

Design Graphics



**Escalators Design**

# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

Escalator Design



DESIGN

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# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### Escalators

- Escalator = Scala Elevator

The escalator as we know it was later re-designed by Charles Seeberger in 1897, who created the name 'escalator' from the word 'scala', which is Latin for steps and the word 'elevator', which had already been invented.

# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

## Escalators

- An escalator is a conveyor type transport device that moves people. It is a moving staircase with steps that move up or down using a conveyor belt and tracks keeping each step horizontal for the passenger. However, the escalator began as an amusement and not as a practical transport.

# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### Escalator Design

## Escalators

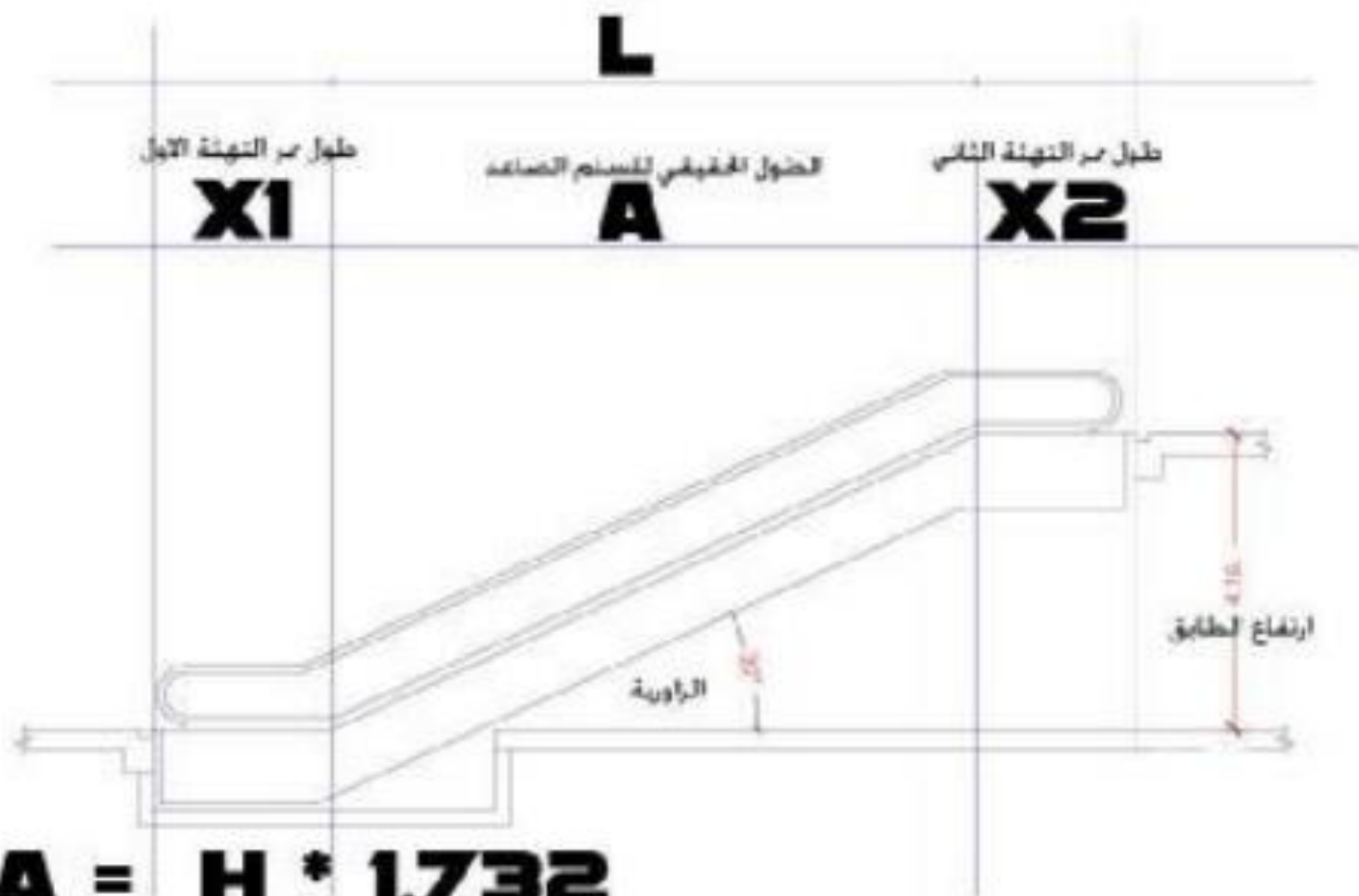
- Escalators are required to provide continuous mass transport of people.
- Escalators in department stores rise at an angle of between  $(30^{\circ}-35^{\circ})$ . The  $35^{\circ}$  escalator is more economical, as it takes up less surface area.
- In accordance with a worldwide standard, the width of the step to be used is 60 cm (for one person width)

# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

### Escalators

**80 cm (for one- to two people width) and 100 cm (for two people width).**

- **According to currant assessment, or average one escalator is installed for every 1500m<sup>2</sup> of sales area.**



$$A = H * 1.732$$

$$L = A + X1 + X2$$

# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### escalator components :

