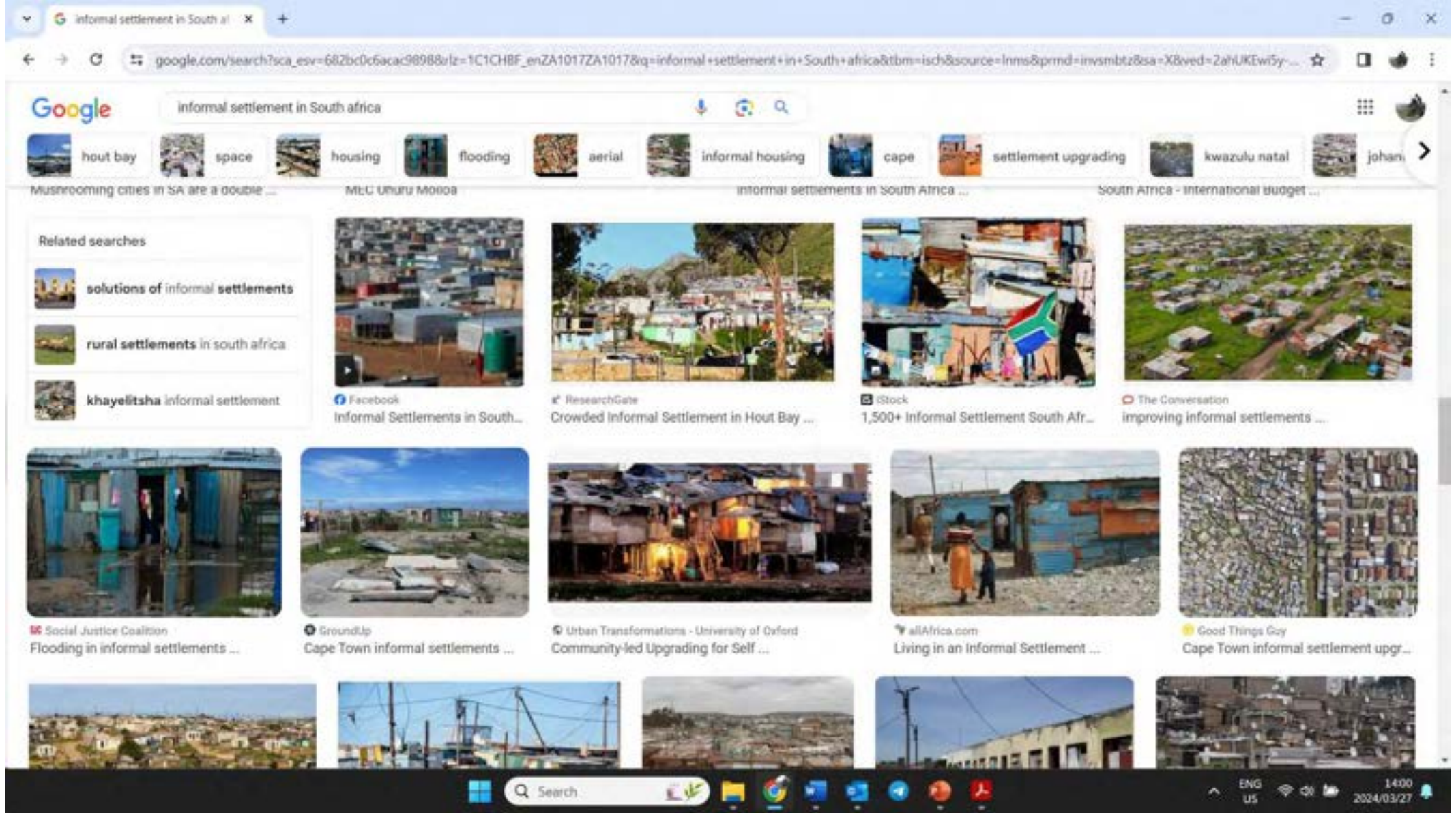
- solutions of informal settlements
- rural settlements in south africa

