

Lab Class - 4D BIM Navisworks - 1

Technology & Applications of BIM

2024/11/03



National Taiwan University
Department of Civil
Engineering

NTU COOL

⋮ ▼ W10 - 11/4 Lab session

✓

+ Add Item

⋮

⋮

 11/4-class use.xlsx

✓

⋮

⋮

 11/4-class use.rvt

✓

⋮

Please download these files on your computer from ntu cool.



Review:Installation of Autodesk REVIT 2025

Installation

STEP 1: Go to link -

<https://www.autodesk.com/education/edu-software/overview?sorting=featured&filters=individual>

AUTODESK

Products ▾ Support ▾ Learn ▾ Community ▾

EDUCATION STUDENTS EDUCATORS ADMINISTRATORS LEARN LAB GET HELP

Unlock educational access to Autodesk products

Students and educators can get free one-year educational access to Autodesk products and services, renewable as long as you remain eligible. Confirm your eligibility now.

Click → **Get started** → How it works (3:08 min.)

⌕ Not a student or educator? Explore our free trials

Individual Class/Lab

Filter by: All products (45)

Platform:

Sort by: Featured A-Z

Tinkercad

Simple 3D design and 3D printing app

Platform:

Get started →

Fusion 360

Software or Browser Access

Cloud-based CAD, CAM, CAE, and PCB software. Continue for access, then install Fusion 360 (multiple languages available) or run Fusion 360 from fusion.online.autodesk.com

Platform:

Get started →

Revit

Plan, design, construct, and manage buildings with powerful tools for Building Information Modeling.

Platform:

Get started →

Revit

Revit Generative Design

Note: this product requires Autodesk Revit 2021.

Quickly generate design alternatives based on your goals, constraints, and inputs to give you higher-performing options for data-driven decision making.

Platform:

Get started →

AutoCAD

AutoCAD for Mac

AutoCAD Web

Inventor Professional

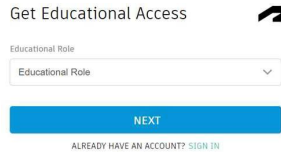
Establishing secure connection...

Privacy Policy

Installation

STEP 2: Create a student account in Autodesk for education license
OR if you already have an account please jump to the STEP 5

a) You will get this page first



Get Educational Access

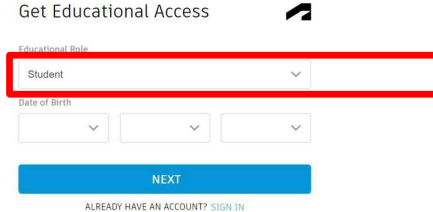
Educational Role

Educational Role

NEXT

ALREADY HAVE AN ACCOUNT? [SIGN IN](#)

b) Enter the Educational Role
Student



Get Educational Access

Educational Role

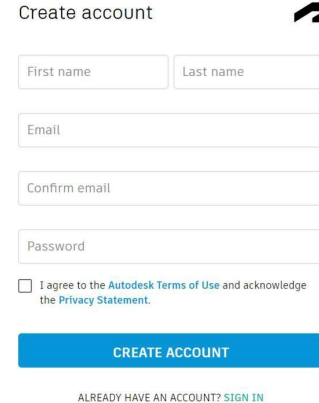
Student

Date of Birth

NEXT

ALREADY HAVE AN ACCOUNT? [SIGN IN](#)

c) Fill this below information
and create account
(try to give student ntu mail
id)



Create account

First name

Last name

Email

Confirm email

Password

☐ I agree to the Autodesk [Terms of Use](#) and acknowledge the [Privacy Statement](#).

CREATE ACCOUNT

ALREADY HAVE AN ACCOUNT? [SIGN IN](#)

Installation

STEP 3: Fill the information required as below and click on CONFIRM

 **AUTODESK.**

Check that your information below is correct, then click [Confirm](#)

All fields must be accurately completed to confirm your eligibility for educational access to Autodesk products. Thank you for helping us provide Autodesk tools for legitimate educational use around the globe.

Email

Wrong email address? [Update address](#)

First name

Last name

Country or region of your educational institution

Institution type

Name of educational institution

Date of birth

Please include your enrollment and graduation dates. This information does not affect your eligibility for educational access to Autodesk products.

Enrollment date

Graduation date

[CONFIRM](#) [Cancel](#)

Identity services powered by SheerID [SheerID FAQs](#)

[Education Terms and Conditions](#)

[Privacy Statement](#)

Not enrolled or employed at a Qualified Educational Institution? [View alternate Autodesk software licensing options.](#)

Installation

STEP 4: Apply for education license (upload the Student ID or enrolment certificate) and submit

 **AUTODESK.**

Additional documentation needed

Please upload a copy of documentation issued to you by your educational institution (e.g. tuition receipt or student ID, employee ID) as proof that you attend, teach or are employed at a qualified educational institution

You have 14 days to upload your documentation

The document must include:

1. Your full legal name [REDACTED]
Note: The name on the document you submit must match this.
2. The name of the educational institution at which you are enrolled or employed (國立臺灣大學 (Taipei))
Note: The school name on the document you submit must match this.
3. A date within the current school term.

Preferred documents include:

- Transcript
- School-issued confirmation letter
- A copy of your student ID (photo ID not required)

Supported file types: JPEG, PDF, PNG, GIF

 Drag documents here, or
browse

NOTE: If your uploaded document is too fuzzy to read, does not show your full and legal name, or shows a name different from the one you used for this Autodesk account, you will not be able to complete the confirmation process. Please do not include any confidential information in the document you upload, such as social security numbers or banking details. Please ensure any sensitive information is blacked out before you upload your document.

SUBMIT >

Cancel

Identity services powered by SheerID [SheerID FAQs](#)

Examples of preferred documents



School Transcript
Transcript with full name of student, school name, and date



School-issued confirmation letter
School letterhead with full name of student or faculty member, school name, and date



School ID
ID badge with full name of student or faculty member, school name, and date, photo not required

Installation

STEP 5: Go to link again -

<https://www.autodesk.com/education/edu-software/overview?sorting=featured&filters=individual>

and sign in in your account

AUTODESK

Products ▾ Support ▾ Learn ▾ Community ▾

EDUCATION STUDENTS EDUCATORS ADMINISTRATORS LEARN LAB GET HELP

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Get started → **How it works (3:08 min.)**

⊕ Not a student or educator? Explore our free trials

Individual **Class/Lab**

Filter by: All products (45)

Platform: Desktop Cloud Mobile

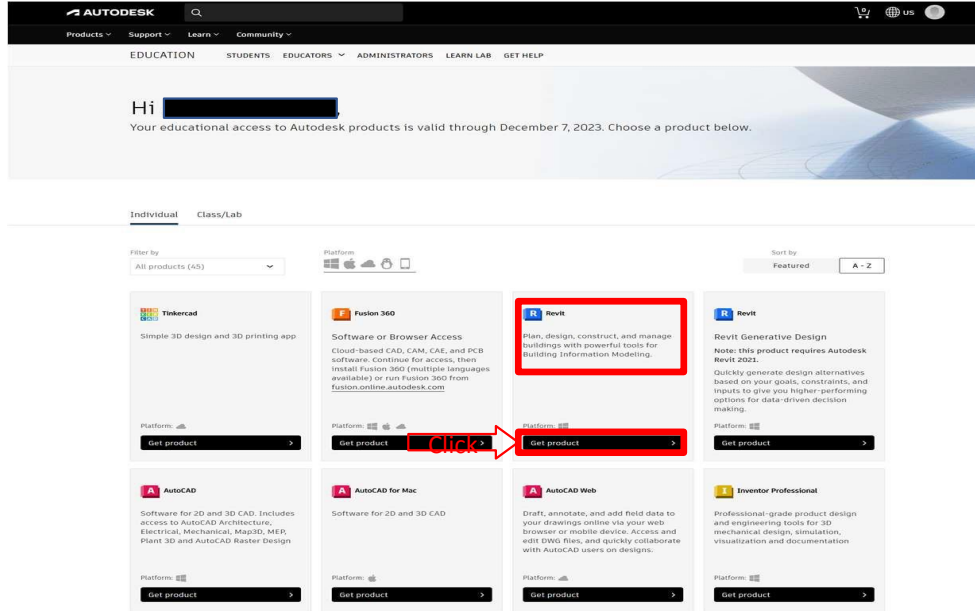
Sort by: Featured A-Z

Software	Description	Platform	Get started
Tinkercad	Simple 3D design and 3D printing app	Desktop	Get started
Fusion 360	Software or Browser Access Cloud-based CAD, CAM, CAE, and PCB software. Continue for access, then install Fusion 360 (multiple languages available) or run Fusion 360 from fusiononline.autodesk.com	Desktop Cloud Mobile	Get started
Revit	Plan, design, construct, and manage buildings with powerful tools for Building Information Modeling	Desktop	Get started
Revit	Revit Generative Design Note: this product requires Autodesk Revit 2023. Quickly generate design alternatives based on your goals, constraints, and inputs to give you higher-performing options for data-driven decision making.	Desktop	Get started
AutoCAD		Desktop	Get started
AutoCAD for Mac		Desktop	Get started
AutoCAD Web		Web	Get started
Inventor Professional		Desktop	Get started

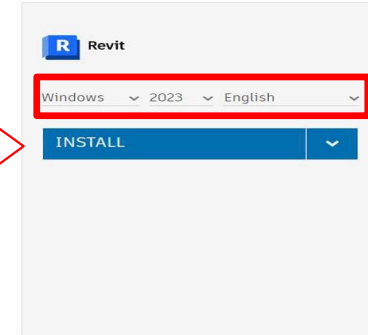
Establishing secure connection...

