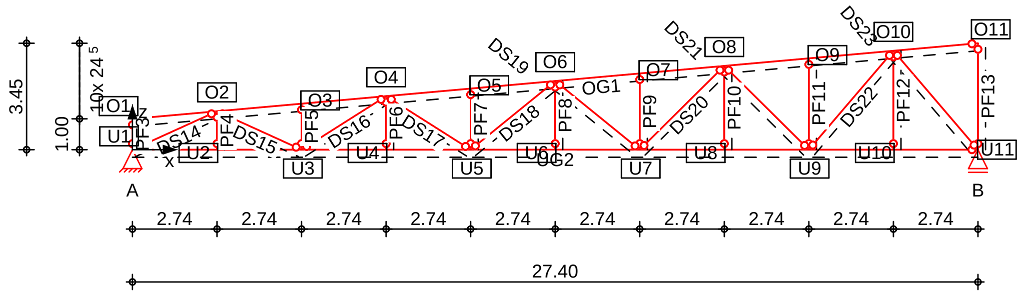
Pos. T2_DA_2 Holz-Fachwerk, Einfeldsystem

System

Fachwerkbinder

M 1:245



Knotendefinition

Knoten	x [m]	z [m]
O1	0.00	1.00
O2	2.74	1.25
O3	5.48	1.49
O4	8.22	1.74
O5	10.96	1.98
O6	13.70	2.23
O7	16.44	2.47
O8	19.18	2.72
O9	21.92	2.96
O10	24.66	3.21
O11	27.40	3.45
U1	0.00	0.00
U2	2.74	0.00
U3	5.48	0.00
U4	8.22	0.00
U5	10.96	0.00
U6	13.70	0.00
U7	16.44	0.00
U8	19.18	0.00
U9	21.92	0.00
U10	24.66	0.00
U11	27.40	0.00

Stabdefinition

Stab	von Kn.	bis Kn.	l [m]	Material	Querschnitt
OG1	O1	O11	27.51		b/h=20/40cm
UG2	U1	U11	27.40		b/h=20/40cm
PF3	U1	O1	1.00		b/h=20/22cm
PF4	U2	O2	1.25		b/h=20/22cm
PF5	U3	O3	1.49		b/h=20/22cm
PF6	U4	O4	1.74		b/h=20/22cm
PF7	U5	O5	1.98		b/h=20/22cm
PF8	U6	O6	2.23		b/h=20/22cm
PF9	U7	O7	2.47		b/h=20/22cm
PF10	U8	O8	2.72		b/h=20/22cm

Stab	von Kn.	bis Kn.	l [m]	Material	Querschnitt
PF11	U9	O9	2.96		b/h=20/22cm
PF12	U10	O10	3.21		b/h=20/22cm
PF13	U11	O11	3.45		b/h=20/22cm
DS14	U1	O2	3.01		b/h=20/22cm
DS15	O2	U3	3.01		b/h=20/22cm
DS16	U3	O4	3.24		b/h=20/22cm
DS17	O4	U5	3.24		b/h=20/22cm
DS18	U5	O6	3.53		b/h=20/22cm
DS19	O6	U7	3.53		b/h=20/22cm
DS20	U7	O8	3.86		b/h=20/22cm
DS21	O8	U9	3.86		b/h=20/22cm
DS22	U9	O10	4.22		b/h=20/22cm
DS23	O10	U11	4.22		b/h=20/22cm

Stabendgelenke

Stab	$N_{x,Anf}$	$V_{z,Anf}$	$M_{y,Anf}$	$N_{x,End}$	$V_{z,End}$	$M_{y,End}$
OG1	fest	fest	fest	fest	fest	frei
UG2, PF3-PF13, DS14-DS23	fest	fest	frei	fest	fest	frei

Auflagerdefinition global

Lager	Kn.	$K_{T,x}$ [kN/m]	$K_{T,z}$ [kN/m]	$K_{R,y}$ [kNm/rad]
A	12	fest	fest	frei
B	22	frei	fest	frei

