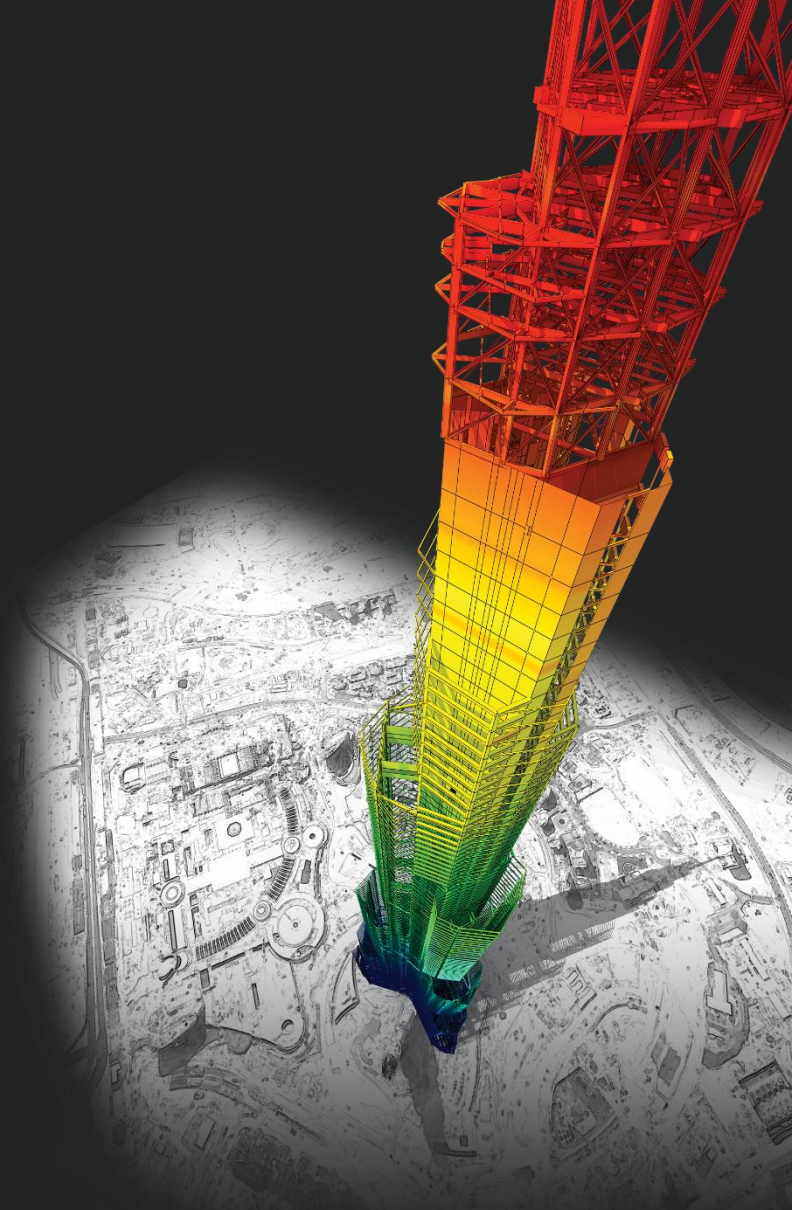


# Release Note

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Release Date : October. 2022

Product Ver. : midas Gen 2023 (v1.1) and Design+2023(v1.1)



*DESIGN OF General Structures*

*Integrated Design System for Building and General Structures*

# Enhancements

- **midas Gen**

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*midas* **Gen**

# 1. 新增台灣耐震設計規範(Taiwan Seismic Load 2022)

## Added Seismic Load for Taiwan Engineers

- **Static Seismic Load (Taiwan 2022) : Generate Seismic Zone data considering Near fault seismic effect**
- **Support for Miscellaneous Structure type**

### Static Seismic Load

Add/Modify Seismic Load Specification

Load Case Name : Ex  
 Seismic Load Code : Taiwan(2022)  
 Description :

Seismic Load Parameters  
 Type of Structure  
 General Structure  Miscellaneous Structure

Seismic Zone (Z) : Near Fault Zone  
 Seismic Zone Related Data...

