



Open Source 101

# INDOOR MAPPING

Using OsmlnEdit and indoor=

#OpenStreetMap

#TechTransThai  
#MappingThailand



# About me

Hello, I'm Pongpeera Wongprasitthiporn.  
I'm a student at KMITL interested in free software,  
decentralization, open data and open standards.

I run the TechTransThai Community which is involved  
in localizing apps, crunching BOINC projects and  
contributing data to various open data platforms  
such as OpenStreetMap and Mozilla Common Voice.

I can also do things like DevOps, Linux system  
administration, UI design, content creation and some  
coding.

**I'm seeking a full-time position, available from April 2025.**





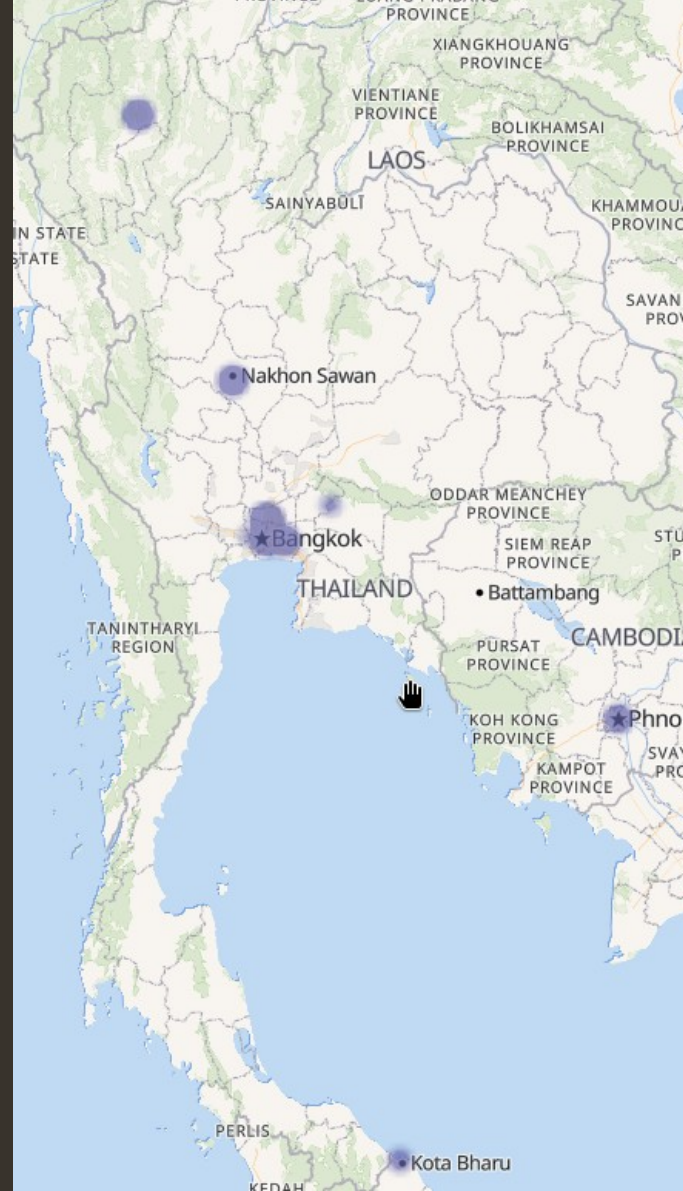
# Indoor mapping?

For OpenStreetMap, indoor mapping is about collecting indoor data such as floors, rooms, elevators, stairs and other features of a *public* building.

Indoor data, when made public, can be useful in many circumstances, from simply helping visitors find amenities (such as toilets) to aiding rescue teams in emergency situations.

There are very few locations in Thailand that have this type of data, as shown on the right.

*Image from indoor= (indoorequal.org)*







# Collecting data

Before proceeding, we'll need floor plans of the *public* building we're going to work on.

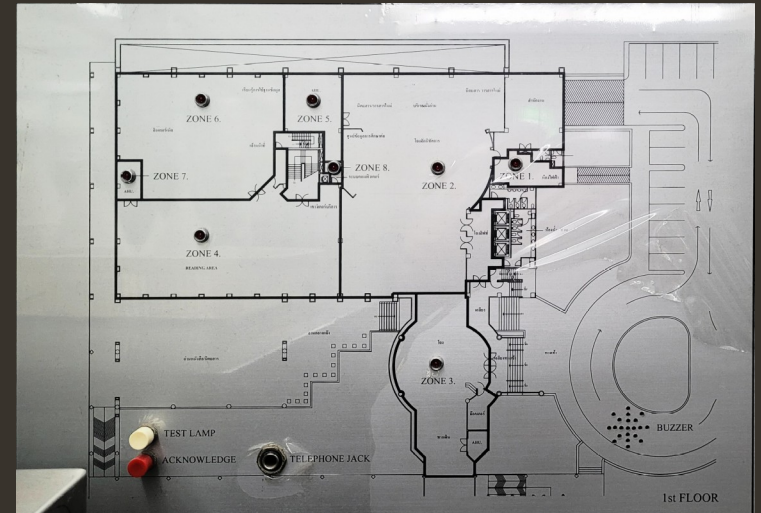
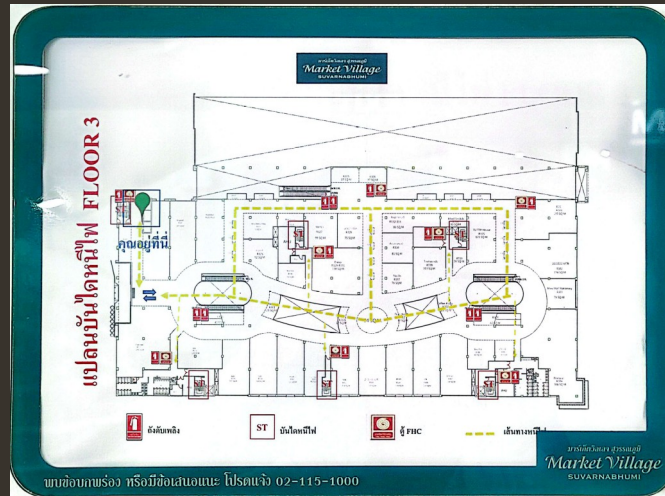
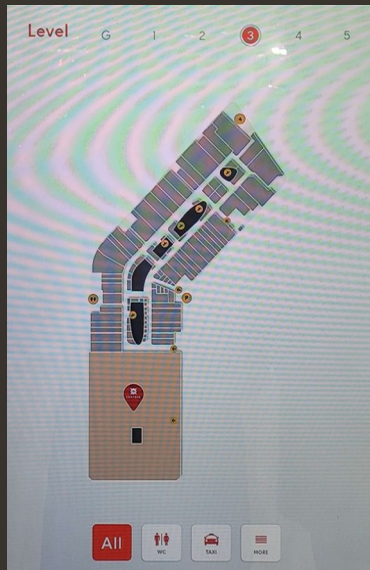
We can find the floor plans/building map for each floor by looking around inside the building, mostly near elevators, escalators or fire hose cabinets.

