

DUDEK ROOF DETAILS

Number	Name
R01 – 100	Increase house with Dudek I-beams
R02 – 100	Installation of Dudek truss, type 1
R02 – 200	Installation of Dudek truss, type 2
R03 – 100	Flat roofs, DIB walls
R03 – 200	Flat roofs, timber walls
R04 – 100	Roofs with small angle $\alpha \leq 10^\circ$, DIB walls
R04 – 200	Roofs with small angle $\alpha \leq 10^\circ$, up lift loads, DIB walls
R04 – 300	Roofs with small angle $\alpha \leq 10^\circ$, timber walls
R04 – 400	Roofs with small angle $\alpha \leq 10^\circ$, up lift loads, timber walls
R05 – 100	Roofs with small angle and overhang $\alpha \leq 10^\circ$, DIB walls
R05 – 200	Roofs with small angle and overhang $\alpha \leq 10^\circ$, timber walls
R06 – 100	Reinforcements in I-Beams truss, $\alpha \leq 10^\circ$, DIB walls
R06 – 200	Reinforcements in I-Beams truss, $20^\circ < \alpha < 45^\circ$, DIB walls
R06 – 300	Reinforcements in I-Beams truss, $\alpha \leq 10^\circ$, timber walls
R06 – 400	Reinforcements in I-Beams truss, $20^\circ < \alpha < 45^\circ$, timber walls
R06 – 500	Cut in I-Beams truss on end support
R06 – 600	Cut in I-Beams truss on intermediate support, continuous beam
R06 – 700	Cut in I-Beams truss on intermediate support, discontinued beam
R07 – 100	Details of I-Beams connections 1/2
R07 – 200	Details of I-Beams connections 2/2
R08 – 100	Roof with overhang, DIB walls 1/3
R08 – 200	Roof with overhang, DIB walls 2/3
R08 – 300	Roof with overhang, DIB walls 3/3
R09 – 100	Roof with overhang, timber walls 1/3
R09 – 200	Roof with overhang, timber walls 2/3
R09 – 300	Roof with overhang, timber walls 3/3
R10 – 100	Connections to corner rafter, convex corner 1/2
R10 – 200	Connections to corner rafter, convex corner 2/2
R10 – 300	Connections to corner rafter, concave corner 1/2
R10 – 400	Connections to corner rafter, concave corner 2/2



DUDEK BUILDING SYSTEM

No. R01-100

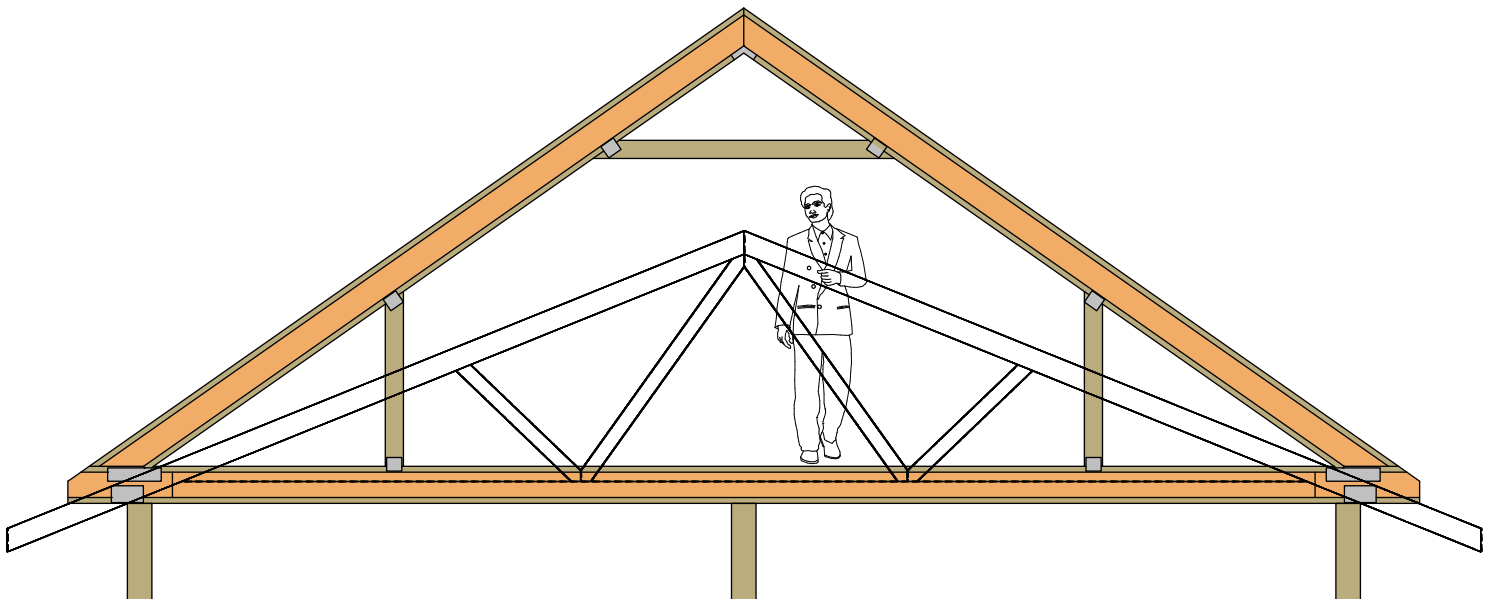
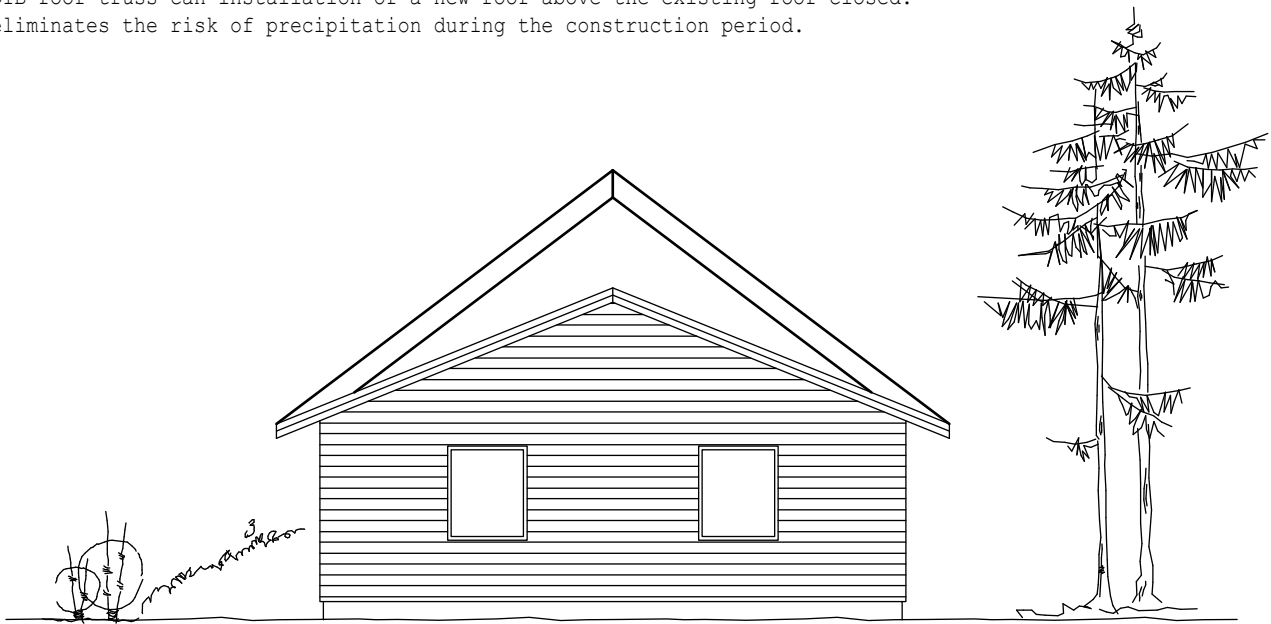
Roof Structure

Date 07.04.2016

Increase house with Dudek I-beams

Sign

By replacing existing framework constructions with DIB I-beams can increase the living space in a simple and safe way. DIB roof truss has major advantages for raising the roof. With DIB roof truss can installation of a new roof above the existing roof closed. This eliminates the risk of precipitation during the construction period.





DUDEK BUILDING SYSTEM

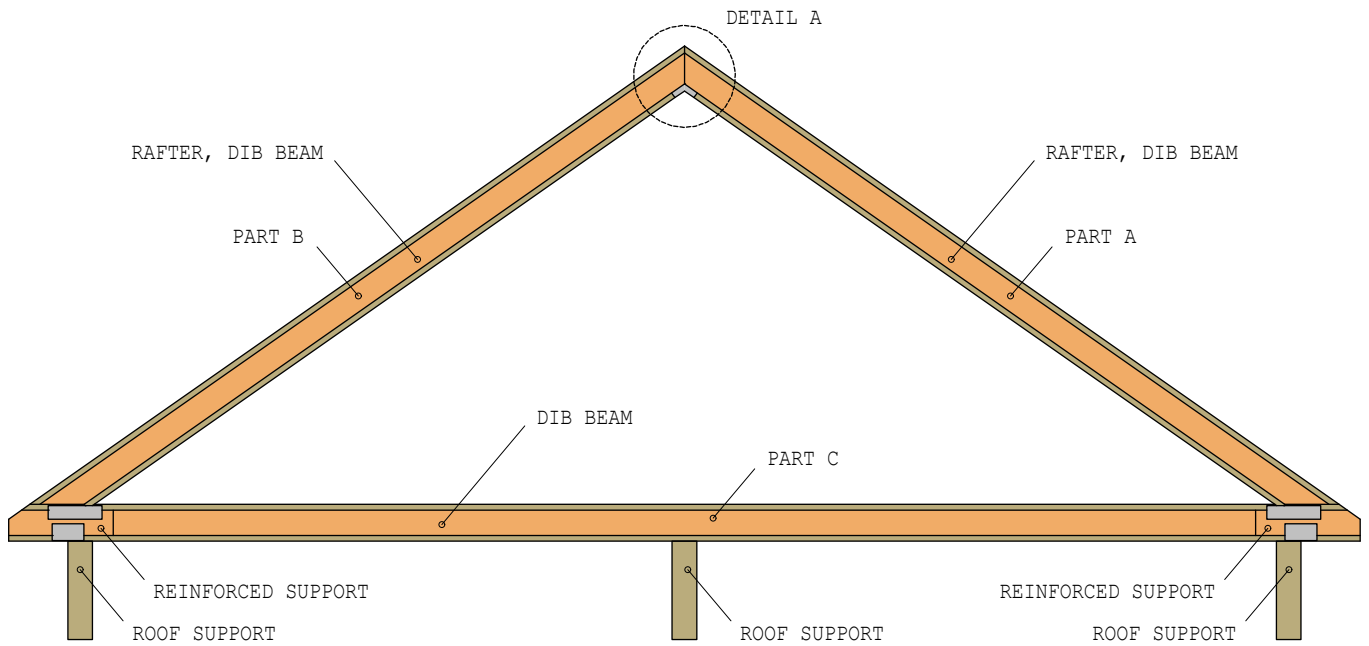
No. R02-100

Roof Structure

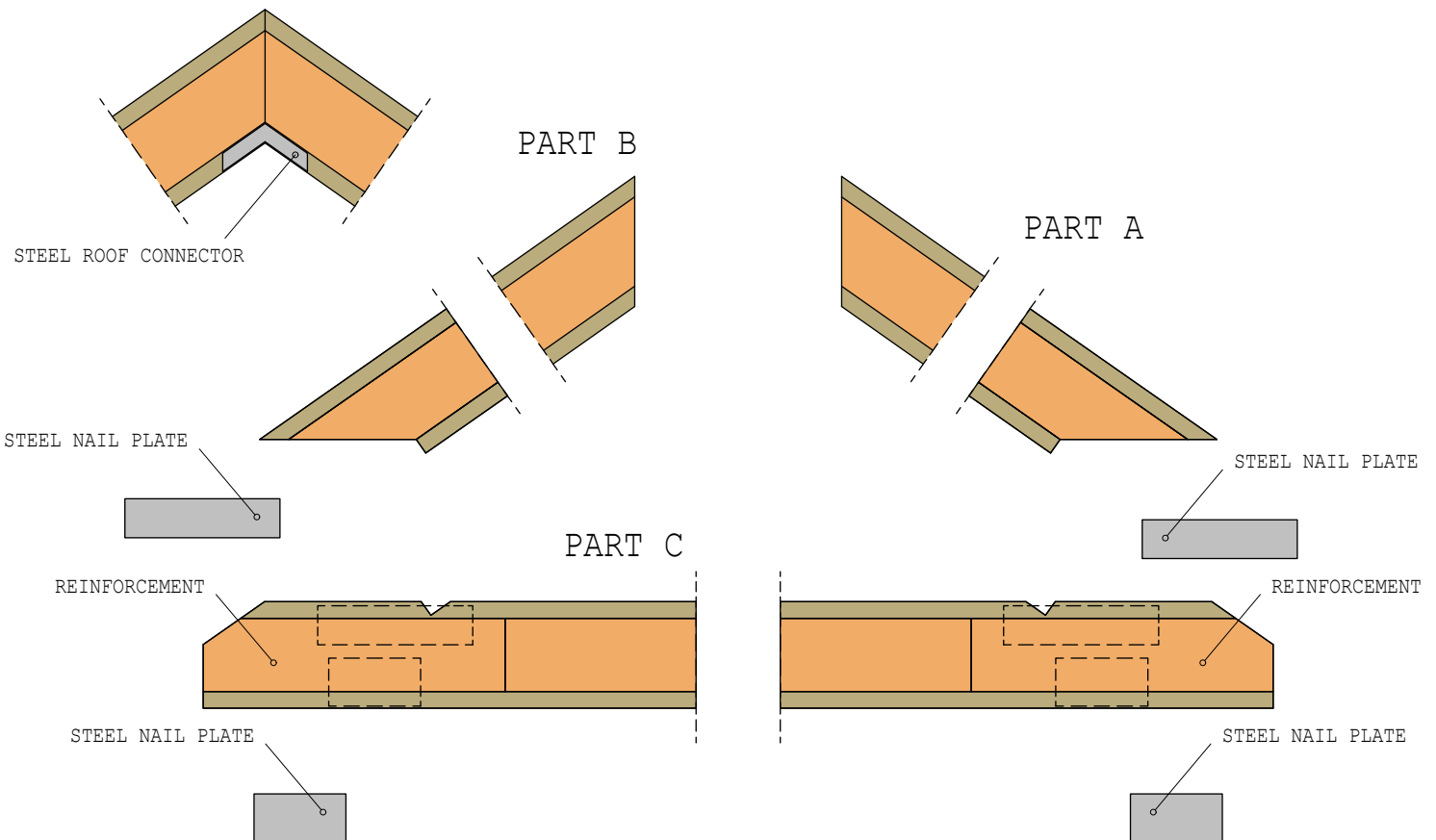
Date 07.04.2016

Installation of Dudek truss, type 1

Sign



DETAIL A





DUDEK BUILDING SYSTEM

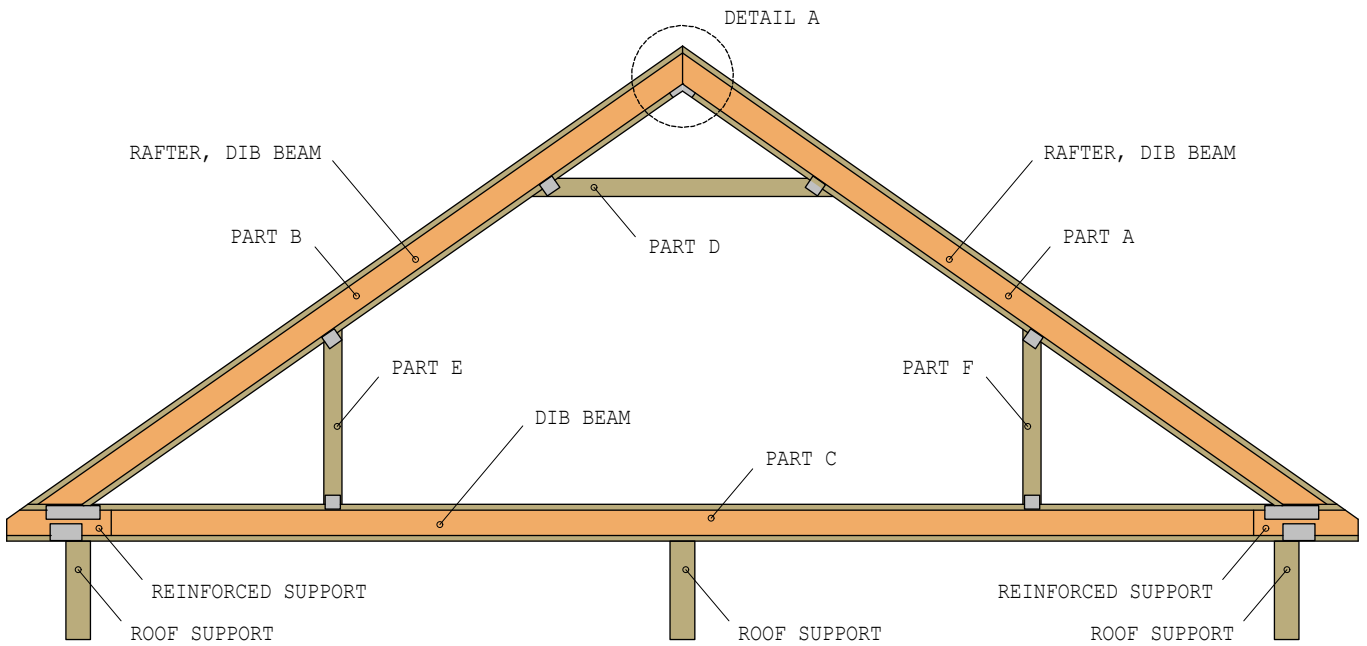
No. R02-200

Roof Structure

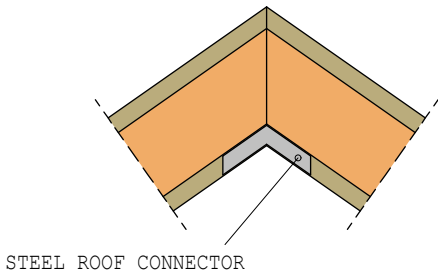
Date 07.04.2016

Installation of Dudek truss, type 2

Sign



DETAIL A

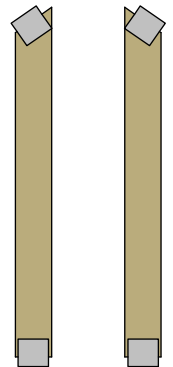


PART D

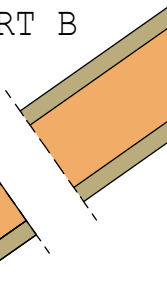


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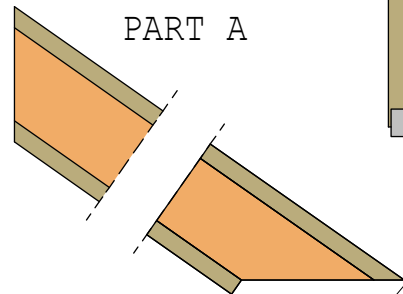
PART F



