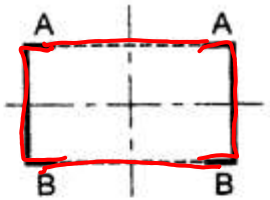
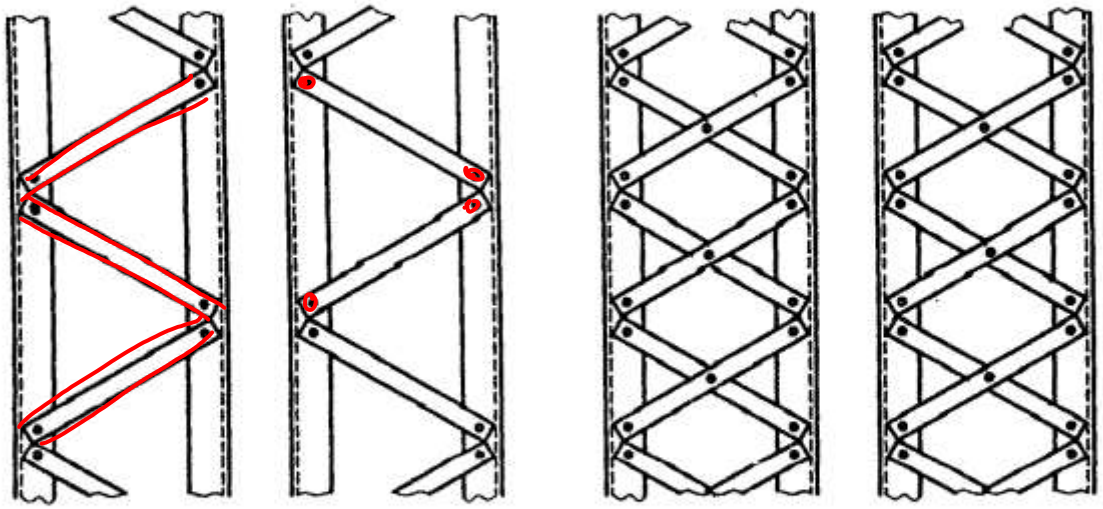


$\frac{P}{f_{cd}} = A$

IS 800



LACING ON FACE A

LACING ON FACE B

LACING ON FACE A

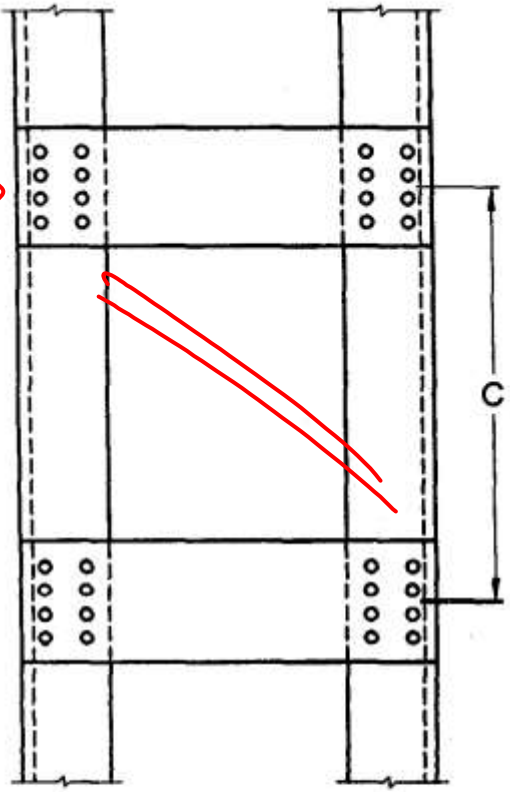
LACING ON FACE B

PREFFERED LACING ARRANGEMENT

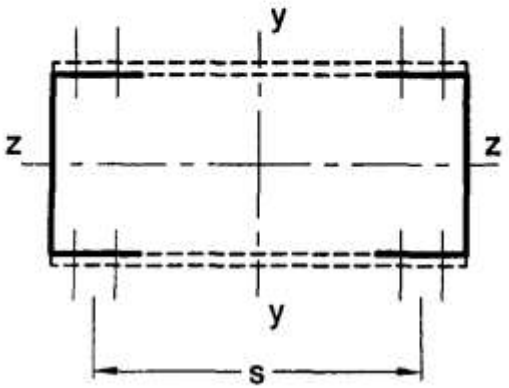
10A Single Laced System

PREFFERED LACING ARRANGEMENT

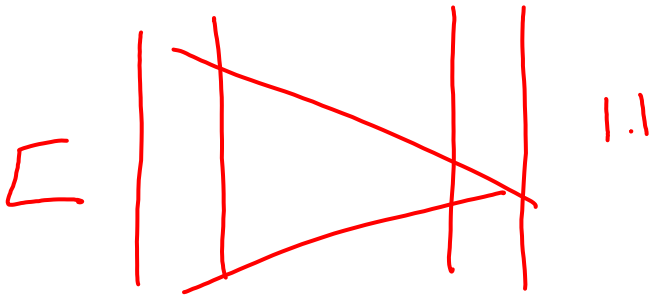
10B Double Laced System



H

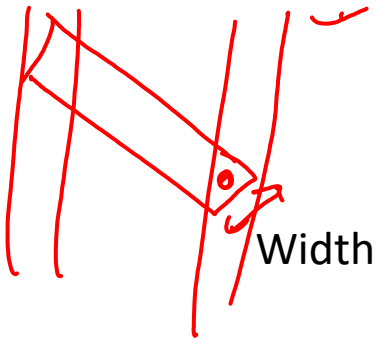


Laced Columns



Effective slenderness ratio of ~~battened~~ column shall be **1.05** times the maximum actual slenderness ratio of column to account for shear deformation effects.