To make the images easier to work with, I recommend cropping/de-skewing with apps like CamScanner or Microsoft Lens.

An example building map for 1<sup>st</sup> floor of Union Mall, post-processed with CamScanner, is shown on the left.



# More floor plan examples



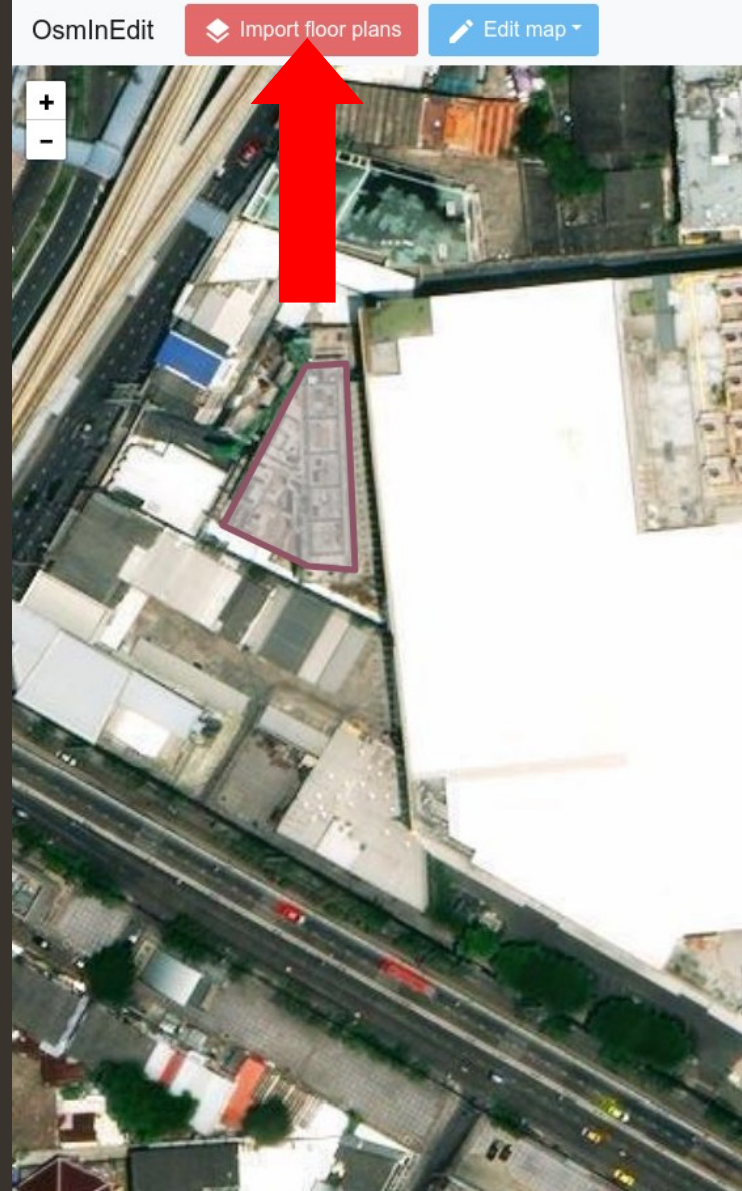


# Import floor plans

Now that we already have the floor plans, we're going to use the tools available at:

<https://osminedit.pavie.info>

Adjust your view to a building you'd like to work on and hit the "Import floor plans" button.





## Floor plan

Drag and drop your images here (or click to open file browser)

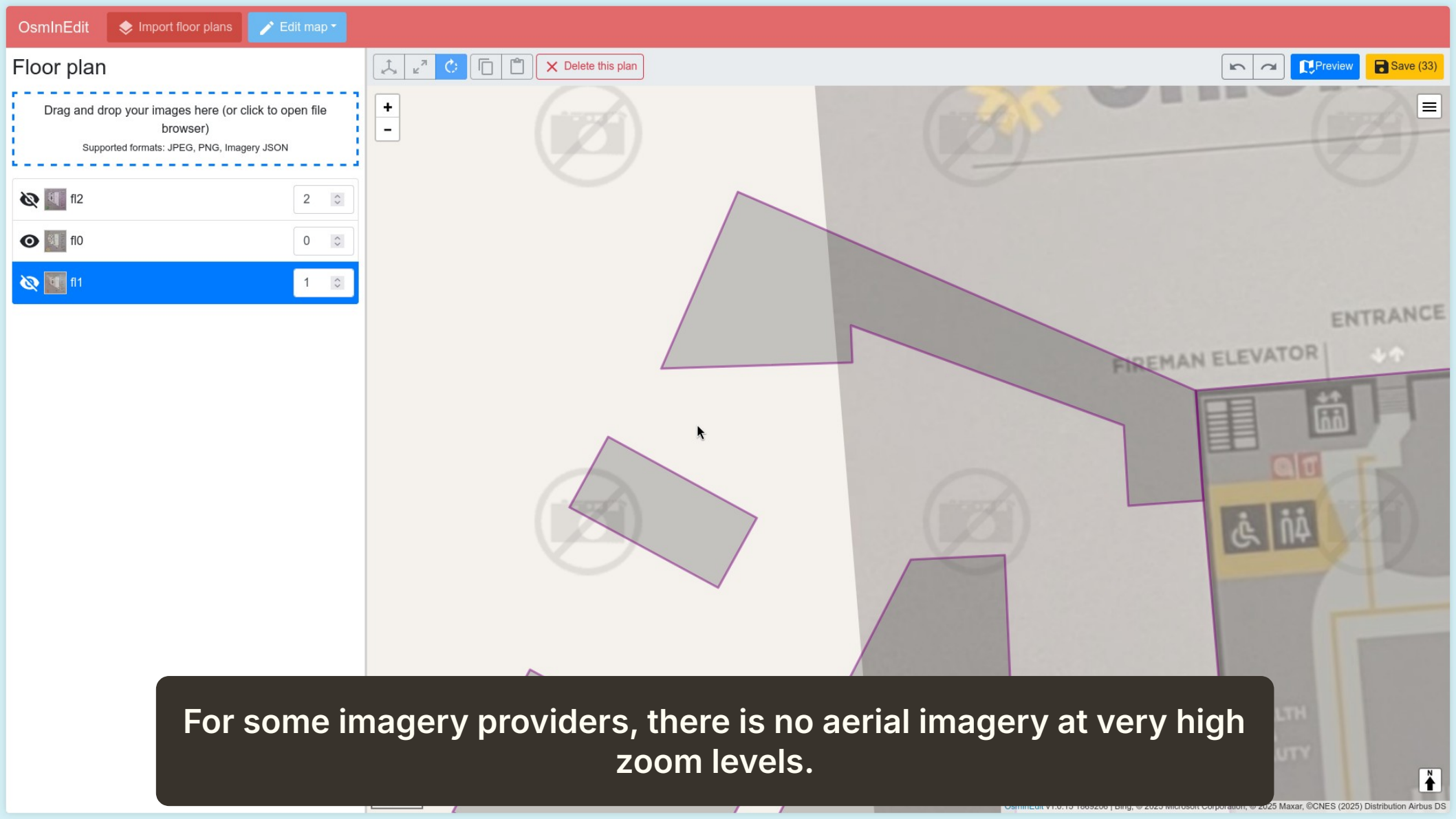
Supported formats: JPEG, PNG, Imagery JSON

