

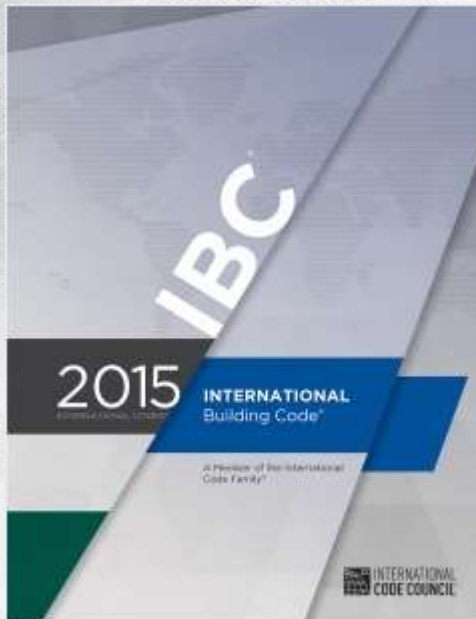


SEISMIC BRACED FRAMES IN RISACONNECTION

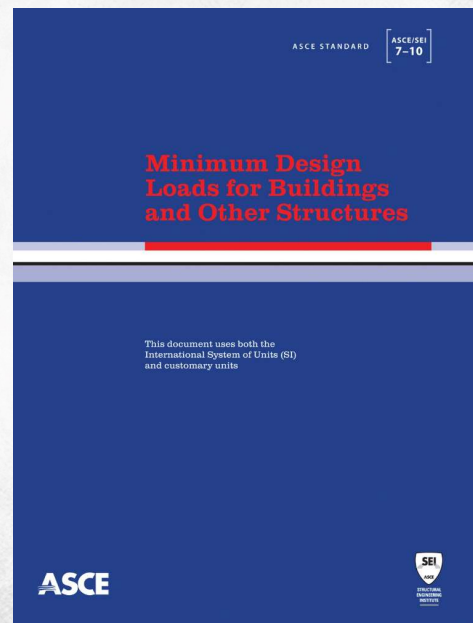
Matt Brown, S.E.

SEISMIC BRACED FRAMES IN RISACONNECTION

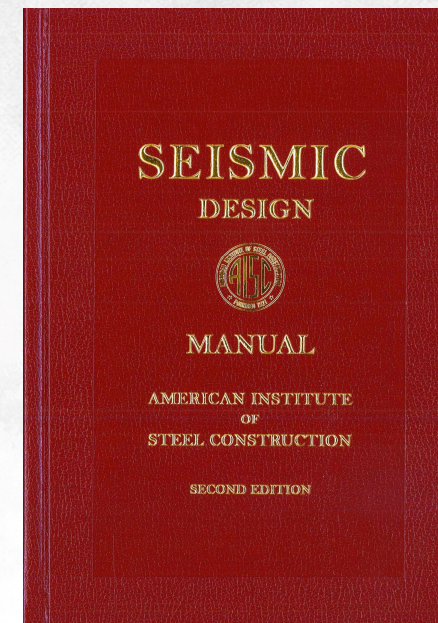
Design per IBC 2015...



...which references ASCE 7-10...



...which references AISC 341-10



Images courtesy of International Code Council, American Society of Civil Engineers, and American Institute of Steel Construction

SEISMIC BRACED FRAMES IN RISACONNECTION

Initial Design

- Three Story Building
 - Height = $(3) \times (11'-6") = 34'-6"$
 - Risk Category: II
 - $S_{DS} = 0.35g$
 - $S_{D1} = 0.14g$
 - Seismic Design Category C
- No Seismic Detailing Req'd
 - $R = 3$

SEISMIC BRACED FRAMES IN RISACONNECTION

Design Revision

- Building will now house a 911 (Emergency) Call Center
 - Risk Category Increases to IV
 - Importance Factor increases to 1.5
 - Seismic Design Category D
- $R = 3$ is not allowed for Design Category D
 - Use OCBF
 - $R = 3.25$

