3' Exterior Walls (Blue Elements) Tunnel **Basemat**

Figure 3.7.2-49: SAP2000 Control Building Model

Figure 3.7.2-50: SAP2000 Control Building Model Beam Elements

25' Backfill Soil (Solid Elements Surrounding CRB)

Figure 3.7.2-51: SAP2000 Control Building Model with Backfill Soil

Figure 3.7.2-52: Control Building SASSI2010 Model

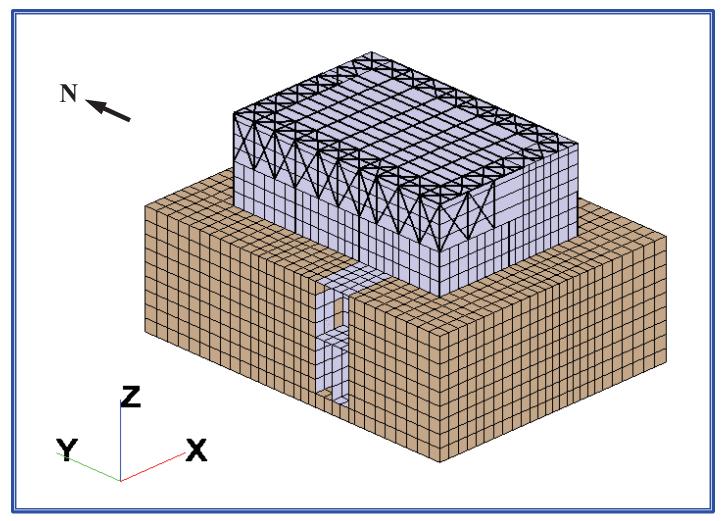


Figure 3.7.2-53: Excavated Soil of Control Building SASSI2010 Model

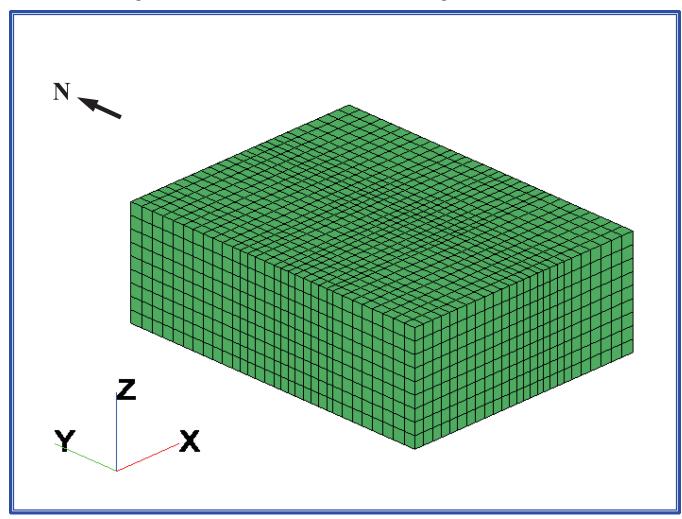


Figure 3.7.2-54: Control Building SASSI2010 Model Backfill Soil Solid Elements

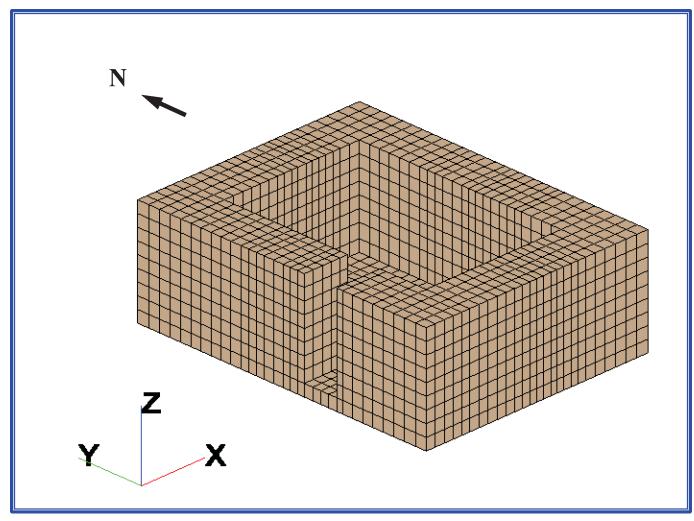
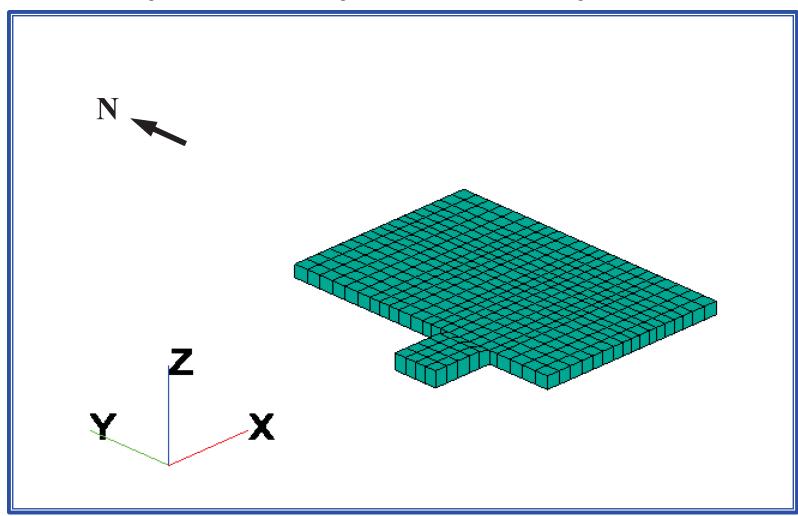


