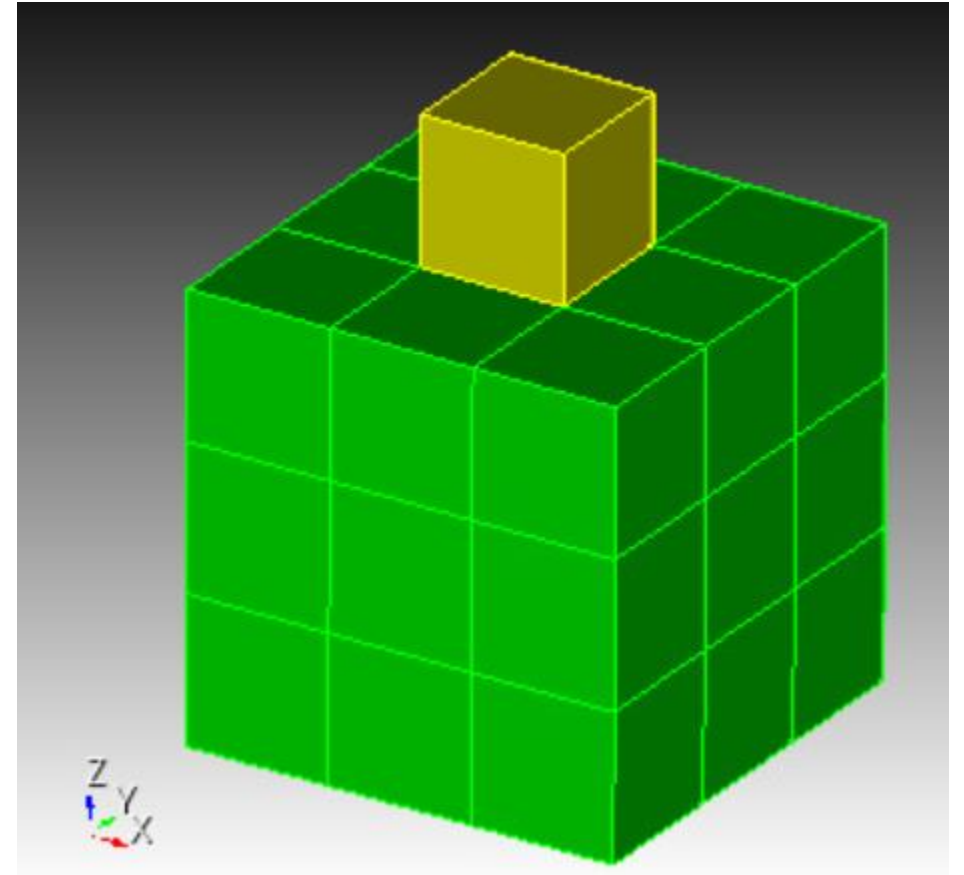


Problem Description of Concrete block on soil block

Problem description

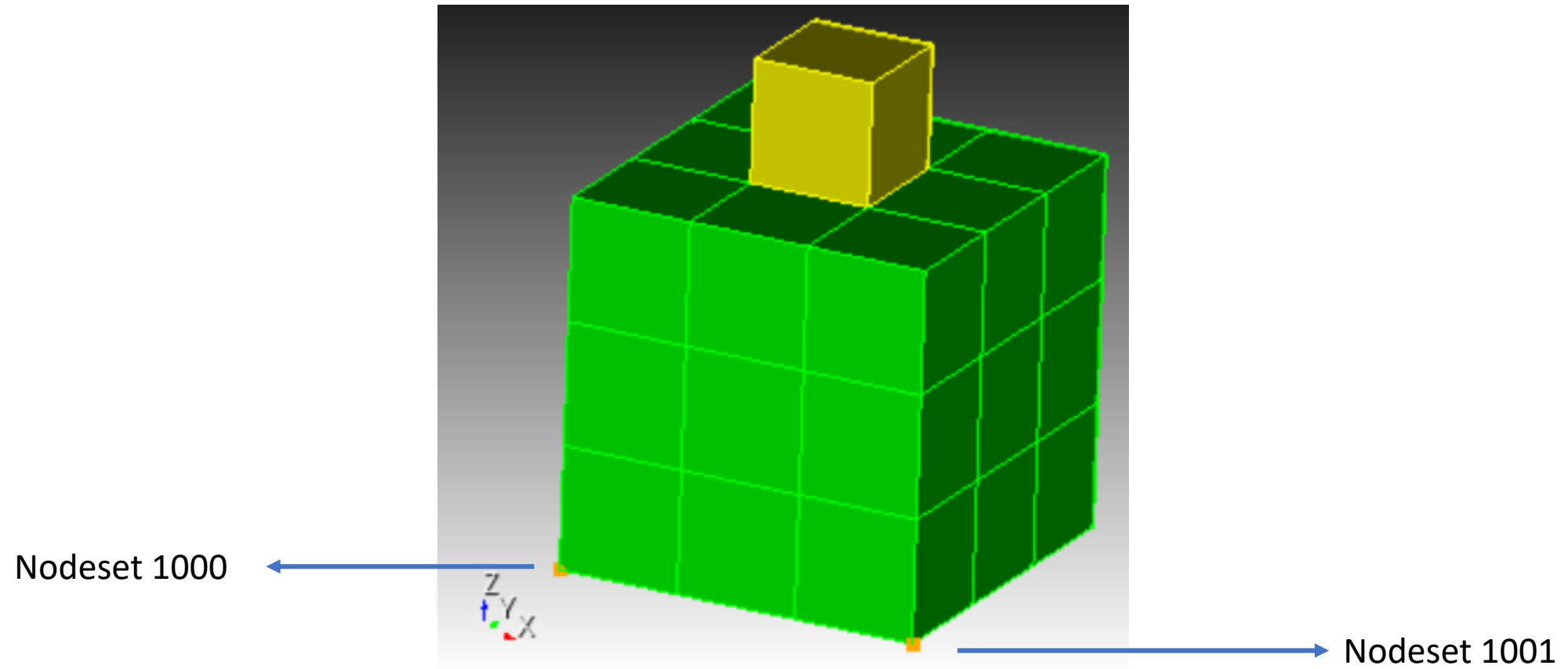
- Concrete Block on elastic soil
- Both concrete and soil are assigned elastic properties.
 - Concrete Block
 - $E = 5.76e5 \text{ kip /ft}^2 = 4000\text{ksi}$
 - $\mu = 0.25$