Installation

STEP 6: Click get product of the Revit 2025 and start to Install

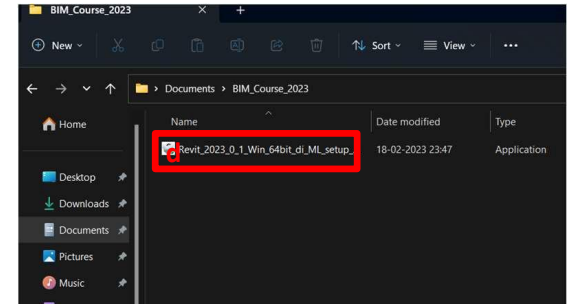
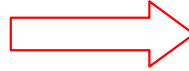
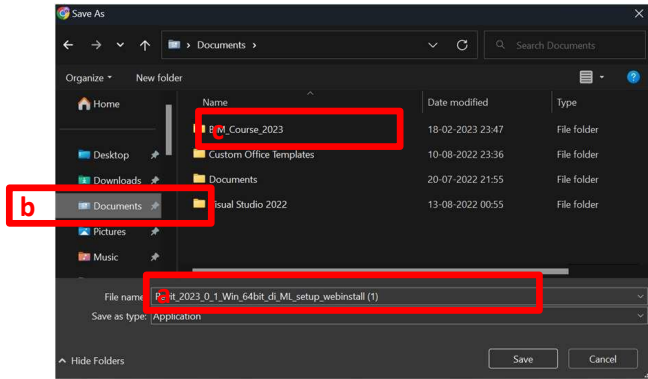


Click →



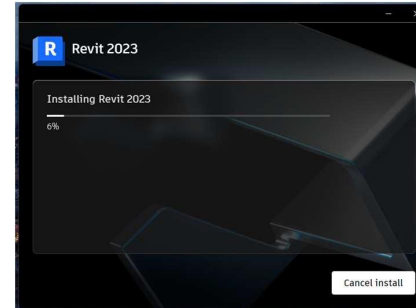
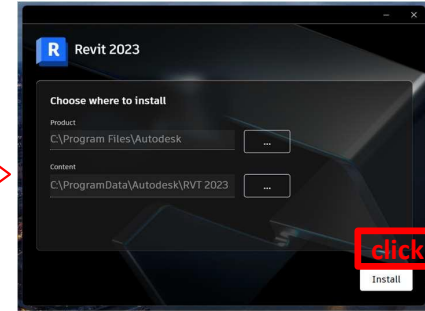
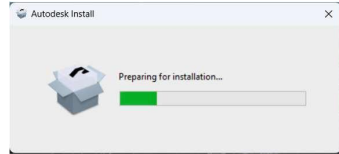
Installation

STEP 7: Create the Folder and download the Revit 2025 setup and install into your desktop/computer



Installation

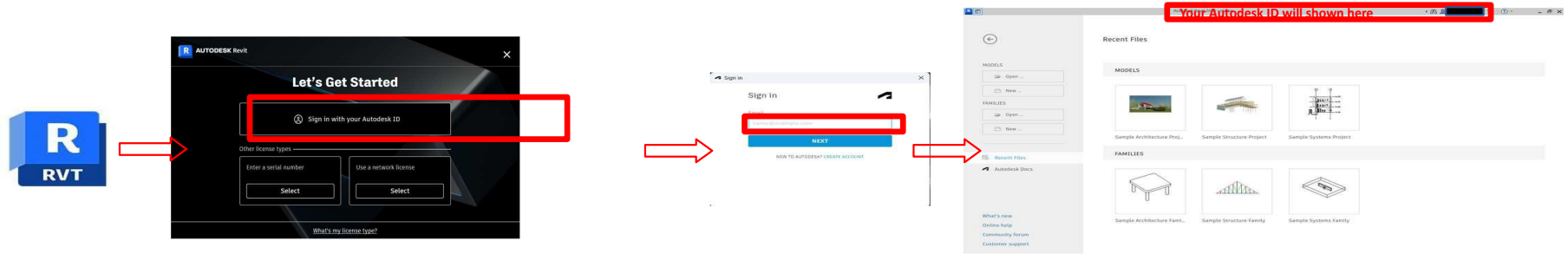
Step 8 : You will find below interfaces just follow as:



Congratulation you install it!

Installation

Step 9 : Open the Revit 2025 from your desktop icon follow below step:





Installation of Autodesk Navisworks 2025

NOTE: We will use this software for the second part of our semester

Installation

STEP 1: Go to link -

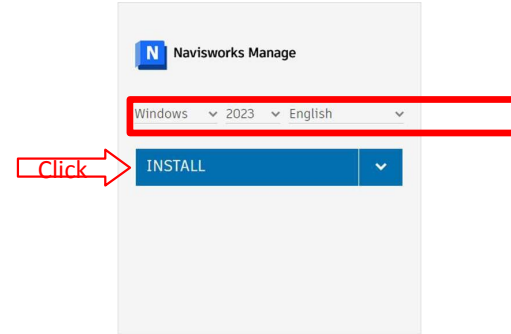
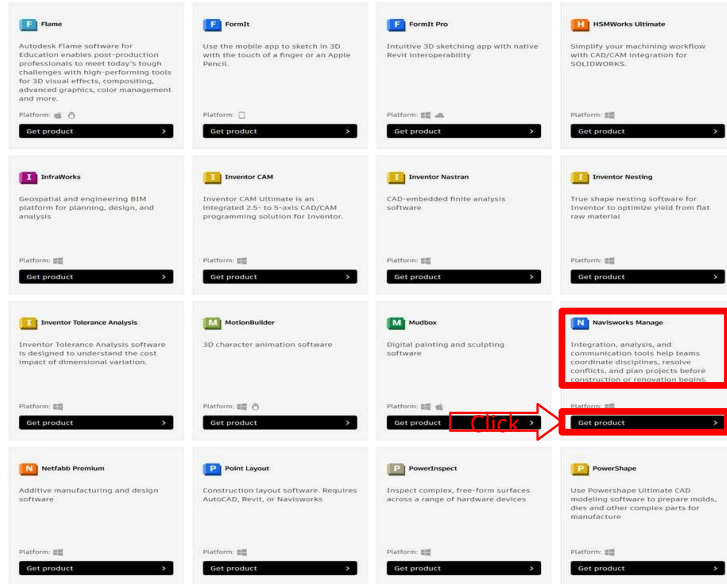
<https://www.autodesk.com/education/edu-software/overview?sorting=featured&filters=individual>

and sign in in your account

The screenshot shows the Autodesk Education Software Overview page. At the top, the Autodesk logo is on the left, and navigation links for Products, Support, Learn, and Community are in the center. On the right, there are links for US and a 'Sign In' button, which is highlighted with a red rectangle. Below the navigation bar, the main heading reads 'Unlock educational access to Autodesk products'. A subtext states: 'Students and educators can get free one-year educational access to Autodesk products and services, renewable as long as you remain eligible. Confirm your eligibility now.' Below this text are two buttons: 'Get started' and 'How it works (3:08 min.)'. A dark banner below the main content area says 'Not a student or educator? Explore our free trials'. The page is divided into two tabs: 'Individual' (selected) and 'Class/Lab'. Below the tabs, there are filters for 'Filter by' (All products (45)) and 'Sort by' (Featured, A-Z). The main content area displays a grid of software options, each with a 'Get started' button. The visible options include Tinkercad, Fusion 360, Revit, Revit Generative Design, AutoCAD, AutoCAD for Mac, AutoCAD Web, and Inventor Professional. A small error message 'Establishing secure connection...' is visible in the bottom left corner.

Installation

STEP 2: Find the Navisworks 2025 software as shown below and click to install and follow same as Revit software



Navisworks NWC Export Utility

The distributable NWC file exporter lets project teams using Navisworks software generate whole-project models for simulation and analysis. Team members can generate optimized NWC files directly from design applications without needing a licensed seat for Navisworks. The NWC exporter works with a range of products, including AutoCAD and Revit software, as well as 3ds Max, Bentley MicroStation, and Graphisoft ArchiCAD software. The NWC file format supports transfer of both object geometry and associated metadata.