Belastungen

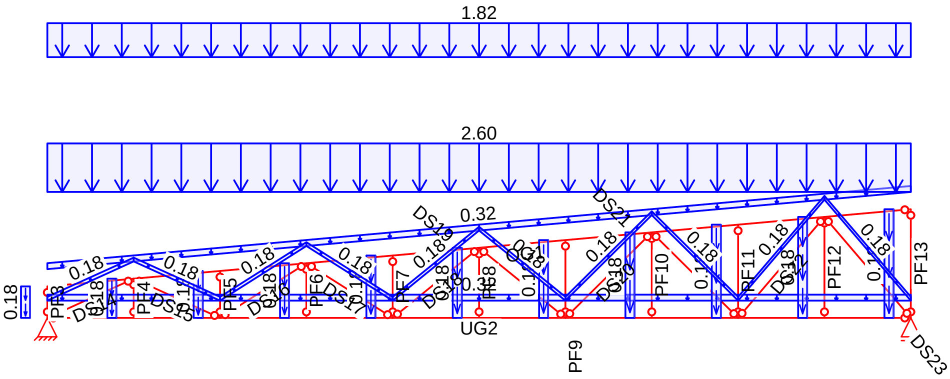
Belastungen auf das System

Grafik

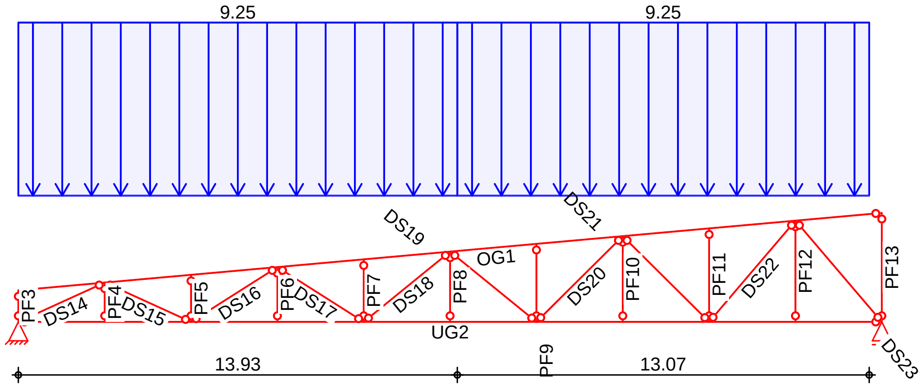
Belastungsgrafiken (einwirkungsbezogen)