PART B



PART A



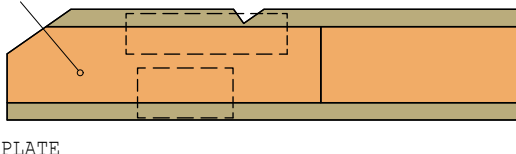
STEEL NAIL PLATE



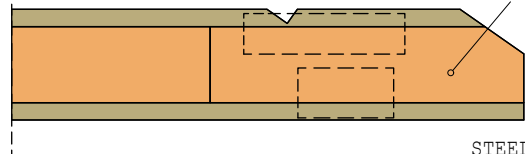
STEEL NAIL PLATE



REINFORCEMENT



REINFORCEMENT



STEEL NAIL PLATE



STEEL NAIL PLATE





DUDEK BUILDING SYSTEM

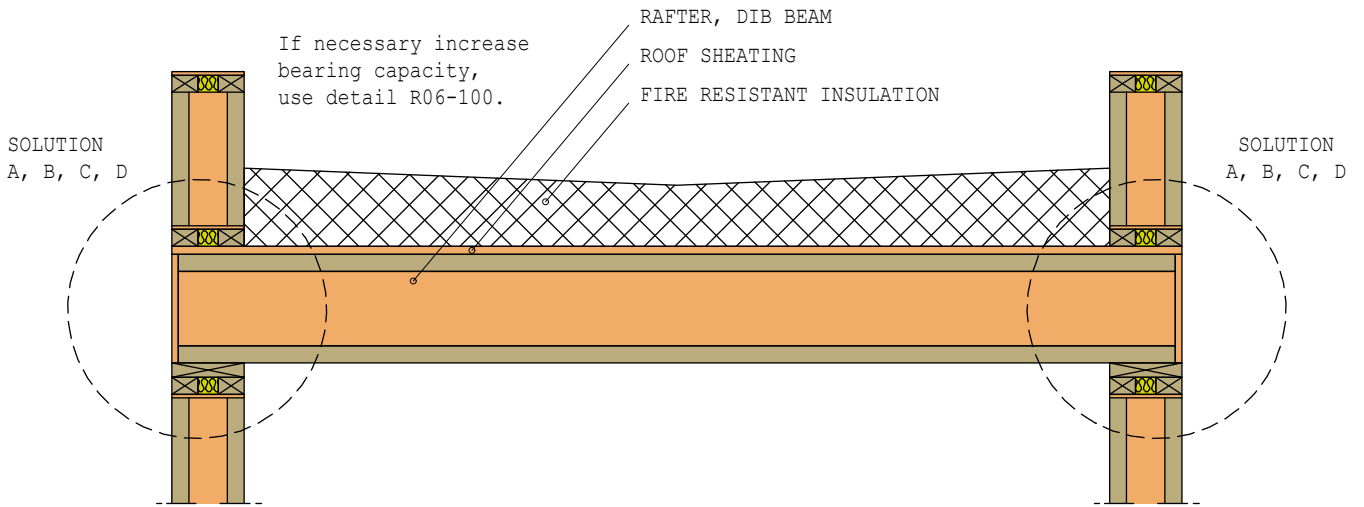
No. R03-100

Roof Structure

Date 07.04.2016

Flat roofs, DIB walls

Sign

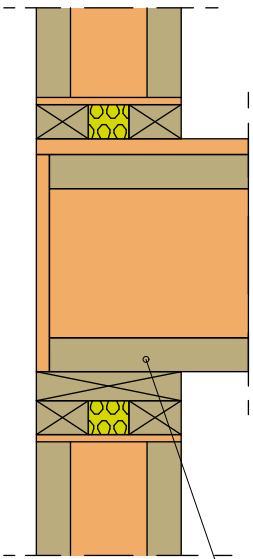


A

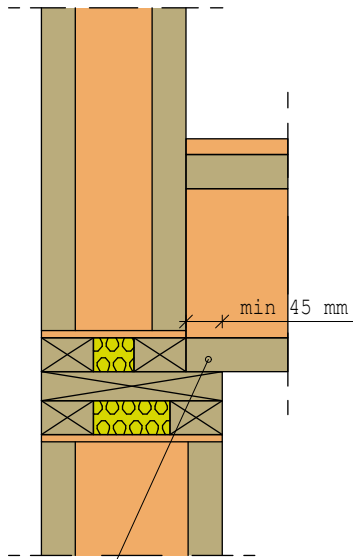
B

C

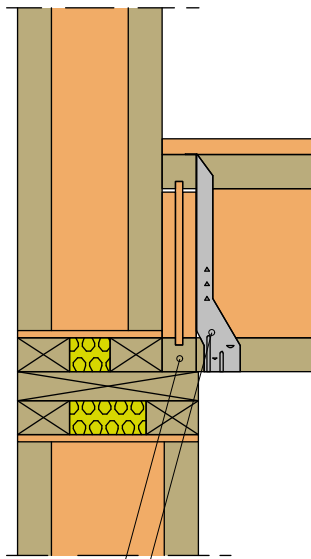
D



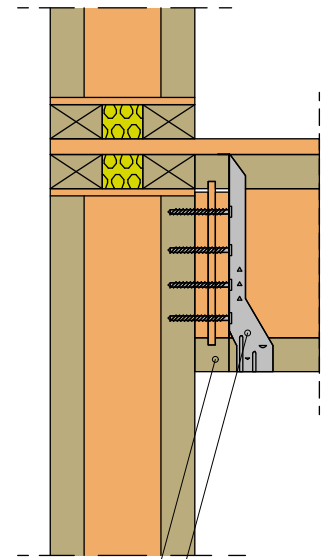
DIB BEAM WITH RIM BOARD,
SUPPORTED ON DIB WALL



REINFORCED DIB BEAM,
SUPPORTED ON DIB WALL



METAL HANGER



REINFORCED DIB BEAM,
SCREWED TO TIMBER STUDS

METAL HANGER

DIB BEAM, SUPPORTED
ON DIB WALL



DUDEK BUILDING SYSTEM

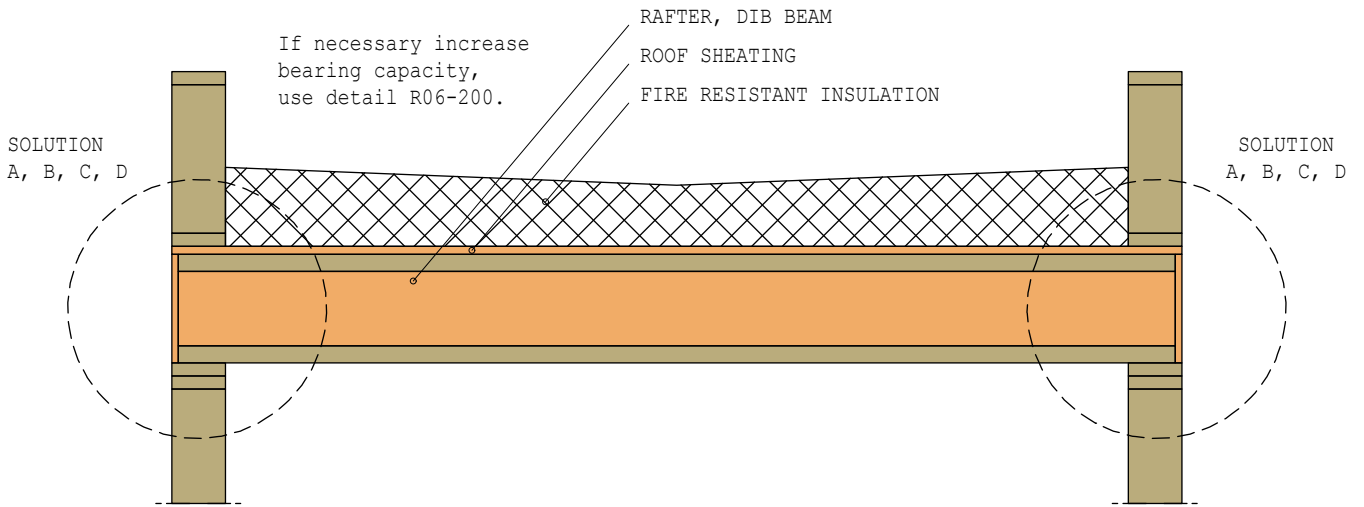
No. R03-200

Roof Structure

Date 07.04.2016

Flat roofs, timber walls

Sign

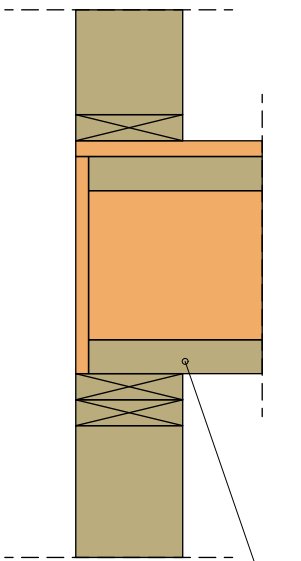


A

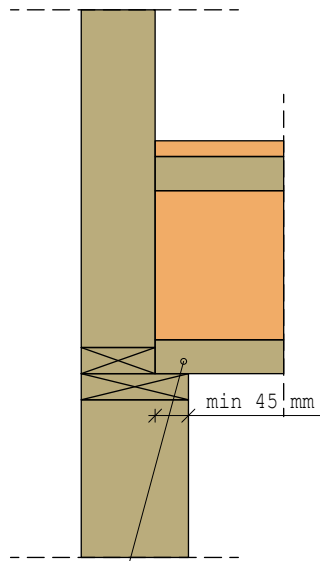
B

C

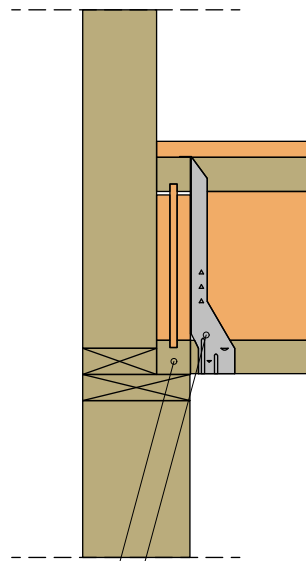
D



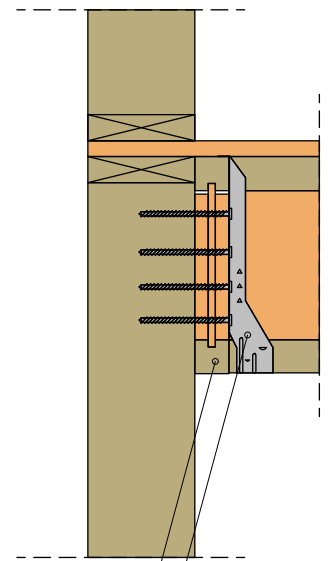
DIB BEAM WITH RIM BOARD,
SUPPORTED ON TIMBER WALL