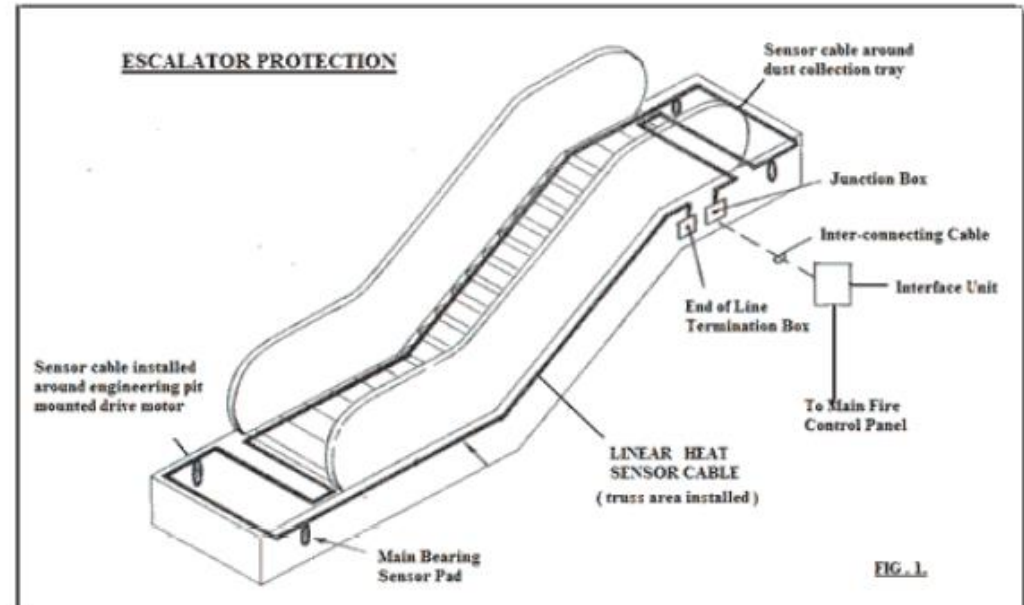
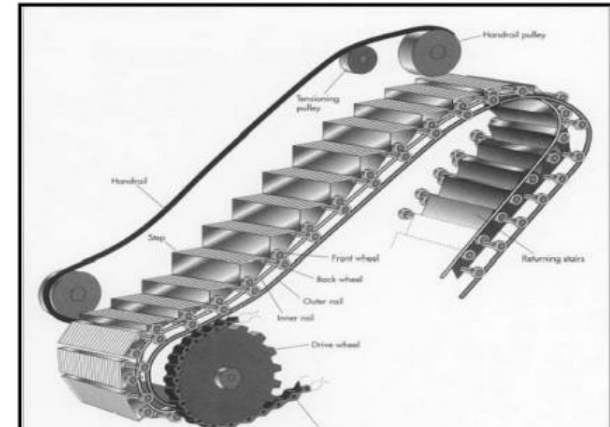
Landings

