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الثاني للأراضي

Second Arab Land
Conference

22-24 FEBRUARY 2021
CAIRO, EGYPT

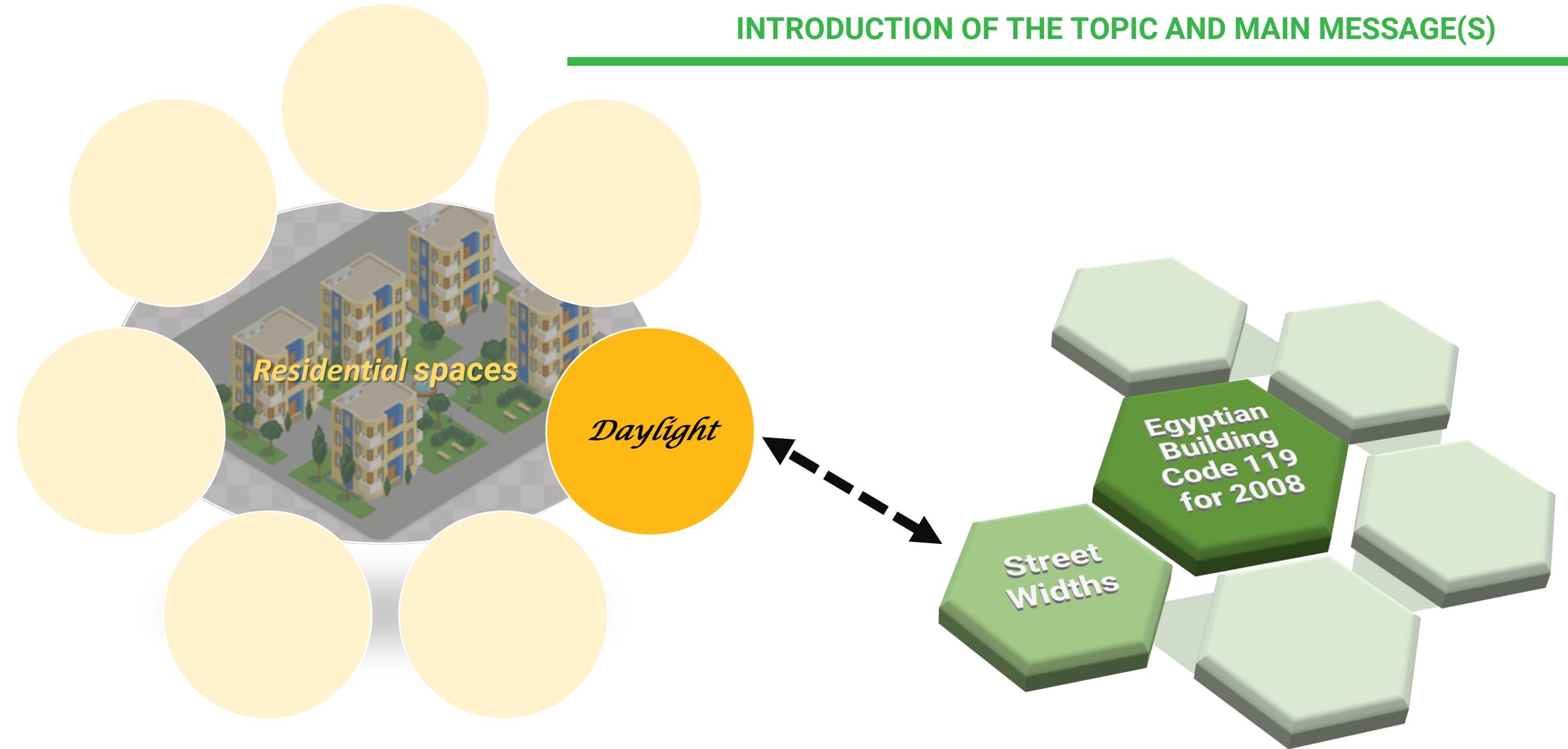
Reconsidering the Egyptian building code with regard to street widths and their impact on the daylight quality inside residential spaces

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INTRODUCTION OF THE TOPIC AND MAIN MESSAGE(S)





Problem Statement

- **Impact of Artificial Light**

Psychological- Environmental- Health (diseases from moisture)- Economicetc.