 fl2	2
 fl0	0
 fl1	1



Try to adjust the floor plan to match the building footprint, and set the floor number for each plan imported.





For some imagery providers, there is no aerial imagery at very high zoom levels.



## Floor plan

Drag and drop your images here (or click to open file browser)

Supported formats: JPEG, PNG, Imagery JSON

  fl2	2
  fl0	0
  fl1	1

     ✖ Delete this plan

  Preview Save (33)



## Imagery

Background Overlay

Opacity 100%

- ☐ Bing Maps Aerial
- ☐ Esri World Imagery (Clarity) Beta
- ☒ Mapbox Satellite
- ☐ OpenAerialMap Mosaic, by Kontur.io
- ☐ OpenStreetMap (Standard)
- ☐ Cambodia, Laos, Thailand, Vietnam, Malaysia, Myanmar bilingual
- ☐ CycloSM
- ☐ OpenStreetMap (Basque Style)
- ☐ OpenStreetMap (Breton Style)
- ☐ OpenStreetMap (Occitan Style)
- ☐ OpenTopoMap
- ☐ Stamen Terrain
- ☐ Thunderforest Outdoors
- ☐ eox.at 2018 cloudless
- ☐ eox.at 2019 cloudless
- ☐ eox.at 2020 cloudless

In this case you can switch to another imagery provider. Keep in mind the new imagery may not align with existing data!



Union Mall

✓

Name

Union Mall

Type of building

retail

Total height (in meters)

Number of overground levels (roof excluded) ?

6

Number of underground levels ?

1

Number of levels under roof ?

building	retail	×	i
name	Union Mall	×	i
name:en	Union Mall	×	i
name:th	ยูเนี่ยน มอลล์	×	i
shop	mall	×	i
wikidata	Q7885824	×	i
wikimedia_commons	Category:Union Mall	×	i
wikipedia	en:Union Mall	×	i
building:levels	6	×	i
building:levels:underground			



Go to Edit map > Edit building and fill out number of levels. Notice the floor selector on the top right corner that just showed up.



## Level 1

This level doesn't have a precise floor outline defined yet.