Figure 3.7.2-55: Control Building SASSI2010 Solid Elements Modeling the Basemat



N Z X

Figure 3.7.2-56: Control Building SASSI2010 Model Shell and Beam Element

N Z X

Figure 3.7.2-57: Control Building SASSI2010 Model Beam Elements

Figure 3.7.2-58: Structures and Backfill Soil of Triple Building SAP2000 Model

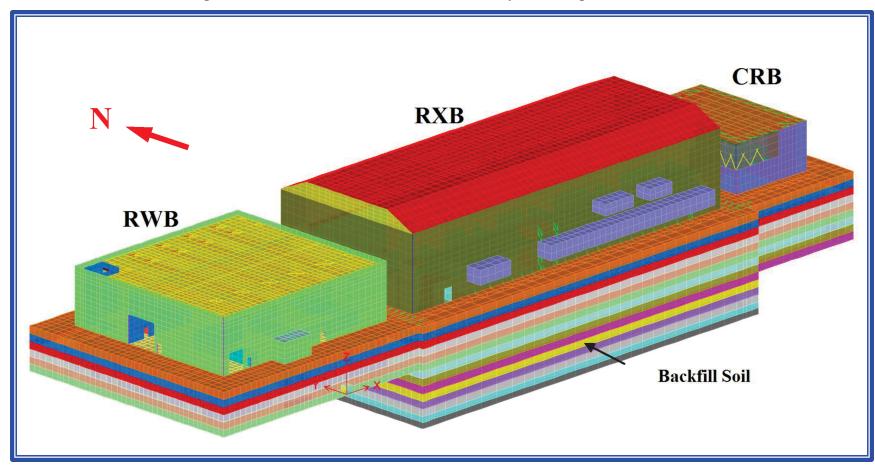


Figure 3.7.2-59: Isometric View of South Side of Triple SAP2000 Model (Looking Northeast)

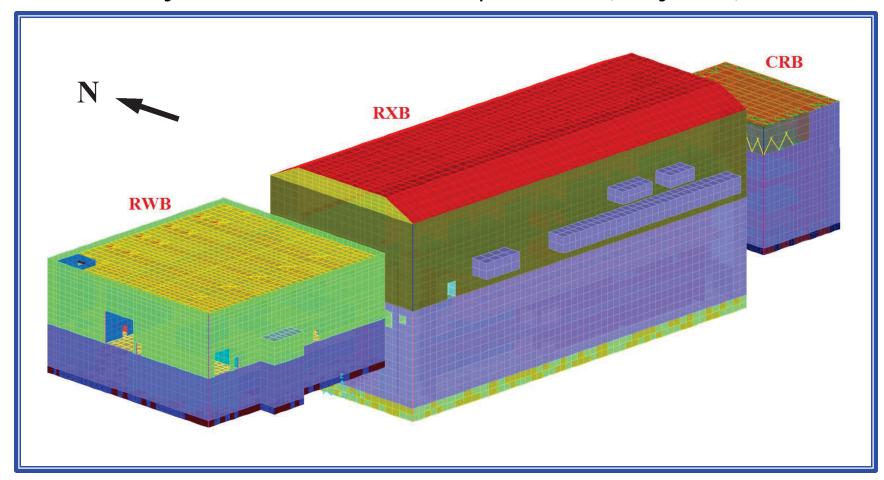


Figure 3.7.2-60: Isometric View of South Side of Triple Building SAP2000 Model (Looking Northwest)

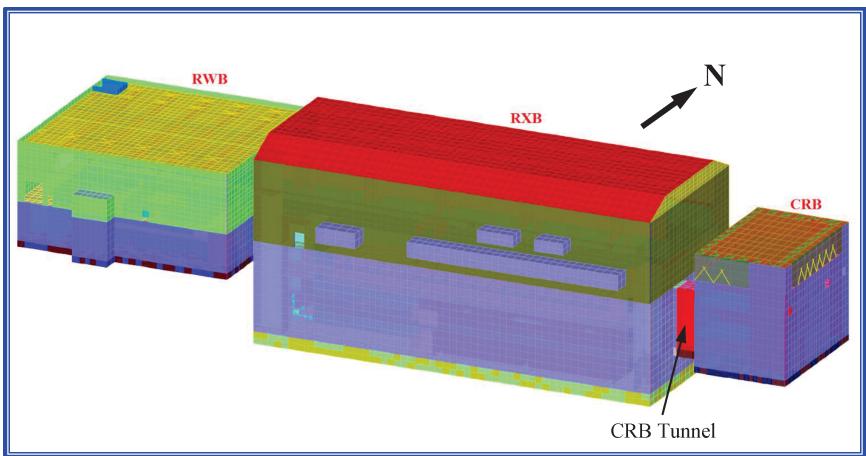


Figure 3.7.2-61: Isometric View of North Side of Triple Building SAP2000 Model (Looking Southwest)