- **High costs of electricity bills (see Fig. i).**

- **The code does not refer to the following :**

- **the side facades in terms of street widths and therefore Daylighting.**
- **the plant component in the city that provides visual and psychological comfort, so cities have become concrete blocks.**

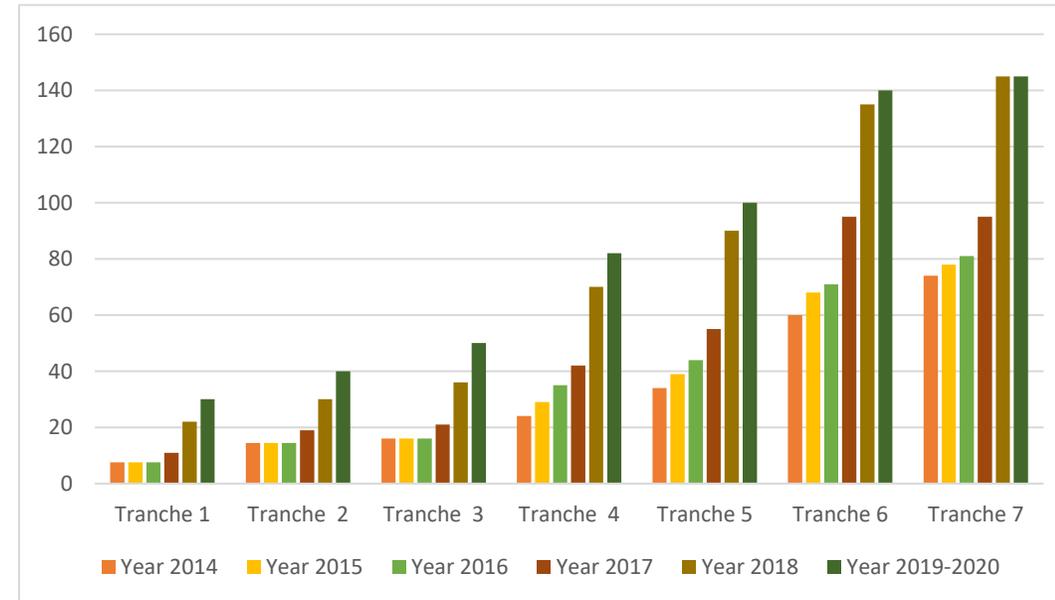
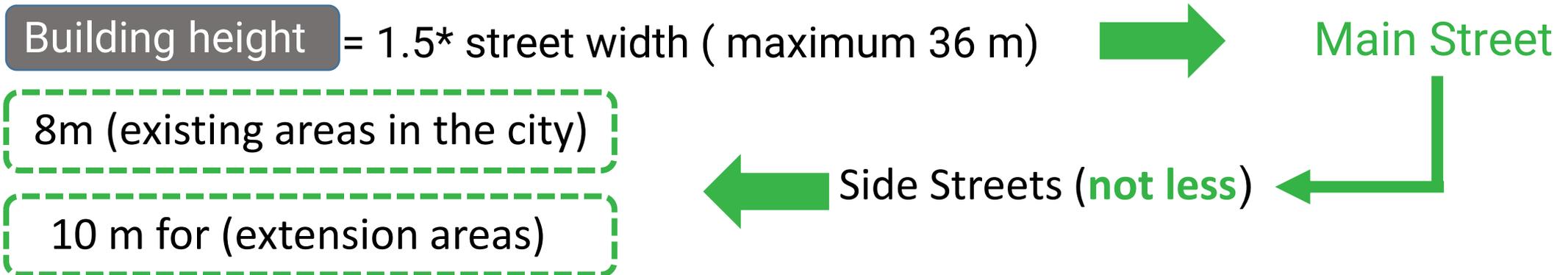


Fig. i . Electricity tranche price from 2014 to 2020 in Egypt.

Egyptian Building Code 119 for 2008

Relation between Street width and Building Height

Egyptian building code 119 for 2008



California building code for 2010 (international building code)



Indian building code for 2016

The width of the streets around the building depended on the noise level.

