



**CE 5390 & CE 4377 Special Topics Civil Engr & Adv Topics
in Civil Engr III (Building Information Modeling)**

**HANDS-ON SESSION – CONSTRUCTABILITY AND CLASH
DETECTION**

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Lab Objective

Learn Autodesk Navisworks Manage for clash detection and constructability review.

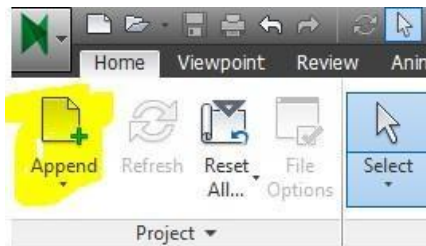
Instructions

1. Open Model Files

- Download FIVE files in “Constructability and Clash Detection” from Canvas



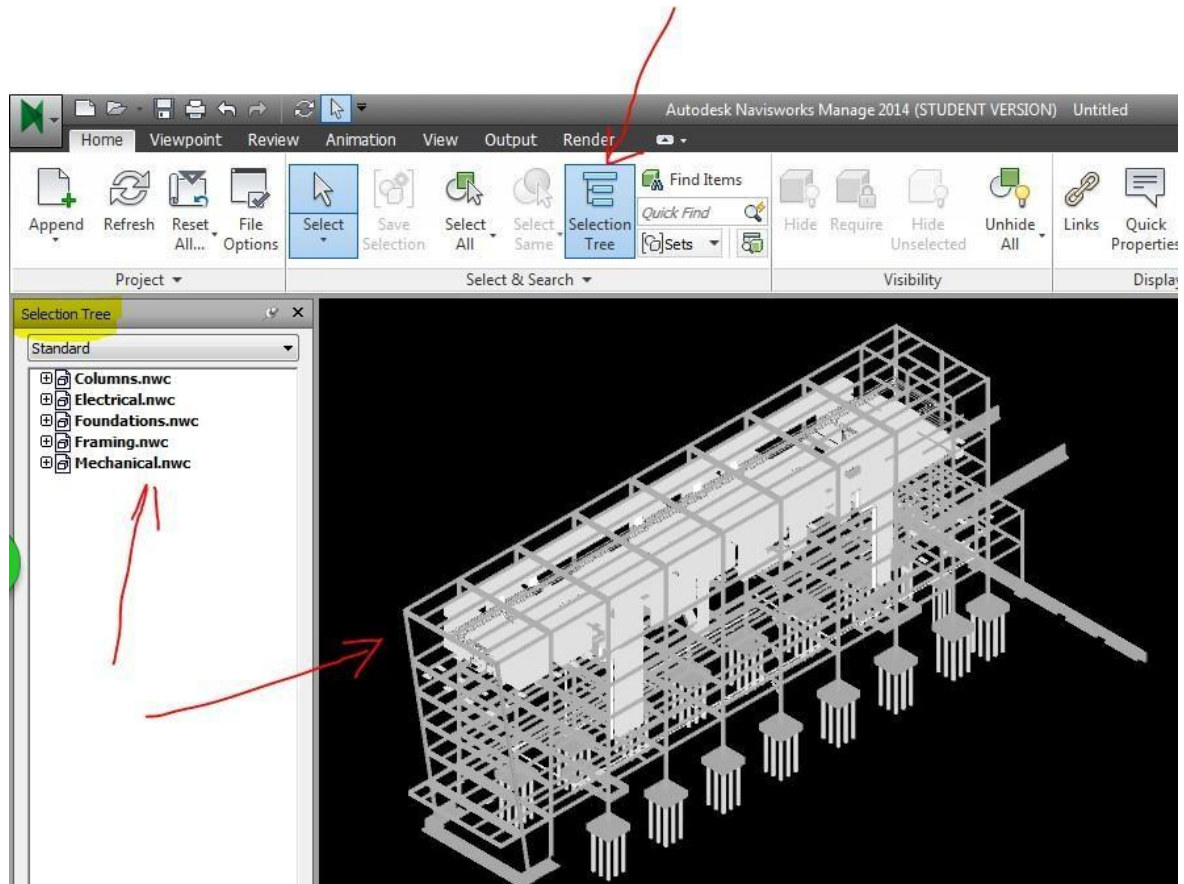
- Open Navisworks, append the downloaded five models



