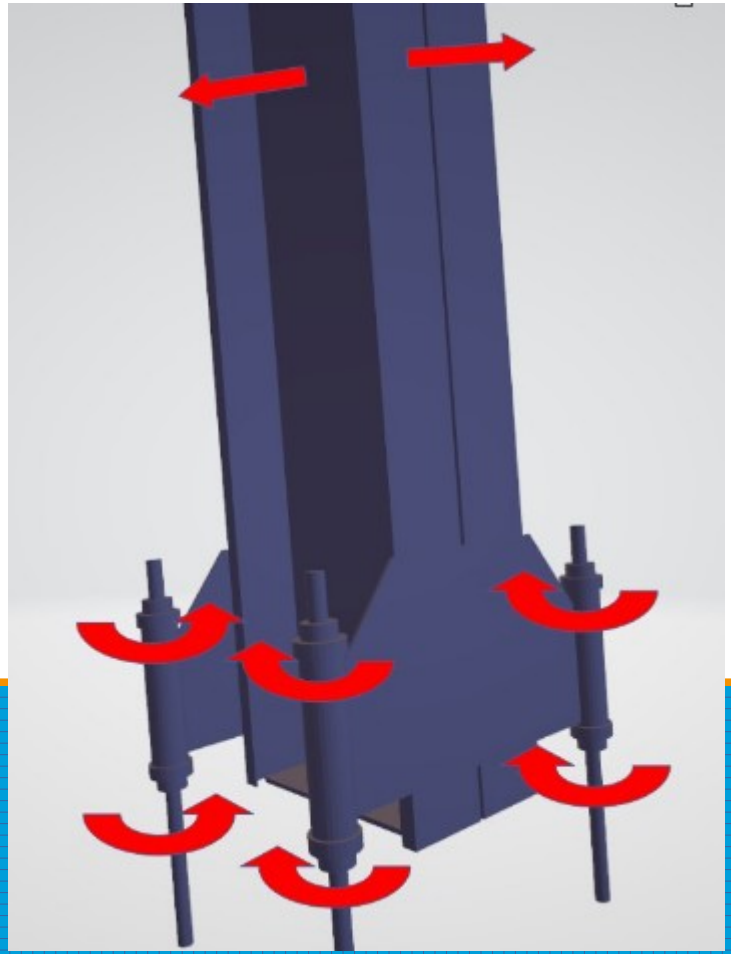
MRBC

(moment resisting base cleat)