 - $\rho = 4.66e-3 \text{ kip s}^2/\text{ft}^4 \approx 150 \text{ lb/ft}^3$
 - Soil
 - $E = 2.01e4 \text{ kip/ft}^2 \approx 140 \text{ ksi}$
 - $\mu = 0.3$
 - $\rho = 2.812e-3 \text{ kip s}^2/\text{ft}^4 \approx 90 \text{ lb/ft}^3$



Concrete block on soil block

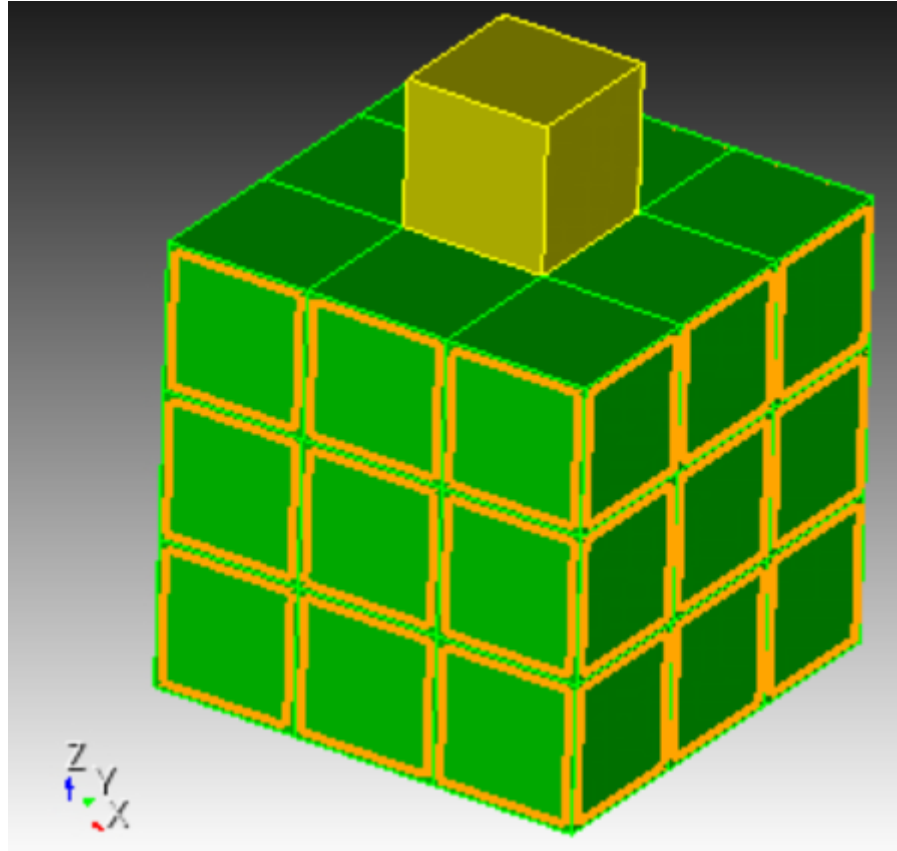
Boundary conditions for static initialization step

