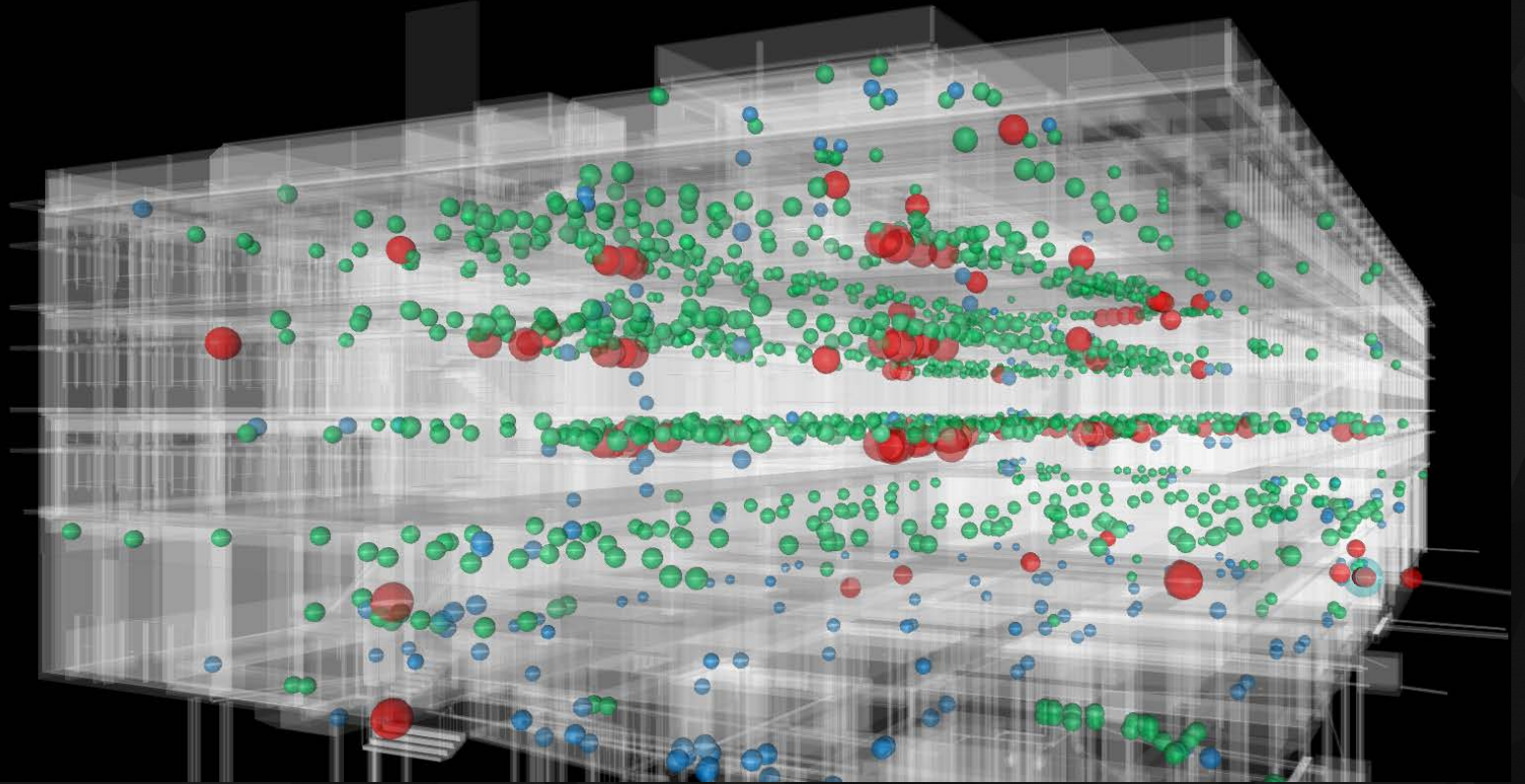




Advanced
Construction
Information
Development Ltd.