Use the whole building footprint

Draw this floor outline

Copy level 0

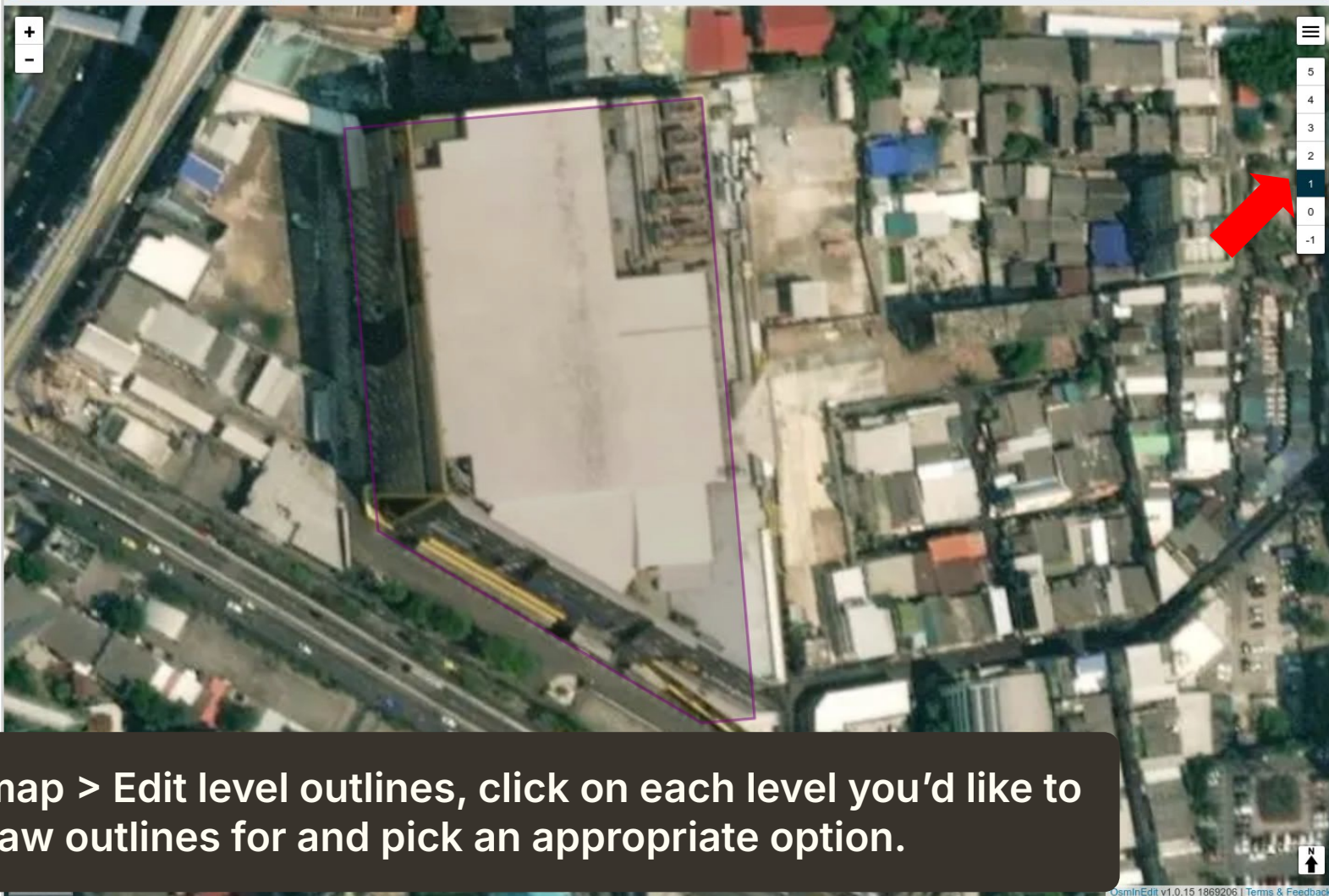
New upper level

New below level



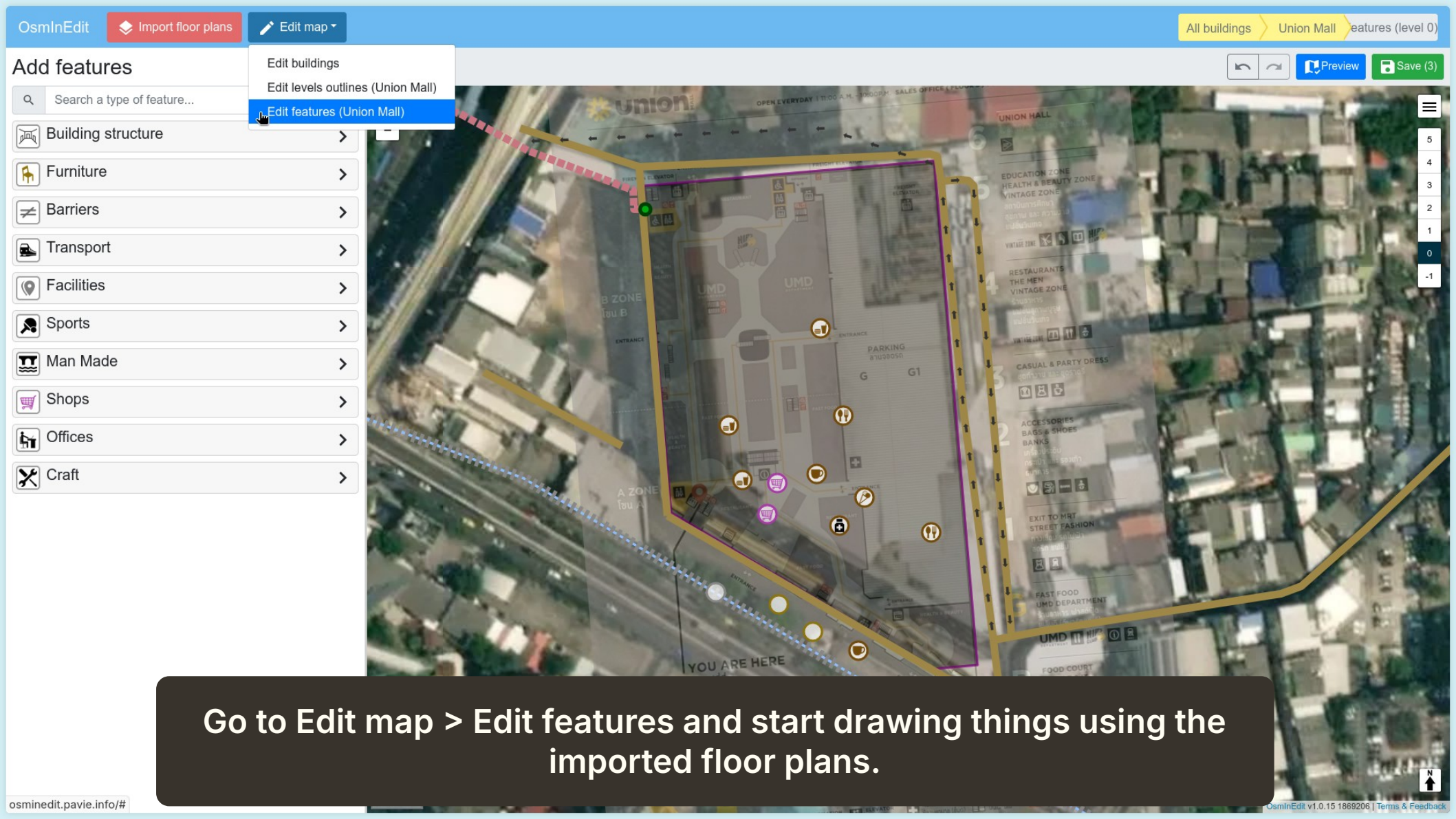
Preview

Save (3)



Go to Edit map > Edit level outlines, click on each level you'd like to draw outlines for and pick an appropriate option.





Go to Edit map > Edit features and start drawing things using the imported floor plans.



## Add features

toi

Toilets/Restrooms

Tomb

Attraction

Elevator

Town Hall

Tower

Tailor

Ticket

Tobacco

Toys

Tiler

Staircase

Stop Position

Strip Club

Stonemason

Motorcycle Deal

Antiques

Optician

+

-



Preview

Save (3)



