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|  | |  | | --- | | **Simulation of khung**  **Date: Friday, December 27, 2024 Designer: Solidworks**  **Study name: Static 1**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc186226120)  [Assumptions 2](#_Toc186226121)  [Model Information 3](#_Toc186226122)  [Study Properties 8](#_Toc186226123)  [Units 8](#_Toc186226124)  [Material Properties 9](#_Toc186226125)  [Loads and Fixtures 11](#_Toc186226126)  [Connector Definitions 11](#_Toc186226127)  [Contact Information 12](#_Toc186226128)  [Mesh information 12](#_Toc186226129)  [Sensor Details 12](#_Toc186226130)  [Resultant Forces 12](#_Toc186226131)  [Beams 13](#_Toc186226132)  [Study Results 19](#_Toc186226133)  [Conclusion 21](#_Toc186226134) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** khung**  ****Current Configuration:** Default<As Machined>** | | | | | ****Beam Bodies:**** | | | | | ****Document Name and Reference**** | ****Formulation**** | ****Properties**** | ****Document Path/Date Modified**** | | **SolidBody 1( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[8])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:780mm****  ****Volume:0.000134512m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.363182kg****  ****Weight:3.55919N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 2( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[6])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:780mm****  ****Volume:0.000134512m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.363182kg****  ****Weight:3.55919N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 3( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[16])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:190.4mm****  ****Volume:3.27842e-05m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.0885173kg****  ****Weight:0.86747N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 4( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[10])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,220.8mm****  ****Volume:0.000210205m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.567552kg****  ****Weight:5.56201N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 5( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[11])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,220.8mm****  ****Volume:0.000210205m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.567552kg****  ****Weight:5.56201N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 6( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[2])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,240mm****  ****Volume:0.00021351m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.576478kg****  ****Weight:5.64949N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 7( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[14])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:190.4mm****  ****Volume:3.27842e-05m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.0885173kg****  ****Weight:0.86747N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 8( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[18])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:780mm****  ****Volume:0.000134305m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.362623kg****  ****Weight:3.55371N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 9( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[9])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,220.8mm****  ****Volume:0.000210205m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.567552kg****  ****Weight:5.56201N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 10( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[4])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,240mm****  ****Volume:0.00021351m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.576478kg****  ****Weight:5.64949N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 11( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[19])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:780mm****  ****Volume:0.000134305m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.362623kg****  ****Weight:3.55371N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 12( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[12])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,220.8mm****  ****Volume:0.000210205m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.567552kg****  ****Weight:5.56201N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 13( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[1])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,240mm****  ****Volume:0.00021351m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.576478kg****  ****Weight:5.64949N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 14( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[5])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,220.8mm****  ****Volume:0.000210203m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.567547kg****  ****Weight:5.56196N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 15( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[15])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:190.4mm****  ****Volume:3.27842e-05m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.0885173kg****  ****Weight:0.86747N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 16( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[7])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,220.8mm****  ****Volume:0.000210203m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.567547kg****  ****Weight:5.56196N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 17( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[17])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:780mm****  ****Volume:0.000134305m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.362623kg****  ****Weight:3.55371N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 18( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[3])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:1,240mm****  ****Volume:0.00021351m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.576478kg****  ****Weight:5.64949N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 19( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[20])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:780mm****  ****Volume:0.000134305m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.362623kg****  ****Weight:3.55371N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | | **SolidBody 20( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[13])** | **Beam – Uniform C/S** | ****Section Standard-Aluminum Frames25102020/SERI 5 (20,40)/20x20S5****  ****Section Area: 0.000172186m^2****  ****Length:190.4mm****  ****Volume:3.27842e-05m^3****  ****Mass Density:2,700kg/m^3****  ****Mass:0.0885173kg****  ****Weight:0.86747N**** | ****C:\Users\Asus\Desktop\chuongga\chuongga\khung.SLDPRT****  **Dec 23 21:09:03 2024** | |

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| Study Properties  |  |  | | --- | --- | | Study name | Static 1 | | Analysis type | Static | | Mesh type | Beam Mesh | | Solver type | Automatic | | Inplane Effect: | Off | | Soft Spring: | Off | | Inertial Relief: | Off | | Incompatible bonding options | Automatic | | Large displacement | Off | | Compute free body forces | On | | Result folder | SOLIDWORKS document (C:\Users\Asus\Desktop\chuongga\chuongga) | |

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| Units  |  |  | | --- | --- | | Unit system: | SI (MKS) | | Length/Displacement | mm | | Temperature | Kelvin | | Angular velocity | Rad/sec | | Pressure/Stress | N/m^2 | |

