DIANA Workflow

Gerd-Jan Schreppers

DOV lezingenavond 7 juni 2018

DIANA FEA

Missie DIANA FEA BV:

“Stimuleren van geavanceerd rekenen in de ingenieurspraktijk”

Engineering:

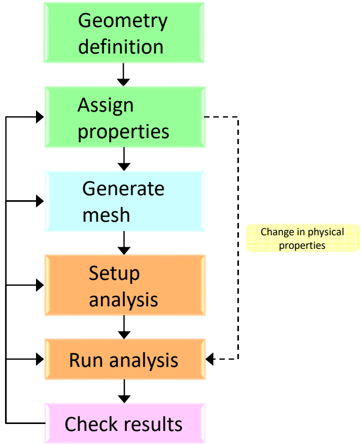
- Ontwerpcodes / regels
- Kennis van constructie / materialen / gebruik / ……
- Veranderende voorwaarden
- Duurzaamheid en milieu
- Kost bewust

DIANA User-interface over de jaren

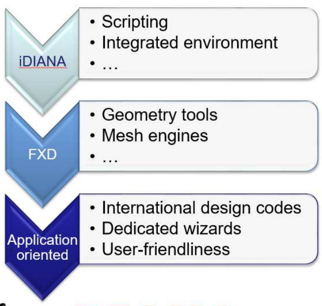
- Batch interface (dat en dcf files)
- Externe pre-post processors (iDEAS, FemAP, FemGV)
- iDIANA
- FX4D
- DianaIE

DIANA Interactive Environment

Workflow(s):



DIANA Background & Development direction



DIANA 10

DIANA gebruikers in de loop der jaren

	2010	2020
Universiteiten	Voornamelijk phD’s	Gebruik in MSc classes
Ingenieursburo’s	Enkele specialist	Dedicated teams
Kleine specialist	-	In opkomst
Grote bouw en productie bedrijven	-	Voor optimalisatie van productie en advies
Onderzoekers		

Modellen

- 1D → 2D → 3D →…
- Van gereduceerde geometrieen naar werkelijke geometrieen
- Van homogene componenten naar hybride/composiet componenten
- Van generiek naar toepassingsgericht
- Toetsen van geavanceerd model aan ontwerpcodes

DIANA Workflow

- BIM
- Geometry definition
- Assign properties
- Generate mesh
- Setup analysis
- Run analysis
- Check results
- Code checking
- Make report