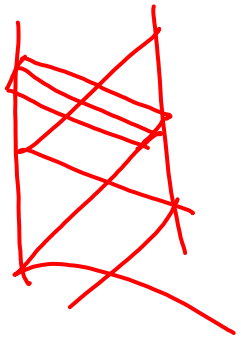
A laced column is stronger than battened column for same load



Width of Lacing Bars

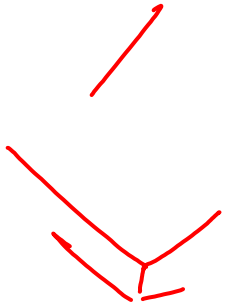
In bolted/riveted construction, the minimum width of lacing bars shall be three times the nominal diameter of the end bolt/rivet.

Laced Columns

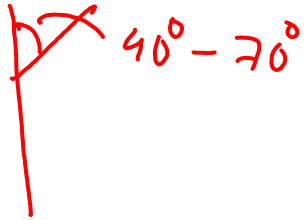


Thickness of Lacing Bars

The thickness of flat lacing bars shall not be less than one-fortieth of its effective length for single lacings and one-sixtieth of the effective length for double lacings.



Angle of Inclination

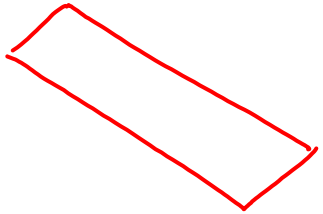


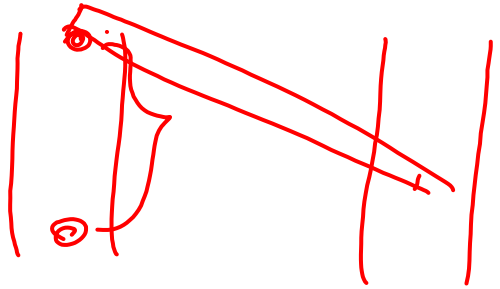
Lacing bars, whether in double. or single systems, shall be inclined at an angle not less than 40° nor more than 70° to the axis of the built-up member

Laced Columns

IS 800

Maximum spacing of lacing bars should be such that slenderness ratio of component member should be not greater than 50

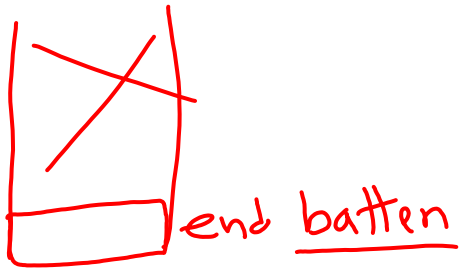




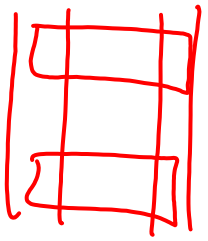
The slenderness ratio, KI/r, of the lacing bars shall not exceed 145

The lacing shall be proportioned to resist a total transverse shear, Vt, at any point in the member, equal to at least 2.5 percent of the axial force in the member and shall be divided equally among all transverse lacing systems in parallel planes.

Battened Columns



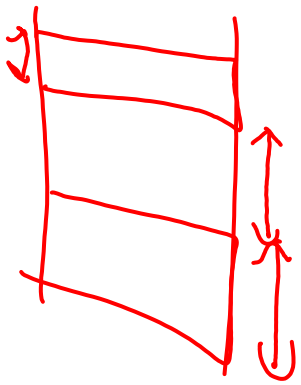
Effective slenderness ratio of battened column shall be 1.1 times the maximum actual slenderness ratio of column to account for shear deformation effects.



A laced column is stronger than battened column for same load and effective length is increased by only 5%.

$\frac{kL}{\delta}$

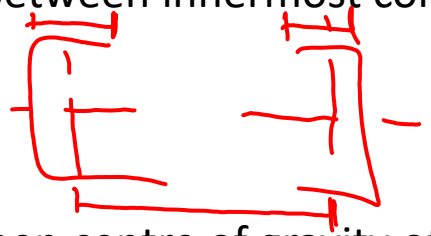
Maximum spacing of batten should be such that slenderness ratio of component member should be not greater than 50



Battened Columns

Battens should be designed to resist transverse shear force which is 2.5% of axial force

Thickness of batten plates shall not be less than 1/50th of distance between innermost connecting transverse bolts/rivets



Effective depth of end batten should not be less than distance between centre of gravity of component and should be greater than twice the width of component member.

Depth of intermediate batten = 3/4 depth of end batten