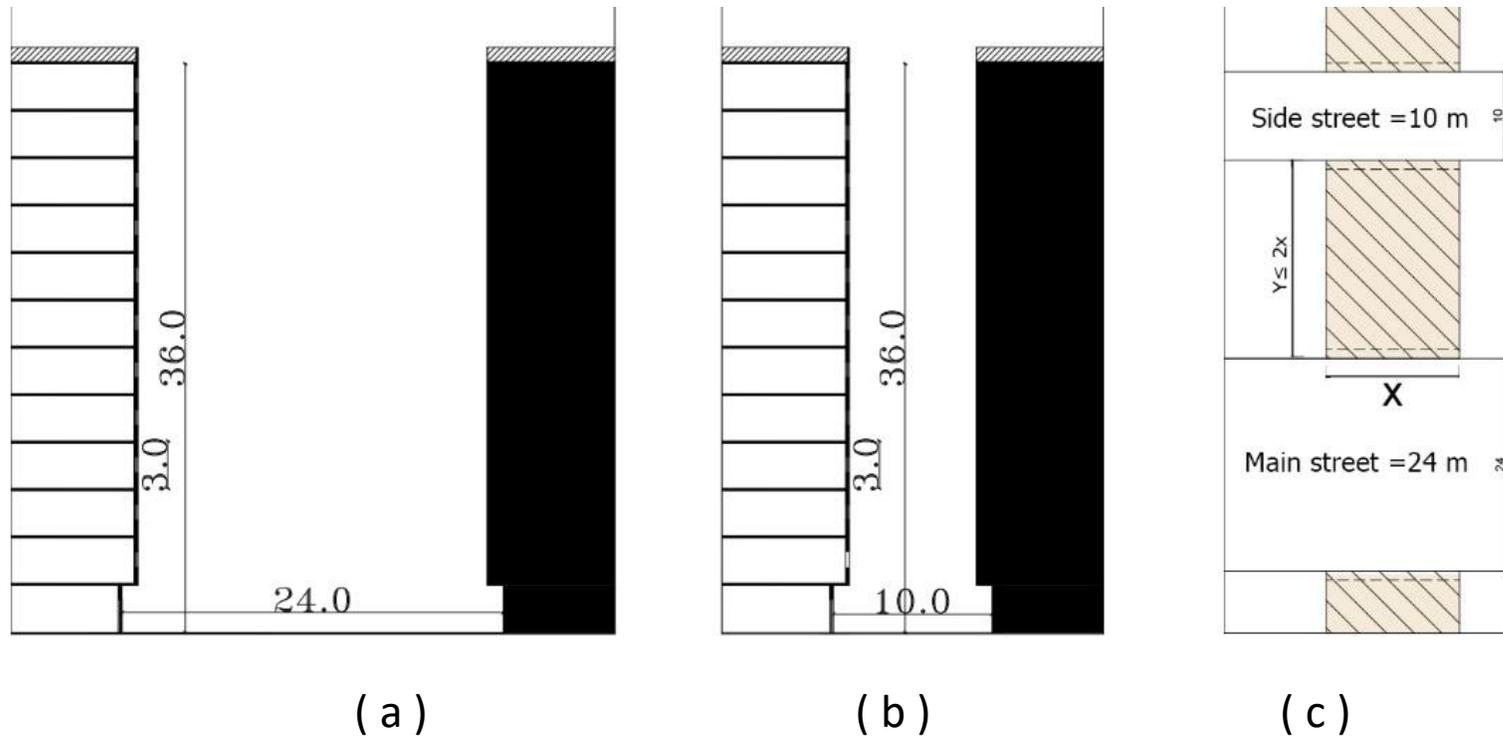


Fig. ii. The relationship between street width and building height as in Code 119.a. The main facade.
b. The side facade of the same building. c. The layout.