- Check the appended file in “Selection Tree”
-

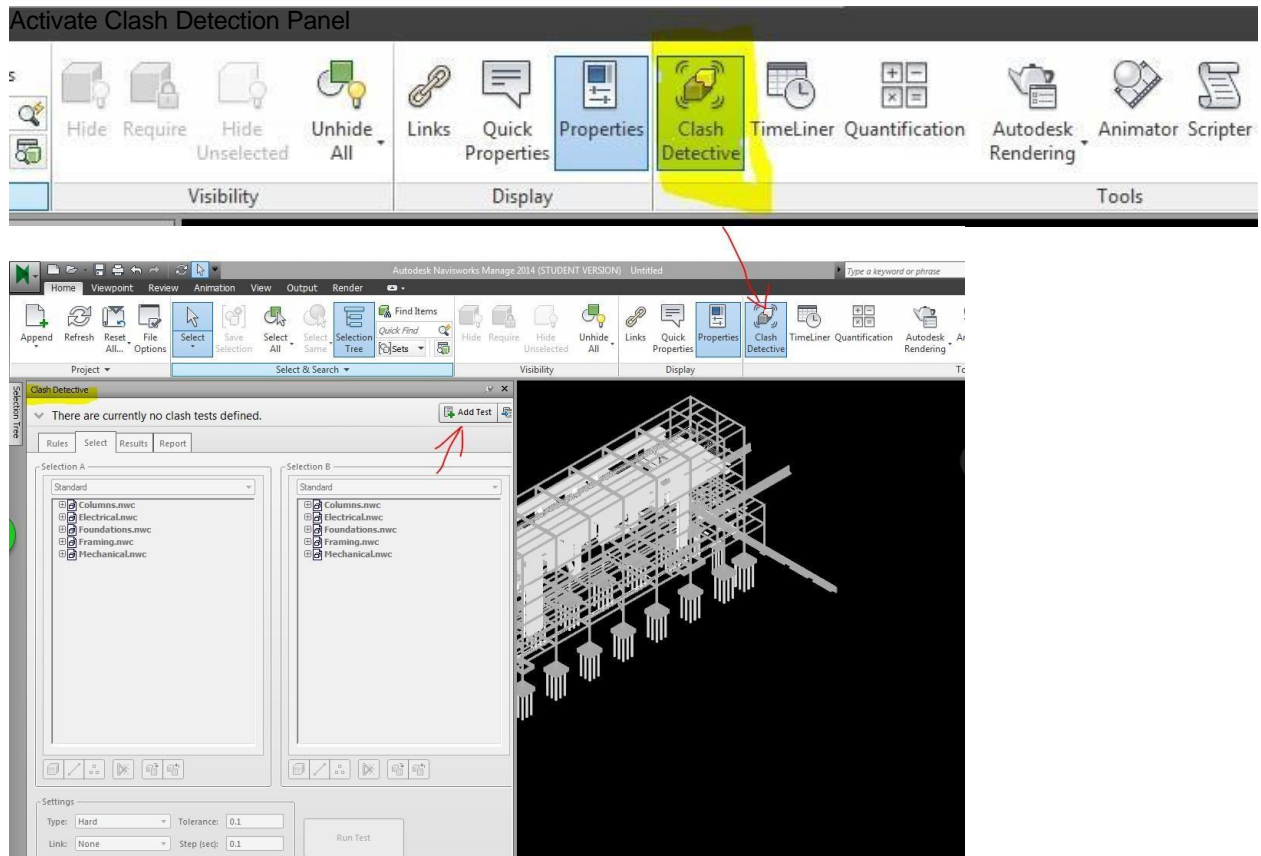


Course Syllabus (CE5390 & CE4377)