Business cases

J. Mares, 2024
Contact: mares.jiri@calc-co.net

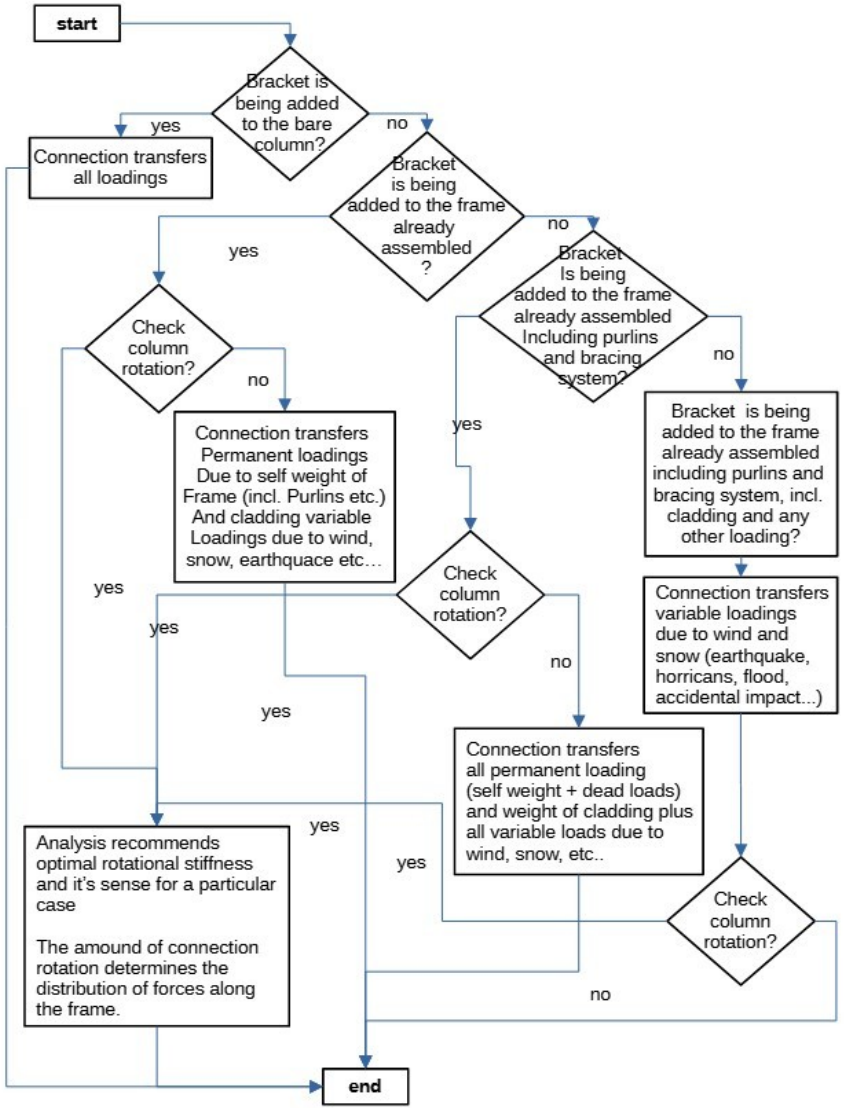


Business Case 1 – New building:
optimize stress distribution and reduce weight

- Building of a moderate size (for light gauge steel profiles), 150k Euro the savings achieved was 10k Euro
- H&S
- Savings on temporary bracing during the assembly
- Reduced deformations

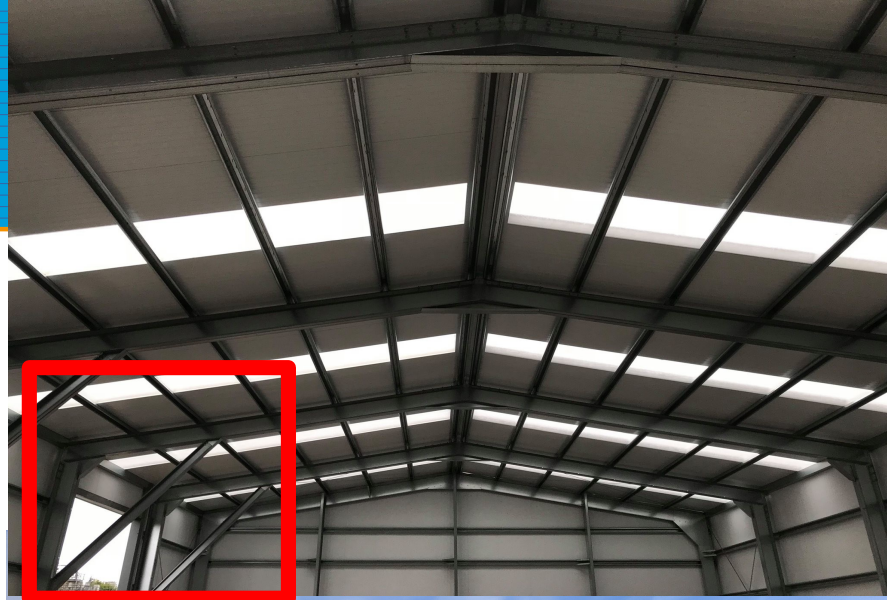
Business Case 2
Exsisting building: improve capacity

- On an existing building where solar panels are to be fitted the building needs to be structurally checked for increased loading
- If capacity of the building is not adequate column bases can be strengthened and increased capacity of the framing reached



Business Case 3
Remove knee bracing

- Buildings where horizontal sway deformation needsto be reduced require knee bracing (buildings with large glass openings)
- Knee bracing can be causing obstructions
- Application of rigid column brace (MRBC) reduces horizontal sway. In such a case knee bracing may be **removed**.