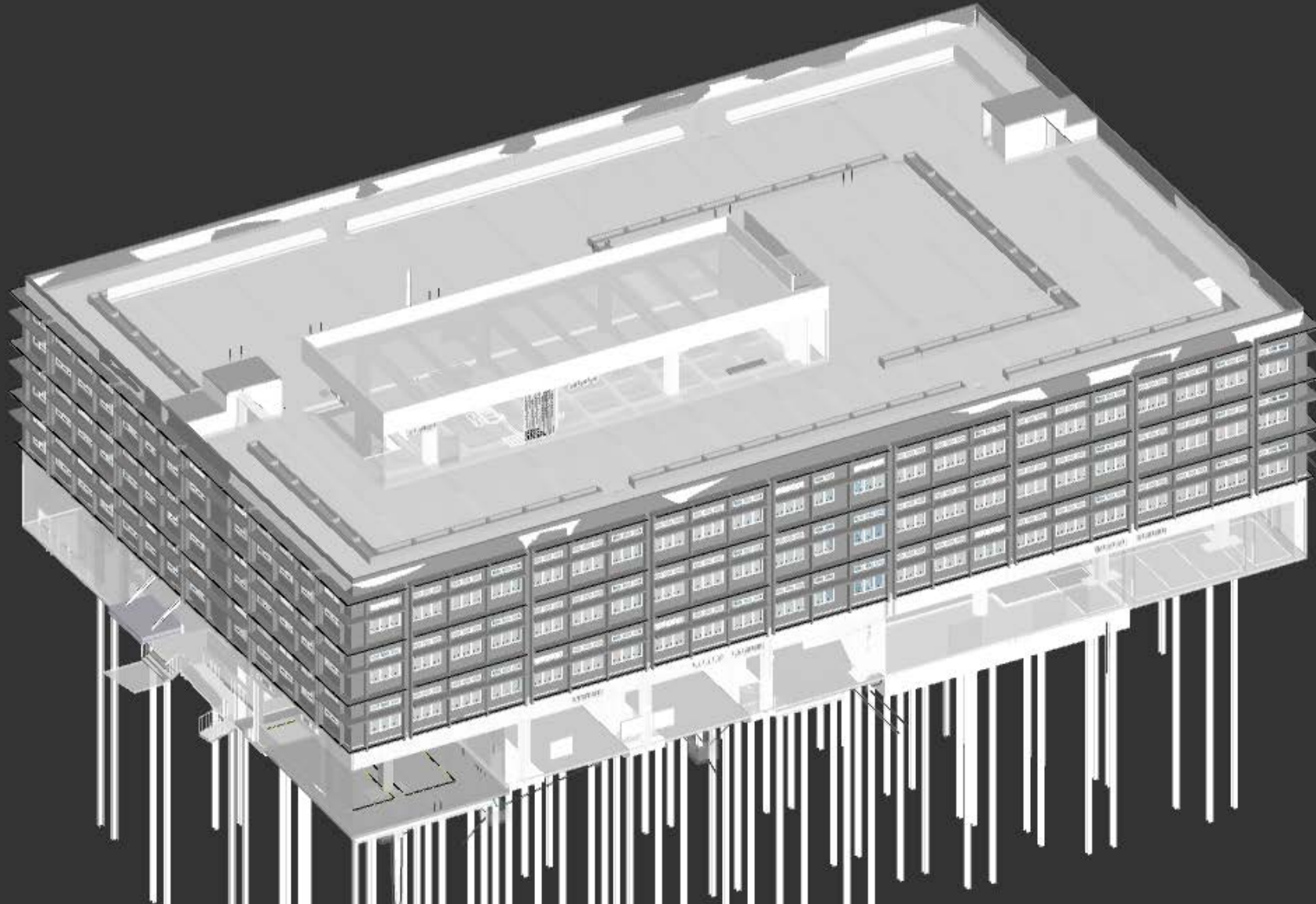


CLASH RANKING TOOLS

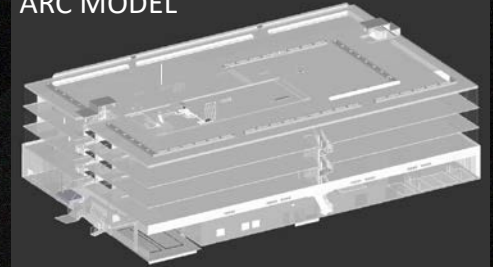
ADD IN TOOLS BASE ON NAVISWORKS

PRE-TENDER STAGE CLASH ANALYSIS

FEDERATED MODEL



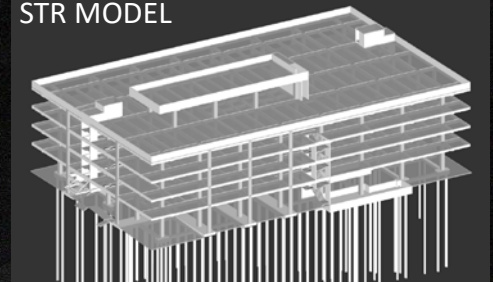
ARC MODEL



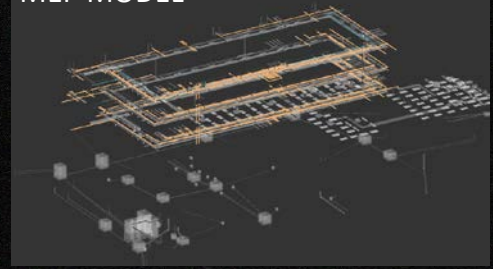
FAÇADE MODEL



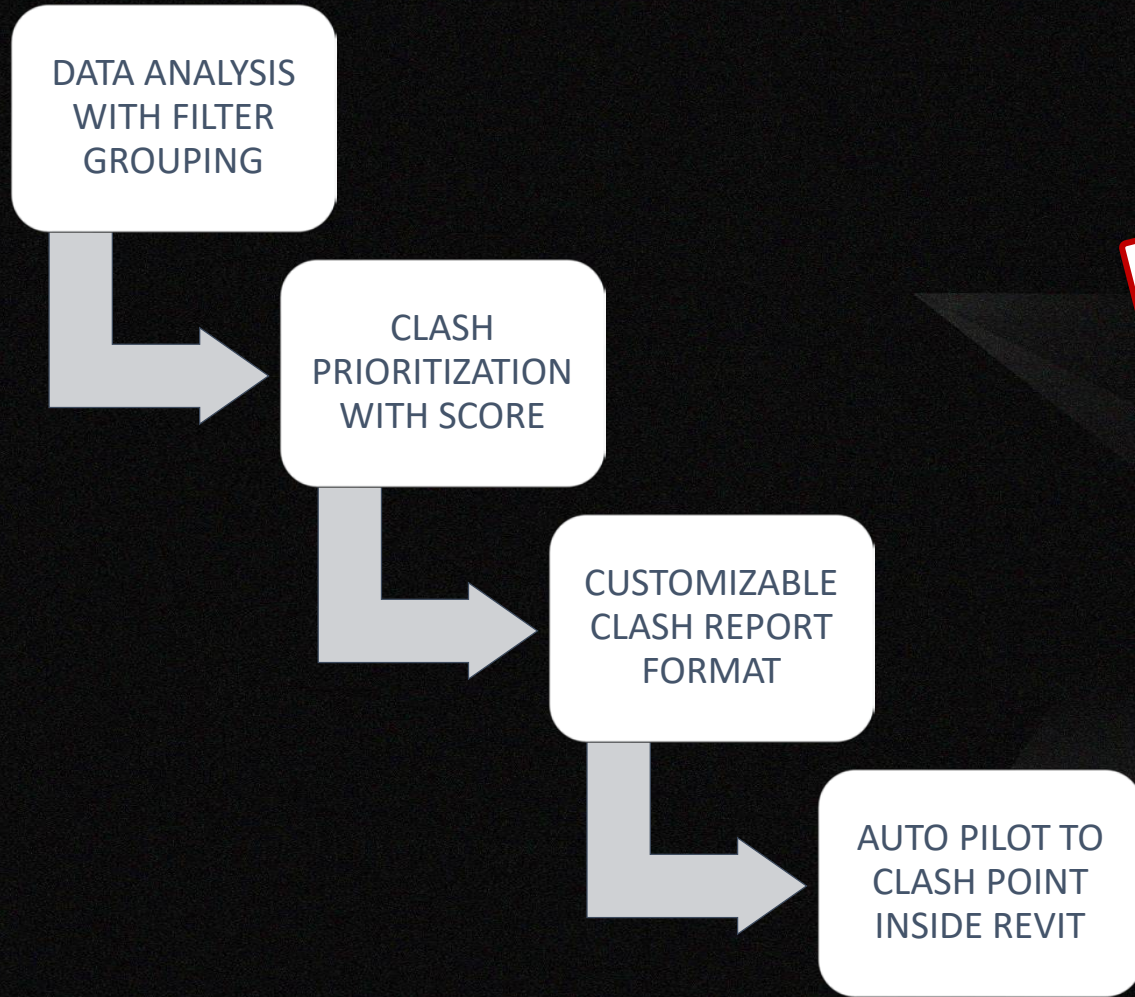
STR MODEL



MEP MODEL



CLASH TOOLS ADD IN TO IMPROVE CLASH ANALYSIS



**DATA
VISUALIZATION**

NORMAL NAVISWORKS CLASH ANALYSIS

NORMAL NAVISWORKS INTERFACE

Autodesk Navisworks Manage 2018 (STUDENT VERSION) COMBINED MODEL 20180503.nwd

Home Viewpoint Review Animation View Output BIM 360 Render

Append Refresh Select Save Selection Select All Select Same Selection Tree Find Items Quick Find Sets

Project Select & Search Visibility Display Tools

Clash Detective

STR VS MEP Last Run: Tuesday, May 22, 2018 10:35:35 PM Clashes - Total: 257 (Open: 257 Closed: 0)

Name	Status	Clashes	New	Active	Reviewed	Approved	Resolved
13-17 STAIRCASE VS CABLE TRAY	Old	0	0	0	0	0	0
ARC vs MEP	New	0	0	0	0	0	0
ARC vs STR	Done	1541	1541	0	0	0	0
STR VS MEP	Done	257	257	0	0	0	0
10-20 STR FOUNDATION VS CHN	Old	1	1	0	0	0	0

Add Test Reset All Compact All Delete All Update All

Rules Select Results Report

New Group Assign

Name	Status	Level	Grid Intersection	Found
Clash1	New	G/F	T07(-1)-TF	22:35:35
Clash2	New	G/F	T02(-1)-TE(3)	22:35:35
Clash3	New	1/F (3)	T06-TE	22:35:35
Clash4	New	G/F	T07-TE	22:35:35
Clash5	New	1/F (3)	T06(-3)-TE	22:35:35
Clash6	New	G/F	T06(3)-TB(2)	22:35:35
Clash7	New	G/F	T02(3)-TD(2)	22:35:35
Clash8	New	G/F	T03(2)-TC(-2)	22:35:35
Clash9	New	G/F	T03-TC(1)	22:35:35

Highlighting Item 1 Item 2 Use item colors Highlight all clashes

Isolation Dim Other Hide Other Transparent dimming Auto reveal

Viewpoint Auto-update

T00(-15)-TF(-56) : G/F (34)

1 of 1

CLASH ANALYSIS TOOLS ADD-IN CLASH RANKING

LOAD CLASHES FROM WITH NAVISWORKS

Autodesk Navisworks Manage 2018 (STUDENT VERSION) COMBINED MODEL 20180503.nwd

Home Viewpoint Review Animation View Output BIM 360 Render

