# Scale in Building Drawing

Chap No. 6, Basics of Engineering Drawing by

Z.A. Siddiqi

Prepared by:
Muhammad Umar
3rd year, session 2014
Civil Engineering Dept UET LHR

Scale

- It is the ratio of maximum size available on sheet (horizontal or vertical) to the maximum dimension (horizontal or vertical) of the building/object to be drawn

- Generally maximum or larger dimension of object decides about the scale.

1:100

Dimension
on sheet
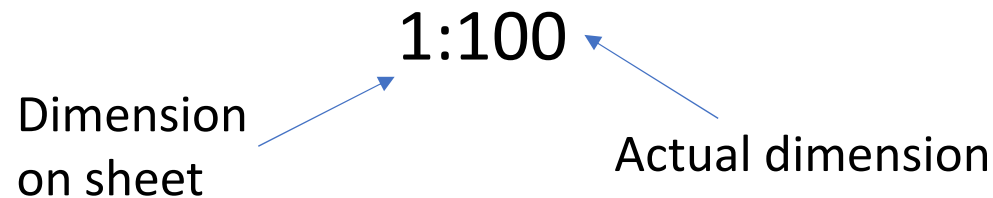
Actual dimension

Means 1 inch on sheet is showing 100 inches of actual dimension of object
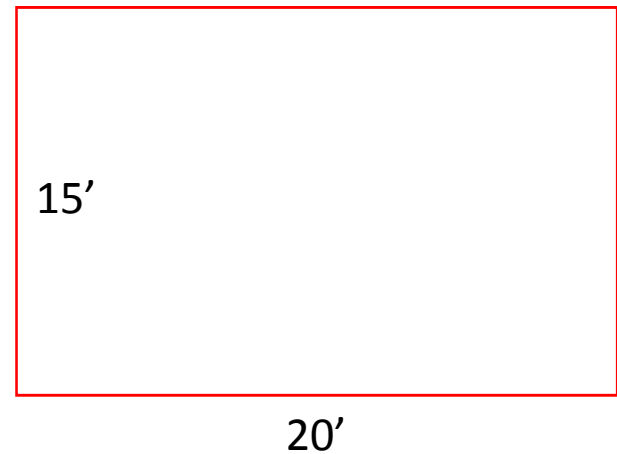
(same unit (ft or in) for sheet and object)

Can be read as 1 ft on sheet is showing 100ft of actual dimension of object

How to select Scale?

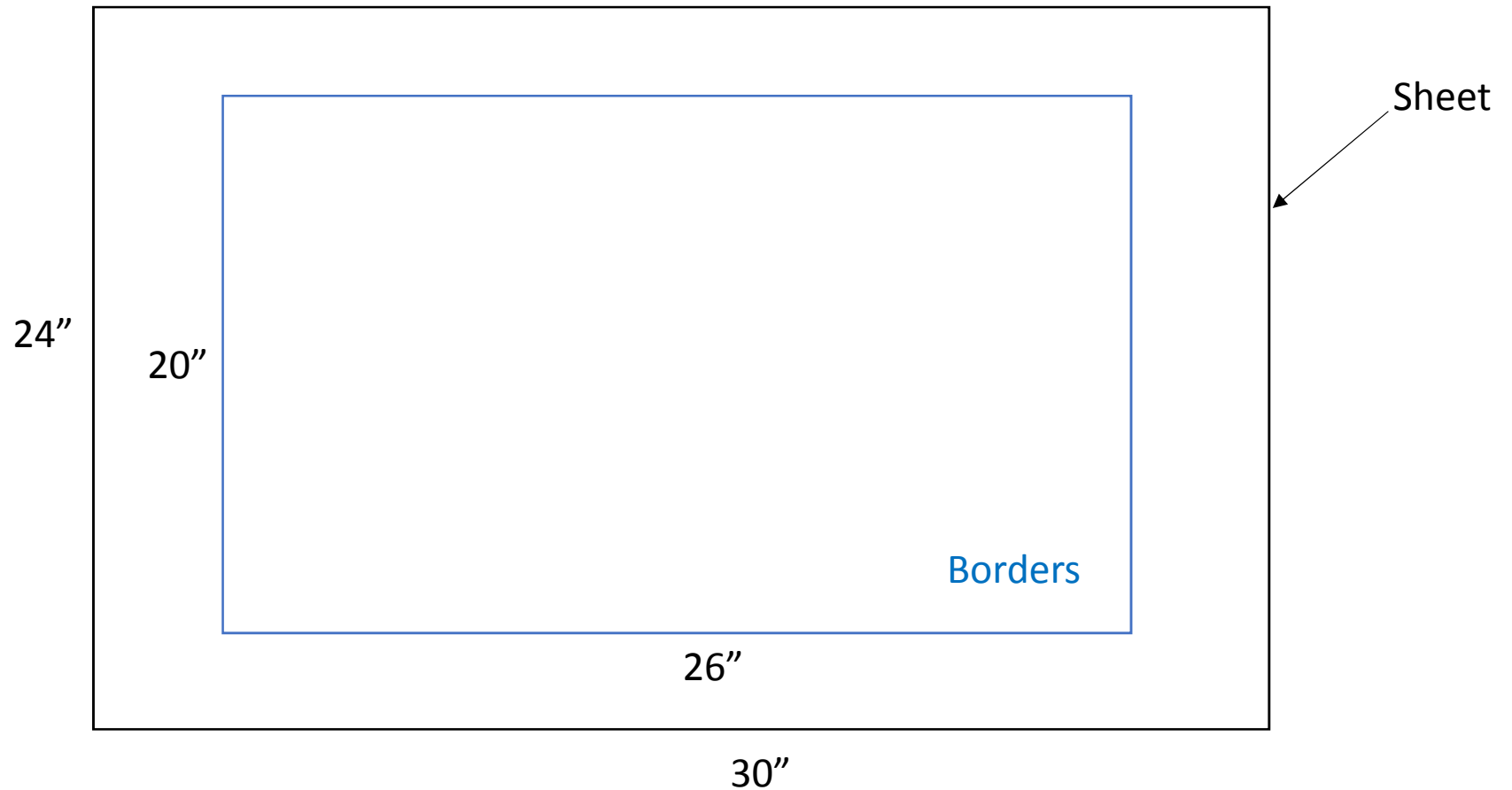- Suppose you have a drawing sheet of 24" by 30" and you have to draw a rectangular box of 15ft by 20ft on the sheet