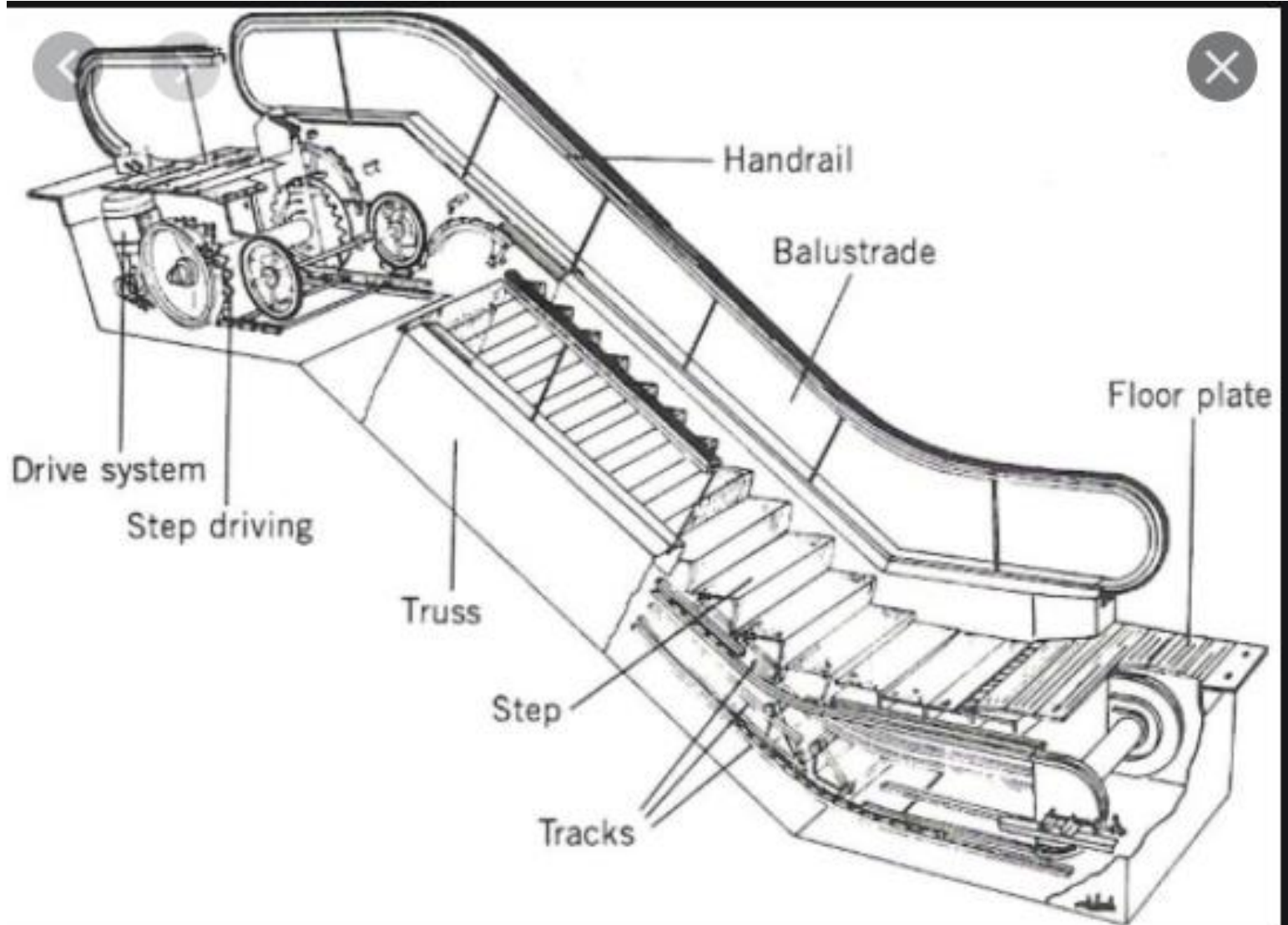
Comb Plate

Truss

Roller Shutter

Options

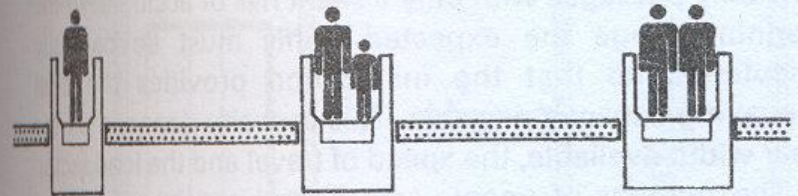




# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### Escalator Design



⑦ Escalator 60 cm wide    ⑧ 80 cm wide    ⑨ 1.00 m wide

**Length in plan** → ①

with 30° escalator =  $1.732 \times \text{storey height}$

with 35° escalator =  $1.428 \times \text{storey height}$

Example: storey height 4.50 m and angle 30° (note that 35° angle is not allowed in some countries)

length in plan:  $1.732 \times 4.5 = 7.794$

Including landings top and bottom, total length is approximately 9 m, allowing for about 20 people to stand in a row on the escalator.

| speed    | time per person | width sufficient for :      |           |
|----------|-----------------|-----------------------------|-----------|
|          |                 | 1 person                    | 2 persons |
| 0.5 m/s  | ~ 18 s          | 4000                        | 8000      |
| 0.65 m/s | ~ 14 s          | 5000                        | 10000     |
|          |                 | people/h can be transported |           |

⑩ **Performance data** → ① – ③

# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### Escalator Design

| step width                | 600               | 800               | 1000                |
|---------------------------|-------------------|-------------------|---------------------|
| A                         | 605-620           | 805-820           | 1005-1020           |
| B                         | 1170-1220         | 1320-1420         | 1570-1620           |
| C                         | 1280              | 1480              | 1680                |
| transportation capacity/h | 5000-6000 persons | 7000-8000 persons | 8000-10 000 persons |