Append Refresh Select Save Selection Select All Select Same Selection Tree Find Items Quick Find

Project Select & Search Visibility Display Tools

Clash TimeLiner Quantification Autodesk Rendering Appearance Profiler DataTools App Manager

Clash Detective Animator Scripter Batch Utility Compare

Algoix Clash Ranking

Load Priorization Clash Ball Version 0.4

View About

Drag a column header here to group by that column

Gr...	Test Name	Clash Name	Status	Descri...	Item1	Category Name1	Catego...	Score1	Item2	Category Name2	Categor...	S...	Score
▼	STR VS MEP	Clash1	New	Hard	Default ...	Walls	STR Walls	90	Metal - P...	Pipes	MEP Pipes	90	8100
▼	STR VS MEP	Clash2	New	Hard	Damp-pr...	Floors	STR Floors	60	Metal - P...	Pipes	MEP Pipes	90	5400
▶	STR VS MEP	Clash3	New	Hard	Concrete,...	Structura...	STR Fra...	80	Metal - ...	Lighting Fxt...	MEP Default	0	0
▼	STR VS MEP	Clash4	New	Hard	Damp-pr...	Floors	STR Floors	60	Metal - P...	Pipes	MEP Pipes	90	5400
▼	STR VS MEP	Clash5	New	Hard	Concrete,...	Structura...	STR Fra...	80	Metal - ...	Lighting Fxt...	MEP Default	0	0
▼	STR VS MEP	Clash6	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash7	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash8	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash9	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash10	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash11	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash12	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash13	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash14	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash15	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - S...	Mechanical E...	MEP Mech...	60	3600
▼	STR VS MEP	Clash16	New	Hard	Default Fl...	Floors	STR Floors	60	Metal - P...	Pipes	MEP Pipes	90	5400
▼	STR VS MEP	Clash17	New	Hard	Concrete,...	Floors	STR Floors	60	Metal - P...	Pipes	MEP Pipes	90	5400
▼	STR VS MEP	Clash18	New	Hard	Damp-pr...	Floors	STR Floors	60	Metal - P...	Pipes	MEP Pipes	90	5400
▼	STR VS MEP	Clash19	New	Hard	Damp-pr...	Floors	STR Floors	60	Metal - P...	Pipes	MEP Pipes	90	5400

