There are cases where a truss profile (as built) does not represent the roof profile. This is an issue when designing trusses that have piggyback trusses that sit on top of them. The program loads the truss based on the truss profile, which can lead to conservative loading in the unbalanced load cases for the base truss of a piggyback system. For example, a hip truss will have a piggyback truss placed on top of it to form a common shape, in this case the load applied to the piggyback truss for unbalanced loading is typically less and the hip truss can be over loaded with parallel unbalanced load cases that are not required for snow loading.
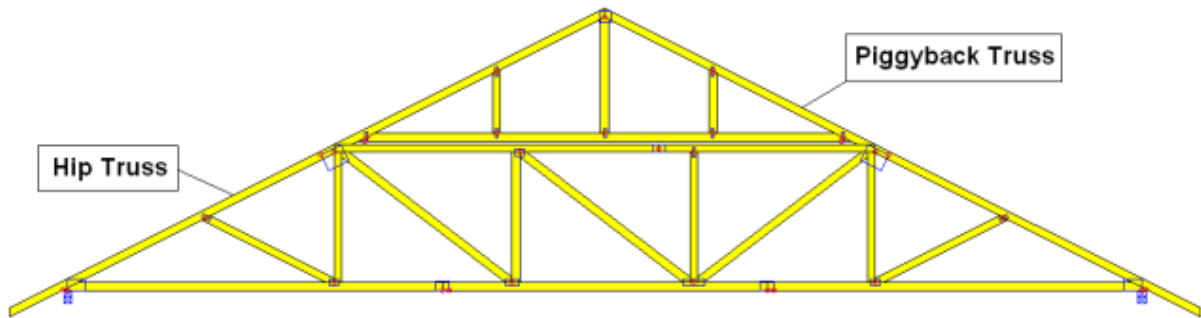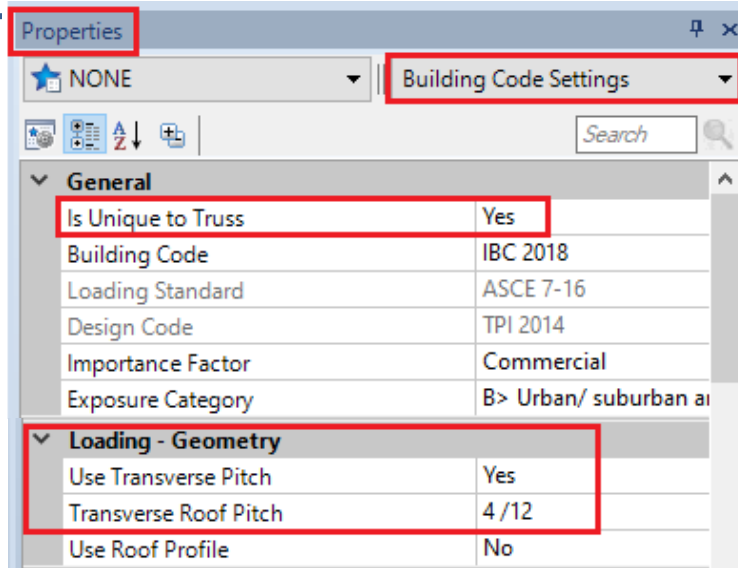
Geometry tab in MiTek 20/20 Engineering and Loading - Geometry section in Structure with Truss Design will allow you to input additional geometric information about the roof plane so that the loading on that truss can be modified to match the roof, rather than truss, profile.

The _Use Transverse Pitch_ is there to account for "rain on snow surcharge" and is only applicable to roofs with a flat section and a ground snow load of 20 psf or less. It tells the program that the flat section is not really flat because it has a pitch perpendicular to the truss and therefore this load is not applied. The value to enter in _Transverse Roof Pitch_ is the pitch of the roof perpendicular to the truss.
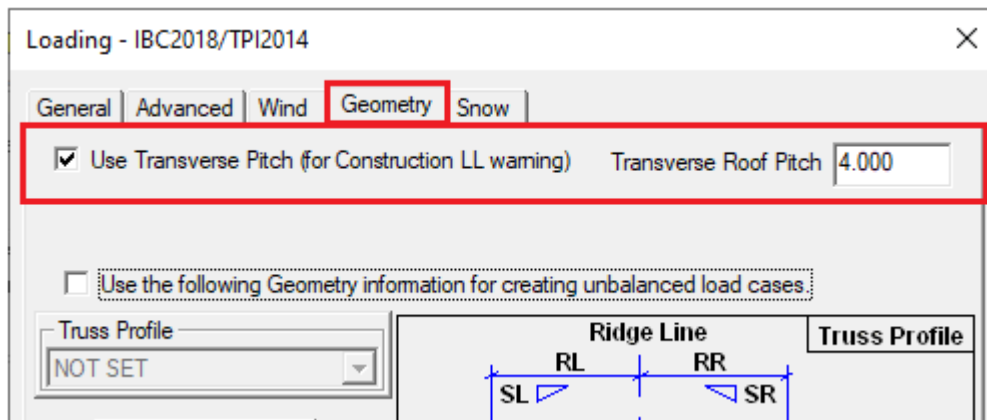
MiTek 20/20 Engineering

Structure with Truss Design

If truss is to be capped and you are designing for snow loads, you should turn on *Use the following Geometry information for creating unbalanced load cases* in the "Geometry" tab of MiTek 20/20 Engineering or select "Yes" for *Use Roof Profile* in the "Loading – Geometry" section of Structure with Truss Design. Turning this on will tell the program that the truss in question is not a hip and is therefore not subjected to the drifts that accumulate on a hip end.