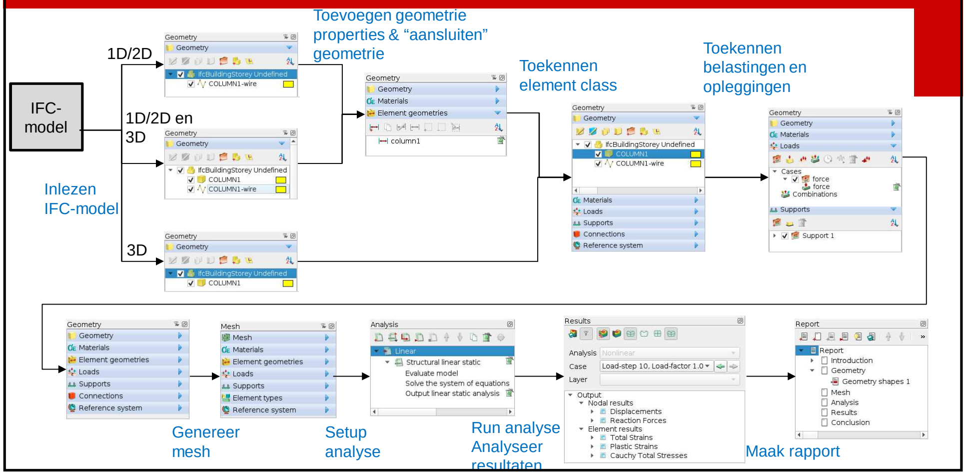
DIANA Workflow

Chantal Frissen

DOV lezingenavond 7 juni 2018

DIANA FEA

Workflow



Workflow voorbeeld

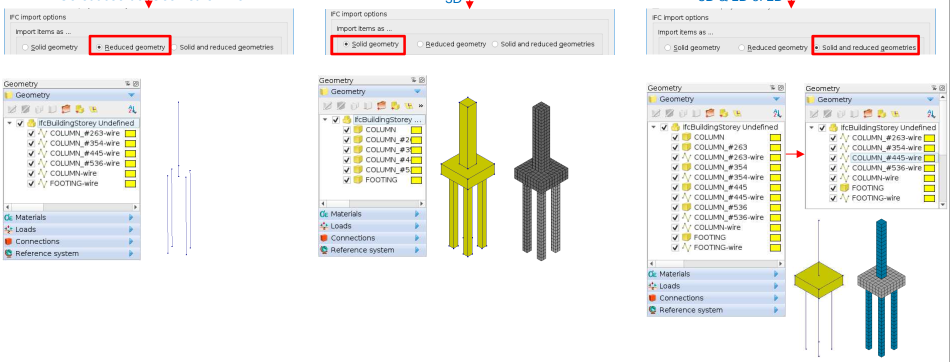
IFC-model

Importeren IFC in DianaIE: File Menu => Import model

Gereduceerde Geometrie:1D of 2D

3D

3D & 1D of 2D



Workflow voorbeeld

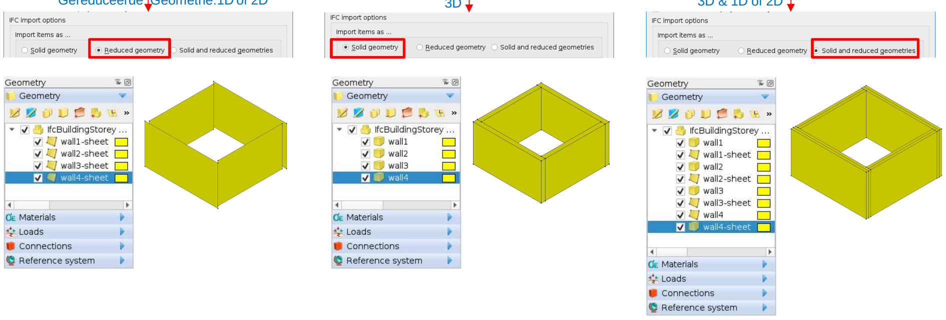
IFC-model

Importeren IFC in DianaIE

Gereduceerde Geometrie:1D of 2D

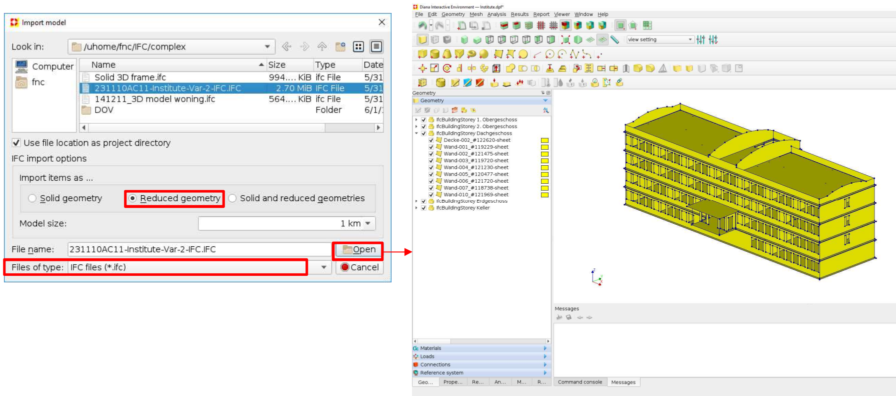
3D

3D & 1D of 2D

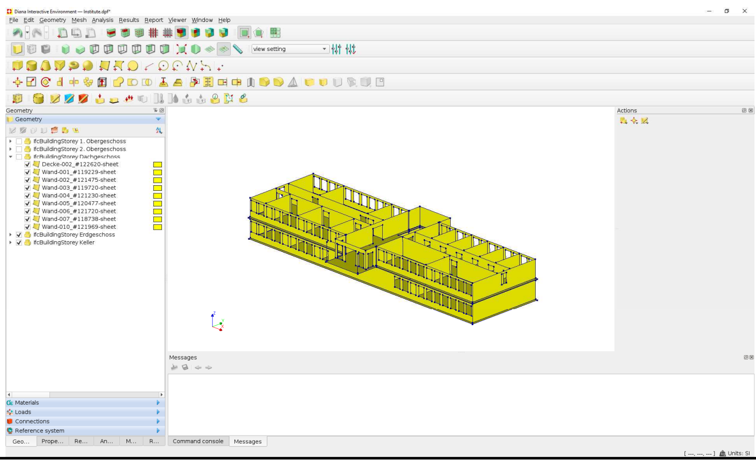


Demo: IFC als Reduced Geometry

Inlezen IFC-model in DianaIE: File Menu => Import model …

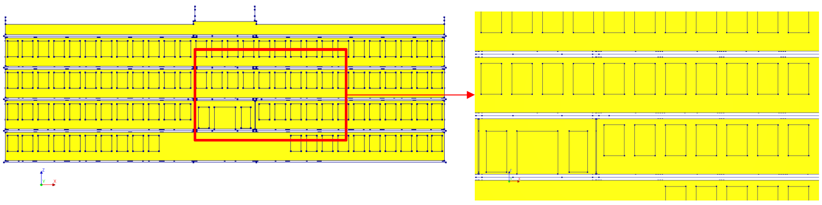


Detail Geometrie