Download

1. Download Navisworks NWC File Export Utility

- 2025: [Navisworks Exporters 2025.exe](#)
- 2024: [NavisworksExporters2024 File 1](#) [NavisworksExporters2024 File 2](#)
- 2023: [NavisworksExporters2023.exe](#)
- 2022: [NavisworksExporters2022.exe](#)
- 2021: [NavisworksExporters2021.exe](#)
- 2020: [NavisworksExporters2020.exe](#)
- 2019: [NavisworksExporters2019.exe](#)
- 2018: [NavisworksExporters2018.exe](#)
- 2017: [NavisworksExporters2017.exe](#)
- 2016: [NavisworksExporters2016.exe](#)

2. Install

Run the downloaded executable to unpack the NWC Export Utility installer to a location of your choice and to begin the installation process. Note that administration rights are needed to install this product.

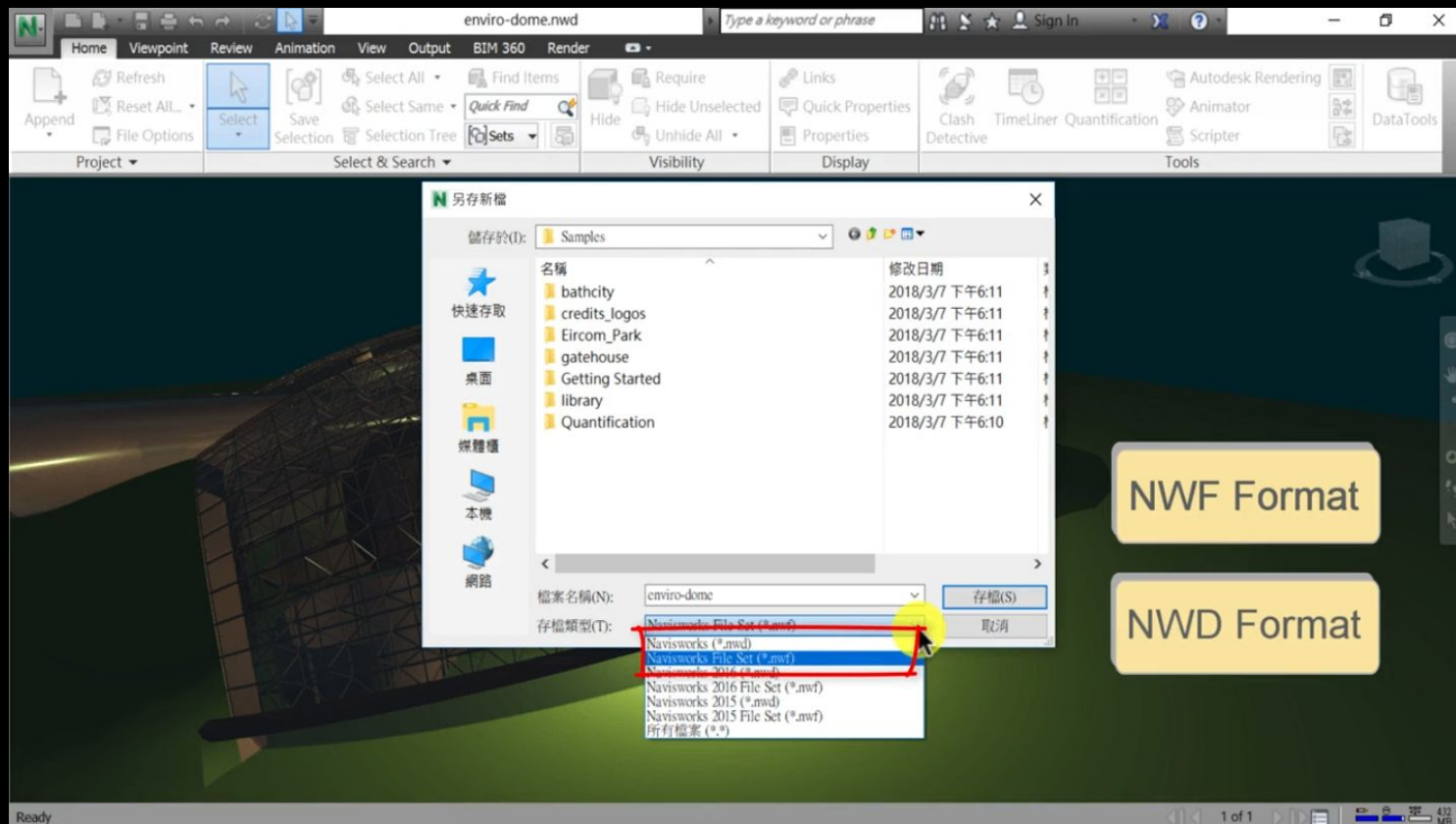
3. Learn more

A Readme, Installation Guide, and other important documentation are accessible from within the installer. Navisworks NWC Export Utility includes a comprehensive help system.



Navisworks

File Format

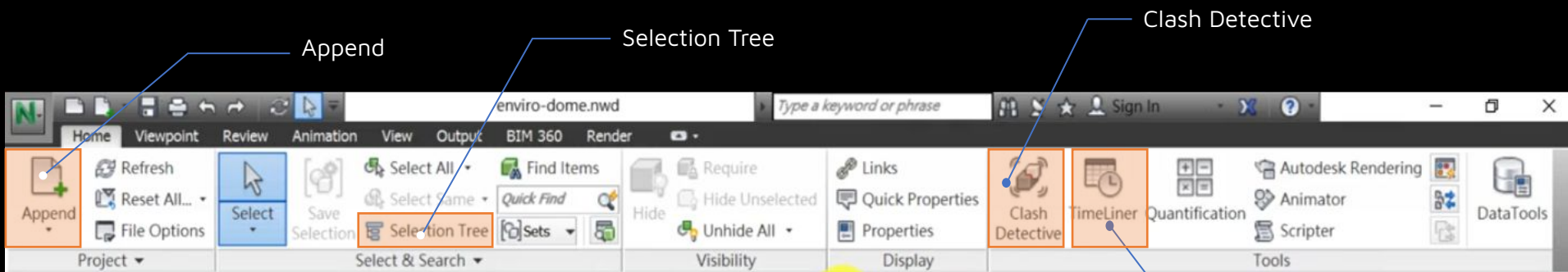


File Format

- NWF: Only stores the file paths to the appended CAD files
- NWD: Stores all the model geometry, the scene's environment, the current view and favorite viewpoints

