

**WAC 296-24-76511 Angle of stairway rise.** (1) You must ensure that fixed stairs are installed at angles to the horizontal of between 30 degrees and 50 degrees. Any uniform combination of rise/tread dimensions may be used that will result in a stairway at any angle to the horizontal within the permissible range. Table D-1 gives rise/tread dimensions which will produce a stairway within the permissible range, stating the angle to the horizontal produced by each combination. However, the rise/tread combinations are not limited to those given in Table D-1.

(2) Because of space limitations a permanent stairway sometimes has to be installed at an angle above the 50 degree critical angle. Such installations are commonly called inclined ladders or ship's ladders, which you must ensure have handrails on both sides and open risers. You must ensure that they are capable of sustaining a live load of 100 pounds per square foot with a safety factor of 4. The following preferred and critical angles from the horizontal must be considered for inclined ladders and ship's ladders:

- (a) 35 to 60 degrees - Preferred angle from horizontal.
- (b) 60 to 70 degrees - Critical angle from horizontal.

**TABLE D-1**

Angle to Horizontal	Rise (in inches)	Tread Run (in inches)
30°35'	6 1/2	11
32°08'	6 3/4	10 3/4
33°41'	7	10 1/2
35°16'	7 1/4	10 1/4
36°52'	7 1/2	10
38°29'	7 3/4	9 3/4
40°08'	8	9 1/2
41°44'	8 1/4	9 1/4
43°22'	8 1/2	9
45°00'	8 3/4	8 3/4
46°38'	9	8 1/2
48°16'	9 1/4	8 1/4
49°54'	9 1/2	8

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 18-03-159, § 296-24-76511, filed 1/23/18, effective 2/23/18; WSR 15-24-100, § 296-24-76511, filed 12/1/15, effective 1/5/16. Statutory Authority: Chapter 49.17 RCW. WSR 89-11-035 (Order 89-03), § 296-24-76511, filed 5/15/89, effective 6/30/89; Order 73-5, § 296-24-76511, filed 5/9/73 and Order 73-4, § 296-24-76511, filed 5/7/73.]