Importance Factor (I) : 1.00  
 Seismic Magnify Factor (ay) : 1.2

Structural Parameters  
 Analytical Period  
 Approximate Period  
 Fundamental Period : 0.7 0.7  
 Response Modification Coef (R) : 1.6 1.6

Seismic Load Direction Factor (Scale Factor)  
 X-Direction : 1 Y-Direction : 0

Accidental Eccentricity  
 X-Direction (Ex) :  Positive  Negative  None  
 Y-Direction (Ey) :  Positive  Negative  None

Torsional Amplification  
 Accidental Eccentricity  Inherent Eccentricity

Additional Seismic Loads (Unit:kN,m)  

| Story | Add-X | Add-Y | Add-RZ |
|-------|-------|-------|--------|
|       |       |       |        |

Seismic Load Profile... OK Cancel Apply

Seismic Zone Data ( Taiwan 2022 )

Seismic Zone (Z) : Near Fault Zone

Horizontal Spectral Accel. (Table 2-1)

|                                  | Design | Maximum |
|----------------------------------|--------|---------|
| Short Period (S <sub>s</sub> ) : | 0.5    | 0.7     |
| 1sec Period (S <sub>1</sub> ) :  | 0.3    | 0.45    |

Near Fault Seismic Effect (Table 2-3-1 ~ 2-3-4)

|                                  | Design | Maximum |
|----------------------------------|--------|---------|
| Short Period (S <sub>s</sub> ) : | 0.8    | 1       |
| 1sec Period (S <sub>1</sub> ) :  | 0.45   | 0.55    |

Site Magnify Factor  
 Soil Type : Type 1

|                                  | Design | Maximum |
|----------------------------------|--------|---------|
| Short Period (F <sub>a</sub> ) : | 1      | 1       |
| 1sec Period (F <sub>v</sub> ) :  | 1      | 1       |

Short Period (F<sub>a</sub><sup>\*</sup>) : 1  
 1sec Period (F<sub>v</sub><sup>\*</sup>) : 1

OK Cancel

### Response Spectrum & Demand Spectrum (Pushover)

Add/Modify/Show Response Spectrum Functions

Function Name : Taiwan(2022)  
 Spectral Data Type :  Normalized Accel.  Acceleration  
 Scaling :  Scale Factor 1  Maximum Value 0 g

Import File Design Spectrum

|    | Period (sec) | Spectral Data (g) |
|----|--------------|-------------------|
| 1  | 0.0000       | 0.1020            |
| 2  | 0.0600       | 0.1786            |
| 3  | 0.1200       | 0.2551            |
| 4  | 0.1800       | 0.2551            |
| 5  | 0.2400       | 0.2551            |
| 6  | 0.3000       | 0.2551            |
| 7  | 0.3600       | 0.2551            |
| 8  | 0.4200       | 0.2551            |
| 9  | 0.4800       | 0.2551            |
| 10 | 0.5400       | 0.2551            |
| 11 | 0.6000       | 0.2551            |
| 12 | 0.6600       | 0.2319            |
| 13 | 0.7200       | 0.2126            |
| 14 | 0.7800       | 0.1962            |

Spectral Data

Description TAIWAN(2022) : NearFault, Design, SoilType1, I=1.00, ay=1.00, R=1.60, Ss=0.50

Generate Design Spectrum

Design Spectrum : Taiwan(2022)

Spectrum Type : Horizontal Design Spectru  
 Seismic Zone : Near Fault Zone  
 Spectrum Used : Design Spectrum

Horizontal Spectral Accel. (Table 2-1)

|                                  | Design | Maximum |
|----------------------------------|--------|---------|
| Short Period (S <sub>s</sub> ) : | 0.50   | 0.70    |
| 1sec Period (S <sub>1</sub> ) :  | 0.30   | 0.40    |

