REBAR GUYING

By: David B. Kennedy

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52-1.01C(3)(b) Temporary Support System

If a portion of an assemblage of bar reinforcing steel exceeds 20 feet in height and is not encased in concrete, submit shop drawings and design calculations for a temporary support system.

The temporary support system must be designed to:

1. Resist all expected loads
2. Prevent collapse or overturning of the cage

If form installation or other work requires changes to or the temporary release of any part of the temporary support system, the shop drawings must show the support system to be used during these changes or the temporary release.

The minimum horizontal wind load to be applied to the reinforcing steel assemblage or to a combined assemblage of reinforcing steel and forms must be the sum of the products of the wind impact area and the applicable wind pressure value for each height zone.

The wind impact area is the total projected area of the assemblage normal to the direction of the applied wind. Determine wind pressure values using the following table:

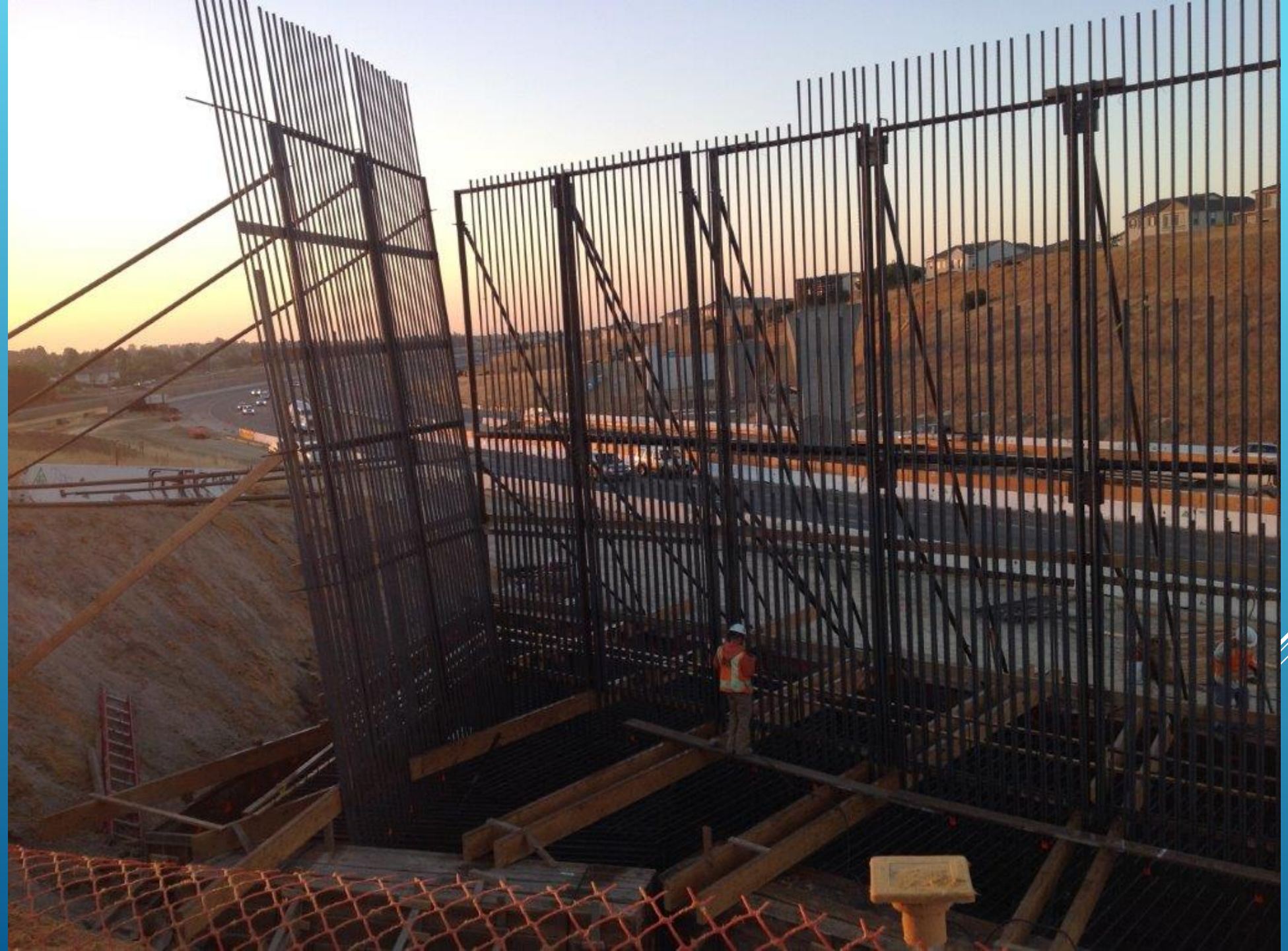
Wind Pressure

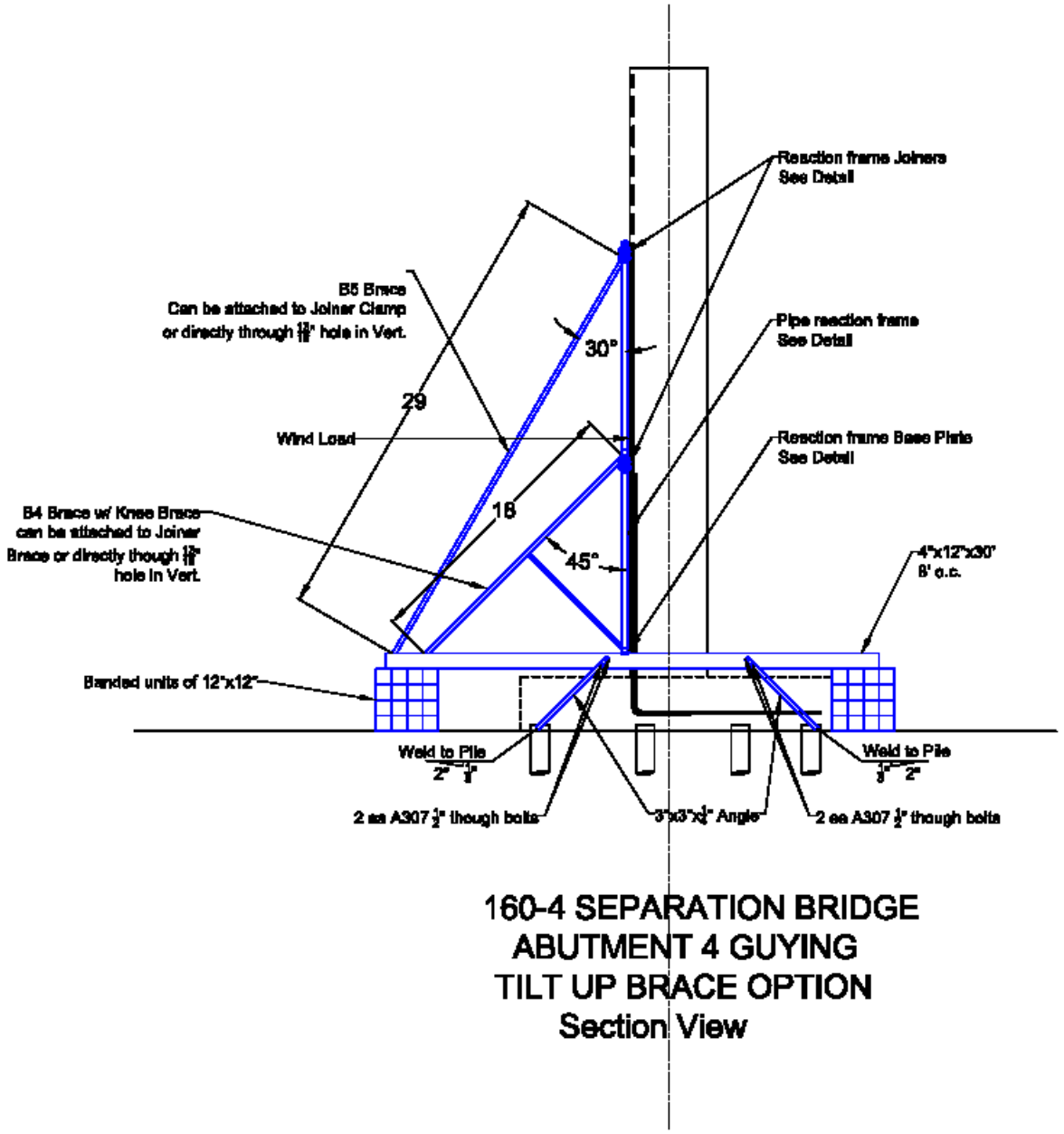
52-Height zone, H (feet above ground)	Wind pressure value (psf)
0 □ 30	20
30 < H □ 50	25
50 < H □ 100	30
H > 100	35

Caltrans new design protocols are creating abutments and walls that often have full height "L" bars out of the footing. In some cases the design will not allow splices in these bars.