Record 3 of 255

✕ [Test Name] = 'STR VS MEP'

Edit Filter

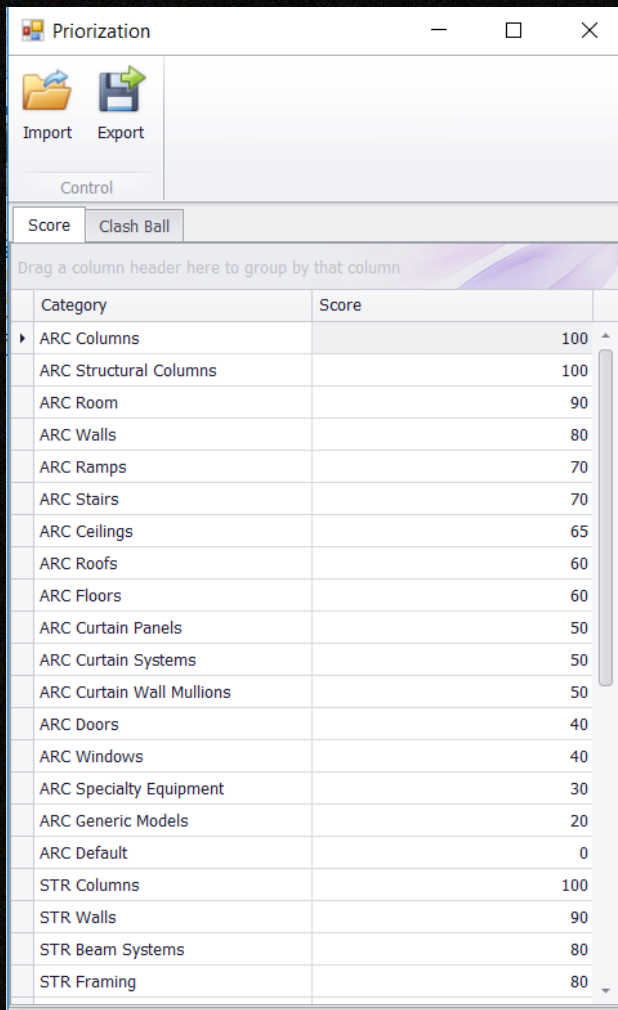
T00(-55)-TF(-69) : G/F (42)

AutoSaved: C:\Users\USER\AppData\Roaming\Autodesk Navisworks Manage 2018\AutoSave\COMBINED MODEL 20180503.Autosave14.nwf