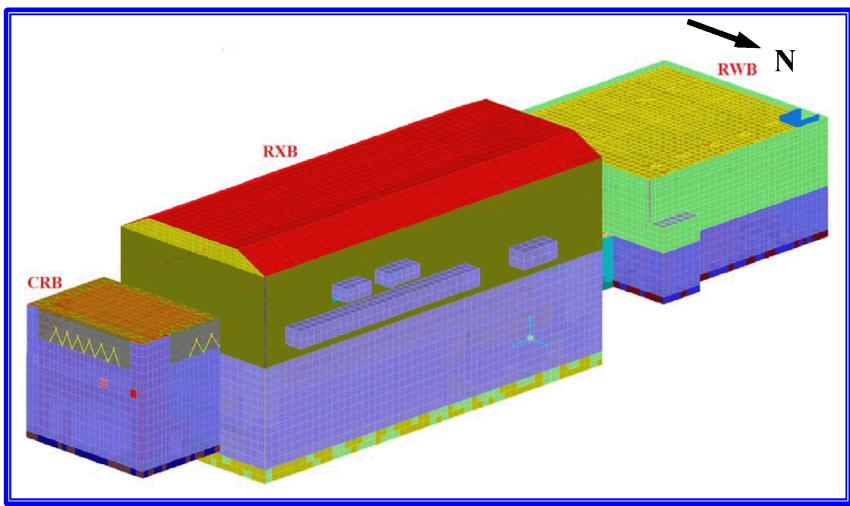


Figure 3.7.2-62: Isometric View of Backfill Soil Elements around the Three Buildings

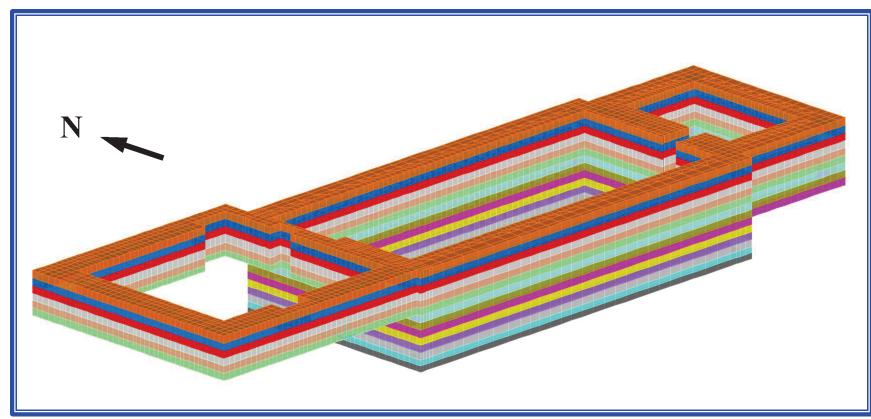
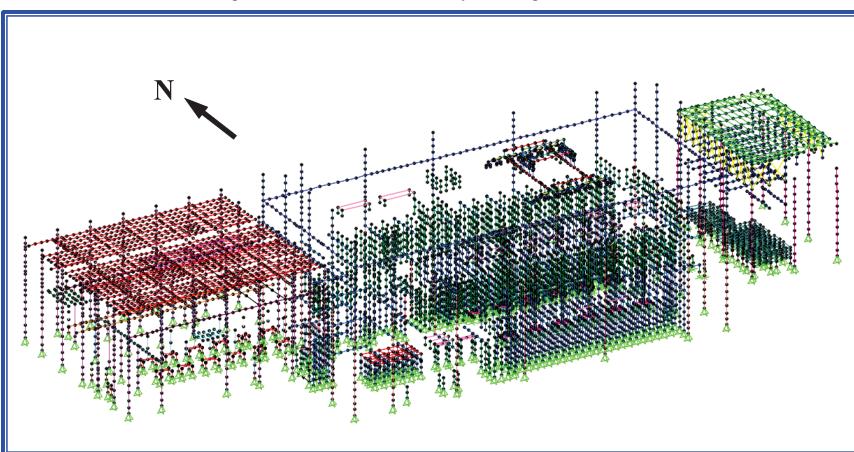