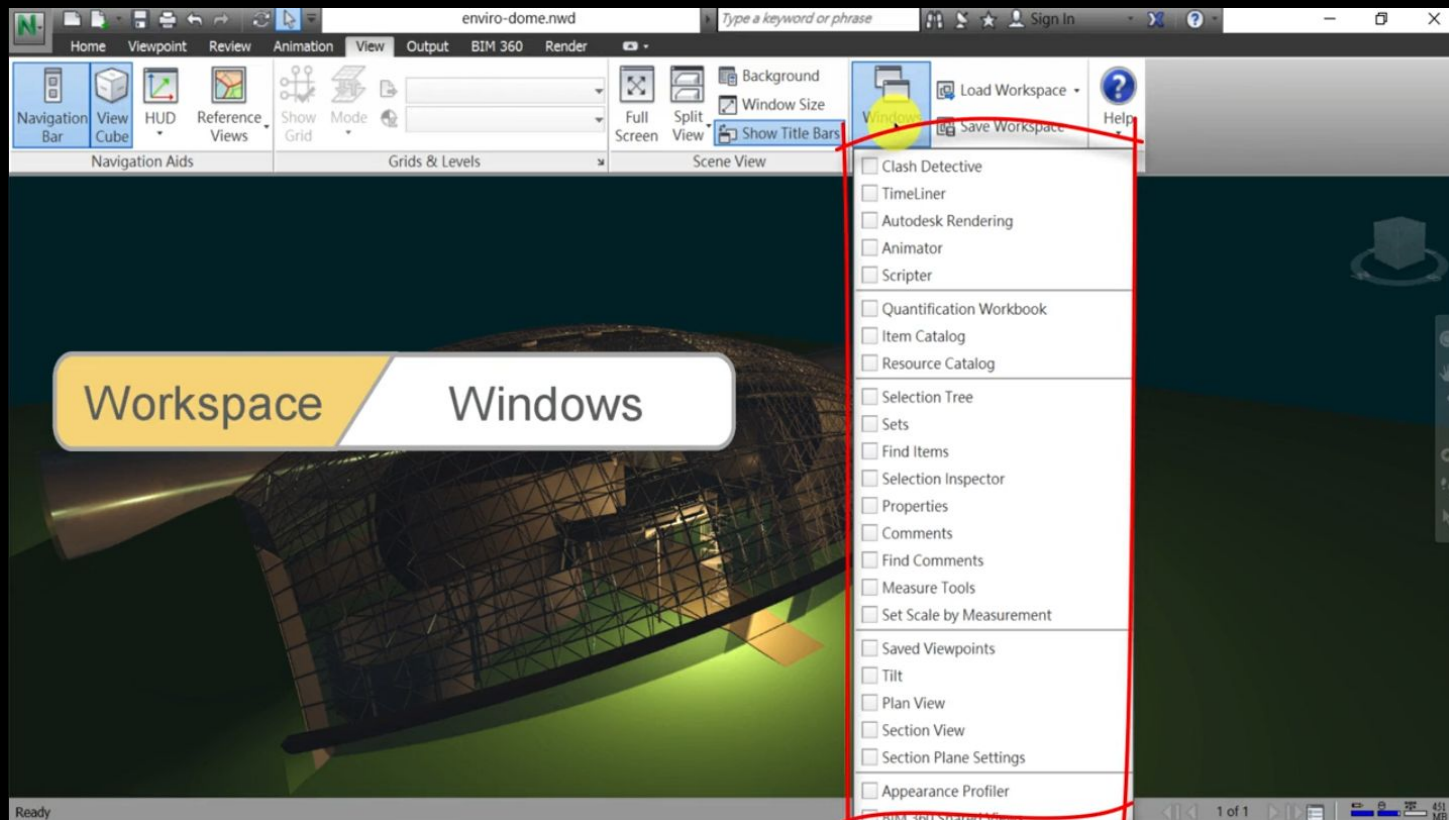
common use

Operation Interface



TimeLiner

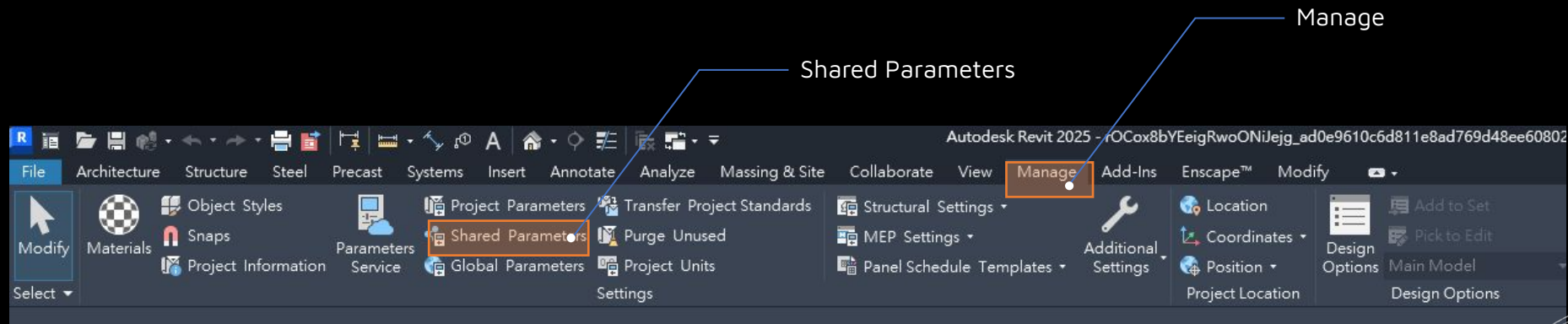
Operation Interface





From Revit to Navisworks set

Shared parameters set



Shared parameters set

Edit Shared Parameters

Shared parameter file:

Browse... Create...

Parameter group:

Parameters:

Parameters

New... Properties... Move... Delete

Groups

New... Rename... Delete

OK Cancel Help

Edit Shared Parameters

Shared parameter file:

D:\Msc-2024-1\BIM-TA\test.txt Browse... Create...

Parameter group:

Parameters:

Parameters

New... Properties... Move... Delete

Groups

New... Rename... Delete

OK Cancel Help

Shared parameters set

Edit Shared Parameters

Shared parameter file:
D:\Msc-2024-1\BIM-TA\test.txt Browse... Create...

Parameter group:
4d

Parameters:

Parameters

New...

Properties...

Move...

Delete

Groups

New...

Rename...

Delete

OK Cancel Help

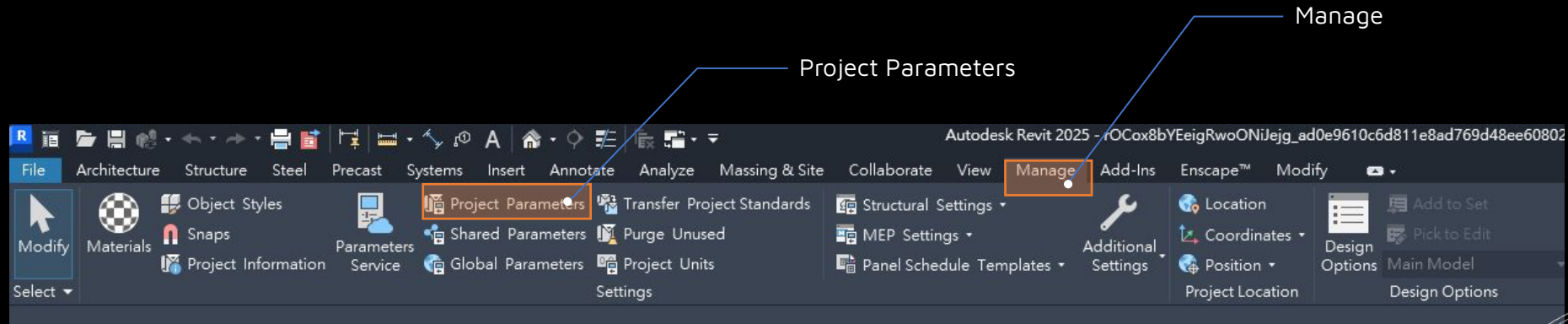
Parameter Properties

Name:
Task ID

Discipline:
Common

Data Type:
Length
Text
Integer
Angle
Area
Cost per Area
Distance
Length
Mass Density
Number
Rotation Angle
Slope
Speed
Time
Volume
Currency
URL
Material
Fill Pattern
Image
Yes/No
Multiline Text
<Family Type...>

Project parameters set



Project parameters set

Project Parameters

Parameter Name Search:

Filter

Parameters available to elements in this project: 1 item

Occupant

[How do I manage project parameters?](#)

OK Cancel

Parameter Properties

Parameter Type

☐ Project parameter
(Can appear in schedules but not in tags)

☒ Shared parameter
(Can be shared by multiple projects and families, exported to ODBC, and appear in schedules and tags)

Select... Export...

Parameter Data

Name:

Discipline:

Data Type:

Group parameter under:

Tooltip Description:
<No tooltip description. Edit this parameter to write a custom tooltip. Custom tooltips have a limit of 250 characters.>

☒ Add to all elements in the selected categories

Categories

Category name search:

Filter list:

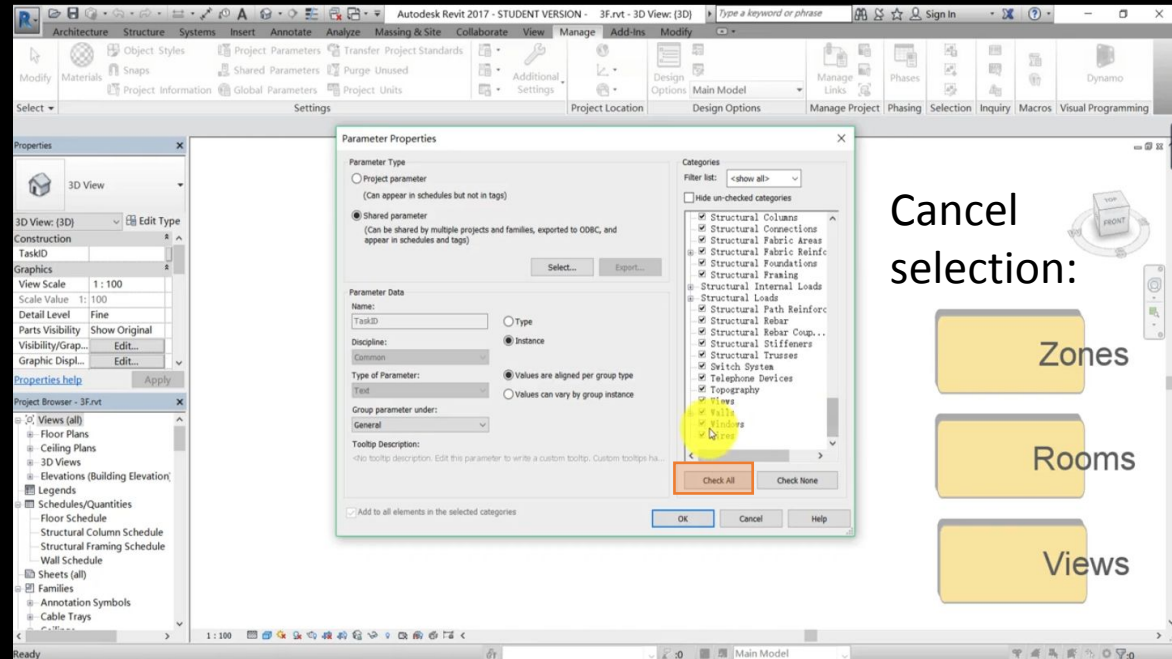
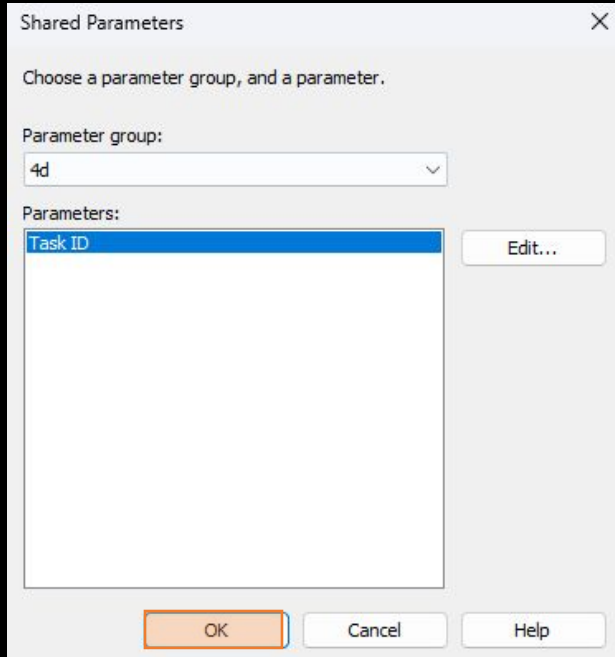
☐ Hide un-checked categories