1. Nodeset 1000 is restrained in the x & y direction.
 2. Nodeset 1001 is restrained in the y-direction.
 3. Bottom surface is restrained in the z-direction.
- } Provided **to prevent rigid body rotation** during the static initialization step



Boundary conditions

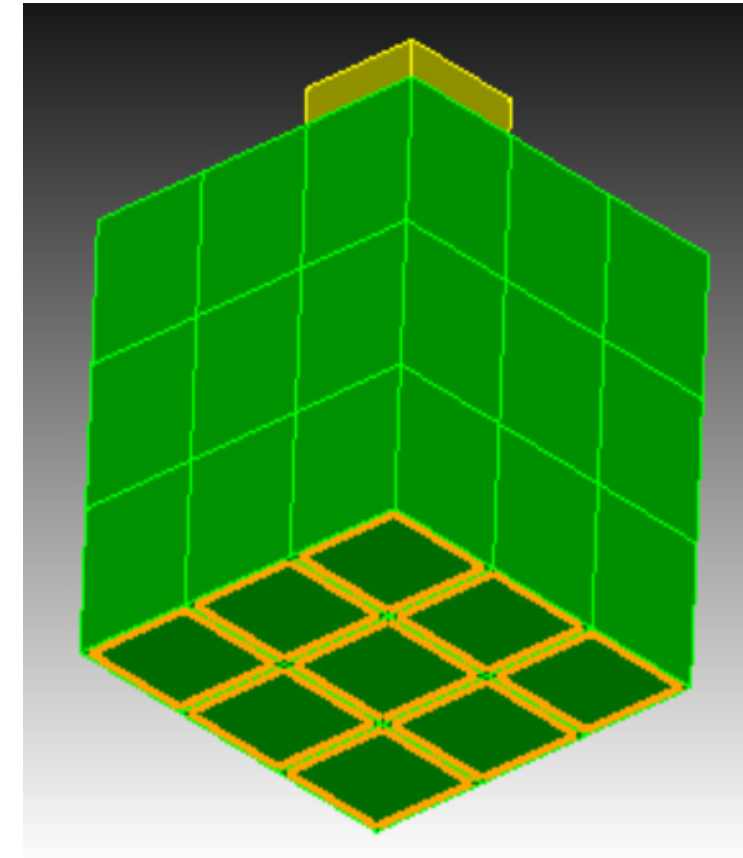
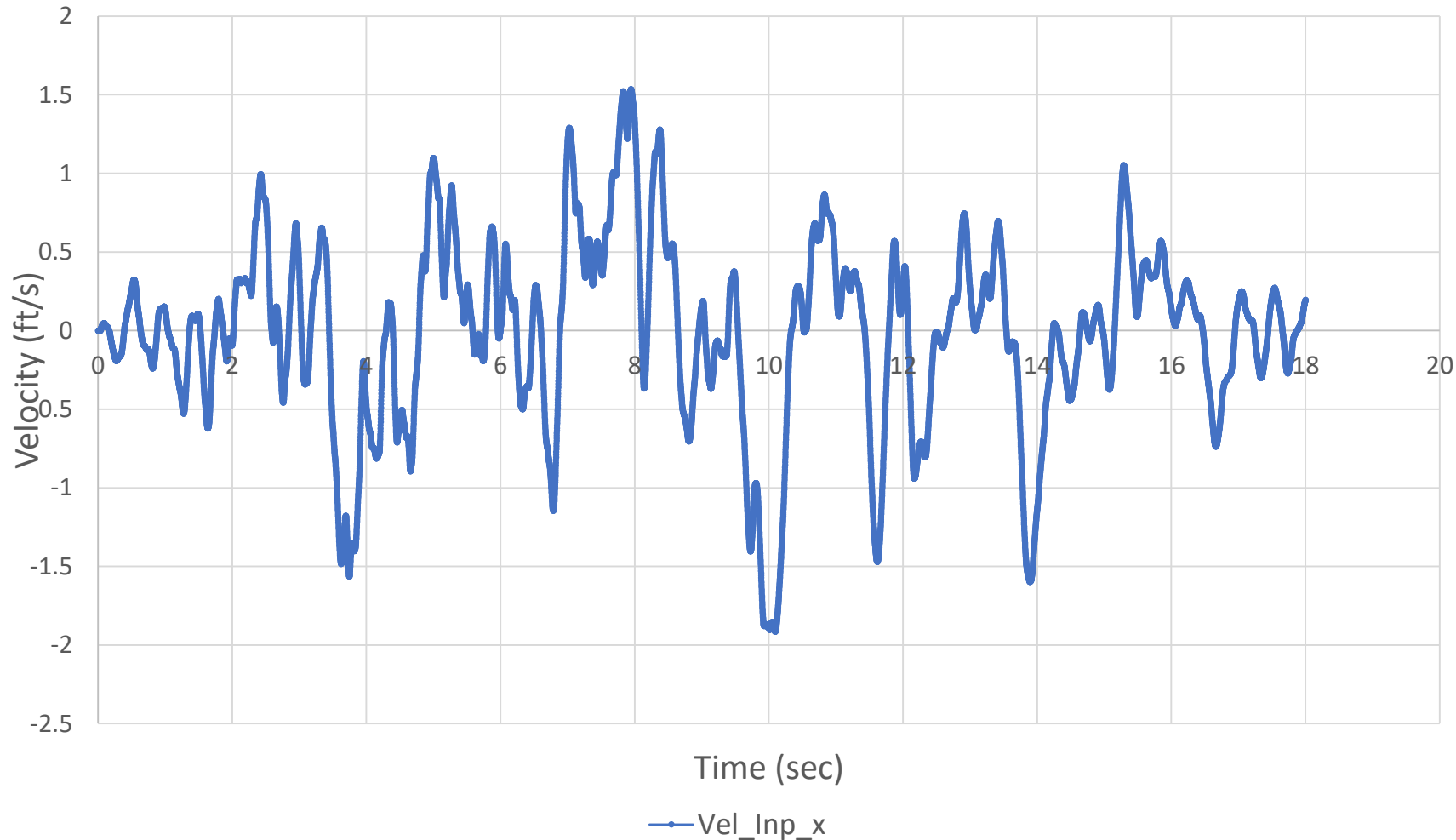
- Periodic BCs along the side faces of soil