Figure 3.7.2-63: Beam Elements of Triple Building SAP2000 Model



Tier 2

Figure 3.7.2-64: Spring or Link Elements of Triple Building SAP2000 Model

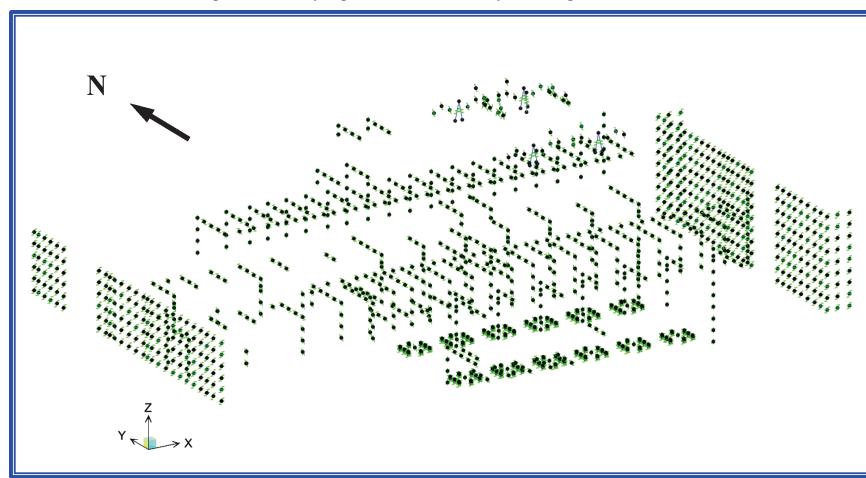


Figure 3.7.2-65: Elevation View of Triple Building SAP2000 Model Showing Separation