Near Fault Seismic Effect (Table 2-3-1 ~ 2-3-4)

|                                  | Design | Maximum |
|----------------------------------|--------|---------|
| Short Period (S <sub>s</sub> ) : | 1.0    | 1.0     |
| 1sec Period (S <sub>1</sub> ) :  | 1.0    | 1.0     |

Site Magnify Factor  
 Soil Type : Type 1

|                                  | Design | Maximum |
|----------------------------------|--------|---------|
| Short Period (F <sub>a</sub> ) : | 1      | 1.0     |
| 1sec Period (F <sub>v</sub> ) :  | 1      | 1.0     |

Fundamental Period (T<sub>1</sub>) : 0.77354 ...

Importance Factor (I) : 1.00  
 Seismic Magnify Factor (ay) : 1.0  
 Response Modification Coef. (R) : 1.6  
 Damping Ratio (%) : 5  
 Max. Period : 6 (Sec)

OK Cancel

## 2. 反應譜函數曲線取包絡值功能(Response Spectrum Envelope)

### Envelopment of Response Spectrum

- To apply the largest spectrum function among Design, Small-Medium, and Maximum Spectrum using envelope functions.
- To apply the largest spectrum function among fault case1 & fault case2 Spectrum using envelope functions.

**Click "Envelope"**

**Input Name and Select Spectrum for Envelope**

**Check of enveloped functions**

**Response Spectrum Functions**

**Response Spectrum Envelope**

**Response Spectrum Functions**

### 3. 新增菲律賓鋼構設計規範 NSCP 2015 (Philippine)

#### Added LRFD & ASD Method for Steel Design

**NSCP 2015 (LRFD)**

**Design Code**

**Automatic Generation of Load Combinations**

**Load Combination**

**NSCP 2015 (ASD)**

**Design Code**

**Automatic Generation of Load Combinations**

**Load Combination**

## 4. 新增牆構件的安全性檢討與循環抗剪強度檢討 EC8-3(2005), NTC 2018

- Safety Verification and Cyclic Shear Resistance tables are provided for seismic safety evaluation of wall members (Strong Axis).

Pushover – Safety Verification Table

| Wall ID  | Story | Location | Seismic Element | Load | Verify Ductile Mechanism |          |        |        |          |        | Verify Brittle Mechanism |              |        |            |              |           |    |
|--|-------|----------|-----------------|------|--------------------------|----------|--------|--------|----------|--------|--------------------------|--------------|--------|------------|--------------|-----------|----|
|  |       |          |                 |      | My                       |          |        | Mz     |          |        | Fy                       |              |        | Fz         |              |           |    |
|  |       |          |                 |      | Demand                   | Capacity | Remark | Demand | Capacity | Remark | Demand (N)               | Capacity (N) | Remark | Demand (N) | Capacity (N) | Remark    |    |
| Step for Demand = USER (Step 30), Confidence factor = 1.00                                 |       |          |                 |      |                          |          |        |        |          |        |                          |              |        |            |              |           |    |
| Press right mouse button and click 'Set Safety Parameters' menu to change step or loadcase |       |          |                 |      |                          |          |        |        |          |        |                          |              |        |            |              |           |    |
| 1  | 1F    | Bottom   | Primary         | 1    | 0.0000                   | 0.0070   | OK     | -      | -        | -      | -                        | -            | -      | -          | 716136.00    | 1216830.0 | OK |
| 1  | 1F    | Top      | Primary         | 1    | 0.0042                   | 0.0070   | OK     | -      | -        | -      | -                        | -            | -      | -          | 716136.00    | 1216830.0 | OK |
| 1  | 2F    | Bottom   | Primary         | 1    | 0.0000                   | 0.0071   | OK     | -      | -        | -      | -                        | -            | -      | -          | 467874.00    | 1216830.0 | OK |
| 1  | 2F    | Top      | Primary         | 1    | 0.0000                   | 0.0071   | OK     | -      | -        | -      | -                        | -            | -      | -          | 467874.00    | 1216830.0 | OK |

