Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/11/16

Stress Analysis Report

Analyzed File: Stage Assembly.iam
Autodesk Inventor Version: 2012 (Build 160160000, 160)
Creation Date: 10/29/2014, 12:47 PM
Simulation Author: crollins
Summary:

Project Info (iProperties)

Summary

Title
Subject

Project

Part Number Stage Assembly
Designer crollins
Date Created 10/29/2014

Status

Design Status WorkInProgress

Physical

Mass 151.31 lbmass
Area 17254.3 in^2
Volume 4188.26 in^3
Center of Gravity
x=2.48329 in
y=24 in
z=47.9902 in
Note: Physical values could be different from Physical values used by FEA reported below.

Simulation:1

General objective and settings:
Design Objective Single Point
Simulation Type Static Analysis
Last Modification Date 10/29/2014, 12:44 PM
Detect and Eliminate Rigid Body Modes No
Separate Stresses Across Contact Surfaces No
Motion Loads Analysis No
Advanced settings:

Avg. Element Size (fraction of model diameter) 0.1
Min. Element Size (fraction of avg. size) 0.2
Grading Factor 1.5
Max. Turn Angle 60 deg
Create Curved Mesh Elements No
Use part based measure for Assembly mesh Yes

Material(s)

Name Aluminum-6061
General
Mass Density 0.097905 lbmass/in^3
Yield Strength 39912.9 psi
Ultimate Tensile Strength 44992.7 psi

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Stress
Young's Modulus 10000 ksi
Poisson's Ratio 0.33 ul
Shear Modulus 3759.4 ksi
Stress Thermal
Expansion Coefficient 0.00004248 ul/f
Thermal Conductivity 312.765 btu/(ft hr f)
Specific Heat 0.972467 btu/(lbmass f)
Part Name(s)
96 in Angle.ipt
96 in Angle.ipt
48 in Angle.ipt
48 in Angle.ipt
Rect Tube.ipt
Rect Tube.ipt
Rect Tube.ipt
Vertical Pipe Leg.ipt
Vertical Pipe Leg.ipt
Vertical Pipe Leg.ipt
Vertical Pipe Leg.ipt
Name Wood (Oak)
General
Mass Density 0.0202313 lbmass/in^3
Yield Strength 6763.43 psi
Ultimate Tensile Strength 798.258 psi
Stress
Young's Modulus 1349.78 ksi
Poisson's Ratio 0.35 ul
Shear Modulus 499.919 ksi
Stress Thermal
Expansion Coefficient 0.00000882 ul/f
Thermal Conductivity 0.262199 btu/(ft hr f)
Specific Heat 0.929034 btu/(lbmass f)
Part Name(s) Stage Floor.ipt

Operating conditions

Pressure:1

Load Type Pressure
Magnitude 1.736 psi
Selected Face(s)