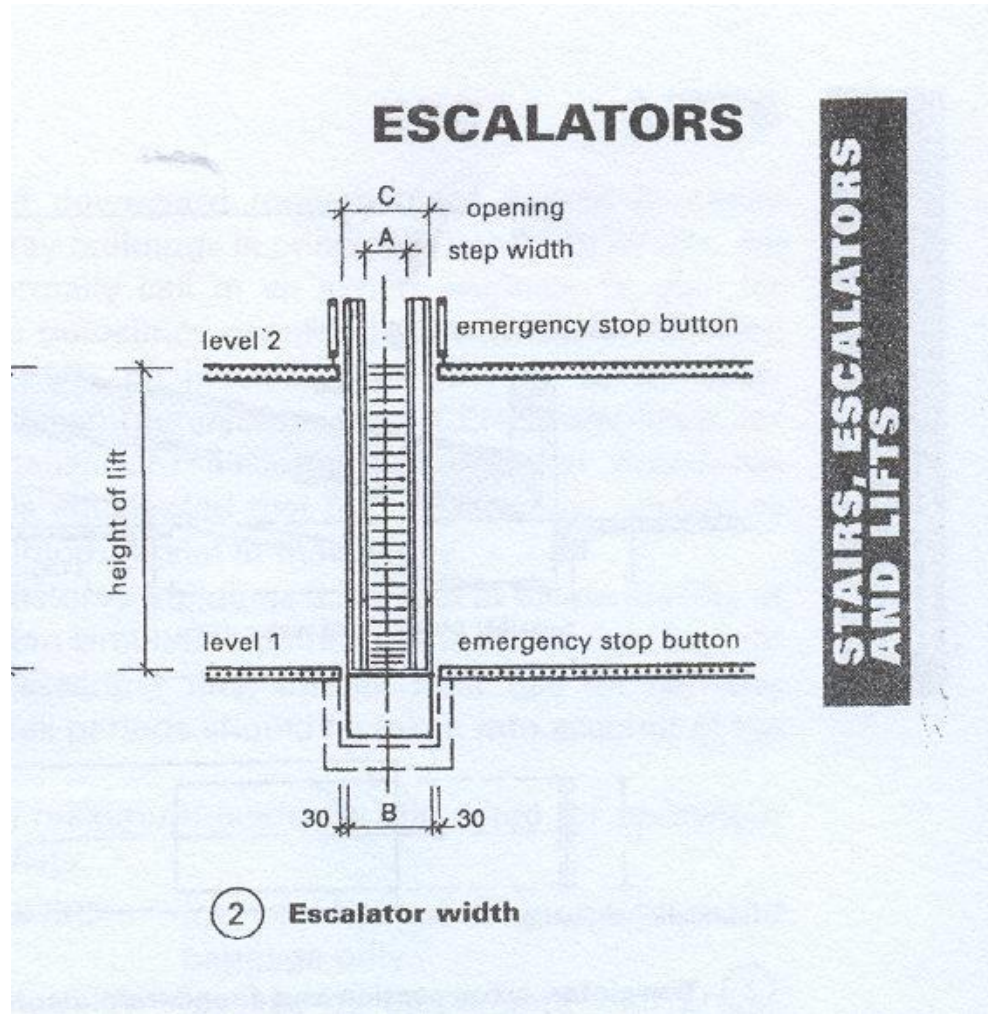
- ③ **Dimensions and performance for escalators with either 30° or 35° angle of ascent**

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# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