1 of 1 1018

CLASH PRIORITIZATION

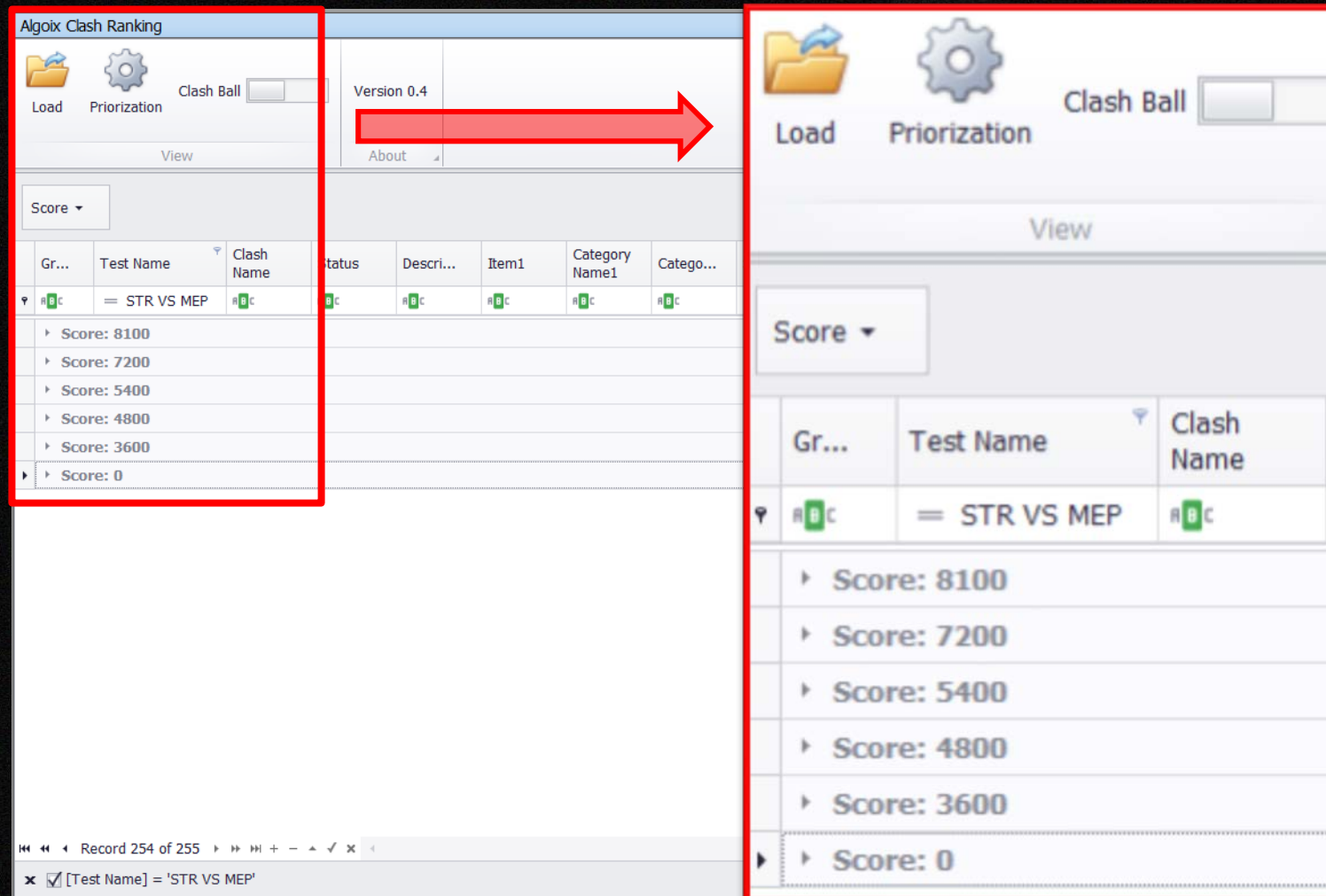
PRIORITIZATION SCORE SETTING



The screenshot shows the 'Priorization' window with a table of categories and their scores. The 'Score' column is highlighted, and a red box is drawn around it. A red arrow points from the 'Score' column header to the 'Score' column header in the 'Algoix Clash Ranking' window.

Category	Score
ARC Columns	100
ARC Structural Columns	100
ARC Room	90
ARC Walls	80
ARC Ramps	70
ARC Stairs	70
ARC Ceilings	65
ARC Roofs	60
ARC Floors	60
ARC Curtain Panels	50
ARC Curtain Systems	50
ARC Curtain Wall Mullions	50
ARC Doors	40
ARC Windows	40
ARC Specialty Equipment	30
ARC Generic Models	20
ARC Default	0
STR Columns	100
STR Walls	90
STR Beam Systems	80
STR Framing	80

CLASHES GROUPING BY SCORE




The screenshot shows the 'Algoix Clash Ranking' window with a table of clashes grouped by score. The 'Score' column is highlighted, and a red box is drawn around it. A red arrow points from the 'Score' column header to the 'Score' column header in the 'Priorization' window.


Gr...	Test Name	Clash Name	Status	Descri...	Item1	Category Name1	Catego...
ARC	= STR VS MEP	ARC	ARC	ARC	ARC	ARC	ARC
Score: 8100							
Score: 7200							
Score: 5400							
Score: 4800							
Score: 3600							
Score: 0							

CLASH RESULT LOAD FORM WITHIN NAVISWORK CLASH ANALYSIS RESULT

CLASHES GROUPED BY SCORE, REIEW CLASHES FROM HIGHEST SOCRE

Algoix Clash Ranking

 Load

 Priorization

Clash Ball

Version 0.4

View

About

Score ▾

Gr...	Test Name	Clash Name	Status	Item1	Category Name1	Category1	Sc...	Item2	Category Name2	Categor...	S...
▼	STR VS MEP	STR VS MEP					=				=
▼ Score: 8100											
D...	STR VS MEP	Clash1	New	Default Wall	Walls	STR Walls	90	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash95	New	Default Wall	Walls	STR Walls	90	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash121	New	Default Wall	Walls	STR Walls	90	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash237	New	Default Wall	Walls	STR Walls	90	Metal - Paint Re...	Pipe Fittings	MEP Pipes	90
▼ Score: 7200											
D...	STR VS MEP	Clash32	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash33	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash36	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash37	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash38	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash39	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash40	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash41	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash42	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash43	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash44	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90
D...	STR VS MEP	Clash46	New	Concrete, Cast-i...	Structural Framing	STR Framing	80	Metal - Paint Re...	Pipes	MEP Pipes	90

Record 5 of 255

☒ [Test Name] = 'STR VS MEP'

Edit Filter

CLASH VISUALIZAION WITH CLASH BALLS

CLASH BALLS CREATED AT CLASH POINT (X,Y,Z) HIGHLIGHT CLASHES

Autodesk Navisworks Manage 2018 (STUDENT VERSION) COMBINED MODEL 20180503.nwd

Home Viewpoint Review Animation View Output BIM 360 Render

Append Refresh Select Save Selection Select All Select Same Selection Tree Find Items Quick Find

Project Select & Search

Hide Require Hide Unhide Visibility Display

Links Quick Properties Properties Clash Detective TimeLiner Quantification Animator Scripter

Selection Tree Sets

FRONT

Algoix Clash Ranking

Load Priorization Clash Ball Version 0.4

Score

Gr...	Test Name	Clash Name	Status	Item1	Category Name1	Category1
Score: 8100						
D...	STR VS MEP	Clash1	New	Default Wall	Walls	STR Walls
D...	STR VS MEP	Clash95	New	Default Wall	Walls	STR Walls
D...	STR VS MEP	Clash121	New	Default Wall	Walls	STR Walls
D...	STR VS MEP	Clash237	New	Default Wall	Walls	STR Walls
Score: 7200						
D...	STR VS MEP	Clash32	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash33	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash36	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash37	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash38	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash39	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash40	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash41	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash42	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash43	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash44	New	Concrete, Cast-i...	Structural Framing	STR Framing
D...	STR VS MEP	Clash46	New	Concrete, Cast-i...	Structural Framing	STR Framing

Record 5 of 255

[X] [Test Name] = 'STR VS MEP'

Priorization

Import Export

Control

Score Clash Ball

Drag a column header here to group by that column

	Max	Min	Radius	Color
▶	10000	7500	2	127, 255, ...
	7500	5000	2	127, 0, 25...
	5000	0	2	127, 0, 0, ...

