



## AnalysisGroup 3.0 Released

*or How to Get Projects Done Yesterday*

IES has for 12 years possessed a "hidden gem" in the [AnalysisGroup](#) product. This tool has always lived in the shadow of VisualAnalysis, but it has also proved remarkably popular despite its rather limited scope.

If you are not familiar with this high-productivity tool, you might want to seize this opportunity to download the [free-trial](#) of [version 3.0](#) and give it an audition.

### Complexity Management

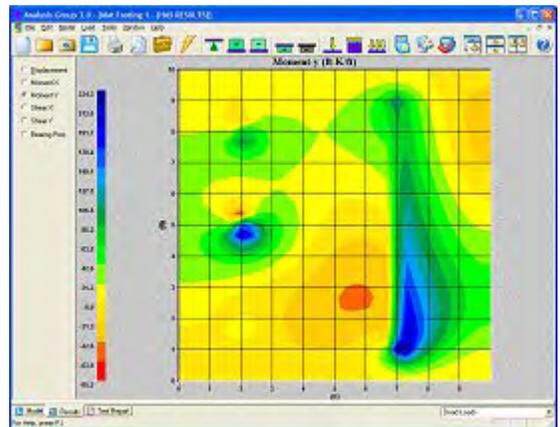
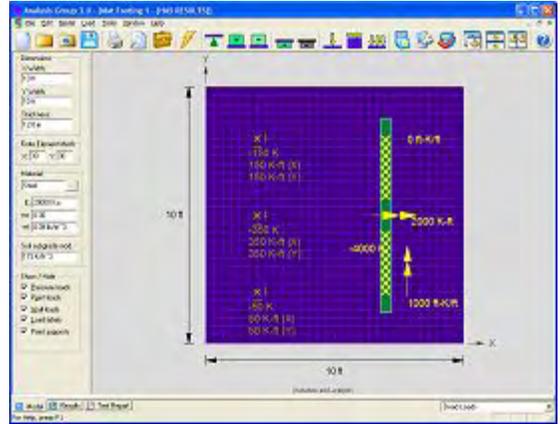
AnalysisGroup solves some very complex analysis problems in a way that removes you from the complexity! By solving well-defined problem types, AnalysisGroup excels at hiding all the hard work of setting up a finite element model.

### Case in Point: Combined Footings

If you ever have to model combined footings, where multiple columns or walls sit on a single rectangular pad of concrete, you will appreciate how easy this is to analyze in this tool. The finite element meshing, increased stiffness under walls and grade beams, compression-only spring stiffnesses, and finding extreme results are all painlessly accomplished.

### High Quality Reporting

Reporting is an area that makes AnalysisGroup shine over other products with similar capabilities. Offering both work-horse text reports, that may be pasted into MS-Excel for post-processing, as well as [highly polished color-graphic reports](#) to impress your clients, AnalysisGroup helps keep you on top of your schedule.



## Engineering Discussions

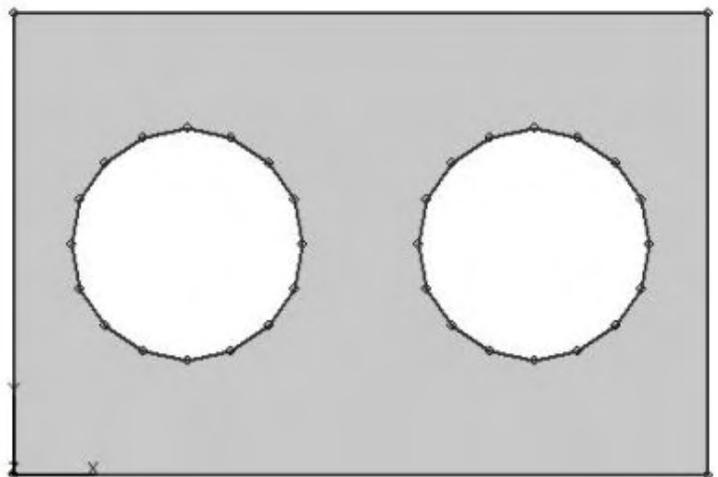
*Software Power + Engineering Judgment = Success*

### Circular Tanks on Rectangular Mat Footing

IES would like to welcome new customers from Tyson Foods, namely Greg Williams, Ph.D., P.E., S.E., who presented IES with a challenging problem. *"Can I accurately model a rectangular mat footing with loads coming from a number of circular tanks on top?"*

Great question! What you want is a ring of nodes for each tank to make it easy to apply loads to the mat.

This is a problem that really is "too much" for [AnalysisGroup](#), but is not all that difficult to accomplish in [VisualAnalysis](#) advanced, with the Object View mesh generation combined with the Generate Standard feature.