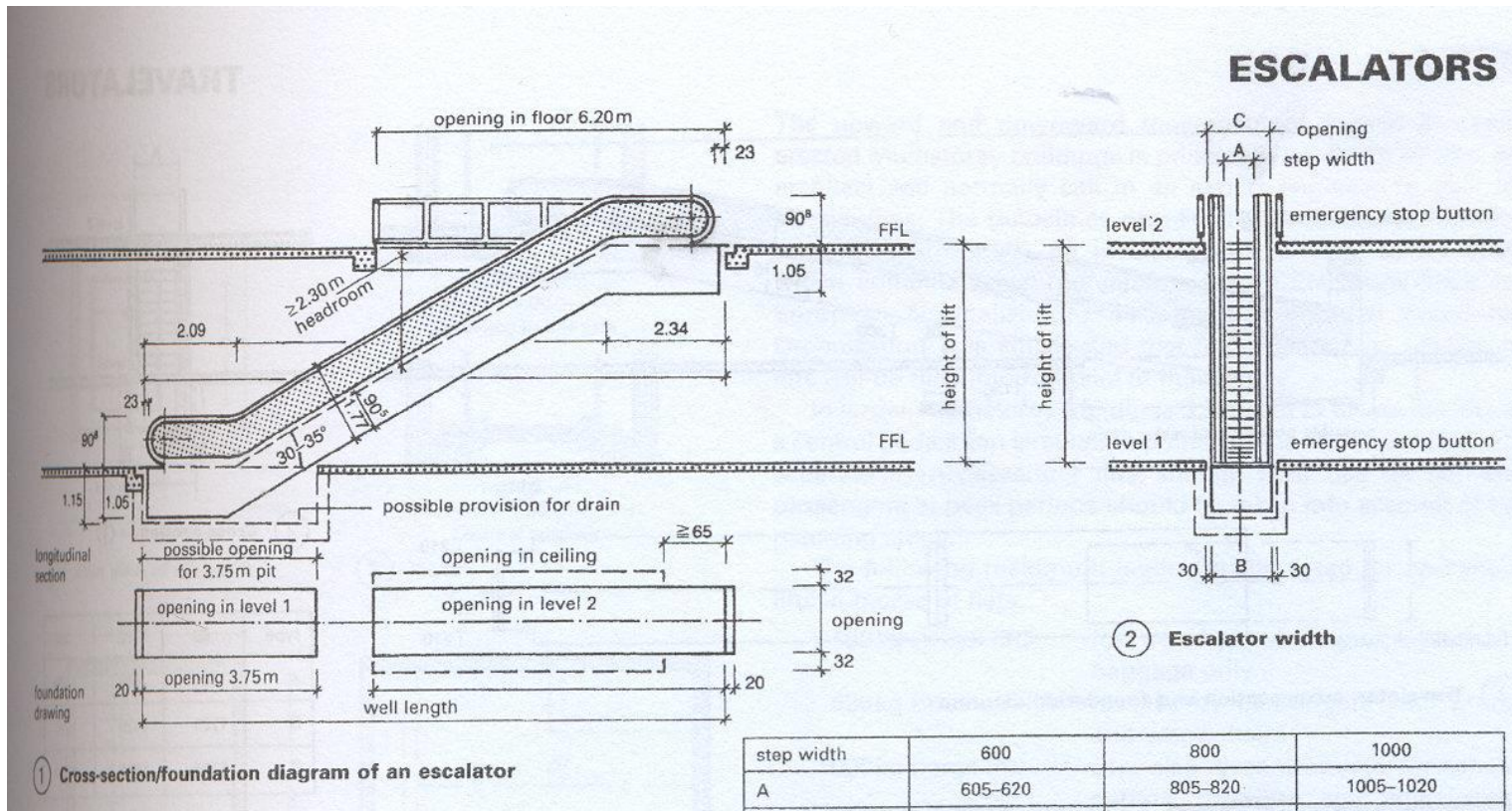
### Escalator Design



# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### Escalator Design

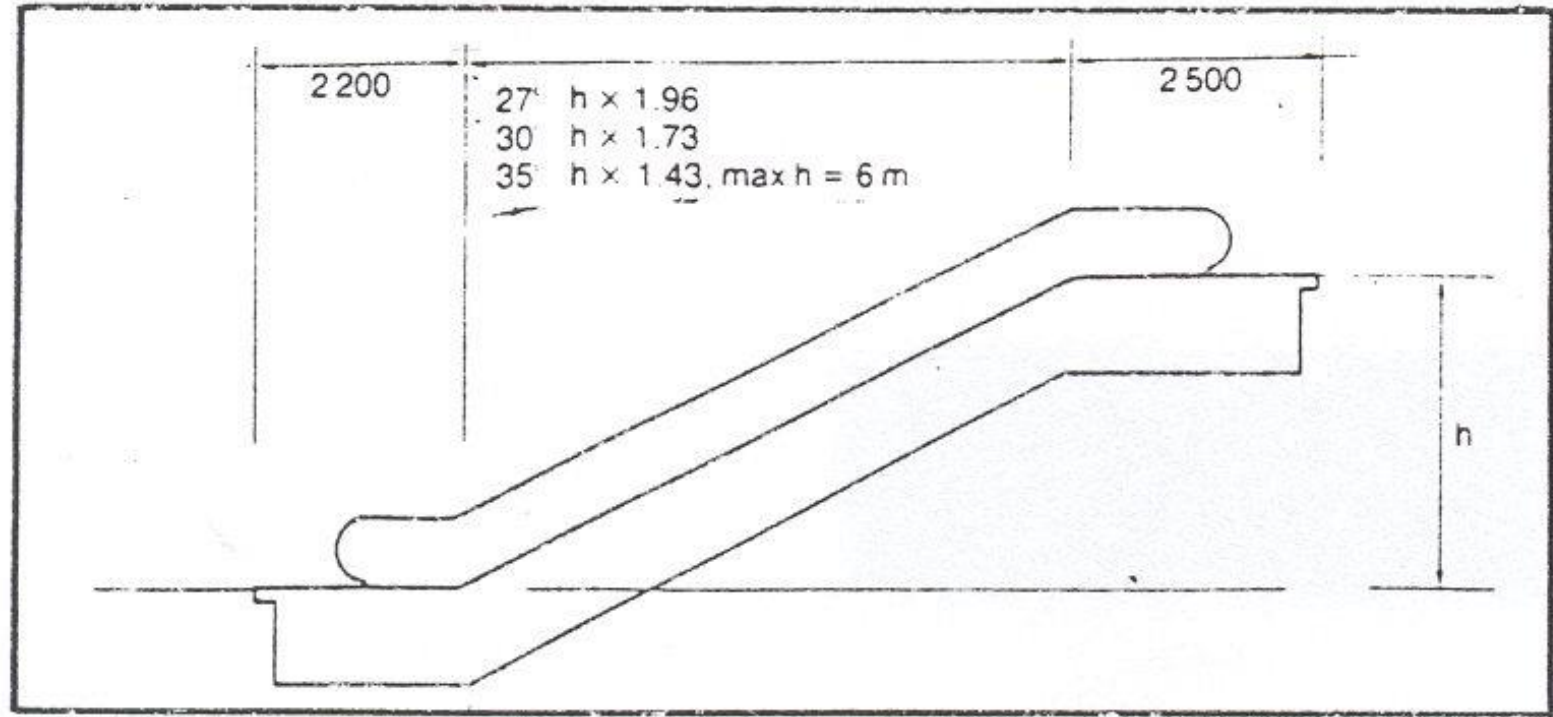


STAIRS, ESCALATORS AND LIFTS

DESIGN

# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

## Escalator Design



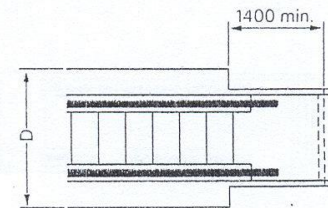