24"

30"

Drawing sheet

15'

20'
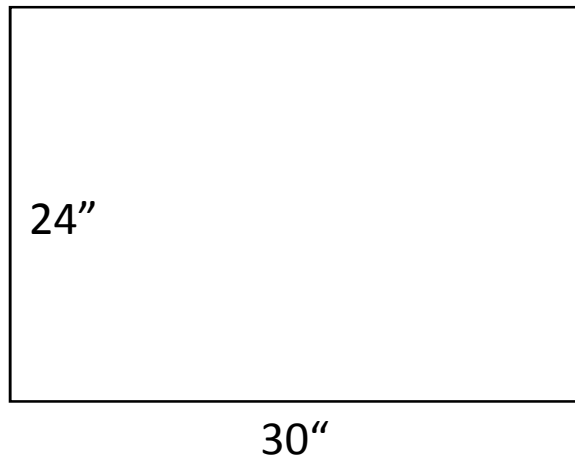
Rectangular box

- Leave 2in or 1.5in space on each side of the sheet for border etc

Sheet

24"

20"

Borders

26"

30"

The space for drawing is 20 in by 26 in

- Max dimension of object (rectangular box) is 20 ft
- 20 ft is to be drawn horizontally
- The horizontal space available is only 26 inches

$$\text{Scale} = \frac{\text{Max space availble on sheet}}{\text{Max dimension of object}}$$

Max size available horizontally = 26 in
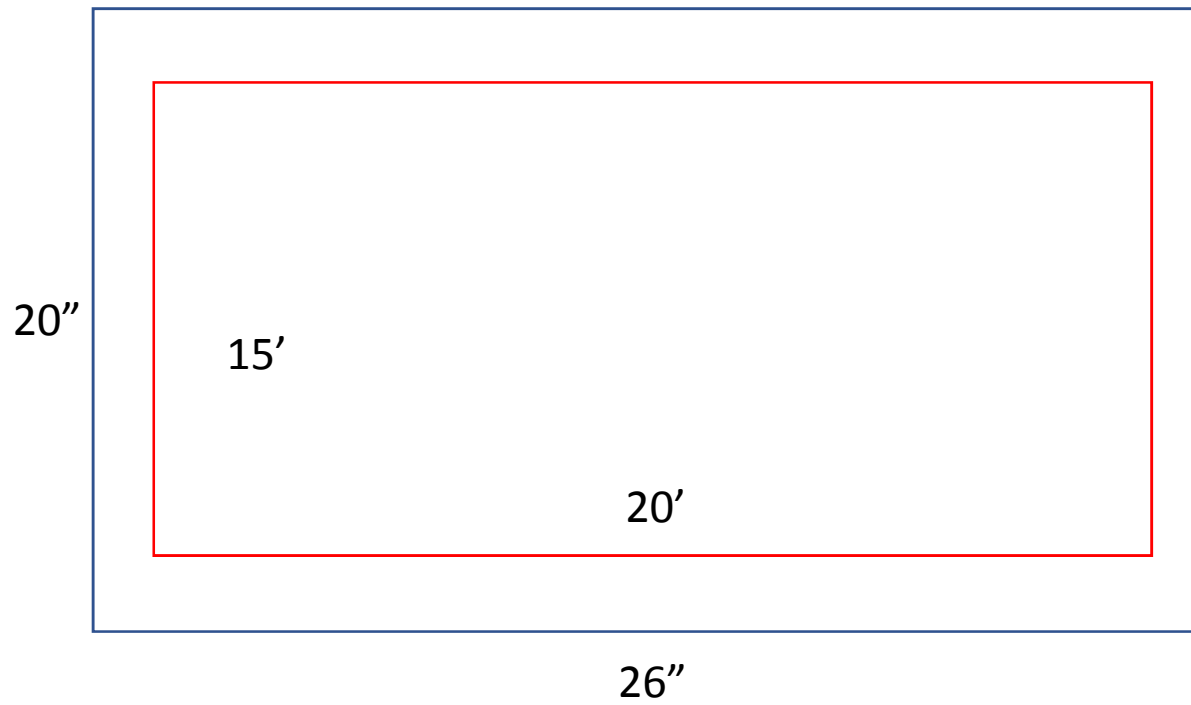
- Max dimension to be plotted = 20 * 12 = 240 in
- (1 ft = 12 inches)   To keep both units same
- Scale   26 : 240

