

New York City College of Technology

300 Jay Street, Brooklyn, New York 11201

Department of Facilities Management

Department of Architectural Technology

Bachelor of Technology in Architectural Technology

ARCH 3510

ARCHITECTURAL DESIGN V

2 classroom hours, 6 lab hours, 4 credits

Design Phase #2

Professor:

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Entry, Core, First floor

The 1st floor will have a buzzer system to allow guests access to the elevators/fire stairs. The main lobby/reception area/check in will be on the 3rd/4th floor.

In project 1, a portion of the building was left for the entrance and core for the hostel. You will need to plan for this core and it will carry throughout your vertical addition.

The following items must be addressed in the partial first floor (and the stairs and elevators must continue to all floors above).

Pedestrian access – from the sidewalk.

Bicycle access – storage for 2-3 bicycles minimum

Site lighting – exterior

Trash collection – most garbage is put out on the sidewalk late at night – there should be a storage area on the first floor.

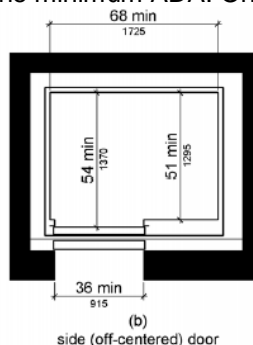
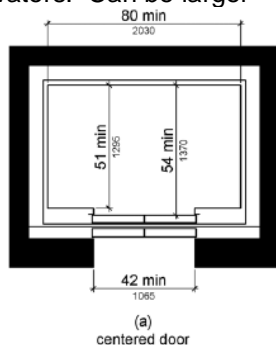
Service Entrance.-May be the same entrance as guest

- Storage Rooms – can be on 1st or 2nd floor (
- Mechanical – on the 2nd floor (as guests will not go here)
- Trash room (1st floor)
- Public Corridors - 5 feet width, min., as required
- Fire Stair (2) – two must be completely enclosed and continuous from each floor to outside – 1 may exit through lobby.
- Passenger Elevators (2) - one should be large enough to bring in larger items

Fire Stairs: See attached handout. You can use two regular stairs (both enclosed) or one scissor stairs (enclosed).

Stairs – 44" wide minimum and if greater than 12' in vertical height, must have an intermediate landing.

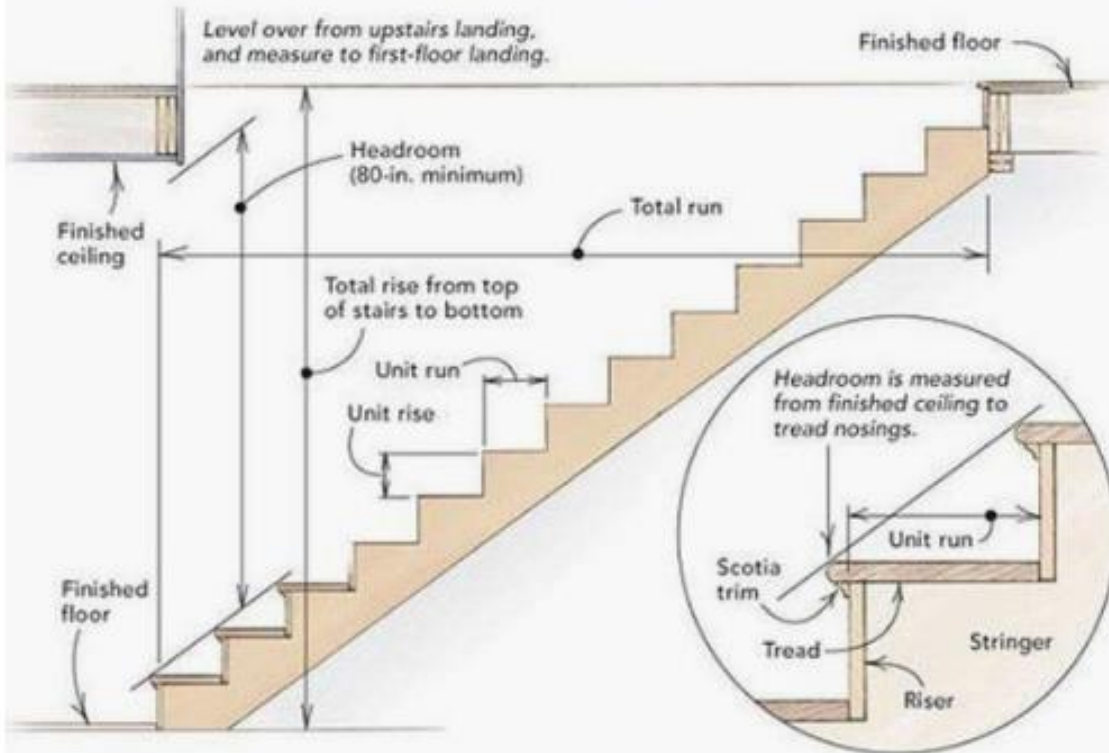
Elevators: Can be larger – but these are the minimum ADA. One should be larger than these.