## Here is an Outline of the Procedure:

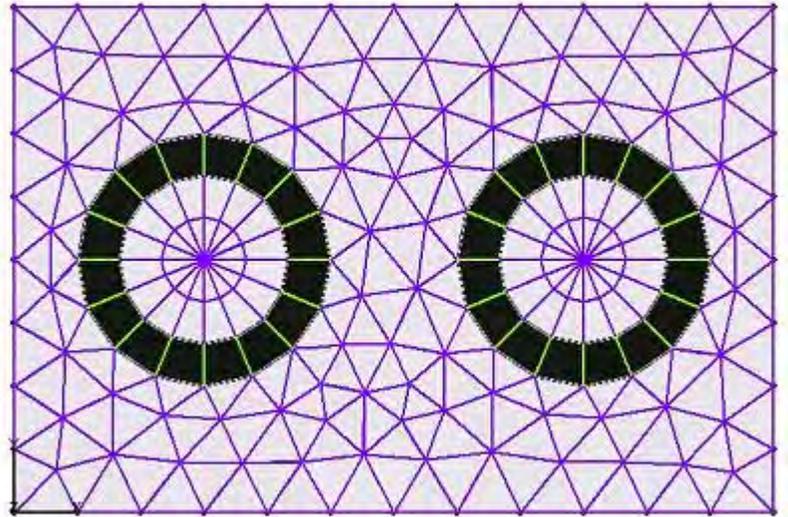
**Step 1:** Define a "Surface" in the Object View that will be automatically meshed.

**Step 2:** Create a circular "Node Chain" on the surface for each tank.

**Step 3:** Convert these circles into holes in the surface.

**Step 4:** Mesh the surface, with a triangular element mesh.

**Step 5:** Use the Generate Standard to fill in the holes using "Circular Disk Mesh".



## Get the Full Tutorial & A Sample Project

The above outline may be a bit terse for implementation in your office, and does not describe some of the "gotchas" that could slow you down. So we've prepared a little tutorial with a sample project file to show how it is done in more detail, including some caveats and issues that you will want to avoid. Download [complex-mesh.zip](#) for the PDF tutorial and a .vap file with (for VisualAnalysis 5.1 or higher).

This tutorial is part of a larger package of extra tutorials that we are putting together to supplement VisualAnalysis in the near future. If you have a sticky problem you would like solved in a tutorial, or if you have a solution that you would like to share with others, please send it to IES technical support!



## Project in Progress

### *Two snapshots of The Bozeman Public Library*

Here are a couple of amateur photographs, just to show you that there really is life in Bozeman, MT. Actually, Bozeman is ranked as one of the largest metropolitan areas in the USA. (OK, we ranked 379th in 2004!)

VisualAnalysis was used to help model flexible diaphragms and other aspects of the design. If you have photos of your "project in progress", we would all like to see them!



## NASCC in February

### *Meet Terry in San Antonio*



Join IES this February in San Antonio for the NASCC. IES would like to welcome all customers and future customers to visit our booth. Terry will be available for questions or just to say hello and meet in-person.

You will have an opportunity to check out our latest software and maybe even get a "show special" deal on upgrading, additional licenses, or new purchases.

## Reconciliation

### *Updates & Patches Make Peace*

IES [technical support](#) is in the business of reconciliation. Here is how it works. You purchase our software and we are friends. Then an error or bug is discovered and we are no longer regarded as friends, but perhaps more like antagonists. IES support engineers step in, correct the problems and publish software updates. You download the updates and **peace and harmony** is once again restored.

These updates are available to you right now, free of charge. All you need to do is accept the free gift and [download the update!](#)

By the way, we are 'in transition' with regard to automatic updates. At present, you will need to manually check for updates to products at our web site as the 'Update Service' is being replaced with something new, stay tuned for details...

## Troubleshooting Tips

### *Handling the Twilight Zone Days*

#### **Solutions, Waiting for a Problem**

The IES technical support staff has used a number of techniques to help troubleshoot software problems and customer problems alike.

Rather than hoarding this knowledge, we would like to share these techniques with you. OK, we do have ulterior motives: The goal at IES is to continue to support all of our 2000+ clients with a single engineer.

#### **Stability Problems? Won't Analyze?**

- Fix **column** bases so they do not rotate about the column axis!
- Try Removing **end releases**. (Especially ones you probably do not need, like weak-axis bending moments, or torsional releases.) Add them back as necessary to remove moments in your results.
- Remove **tension-only** or **compression-only** settings on members, is it stable now? Add these back only as necessary.
- Analyze just a simple **self-weight** load case.
- Save a copy of model, then delete portions of the model to see if a smaller model or part of the model is stable (working down from the top).
- Exclude "overturning load cases" from analyzing alone, use them only in combinations with 'stabilizing' loads, like self-weight and other dead loads.

#### **Large Displacements? Goofy Results?**

- Try P-Delta (2nd order) analysis; have members buckled? Or if that is what's failing, try a first-order analysis.
- Use **Statics Check** numbers to locate the culprit load case, and direction.
- Run the **Check Model for Errors** report to see if something 'obvious' is wrong in the model.
- Run the **Result Validation** report to find potential problems.
- Try removing semi-rigid end connections, adding them back only as necessary.
- Use the **Edit | Find** tool to search for shape or material problems in elements. You can sort this list to find ill-defined elements.
- Increase element sizes (stiffnesses)