☐	Analytical Links
☐	Analytical Members
☐	Analytical Nodes
☐	Analytical Openings
☐	Analytical Panels
☐	Analytical Spaces
☐	Analytical Surfaces
☐	Areas
☐	Assemblies
☐	Audio Visual Devices
☐	Casework
☐	Ceilings
☐	Columns
☐	Curtain Panels
☐	Curtain Systems
☐	Curtain Wall Mullions
☐	Data Exchanges
☐	Detail Items

Check All Check None

OK Cancel Help

Project parameters set



Project parameters set

Parameter Properties

Parameter Type

☐ Project parameter
(Can appear in schedules but not in tags)

☒ Shared parameter
(Can be shared by multiple projects and families, exported to ODBC, and appear in schedules and tags)

Select... Export...

Parameter Data

Name:
Task ID

Discipline:
Common

Data Type:
Text

Group parameter under:
Text

☐ Type

☒ Instance

☒ Values are aligned per group type

☐ Values can vary by group instance

Categories

Category name search: VIEW

Filter list: <multiple>

☐ Hide un-checked categories

☐ Views

Check All Check None

OK Cancel Help

Properties

BD4

Doors (1) Edit Type

Constraints

Level Level 1

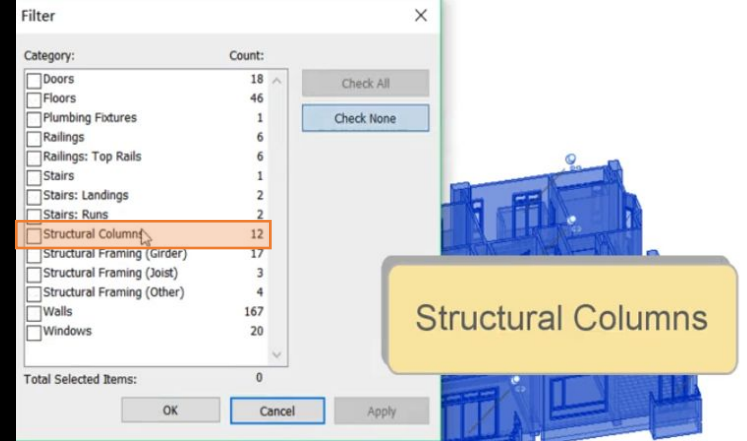
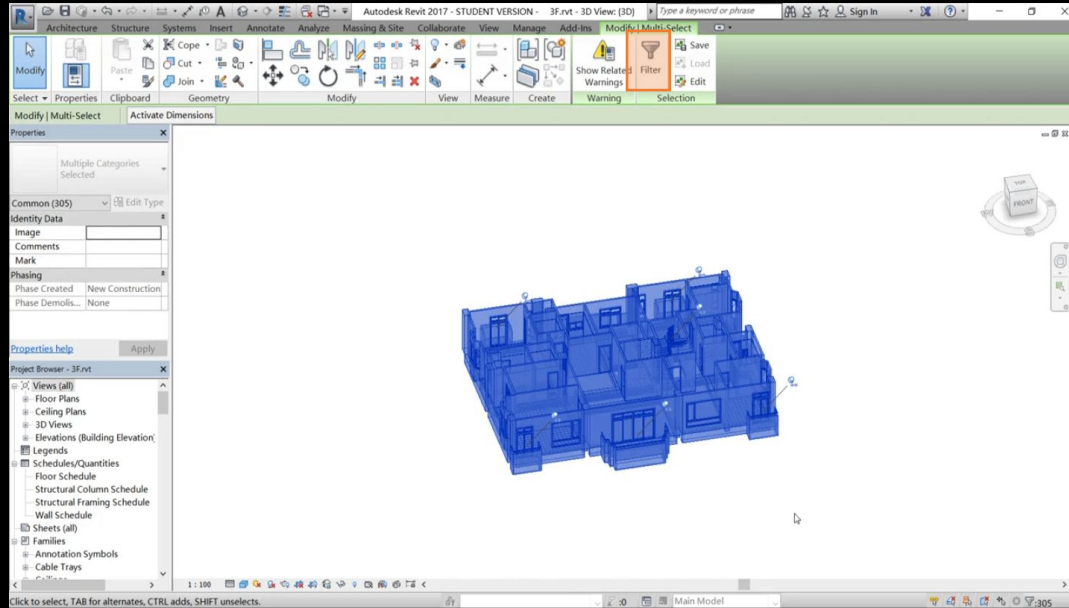
Sill Height 0.0

Construction

Frame Type

Task ID

Project parameters set



Project parameters set

Construction	
TaskID	32100, 
Materials and Fin	No matches
Structural Ma...	