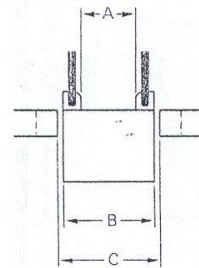
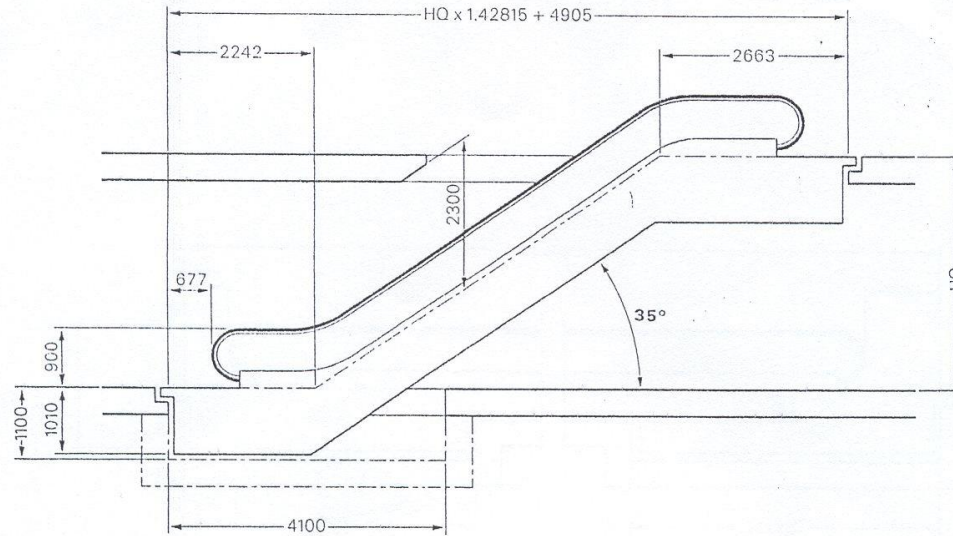
مقاييس السلالم المتحركة في الرسومات التنفيذية

DESIGN

# تصميم المصاعد والسلالم الكهربائية

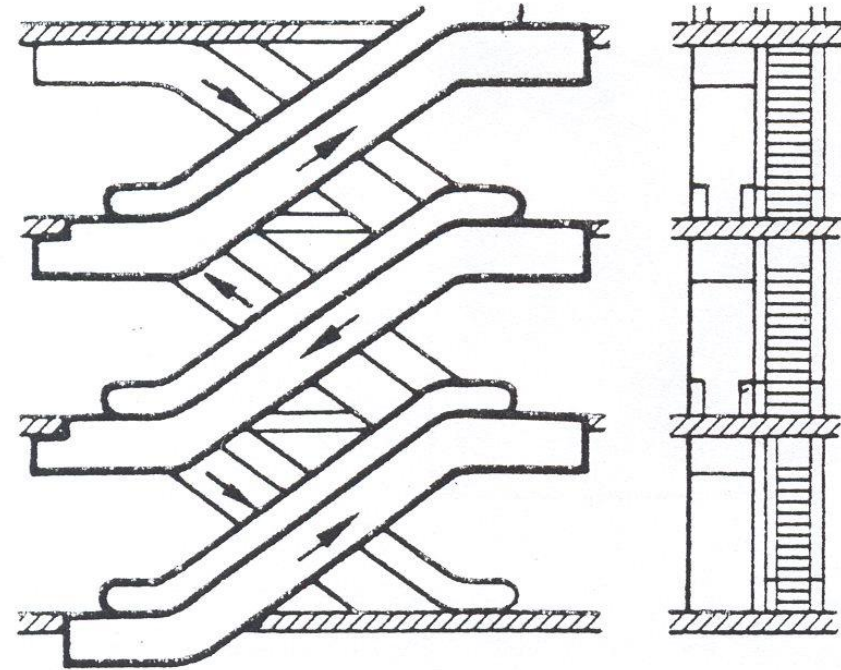
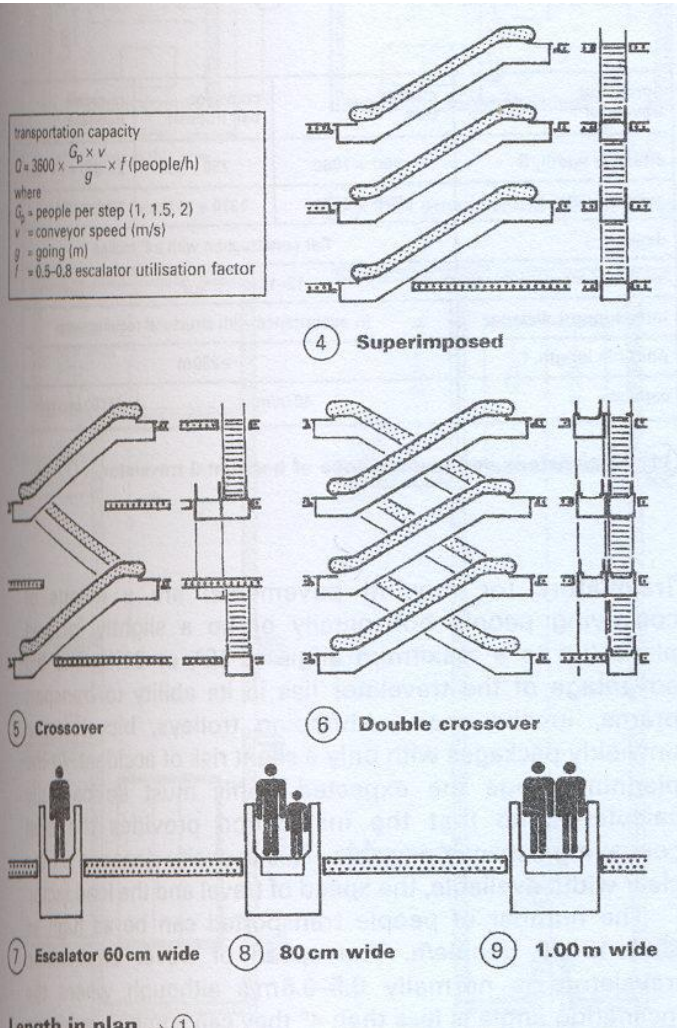
## Elevator & Escalator Design

