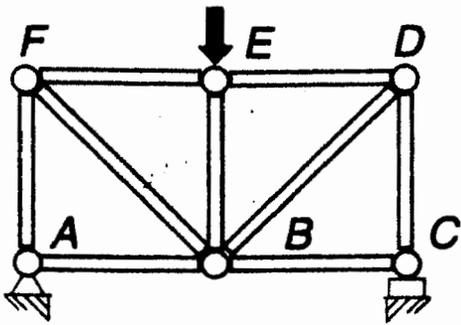
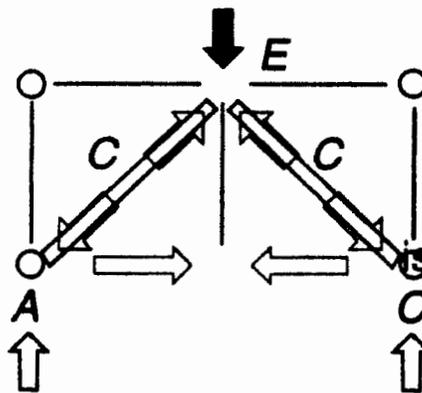
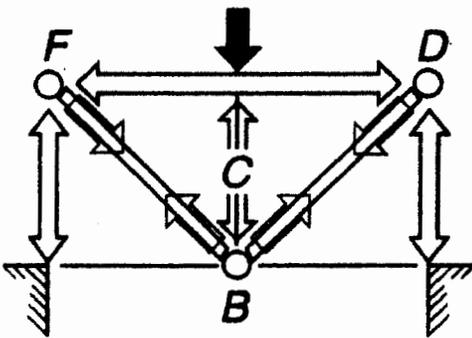
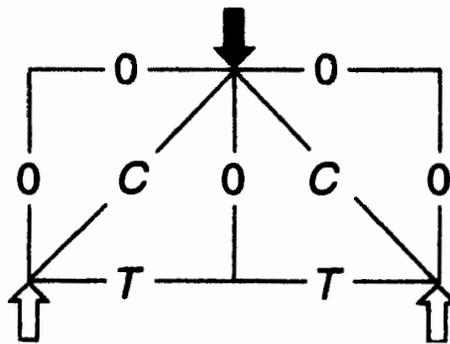
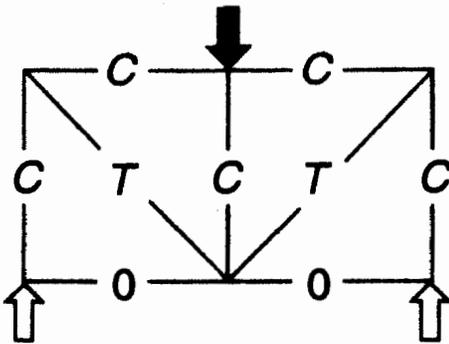
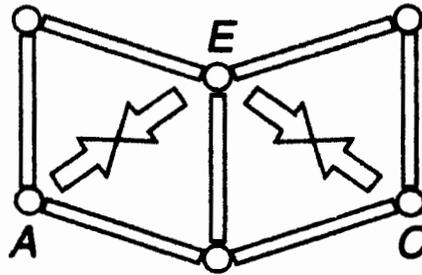
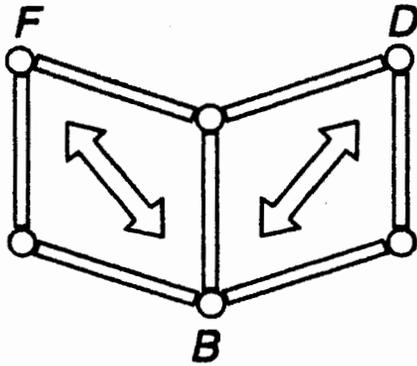
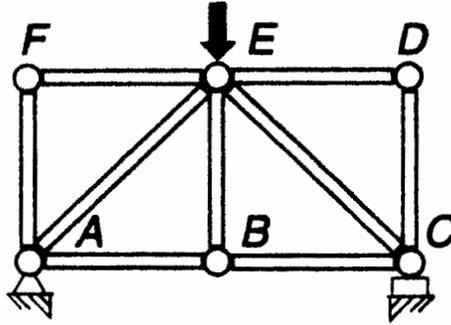
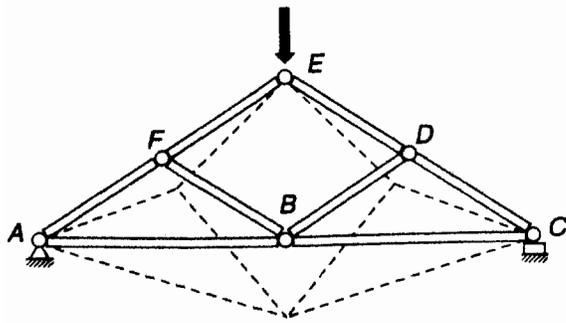