                  1 : 9.23   take it as   1: 10

- Now the scale is 1 : 10

- Divide each dimension of object by 10

- 20*12/10= 24 in
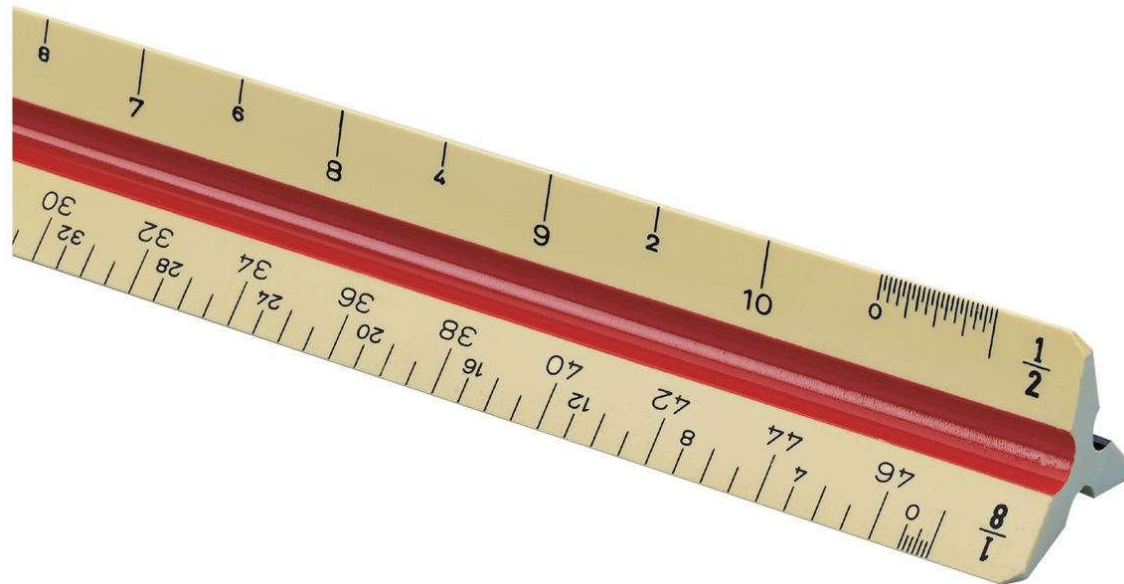
- 15*12/10= 18 in

Now these two can be drawn on sheet

Scale
1:10

20"

18 in

24 in

26"

Scale
1:10

20"

15'

20'

26"
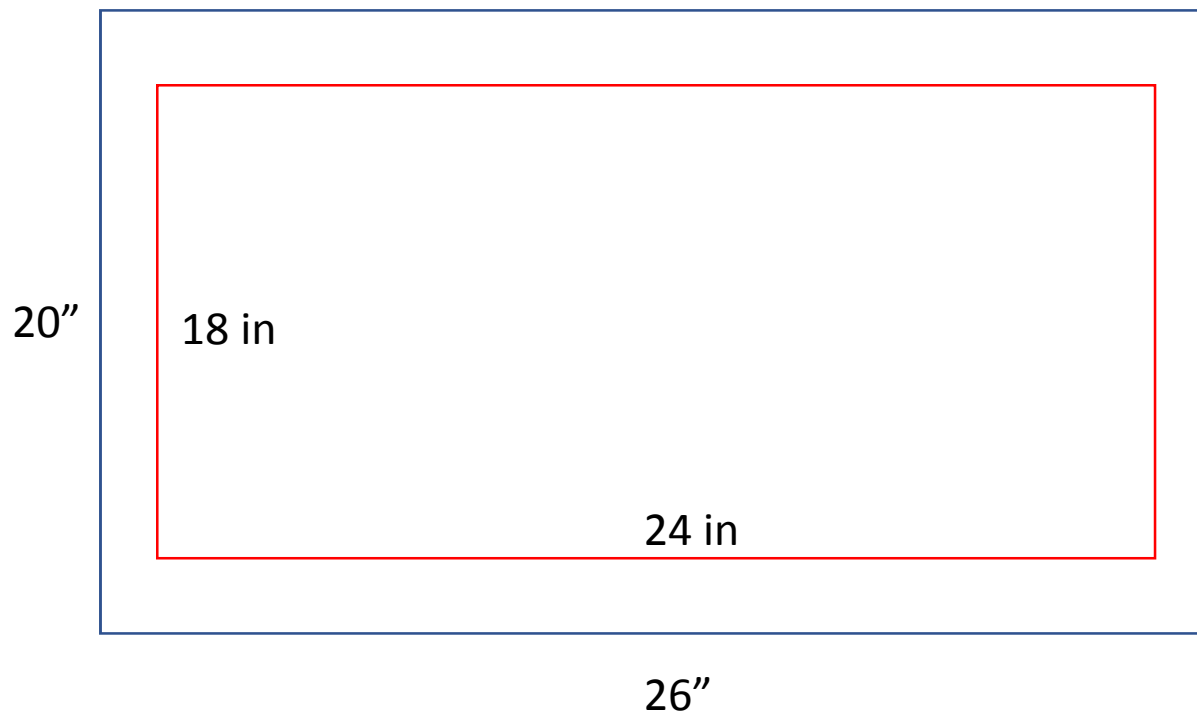
Architectural Scale

- ARCHITECT'S SCALES are usually tri-angular in shape and are used wherever dimensions are measured in feet and inches. Major divisions on the scale represent feet which, in turn, are subdivided into 12ths or 16ths, depending on the individual scale.