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| Material Properties  |  |  |  | | --- | --- | --- | | ****Model Reference**** | ****Properties**** | ****Components**** | |  | |  |  | | --- | --- | | ****Name:**** | **6061 Alloy** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Unknown** | | ****Yield strength:**** | **5.51485e+07 N/m^2** | | ****Tensile strength:**** | **1.24084e+08 N/m^2** | | ****Elastic modulus:**** | **6.9e+10 N/m^2** | | ****Poisson's ratio:**** | **0.33** | | ****Mass density:**** | **2,700 kg/m^3** | | ****Shear modulus:**** | **2.6e+10 N/m^2** | | ****Thermal expansion coefficient:**** | **2.4e-05 /Kelvin** | | **SolidBody 1( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[8])(khung),**  **SolidBody 2( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[6])(khung),**  **SolidBody 3( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[16])(khung),**  **SolidBody 4( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[10])(khung),**  **SolidBody 5( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[11])(khung),**  **SolidBody 6( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[2])(khung),**  **SolidBody 7( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[14])(khung),**  **SolidBody 8( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[18])(khung),**  **SolidBody 9( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[9])(khung),**  **SolidBody 10( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[4])(khung),**  **SolidBody 11( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[19])(khung),**  **SolidBody 12( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[12])(khung),**  **SolidBody 13( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[1])(khung),**  **SolidBody 14( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[5])(khung),**  **SolidBody 15( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[15])(khung),**  **SolidBody 16( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[7])(khung),**  **SolidBody 17( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[17])(khung),**  **SolidBody 18( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[3])(khung),**  **SolidBody 19( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[20])(khung),**  **SolidBody 20( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[13])(khung)** | | **Curve Data:N/A** | | | |

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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixed-1** |  | |  |  | | --- | --- | | Entities: | **20 Joint(s)** | | Type: | **Fixed Geometry** | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Force-1** |  | |  |  | | --- | --- | | Entities: | **4 Beam (s)** | | Reference: | **Edge< 1 >** | | Type: | **Apply force** | | Values: | **---, ---, -10 N** | | Moments: | **---, ---, --- N.m** | | | **Force-2** |  | |  |  | | --- | --- | | Entities: | **8 Beam (s)** | | Reference: | **Edge< 1 >** | | Type: | **Apply force** | | Values: | **---, ---, -30 N** | | Moments: | **---, ---, --- N.m** | | | **Force-3** |  | |  |  | | --- | --- | | Entities: | **4 Beam (s)** | | Reference: | **Edge< 1 >** | | Type: | **Apply force** | | Values: | **---, ---, -50 N** | | Moments: | **---, ---, --- N.m** | | | **Gravity-1** |  | |  |  | | --- | --- | | Reference: | **Top Plane** | | Values: | **0 0 -9.81** | | Units: | **m/s^2** | | |

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| Connector Definitions No Data |

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| Contact Information No Data |

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| Mesh information  |  |  | | --- | --- | | Mesh type | Beam Mesh |  Mesh information - Details  |  |  | | --- | --- | | Total Nodes | 534 | | Total Elements | 522 | | Time to complete mesh(hh;mm;ss): | 00:00:02 | | Computer name: |  | |

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| Sensor Details No Data |