Truss A

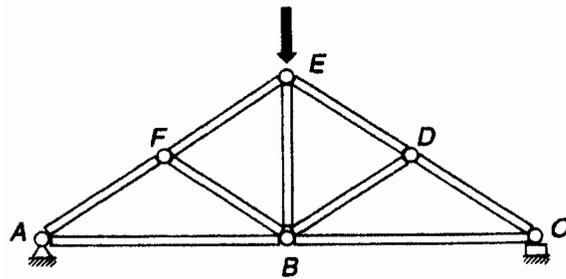


Truss B

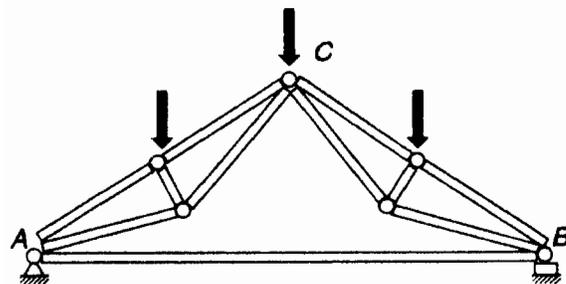




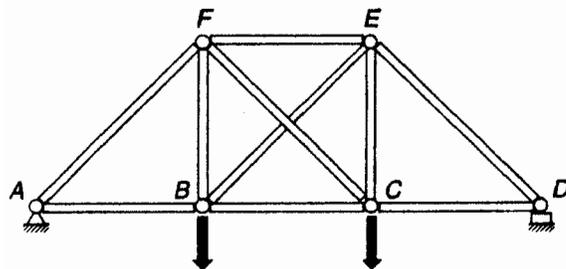
(a) Unstable truss: the nontriangulated central area of the truss will greatly distort under an applied loading, which will lead to a collapse of the entire truss.



(b) Stable truss: the bar pattern is fully triangulated.



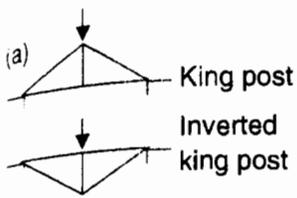
(c) Nontriangular bar pattern that is still stable.



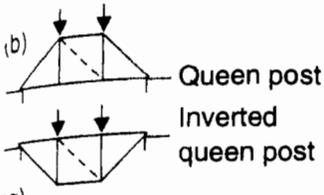
(d) Stable truss with more than the

FIGURE 4.6 Internal stability. Nontriangulated forms may collapse.

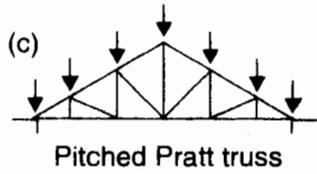
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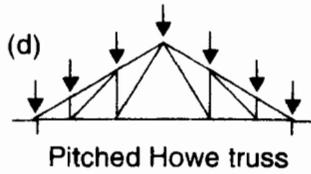
King post
Inverted king post



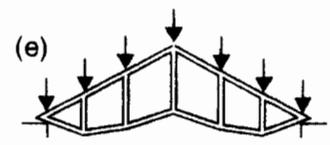
Queen post
Inverted queen post



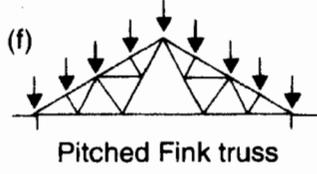
Pitched Pratt truss



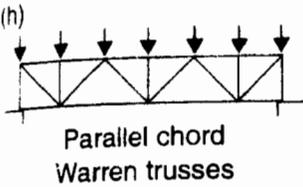
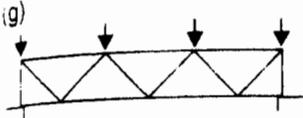
Pitched Howe truss



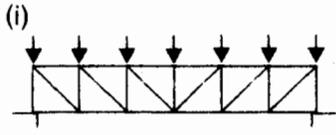
Constant forces in upper chords and no forces in diagonals (normally built with rigid joints if diagonals are omitted).