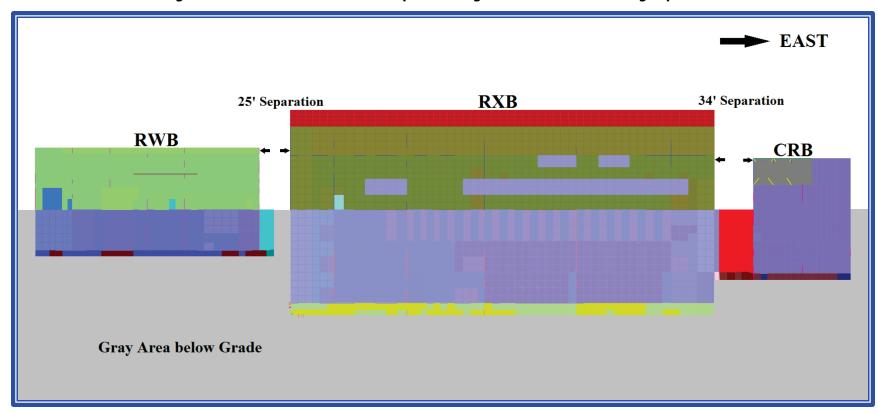


Figure 3.7.2-66: Isometric View of SASSI2010 Triple Building

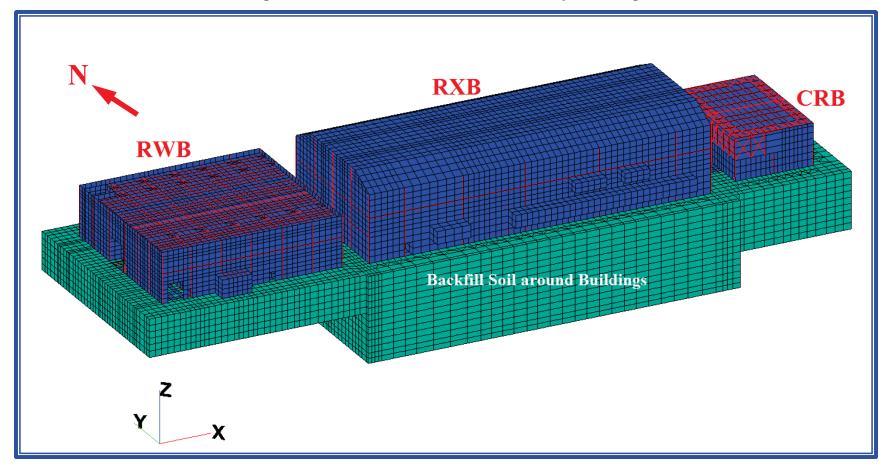


Figure 3.7.2-67: North Half View of SASSI2010 Triple Building Model

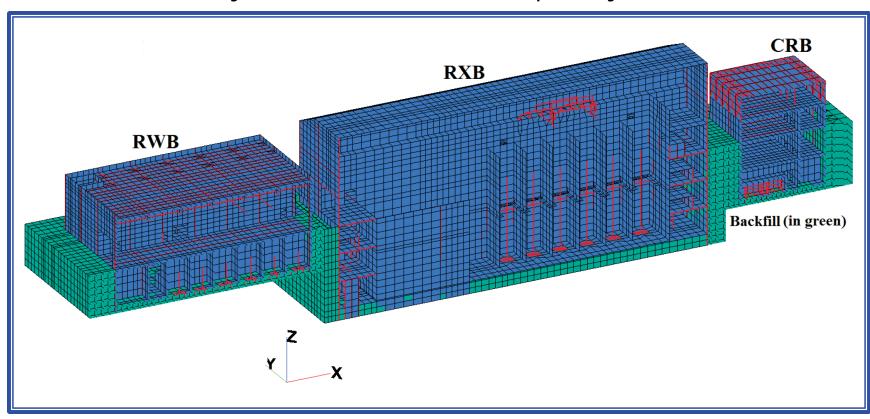


Figure 3.7.2-68: SASSI2010 Triple Building Model Shown without Backfill

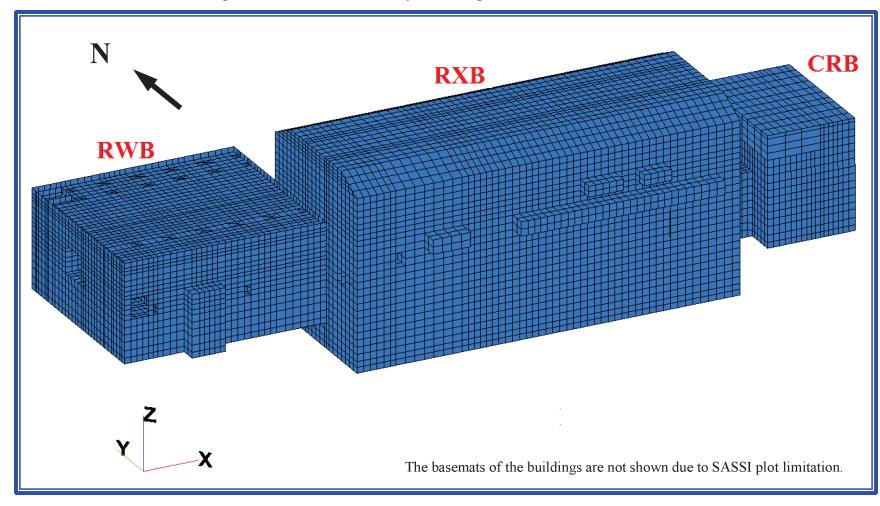


Figure 3.7.2-69: SASSI2010 Triple Building Model Showing South Side of Three Buildings (Looking Northwest)

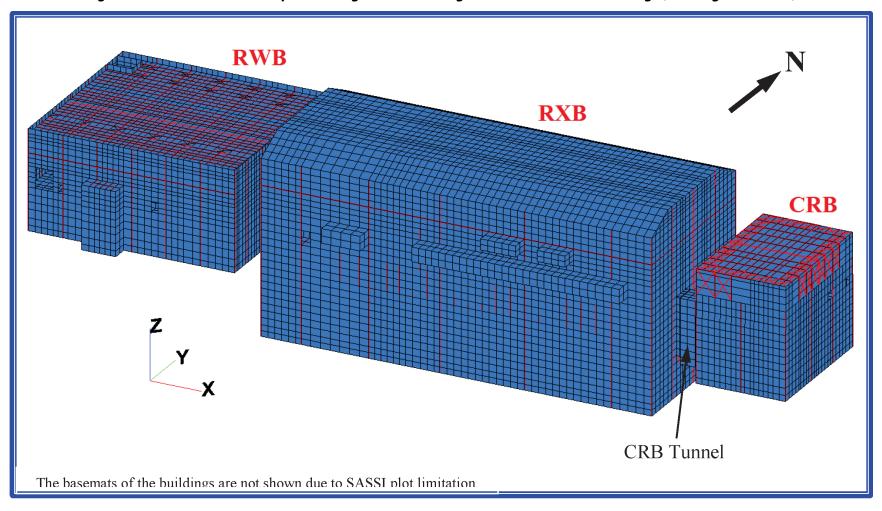


Figure 3.7.2-70: SASSI2010 Triple Building Model Showing North Side of Three Buildings (Looking Southwest)

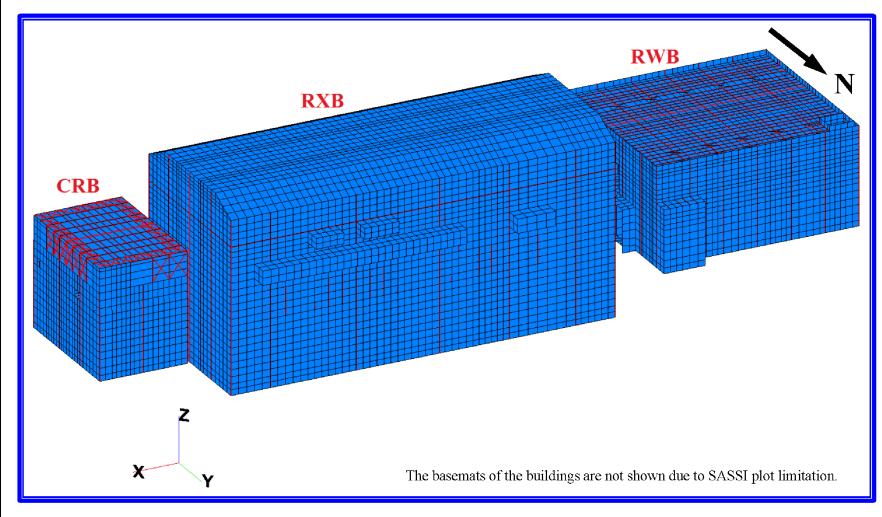
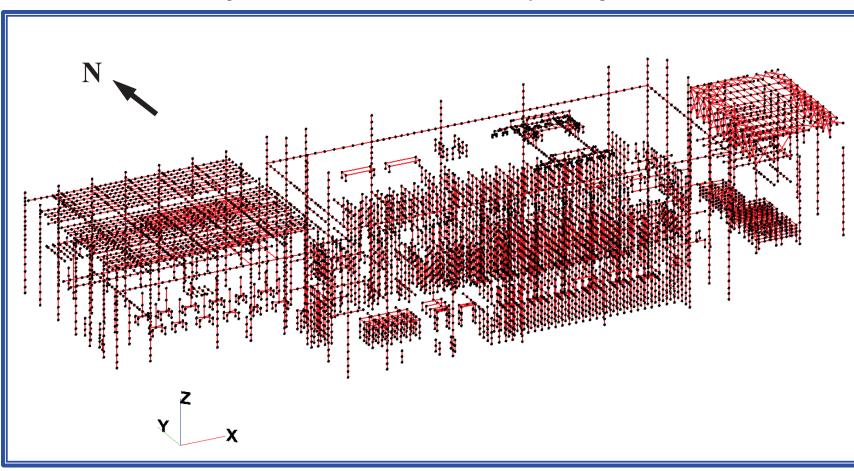


