Homework 2: Measuring and drawing to scale  
Due: February 19, 2004

As a group, measure Stair No. 1 in Steinman Hall at the level assigned to your group below. I have four tape measures; let me know if/when you want to borrow one.

As an individual, draw a plan of the stair to scale and dimension the drawing. Use a straight edge or ruler to draw straight lines. Use graph paper or other means to make right angles. Your measurements should be accurate to at least ½”. Your drawing should show the location and width of the steps, railing, walls, and door. Draw the stair as if the cutting plane is about 5 feet above the floor level you are assigned. If you cannot measure the thickness of a wall, draw it as 6”. You should determine the best scale to use for the size paper that you use (8 ½” X 11” is fine); I suggest choosing the scale from the following: 1/8”=1’-0”; 3/16” = 1’-0”; or ¼” = 1’-0”.

See Ching pages 9.04 to 9.11 on stairs and the sketch on reverse for how to dimension stairs.

Objectives of assignment: Make the relation between the three dimensional world and a two dimensional drawing of it clearer to you through experience; help you develop a sense of English measurements; help you understand a complex three dimensional shape, specifically a stair; practice drawing to scale, and gain experience working as a team.

Groups & assignments

Group 1: Cellar (C Level)  
Abreu  
Bigus  
Borovets  
Boyce

Group 2: Basement (B Level)  
Dimyan  
Elkaslasy  
Eshete  
Estrada

Group 3: First Floor  
Fadaifard  
Famodimu  
Gabriel  
Garcia

Group 4: Second Floor Mezzanine (2M level)  
Hamilton  
Lopez  
Machuca  
Maung

Group 5: Fourth Floor  
Mici  
Osorio  
Oton  
Pesic  
Ramos

Group 6: Seventh Floor (highest level of stair)  
Saed  
Skillen  
Sookram  
Yu
Notes on stairs and dimensioning stairs.

The part of the stair that you step on is the tread; the vertical part is the riser. In the plan view of the stair, you can see the tread, but not the riser. All treads in one stair between floors (and all risers also) must be the same depth. If they are not, people would trip on them. Thus, they are dimensioned as a group as shown below. The note: 7 T @ 10" = 5'-10" means that between the arrow heads, there are 7 treads and each tread is 10" deep (in the direction of travel). The total of the 7 treads adds to 5'-10" (7 X 10" = 70" = 5'-10"). Note that the actual depth available for placing the foot is greater than the 10" due to the nosing (see p. 9.05 in Ching for nosings). The fact that the number of treads times the depth of a tread equals the length of the run (measured horizontally) gives you a means for checking your measurements.

If a flight or run (continuous steps between two landings) goes up from the level of the plan, it will go through the cutting plane, and therefore it should end at a break line. By convention the break line will be at an angle. If the flight goes down, it does not go through the cutting plane, and therefore there will be no break line.

When you lay out your stair, remember that North should be up. (The entrance to Steinman Hall in from the South. Thus as you enter, you are facing North.)

The stair plan should have a title, scale, and north arrow. All homework should have your name, course, and date.

Note: The sketch is for illustrative purposes only. The configuration and dimensions are not meant to be those of Stair No. 1.

See version handed out in class for sketch.