REINFORCED DIB BEAM,
SUPPORTED ON TIMBER WALL



METAL HANGER



METAL HANGER

DIB BEAM, SUPPORTED
ON TIMBER WALL

REINFORCED DIB BEAM,
SCREWED TO TIMBER STUDS



DUDEK BUILDING SYSTEM

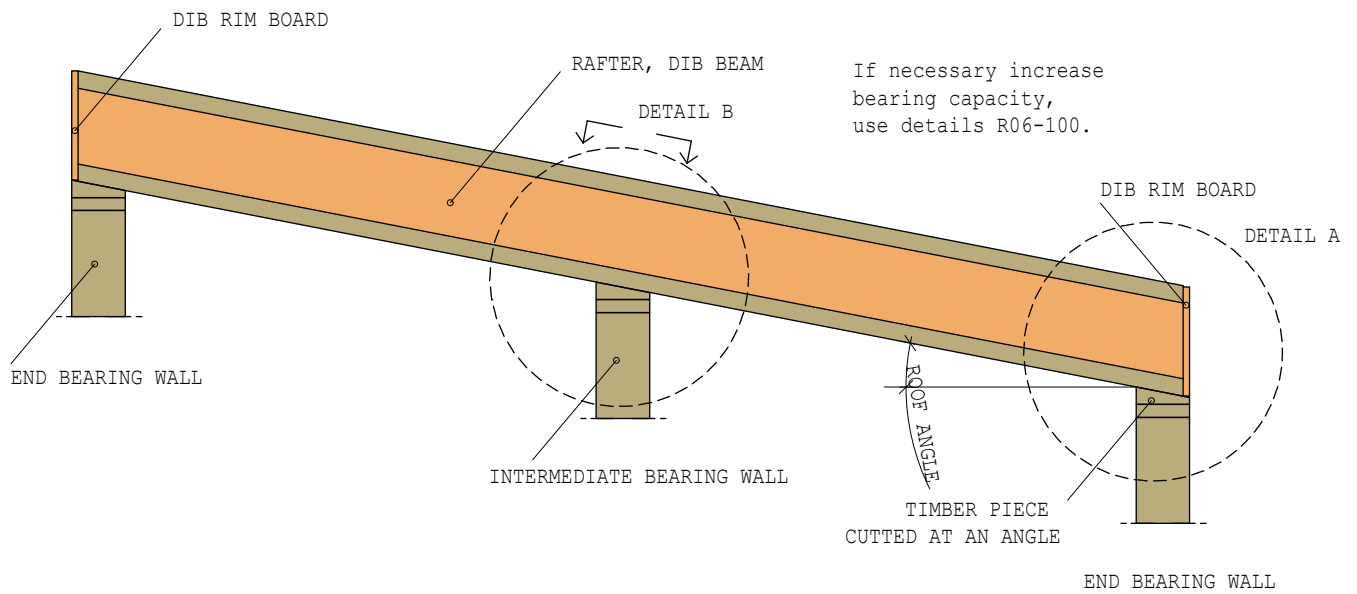
No. R04-100

Roof Structure

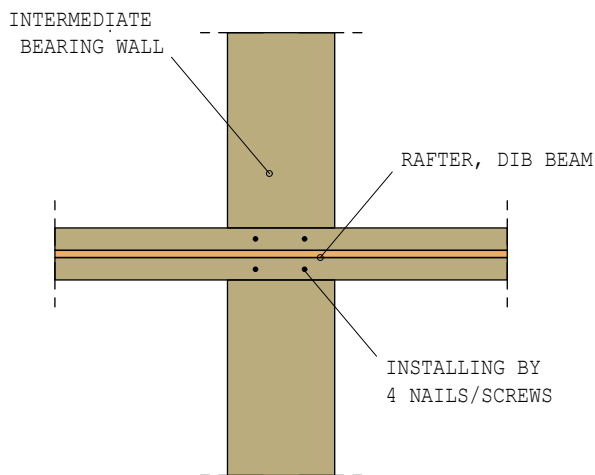
Date 07.04.2016

Roofs with small angle $\alpha \leq 10^\circ$, DIB walls

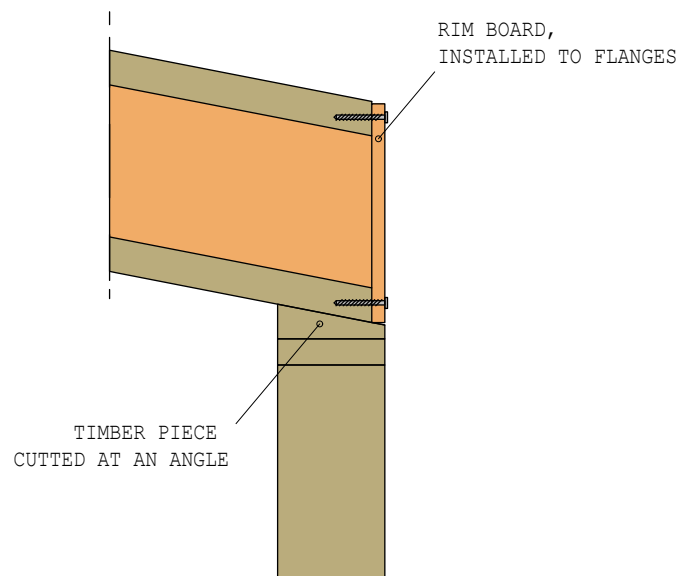
Sign



DETAIL B



DETAIL A





DUDEK BUILDING SYSTEM

No. R04-200

Roof Structure

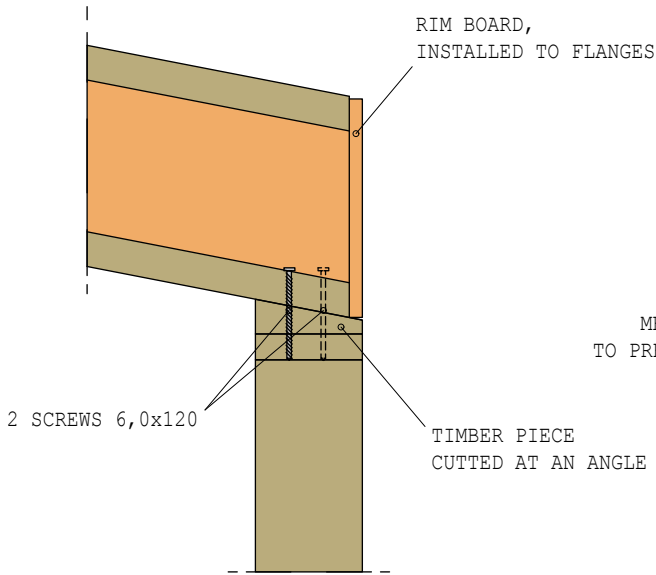
Date 07.04.2016

Roofs with small angle $\alpha \leq 10^\circ$, up lift loads, DIB walls

Sign

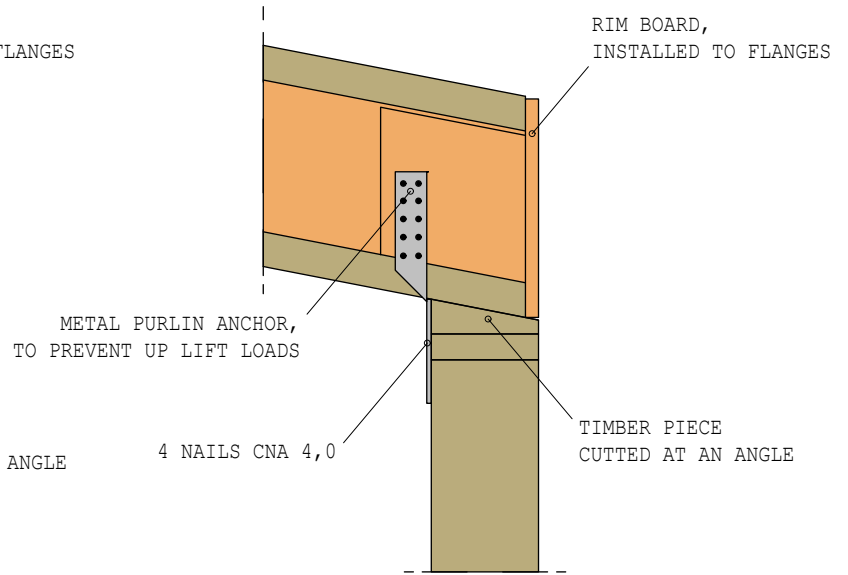
A

UP LIFT CAPACITY 1,5 kN



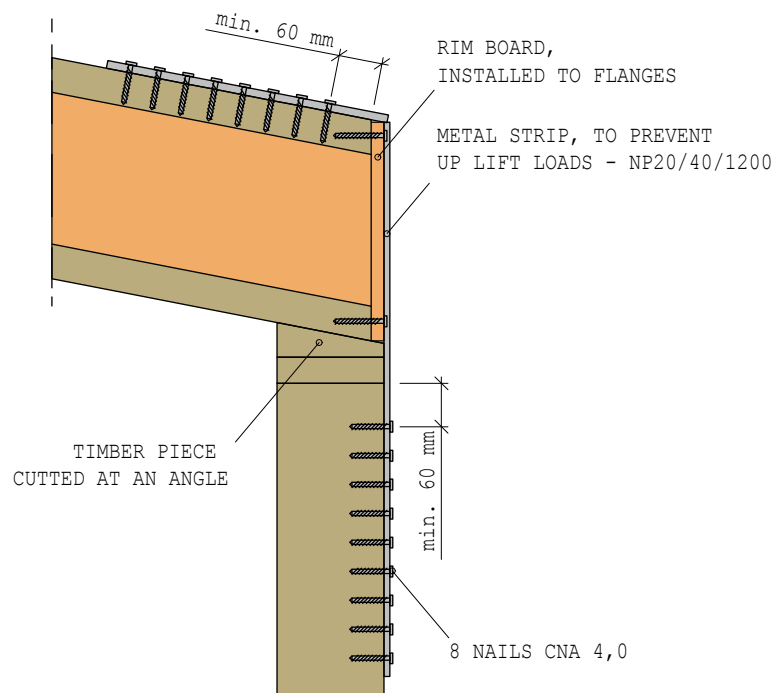
B

UP LIFT CAPACITY 5 kN



C

UP LIFT CAPACITY 9 kN





DUDEK BUILDING SYSTEM

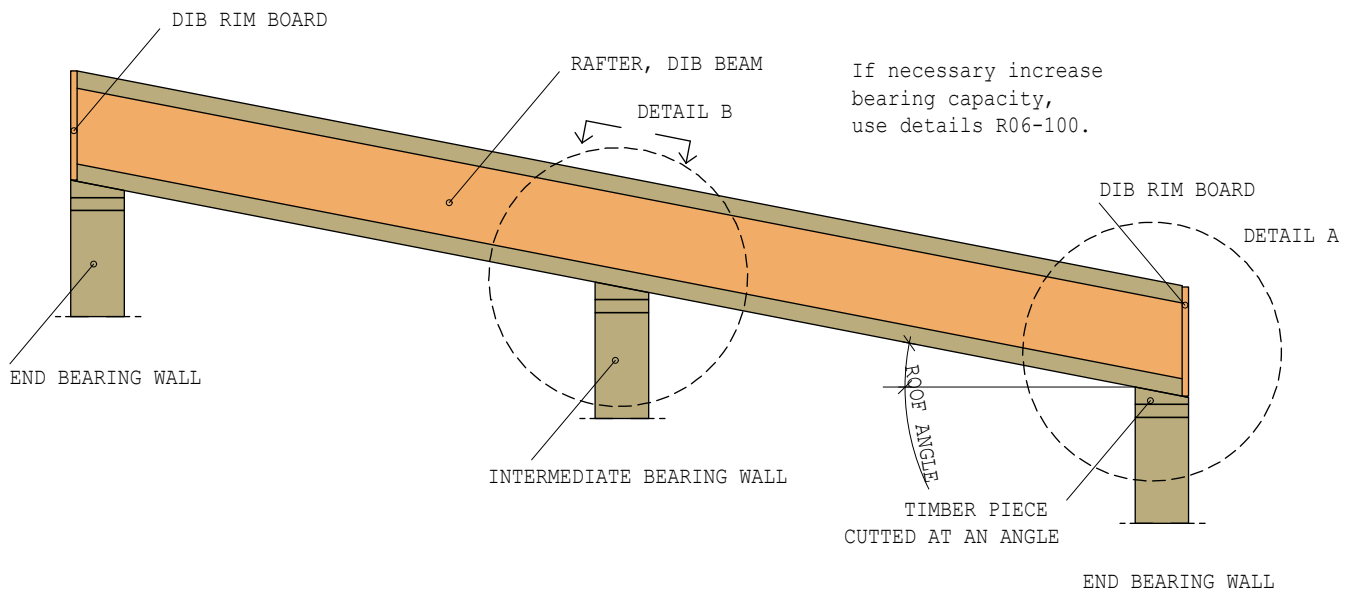
No. R04-300

Roof Structure

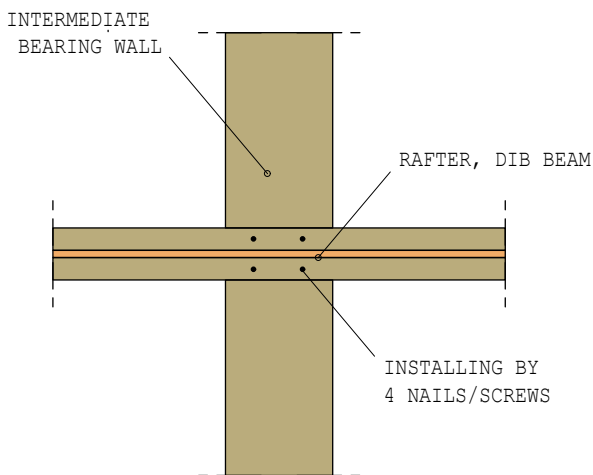
Date 07.04.2016

Roofs with small angle $\alpha \leq 10^\circ$, timber walls

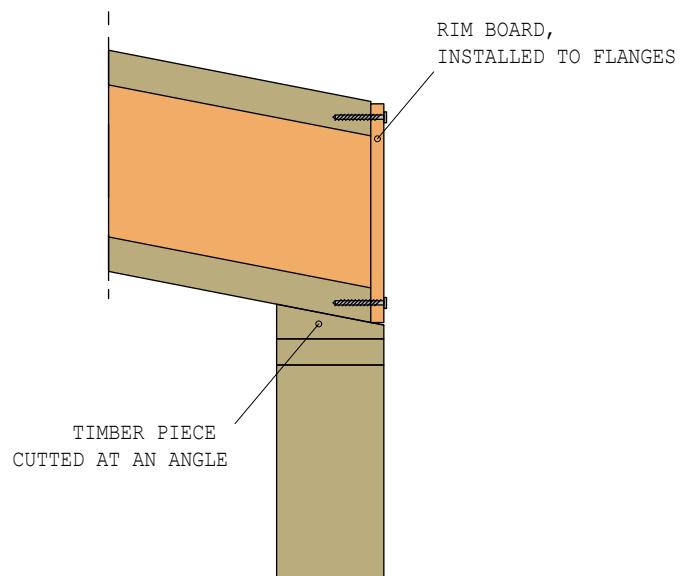
Sign



DETAIL B



DETAIL A





DUDEK BUILDING SYSTEM

No. R04-400

Roof Structure

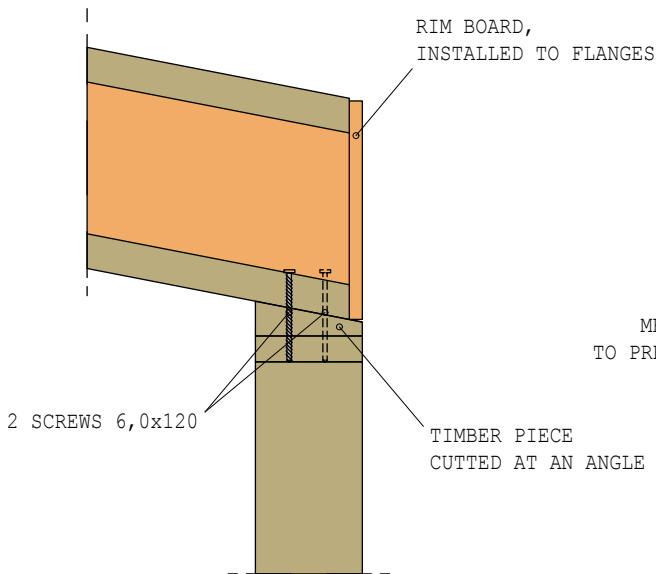
Date 07.04.2016

Roofs with small angle $\alpha \leq 10^\circ$, up lift loads, timber walls

Sign

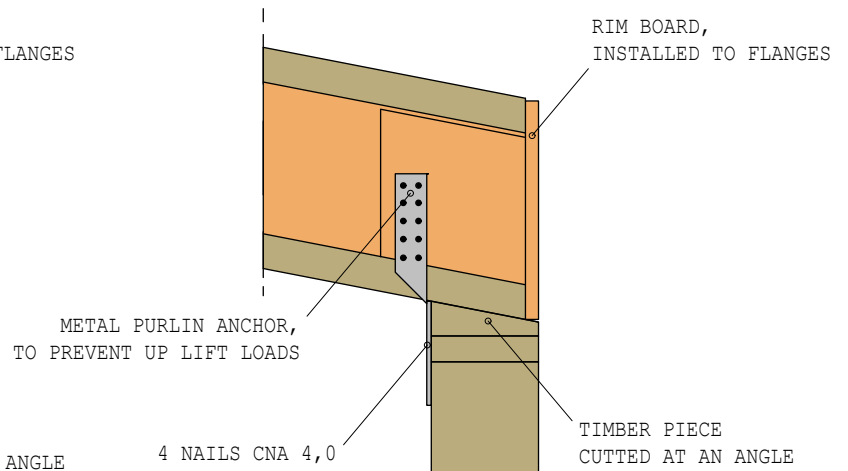
A

UP LIFT CAPACITY 1,5 kN



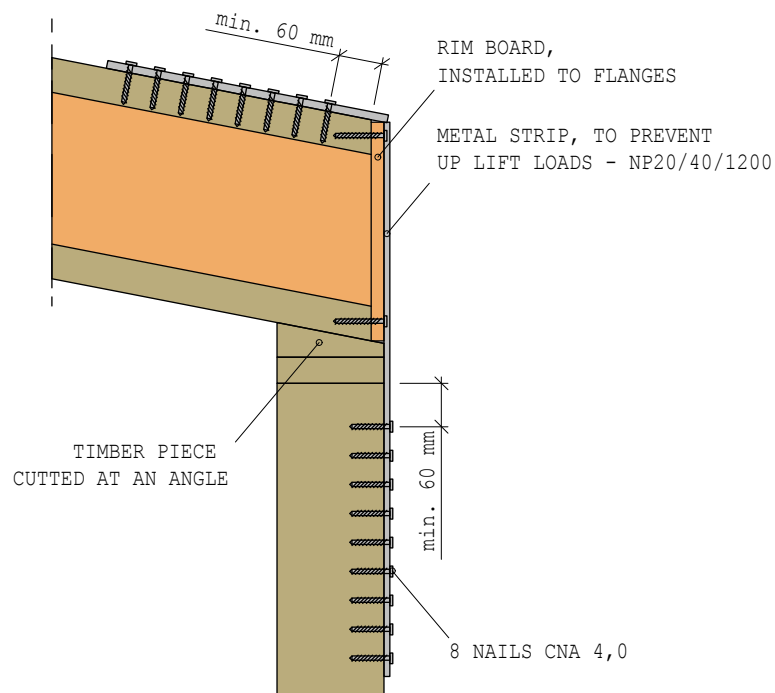
B

UP LIFT CAPACITY 5 kN



C

UP LIFT CAPACITY 9 kN





DUDEK BUILDING SYSTEM

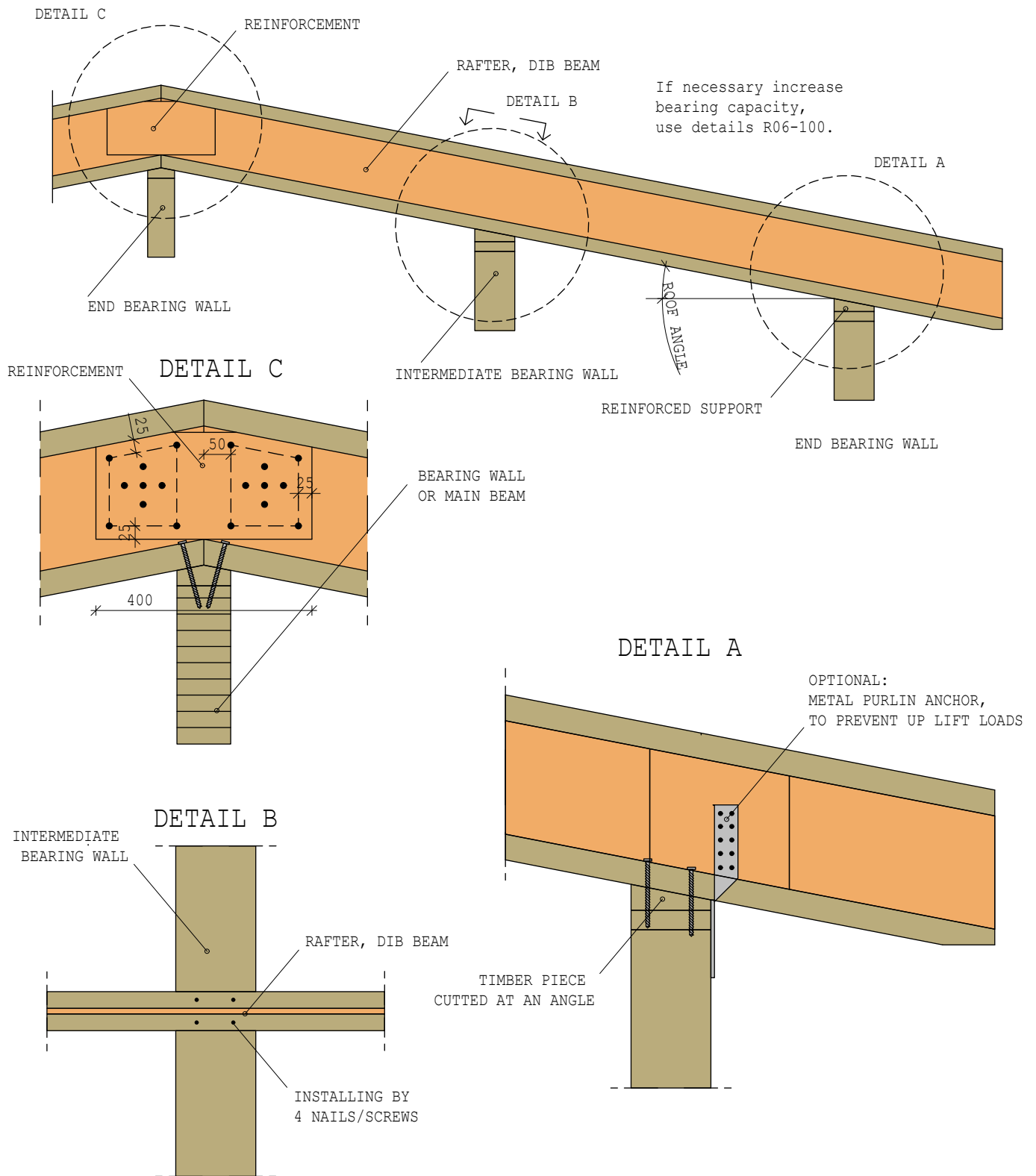
No. R05-100

Roof Structure

Date 07.04.2016

Roofs with small angle and overhang $\alpha \leq 10^\circ$,
DIB walls

Sign





DUDEK BUILDING SYSTEM

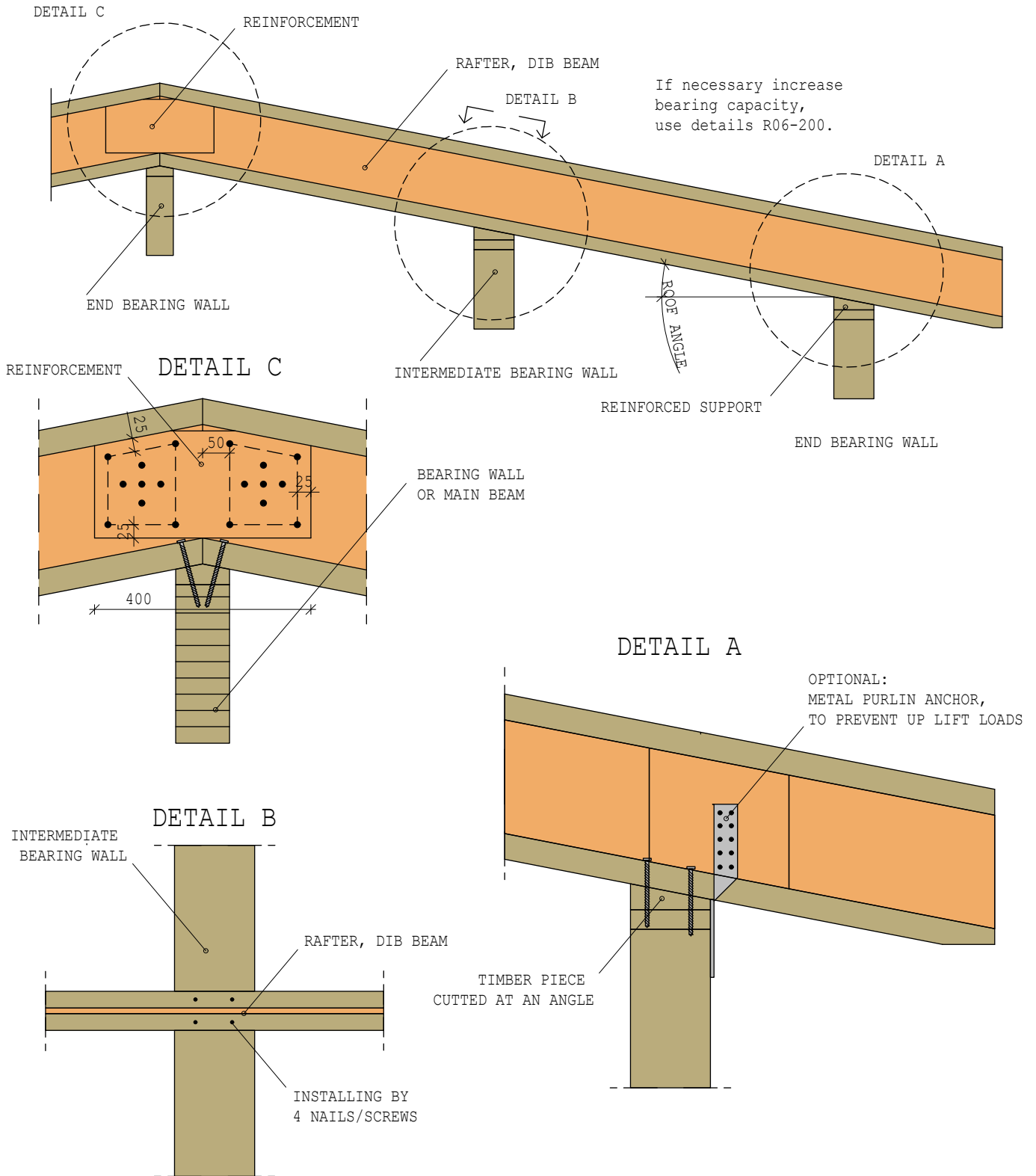
No. R05-200

Roof Structure

Date 07.04.2016

Roofs with small angle and overhang $\alpha \leq 10^\circ$,
timber walls

Sign





DUDEK BUILDING SYSTEM

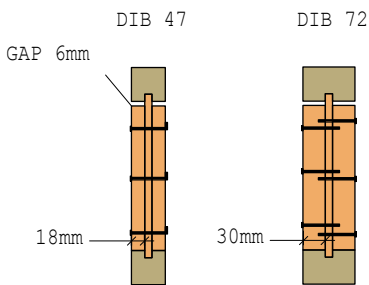
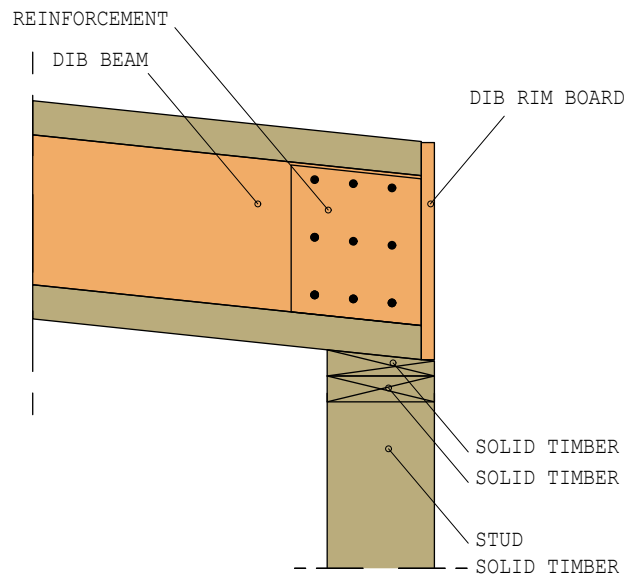
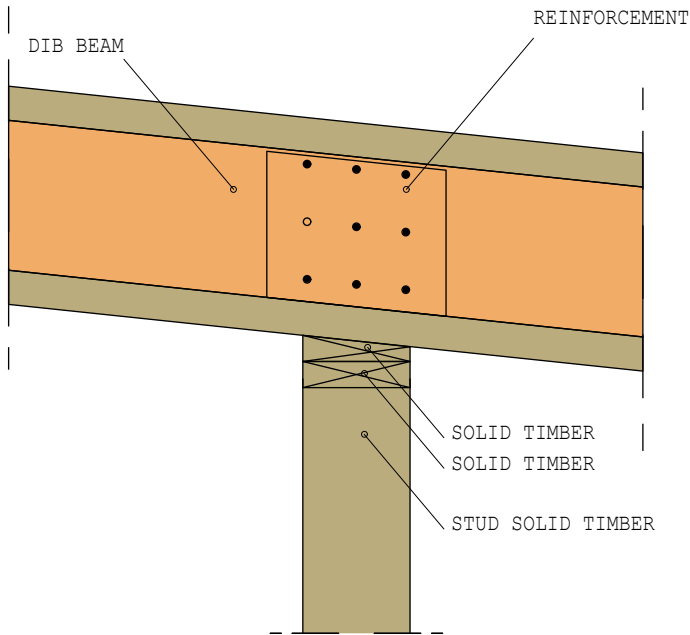
No. R06-100

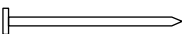
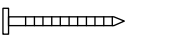
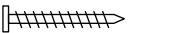
Roof Structure

Date 07.04.2016

Reinforcements in I-Beams truss, $\alpha \leq 10^\circ$,
DIB walls

Sign



-  NAILS 2,8x60 (80)
-  RING NAILS 2,5x40 (60)
-  SCREWS 4,0<D<5,0x40 (60)