Beams

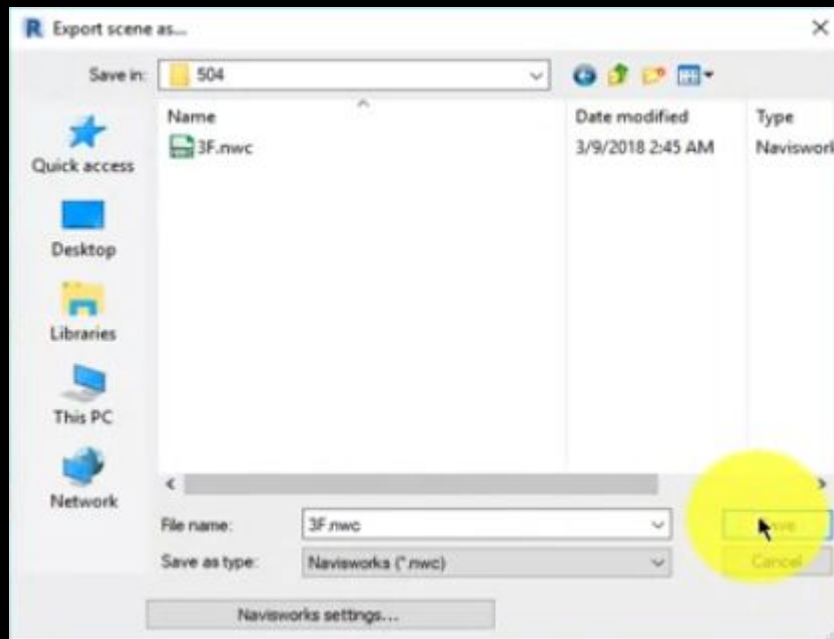
Columns

Floors

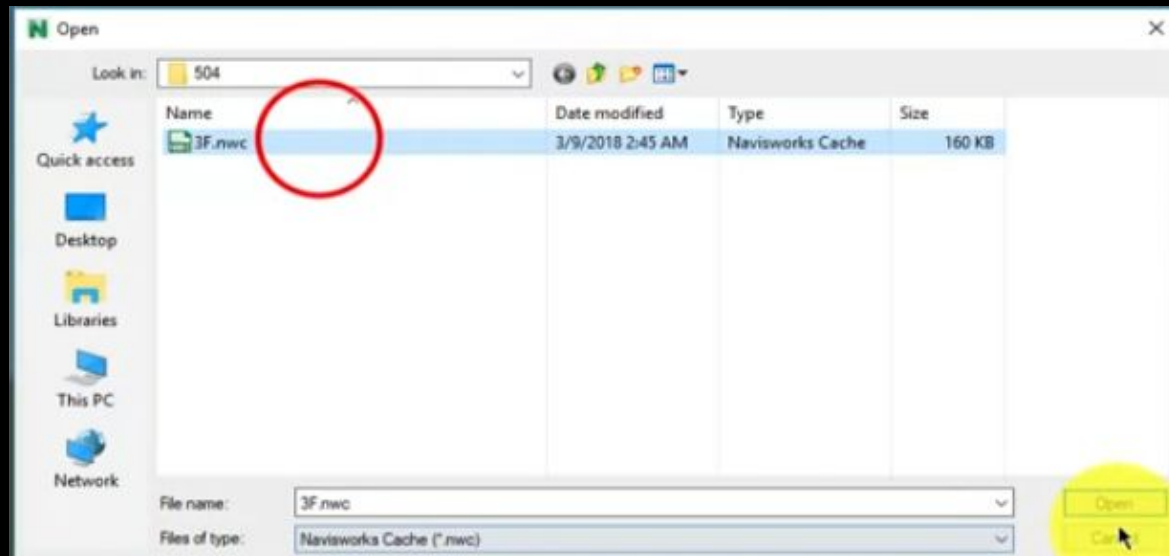
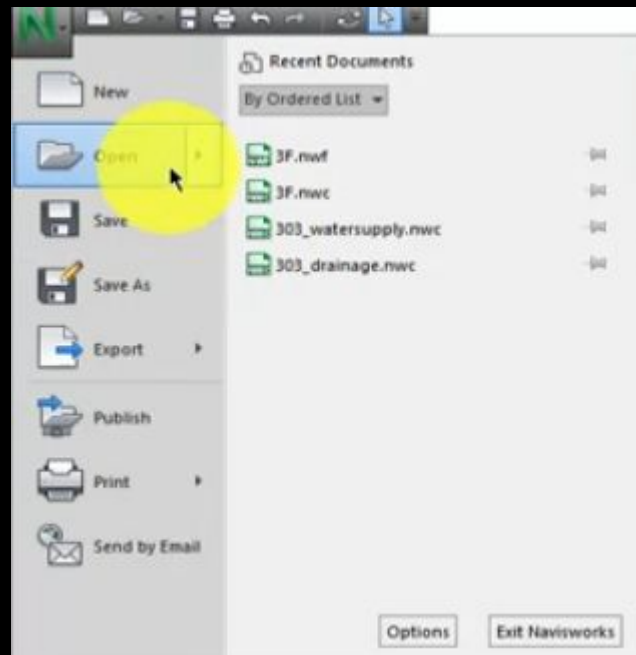
Walls

Stairs

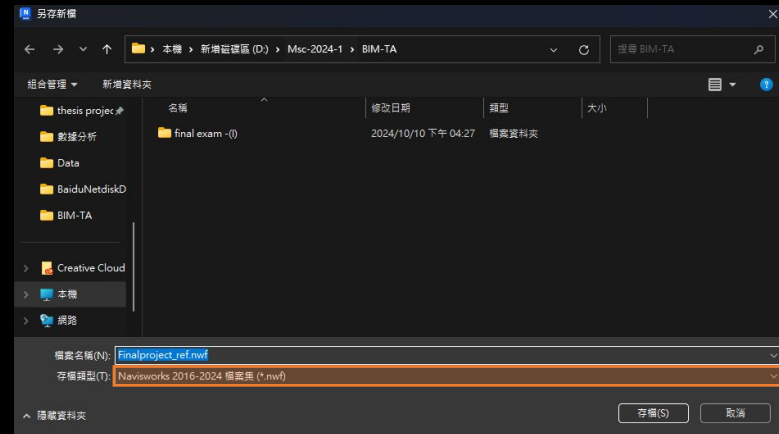
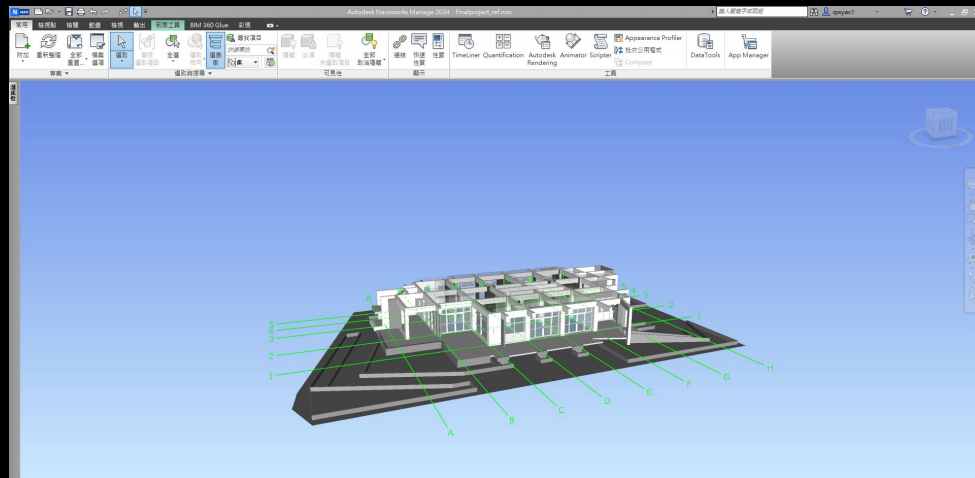
Export file as nwc*