Aanpassen Geometrie

Vloeren en muren sluiten niet aan

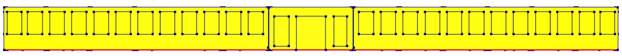


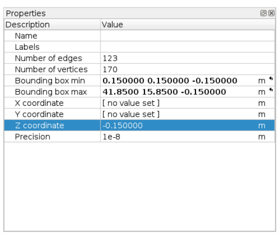
Vooraanzicht

Vooraanzicht - Detail

Aansluiten muren op vloeren

- Selecteer alle lijnen of knopen onderkant muren 
- Pas de Z-coordinate aan in de property panel

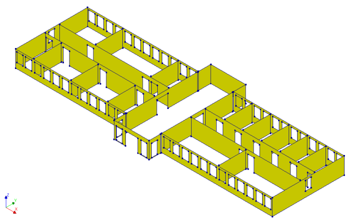


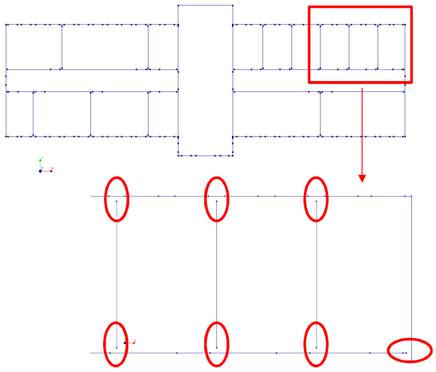


Properties

Description	Value	
Name		
Labels		
Number of edges	123	
Number of vertices	170	
Bounding box min	0.150000 0.150000 -0.150000	m
Bounding box max	41.8500 15.8500 -0.150000	m
X coordinate	[no value set]	m
Y coordinate	[no value set]	m
Z coordinate	-0.150000	m
Precision	1e-8	m