CLASH VISUALIZATION WITH CLASH BALL

CLASH RESULT CAN BE GROUPED WITH HIERARCHICAL FILTERS

The screenshot displays the Autodesk Navisworks Manage 2018 (STUDENT VERSION) interface. The main view shows a 3D model of a building structure with numerous colored spheres (red, green, blue) representing clashes. The left sidebar shows the 'Selection Tree' and 'Sets' panels. The top ribbon includes tabs for Home, Viewpoint, Review, Animation, View, Output, Item Tools, BIM 360, and Render. The 'Item Tools' tab is active, showing options like Select, Save Selection, Select All, Select Same, and Selection Tree. The 'Algoix Clash Ranking' window is open on the right, displaying a hierarchical list of clash results. The window includes a 'Clash Ball' toggle and a 'Version 0.4' label. The list shows a total score of 8100, with a breakdown by category: Category Name1: Walls (Score: 7200), Category Name2: Pipe Fittings (Score: 5400), and Category Name2: Pipes (Score: 4800). The bottom status bar indicates 'Record 1 of 255' and 'Edit Filter'.

Autodesk Navisworks Manage 2018 (STUDENT VERSION) COMBINED MODEL 20180503.nwd

Home Viewpoint Review Animation View Output Item Tools BIM 360 Render

Append Refresh Reset All... File Options Select Save Selection Select All Select Same Selection Tree Find Items Quick Find Sets

Project Select & Search Visibility Display Tools

Hide Require Hide Unhide All Links Quick Properties Properties Clash Detective TimeLiner Quantification Autodesk Rendering Animator Scripter Appearance Profiler Batch Utility Compare DataTools App Manager

Selection Tree Sets

T00(-11)-TD(3) : G/F (10)

Algoix Clash Ranking

Load Priorization Clash Ball Version 0.4 View About

Score Category Name1 Category Name2

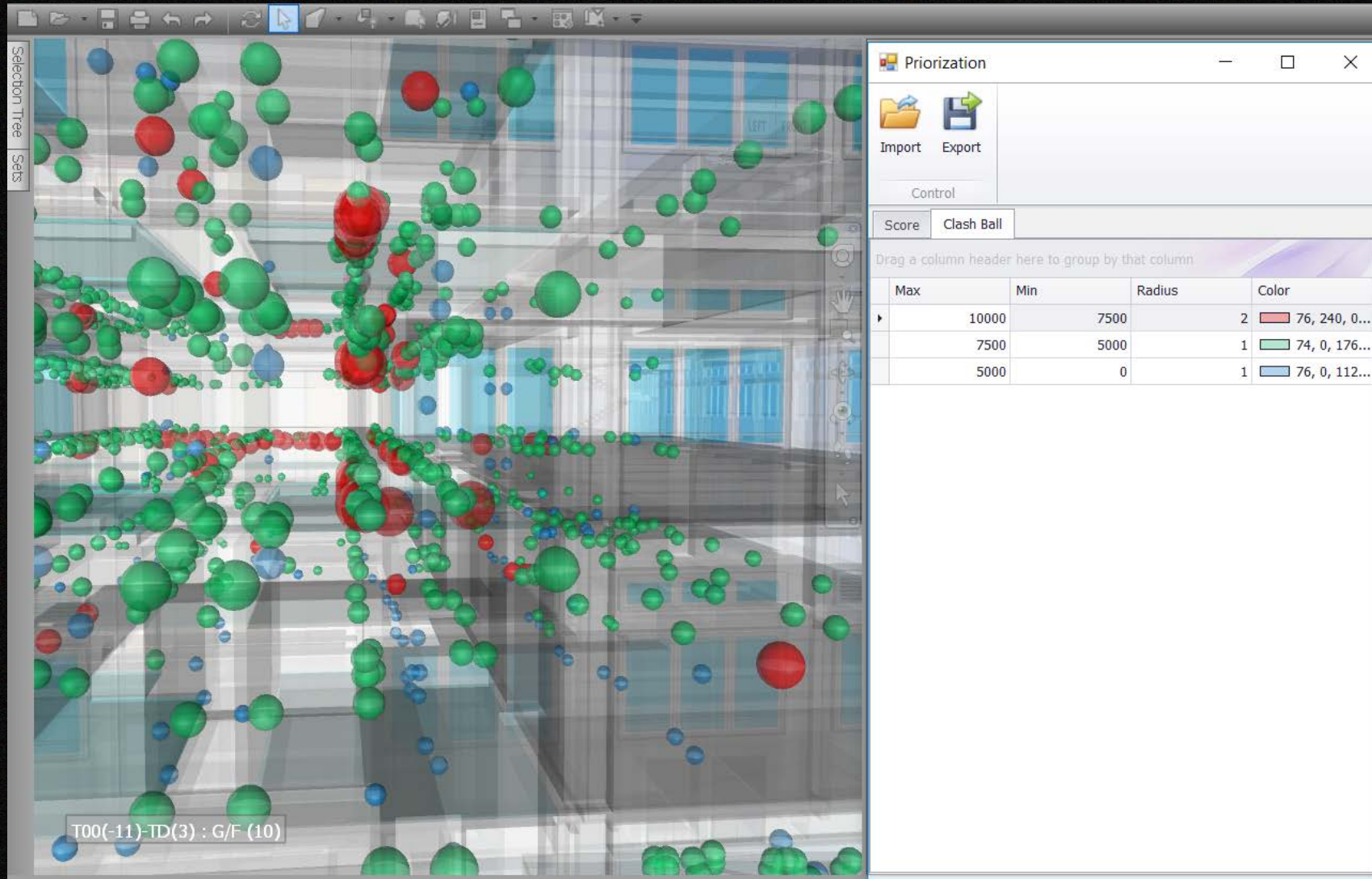
Group	Test Name	Clash Name	Status	Item1	Category1	Sc...	Item2	Categor...	S...
	= STR VS MEP								
Score: 8100									
Category Name1: Walls									
Category Name2: Pipe Fittings									
Category Name2: Pipes									
Score: 7200									
Score: 5400									
Score: 4800									
Score: 3600									
Score: 0									