Einwirkung

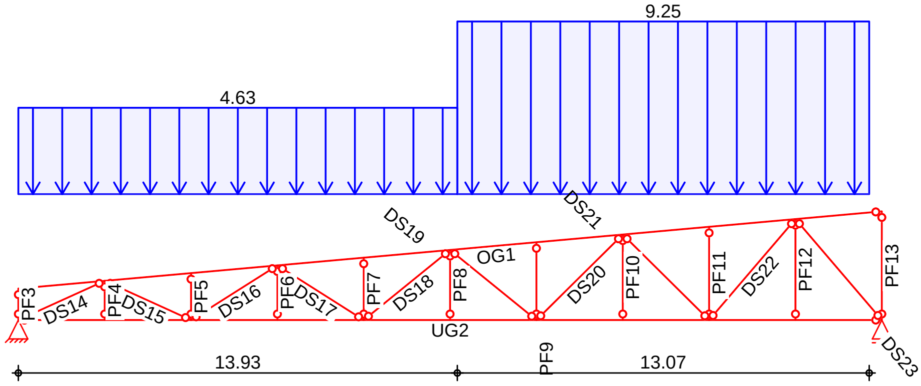
Gk



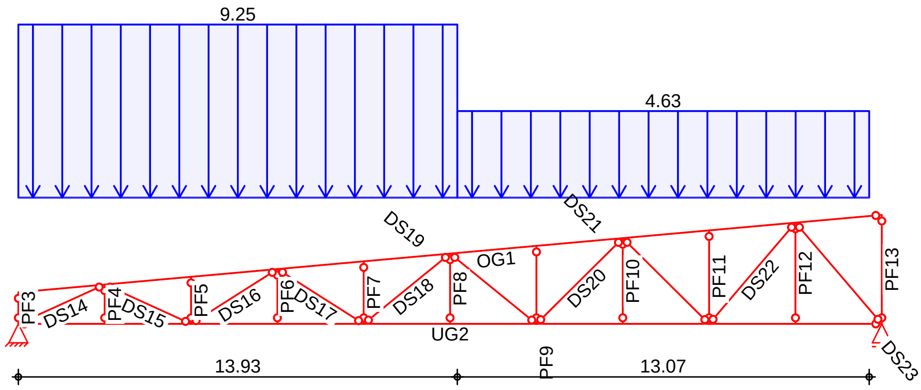
Qk.S.A



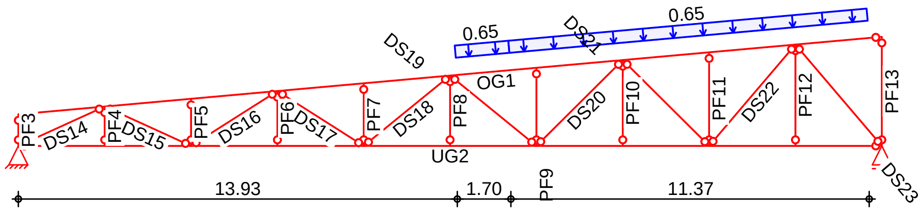
Qk.S.B



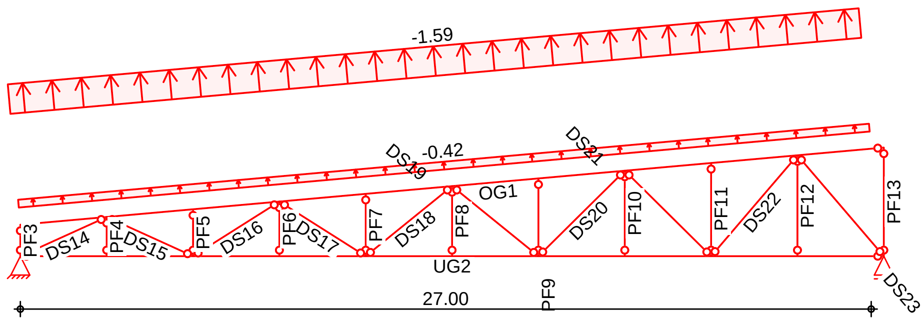
Qk.S.C



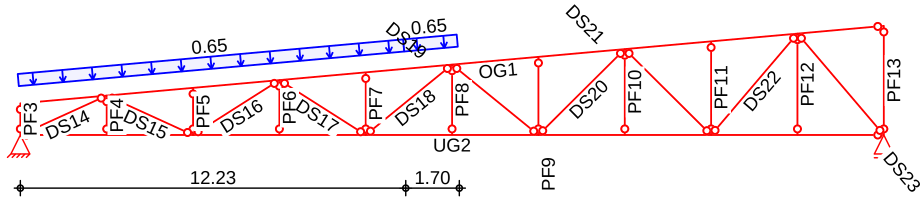
Qk.W.000



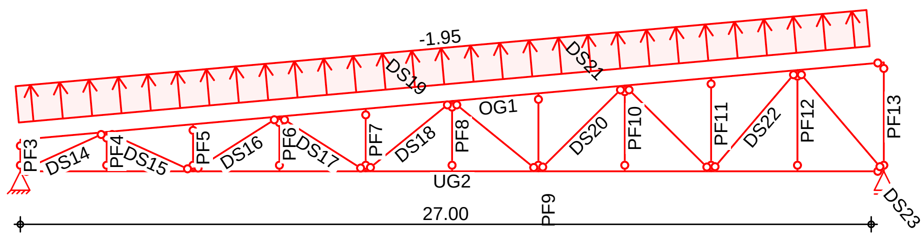
Qk.W.090



Qk.W.180



Qk.W.270



Eigengewicht
in z-Richtung

Eigengewicht am Stab

	Stab	Kommentar	q_z [kN/m]
Einw. *Gk*	OG1-UG2	Eigengew	0.32
	PF3-DS23	Eigengew	0.18

Streckenlasten
in z-Richtung

Streckenlasten am Stab (auf Grundfläche)

		Stab	Kommentar	a [m]	s [m]	$q_{z,li}$ [kN/m]	$q_{z,re}$ [kN/m]
Einw. *Gk*	(a)	OG1		0.00	27.51		2.60
	(b)	OG1		0.00	27.51		1.82
Einw. *Qk.S.A*		OG1	Volllast	0.00	13.99	9.25	9.25
		OG1	Volllast	13.99	13.12	9.25	9.25
Einw. *Qk.S.B*		OG1	Halblast	0.00	13.99	4.63	4.63
		OG1	Volllast	13.99	13.12	9.25	9.25
Einw. *Qk.S.C*		OG1	Volllast	0.00	13.99	9.25	9.25
		OG1	Halblast	13.99	13.12	4.63	4.63