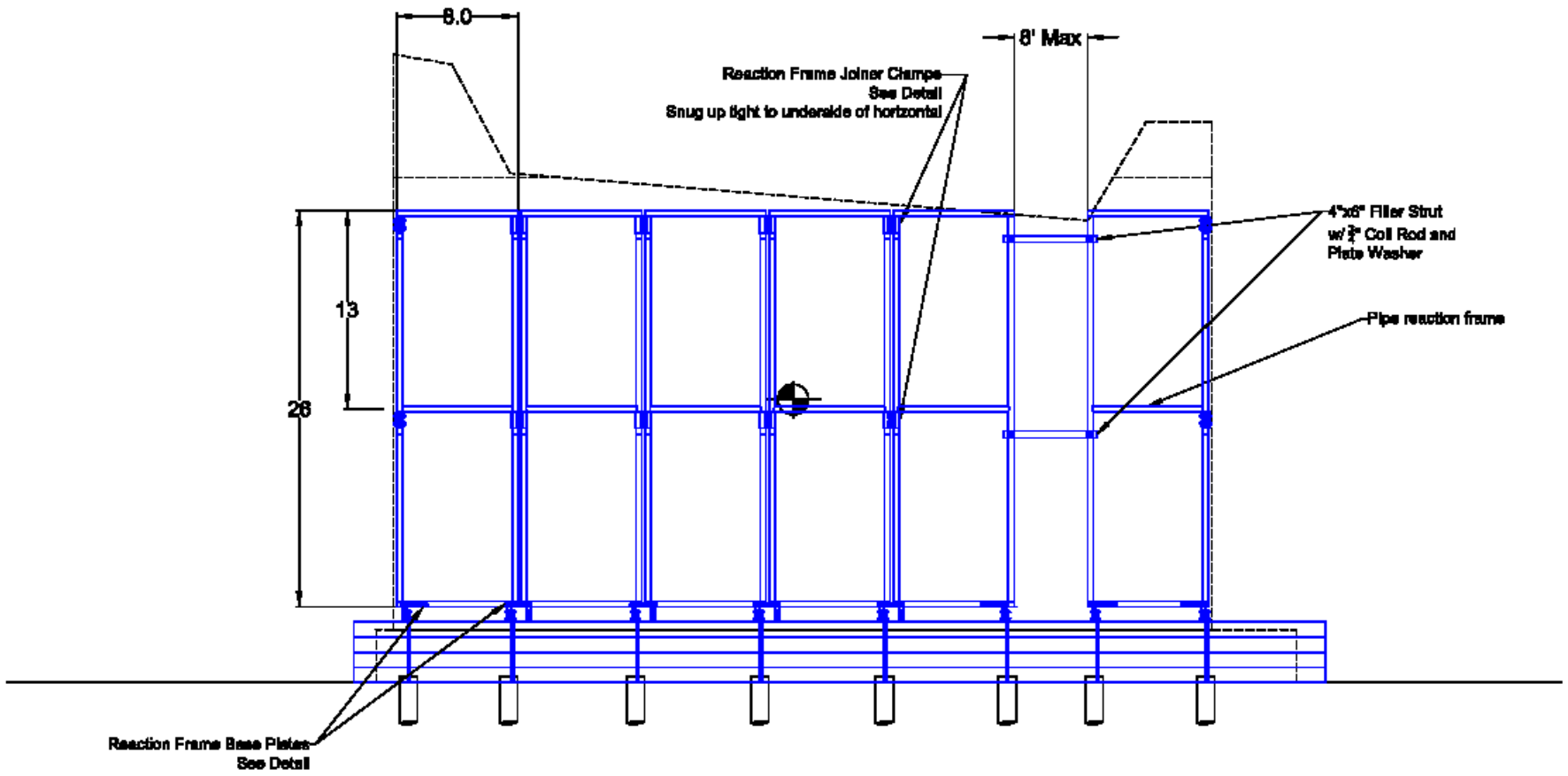
If the abutment is taller than 20' this makes these vertical bars subject to guying per the wind loading of Section 52—and the guying will need to be in place before the abutment footing is poured or any abutment panel erected.

If the wind area is taken as the "…total projected area of the assemblage…" it can lead to extremely challenging and perhaps unnecessarily complicated and expensive guying.





160-4 SEPARATION BRIDGE
ABUTMENT 4 GUYING
TILT UP BRACE OPTION
Section View



160-4 SEPARATION BRIDGE
ABUTMENT 4 GUYING
TILT UP BRACE OPTION
Elevation View

This issue was first brought up at this committee, then deferred to the Falsework Subcommittee.

After review the determination from the State presented at the Sub-Committee is that at rebar assemblages that have significant void spaces in them, such as Abutments or Walls (i.e. not Columns) the wind impact area can be redefined as the "actual projected area of the bars normal to the wind direction." That is to say, that the void spaces between bars need not be counted in summing the area.

Until such time as a confirming memo is issued internally within Caltrans or the issue comes up with another agency that is using CT specs, a phone call from the reviewer to Ajay should clear things up.

One issue still remains unclarified…

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STILL HANGING FIRE…

One interpretation of this specification is that CT could require calcs for the Abutment Panels themselves. However: 1. they historically have not and 2. the footing is poured at this point which makes the guying plan significantly simpler.

This portion of the issue is still under review by CT.