Figure 3.7.2-71: Beam Elements of SASSI2010 Triple Building Model



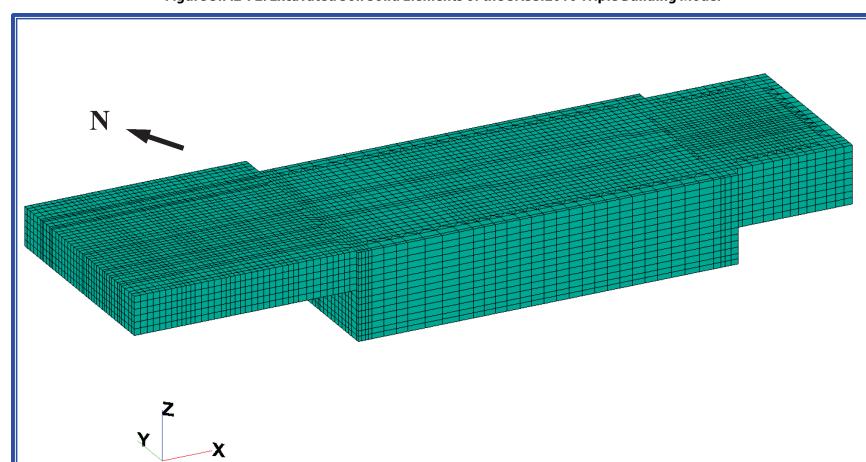


Figure 3.7.2-72: Excavated Soil Solid Elements of the SASSI2010 Triple Building Model

Figure 3.7.2-73: Backfill Soil Solid Elements of the SASSI2010 Triple Building Model

Figure 3.7.2-74: Rigid Soil Springs between Backfill and Free Field Soils of the SASSI2010 Triple Building Model