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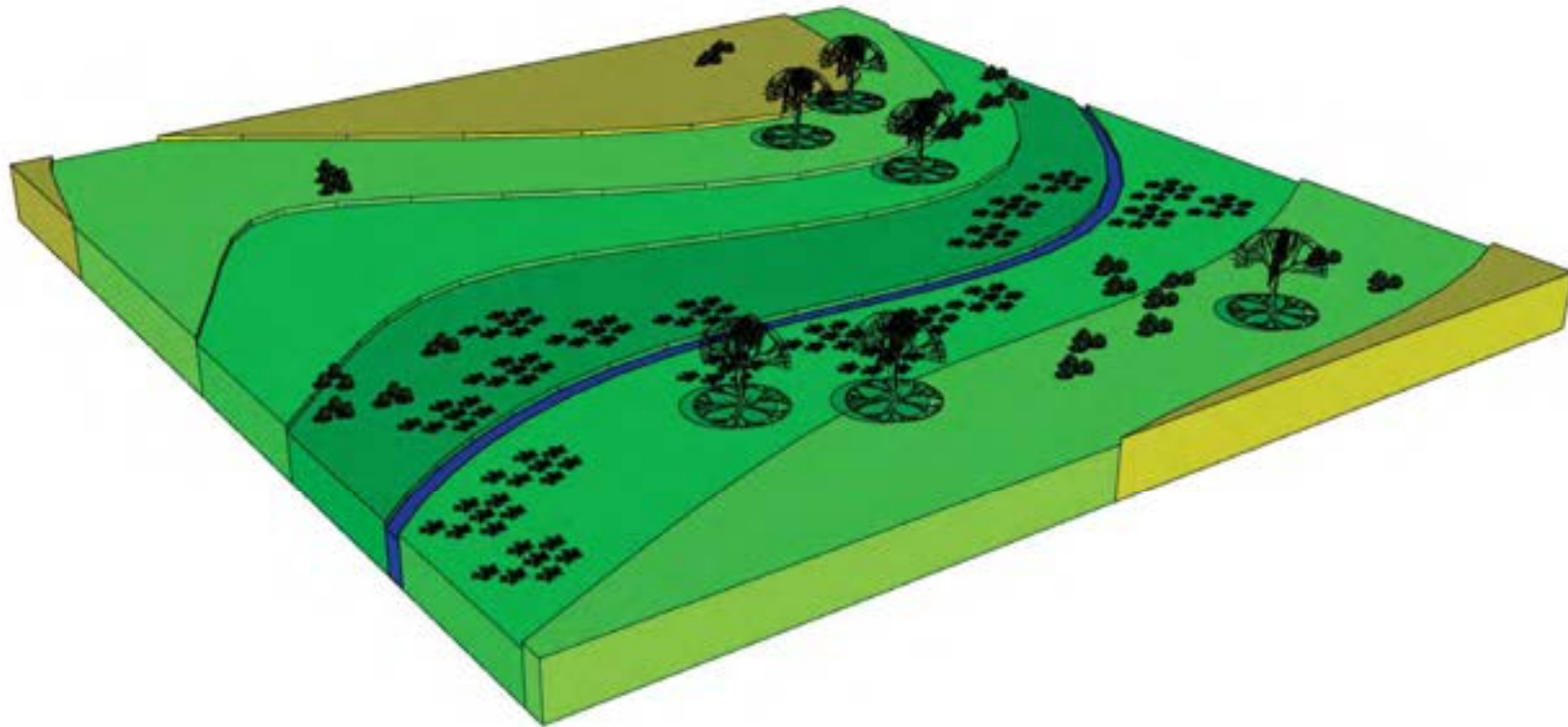


