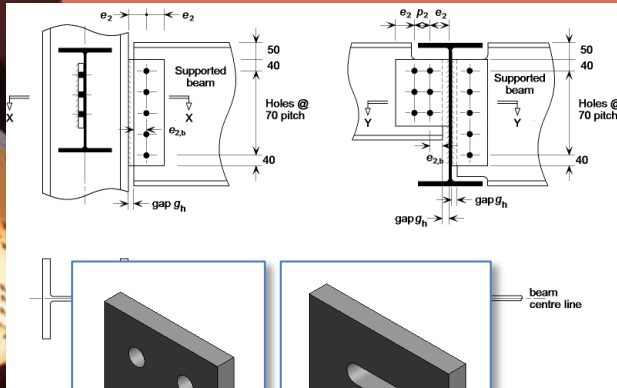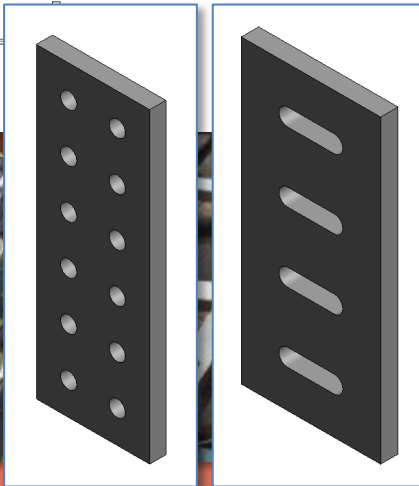# ARCH 2431
Building Technology III
Steel Assembly &
Building Information Modeling (BIM) with Revit

Steel Connections Series
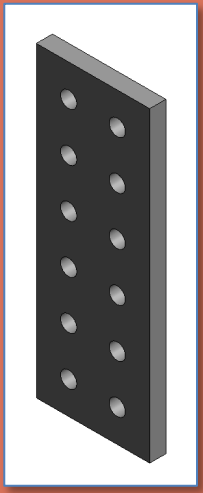
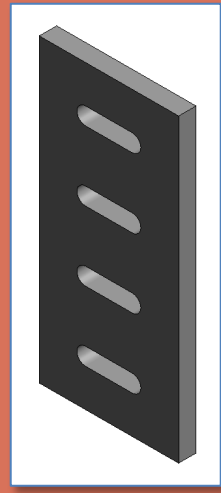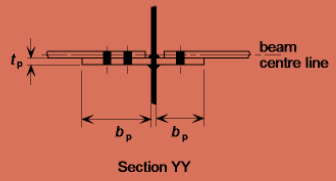- *#1 Introduction to Columns & Beams*
- *#2 Column Base Plates*
- *#3 Photos & Videos – Connections & Fasteners*
- *#4 Concrete footing to baseplate connection*
- ***#5 Fin & Splice Plates – Notched Beams***
- *#6 Diagonal Bracing*

Prof. Paul C. King, Course Coordinator   Pking@CityTech.Cuny.Edu
Prof. Blake Kurasek   Bkurasek@CityTech.Cuny.Edu
Prof. Justin Sherman   Jsherman@CityTech.Cuny.Edu
Prof. Jieun Yang   Jyang@CityTech.Cuny.Edu

1.6
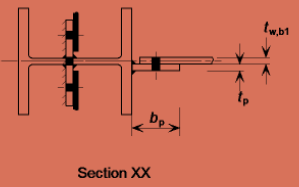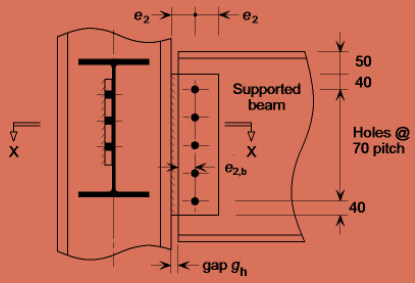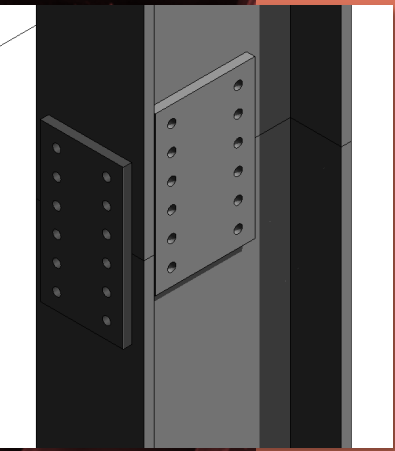
Fin & Splice Plates
Notched Beam Connections