- Different scales marks

- 3 in
- 1.5 in
- 1 in
- ¾ in
- ½ in
- 3/8 in
- 1/4 in
- 3/16 in
- 1/8 in
- 3/32 in

3/4 inch scale mark

- It means ¾ inch on sheet represents 1 ft dimension
- Scale ¾ in : 12in
- simplifying 1: 16
- Whenever the scale calculated is near 1:16 but on lower side like 1:14 or 1:15 use scale 1:16
- Use architectural scale ¾ inch side of architectural scale it has the same ratio as 1:16.
- You can plot dimensions without dividing and multiplying factors.
- As if you have to draw 6 ft line, draw the line upto 6 it is showing 6 ft of actual dimension
- You can draw upto 16 ft by using this side

1/2 inch scale mark

- It means ½ inch on sheet represents 1 ft dimension
- Scale   1/2 in : 12in
- simplifying   1: 24
- Whenever the scale calculated is near 1:24 but on lower side like 1:20 or 1:22 use scale 1:24
- Use architectural scale 1/2 inch side of architectural scale it has the same ratio as 1:24.
- You can plot dimensions without dividing and multiplying by factors.
- As if you have to draw 8 ft line, draw the line upto 8 it is showing 8 ft of actual dimension
- You can draw upto 24 ft by using this side

3/8 inch scale mark

- It means 3/8 inch on sheet represents 1 ft dimension

- Scale   3/8 in : 12in

- simplifying   1: 32

- Whenever the scale calculated is near 1:32 but on lower side like 1:30 or 1:28 use scale 1:32

- Use architectural scale 3/8 inch side of architectural scale it has the same ratio as 1:32.

- You can plot dimensions without dividing and multiplying by factors.

- As if you have to draw 8 ft line, draw the line upto 8 it is showing 8 ft of actual dimension

- You can draw upto 32 ft by using this side

1/4 inch scale mark

- It means ½ inch on sheet represents 1 ft dimension
- Scale   1/4 in : 12in
- simplifying   1: 48
- Whenever the scale calculated is near 1:48 but on lower side like 1:40 or 1:45 use scale 1:48
- Use architectural scale 1/4 inch side of architectural scale it has the same ratio as 1:48.
- You can plot dimensions without dividing and multiplying by factors.
- As if you have to draw 8 ft line, draw the line upto 8 it is showing 8 ft of actual dimension
- You can draw upto 48 ft by using this side