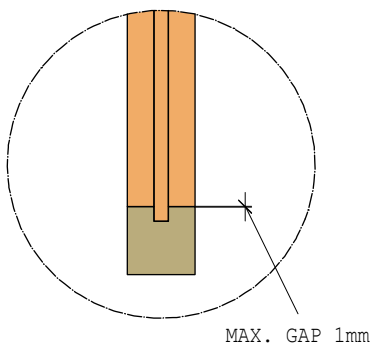
Dudek I-Beams, bearing capacity [kN]										
[mm]	End bearing						Intermediate bearing			
	45		98		130		98		148	
Type	NS	S	NS	S	NS	S	NS	S	NS	S
DIB 47										
200 - 500	7,93	11,83	11,23	13,97	14,27	17,40	14,80	18,84	18,92	22,97
DIB 72										
200 - 500	12,15	15,57	17,16	18,29	19,26	22,03	22,68	28,66	27,56	33,42

Bearing capacity calculated according to short-term during class.

$k_{mod} = 0,9$ and $\gamma_m = 1,25$

NS - Without reinforcement

S - With reinforcement





DUDEK BUILDING SYSTEM

No. **R06-200**

Roof Structure

Date
07.04.2016

Reinforcements in I-Beams truss, $20^\circ < \alpha < 45^\circ$,
DIB walls

Sign

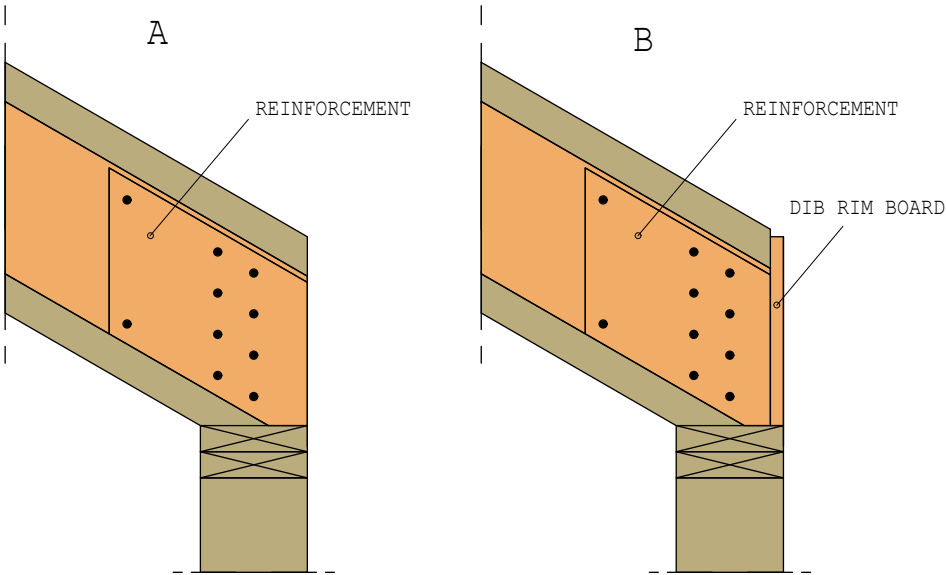
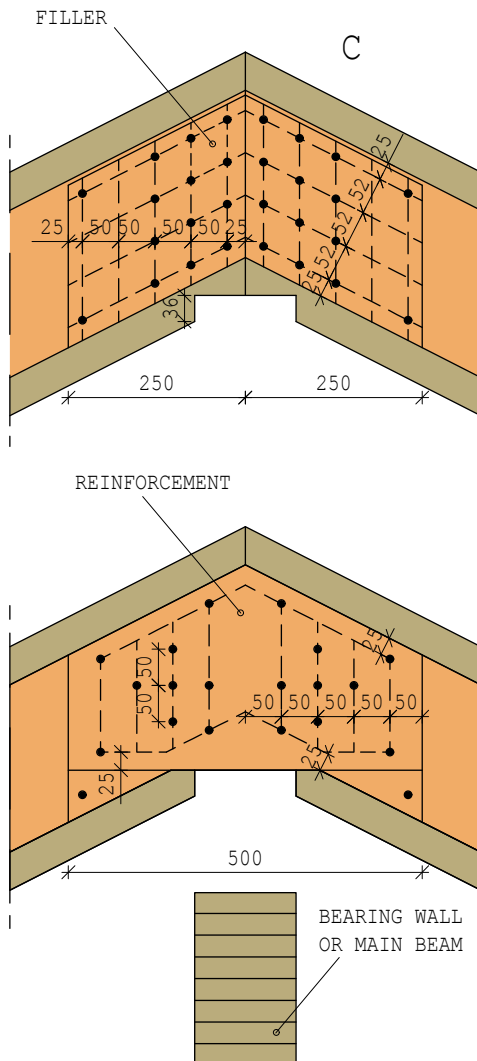


TABLE 1

Bearing capacity, bottom end [kN]		
Beam height	Type of I-Beam	
	DIB 47	DIB 72
200	12,3	14,3
220	12,3	14,7
250	12,7	15,3
300	13,0	16,1
350	13,2	17,0
400	13,5	17,8
450	13,8	18,7
500	14,1	19,5

Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$



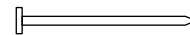

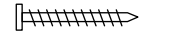
-  NAILS 2,8x60 (80)
-  RING NAILS 2,5x40 (60)
-  SCREWS 4,0<D<5,0x40 (60)

TABLE 2

Bearing capacity, top end [kN]			
Pitch	Length support	Type of I-Beam	
		DIB 47	DIB 72
20	41	6,4	7,5
25	51	7,2	8,4
27	60	7,9	9,1
30	67	8,4	9,7
35	77	8,9	10,3
40	84	9,3	10,8
45	94	9,9	11,4

Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$



DUDEK BUILDING SYSTEM

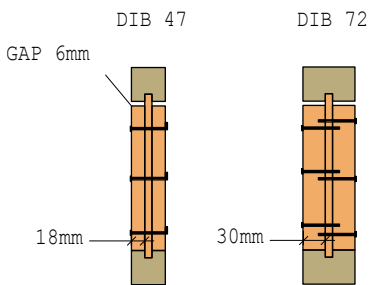
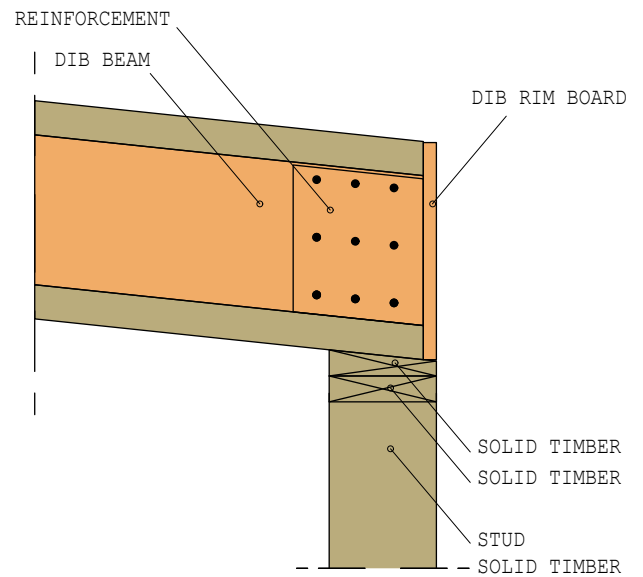
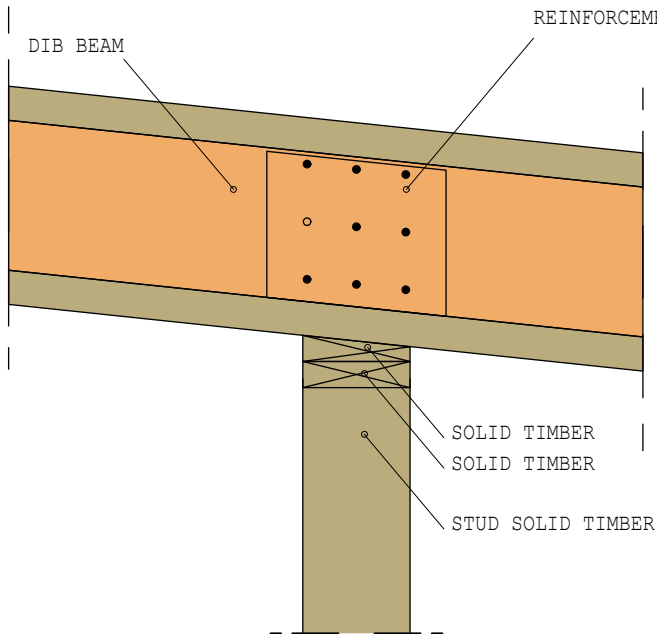
No. R06-300

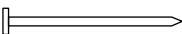
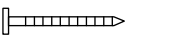
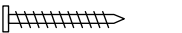
Roof Structure

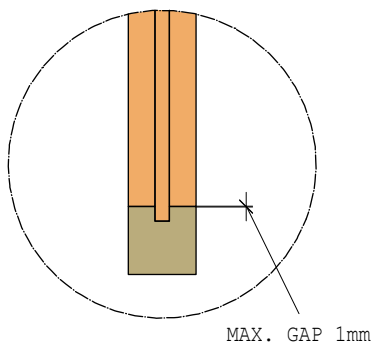
Date 07.04.2016

Reinforcements in I-Beams truss, $\alpha \leq 10^\circ$,
timber walls

Sign



-  NAILS 2,8x60 (80)
-  RING NAILS 2,5x40 (60)
-  SCREWS 4,0<D<5,0x40 (60)



Dudek I-Beams, bearing capacity [kN]										
[mm]	End bearing				Intermediate bearing					
	45		98		130		98		148	
Type	NS	S	NS	S	NS	S	NS	S	S	
DIB 47										
200 - 500	7,93	11,83	11,23	13,97	14,27	17,40	14,80	18,84	18,92	22,97
DIB 72										
200 - 500	12,15	15,57	17,16	18,29	19,26	22,03	22,68	28,66	27,56	33,42

Bearing capacity calculated according to short-term during class.