5

4

3

2

1

0

-1

Let's add a toilet by searching for toilets






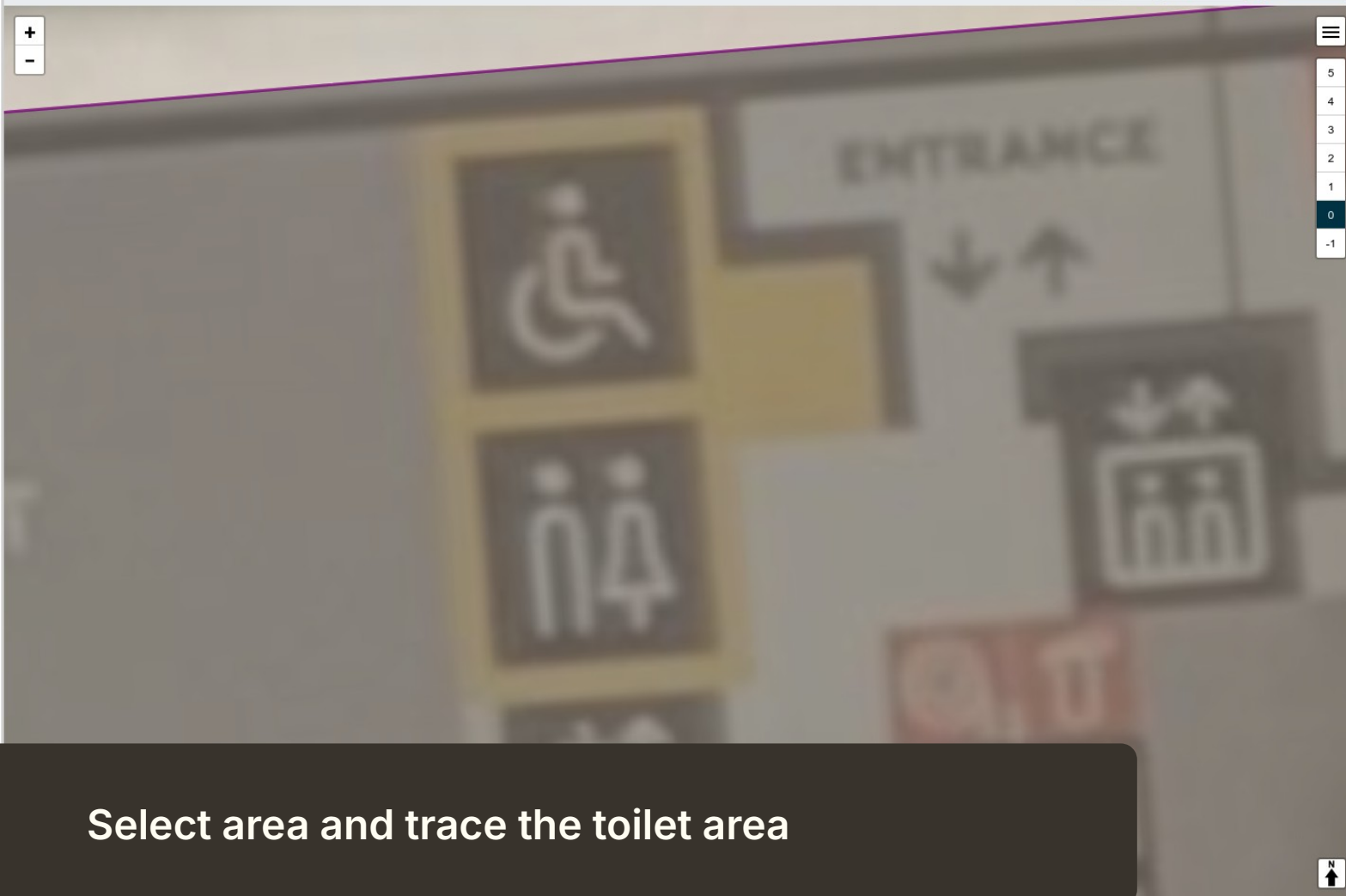
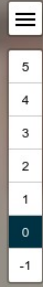
Add features

Please select how you want to represent your feature.