(a) Eigenlast Dach - Photovoltaik
0.50*5.2 = 2.60 kN/m

(b) Eigenlast Dach 0.35*5.2 = 1.82 kN/m

Streckenlasten
orthogon. Richtung

Streckenlasten orthogonal am Stab

	Stab	Kommentar	a [m]	s [m]	q_{li} [kN/m]	q_{re} [kN/m]
Einw. *Qk.W.000*	OG1	Ber. I	15.69	11.42	0.65	0.65
	OG1	Ber. J	13.99	1.71	0.65	0.65
Einw. *Qk.W.090*	OG1	Ber. H	0.00	27.11	-0.42	-0.42
	OG1	Ber. I	0.00	27.11	-1.59	-1.59
Einw. *Qk.W.180*	OG1	Ber. I	0.00	12.28	0.65	0.65
	OG1	Ber. J	12.28	1.71	0.65	0.65
Einw. *Qk.W.270*	OG1	Ber. I	0.00	27.11	-1.95	-1.95

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maügebenden Kombinationen

	Ek	KLED	ɿ (ɹ * ˑ *EW)	
ăŭŅyŘʎ∃κØ2ŊŇōŜŊ∃ɸ	1	st	1.35*Gk	
	2	ku	1.35*Gk	+1.50*Qk.S.A
	3	ku	1.35*Gk	+1.50*Qk.S.B
	4	ku	1.35*Gk	+1.50*Qk.S.C
quasi-st., $w_{net,fin}$	34		1.00*Gk	

st: ăŭŅyŘʎ∃
ku: kurz

Nachweise (GZT) bⅠŎKøŜʎăŜ ʎY DŊŜyÎÎdzăŭⅠyŘ ŘŜŊ ¢ŊⅠ∃ŦŅKʎ∃ɿŜʎŭ yⅠŎK 5Ŀb 9b мффрπмπм

Biegung
Abs. 6.1

bⅠŎKøŜʎă ŘŜŊ .ʎŜ∃ŜŭŊⅠ∃ŦŅKʎ∃ɿŜʎŭ

	x [m]	Ek	k_{mod} [-]	N_d / M_{yd} [kN,kNm]	` 0,d / ` my,d [N/mm²]	$f_{0,d}$ / $f_{my,d}$ [N/mm²]	' [-]
OG1	*(L =27.51 m)*						
	9.65	2	0.90	-958.74	11.98	19.38	
				22.64	4.25	23.26	0.56
UG2	*(L =27.40 m, $k_{c,y}$ = 0.99, $k_{c,z}$ = 0.91, k_{crit} = 1.00)*						
	7.24	2	0.90	950.69	11.88	16.08	
				17.64	3.31	23.26	0.88
PF3	*(L = 1.00 m, $k_{c,y}$ = 1.00, $k_{c,z}$ = 1.00, k_{crit} = 1.00)*						
	0.00	2	0.90	-30.59	0.70	19.38	
				0.00	0.00	23.26	0.04
PF4	*(L = 1.25 m, $k_{c,y}$ = 1.00, $k_{c,z}$ = 0.99, k_{crit} = 1.00)*						
	0.00	2	0.90	-9.44	0.21	19.38	
				0.00	0.00	23.26	0.01
PF5	*(L = 1.49 m, $k_{c,y}$ = 0.99, $k_{c,z}$ = 0.99, k_{crit} = 1.00)*						
	0.00	2	0.90	-54.79	1.25	19.38	
				0.00	0.00	23.26	0.07
PF6	*(L = 1.74 m, $k_{c,y}$ = 0.98, $k_{c,z}$ = 0.98, k_{crit} = 1.00)*						
	1.74	1	0.60	1.16	0.03	11.32	
				0.00	0.00	15.51	0.00

