MEASURING STAIRS

When measuring existing stairs, provide all the information needed. To make a full-size shop layout, draw a profile of the stair and note all dimension lines shown for each part of the stair, using the arrangement plan best suited to actual job conditions (see example, plan Nos. 1, 2 and 3). Measure every dimension that is indicated or preferably use one of the various trade-practice systems shown on pages 46 and 47. Do not assume that dimensions for similar conditions will be the same. Prepare an accurate sketch for each layout. Check pitch of platforms to maintain required railing height.

Required Tools:
- Steel Tape or Rule
- Square
- Plumb Line
- Sketch Board
- Level

SHORT RUN STAIR PROFILE

The angle of the corner can be verified by measuring diagonal.
LONG RUN STAIR PROFILE

NOTE: PHOTO COPIES OF SHORT OR LONG RUN STAIR PROFILES AND PLANS SHOWN HERE MAY BE USED TO FACILITATE TAKING FIELD MEASUREMENTS WHEN THESE SKETCHES ARE ADEQUATE.
MEASURING STAIRS, USING TRADE PRACTICE METHODS

If newels are cut to uniform stock lengths, the 3½ in. dimension is maintained by adjusting the location of the first newel post on the tread so as to accommodate the pitch of the stair and maintain uniform rail height.

Mark the end nosings and count treads.

Mark line at nosings to combine both bevel and stair measurement on straight edge.

To take bevel: scribe line to mark bevel on wood with plumbed level in position as shown.

NOTE: STRAIGHT EDGE METHOD MAY BE USED TO COMBINE BOTH STAIR MEASUREMENT AND BEVEL BY MARKING NOSINGS AND CARRYING STRAIGHT EDGE BACK FOR SHOP LAYOUT USE.

Method of using combination square with level

To find accurate bevel from one tread and riser: place level and combination square as shown and take dimensions A and B.

To convert A - B dimensions into reading of slope in inches per foot:

EXAMPLE: A = 7½ in., B = 10⅝ in. (TAN = A - B)

TANGENT = 7.5 / 10.125 = 0.741

0.741 INVERTED TO ANGLE = 36.5°

From a natural function of numbers table

To convert A - B dimensions to angle in degrees by calculator:

EXAMPLE: A = 7½ in., B = 10⅝ in. (TAN = A - B)

TANGENT = 7.5 / 10.125 = 0.741

0.741 INVERTED TO ANGLE = 36.5°

From a natural function of numbers table
METHOD TO MEASURE AND MARK IRREGULAR STAIRS
SO THAT VERTICAL POSTS AT EACH TREAD
WILL BE OF SAME LENGTH

STEP No. 1
SET COMBINATION SQUARE TO LOCATE FIRST POST
AND MARK TREAD WITH CENTER PUNCH.

STEP No. 2
MARK ALL TREADS WHERE COMBINATION SQUARE TOUCHES
THE TREAD WITH CENTER PUNCH TO INDICATE POST CENTER.

STEP No. 3
SCRIBE VERTICAL POST CENTERLINES ON PITCH STICK BY USING LEVEL AT EACH PUNCH MARK.

USE OF PITCH STICK TO TAKE FIELD MEASUREMENTS FOR IRREGULAR STAIRS

STEP No. 1
MEASURE DISTANCE A (GIVEN) BACK FROM NOSING AT EACH TREAD AND MARK TREAD WITH CENTER PUNCH.

STEP No. 2
SCRIBE VERTICAL POST CENTERLINES BY USING LEVEL AT EACH CENTER PUNCH.

STEP No. 3
MEASURE DISTANCE $h_1$, $h_2$, $h_3$ AND NOTE THESE DIMENSIONS AT THEIR RESPECTIVE PLACES ON PITCH STICK.