Application of the results of the researcher Khaled Elhadidy, 2012

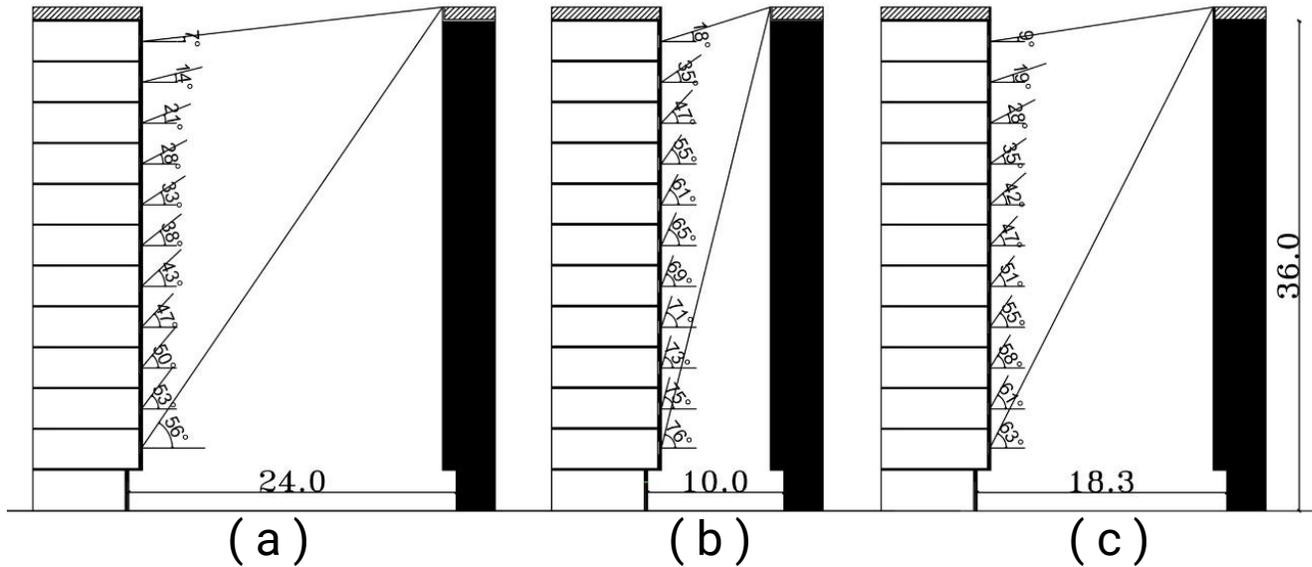


Fig. iii. The street width effect on the angle between the centre of the window and the opposite obstacle.

a. Street width 24 m. b. Street width 10 m. c. Street width 18.3 m.

The window area relative to room area based on the obstacle angle in the two cases.

floor	Street width (24 m)	Street width (10 m)	Street width (18.3 m)
	Window area/ room area (per cent)		
commercial	-		
1st	10	Unacceptable	Unacceptable
2ed			
3rd			
4th	9		10
5th			
6th	8		9
7th			
8th			
9th	10	8	
10th	8		
11th			