3 in. = 1 ft ....1/4 scale

1 1/2 in. = 1 ft ....1/8 scale

1 in. = 1 ft ....1/12 scale

3/4 in. = 1 ft ....1/16 scale

1/2 in. = 1 ft ....1/24 scale

3/8 in. = 1 ft ....1/32 scale

1/4 in. = 1 ft ....1/48 scale

3/16 in. = 1 ft ....1/64 scale

1/8 in. = 1 ft ....1/96 scale

3/32 in. = 1 ft ....1/128 scale

- Dimensions in inches
- You can draw whole feets (1,2,3,4,....) easily by using any side of the architectural scale
- But if you have to draw 2'-6" (suppose ¼ " side)
- Draw line upto 2 ft and for 6 inches use small divisions given before 0 of the scale
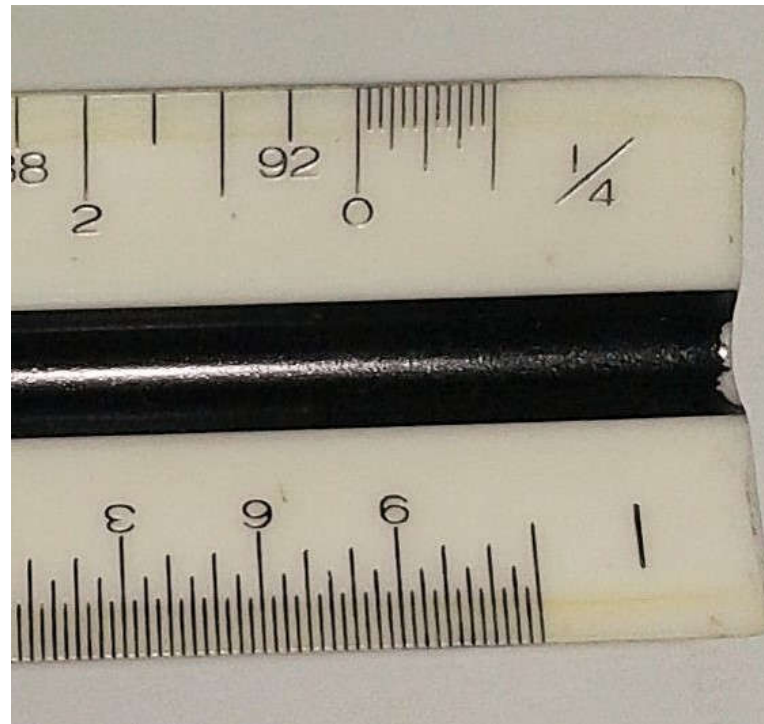
1 ft = 12 divisions
12 in = 12 div
1 in = 1 div
6 in = 6 div
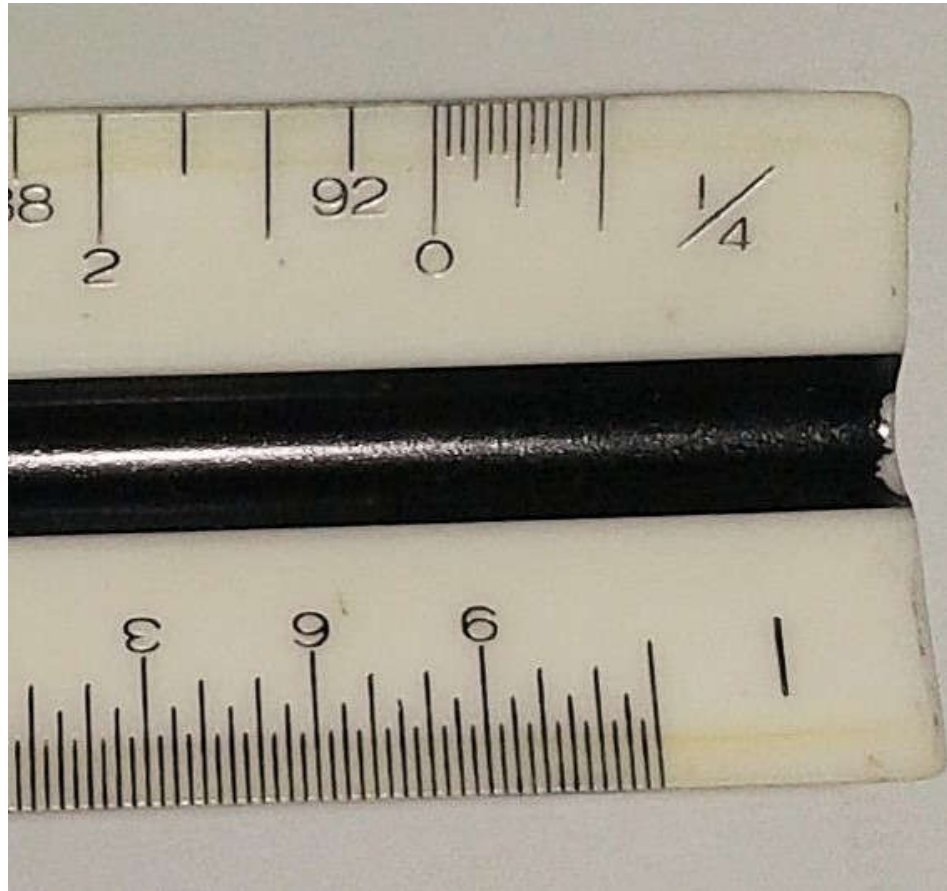
For 3/8 in scale
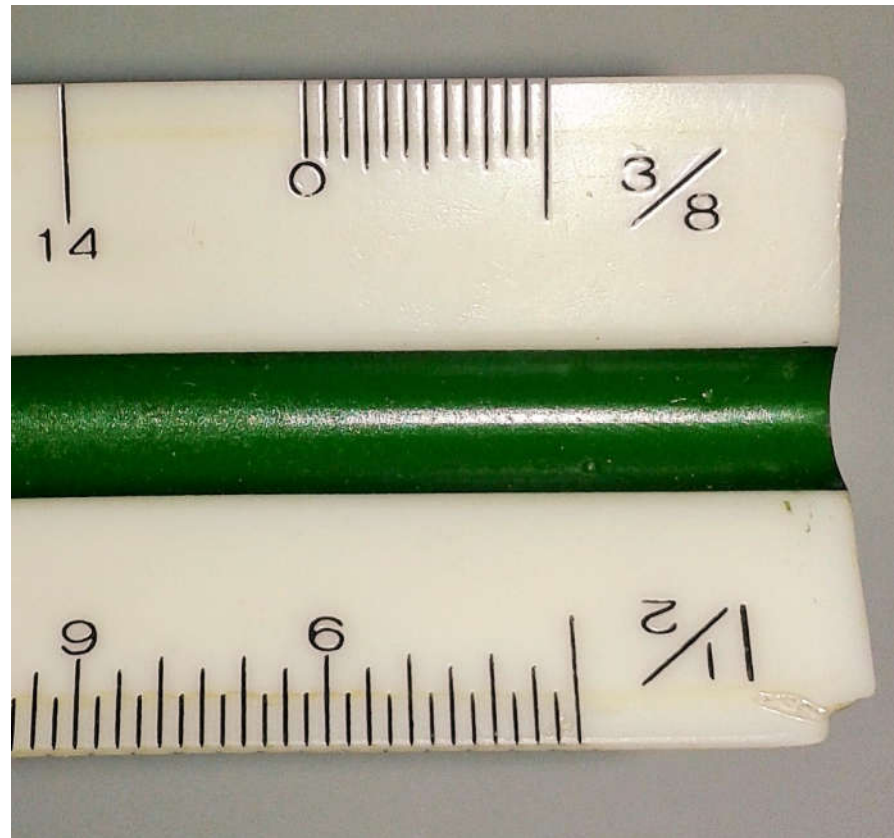Draw 12'-8"