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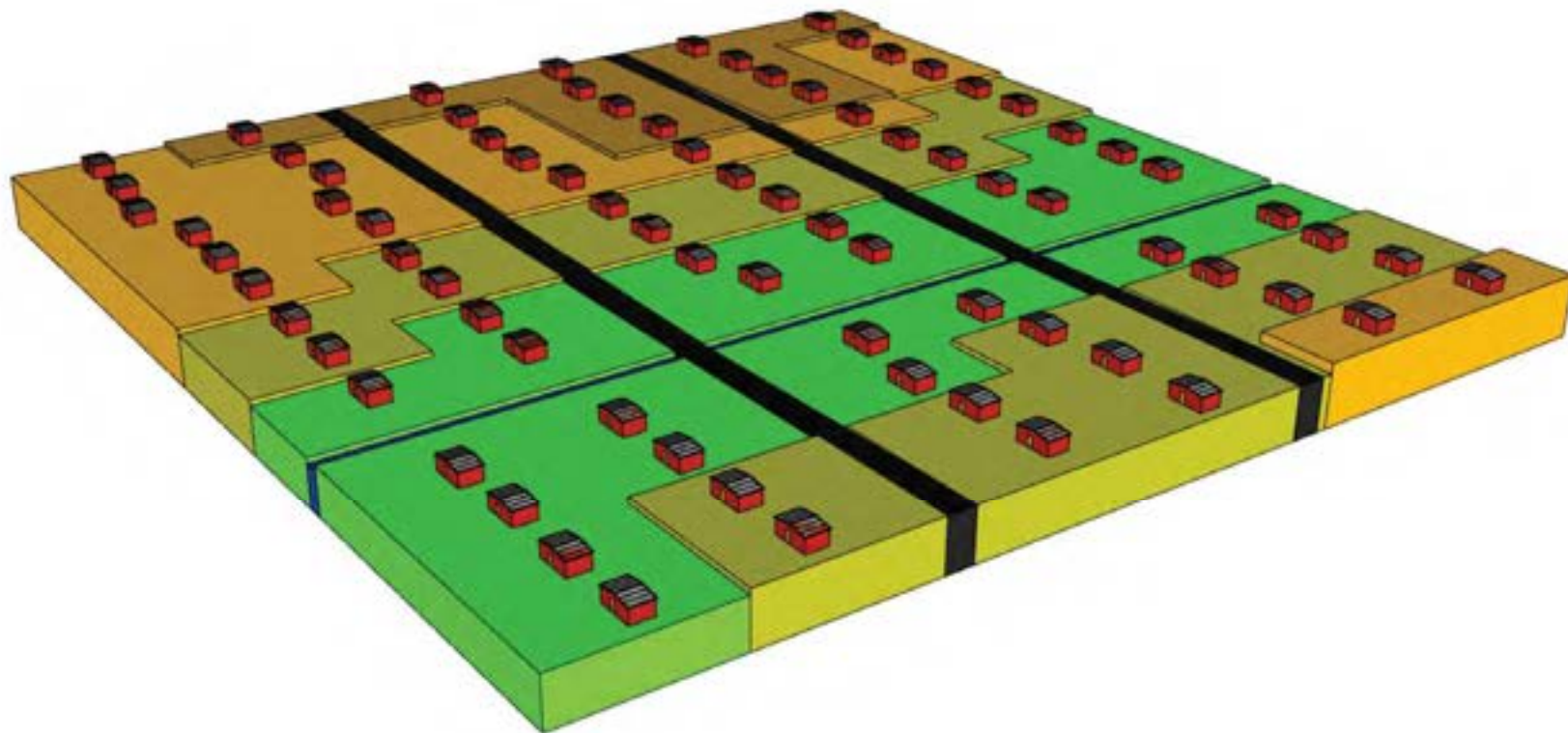


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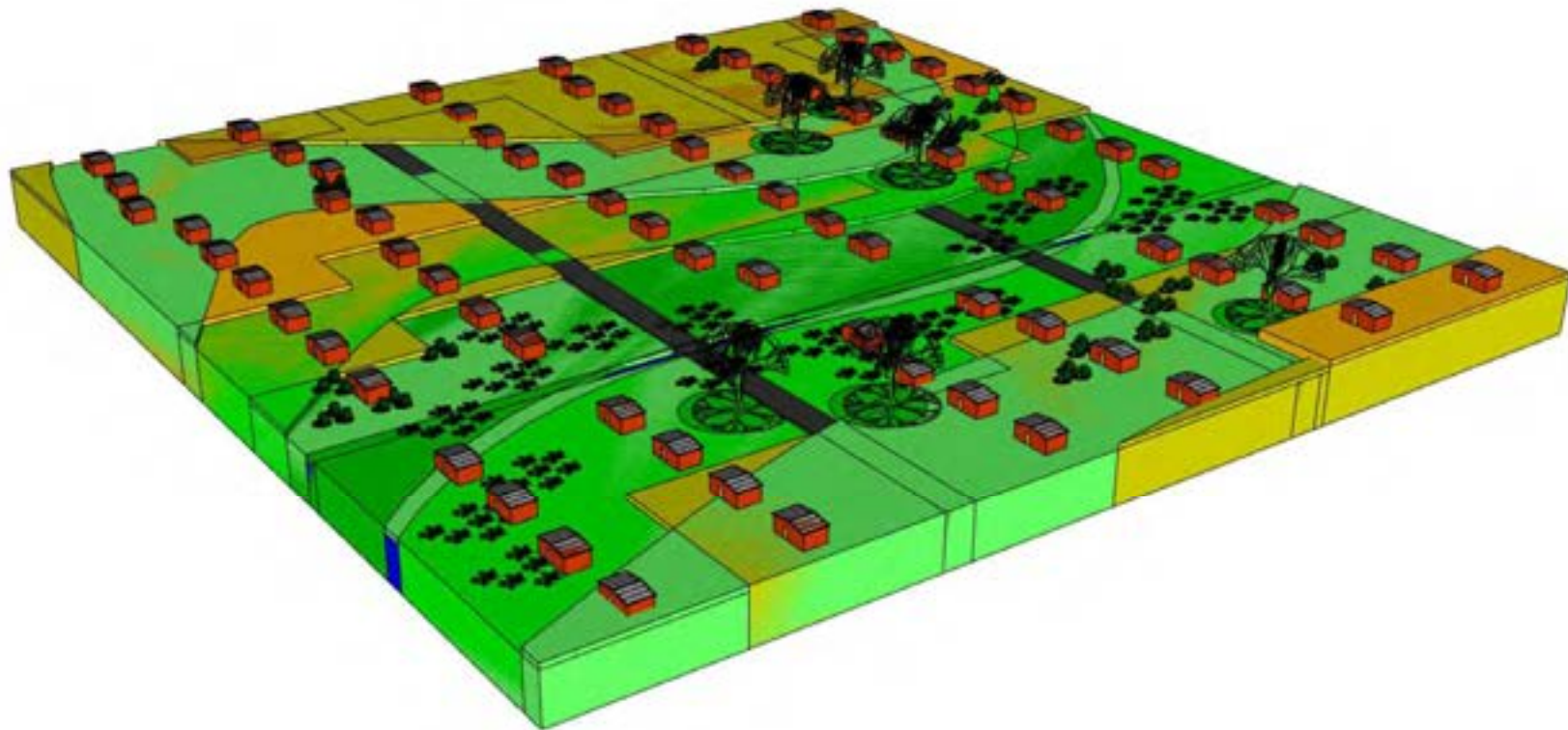