Supported beam

50
40

Holes @ 70 pitch

40

gap g_h

Section XX

$t_{w,b1}$
t_p
b_p

Supported beam

50
40

Holes @ 70 pitch

40

gap g_h

gap g_h

Section YY

t_p
beam centre line
b_p
b_p

e_2
e_2
X
X
$e_{2,b}$

e_2 p_2 e_2
Y
Y
$e_{2,b}$

Steel Connections

Fin & Splice Plates –

Notched Beams

• Fin Plate

• Splice Plate

• Notched Beam

• Isometric Views

• Sheet
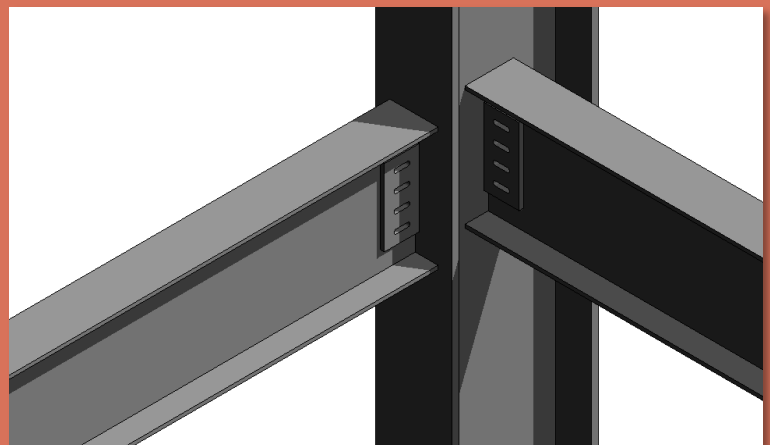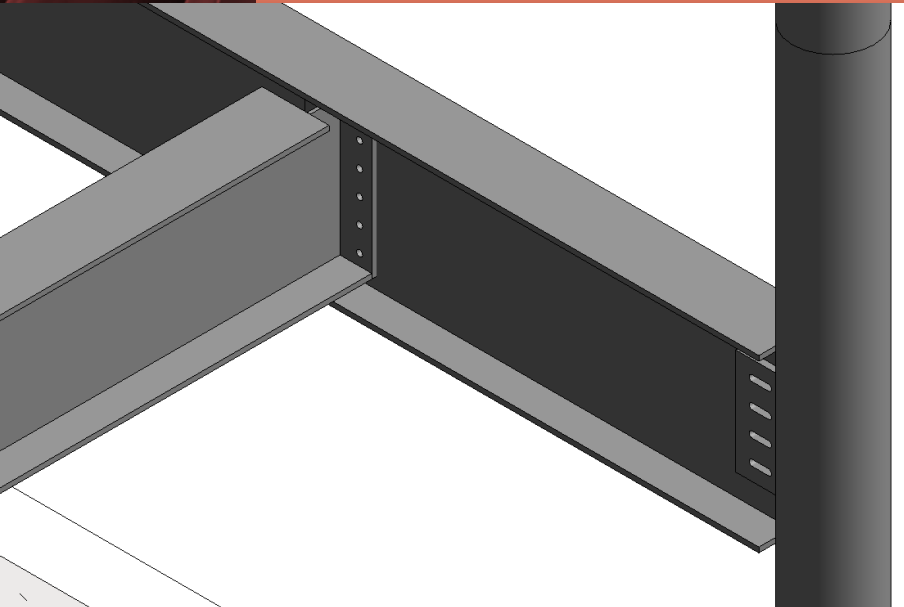
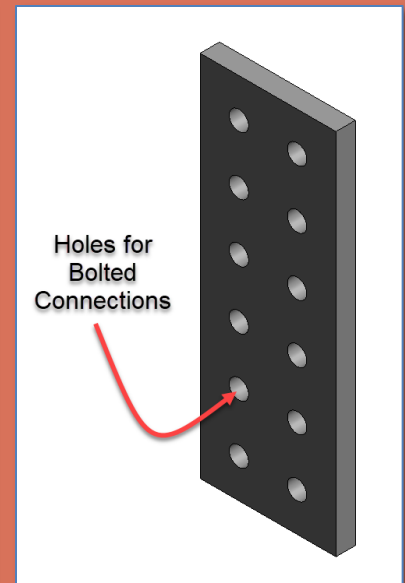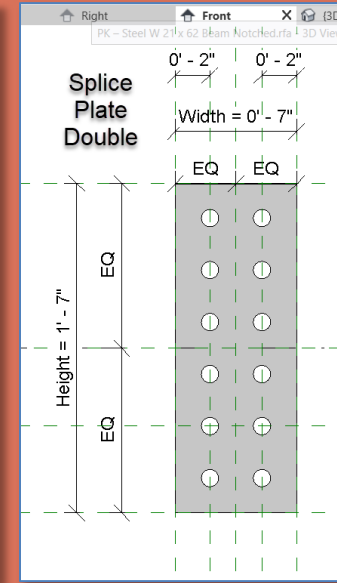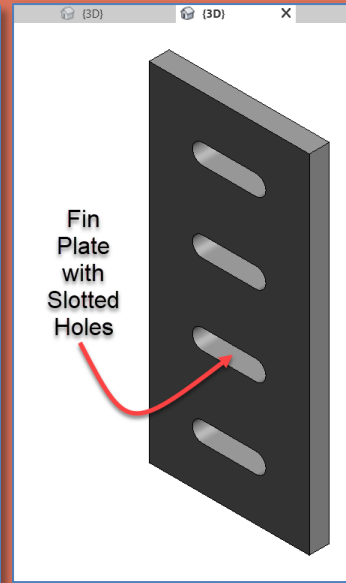# Fin Plates & Splice Plates for Column Connections