Draw line upto 12 that
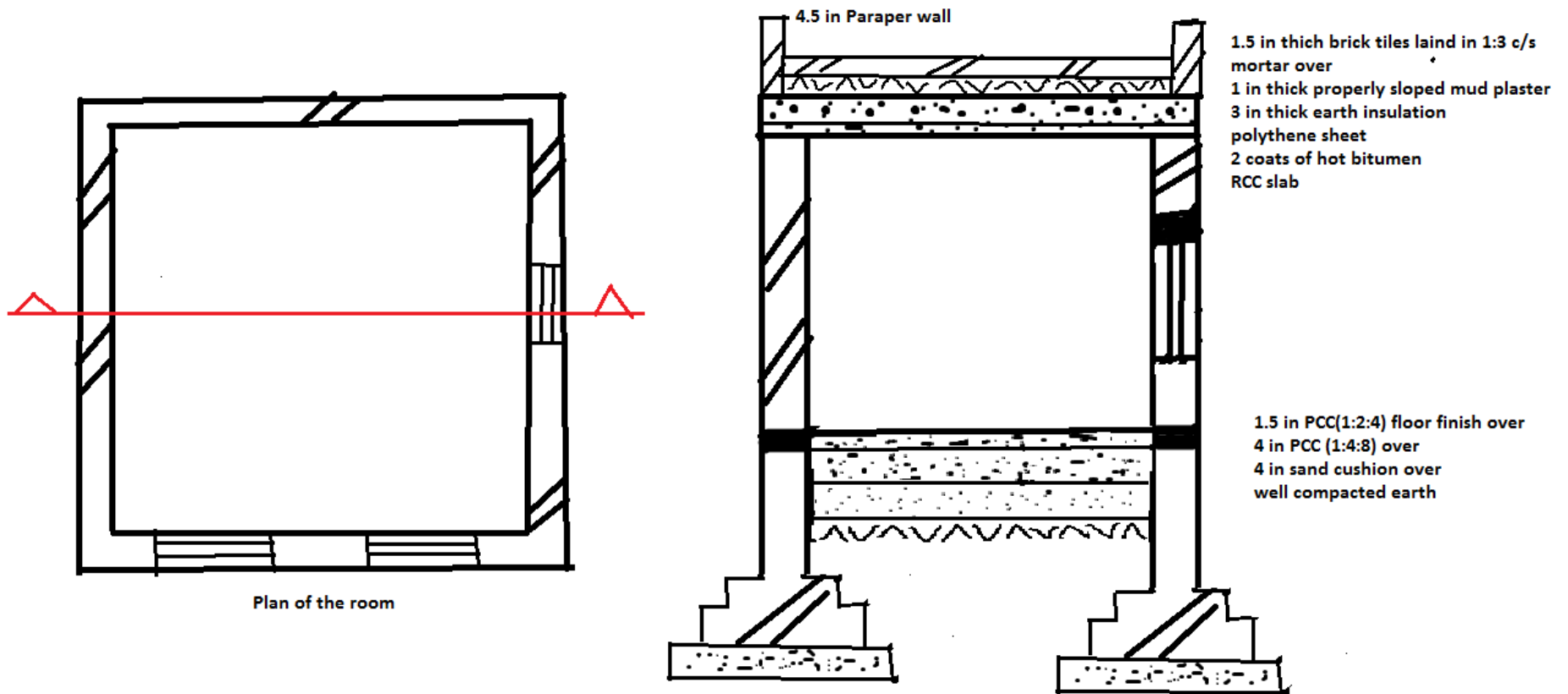will show 12 ft
For 8" use divisions
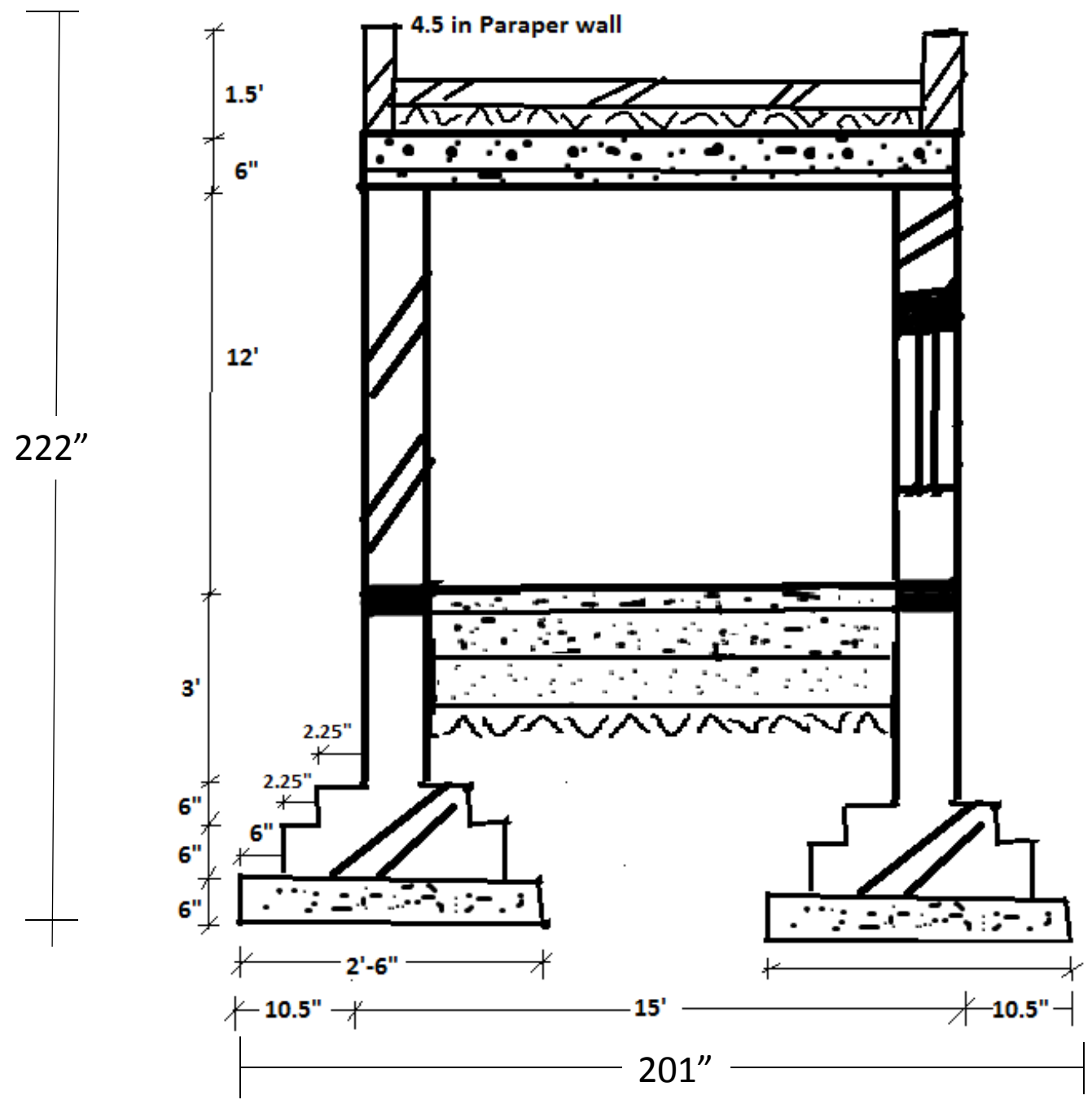before 0 of the scale
1 ft = 16 div
12" = 16 div
 1 " = 1.333 div
 8 " = 10.67 div or 11 div