STAIR FORMULAS

Two formulas commonly are used to determine the proportions for interior residential stairs. The first, and most common, is $(2 \times \text{rise}) + (1 \times \text{run}) = 25 \pm 1$. This formula is incorporated into some build-

ing codes. The other formula is $(\text{rise}) \times (\text{run}) = 75 \pm 3$. This formula is used for atypical applications like attic or landscape stairs. The example below shows the calculations for this stairway.



Rise calculations

$$\begin{array}{rcl} 102\frac{1}{8} & \text{(total rise of stair)} & \\ + 7 & \text{(approximate riser height)} & \\ \hline 14+ & \text{(number of risers)} & \end{array}$$

$$\begin{array}{rcl} 102\frac{1}{8} & \text{(total rise of stair)} & \\ \div 14 & \text{(number of risers)} & \\ \hline 7\frac{3}{16} & \text{(exact riser height)} & \end{array}$$

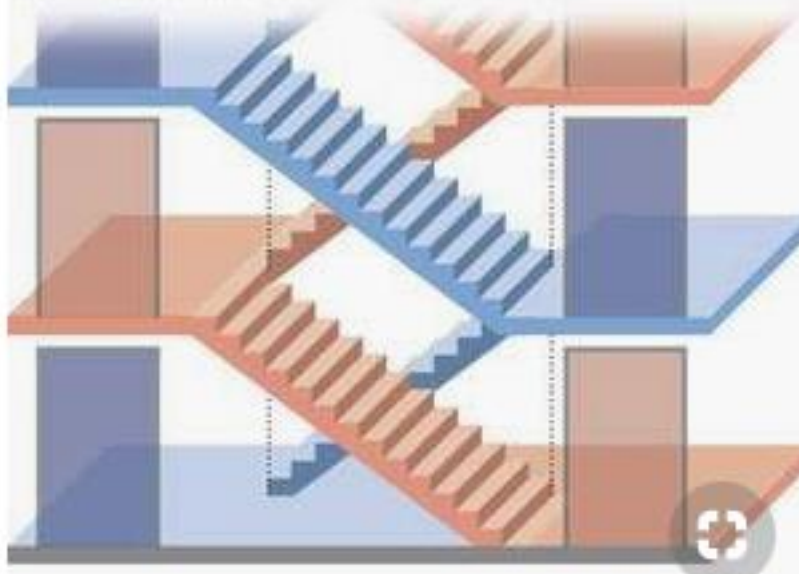
Run calculations

$$\begin{aligned} (2 \times \text{rise}) + (1 \times \text{run}) &= 25 \pm 1 \\ 14\frac{1}{8} + (1 \times \text{run}) &= 25 \pm 1 \\ 25 - 14\frac{1}{8} \text{ (2 x rise)} &= 10\frac{7}{8} \pm 1 \\ \text{(Run can range from } 9\frac{1}{8} \text{ to } 11\frac{1}{8}) & \end{aligned}$$