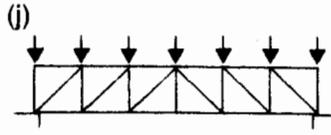
Pitched Fink truss



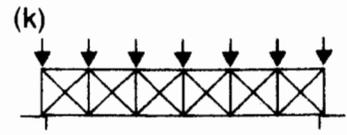
Parallel chord
Warren trusses



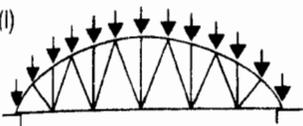
Parallel chord
Pratt truss



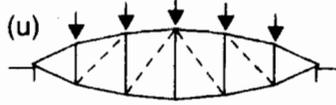
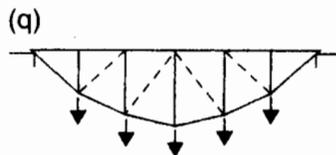
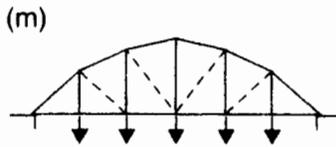
Parallel chord
Howe truss



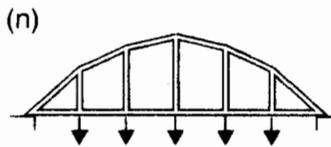
Parallel chord
crossed-diagonal
truss



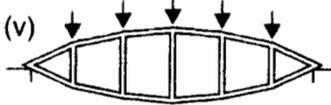
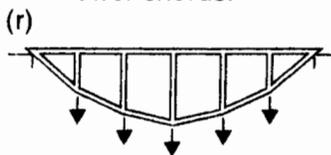
Bowstring trusses



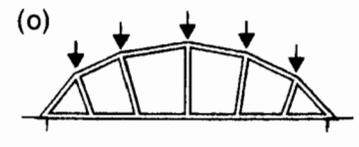
Lenticular truss



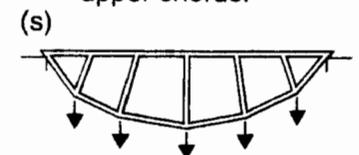
Constant forces in
lower chords.



Lenticular structure

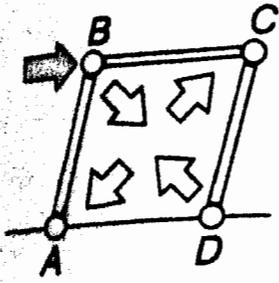


Constant forces in
upper chords.

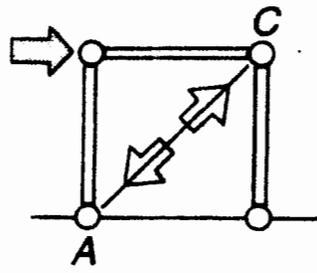


Constant forces in
lower chords.

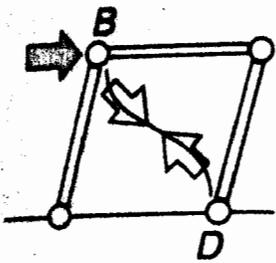
Funicularly shaped trusses: depths vary with bending moment (horizontal components of chord forces are equal and diagonals are zero-force members under design loadings). Shaped trusses with no diagonals are built with rigid joints to handle varying loadings (see Chapter 9 on rigid-frame structures).



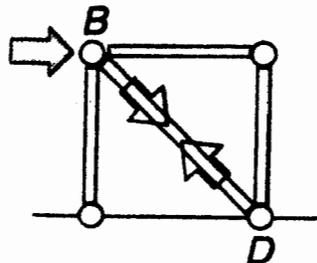
(a)



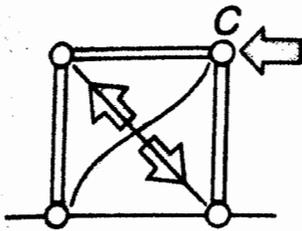
(b)



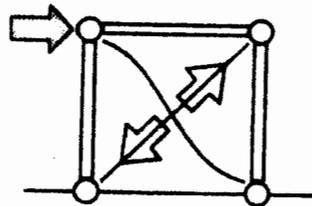
(c)



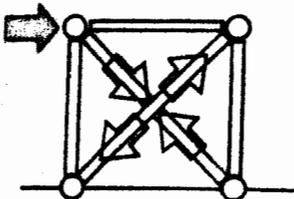
(d)



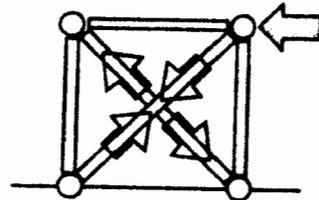
(e)



(f)



(g)



(h)

This diagram illustrates the internal force distribution in a frame structure under various loading conditions. The frames are shown in different configurations (a-h) with forces applied at different joints. The internal forces are represented by arrows within the members.