Fin Plate

- Welded to columns or beams for connecting beams
- 3/8" Radius Slotted holes allow for horizontal adjustment

Splice Plates

- Used for vertical connections from column to column
- 3/8" Radius Holes allow for bolted connections

Width = 0' - 6"

EQ   EQ

Height = 1' - 1"

Fin Plate with Slotted Holes

Fin Plate with Slotted Holes

Splice Plate Double

0' - 2"   0' - 2"

Width = 0' - 7"

EQ   EQ

Height = 1' - 7"

EQ

EQ

Holes for Bolted Connections

Steel Connections

Fin & Splice Plates – Notched Beams

• **Fin Plate**

• **Splice Plate**

• **Notched Beam**

• **Isometric Views**

• **Sheet**

Notched Beam with Bolting Plate

When beams support floors or roofs the tops of the beams need to be in alignment

A bolting plate welded to the end allows the beam to be secured

Beam with Notched end with welded bolting

A notched beam allows the smaller beam to slip below the top web of the larger beam
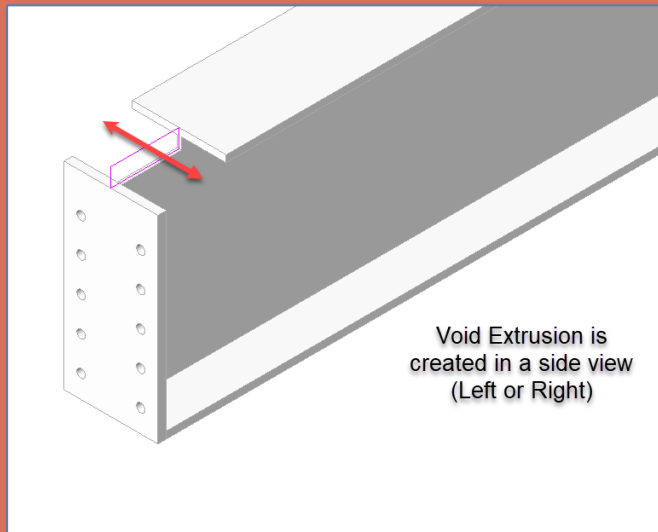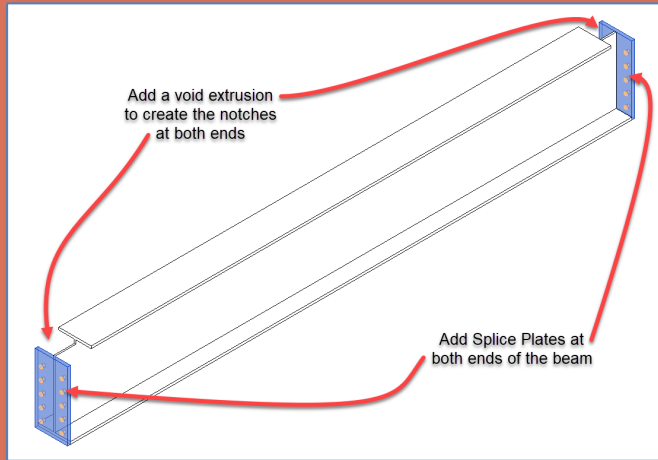
Use W 18 x 119 Notched Beam with Bolting plate

Designation Imperial (in x lb/ft)	Depth h (in)	Width w (in)	Web Thickness t_w (in)	Flange Thickness t_f (in)	Sectional Area (in²)	Weight (lb_f/ft)	Moment of Inertia		Elastic Section Modulus	
							I_x (in⁴)	I_y (in⁴)	S_x (in³)	S_y (in³)
W 27 x 178	27.8	14.09	0.725	1.190	52.3	178	6990	555	502	78.8
W 27 x 161	27.6	14.02	0.660	1.080	47.4	161	6280	497	455	70.9
W 18 x 119	19	11.27	0.655	1.060	35.1	119	2190	253	231	44.9
W 18 x 106	18.7	11.2	0.590	0.940	31.1	106	1910	220	204	39.4
W 18 x 97	18.6	11.15	0.535	0.870	28.5	97	1750	201	188	36.1

Depth = 19''   Width=11.27
Web .655''   Flange = 1.060''

Steel Connections

Fin & Splice Plates –

Notched Beams

• **Fin Plate**

• **Splice Plate**

• **Notched Beam**

• **Isometric Views**

• **Sheet**

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Notched Beam with Bolting Plate

Add a void extrusion to create the notches at both ends

Add Splice Plates at both ends of the beam

Void Extrusion is created in a side view (Left or Right)

