DYNAMIC ANALYSIS IN RISA
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OVERVIEW

- Finding Natural Frequency / Fundamental Period of a Structure
- Defining Dynamic Mass
- Response Spectra Analysis
- Troubleshooting your Model
- Preview of Time History (Coming Soon)
SOLVERS IN RISA

- **Standard Solver**
  Sub-space iteration to solve for the Eigen values

- **Accelerated Solver**
  Direct Jakobian
  Accelerated Sub-Space solver
  Lanzcos Solver

- **Ritz Vector Solver - NEW**
  Load Dependent Ritz (LDR) vectors
DYNAMIC ANALYSIS STEPS

1. Build structural model.
2. Model the mass/effective seismic weight.
   
   (ASCE 7 Section 12.7.2)
3. Perform an Eigen solution and verify proper mass participation.
   
   (ASCE 7 Section 12.9.1)
4. Perform a response spectra analysis (RSA).
5. Scale the RSA results down by both the ELF method and by I/R.
7. Design/analysis of members to these forces.
LOAD OR MASS?

Load
➢ Vertical Loads → Mass (X, Y, Z)

Mass
➢ Lumped Mass (aka Discrete Mass)
➢ Mass Moment of Inertia (MMOI)

Let’s see this in RISA-3D!
90% Participation Rule
ASCE7 12.9.1

What to do?
1. More Modes
2. Discretizing the Mass
3. Add Accidental Torsion
4. Switch Solvers
TIME HISTORY - COMING SOON!
QUESTIONS?

Please let us know if you have questions

- We will answer questions for the next 5 minutes
- Once the webinar is closed, we will post all Q&A’s at risa.com
- For further information, contact us at info@risa.com