Concrete Design – Safety Verification Table

| Wall ID   | Story | Location | Seismic Element | Load | Cyclic Shear Resistance |          |        |           |            |        |
|---|-------|----------|-----------------|------|-------------------------|----------|--------|-----------|------------|--------|
|   |       |          |                 |      | VRy                     |          |        | VRz       |            |        |
|   |       |          |                 |      | Demand                  | Capacity | Remark | Demand    | Capacity   | Remark |
| Confidence Factor = 1.00, qd = 3.00, le = 1.00  |       |          |                 |      |                         |          |        |           |            |        |
| Press right mouse button and click 'Set Cyclic Shear Resistance Parameters' menu to change Load Case/Combination/Confidence Factor/Displacement Behavior Factor/Importance Factor |       |          |                 |      |                         |          |        |           |            |        |
| 1   | 1F    | Bottom   | Primary         | -    | -                       | -        | -      | 56049.000 | 1827030.0  | OK     |
| 1   | 1F    | Top      | Primary         | -    | -                       | -        | -      | 56049.000 | 1616140.0  | OK     |
| 1   | 2F    | Bottom   | Primary         | -    | -                       | -        | -      | 34486.000 | 11956200.0 | OK     |
| 1   | 2F    | Top      | Primary         | -    | -                       | -        | -      | 34486.000 | 1610890.0  | OK     |

Pushover – Safety Verification Table

| Wall ID   | Story | Location | Seismic Element | Load | Cyclic Shear Resistance |          |        |        |           |           |    |
|---|-------|----------|-----------------|------|-------------------------|----------|--------|--------|-----------|-----------|----|
|   |       |          |                 |      | VRy                     |          |        | VRz    |           |           |    |
|   |       |          |                 |      | Demand                  | Capacity | Remark | Demand | Capacity  | Remark    |    |
| Confidence Factor = 1.00, qd = 1.00, le = 1.00  |       |          |                 |      |                         |          |        |        |           |           |    |
| Press right mouse button and click 'Set Cyclic Shear Resistance Parameters' menu to change Load Case/Combination/Confidence Factor/Displacement Behavior Factor/Importance Factor |       |          |                 |      |                         |          |        |        |           |           |    |
| 1   | 1F    | Bottom   | Primary         | 1    | -                       | -        | -      | -      | 716136.00 | 1491770.0 | OK |
| 1   | 1F    | Top      | Primary         | 1    | -                       | -        | -      | -      | 716136.00 | 1329410.0 | OK |
| 1   | 2F    | Bottom   | Primary         | 1    | -                       | -        | -      | -      | 467874.00 | 1511530.0 | OK |
| 1   | 2F    | Top      | Primary         | 1    | -                       | -        | -      | -      | 467874.00 | 1478240.0 | OK |

## 5. 検討樓版長期變位量可考慮潛變係數 (EC2, 2004)

- User can input the creep coefficient in the dialog box for slab design serviceability check.

The screenshot displays the MIDAS/Gen software interface. On the left, the 'Cracked Section Analysis Control' dialog box is open, showing the 'Cracked Section Analysis Option' section. The 'Consider creep coefficient for crept deflection' checkbox is checked, and the value '2.44' is entered in the adjacent field. A red box highlights this section. The 'Design' tree menu on the right shows the 'Slab Serviceability Checking' section, where the 'Creep (Phi: 2.44)' option is also highlighted with a red box. The main window shows a 3D model of a slab with a color-coded deflection distribution. The color scale ranges from blue (0.00000e+00) to red (-6.36734e+01). The legend on the right indicates the maximum deflection is 2 mm and the minimum is 33 mm. The file name is TEST\_DEF- and the date is 09/27/2022.