- Make a copy of a Beam Family
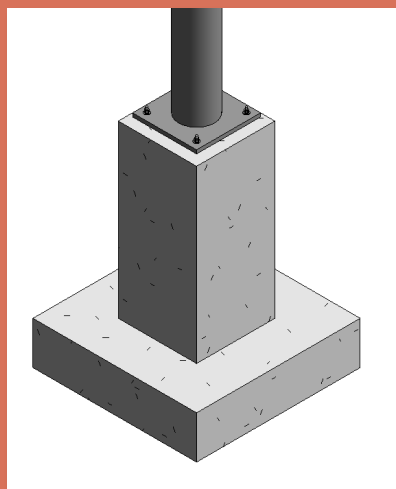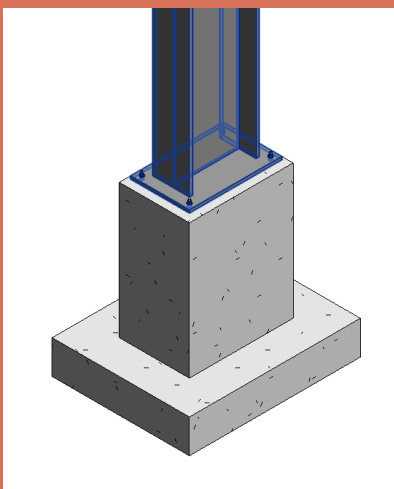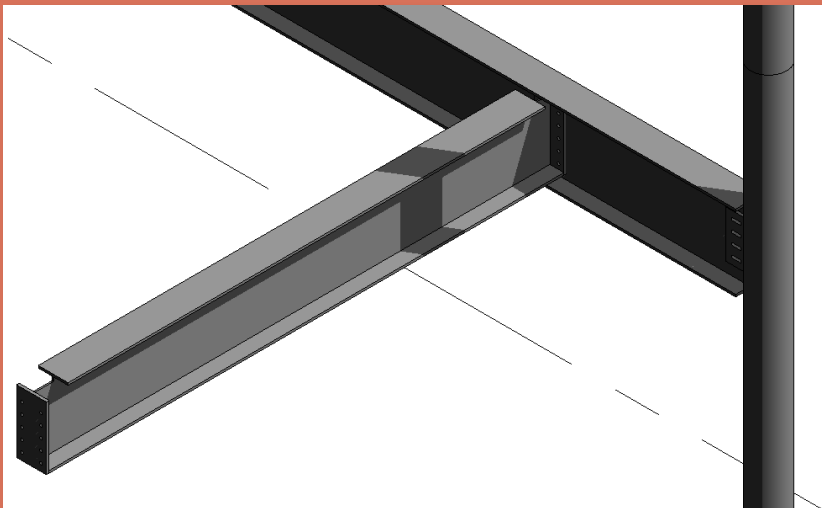- Load a splice plate to use on the end – *Align and lock in place*
- Create the Void Extrusion to create a notch – **Align and lock** the void to stay in place
- You can create parameters to control the length of the beam or the size of the notch

Plan view of fin & notch

End view of fin & notch

Side (Right or Left) view of fin & notch

Fin & Splice

Plates –

Notched Beams

• **Fin Plate**

• **Splice Plate**

• **Notched Beam**

• **Isometric**
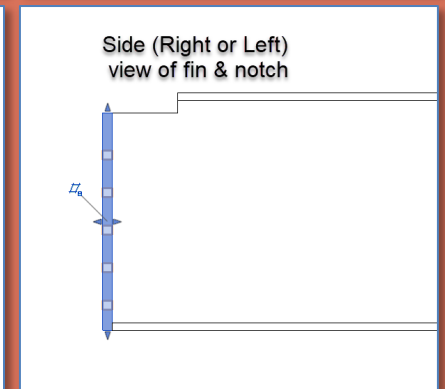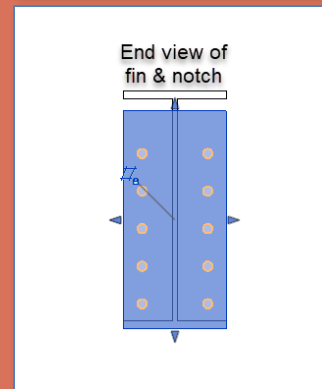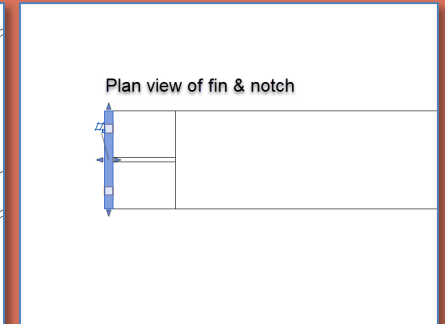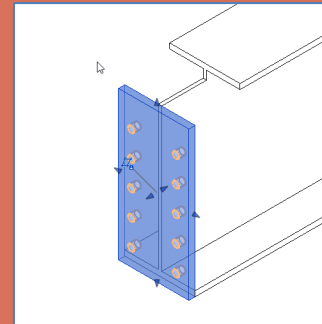
  Views

• **Sheet**

Isometric Views of the Project File

Fin & Splice Plates –
Notched Beams

• **Fin Plate**

• **Splice Plate**

• **Notched Beam**

• **Isometric Views**

• **Sheet**

Updated Sheet - Add Additional Sheets

- **Create additional sets of 4 views of connections & develop details**

- **Annotate with Notes & Leaders, Dimensions, Hatch & Detail Items**

That's all Folks!