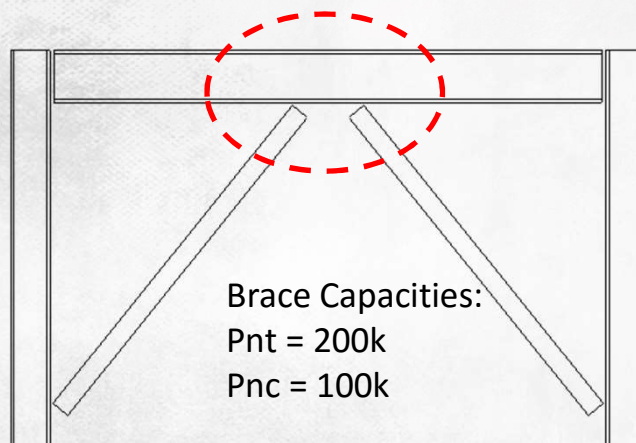
SEISMIC BRACED FRAMES IN RISACONNECTION

Design Revision

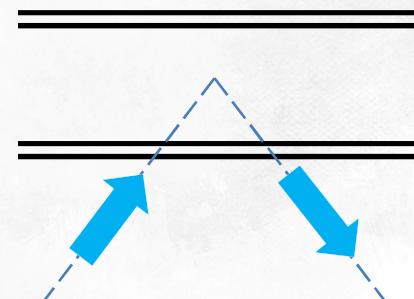
- Building Height Increased to 36 ft
- OCBF is not allowed for $H > 35'$
 - Use SCBF
 - $R = 6$

SEISMIC BRACED FRAMES IN RISACONNECTION

SCBF Load Cases



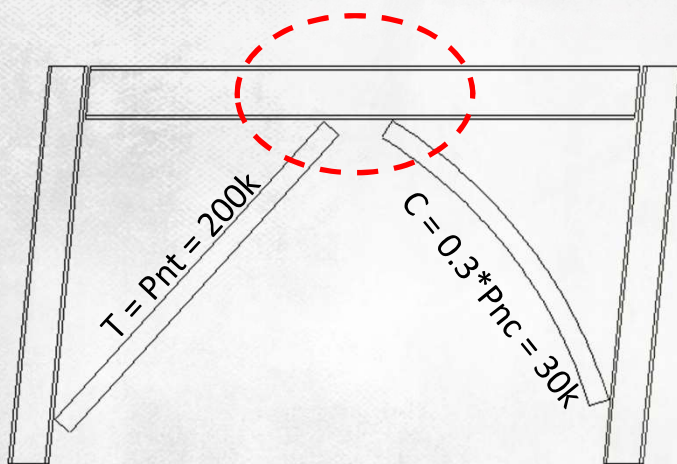
BRACED FRAME



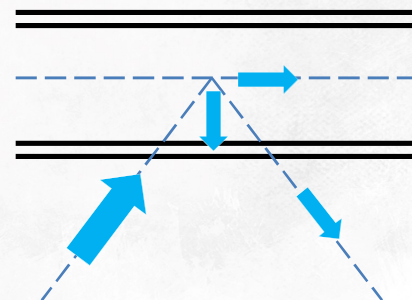
FREE BODY DIAGRAM

SEISMIC BRACED FRAMES IN RISACONNECTION

SCBF Load Cases



COMPRESSION BRACE BUCKLED



UNBALANCED FORCE ON BEAM

SEISMIC BRACED FRAMES IN RISACONNECTION

Material Takeoff Comparison

R = 3	Braced Frame Weight = 60 kips
OCBF	Braced Frame Weight = 125 kips
SCBF	Braced Frame Weight = 150 kips

QUESTIONS?

Please let us know if you have questions

- We will answer questions for the next 5 minutes
- Once the webinar is closed, we will post all Q&A's at [risa.com](https://www.risa.com)
- For further information, contact us at info@risa.com