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| Resultant ForcesReaction forces  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N | -3.52429e-12 | 562.219 | -7.16227e-12 | 562.219 |  Reaction Moments  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N.m | 1.66893e-06 | -1.36078e-06 | 1.00662e-06 | 2.37704e-06 | |
| Free body forces  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N | 0 | 0 | 0 | 0 |  Free body moments  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N.m | 0 | 0 | 0 | 0 | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BeamsBeam Forces  | Beam Name | Joints | Axial(N) | Shear1(N) | Shear2(N) | Moment1(N.m) | Moment2(N.m) | Torque(N.m) | | --- | --- | --- | --- | --- | --- | --- | --- | | Beam-1( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[8]) | 1 | -1.77085e-16 | -9.06675e-16 | 6.88757 | -0.918342 | -1.2089e-16 | 3.66772e-23 | | 2 | -1.77085e-16 | -9.06675e-16 | 6.88757 | 0.918342 | 1.2089e-16 | -3.81442e-23 | | Beam-2( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[6]) | 1 | 1.74871e-16 | -6.82428 | 8.95341e-16 | -1.19379e-16 | -0.909903 | 0 | | 2 | 1.74871e-16 | -6.82428 | 8.95341e-16 | 1.19379e-16 | 0.909903 | 0 | | Beam-3( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[16]) | 1 | -6.31308e-08 | -1.26216e-18 | -1.06341e-13 | 1.22094e-15 | -2.83555e-21 | -4.73604e-31 | | 2 | 30.9121 | -4.53032e-10 | -5.52753e-05 | -6.14169e-07 | 5.03368e-12 | -1.05574e-23 | | Beam-4( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[10]) | 1 | 0.000216503 | -2.09023e-15 | 27.8276 | -5.75104 | -3.92446e-08 | 4.56072e-22 | | 2 | -0.000216503 | 3.87871e-15 | 27.8276 | 5.75104 | 3.92446e-08 | -2.81416e-22 | | Beam-5( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[11]) | 1 | -0.000216503 | 3.88184e-15 | 27.8276 | 5.75104 | 3.924e-08 | 9.21475e-08 | | 2 | 0.000216503 | -2.0802e-15 | 27.8276 | -5.75104 | -3.924e-08 | 9.21475e-08 | | Beam-6( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[2]) | 1 | 0.79812 | -9.93364e-24 | 0 | 0 | -1.53932e-25 | 0 | | 2 | 1.00335 | 1.233e-23 | -9.86403e-23 | -1.14358e-24 | -1.42944e-25 | 0 | | 3 | 0.79812 | 9.93364e-24 | 0 | 0 | -1.53932e-25 | 0 | | 4 | 1.02615 | 1.23306e-23 | -9.86449e-23 | -1.17058e-24 | -1.4632e-25 | 0 | | Beam-7( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[14]) | 1 | -6.31308e-08 | -1.7651e-24 | 1.46579e-23 | 1.41025e-26 | -1.67768e-26 | 0 | | 2 | 30.9121 | 1.0912e-15 | 5.37205e-15 | 5.37205e-16 | -1.0912e-16 | 0 | | Beam-8( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[18]) | 1 | -5.45599e-16 | -2.68602e-15 | 16.8243 | -2.24324 | -3.58136e-16 | 8.95916e-23 | | 2 | -5.45599e-16 | -2.68602e-15 | 16.8243 | 2.24324 | 3.58136e-16 | -9.31749e-23 | | Beam-9( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[9]) | 1 | -1.53871e-06 | -5.52206e-06 | 6.35469 | 0.390569 | 1.66734e-07 | -2.84458e-14 | | 2 | 1.43929e-05 | -0.00023052 | 7.33233 | -0.623248 | -1.98611e-05 | -5.58873e-13 | | 3 | -1.43929e-05 | -5.93324e-05 | 7.33233 | 0.623248 | 5.08344e-06 | -7.04428e-14 | | 4 | -4.76553e-16 | 9.67998e-17 | 3.16297 | 0.115975 | -3.54932e-18 | -5.44744e-25 | | Beam-10( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[4]) | 1 | 0.79812 | 0 | 0 | 0 | 0 | 0 | | 2 | 1.00335 | -1.77699e-06 | -3.55387e-06 | -4.12014e-08 | 2.0601e-08 | -1.5734e-17 | | 3 | 0.79812 | 0 | 0 | 0 | 0 | 0 | | 4 | 1.02615 | -1.77698e-06 | -3.55408e-06 | -4.21749e-08 | 2.10863e-08 | -1.57168e-17 | | Beam-11( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[19]) | 1 | 0.000154913 | -6.53009e-14 | 26.8243 | -3.57657 | -4.70573e-08 | 1.43147e-21 | | 2 | -0.000154913 | 5.63506e-14 | 26.8243 | 3.57657 | 4.70573e-08 | -1.29185e-21 | | Beam-12( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[12]) | 1 | -1.26789e-05 | 5.14208e-05 | -6.35468 | 0.390569 | 3.20058e-06 | -8.0124e-07 | | 2 | 1.43928e-05 | -0.000230512 | 7.33233 | -0.623248 | -1.98605e-05 | 8.01241e-07 | | 3 | -1.43928e-05 | -5.93319e-05 | 7.33233 | 0.623248 | 5.0834e-06 | 