Adaptive side façade

- In case of side street 10m

**Backward (Recessed)
Concept**
As in (Building Law 106 of
1976)

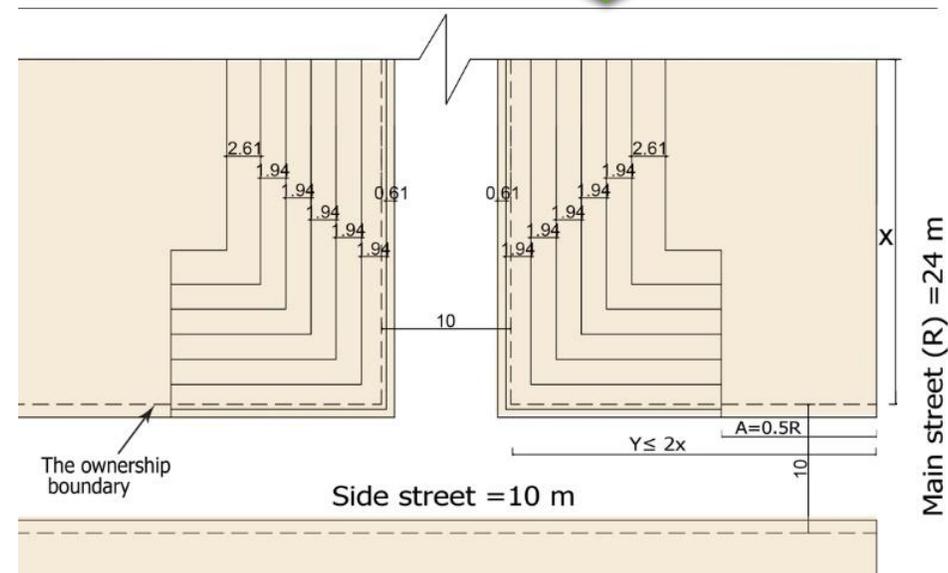
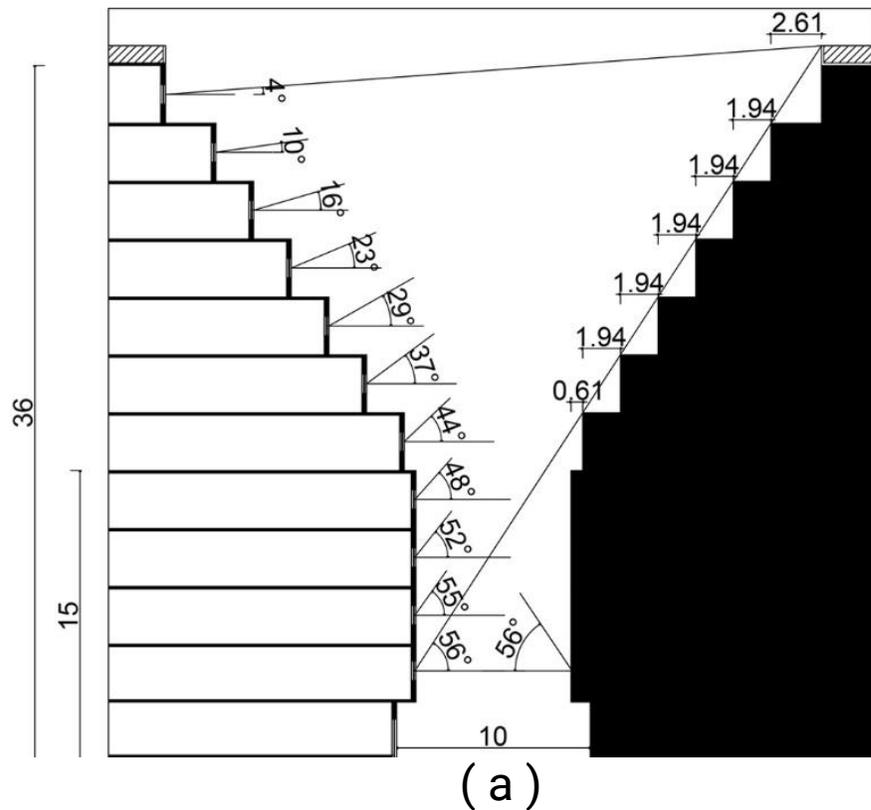
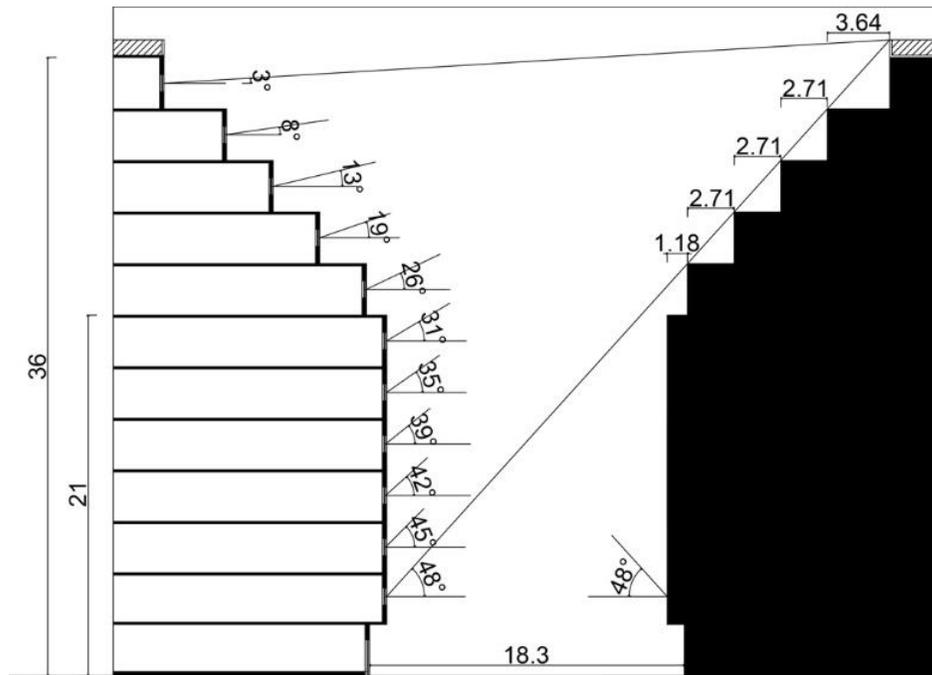