$k_{mod} = 0,9$ and $\gamma_m = 1,25$

NS - Without reinforcement

S - With reinforcement



DUDEK BUILDING SYSTEM

No. **R06-400**

Roof Structure

Date
07.04.2016

Reinforcements in I-Beams truss, $20^\circ < \alpha < 45^\circ$,
timber walls

Sign

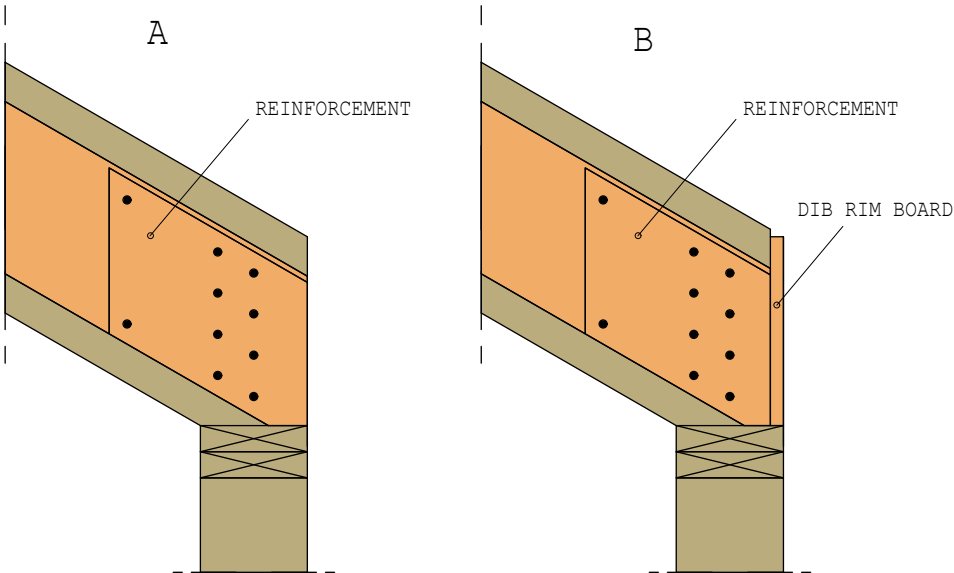
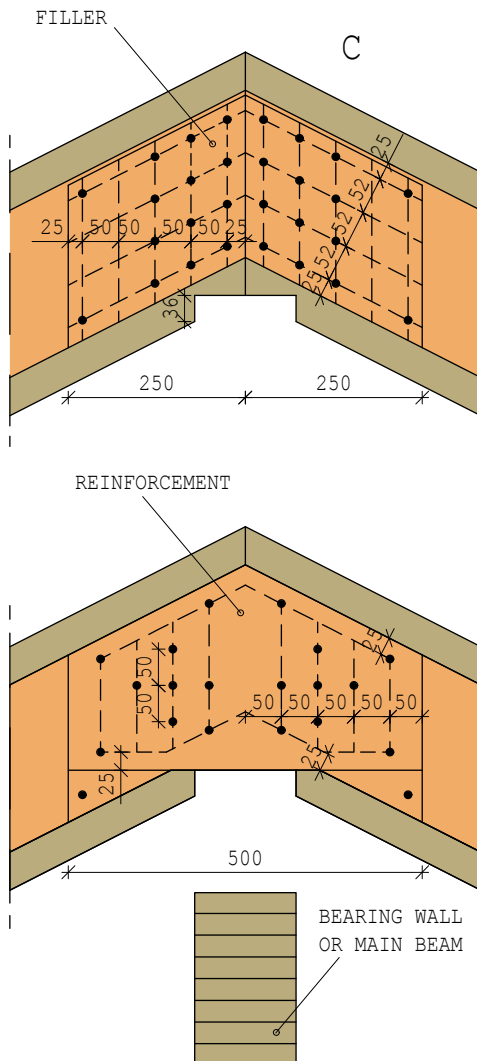


TABLE 1

Beam height	Bearing capacity, bottom end [kN]	
	Type of I-Beam	
	DIB 47	DIB 72
200	12,3	14,3
220	12,3	14,7
250	12,7	15,3
300	13,0	16,1
350	13,2	17,0
400	13,5	17,8
450	13,8	18,7
500	14,1	19,5

Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$



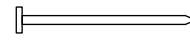
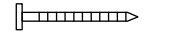

-  NAILS 2,8x60 (80)
-  RING NAILS 2,5x40 (60)
-  SCREWS 4,0<D<5,0x40 (60)

TABLE 2

Pitch	Length support	Bearing capacity, top end [kN]	
		Type of I-Beam	
		DIB 47	DIB 72
20	41	6,4	7,5
25	51	7,2	8,4
27	60	7,9	9,1
30	67	8,4	9,7
35	77	8,9	10,3
40	84	9,3	10,8
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Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$



DUDEK BUILDING SYSTEM

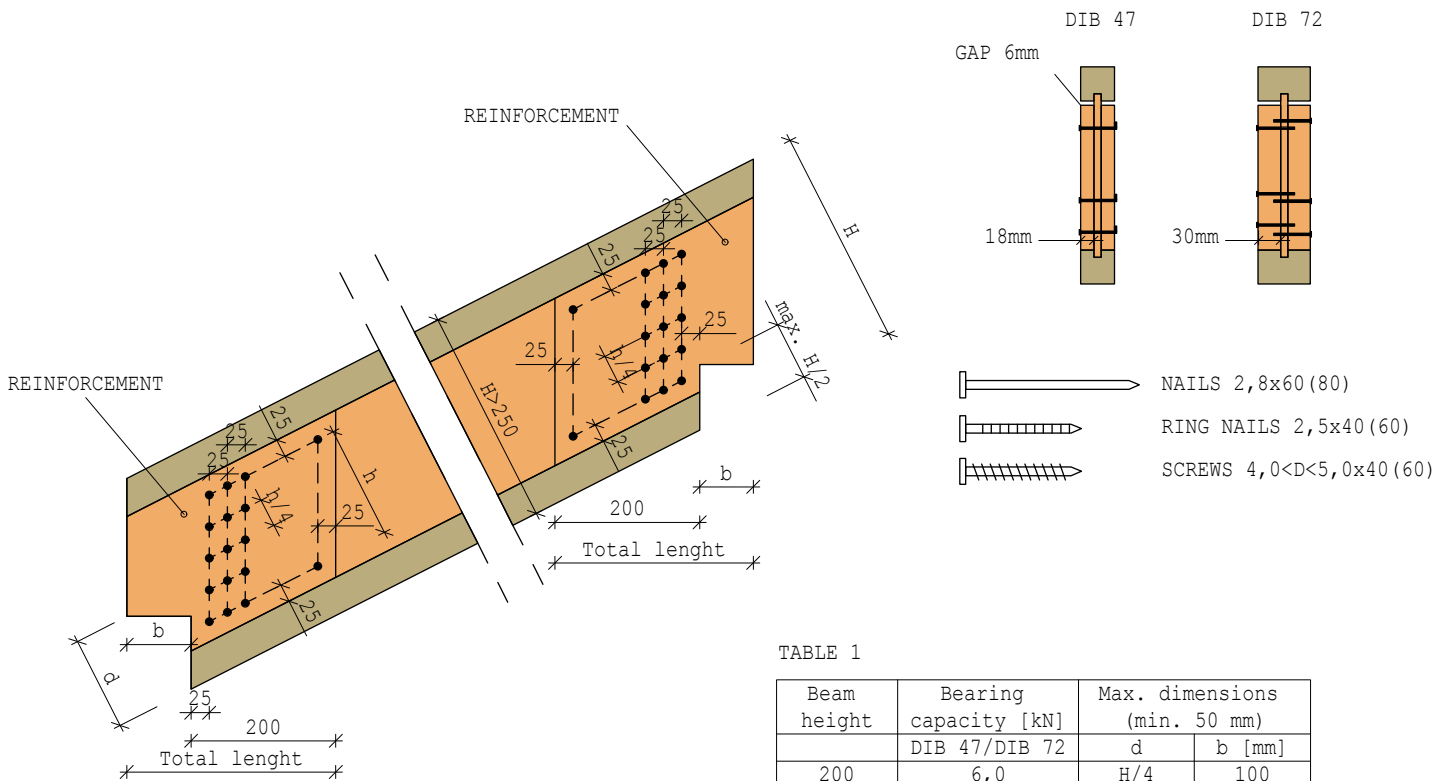
No. R06-500

Roof Structure

Date 07.04.2016

Cut in I-Beams truss on end support

Sign



For DIB < 250 use 3 rows of nails

TABLE 1

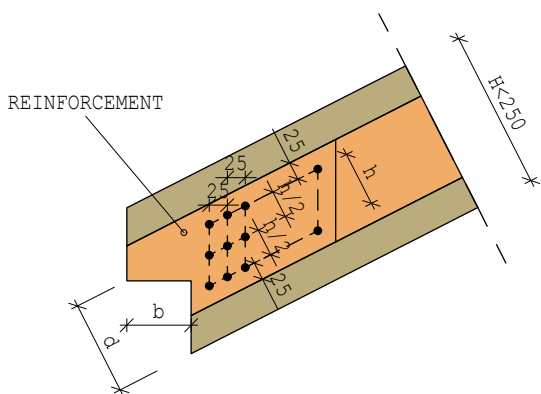
Beam height	Bearing capacity [kN]	Max. dimensions (min. 50 mm)	
		d	b [mm]
200	6,0	H/4	100
220	6,0	H/4	100
250	8,1	H/4	150
300	9,3	H/4	200
350	10,2	H/4	200
400	10,8	H/2	200
450	11,5	H/2	200
500	11,8	H/2	200

Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$

TABLE 2

Placement of nails

Beam height	h/2	h/4
200	28	X
220	38	X
250	X	27
300	X	39
350	X	52
400	X	64
450	X	77
500	X	89





DUDEK BUILDING SYSTEM

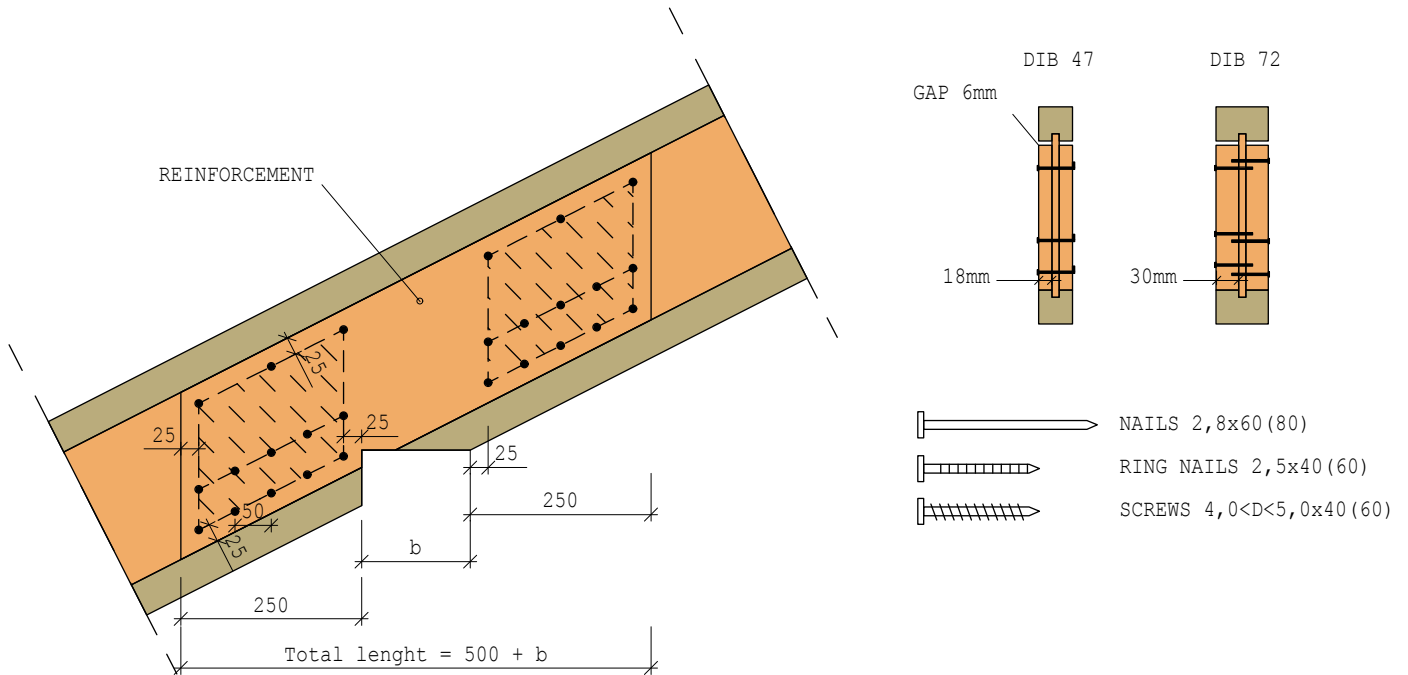
No. R06-600

Roof Structure

Date 07.04.2016

Cut in I-Beams truss on intermediate support, continuous beam

Sign



Beam height [mm]	Length support [mm]	Capacity, roof angle 0 - 45°		
		Moment [kNm]	Shear capacity [kN]	Bearing capacity [kN]
200	70	0,9	4,8	15,5
	100	0,5	3,0	21,9
220	70	1,1	7,0	15,5
	100	0,9	4,5	21,9
250	70	1,6	10,3	15,5
	100	1,3	7,4	21,9
	150	2,0	13,6	21,9
300	70	2,2	14,8	15,5
	100	2,0	13,6	21,9
	150	1,5	7,9	32,8
350	70	2,9	16,9	15,5
	100	2,7	16,2	21,9
	150	2,4	13,8	32,8
400	70	3,5	17,7	15,5
	100	3,3	17,3	21,9
	150	3,2	16,7	32,8
	200	3,1	14,1	34,5
450	70	4,3	18,5	15,5
	100	4,2	18,0	21,9
	150	3,9	17,4	32,8
	200	3,6	16,8	34,5
500	70	4,9	19,9	15,5
	100	4,8	18,9	21,9
	150	4,6	18,4	32,8
	200	4,4	17,6	34,5

Capacities calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$ (shear $\gamma_m = 1,3$)

For constructions in service class 2 shall shear capacity multiplied by the factor 0,78



DUDEK BUILDING SYSTEM

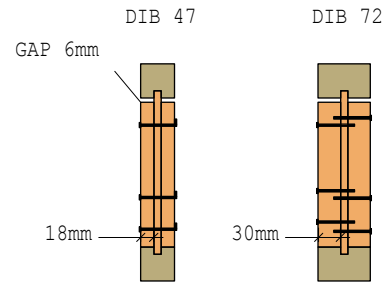
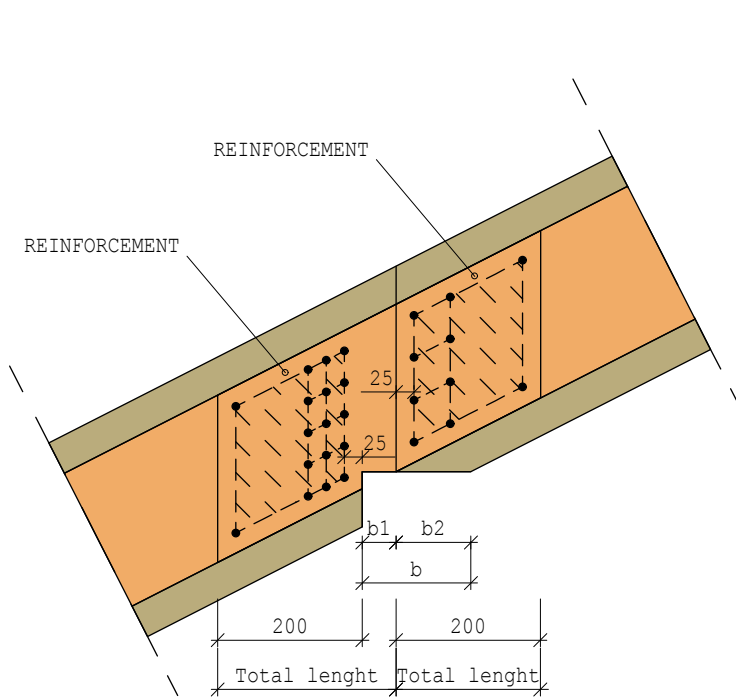
No. R06-700

Roof Structure

Date 07.04.2016

Cut in I-Beams truss on intermediate support, discontinued beam

Sign



- NAILS 2,8x60 (80)
- RING NAILS 2,5x40 (60)
- SCREWS 4,0<D<5,0x40 (60)

TABLE 1
Bearing capacity of I-beam on support b1

Beam height	Bearing capacity [kN]	max. dimension (min. 50 mm)
		b1 [mm]
		DIB 47/DIB 72
200	6,0	100
220	6,0	100
250	8,1	150
300	9,3	200
350	10,2	200
400	10,8	200
450	11,5	200
500	11,8	200

Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$

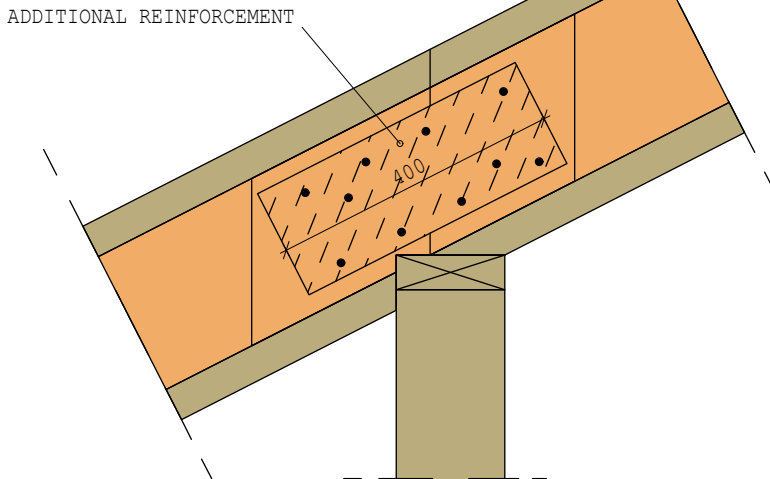
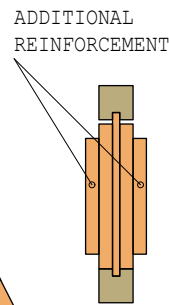


TABLE 2
Bearing capacity of I-beam on support b2

Beam height	Bearing capacity, bottom end [kN]	
	Type of I-Beam	
	DIB 47	DIB 72
200	12,3	14,3
220	12,3	14,7
250	12,7	15,3
300	13,0	16,1
350	13,2	17,0
400	13,5	17,8
450	13,8	18,7
500	14,1	19,5

Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$



DUDEK BUILDING SYSTEM

No. R07-100

Roof Structure

Date 07.04.2016

Details of I-Beams connections 1/2

Sign

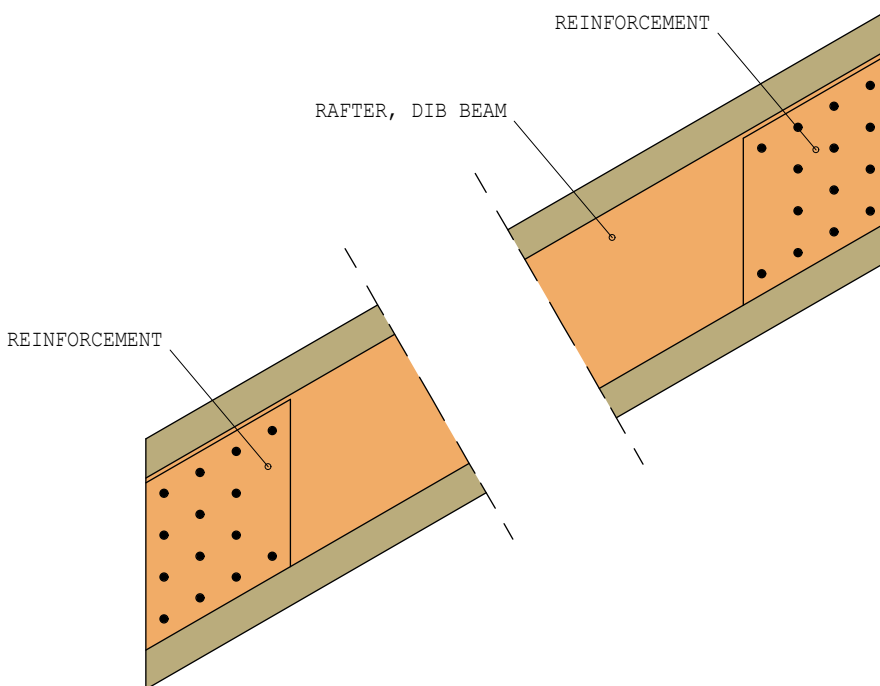
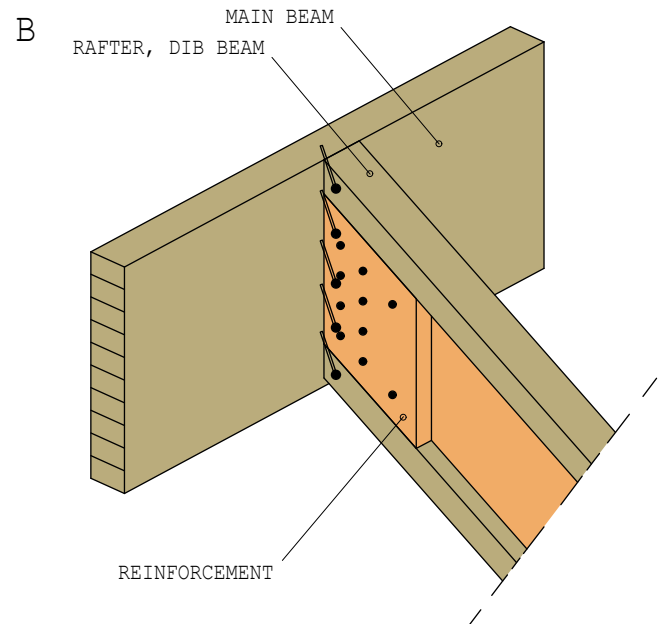
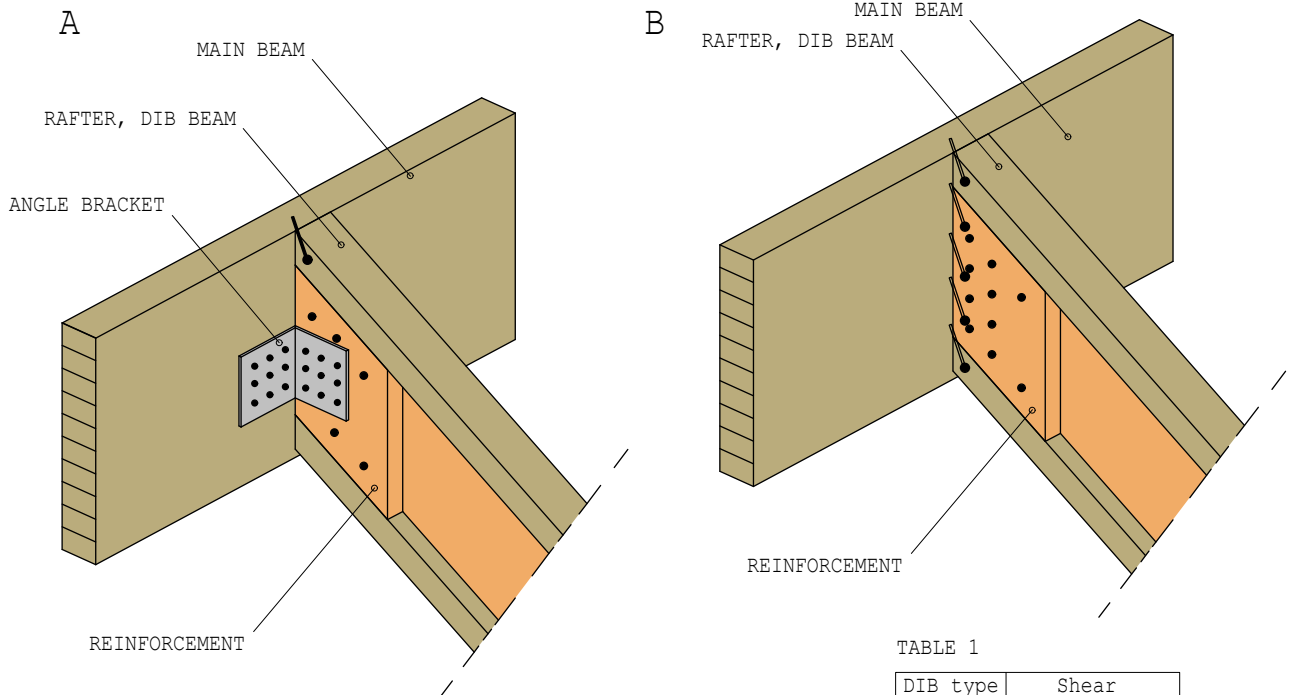


TABLE 1

DIB type	Shear capacity [kN]
200	7,2
220	8,2
250	9,5
300	11,9
350	14,3
400	16,6
450	18,7
500	18,7

Shear capacity calculated according to short-term during class.

$k_{mod} = 0,9$ and $\gamma_m = 1,3$

For constructions in service class 2 shall shear capacity multiplied by the factor 0,78

TABLE 2

Beam height	Roof angle	Quantity of nail/screws	
		Minimum	Maximum
200-220	0-25	6	10
	35	6	11
	45	6	13
250-300	0-25	8	15
	35	8	16
	45	8	18
350-400	0-25	8	20
	35	8	21
	45	8	25
450-500	0-25	8	22
	35	8	24
	45	8	27



DUDEK BUILDING SYSTEM

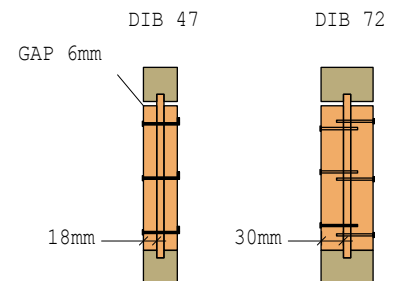
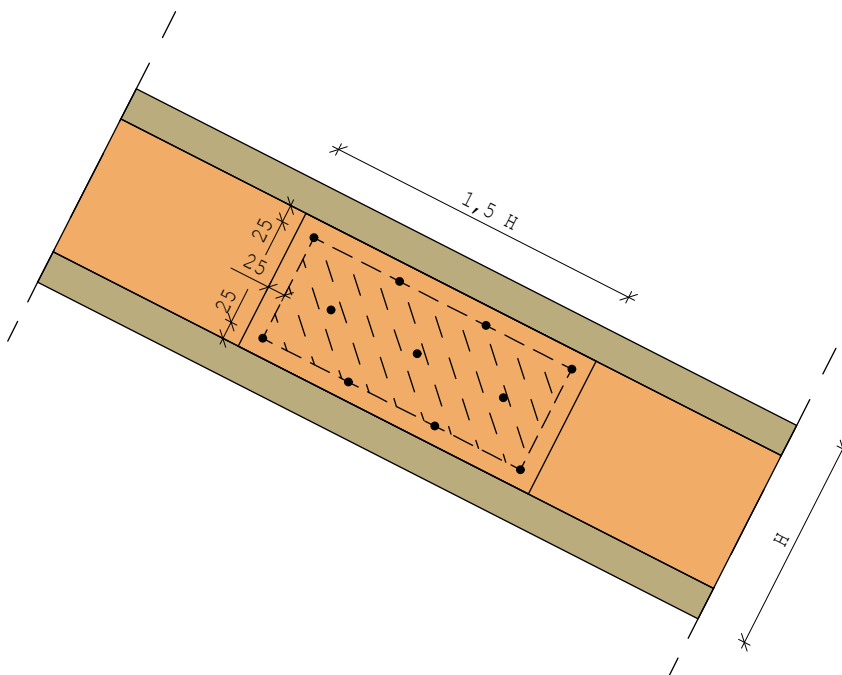
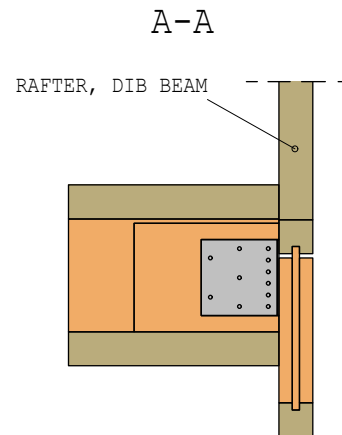
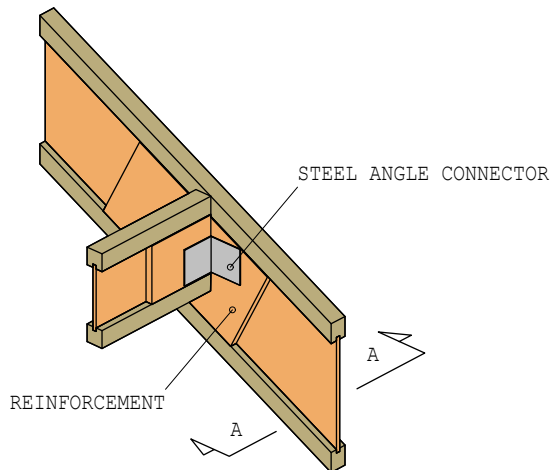
No. R07-200

Roof Structure

Date 07.04.2016

Details of I-Beams connections 2/2

Sign



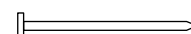
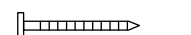

-  NAILS 2,8x60 (80)
-  RING NAILS 2,5x40 (60)
-  SCREWS 4,0<D<5,0x40 (60)

TABLE 1

DIB type	Shear capacity [kN]
200	9,9
220	10,8
250	12,6
300	14,8
350	17,3
400	19,2
450	20,1
500	20,9

Shear capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,3$

For constructions in service class 2 shall shear capacity multiplied by the factor 0,78

TABLE 2

Beam height	Roof angle	Qty of nails/screws
200-220	0-25	6
	35	6
	45	10
250-400	0-25	8
	35	10
	45	17
450-500	0-25	10
	35	11
	45	18



DUDEK BUILDING SYSTEM

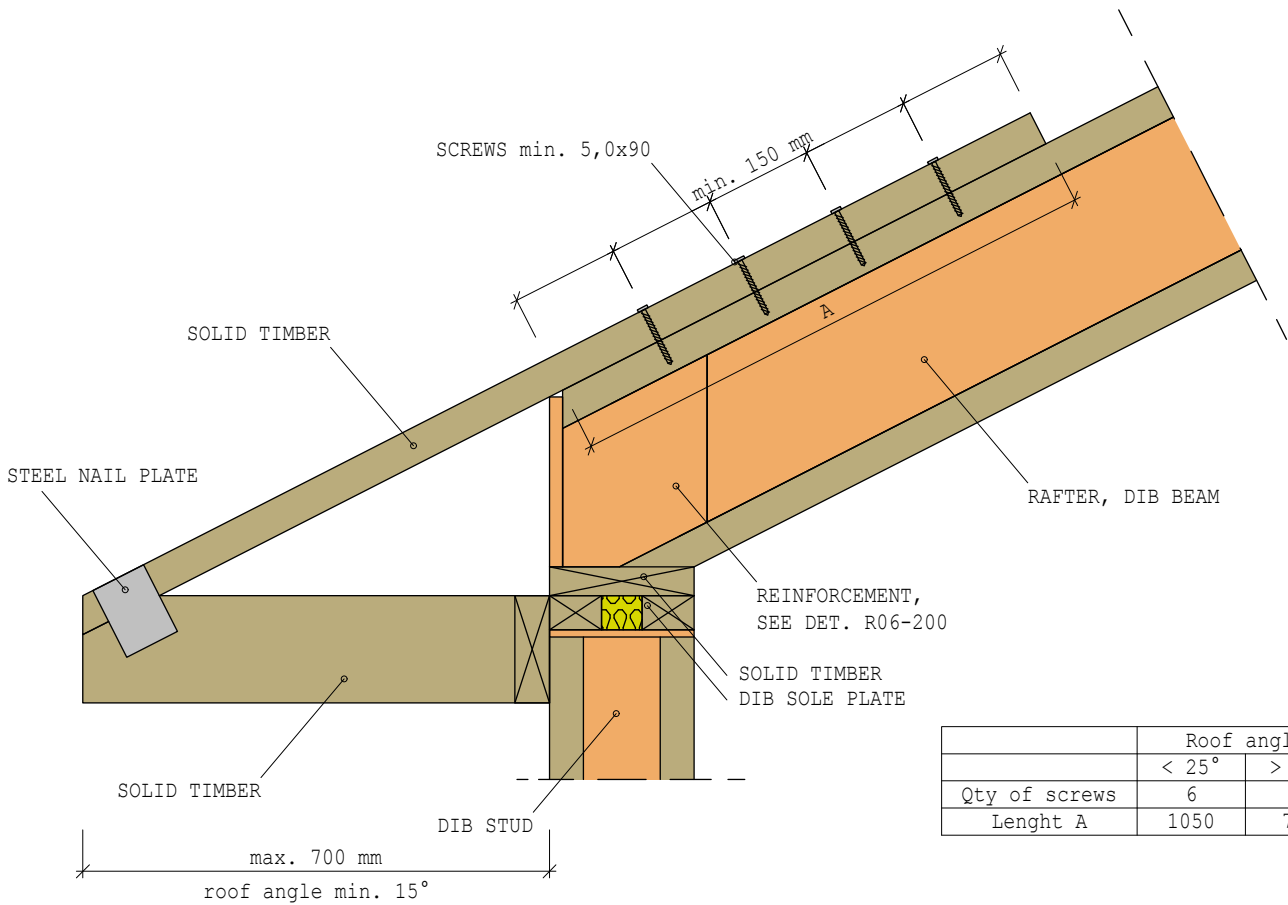
No. R08-100

Roof Structure

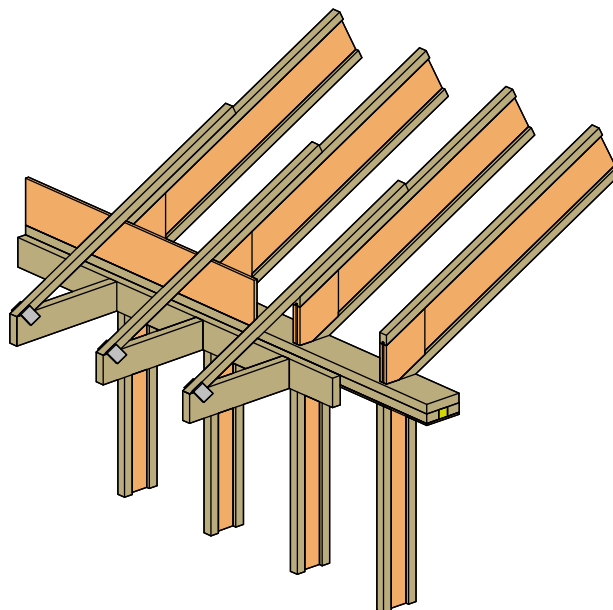
Date 07.04.2016

Roof with overhang, DIB walls 1/3

Sign



	Roof angle	
	< 25°	> 25°
Qty of screws	6	4
Length A	1050	750





DUDEK BUILDING SYSTEM

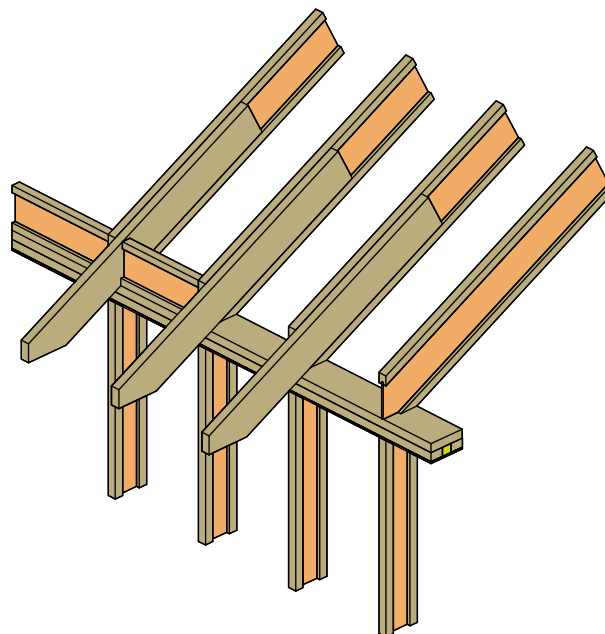
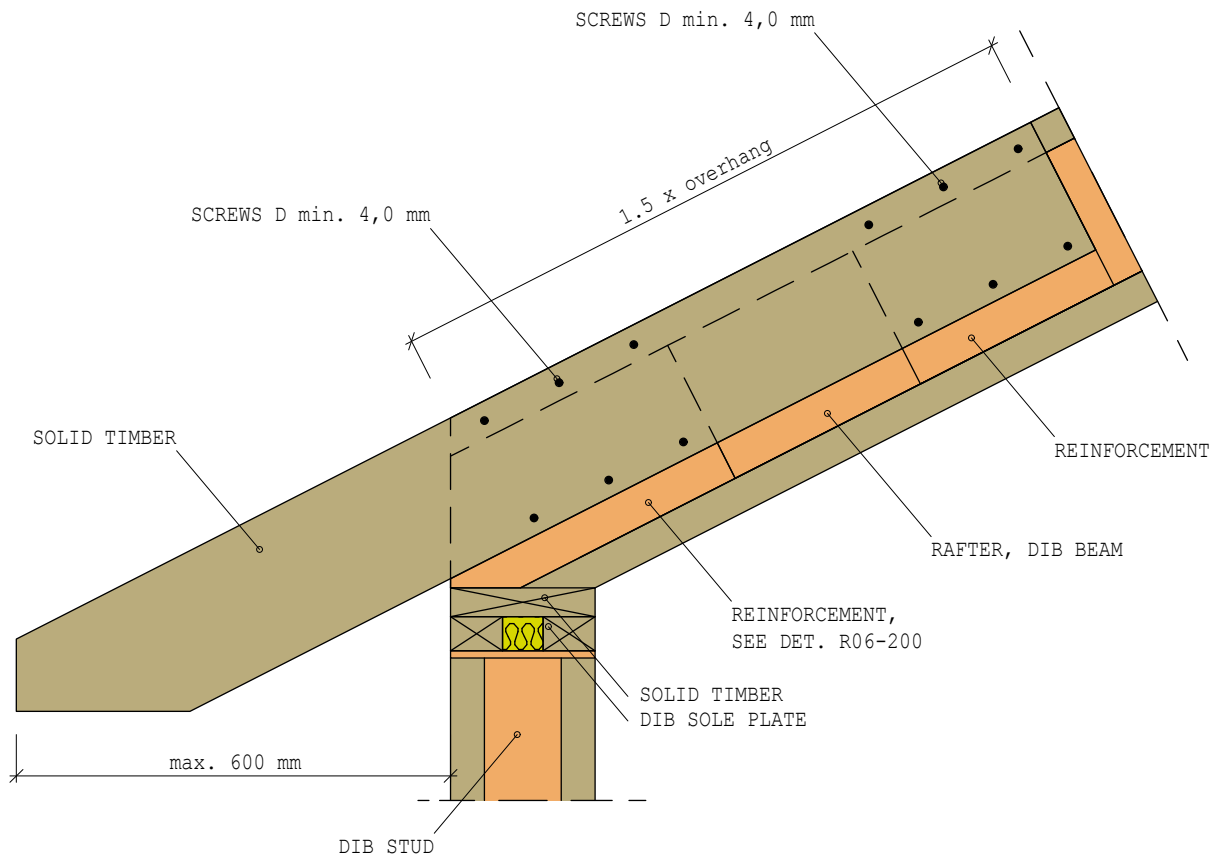
No. R08-200

