

ANSYS Workbench Class3

Error Report

ERROR NO:
WB2013-18

Keywords:

PYRAMID SHAPED ELEMENTS INTERPOLATED RESULTS PATH SURFACE
PROBE

Description of Error:

If the Workbench mesh contains pyramid-shaped elements and the user creates a path or surface result and the path or surface intersects such an element, then the results can be incorrect in the vicinity of the pyramid-shaped element. Additionally, if the user creates a result probe whose Location Method is either (1) Geometry Selection with an (x,y,z) pick or (2) Coordinate System, then the results can be incorrect if the (x,y,z) location is inside a pyramid-shaped element.

Pyramid shaped elements are those that have a base with four corner nodes and a fifth corner node distinct from the other corner nodes.

A low order pyramid contains 5 nodes and a high order pyramid contains 13 nodes (eight of which are mid-side nodes). These elements are degenerate Hex elements, and they can exist in a mesh even if the user has selected, for example, a Hex Dominate Method. Hex type elements sometimes must degenerate to a pyramid or wedge shape in order to conform to the geometry.

Note that for the vast majority of cases, the interpolated results inside the pyramid-shaped element is correct.

Typical GUI Path(s):

Construction Geometry->Insert->Path
Construction Geometry->Insert ->Surface
Solution->Insert->Result Solution->Insert->Probe

Other Comments:

The user can determine if pyramids (or any other shape) exist by clicking on the Mesh object in the Model tree, expanding the Statistics detail, and then choosing Element Quality for Mesh Metric.

First Incorrect Version:

Release 12.0

Corrected In:

Release 15.0

Suggested User Action For Running on Uncorrected Version:

If the model contains poorly shaped elements, use a POST1 command object that employs POST1 paths and surfaces (created by PATH and SUCREATE commands).

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