Fig. iv. The proposed model with side street 10 m. a.The section. b. The layout.

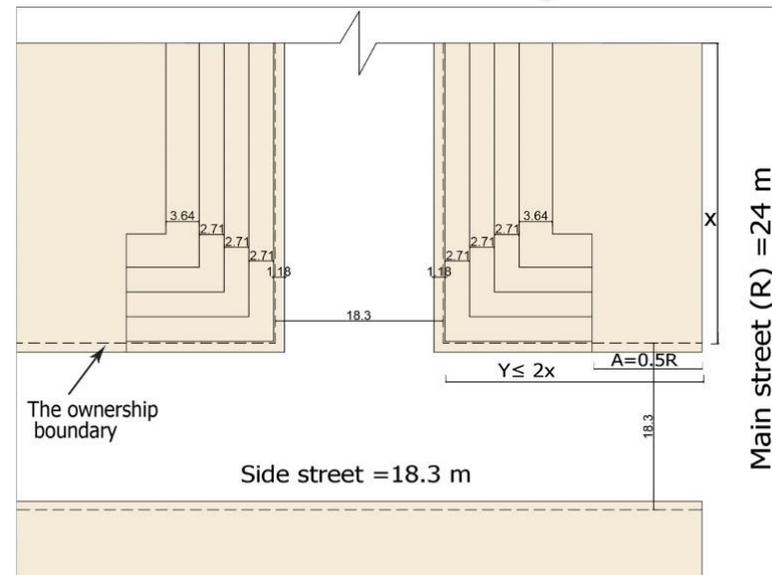
Adaptive side façade

- In case of side street 18.3m

**Backward (Recessed)
Concept**
As in (Building Law 106 of
1976)



(a)



(b)

Fig. v . The proposed model with side street 18.3m. a. The section. b. The layout.

Adaptive side façade

Each proposal has advantages, but it is noted that the last proposal provides:

- Reducing the number of rebound floors (**Recessed**) and thus increasing the built area.
- More floors with a window area that does not exceed 9 per cent of the room area and has adequate efficiency according to the law and previous research, unlike the case of the street with a width of 10 meters in which the area of windows in some floors increases to 10 per cent of the room area and thus the designer needs to solve the problem of heat that may be caused by wide windows in addition to the privacy.

The window area relative to room area based on the obstacle angle in the two cases.



floor	Window area/ room area (per cent)	
	Street width (10 m)	Street width (18.3 m)
commercial	-	
1st	10	9
2ed		
3rd		
4th	9	8
5th		
6th	8	
7th		
8th		
9th		
10th		
11th		

Green roof

Fig .vi shows an example of a residential building with **stepped terraces** on 26 Vavin Street designed by **Henri Sauvage** in 1912-1914.

When applying the same methodology in buildings, one must take into account when choosing plants, their **types, heights, and soil layers appropriate for this, in addition to the irrigation method.**



When the building codes of different countries are reviewed

there is **no integrated building code**, as some aspects are achieved in one code and vice versa in another code and so on.

It is possible to use the available information sources

to reach the **best proposals** after they have been adapted to be effective **without** the need to use **complex professional programs**

MAIN RECOMMENDATIONS

Reconsidering

code article No. 15 in the Code and Article No. 53 of its implementing regulations

possibility

benefiting from some of the previous Egyptian code materials as Building Law 106 of 1976.

Giving

the side facades of the building; the same importance that the main facades

Merging

the plant component with buildings

a similar study to raise the efficiency of facades in other public buildings.

preparing

THANK YOU FOR THE ATTENTION!