$$13 \text{ unit runs @ } 10\frac{7}{8} = 131\frac{1}{8} \text{ total run}$$

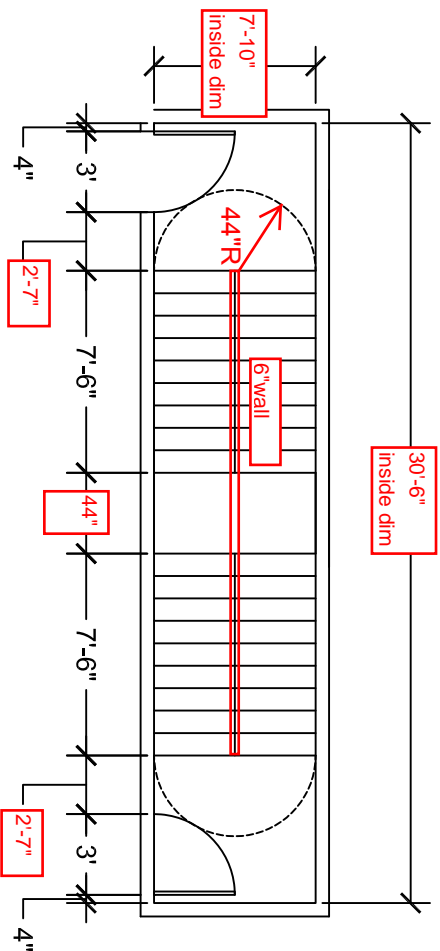
Interlocking stairs

At the Spring condominium tower downtown, developers used interlocking, or scissor, stairs that have a firewall between them. To get around safety regulations requiring separation between stairwells – a requirement added after the Sept. 11, 2001 terrorist attacks – other developers are likely to use this design in the future.

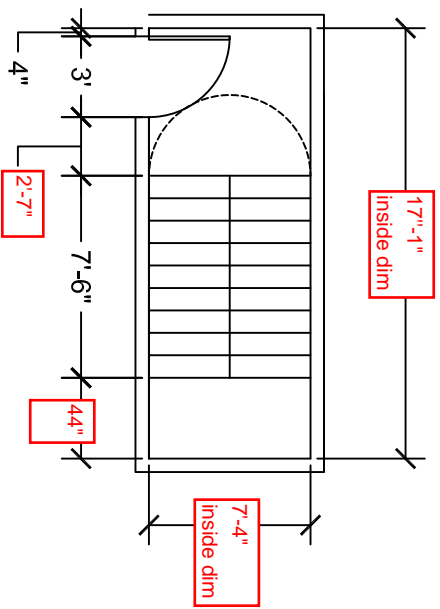


Source: Larry Warshaw

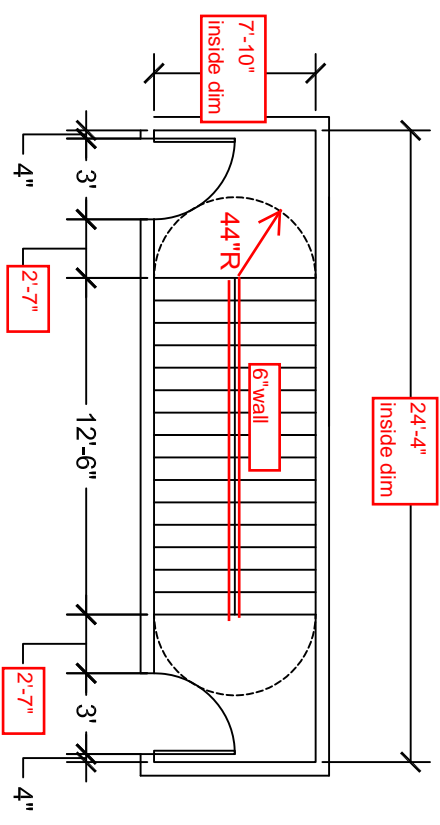
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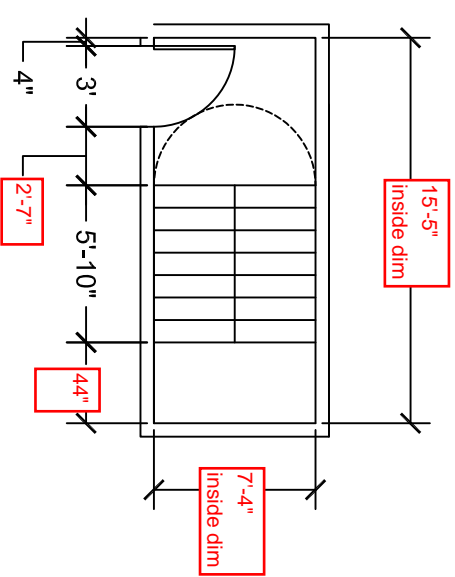
12' floor to floor height -
scissor stairs (need 1)



12' floor to floor height
(need 2)



10' floor to floor height -
scissor stairs (need 1)



10' floor to floor height
(need 2)