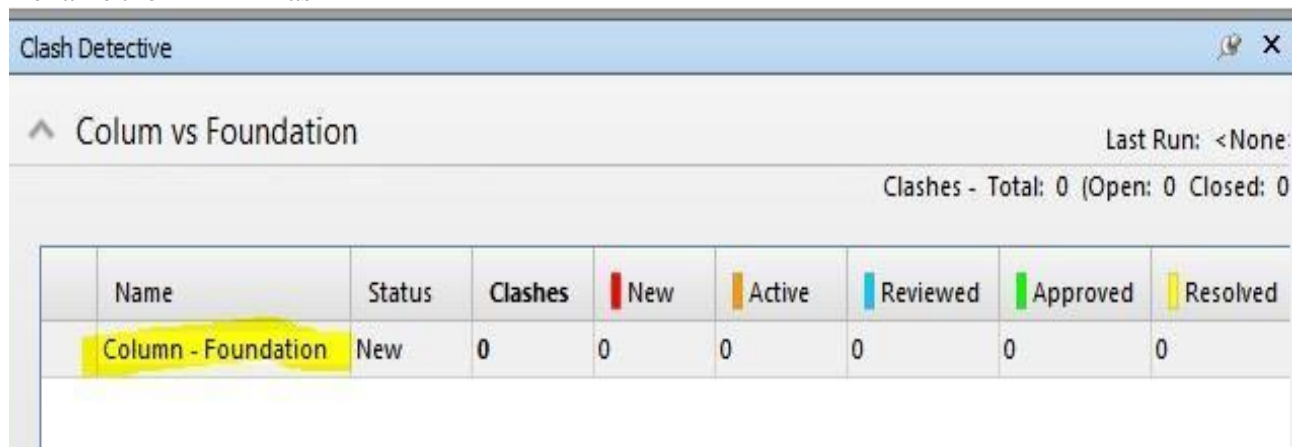


2. Clash Detection Task #1

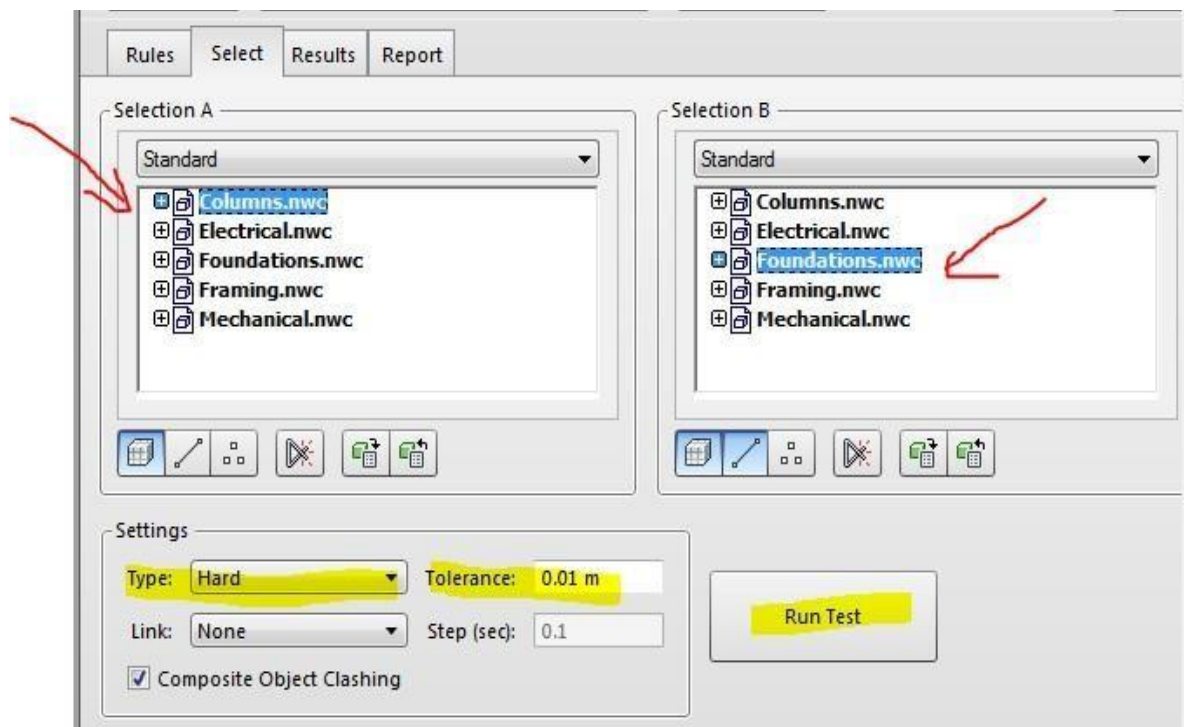
- Activate Clash Detection Panel



- Click “Add Test” button to create a clash detection task
- Rename the “Task 1” as “Column - Foundation”



- In the Selection A box, highlight “Columns.nwc”. In the Selection B box, highlight “Foundations.nwc”. In Settings, Type “Hard”; Tolerance: “0.01m”



- Click “Run Test” button to conduct clash detection.

Name	Status	Clashes	New	Active	Reviewed	Approved	Resolved
Column - Foundation	Done	7	7	0	0	0	0

Add Test
Reset All
Compact All
Delete All
Update All

Rules
Select
Results
Report

New Group
Assign
Re-run Test

Name	Status	Level	Grid Int...	Found	Approved...	Approved
Clash1	New			00:13:01 04-11-2015		
Clash2	New	Level 1	LN-10	00:13:01 04-11-2015		
Clash3	New	Level 1	LN-10	00:13:01 04-11-2015		
Clash4	New	Level 1	RN-10	00:13:01 04-11-2015		
Clash5	New	Level 1	RN-10	00:13:01 04-11-2015		
Clash6	New			00:13:01 04-11-2015		
Clash7	New			00:13:01 04-11-2015		

The 3D model view on the right shows a clash between a red column and a green foundation. The red column is positioned vertically, and the green foundation is positioned horizontally, intersecting the column.