Open file nwc* in navisworks



Save as nwf* first

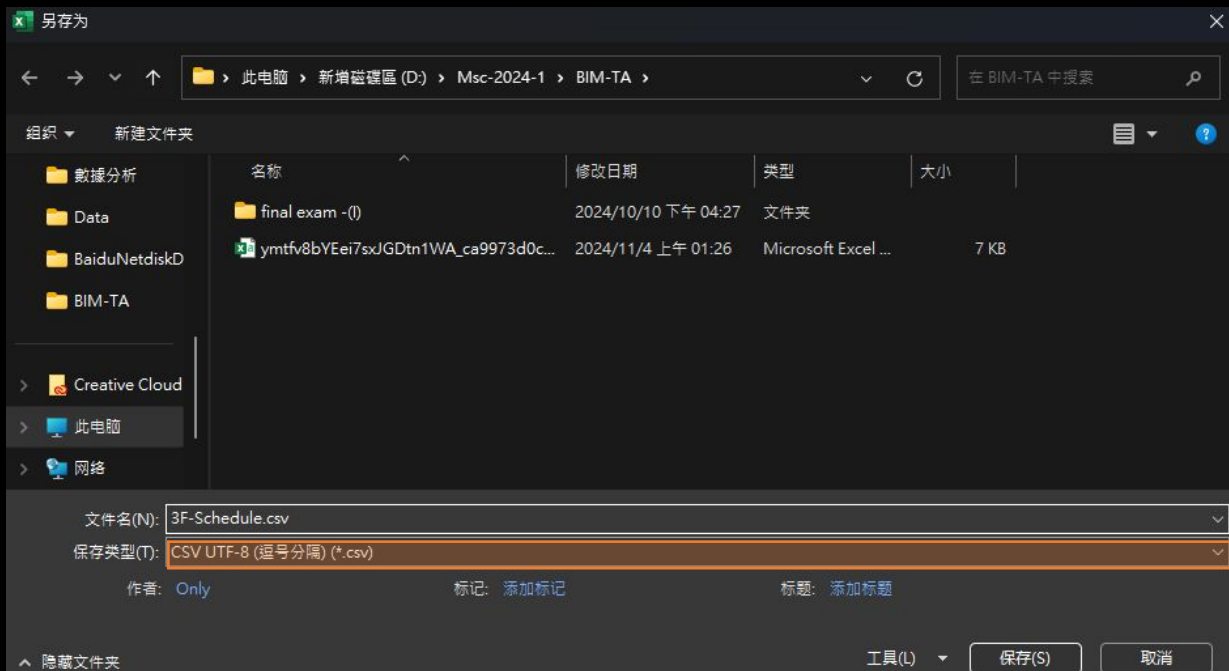




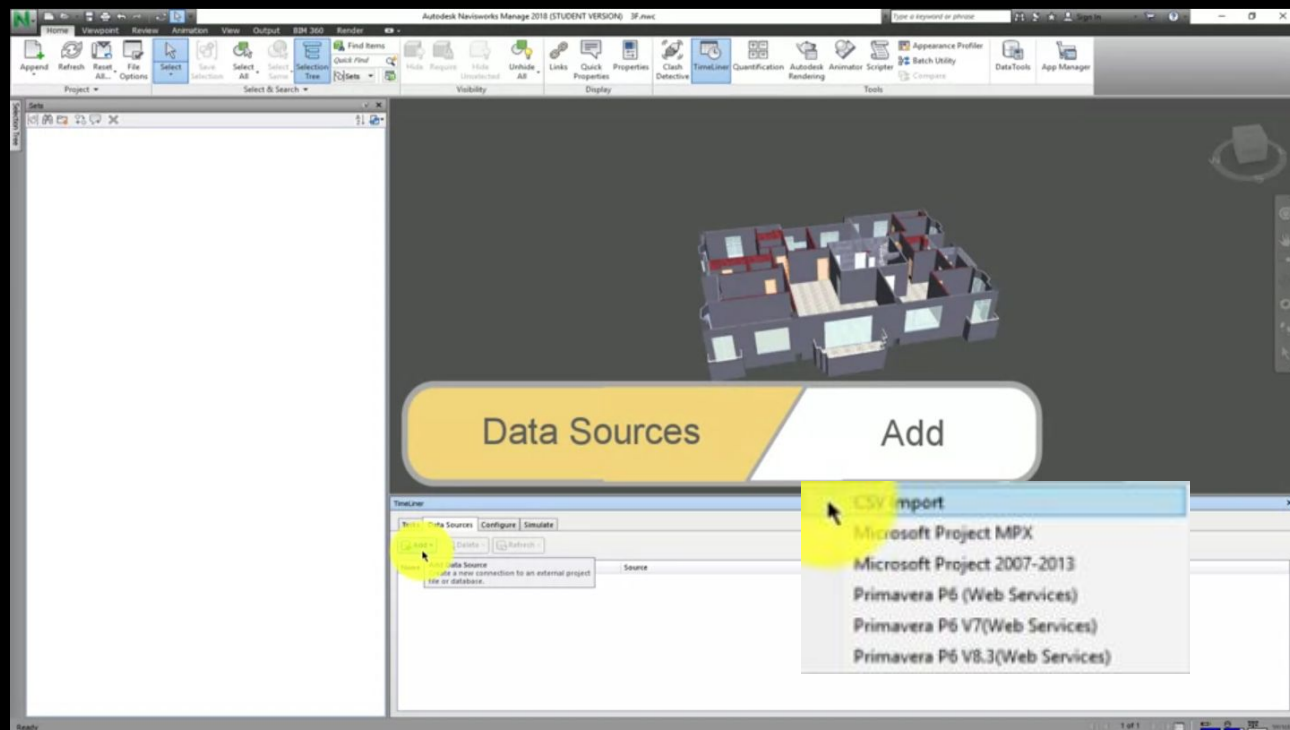
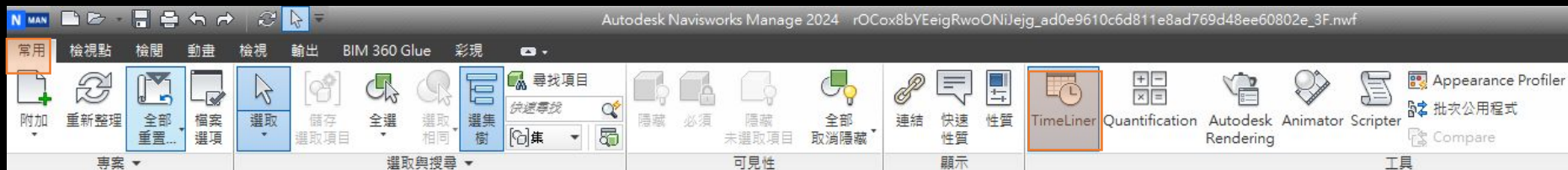
Navisworks set

Format transform

	A	B	C	D	E	F
1	TaskID	Type	Title	Duration	Expected Start	Expected End
2	31000	Construct	3F-Binding formwork for beams	3	9/1/2018	9/4/2018
3	31100	Construct	3F-Binding formwork for slabs	4	9/5/2018	9/9/2018
4	31200	Construct	3F-Installing rebar for slabs and beams	5	9/10/2018	9/15/2018
5	31300	Construct	3F-Grouting slabs and beams	1	9/16/2018	9/17/2018
6	32100	Construct	3F-Removing formwork for slabs and beams	2	9/18/2018	9/20/2018
7	32200	Construct	3F-Laying out columns and walls on slabs	1	9/21/2018	9/22/2018
8	32300	Construct	3F-Binding formworks for columns and walls	3	9/23/2018	9/26/2018
9	32400	Construct	3F-Laying out the opening of stairs	1	9/27/2018	9/28/2018
10	32500	Construct	3F-Binding formworks for stairs	4	9/29/2018	10/3/2018
11	32600	Construct	3F-Installing rebar for columns, walls, and stairs	5	10/4/2018	10/9/2018
12	32700	Construct	3F-Grouting columns, walls, and stairs	1	10/10/2018	10/11/2018
13	32800	Construct	3F-Removing formwork for columns, walls, and	2	10/12/2018	10/14/2018



Add data source



Field Selector set

Field Selector

CSV Import Settings

☒ Row 1 contains headings

☒ Automatically detect date/time format

☐ Use specific date/time format

M/d/yyyy h:mm tt

Column	External Field Name
Synchronization ID	
Planned Start Date	
Planned End Date	
Actual Start Date	
Actual End Date	
Material Cost	
Labor Cost	
Equipment Cost	
Subcontractor Cost	
User 1	
User 2	

Reset All OK Cancel Help

Task Name Title

Synchronization ID Task ID

Planned Start Date Expected Start

Planned End Date Expected End

Field Selector

CSV Import Settings

☒ Row 1 contains headings

☒ Automatically detect date/time format

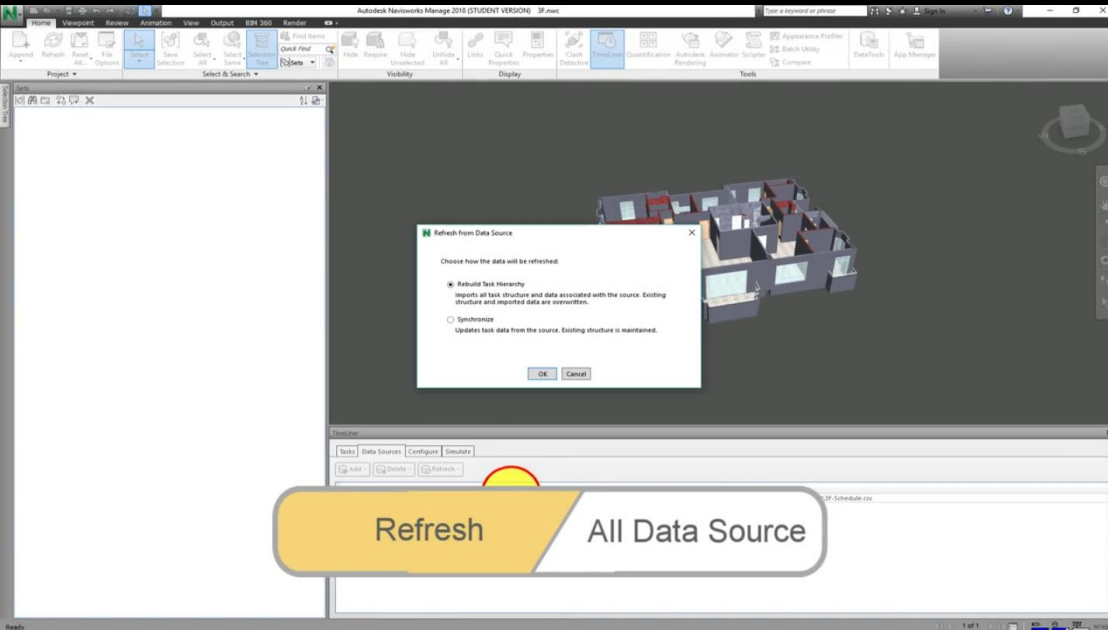
☐ Use specific date/time format

M/d/yyyy h:mm tt

Column	External Field Name
Task Name	Title
Display ID	
Task Type	
Synchronization ID	
Planned Start Date	TaskID
Planned End Date	Expected Start
Actual Start Date	Expected End
Actual End Date	
Material Cost	
Labor Cost	
Equipment Cost	