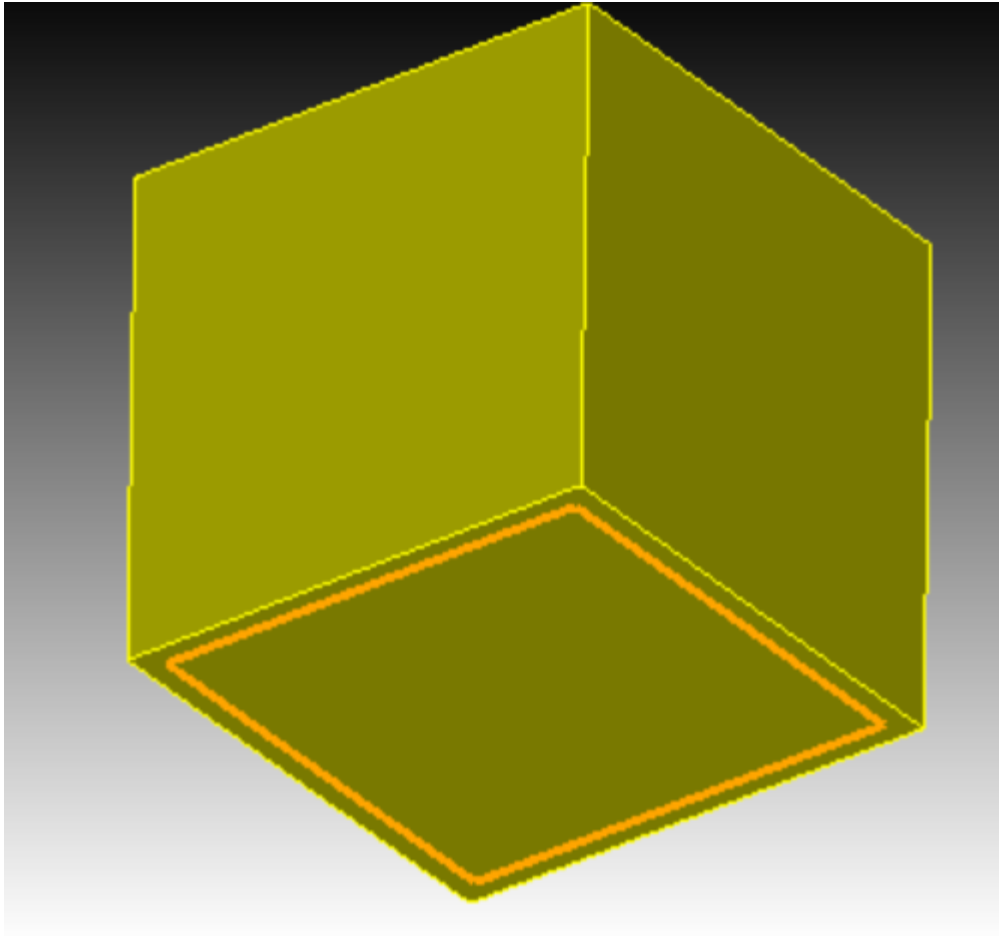
Boundary conditions

- Non-reflecting Boundary conditions at the bottom face of soil
- Seismic force input along x-direction at the bottom face of the soil