Draw the section on scholar sheet 20 in by 28in
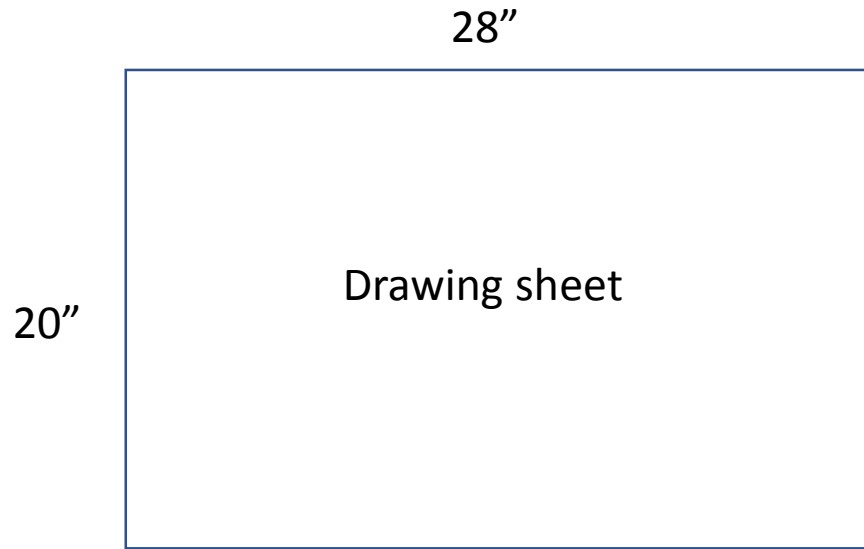

4.5 in Paraper wall

1.5 in thich brick tiles laind in 1:3 c/s mortar over
1 in thick properly sloped mud plaster
3 in thick earth insulation
polythene sheet
2 coats of hot bitumen
RCC slab

1.5 in PCC(1:2:4) floor finish over
4 in PCC (1:4:8) over
4 in sand cushion over
well compacted earth

Plan of the room

Find total vertical and total horizontal dimensions

222"

4.5 in Paraper wall

1.5'

6"

12'

3'

2.25"

2.25"

6"

6"

6"

6"

2'-6"

10.5"

15'

10.5"

201"

28"

20"

Drawing sheet

222"

Section

201"

28"

24"

20"

16"