| Value        |
|--------------|
| 0.00000e+00  |
| -5.78849e+00 |
| -1.15770e+01 |
| -1.73655e+01 |
| -2.31540e+01 |
| -2.89424e+01 |
| -3.47309e+01 |
| -4.05194e+01 |
| -4.63079e+01 |
| -5.20964e+01 |
| -5.78849e+01 |
| -6.36734e+01 |

midas Gen  
POST-PROCESSOR  
SLAB SERV. CHECKING

Position:  
Top & Bot

Smoothing:  
Element (Element)

Component:  
Direction 1

Deflection:  
Creep

ALL COMBINATION

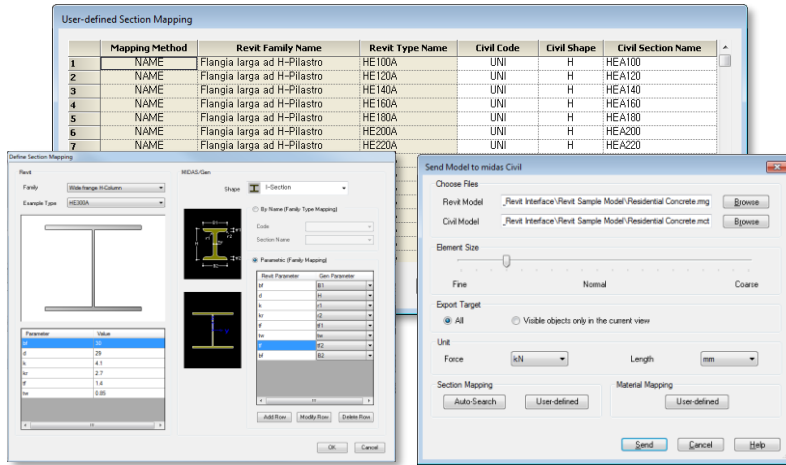
MAX : 2  
MIN : 33  
FILE: TEST\_DEF-  
UNIT: mm  
DATE: 09/27/2022



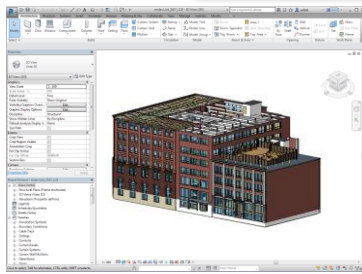
# 6. 連結 Revit 2023 介面

## Gen-Revit Link

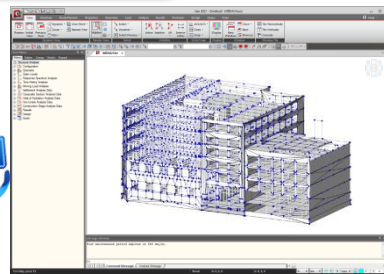
- **File > Import > midas Gen MGT File**
- **File > Export > midas Gen MGT File**