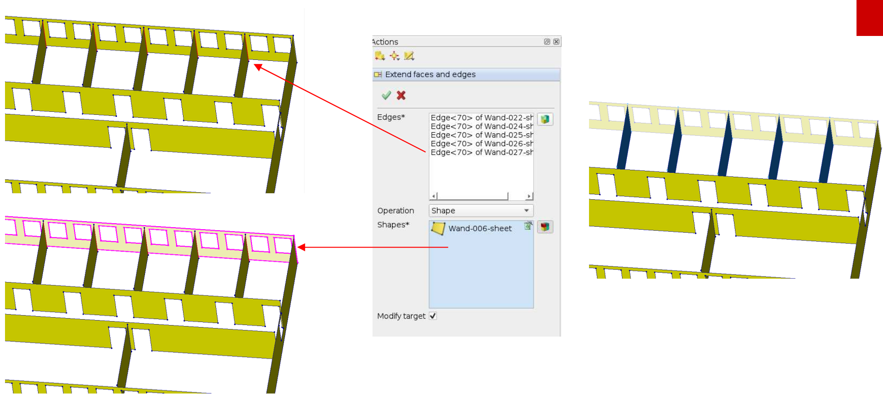
Binnen- en buitenmuren sluiten niet aan





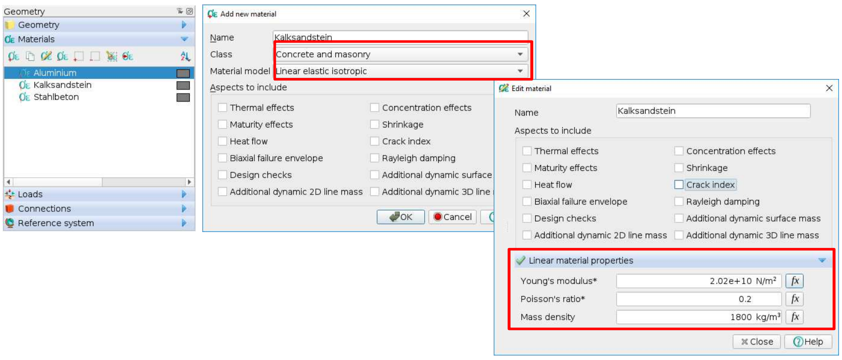
Doortrekken binnenmuren

Extend faces and edges



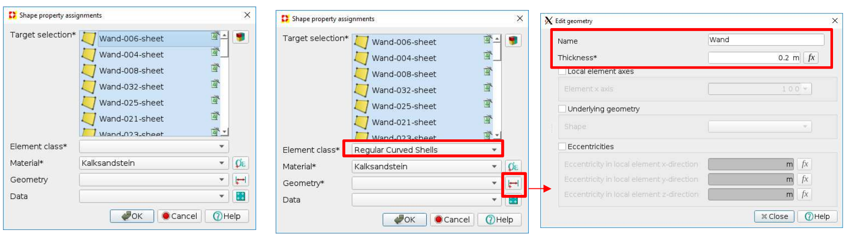
Materialen

Materialen zijn aangemaakt en overgenomen uit IFC maar hebben nog geen eigenschappen



Geometrie eigenschappen

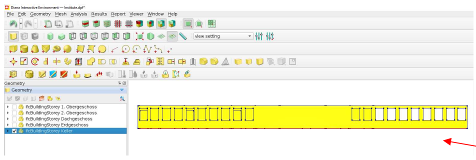
Geometrie eigenschappen zijn voor de gereduceerde import IFC niet aangemaakt.
Geometry aanmaken via Property assignments

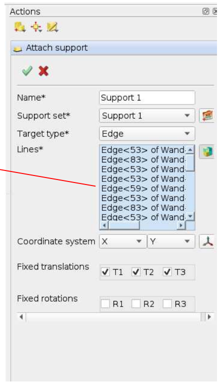


Na inlezen IFC zijn aan shapes al materialen toegekend.
Eerst keuze element class, dan Geometry