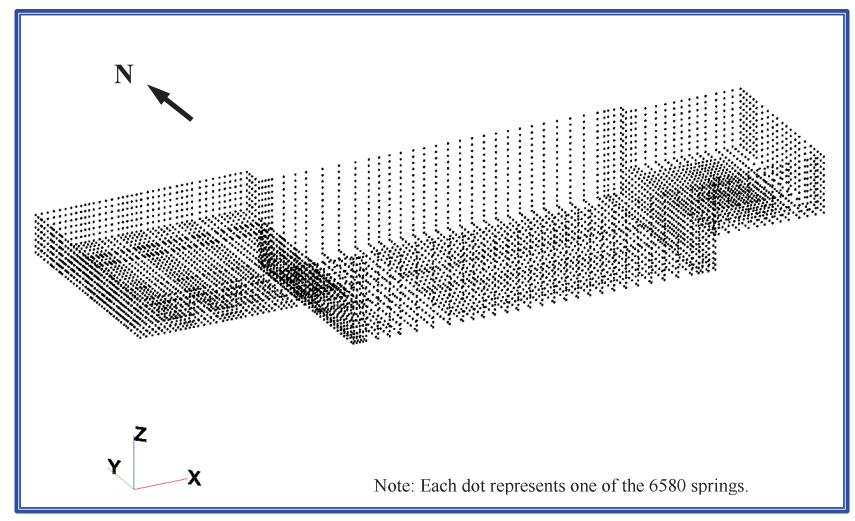


Figure 3.7.2-75: Interaction Nodes for Soil Impedance Calculation

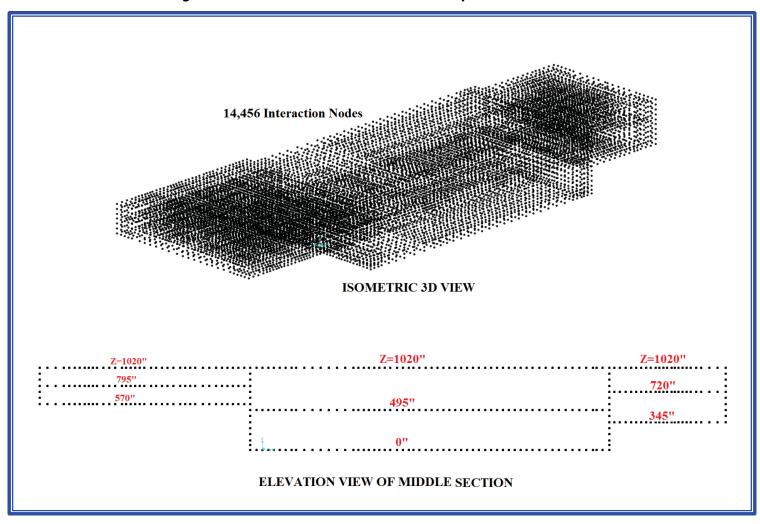
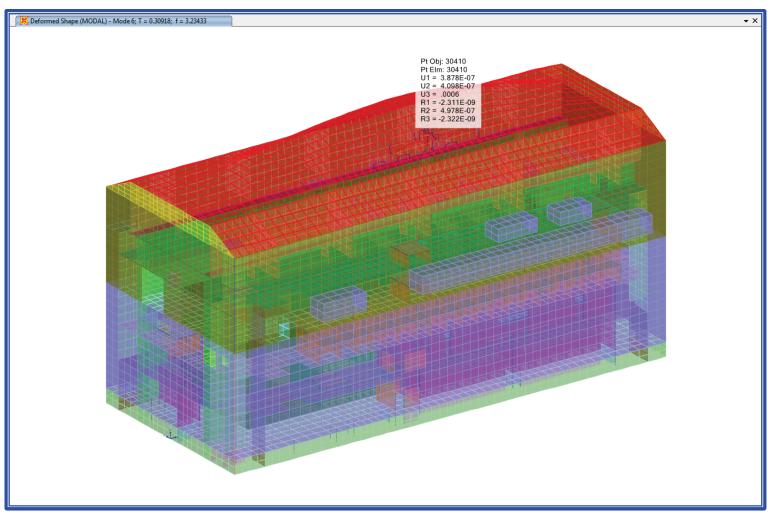


Figure 3.7.2-76: Reactor Building Cracked Model - Modal Shape - (Mode 5)

Odromed Shape (MODAL) - Mode 5, T = 0.3400; # = 247316

PI Ohj: 29953
PI Elim: 29953
PI Elim: 29954
UZ = 8.4564-45
UZ = 8.4564-45
UZ = 8.4564-57
UZ = 1.3958-07
UZ = 3.3558-07

Figure 3.7.2-77: Reactor Building Cracked Model - Modal Shape - (Mode 6)



Commed Shape (MODAL) - Mode 14; T = 0.21451; f = 4.66184 Pt Obj: 30243 Pt Elm: 30243 U1 = -2.244E-05 U2 = 9.981E-06 U3 = 2.103E-05 R1 = 4.839E-07 R2 = -2.859E-08 R3 = -6.687E-08

Figure 3.7.2-78: Reactor Building Cracked Model - Modal Shape - (Mode 14)

Figure 3.7.2-79: Reactor Building Uncracked Model - Modal Shape - (Mode 5)

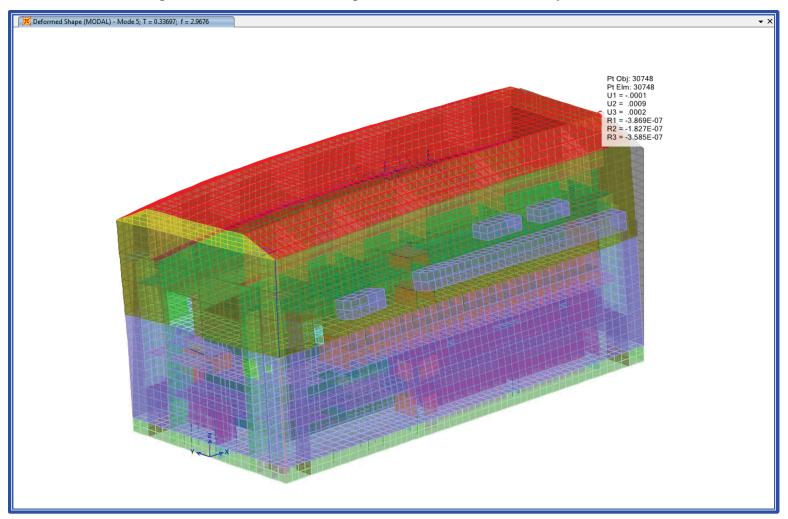


Figure 3.7.2-80: Reactor Building Uncracked Model - Modal Shape - (Mode 8)