**Send Model to midas Gen**



**Revit 2023**



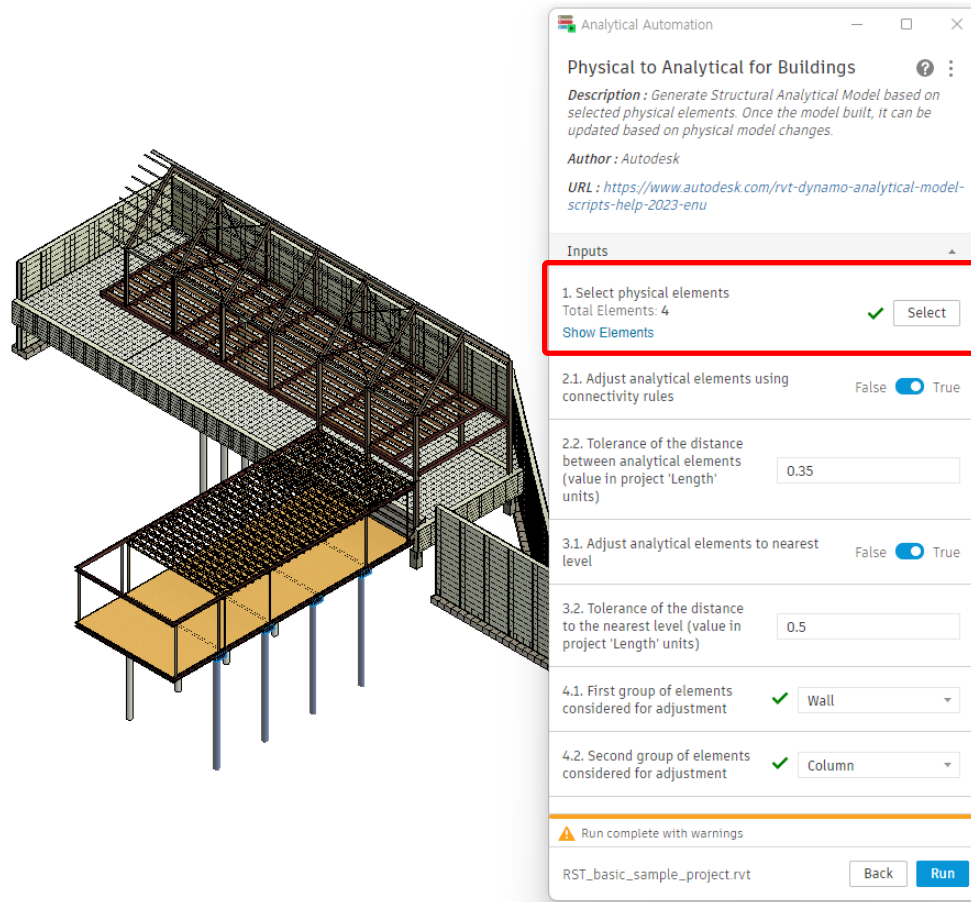
**Gen2023 v1.1 (New version)**

|                   | Functions                   | Revit <> Gen |   |
|-------------------|-----------------------------|--------------|---|
| Linear Elements   | Structural Column           | <>           |   |
|                   | Beam                        | <>           |   |
|                   | Brace                       | <>           |   |
|                   | Curved Beam                 | >            |   |
|                   | Beam System                 | >            |   |
|                   | Truss                       | >            |   |
| Planar Elements   | Foundation Slab             | <>           |   |
|                   | Structural Floor            | <>           |   |
|                   | Structural Wall             | <>           |   |
|                   | Wall Opening & Window       | >            |   |
|                   | Door                        | >            |   |
|                   | Vertical or Shaft Opening   | >            |   |
|                   | Offset                      | >            |   |
| Boundary          | Rigid Link                  | >            |   |
|                   | Cross-Section Rotation      | >            |   |
|                   | End Release                 | >            |   |
|                   | Isolated Foundation Support | >            |   |
|                   | Point Boundary Condition    | >            |   |
|                   | Line Boundary Condition     | >            |   |
|                   | Wall Foundation             | >            |   |
|                   | Area Boundary Condition     | >            |   |
|                   | Load                        | Load Nature  | > |
|                   |                             | Load Case    | > |
| Load Combination  |                             | >            |   |
| Hosted Point Load |                             | >            |   |
| Hosted Line Load  |                             | >            |   |
| Hosted Area Load  |                             | >            |   |
| Other Parameters  | Material                    | <>           |   |
|                   | Level                       | >            |   |

## 6. 連結 Revit 2023 介面

### Gen-Revit Link

- User can export to Gen after setting up structural elements through the Analytical Automation function in Revit 2023.



## 7. 新增設計規範索引表 Design Code Table (Design+)

- User can check the Design Code for each design functions using Design Code Table in the Design+ .

The image displays three overlapping windows of the 'Design Code Table' interface. Each window shows a table of design codes and their applicability to different structural components. The 'SRC造' (Steel Reinforced Concrete) category is highlighted in red in all three windows.