Truss Profile. In MiTek 20/20 Engineering there are three choices: NOT SET (the program will not modify the unbalanced loading), COMMON and HIP. In Structure with Truss Design choices are: Custom (could be used for any truss and gives full control of the input), Common and Hip. In most cases the COMMON shape can be used to get the desired loading changes.

Truss Profile Information. This section contains information about the truss profile. In MiTek 20/20 Engineering after the appropriate profile is selected from the Truss Profile dropdown menu, on the right side there will be a diagram to depict the Truss Profile and the Roof Plane the roof truss is contained in.

Truss Profile Information
>   RL= distance from the Left end of the truss to the Ridge line
>   RR= distance from the Right end of the truss to the Ridge line
>   SL= Slope of the roof profile on the Left side of the Ridge line
>   SR= Slope of the roof profile on the Right side of the Ridge line

Roof Plane Information
>   W= Width of the roof parallel to the truss; it is measured from eave to eave. The program will use ERL and ERR to determine W
>   ERL= the distance from the left Eave to the Ridge line
>   ERR= the distance from the right Eave to the Ridge line
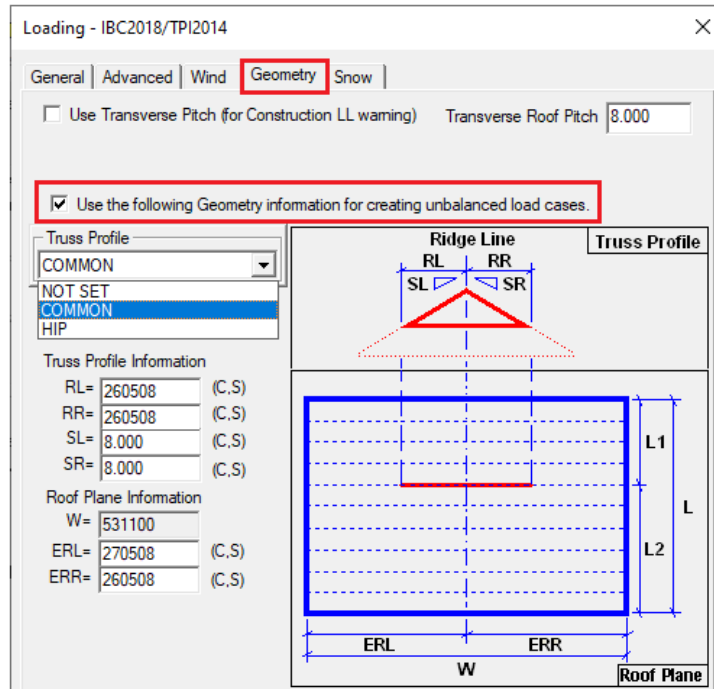
MiTek 20/20 Engineering
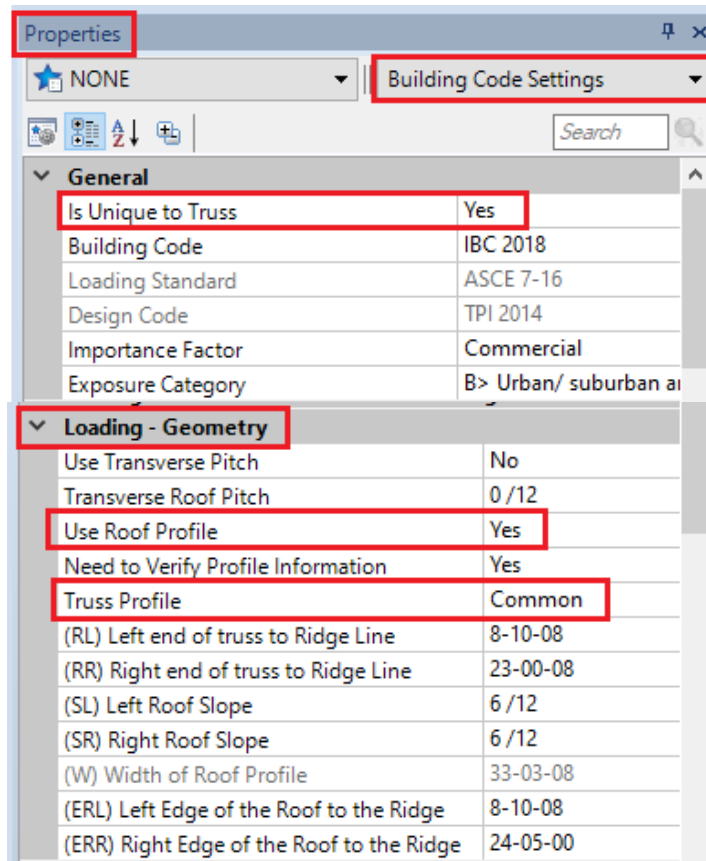
Structure with Truss Design

The program will unbalance the truss about the ridgeline which is determined by the geometry information found in the Geometry Tab of MiTek 20/20 Engineering or Loading - Geometry section of Structure with Truss Design.

For additional information, or if you have questions, please contact the MiTek Engineering department.