Record 1 of 255 Edit Filter

[Test Name] = 'STR VS MEP'

CLASH VISUALIZATION WITH CLASH BALL

CLASH BALLS IDENTIFY CLASH SEVERITY BY COLOR RED AS MAJOR GREEN AS MINOR AND BLUE AS ERRONEOUS



The screenshot displays a 3D architectural model of a building with numerous colored spheres (red, green, blue) representing clash severity. A 'Priorization' window is open on the right, displaying a table with columns for Max, Min, Radius, and Color, showing data for three categories: Major (Red), Minor (Green), and Erroneous (Blue).

Max	Min	Radius	Color
10000	7500	2	76, 240, 0...
7500	5000	1	74, 0, 176...
5000	0	1	76, 0, 112...

CLASH BALLS REVIEW CLASHES WHEN CONDUCTING VISUAL CHECKING

Saved Viewpoints

- 01-10 ARC WALL VS STR FOUNDATION
- 01-13 ARC WALL VS STAIRCASE
- 04-15 HEADROOM VS PIPE
- 12-15 STR BEAM VS PIPE WSP to Review
- 10-15 STR FOUNDATION VS PIPE
- 12-14 STR BEAM VS DUCT
- 12-17 STR BEAM VS CABLE TRAY
- 08-15 STR WALL VS PIPE
- Folder
- View

Clash Ball [Toggle]

Version 0.4

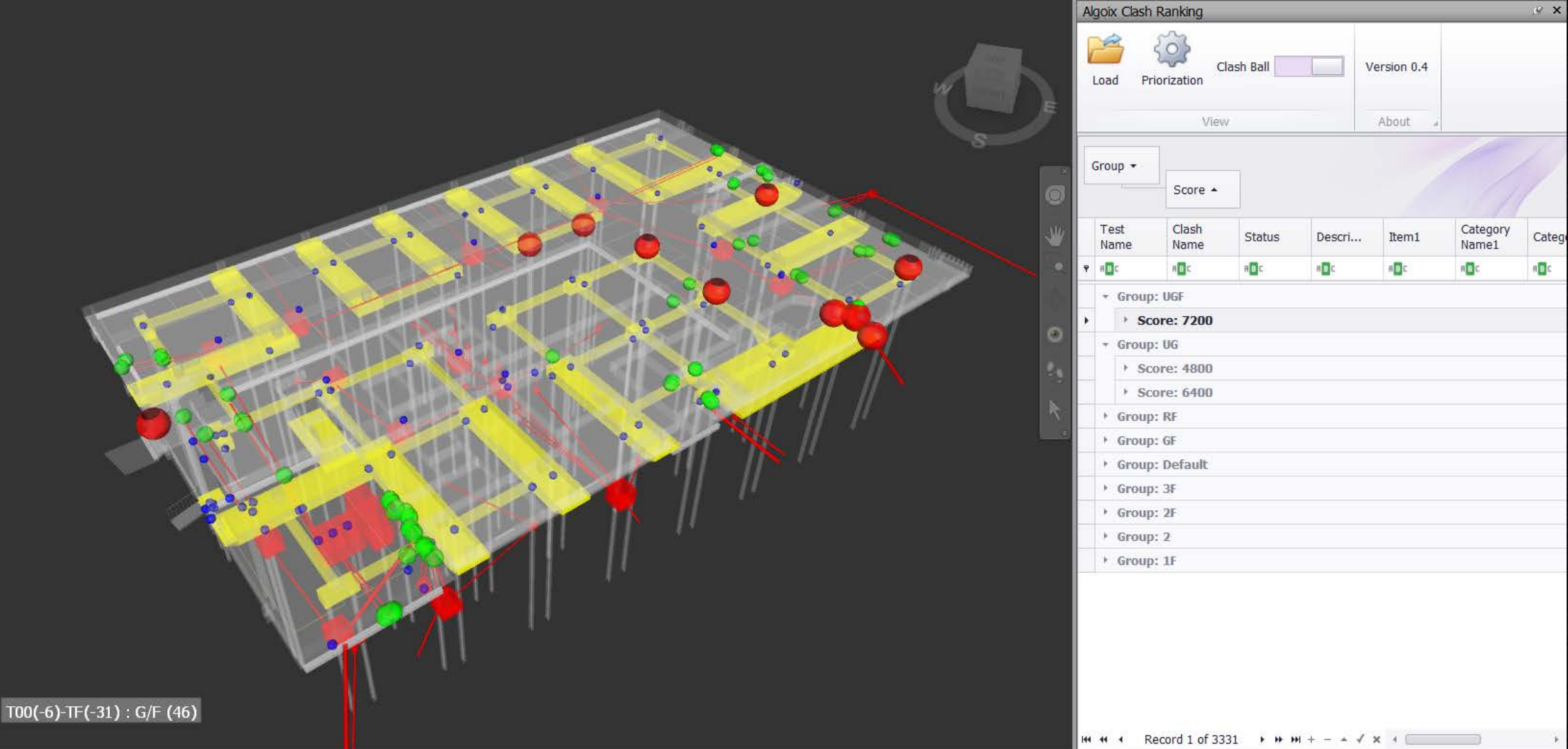
Drag a column header here to group by that column