**Window 1 (Left):** Shows the 'SRC造' category selected. The table lists design codes and their applicability to '樓版' (Slab), '梁' (Beam), '柱' (Column), '柱(任意斷面)' (Column, any section), and '剪力牆' (Shear Wall).

| Design Code      | 樓版 | 梁 | 柱 | 柱(任意斷面) | 剪力牆 |
|------------------|----|---|---|---------|-----|
| ACI318M-14       | ○  | ○ | ○ | ○       | ○   |
| ACI318M-11       | ○  | ○ | ○ | ○       | ○   |
| ACI318M-08       | ○  | ○ | ○ | ○       | ○   |
| ACI318-14        | ○  | ○ | ○ | ○       | ○   |
| ACI318-11        | ○  | ○ | ○ | ○       | ○   |
| ACI318-08        | ○  | ○ | ○ | ○       | ○   |
| Eurocode2:04     | -  | - | - | -       | -   |
| KDS 41 30 : 2018 | ○  | ○ | ○ | ○       | ○   |
| KCI-USD12        | ○  | ○ | ○ | ○       | ○   |
| KCI-USD07        | ○  | ○ | ○ | ○       | ○   |
| NSR-10           | ○  | ○ | ○ | ○       | ○   |
| IS456:2000       | X  | X | X | ○       | X   |

**Window 2 (Middle):** Shows the '鋼構造' (Steel Structure) category selected. The table lists design codes and their applicability to '梁柱' (Beam-Column), '螺栓接合' (Bolt Connection), '螺栓彎矩接合' (Bolt Moment Connection), and '銲接接合' (Welded Connection).

| Design Code      | 梁柱 | 螺栓接合 | 螺栓彎矩接合 | 銲接接合 |
|------------------|----|------|--------|------|
| AISC-LRFD 16M    | ○  | ○    | ○      | X    |
| AISC-LRFD 10M    | ○  | ○    | ○      | X    |
| AISC-LRFD05M     | ○  | ○    | ○      | X    |
| AISC-LRFD 16     | ○  | ○    | ○      | X    |
| AISC-LRFD 10     | ○  | ○    | ○      | X    |
| AISC-LRFD05      | ○  | ○    | ○      | X    |
| AISC-ASD 16M     | ○  | ○    | X      | X    |
| AISC-ASD 10M     | ○  | ○    | X      | X    |
| AISC-ASD05M      | ○  | ○    | X      | X    |
| AISC-ASD 16      | ○  | ○    | X      | X    |
| AISC-ASD 10      | ○  | ○    | X      | X    |
| AISC-ASD05       | ○  | ○    | X      | X    |
| Eurocode3:05     | -  | -    | -      | -    |
| KDS 41 30 : 2022 | ○  | ○    | X      | X    |
| KDS 41 31 : 2019 | ○  | ○    | X      | X    |
| KSSC-LSD 16      | ○  | ○    | X      | X    |
| KSSC-LSD09       | ○  | ○    | X      | X    |

**Window 3 (Right):** Shows the 'SRC造' category selected. The table lists design codes and their applicability to '合成梁' (Composite Beam), '柱' (Column), 'CFT柱' (CFT Column), and 'Eurocode合成梁' (Eurocode Composite Beam).

| Design Code       | 合成梁 | 柱 | CFT柱 | Eurocode合成梁 |
|-------------------|-----|---|------|-------------|
| AISC-LRFD 16M     | X   | ○ | ○    | -           |
| AISC-LRFD 10M     | ○   | ○ | ○    | -           |
| AISC-LRFD05M      | ○   | X | X    | -           |
| AISC-LRFD 16      | X   | ○ | ○    | -           |
| AISC-LRFD 10      | ○   | ○ | ○    | -           |
| AISC-LRFD05       | ○   | X | X    | -           |
| Eurocode4:04      | -   | - | -    | ○           |
| KDS 41 SRC : 2019 | ○   | ○ | ○    | -           |
| KSSC-LSD 16       | ○   | ○ | ○    | -           |
| KSSC-LSD09        | ○   | ○ | ○    | -           |

## 8. 新增菲律賓鋼筋資料庫-PNS49 (Design+)

- User can do reinforcement concrete member design using Philippine rebar code in the Design+ software.