8.01244e-07 | | 4 | -1.43928e-05 | 0.000111857 | 7.33233 | 0.623248 | -9.69444e-06 | 8.01244e-07 | | Beam-13( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[1]) | 1 | 0.79812 | 0 | 2.8114e-17 | -1.63998e-18 | 0 | 0 | | 2 | 1.00335 | -3.55389e-06 | 3.53429e-17 | 2.59183e-18 | 4.12007e-08 | 7.8323e-24 | | 3 | 0.79812 | 0 | 2.81137e-17 | 1.63997e-18 | 0 | 0 | | 4 | 1.02615 | -3.55405e-06 | 3.61461e-17 | 2.71098e-18 | 4.21736e-08 | 8.01032e-24 | | Beam-14( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[5]) | 1 | 8.95341e-16 | -7.82763 | -1.74871e-16 | -3.61399e-17 | 1.61771 | 1.41476e-23 | | 2 | 8.95341e-16 | -7.82763 | -1.74866e-16 | 3.6139e-17 | -1.61771 | 8.95307e-23 | | Beam-15( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[15]) | 1 | -6.31308e-08 | 5.89224e-19 | -1.06341e-13 | 1.22094e-15 | 8.65439e-21 | -4.75452e-31 | | 2 | 30.9121 | -4.53031e-10 | -5.52753e-05 | -6.14169e-07 | 5.03357e-12 | -1.73441e-22 | | Beam-16( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[7]) | 1 | -8.9534e-16 | 1.74871e-16 | 7.82763 | -1.61771 | 3.61401e-17 | 2.59202e-08 | | 2 | -8.95343e-16 | 1.74871e-16 | 7.82763 | 1.61771 | -3.61401e-17 | 2.59201e-08 | | Beam-17( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[17]) | 1 | -5.45599e-16 | -2.68602e-15 | 16.8243 | -2.24324 | -3.58136e-16 | 0 | | 2 | -5.45599e-16 | -2.68602e-15 | 16.8243 | 2.24324 | 3.58136e-16 | 0 | | Beam-18( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[3]) | 1 | 1.00335 | -1.23695e-11 | 1.77695e-06 | 2.0601e-08 | 1.44378e-13 | -1.73924e-21 | | 2 | 0.79812 | 0 | 0 | 0 | 0 | 0 | | 3 | 0.79812 | 0 | 0 | 0 | 0 | 0 | | 4 | 1.02615 | 1.20861e-11 | 1.77703e-06 | 2.10874e-08 | -1.4387e-13 | 7.42031e-22 | | Beam-19( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[20]) | 1 | 0.000154913 | -6.53028e-14 | 26.8243 | -3.57657 | -4.70573e-08 | 1.28866e-21 | | 2 | -0.000154913 | 5.63483e-14 | 26.8243 | 3.57657 | 4.70573e-08 | -1.14322e-21 | | Beam-20( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[13]) | 1 | -6.31308e-08 | -1.09512e-26 | 1.4658e-23 | 1.4102e-26 | -4.19713e-28 | 0 | | 2 | 30.9121 | 6.5954e-17 | 5.37205e-15 | 5.37205e-16 | -6.59552e-18 | 0 |  Beam Stresses  | Beam Name | Joints | Axial(N/m^2) | Bending Dir1(N/m^2) | Bending Dir2(N/m^2) | Torsional (N/m^2) | Upper bound axial and bending(N/m^2) | | --- | --- | --- | --- | --- | --- | --- | | Beam-1( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[8]) | 1 | 1.02845e-12 | 1.37234e+06 | -1.73377e-10 | -6.5743e-16 | 1.37234e+06 | | 2 | -1.02845e-12 | 1.37234e+06 | -1.73377e-10 | -6.83725e-16 | 1.37234e+06 | | Beam-2( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[6]) | 1 | -1.0156e-12 | 1.78395e-10 | -1.30496e+06 | 0 | 1.30496e+06 | | 2 | 1.0156e-12 | 1.78395e-10 | -1.30496e+06 | 0 | 1.30496e+06 | | Beam-3( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[16]) | 1 | 0.000366643 | -1.82452e-09 | -4.06667e-15 | 8.48729e-24 | 0.000366645 | | 2 | 179,528 | -0.917792 | -7.21917e-06 | -1.89195e-16 | 179,529 | | Beam-4( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[10]) | 1 | -1.25738 | 8.59415e+06 | -0.0562835 | -8.17308e-15 | 8.59415e+06 | | 2 | -1.25738 | 8.59415e+06 | -0.0562835 | -5.04314e-15 | 8.59415e+06 | | Beam-5( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[11]) | 1 | -1.25738 | 8.59415e+06 | -0.0562769 | 1.65134 | 8.59415e+06 | | 2 | -1.25738 | 8.59415e+06 | -0.0562769 | -1.65134 | 8.59415e+06 | | Beam-6( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[2]) | 1 | -4,635.23 | 0 | -2.20765e-19 | 0 | 4,635.23 | | 2 | 5,827.14 | -1.70892e-18 | 2.05007e-19 | 0 | 5,827.14 | | 3 | 4,635.23 | 0 | 2.20765e-19 | 0 | 4,635.23 | | 4 | 5,959.58 | -1.74927e-18 | 2.09848e-19 | 0 | 5,959.58 | | Beam-7( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[14]) | 1 | 0.000366643 | -2.10742e-20 | -2.40609e-20 | 0 | 0.000366643 | | 2 | 179,528 | 8.02779e-10 | 1.56496e-10 | 0 | 179,528 | | Beam-8( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[18]) | 1 | 3.16866e-12 | 3.35221e+06 | -5.13629e-10 | -1.60553e-15 | 3.35221e+06 | | 2 | -3.16866e-12 | 3.35221e+06 | -5.13629e-10 | -1.66975e-15 | 3.35221e+06 | | Beam-9( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[9]) | 1 | -0.00893632 | 583,652 | -0.239126 | -5.09766e-07 | 583,652 | | 2 | -0.083589 | 931,359 | -28.4843 | 1.00153e-05 | 931,388 | | 3 | -0.0835892 | 931,359 | -7.29053 | -1.26238e-06 | 931,366 | | 4 | -2.76766e-12 | 173,309 | 5.09034e-12 | -9.76213e-18 | 173,309 | | Beam-10( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[4]) | 1 | -4,635.23 | 0 | 0 | 0 | 4,635.23 | | 2 | 5,827.14 | -0.0615699 | -0.0295455 | -2.81964e-10 | 5,827.23 | | 3 | 4,635.23 | 0 | 0 | 0 | 4,635.23 | | 4 | 5,959.58 | -0.0630246 | -0.0302414 | -2.81655e-10 | 5,959.67 | | Beam-11( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[19]) | 1 | -0.899684 | 5.3447e+06 | -0.0674883 | -2.56527e-14 | 5.3447e+06 | | 2 | -0.899684 | 5.3447e+06 | -0.0674882 | -2.31508e-14 | 5.3447e+06 | | Beam-12( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[12]) | 1 | -0.073635 | 583,651 | -4.59019 | -14.3587 | 583,656 | | 2 | -0.0835889 | 931,359 | -28.4834 | -14.3587 | 931,388 | | 3 | -0.083589 | 931,359 | -7.29047 | 14.3588 | 931,366 | | 4 | -0.083589 | 931,359 | 13.9035 | 14.3588 | 931,373 | | Beam-13( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[1]) | 1 | -4,635.23 | 2.45072e-12 | 0 | 0 | 4,635.23 | | 2 | 5,827.14 | 3.87313e-12 | -0.059089 | 1.40355e-16 | 5,827.2 | | 3 | 4,635.23 | 2.45071e-12 | 0 | 0 | 4,635.23 | | 4 | 5,959.58 | 4.05119e-12 | -0.0604842 | 1.43545e-16 | 5,959.64 | | Beam-14( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[5]) | 1 | 5.19985e-12 | -5.40062e-11 | -2.32007e+06 | 2.53524e-16 | 2.32007e+06 | | 2 | -5.19985e-12 | -5.40048e-11 | -2.32007e+06 | -1.60439e-15 | 2.32007e+06 | | Beam-15( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[15]) | 1 | 0.000366643 | -1.82452e-09 | 1.24119e-14 | 8.52041e-24 | 0.000366645 | | 2 | 179,528 | -0.917792 | -7.21901e-06 | -3.10818e-15 | 179,529 | | Beam-16( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[7]) | 1 | 5.19984e-12 | 2.41745e+06 | 5.18311e-11 | -0.464602 | 2.41745e+06 | | 2 | -5.19986e-12 | 2.41745e+06 | 5.18311e-11 | 0.464602 | 2.41745e+06 | | Beam-17( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[17]) | 1 | 3.16866e-12 | 3.35221e+06 | -5.13629e-10 | 0 | 3.35221e+06 | | 2 | -3.16866e-12 | 3.35221e+06 | -5.13629e-10 | 0 | 3.35221e+06 | | Beam-18( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[3]) | 1 | 5,827.14 | 0.0307853 | -2.07063e-07 | -3.11671e-14 | 5,827.17 | | 2 | -4,635.23 | 0 | 0 | 0 | 4,635.23 | | 3 | 4,635.23 | 0 | 0 | 0 | 4,635.23 | | 4 | 5,959.58 | 0.0315122 | 2.06334e-07 | 1.32972e-14 | 5,959.61 | | Beam-19( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[20]) | 1 | -0.899684 | 5.3447e+06 | -0.0674883 | -2.30936e-14 | 5.3447e+06 | | 2 | -0.899684 | 5.3447e+06 | -0.0674882 | -2.04871e-14 | 5.3447e+06 | | Beam-20( C:\THUVIENSOLIDWORKS\ALUMINUM FRAMES25102020\SERI 5 (20,40)\20X20S5 - IS MISSING(1)[13]) | 1 | 0.000366643 | -2.10735e-20 | -6.0194e-22 | 0 | 0.000366643 | | 2 | 179,528 | 8.02779e-10 | 9.45912e-12 | 3.89062e-31 | 179,528 | |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress1 | Upper bound axial and bending | 4.482e+02N/m^2  Element: 154 | 8.594e+06N/m^2  Element: 53 | | **khung-Static 1-Stress-Stress1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement1 | URES: Resultant Displacement | 0.000e+00mm  Node: 1 | 6.304e-01mm  Node: 74 | | **khung-Static 1-Displacement-Displacement1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Factor of Safety1 | Automatic | 6.417e+00  Node: 56 | 5.949e+04  Node: 135 | | **khung-Static 1-Factor of Safety-Factor of Safety1** | | | | |

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| Conclusion |