Drawing sheet
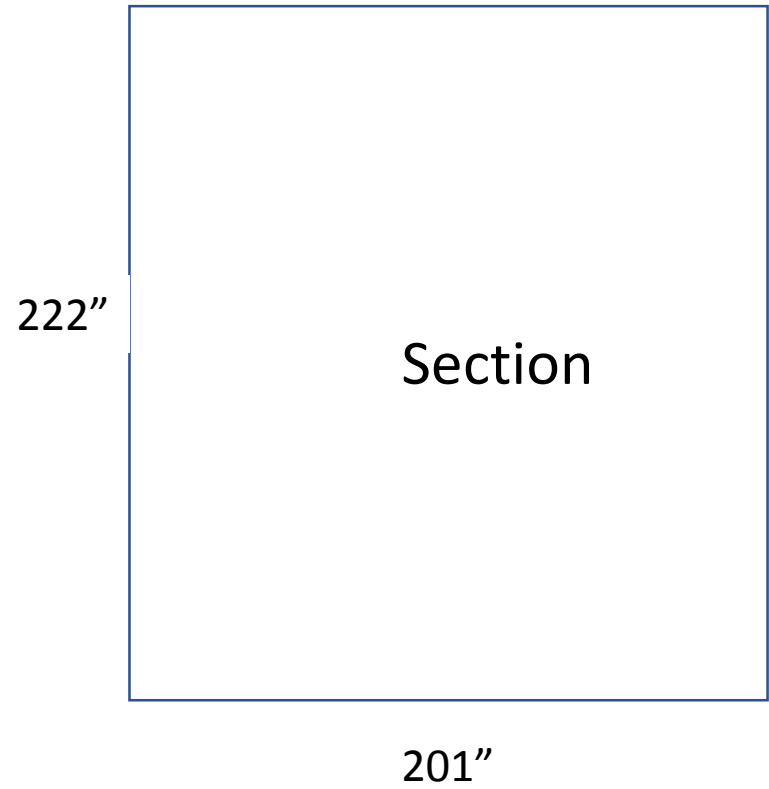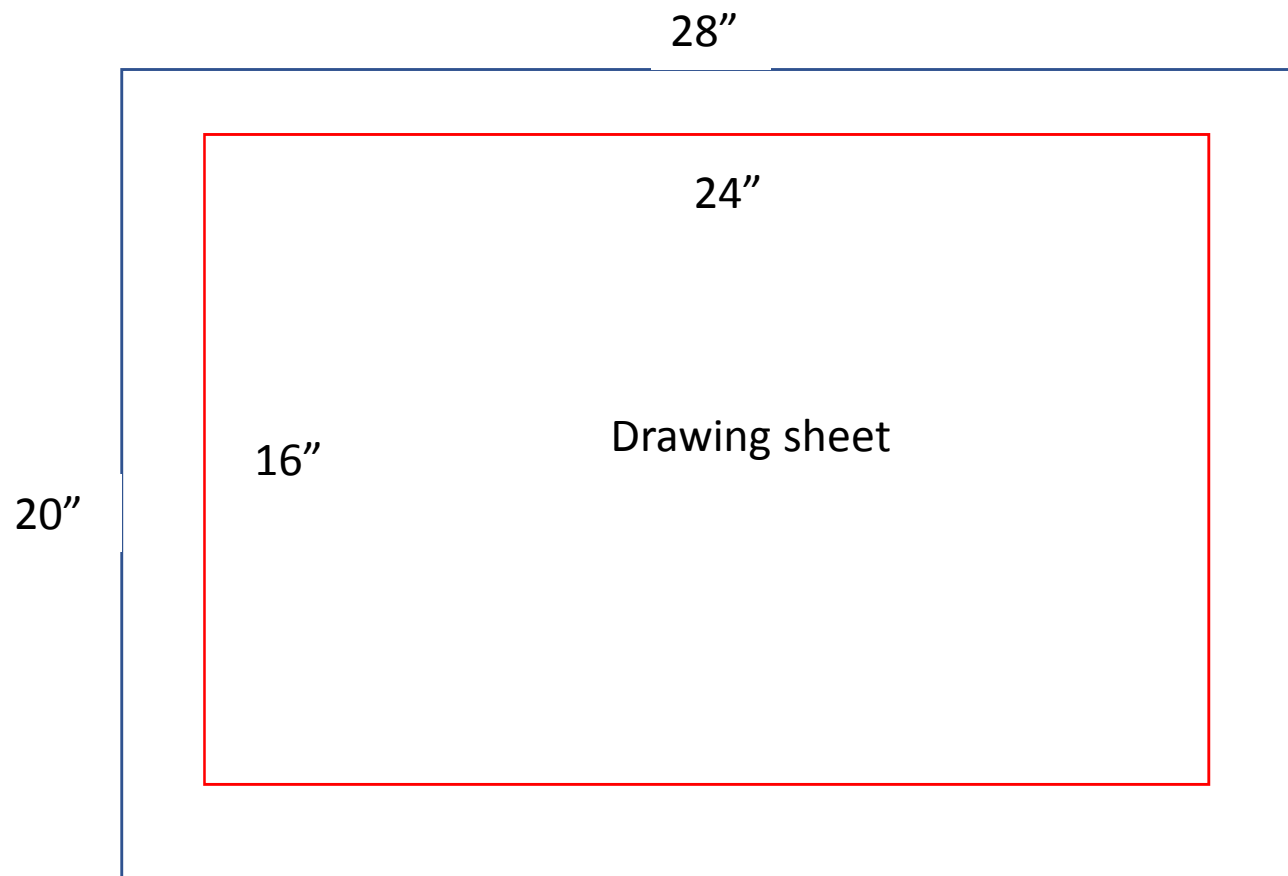
- Max dimension of section is vertical i.e. 222" which is to be drawn on 16" space

- Scale   16" : 222"

- Simplifying   1 : 13.875

- Architectural scale with ¾ in side can be used which have scale of 1:16

- Convert the dimensions to ft-inch form and draw these on the sheet

Thank You