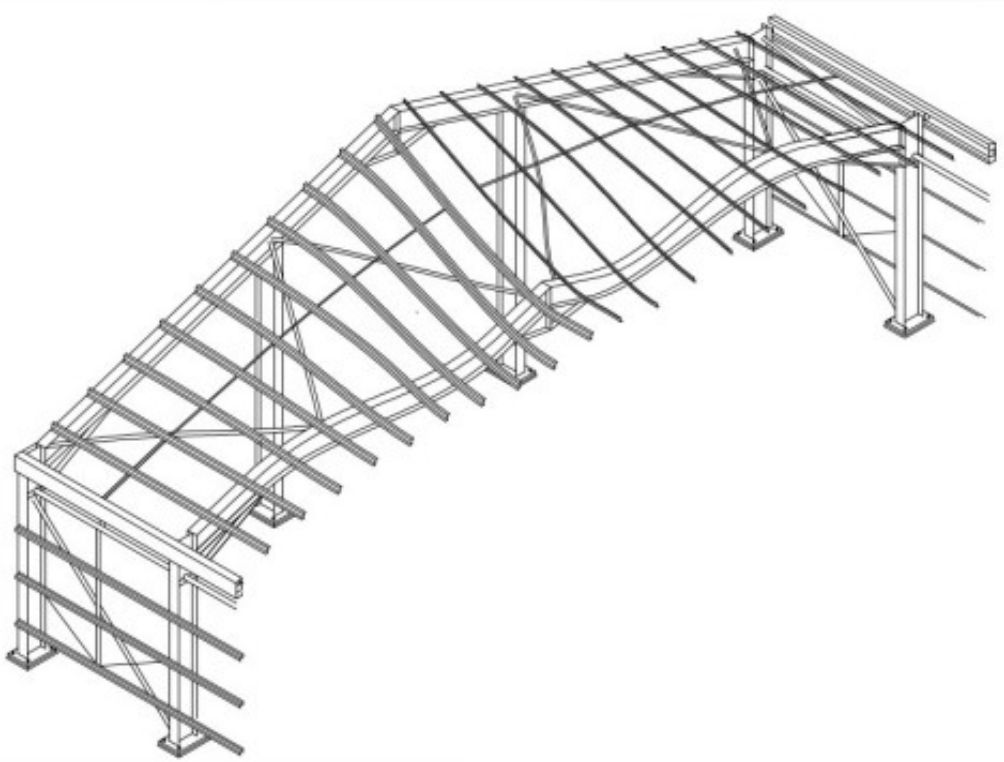


Business Case 4
Earthquake, hurricanes

- Properly designed holding down bolts and brackets help significantly with energy dissipation during excessive cyclic loading
- Connection with large plastic reserve
- Deformation takes place in connection, not in member
- Dampers in anchors optimized

Business Case 6
Fire resistance

- European approach in fire resistance design is to maintain sufficient moment capacity of column base (which is relatively cold during the fire) while the rafter already collapses.
- This drives roof collapse inwards the building as the column base stiffness provides sufficient capacity
- Fire does not spread on neighbouring buildings
- Performance of MRBC bracket has been tested under increased temperature
- Plate provides Shielding effect
-



Business Case 7
Vehicle impact strategy

- Columns are sensitive on vehicle impact
- Column base design allows connection of barriers against vehicle impact
- Barrier can be connected to the anchors
- Can be replaced when damaged
- To be designed to national standards and specifications

...and many more