Roof Structure

Date 07.04.2016

Roof with overhang, DIB walls 2/3

Sign





DUDEK BUILDING SYSTEM

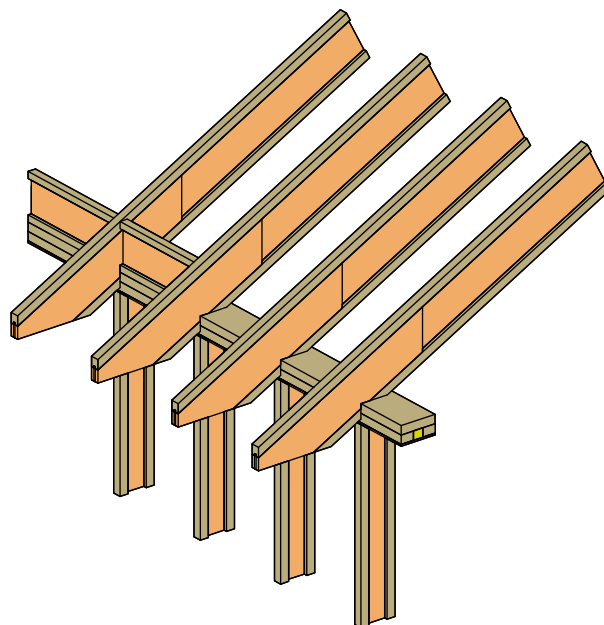
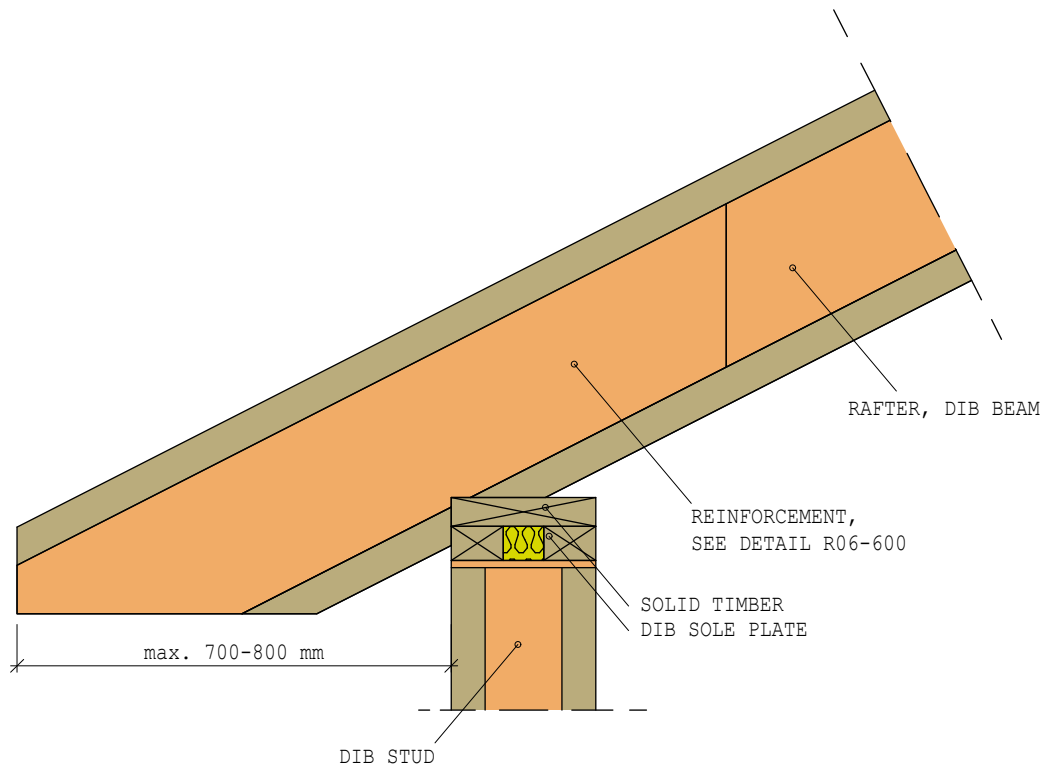
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Roof Structure

Date 07.04.2016

Roof with overhang, DIB walls 3/3

Sign





DUDEK BUILDING SYSTEM

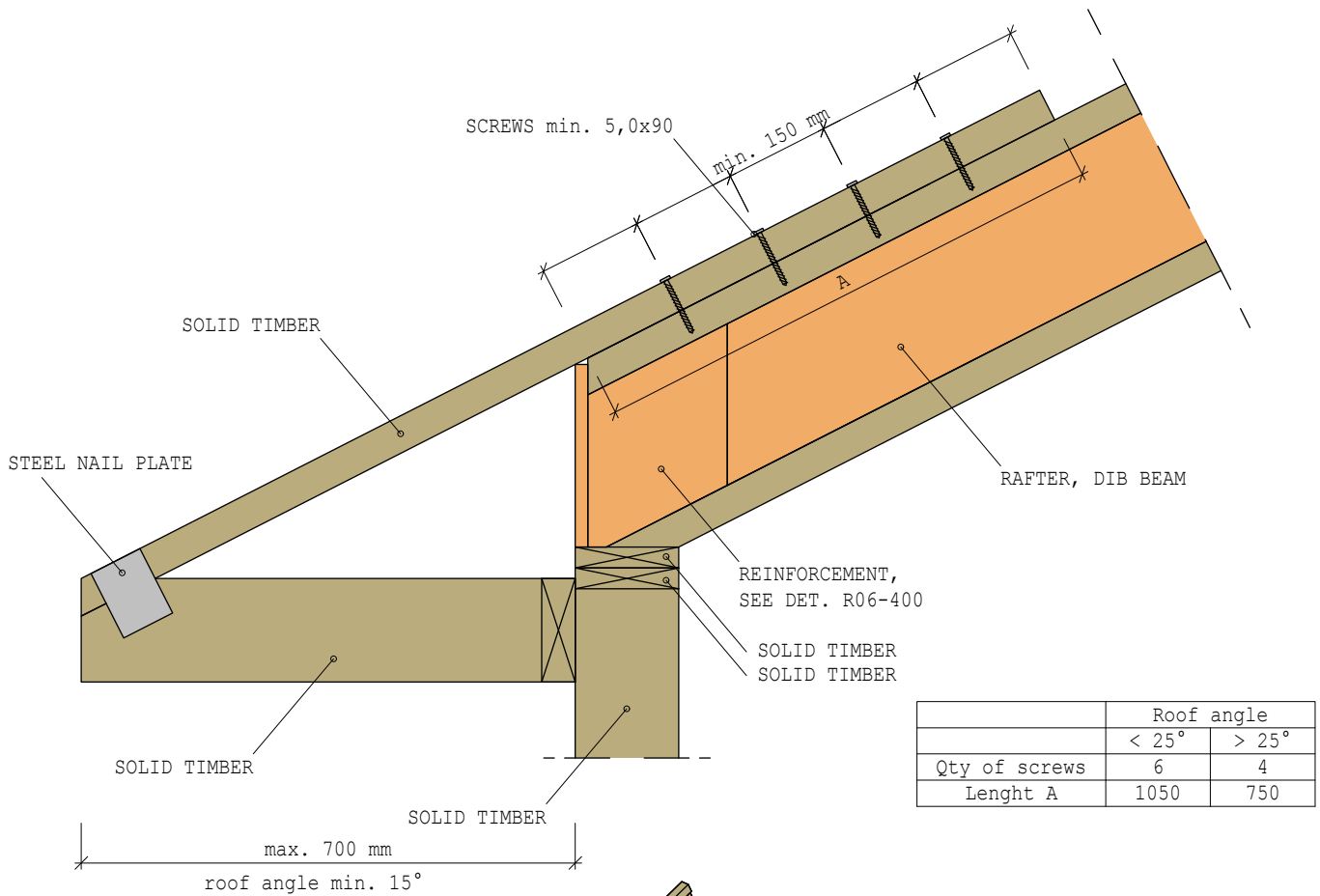
No. R09-100

Roof Structure

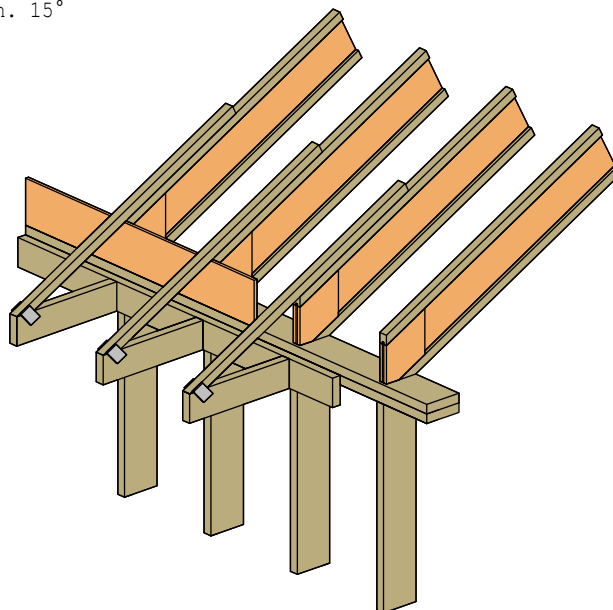
Date 07.04.2016

Roof with overhang, timber walls 1/3

Sign



	Roof angle	
	< 25°	> 25°
Qty of screws	6	4
Lenght A	1050	750





DUDEK BUILDING SYSTEM

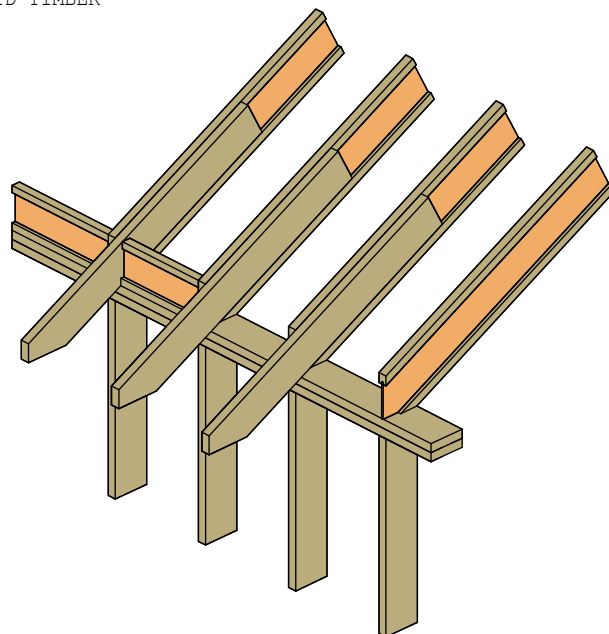
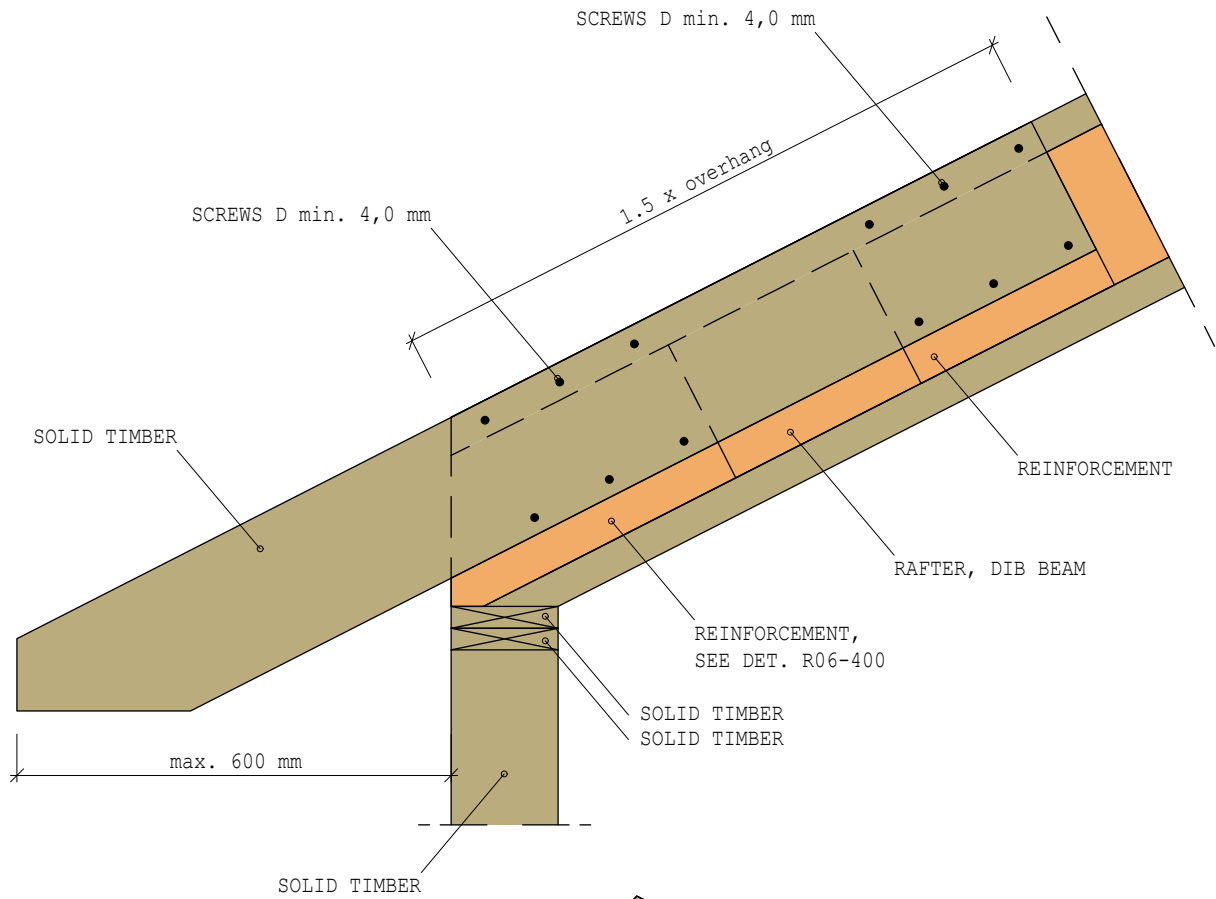
No. R09-200