- Review each Clash and think about resolution.
- Highlight “Clash 1”, then click “Assign” button

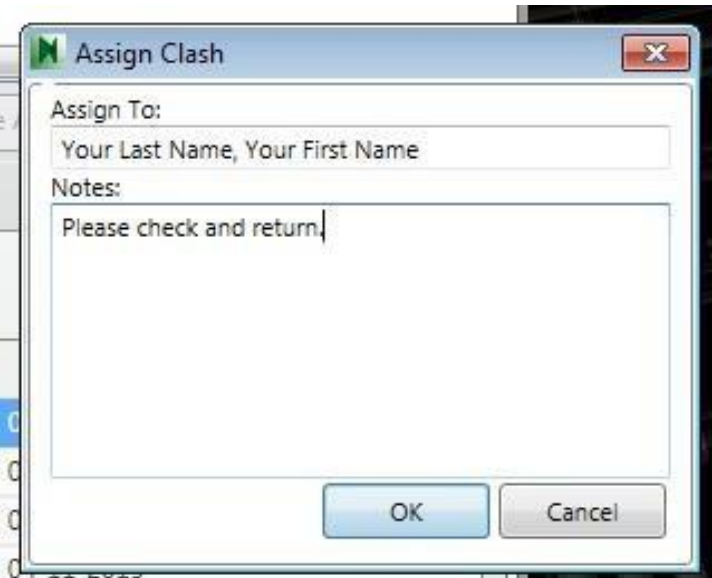
New Group

Assign

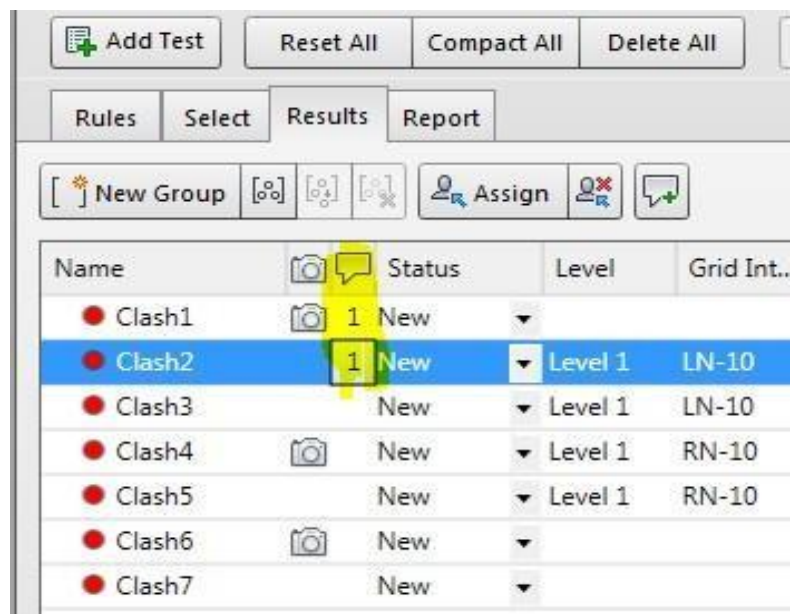
None

Name		Status	Level	Grid Int...	Found	App
Clash1		New			00:13:01 04-11-2015	
Clash2		New	Level 1	LN-10	00:13:01 04-11-2015	
Clash3		New	Level 1	LN-10	00:13:01 04-11-2015	
Clash4		New	Level 1	RN-10	00:13:01 04-11-2015	
Clash5		New	Level 1	RN-10	00:13:01 04-11-2015	
Clash6		New			00:13:01 04-11-2015	
Clash7		New			00:13:01 04-11-2015	

- In the popup “Assign Clash” box, put name in the “Assign To” textbox, in format of LAST NAME, FIRST NAME. In the “Notes” textbox, type “ Please check and return.”