- Bottom face of soil is fixed in y and z directions.

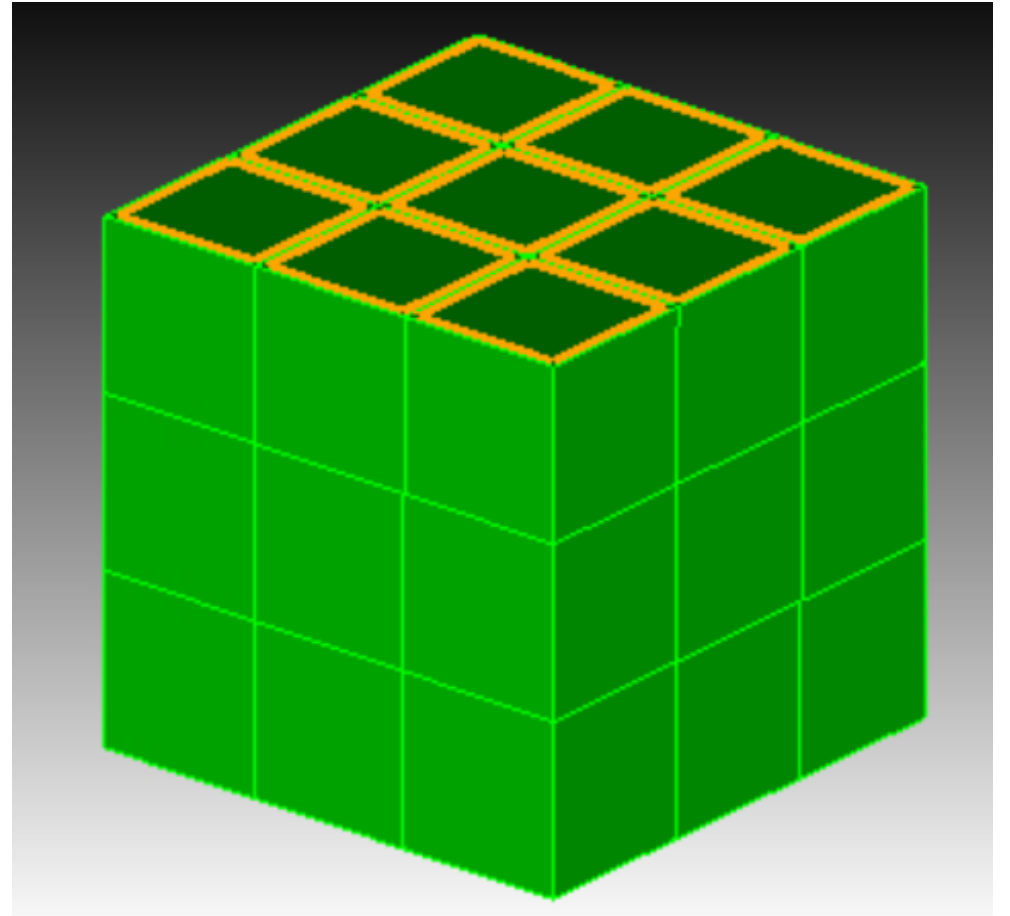
Specific to Mastodon



Surfaces where contact is defined



Concrete block bottom face



Soil block top face