Self-built



Self-built




Self-built

informal settlement in South Africa | Student teachers share ideas about improving informal settlements in south africa-166854

Academic rigour, journalistic fair

Climate Arts, Culture + Society Business + Economy Education **Environment + Energy** Health + Medicine Politics Science + Tech

TC Afrique



# Student teachers share ideas about improving informal settlements in South Africa

Published September 14, 2021 3:15pm SAST

Gottymages

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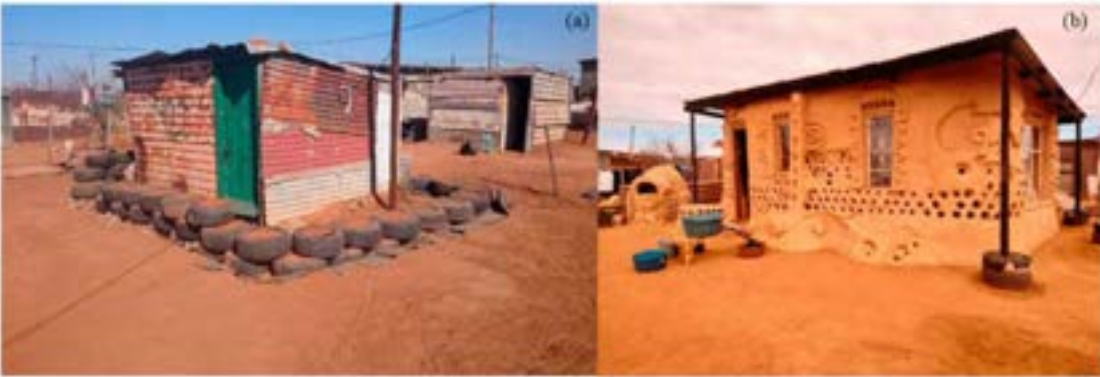
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Self-built