 **Point**  
For small features (size less than 2 meters)

 **Area**  
For wide features (surface of more than a few m²)

 Cancel



Select area and trace the toilet area





New feature

Usage

Structure

Toilets/Restrooms

Access rights

Type

Usage Position

Diaper

Fee

Wheelchairs

Description

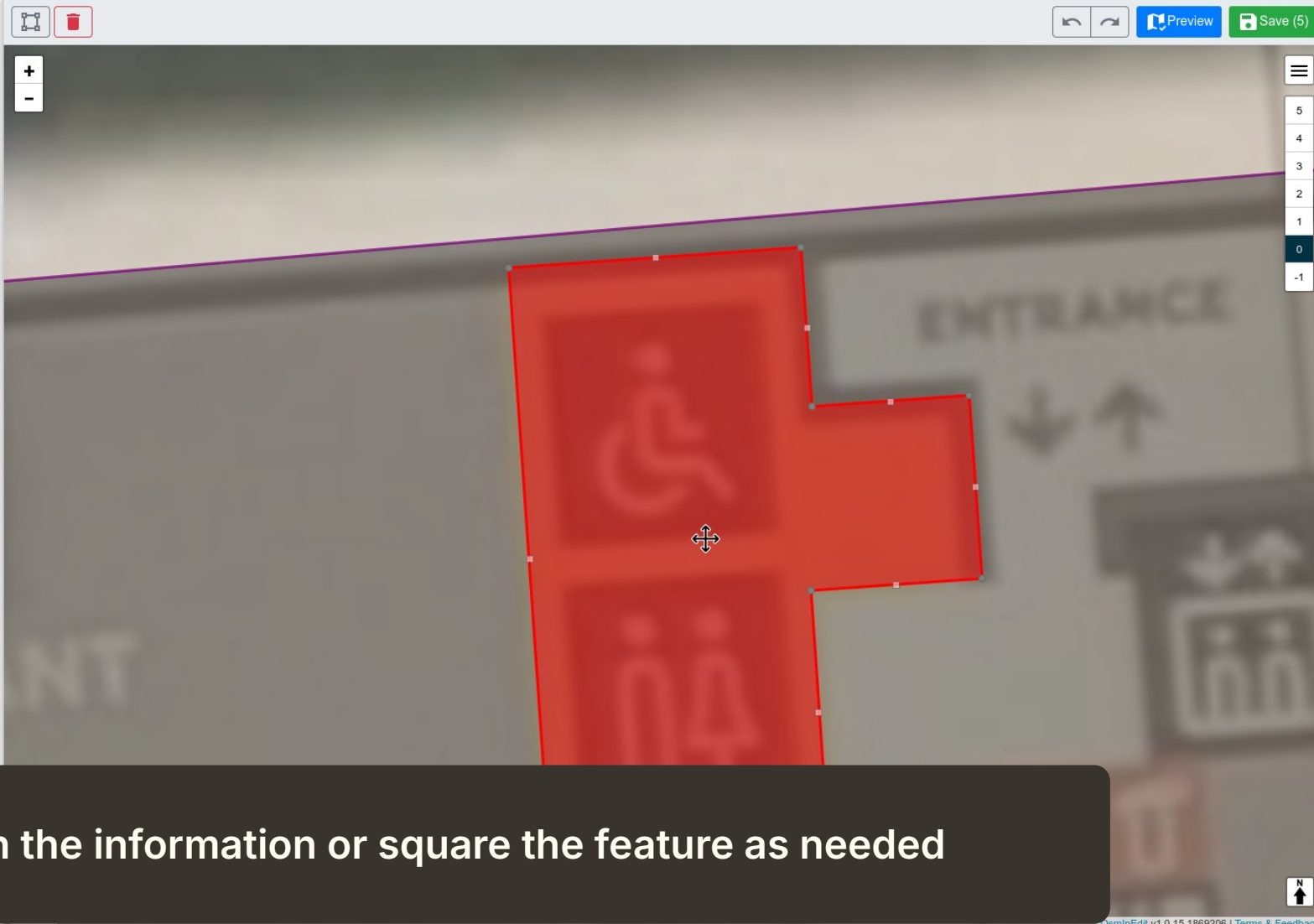
Operator

Drinking Water

Female

Male

Unisex



Fill in the information or square the feature as needed



New feature



Usage

Structure



Room

Type of room

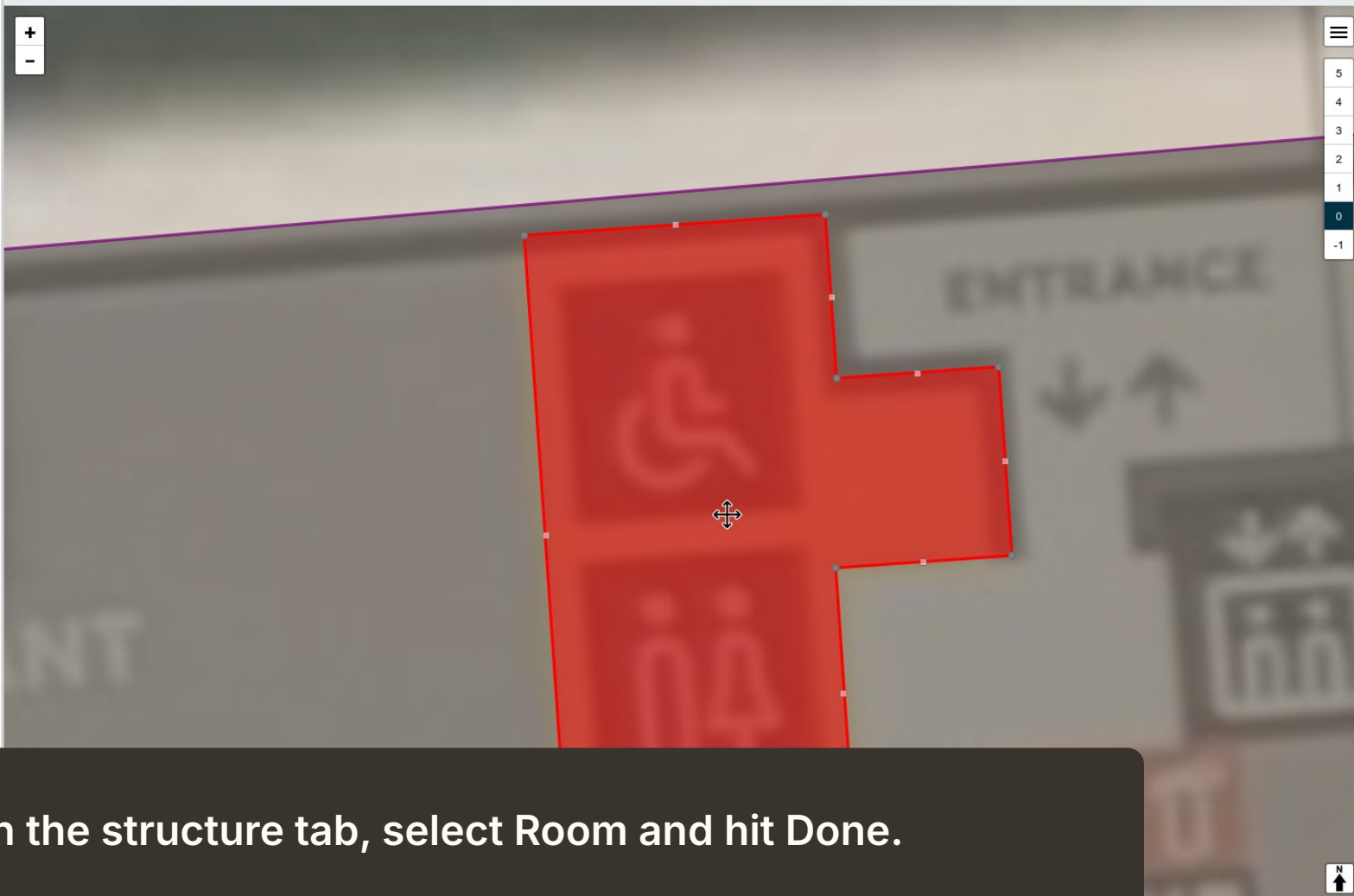
Access

Name

Reference

level	0	x	i
amenity	toilets	x	i
indoor	room	x	i






+



In the structure tab, select Room and hit Done.



## Add features

 Toilets/Restrooms Building structure > Furniture > Barriers > Transport > Facilities > Sports > Man Made > Shops > Offices > Craft >  Preview Save (7)

The toilet is ready, let's preview it on indoor=.



Preview rendering



GeoJSON, osm or IMDF (zip) file



Since the preview is now looking good, let's send changes to OpenStreetMap.



# Send changes to OpenStreetMap

Changeset comment

Add floors in Union Mall

Sources ?