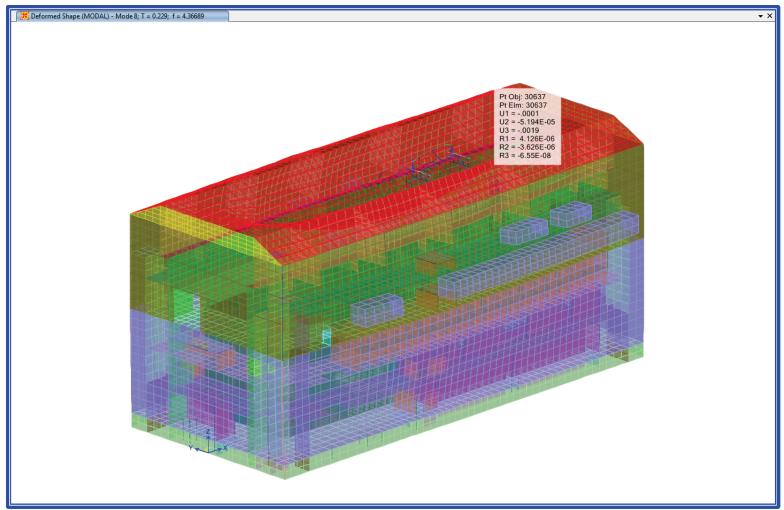
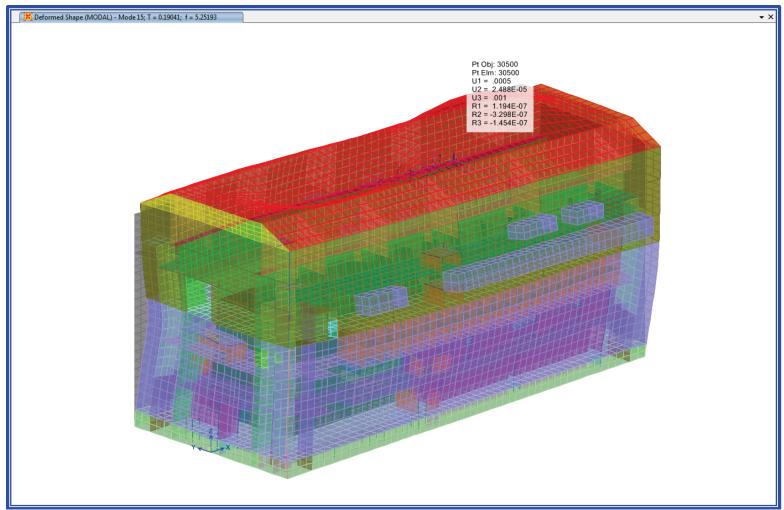


Figure 3.7.2-81: Reactor Building Uncracked Model - Modal Shape - (Mode 15)



MODAL) - Mode 40; T = 0.20979; f = 4.76671

Figure 3.7.2-82: Control Building Cracked Model - Modal Shape - (Mode 40)

MODAL) - Mode 49; T = 0.19956; f = 5.01108

Figure 3.7.2-83: Control Building Cracked Model - Modal Shape - (Mode 49)

MODAL) - Mode 81; T = 0.16841; f = 5.93774

Figure 3.7.2-84: Control Building Cracked Model - Modal Shape - (Mode 81)

MODAL) - Mode 41; T = 0.20942; f = 4.77511

Figure 3.7.2-85: Control Building Uncracked Model - Modal Shape - (Mode 41)

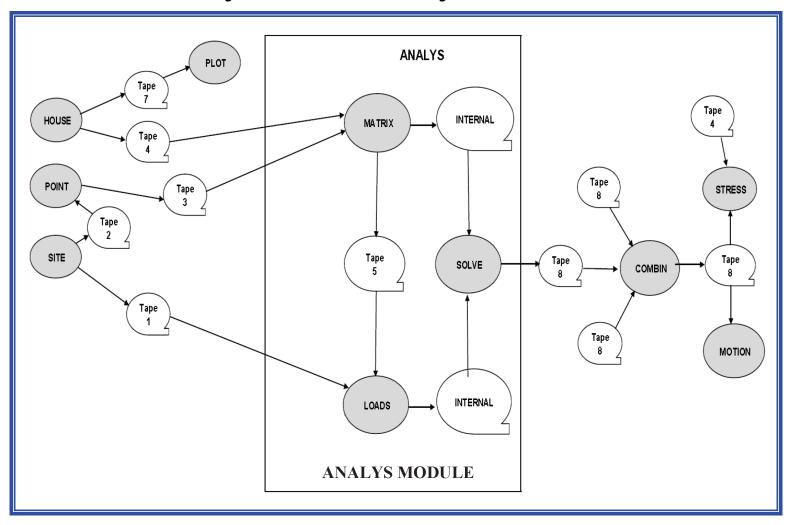
Deformed Shape (MODAL) - Mode 49; T = 0.19913; f = 5.02184

Figure 3.7.2-86: Control Building Uncracked Model - Modal Shape - (Mode 49)

Deformed Shape (MODAL) - Mode 81; T = 0.16787; f = 5.95706

Figure 3.7.2-87: Control Building Uncracked Model - Modal Shape - (Mode 81)

Figure 3.7.2-88: Flow of Files among SASSI2010 Modules



Local y Kinfinitesimal stress block (typical 5 locations) S_{XX} S_{XX}

Figure 3.7.2-89: Four I, J, K, and L Nodes and 1 through 5 Output Locations of Thick Shell Element

S_{yy}

S_{xy}

S_{xy}

M_{xy}

M_{xy}

Membrane/Shear Resultants

Bending Resultants

Figure 3.7.2-90: SASSI2010 Shear and Moment Resultants

Figure 3.7.2-91: SASSI2010 Beam Element Local Axes for Forces and Moments