### Escalator Design



# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

## Escalator Design



تنسيق السلالم المتحركة بطريقة مكثفة في السعود والهيوط

GN

# Escalator Design



# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

Escalator Design

نماذج للسلالم الكهربائية



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# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

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## Spiral Escalator

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# تصميم المصاعد والسلالم Elevator & Escalator Design

## Escalator Design

Where do we use the escalator:

- At the entrances:
- On frequent floors:
- In open plan
- in the corner:
- In the lobby:

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# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

## Escalator Design



# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

## Escalator Design



# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### Escalator Design

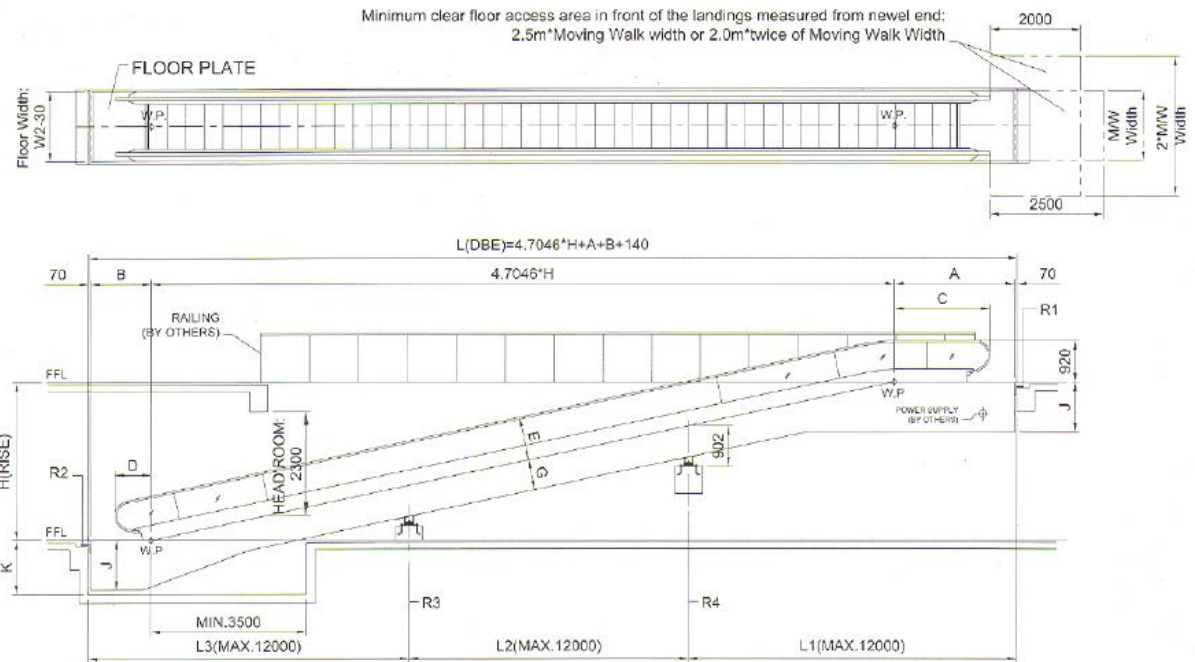
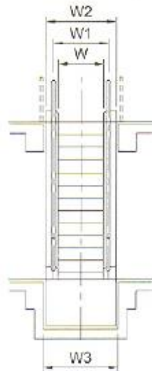


# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design



| Model : LCM - KS, 12 Degree |



# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

## Escalator Design

### Travelators

- **Travaletor (Moving walks )for rapid horizontal or inclined transportation. You will find Schindler moving walks in some of the world's busiest airports, exhibition halls, subway systems and shopping complexes.**

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# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

- **Schindler 9500 moving walks combine comfort with safe, rapid, horizontal and inclined transportation and are ideal for use wherever the elimination of long walks is desired.**
- **Moving Walks are designed to carry people smoothly and comfortably.**

# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

- **An Inclined Moving Walks offer ideal solutions for the needs of modern pedestrian traffic, in all types of commercial facilities from grocery stores to shopping malls.**

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# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### Travelators

**Travelators** are a means of conveying people horizontally or up a slightly inclined plane (up to a max. angle of  $12^\circ$  or 21%).