Group	Test Name	Clash Name	Status	Description	Item1	Category Name1
GF	01-05 ARC ...	Clash2	Approved	Hard	Concrete, ...	Walls
GF	01-05 ARC ...	Clash3	Approved	Hard	Concrete, ...	Walls
GF	01-05 ARC ...	Clash4	Approved	Hard	Concrete, ...	Walls
GF	01-05 ARC ...	Clash5	Approved	Hard	Concrete, ...	Walls
GF	01-05 ARC ...	Clash19	Approved	Hard	Concrete, ...	Walls
GF	01-05 ARC ...	Clash22	Approved	Hard	Concrete, ...	Walls
GF	01-05 ARC ...	Clash27	Approved	Hard	Concrete, ...	Walls
GF	01-05 ARC ...	Clash36	Approved	Hard	Concrete, ...	Walls
GF	01-05 ARC ...	Clash37	Approved	Hard	Default Wall	Walls
GF	01-05 ARC ...	Clash38	Approved	Hard	Concrete, ...	Walls
1F	01-05 ARC ...	Clash1	Approved	Hard	Concrete, ...	Walls
1F	01-05 ARC ...	Clash10	Approved	Hard	Default Wall	Walls
1F	01-05 ARC ...	Clash13	Approved	Hard	Concrete, ...	Walls
1F	01-05 ARC ...	Clash18	Approved	Hard	Default Wall	Walls
1F	01-05 ARC ...	Clash20	Approved	Hard	Default Wall	Walls
1F	01-05 ARC ...	Clash23	Approved	Hard	Default Wall	Walls
1F	01-05 ARC ...	Clash26	Approved	Hard	Default Wall	Walls
1F	01-05 ARC ...	Clash28	Approved	Hard	Default Wall	Walls
1F	01-05 ARC ...	Clash30	Approved	Hard	Concrete, ...	Walls
1F	01-05 ARC ...	Clash32	Approved	Hard	Concrete, ...	Walls
1F	01-05 ARC ...	Clash35	Approved	Hard	Default Wall	Walls
1F	01-05 ARC ...	Clash43	Approved	Hard	Concrete, ...	Walls
1F	01-05 ARC ...	Clash44	Approved	Hard	Concrete, ...	Walls
2F	01-05 ARC ...	Clash6	Approved	Hard	Default Wall	Walls
2F	01-05 ARC ...	Clash7	Approved	Hard	Concrete, ...	Walls
2F	01-05 ARC ...	Clash8	Approved	Hard	Default Wall	Walls
2F	01-05 ARC ...	Clash12	Approved	Hard	Concrete, ...	Walls
2F	01-05 ARC ...	Clash31	Approved	Hard	Concrete, ...	Walls
2F	01-05 ARC ...	Clash34	Approved	Hard	Concrete, ...	Walls
2F	01-05 ARC ...	Clash42	Approved	Hard	Concrete, ...	Walls
2F	01-05 ARC ...	Clash46	Approved	Hard	Concrete, ...	Walls
3F	01-05 ARC ...	Clash11	Approved	Hard	Concrete, ...	Walls
3F	01-05 ARC ...	Clash14	Approved	Hard	Default Wall	Walls
3F	01-05 ARC ...	Clash15	Approved	Hard	Concrete, ...	Walls
3F	01-05 ARC ...	Clash16	Approved	Hard	Default Wall	Walls
3F	01-05 ARC ...	Clash17	Approved	Hard	Default Wall	Walls
3F	01-05 ARC ...	Clash21	Approved	Hard	Default Wall	Walls
3F	01-05 ARC ...	Clash24	Approved	Hard	Concrete, ...	Walls
3F	01-05 ARC ...	Clash25	Approved	Hard	Default Wall	Walls
3F	01-05 ARC ...	Clash33	Approved	Hard	Concrete, ...	Walls
3F	01-05 ARC ...	Clash39	Approved	Hard	Concrete, ...	Walls
3F	01-05 ARC ...	Clash40	Approved	Hard	Concrete, ...	Walls
3F	01-05 ARC ...	Clash41	Approved	Hard	Concrete, ...	Walls
3F	01-05 ARC ...	Clash45	Approved	Hard	Concrete, ...	Walls
RF	01-05 ARC ...	Clash9	Approved	Hard	Concrete, ...	Walls
RF	01-05 ARC ...	Clash29	Approved	Hard	Concrete, ...	Walls
RF	01-08 ARC ...	Clash3	Approved	Hard	Concrete, ...	Walls

T06(-3410)TB(-1498) : G/F (6690)

Record 1 of 1734

CLASH BOOLS AT CLASH POINTS INTUITIVELY, FACILITATE COORDINATION MEETING



The image displays a 3D architectural model of a building's structural frame, featuring yellow beams and grey columns. Numerous red and green spheres are placed at various points within the structure, representing clash locations. A software interface titled "Algoix Clash Ranking" is overlaid on the right side of the image. The interface includes a top bar with icons for "Load", "Priorization", and "Clash Ball", along with a "Version 0.4" label and an "About" button. Below this is a table with columns for "Test Name", "Clash Name", "Status", "Descri...", "Item1", "Category Name1", and "Catego". The table contains a single row of data. Below the table is a list of groups with their respective scores: "Group: UGF" (Score: 7200), "Group: UG" (Score: 4800), "Group: RF", "Group: GF", "Group: Default", "Group: 3F", "Group: 2F", "Group: 2", and "Group: 1F". The interface also includes a "Record 1 of 3331" indicator and a navigation bar at the bottom.

T00(-6)-TF(-31) : G/F (46)

THANK YOU !