Ground survey

☐ I would like someone to review my edits

Send

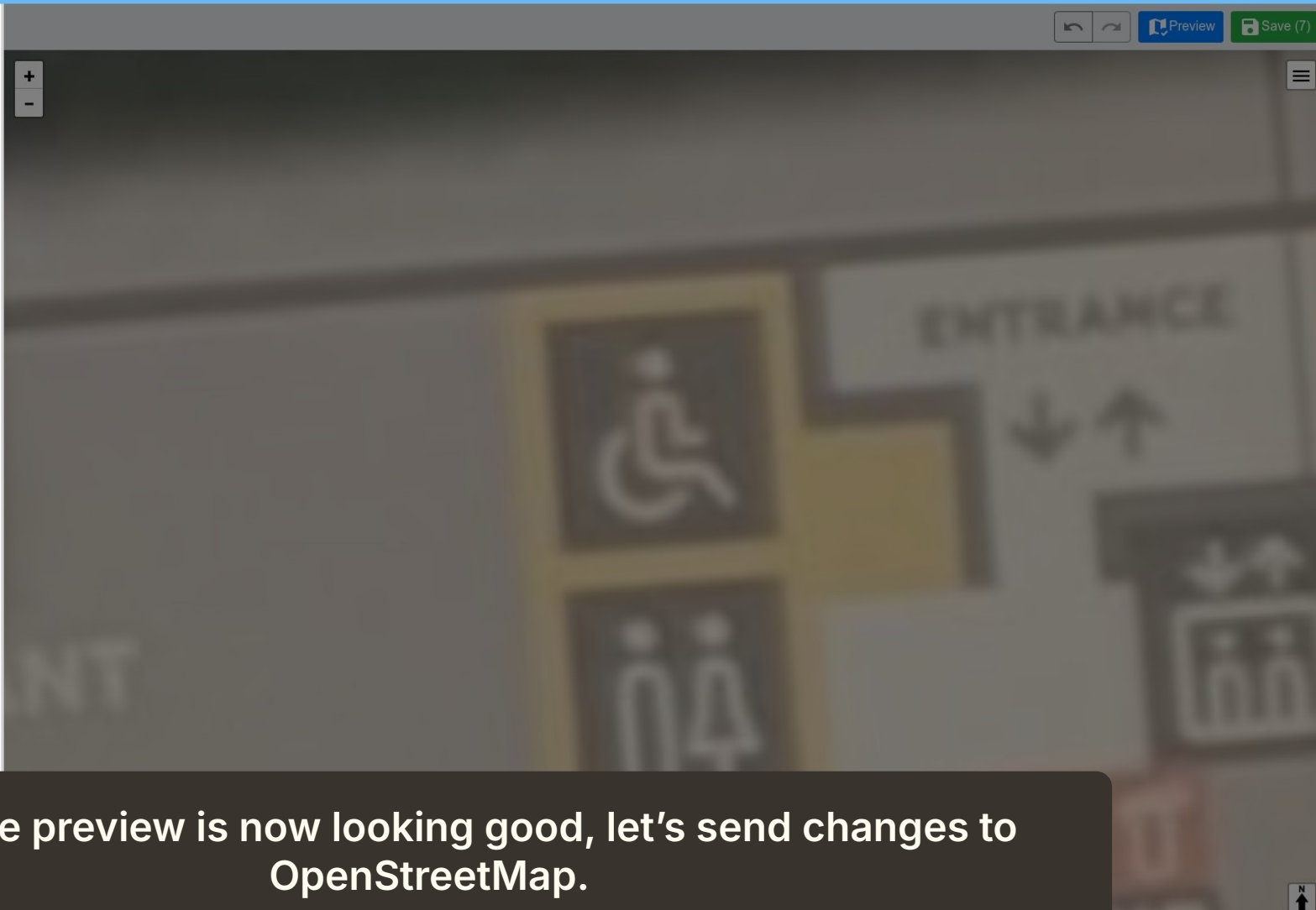
Cancel

Changeset tags

comment	Add floors in Union Mall	x	i
imagery_used	Bing Maps Aerial;Mapbox ...	x	i
source	survey	x	i

+

- Your edits
- Union Mall
  - ชั้น G
  - Room, Toilets/Restrooms
  - node/-1
  - node/-2
  - node/-3
  - node/-4
  - node/-5
  - node/-6
  - node/-7
  - node/7892829313



Since the preview is now looking good, let's send changes to OpenStreetMap.

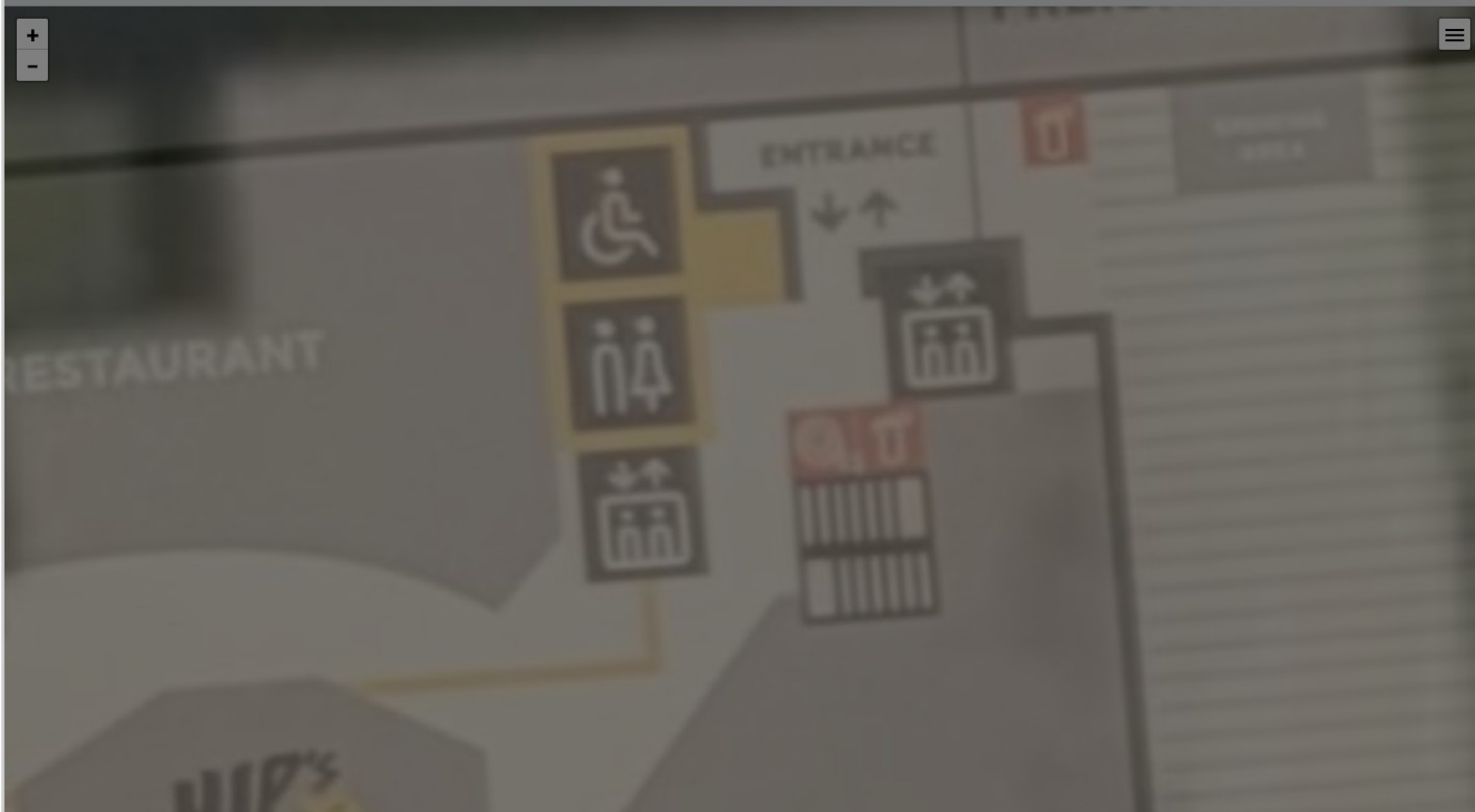


## Send changes to OpenStreetMap

✓ Thanks for your contribution !