Reset All OK Cancel Help

Refresh



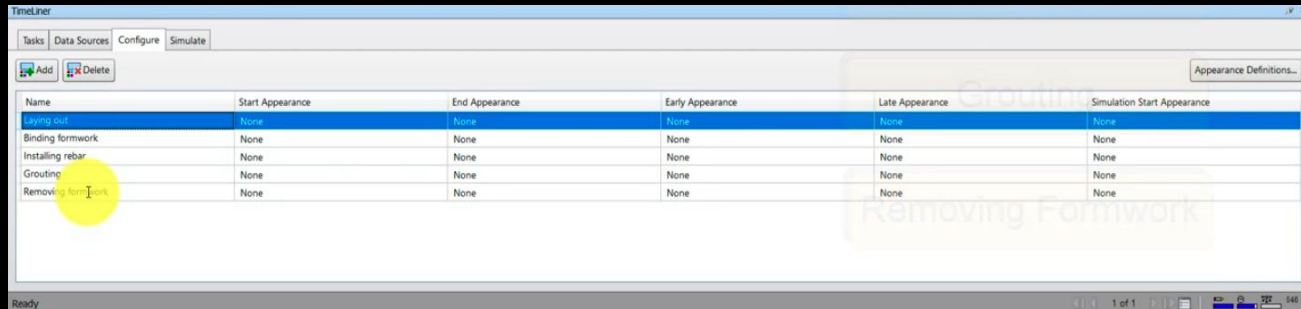
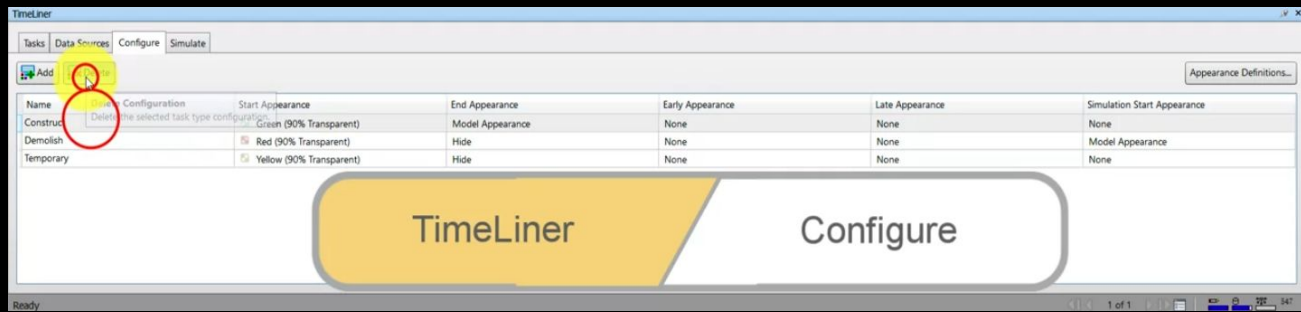
The screenshot shows the 'Tasks' tab in Autodesk Navisworks Manage 2018. The 'Add' button in the toolbar is circled in red. The table below lists the tasks and their associated dates.

Active	Name	Planned Start	Planned End	Actual Start	Actual End	Task Type
☒	New Data Source (Root)	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Setting framework for...	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Setting framework for...	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Installing interior for da...	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Installing interior for da...	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Removing framework f...	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Laying out columns an...	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Setting framework for...	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Laying out the operat...	9/1/2018	9/1/2018	N/A	N/A	
☒	3D-Setting framework for...	9/1/2018	9/1/2018	N/A	N/A	

Task types set

Laying out
Binding formwork
Installing rebar
Grouting
Removing formwork

放樣
安裝模版
安裝鋼筋
灌漿
拆模



Definition	Description
Start Appearance	Determines how elements will look at the start of the task.
End Appearance	Determines how elements will look when the task is completed.
Early Appearance	Defines how elements will look if the task is started before the planned time.
Late Appearance	Determines how elements will look if the task is started after the planned time.
Simulation Start Appearance	Specifies how elements should be displayed at the start of a simulation.

Appearance set

Autodesk Navisworks Manage 2017 (STUDENT VERSION) 3fnew.nwc

Home Viewpoint Review Animation View Output BIM 360 Render

Append Refresh Select Save Selection Select All Select Same Selection Tree Find Items Quick Find Hide Require Hide Unselected Unhide All Links Quick Properties Properties Clash Detective TimeLiner Quantification Autodesk Rendering Appearance Profiler Animator Batch Utility Compare DataTools

Project Select & Search Visibility Display Tools

None

Hide

Model Appearance

Appearance Definitions

TimeLiner

Tasks Data Sources Configure Simulate

Add Delete

Name	End Appearance	Early Appearance
Laying out	None	None
Binding formwork	None	None
Installing rebar	None	None
Grouting	None	None
Removing formwork	None	None

Appearance set

TimeLiner

Tasks Data Sources Configure Simulate

Add Delete Appearance Definitions...

Name	Start Appearance	End Appearance	Early Appearance	Late Appearance	Simulation Start Appearance
Laying out	Yellow (90% Transparent)	Yellow	None	None	Hide
Binding formwork	Green (90% Transparent)	Green	None	None	Hide
Installing rebar	Blue (90% Transparent)	Blue	None	None	Hide
Grouting	Red (90% Transparent)	Red	None	None	Hide
Formwork removal	None (90% Transparent)	Model Appearance	None	None	None

Ready 1 of 1 980

Task types chosen in Tasks

TimeLiner

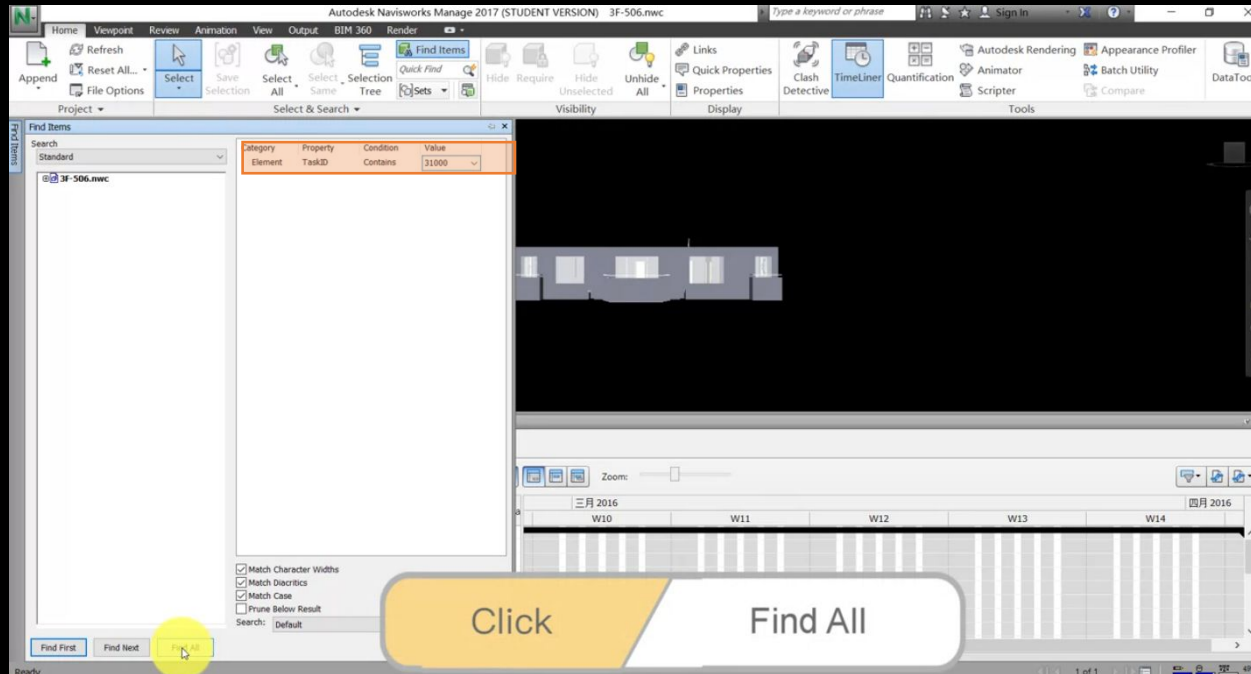
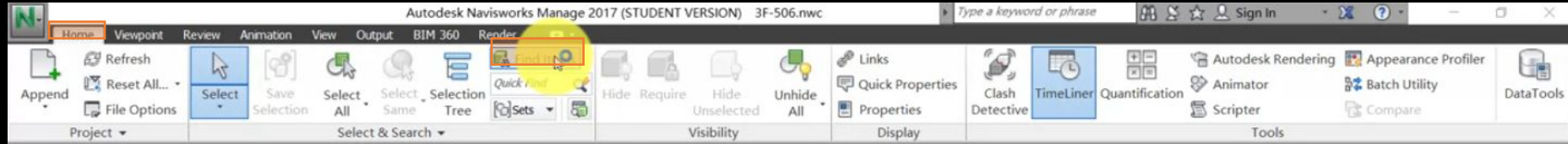
Tasks Data Sources Configure Simulate

Add Task Attach

	Status	Planned Start	Planned End	Actual Start	Actual End	Task Type	Attached	Total
▶		2016/2/5	2016/4/4	N/A	N/A			
		2016/2/5	2016/2/7	N/A	N/A			
		2016/2/8	2016/2/11	N/A	N/A			
beam		2016/2/12	2016/2/16	N/A	N/A			
		2016/2/17	2016/2/17	N/A	N/A			
slabs		2016/2/18	2016/2/21	N/A	N/A			
		2016/2/22	2016/2/22	N/A	N/A			
walls on slabs		2016/2/23	2016/2/23	N/A	N/A			
		2016/2/24	2016/2/24	N/A	N/A			
the beams		2016/2/25	2016/2/25	N/A	N/A			

Laying out
Binding form
Installing reb
Grouting
Removing fo

Selection sets



Selection sets