Roof Structure

Date 07.04.2016

Roof with overhang, timber walls 2/3

Sign





DUDEK BUILDING SYSTEM

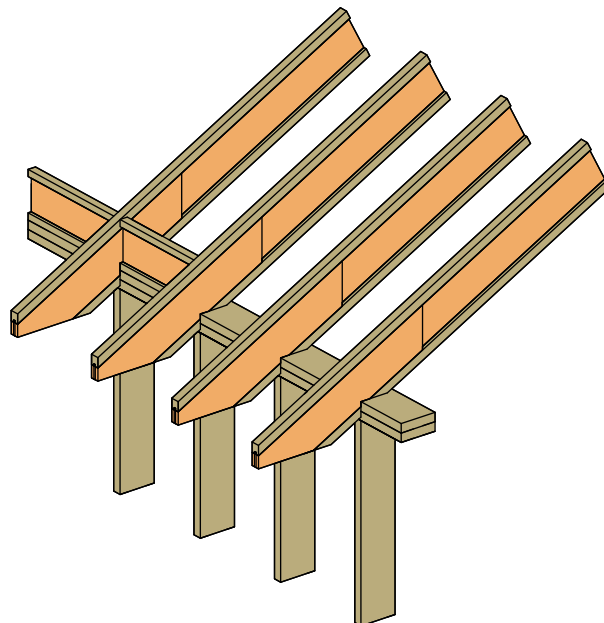
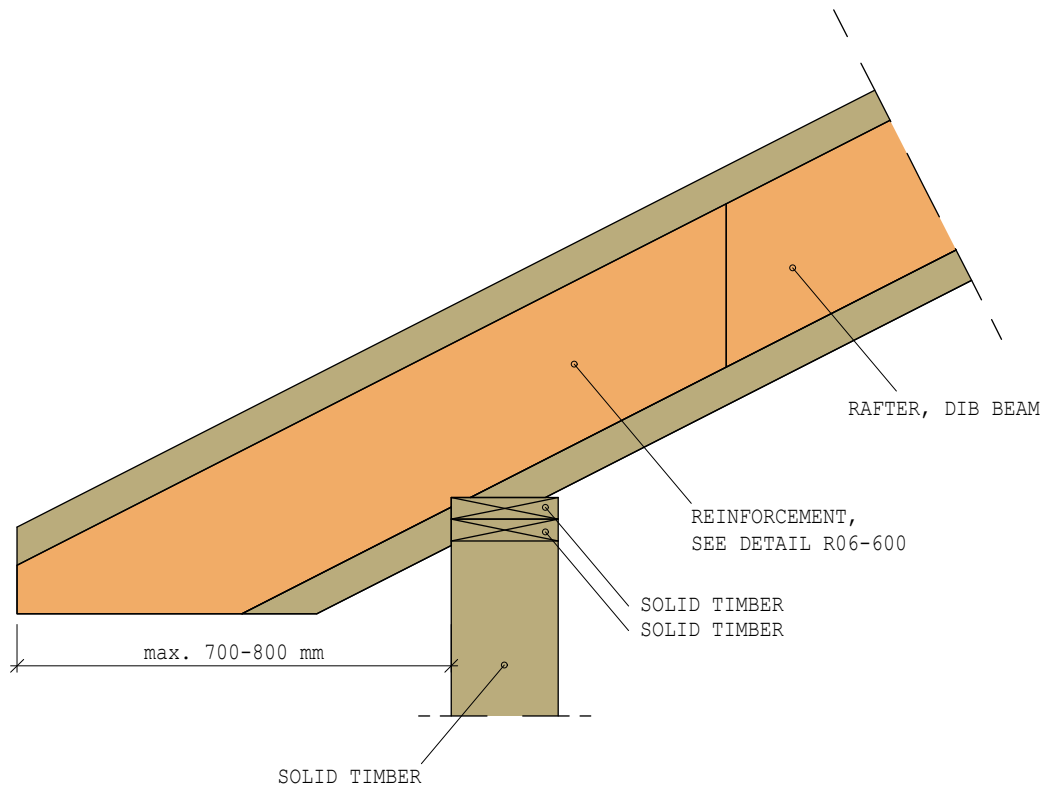
No. R09-300

Roof Structure

Date 07.04.2016

Roof with overhang, timber walls 3/3

Sign





DUDEK BUILDING SYSTEM

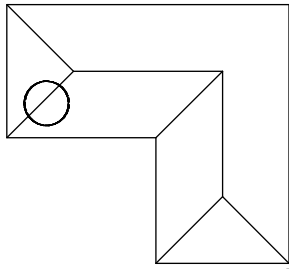
No. R10-100

Roof Structure

Date 07.04.2016

Connections to corner rafter,
convex corner 1/2

Sign



RAFTER, DIB BEAM

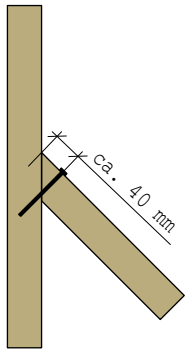
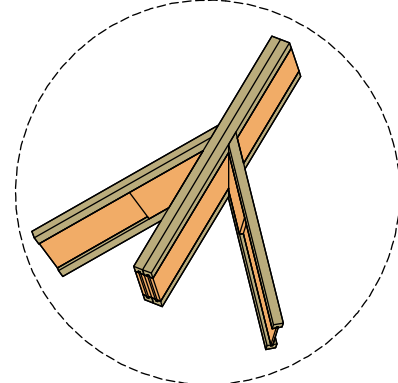
SOLUTION A, B, C

EV. RAFTER, DOUBLE DIB BEAM

RAFTER, DIB BEAM

REINFORCEMENT

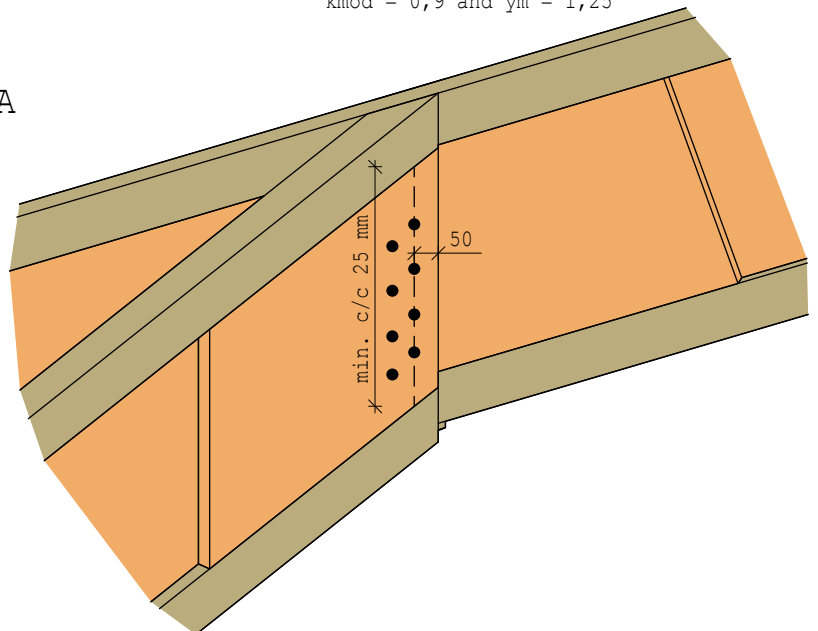
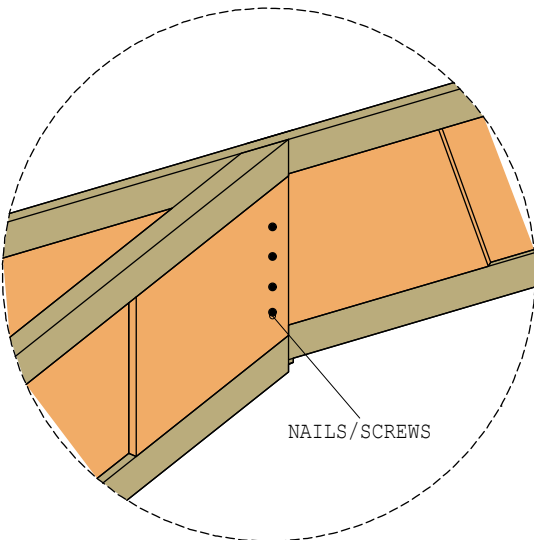
FILLER



Qty of screws	Bearing capacity [kN]
4	3,9
6	5,8
8	7,8

Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$

A





DUDEK BUILDING SYSTEM

No. R10-200

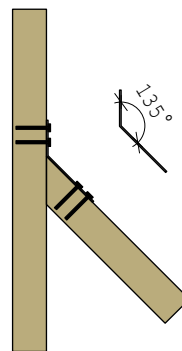
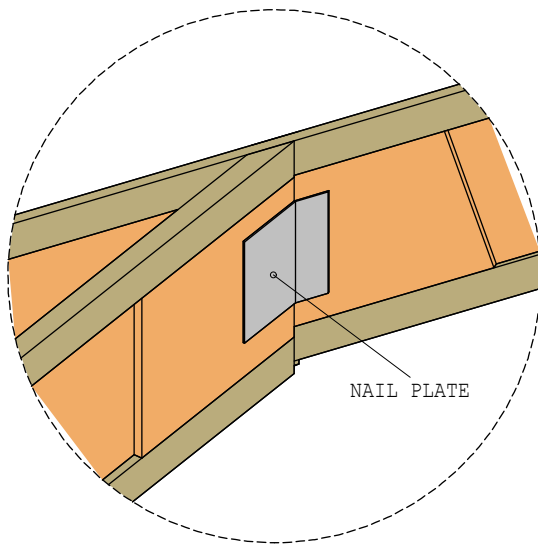
Roof Structure

Date 07.04.2016

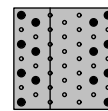
Connections to corner rafter, convex corner 2/2

Sign

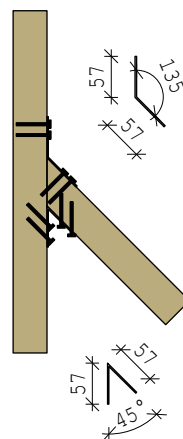
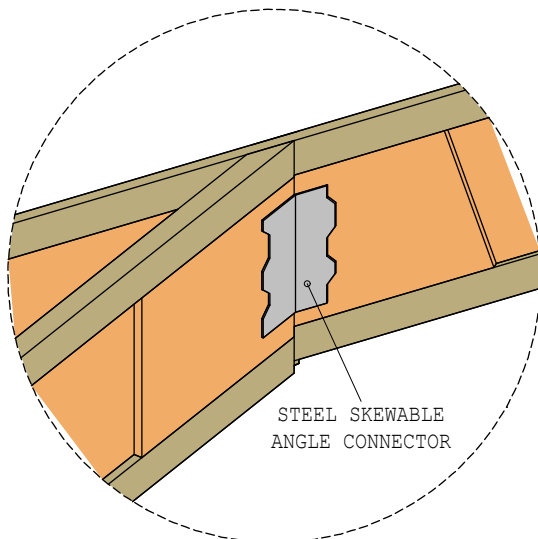
B



NAIL PLATE

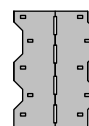


C



STEEL SKEWABLE
ANGLE CONNECTOR
SIMPSON TYPE LS

57 57





DUDEK BUILDING SYSTEM

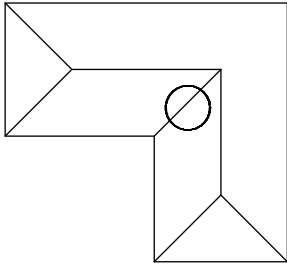
No. R10-300

Roof Structure

Date 07.04.2016

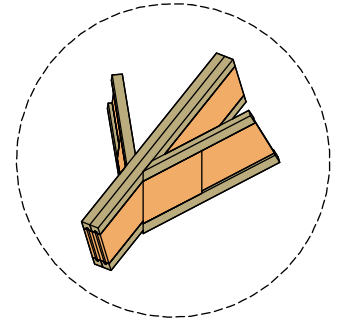
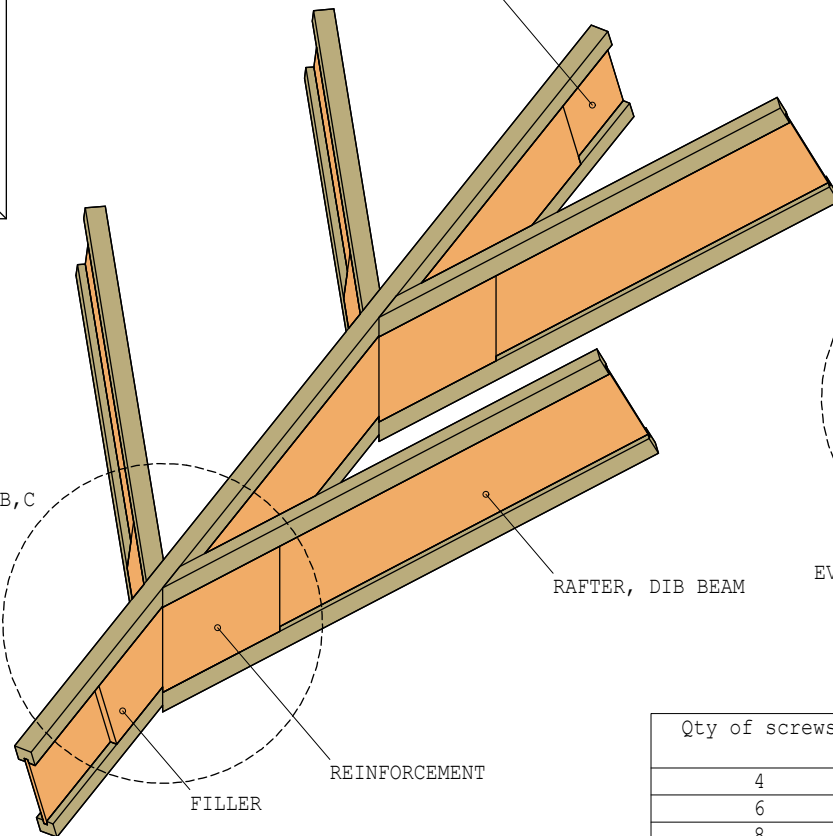
Connections to corner rafter,
concave corner 1/2

Sign



RAFTER, DIB BEAM

SOLUTION A, B, C



EV. RAFTER, DOUBLE DIB BEAM

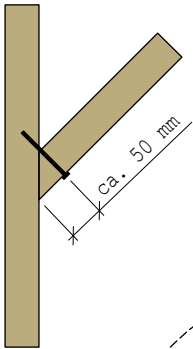
RAFTER, DIB BEAM

REINFORCEMENT

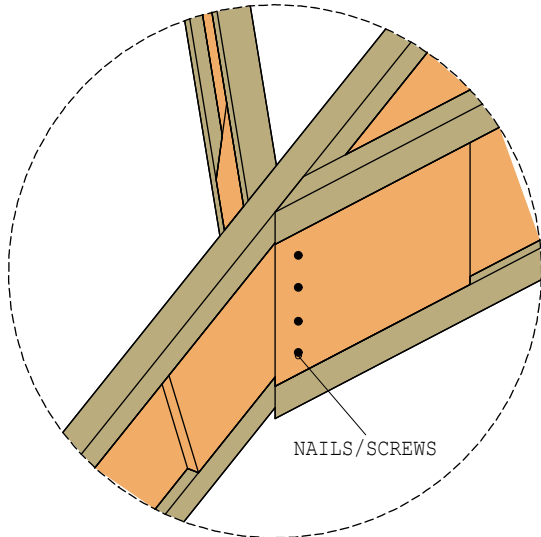
FILLER

Qty of screws	Bearing capacity [kN]
4	3,9
6	5,8
8	7,8

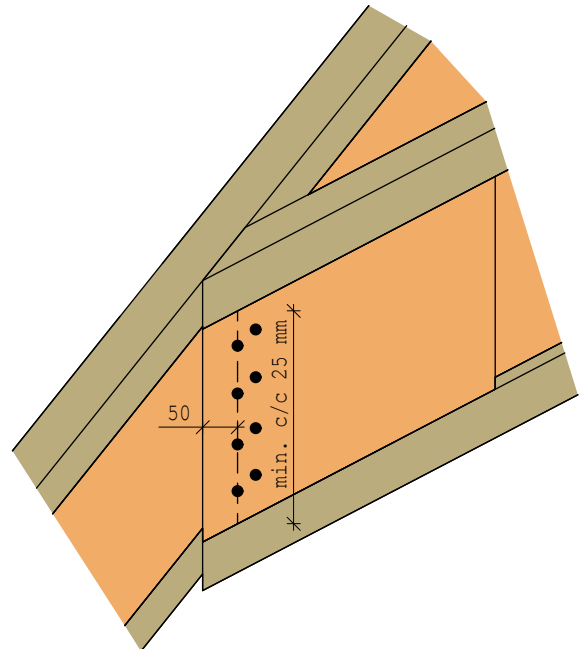
Bearing capacity calculated according to short-term during class.
 $k_{mod} = 0,9$ and $\gamma_m = 1,25$



A



NAILS/SCREWS





DUDEK BUILDING SYSTEM

No. R10-400

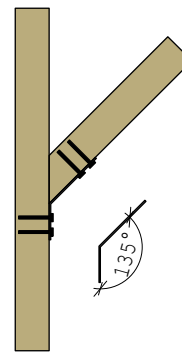
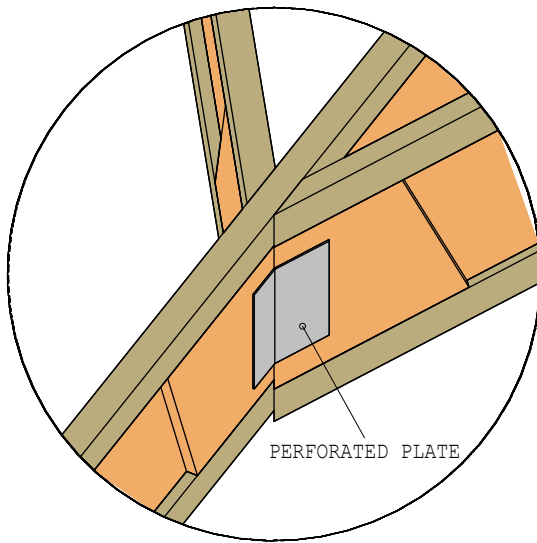
Roof Structure

Date 07.04.2016

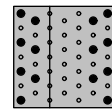
Connections to corner rafter, concave corner 2/2

Sign

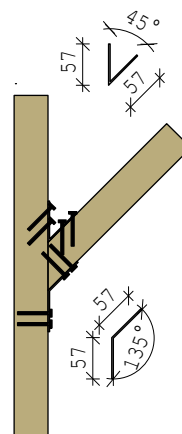
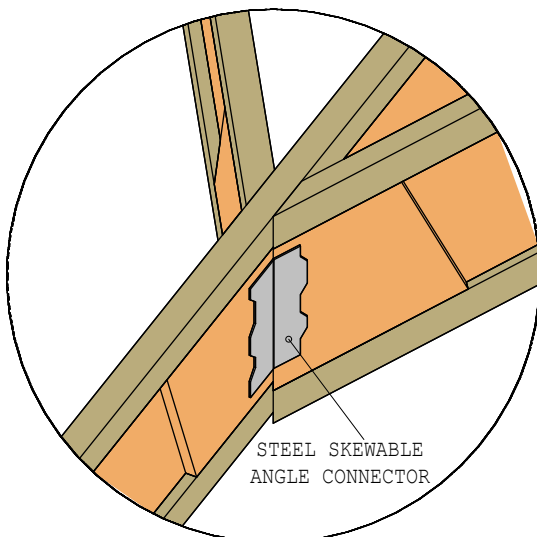
B



PERFORATED PLATE



C



STEEL SKEWABLE ANGLE CONNECTOR SIMPSON TYPE LS

57 57