🔍 See your changes on OpenStreetMap

✎ Go back to editing



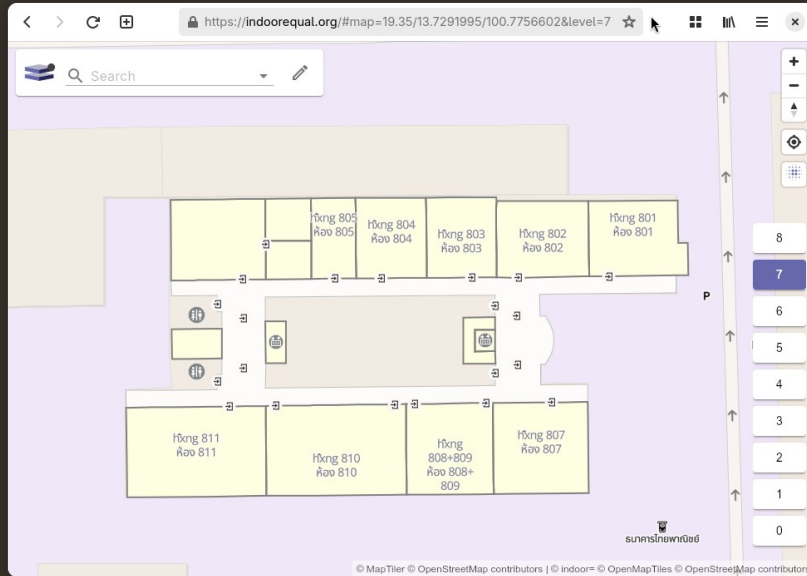
Since the preview is now looking good, let's send changes to OpenStreetMap.



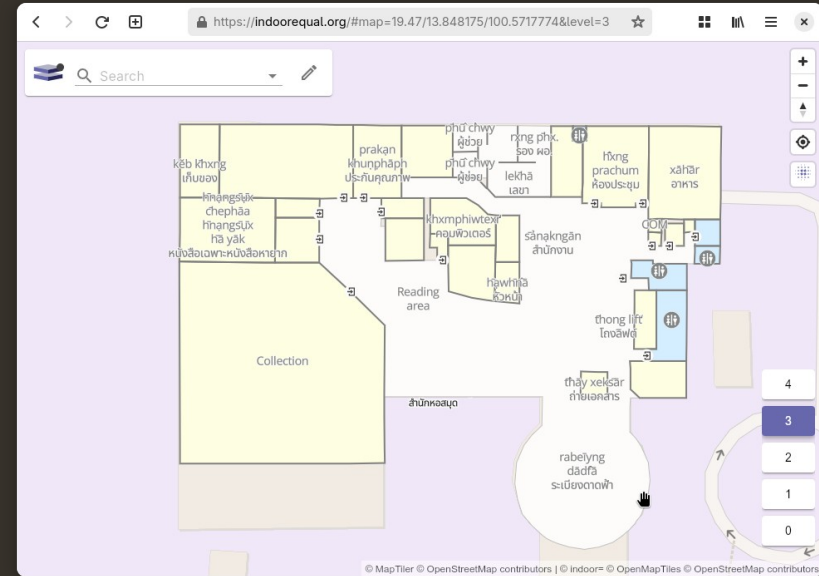


# Visualizing results

Apart from previewing, indoor= can also be used to view indoor features of an existing building.



**KMITL ECC Building**



**Kasetsart University Learning Center**

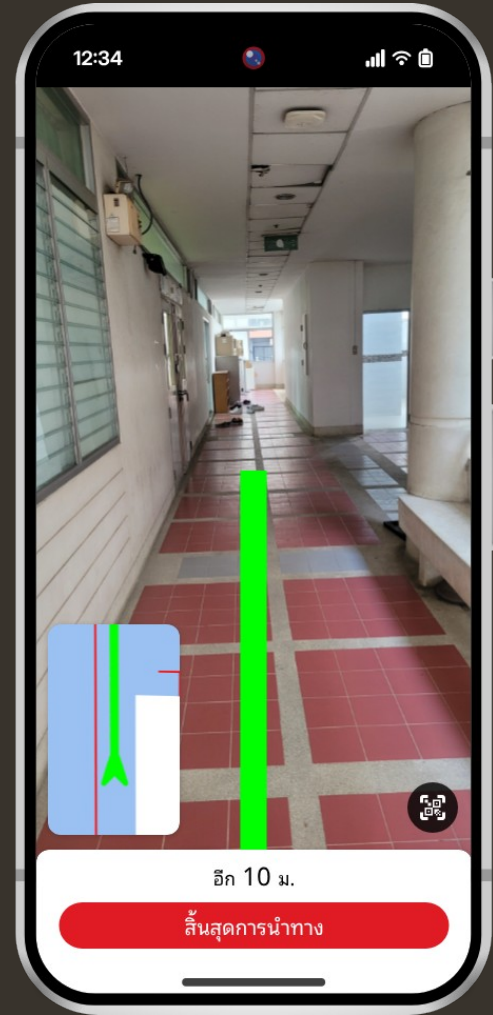


# Recap+

Indoor building data, when made public, can be useful in many circumstances, from simply helping visitors find amenities (such as toilets) to aiding rescue teams in emergency situations.

I demonstrated the process of acquiring the floor plans, adding the features using OsmlnEdit and using indoor= to preview and visualize the data.

*Since my graduation project is about AR for indoor navigation, which uses indoor data from OpenStreetMap (See picture on the right). What if we could use make use of indoor data inside complex shopping malls so we could stop getting lost in there?*





# Thank you!

Feel free to check out more cool stuff I made below



TechTransThai



My website