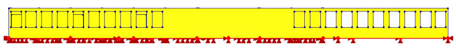
Opleggingen

Opleggingen toekennen aan de shapes





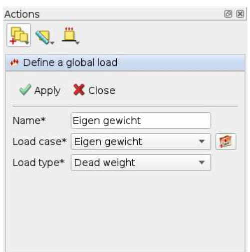
Opleggingen onderkant Kelder

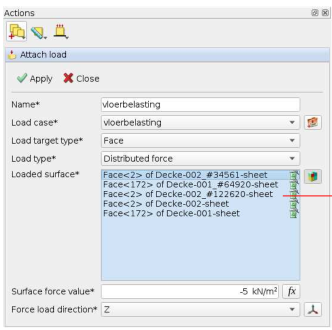


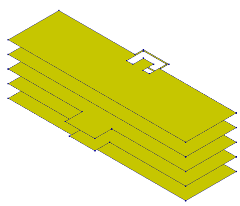
Belastingen

Eigen gewicht

Vloerbelasting

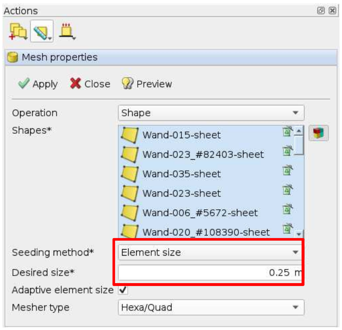






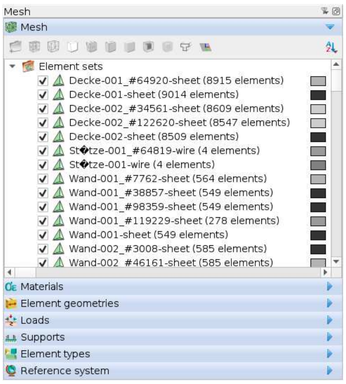
Mesh eigenschappen

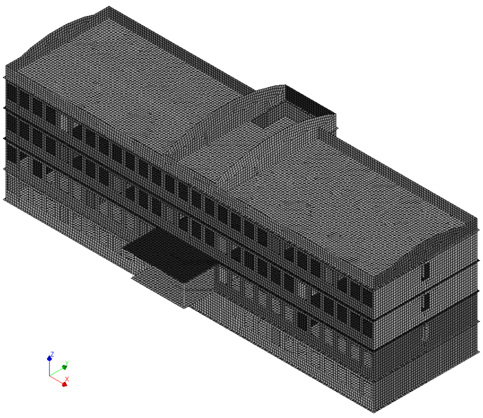
Elementgrootte toekennen aan shapes



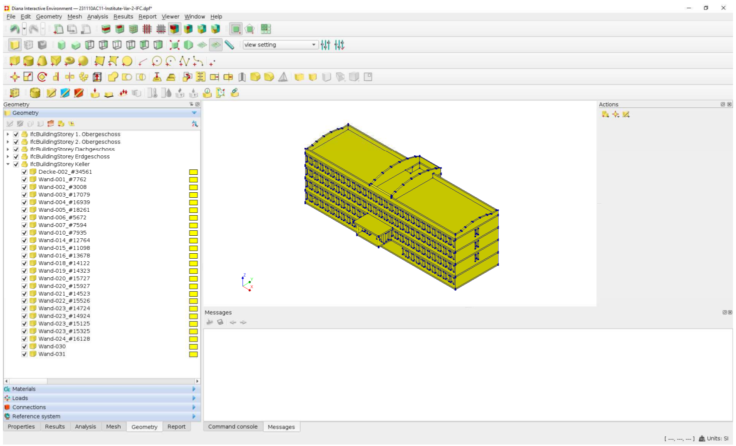
Mesh

Genereer Mesh

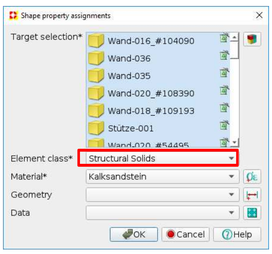


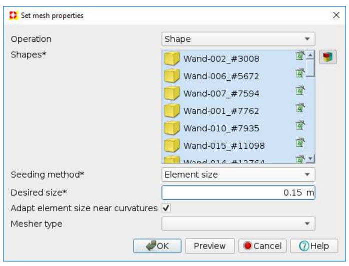


IFC inlezen als Solids



Element type & Mesh properties





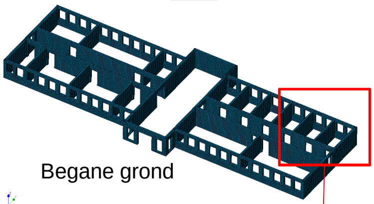
Element type

Elementgrootte

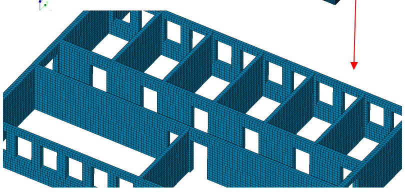
Material groepen zijn al toegekend aan shapes maar hebben nog geen material eigenschappen (hetzelfde als bij schaal elementen, zie sheet 11)
Geometry voor solids is niet nodig