The average split of traffic that goes upstairs in a large departments store is:

**Stairs 2% - Lifts 8% - Escalators 90%**

# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

## Travelators

**Length in Plan is:**

**With 30° escalators = 1.732xstorey height.**

**With 35° escalators = 1.428 storey height.**

**Example**

**Storey height =4.5m**

**Length in plan=1.732x4.5=7.794m.**

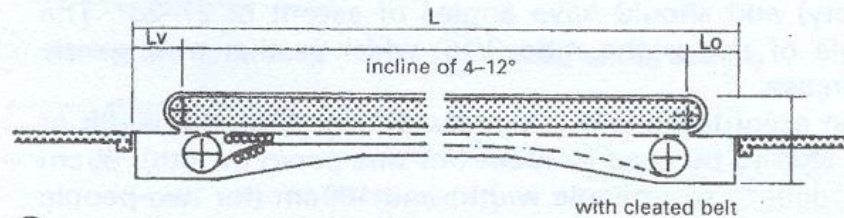
**= 1.428x4.5=**

**6.426m**

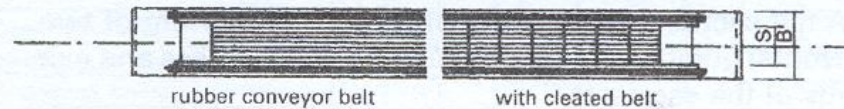
# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

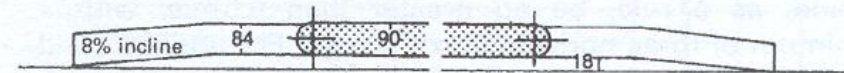
### Escalator Design



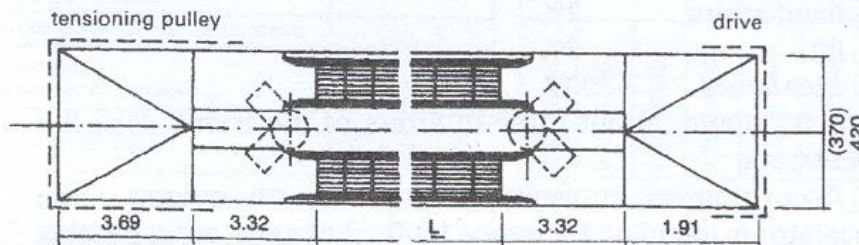
⑦ Section of travelator with rubber conveyor belt



⑧ Plan view → ⑦



⑨ Section of a reversible travelator → ⑩



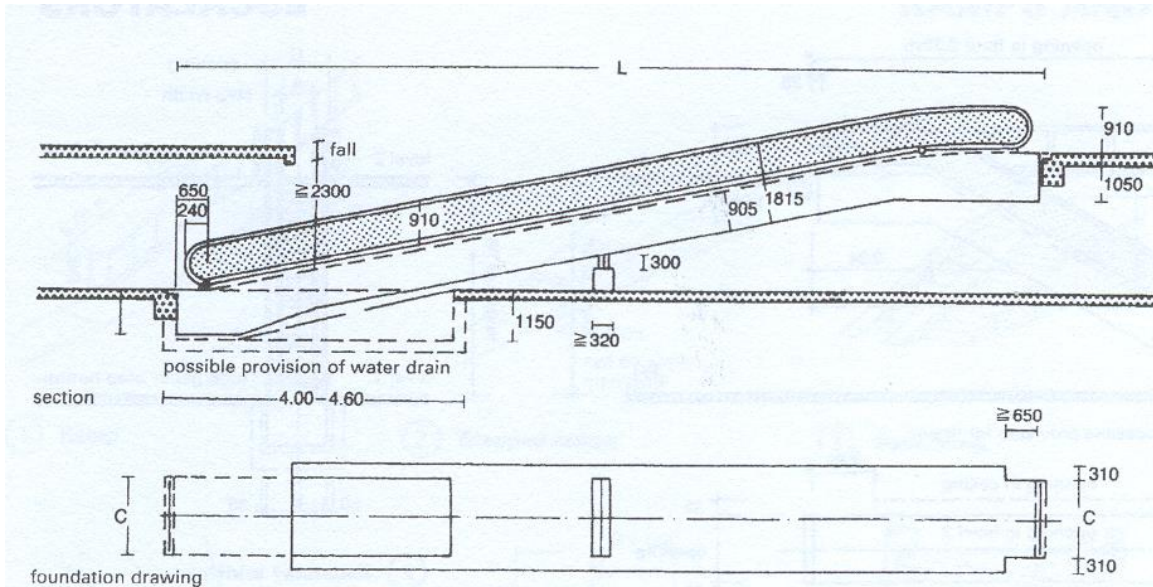
⑩ Plan view → ⑨

## Travelator

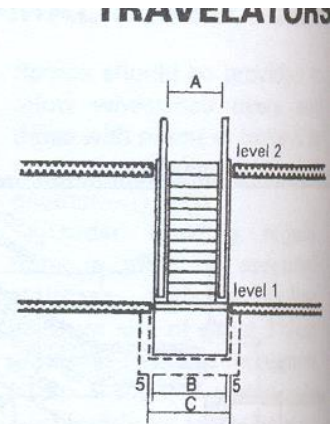
# تصميم المصاعد والسلالم الكهربائية

## Elevator & Escalator Design

### Escalator Design



① Travelator, cross-section and foundation diagram



② Cross-section → ①

| type | 60   | 80   | 100  |
|------|------|------|------|
| A    | 600  | 800  | 1000 |
| B    | 1220 | 1420 | 1620 |

DESIGN

# تصميم المصاعد والسلالم الكهربائية Elevator & Escalator Design

## Escalator Design





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والله ولي التوفيق ،،

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