1



2



3

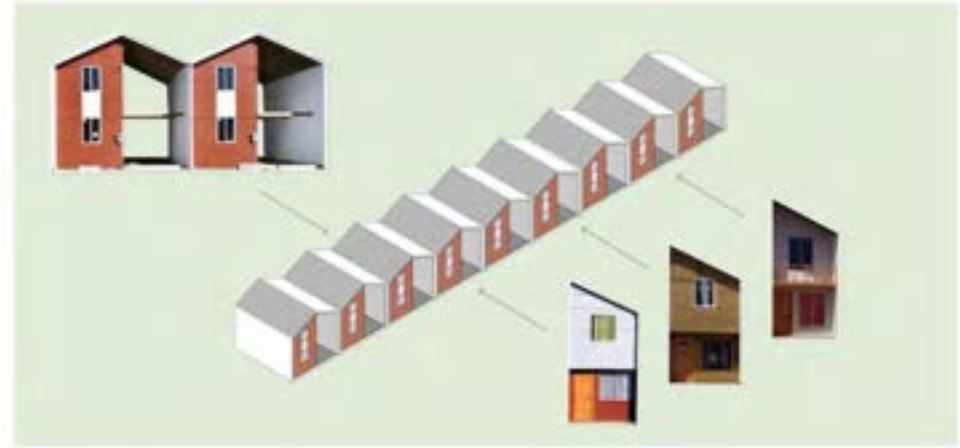


Self-built



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Self-built



1



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Self-built



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Self-built







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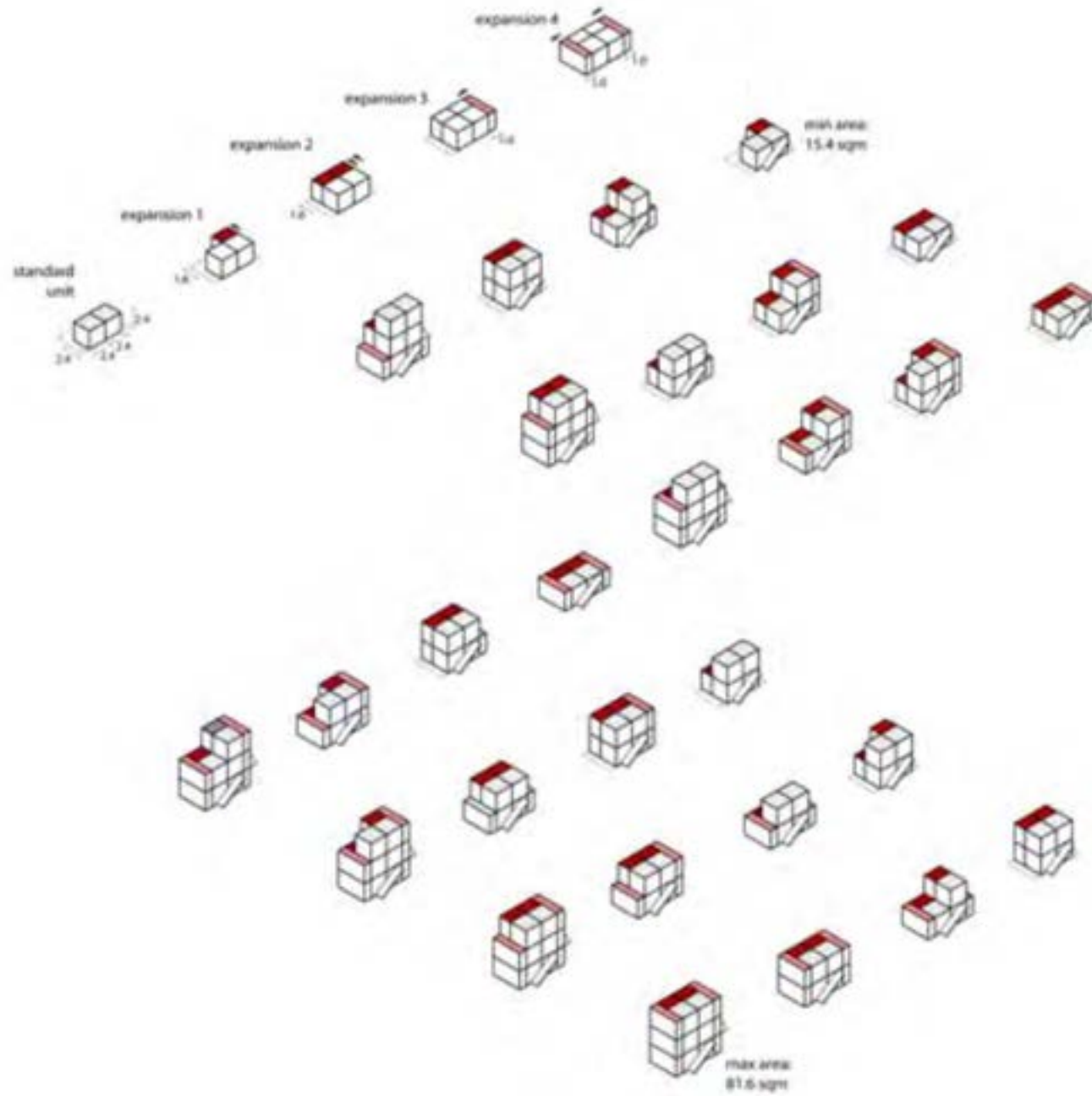
3



4

Self-built

1



Self-built

1



2



3



Self-built

4

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What questions do you  
have for us?