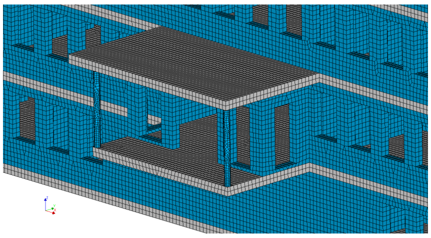
Mesh

Genereer Mesh

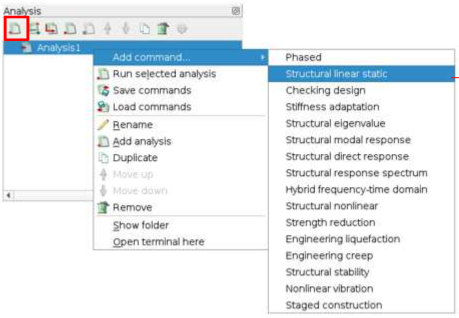


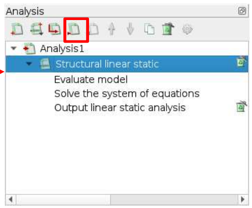
Begane grond





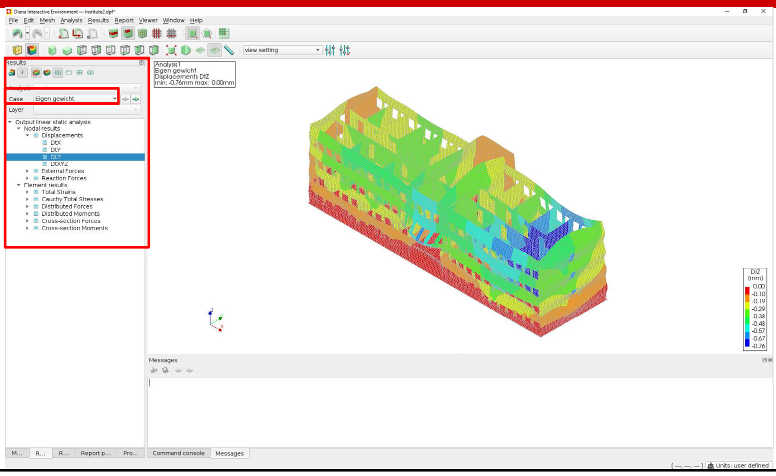
Analyse set up & Run Analyse



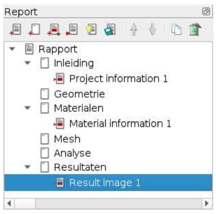


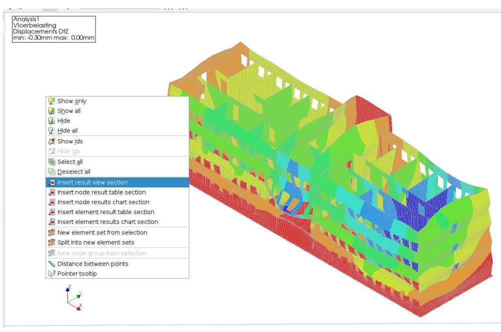
Run analyse

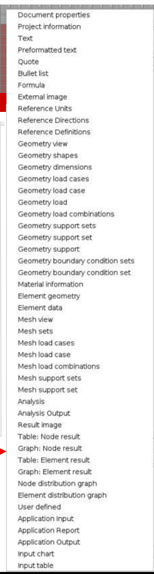
Resultaten



Rapport genereren







Voeg een rapport toe

Voeg een hoofdstuk toe

Voeg een paragraaf toe

Genereer rapport

Bekijk rapport

Rapport

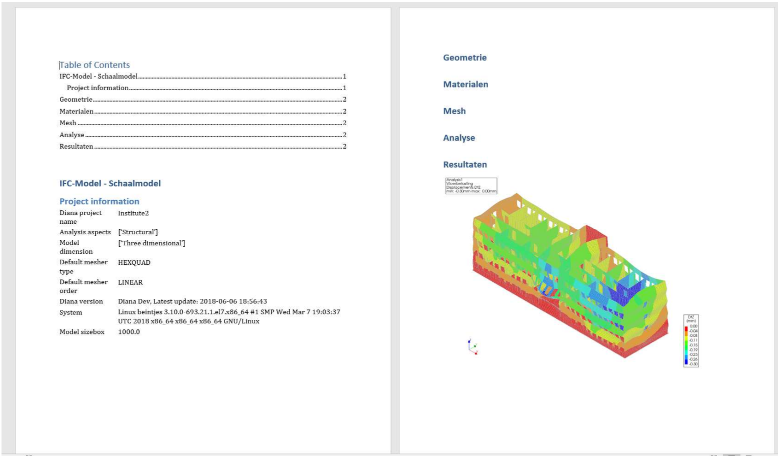


Table of Contents

IFC-Model - Schaalmodel

Project information

Diana project name	Institute2
Analysis aspects	['Structural']
Model dimension	['Three dimensional']
Default mesher type	HEXQUAD
Default mesher order	LINEAR
Diana version	Diana Dev, Latest update: 2018-06-06 18:56:43
System	Linux beintjes 3.10.0-693.21.1.el7.x86_64 #1 SMP Wed Mar 7 19:03:37 UTC 2018 x86_64 x86_64 x86_64 GNU/Linux
Model sizebox	1000.0

Geometrie

Materialen

Mesh

Analyse

Resultaten

Vragen?

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