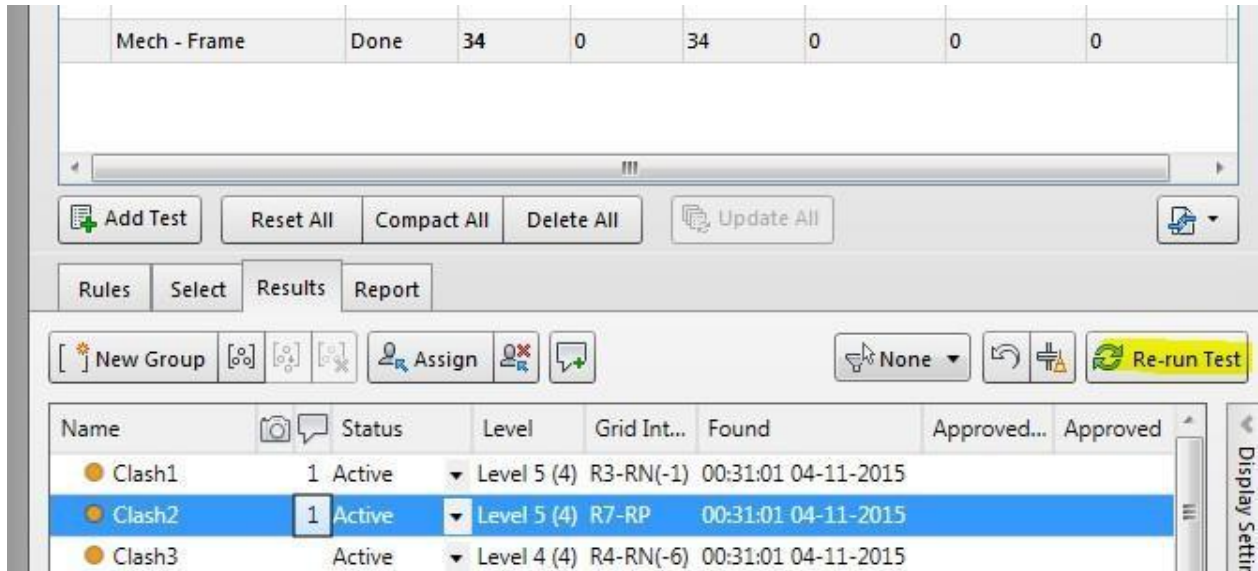


- Repeat the last step and Assign “Clash 2” to your partner. Type your partner’s name in the “Assign To” box, and add notes “Please check and return.” (If you do not have a partner, type your name again)
- Check the Results, you can see the Clash1 and Clash2 have a symbol of note.



3. Clash Detection Task #2

- Repeat the Step 2. Create another Test and name it as “Mech – Frame”.
- Select “Mechanical.nwc” and “Framing.nwc” to test.
- Run the Test.
- In the Results, Assign “Clash1” to you, and “Clash2” to your partner; Add notes “Please check and return.”



- Click “Re-run Test” button, for Test “Mech - Frame”
-

Clash Detective

Mech - Frame

Last Run: Wednesday, November 04, 2015 12:31:01 AM

Clashes - Total: 34 (Open: 34 Closed: 0)

Name	Status	Clashes	New	Active	Reviewed	Approved	Resolved
Column - Foundation	Done	7	7	0	0	0	0
Mech - Frame	Done	34	34	0	0	0	0

Add Test

Reset All

Compact All

Delete All

Update All

Rules

Select

Results

Report

Selection A

Standard

Columns.nwc

Electrical.nwc

Foundations.nwc

Framing.nwc

Mechanical.nwc

Selection B

Standard

Columns.nwc

Electrical.nwc

Foundations.nwc

Framing.nwc

Mechanical.nwc

Settings

Type: Hard

Tolerance: 0.01 m

Link: None

Step (sec): 0.1

☒ Composite Object Clashing

Run Test

4. Repeat Clash Detection Task with all different combinations of “.nwc” files

5. Export Report

- Click “Report” Tab.
- In the Output Settings, choose Report Type “All test (combined)”; Report Format “HTML(Tabular)”.

The screenshot shows the 'Report' tab of the Navisworks interface. The 'Contents' list on the left includes items like Summary, Clash Point, Date Found, Assigned To, Date Approved, Approved By, Layer Name, Item Path, Item ID, Status, Distance, Description, Comments, Quick Properties, Image, and Simulation Dates, all of which are checked. The 'Include Clashes' section on the right has a dropdown for 'For Clash Groups, include:' set to 'Group Headers Only', an unchecked checkbox for 'Include only filtered results', and a list of statuses (New, Active, Reviewed, Approved, Resolved) all of which are checked. The 'Output Settings' section at the bottom has 'Report Type' set to 'All tests (combined)' and 'Report Format' set to 'HTML (Tabular)'. There is also a checked checkbox for 'Preserve result highlighting' and a 'Write Report' button.

- Click “Write Report” button; Choose the folder where you want to save the Navisworks file.

Output: Navisworks file (in NWD); **Clash Report file** (in HTML); and **the clash image** folder (next to the HTML file, as part of the clash report)