	x	Ek	k_{mod}	N_d / M_{yd}	`$_{0,d}$ / `$_{my,d}$	$f_{0,d}$ / $f_{my,d}$	'
	[m]		[-]	[kN,kNm]	[N/mm^2]	[N/mm^2]	[-]
PF7	*(L = 1.98 m, $k_{c,y}$ = 0.97, $k_{c,z}$ = 0.96, k_{crit} = 1.00)*						
	0.00	4	0.90	-53.97	1.23	19.38	
				0.00	0.00	23.26	0.07
PF8	*(L = 2.23 m, $k_{c,y}$ = 0.96, $k_{c,z}$ = 0.95, k_{crit} = 1.00)*						
	2.23	1	0.60	1.89	0.04	11.32	
				0.00	0.00	15.51	0.00
PF9	*(L = 2.47 m, $k_{c,y}$ = 0.95, $k_{c,z}$ = 0.93, k_{crit} = 1.00)*						
	0.00	3	0.90	-52.61	1.20	19.38	
				0.00	0.00	23.26	0.07
PF10	*(L = 2.72 m, $k_{c,y}$ = 0.93, $k_{c,z}$ = 0.91, k_{crit} = 1.00)*						
	2.72	1	0.60	2.28	0.05	11.32	
				0.00	0.00	15.51	0.00
PF11	*(L = 2.96 m, $k_{c,y}$ = 0.91, $k_{c,z}$ = 0.87, k_{crit} = 1.00)*						
	0.00	3	0.90	-49.71	1.13	19.38	
				0.00	0.00	23.26	0.07
PF12	*(L = 3.21 m, $k_{c,y}$ = 0.88, $k_{c,z}$ = 0.83, k_{crit} = 1.00)*						
	3.21	1	0.60	2.22	0.05	11.32	
				0.00	0.00	15.51	0.00
PF13	*(L = 3.45 m, $k_{c,y}$ = 0.85, $k_{c,z}$ = 0.78, k_{crit} = 1.00)*						
	0.00	3	0.90	-17.86	0.41	19.38	
				0.00	0.00	23.26	0.03
DS14	*(L = 3.01 m, $k_{c,y}$ = 0.90, $k_{c,z}$ = 0.87, k_{crit} = 1.00)*						
	1.46	2	0.90	-604.21	13.73	19.38	
				0.24	0.15	23.26	0.82
DS15	*(L = 3.01 m, $k_{c,y}$ = 0.90, $k_{c,z}$ = 0.87, k_{crit} = 1.00)*						
	1.50	2	0.90	315.85	7.18	16.98	
				0.24	0.15	23.26	0.43
DS16	*(L = 3.24 m, $k_{c,y}$ = 0.88, $k_{c,z}$ = 0.83, k_{crit} = 1.00)*						
	1.57	2	0.90	-133.82	3.04	19.38	
				0.26	0.16	23.26	0.19
DS17	*(L = 3.24 m, $k_{c,y}$ = 0.88, $k_{c,z}$ = 0.83, k_{crit} = 1.00)*						
	1.57	3	0.90	25.58	0.58	16.98	
				0.26	0.16	23.26	0.04
DS18	*(L = 3.53 m, $k_{c,y}$ = 0.83, $k_{c,z}$ = 0.76, k_{crit} = 1.00)*						
	1.76	4	0.90	102.57	2.33	16.98	
				0.29	0.18	23.26	0.14
DS19	*(L = 3.53 m, $k_{c,y}$ = 0.83, $k_{c,z}$ = 0.76, k_{crit} = 1.00)*						
	1.86	4	0.90	-160.27	3.64	19.38	
				0.29	0.18	23.26	0.25
DS20	*(L = 3.86 m, $k_{c,y}$ = 0.77, $k_{c,z}$ = 0.69, k_{crit} = 1.00)*						
	1.98	2	0.90	213.98	4.86	16.98	
				0.31	0.19	23.26	0.29
DS21	*(L = 3.86 m, $k_{c,y}$ = 0.77, $k_{c,z}$ = 0.69, k_{crit} = 1.00)*						
	1.98	2	0.90	-264.29	6.01	19.38	
				0.31	0.19	23.26	0.46
DS22	*(L = 4.22 m, $k_{c,y}$ = 0.69, $k_{c,z}$ = 0.60, k_{crit} = 1.00)*						
	2.16	2	0.90	310.66	7.06	16.98	
				0.34	0.21	23.26	0.42

	x [m]	Ek	k_{mod} [-]	N_d / M_{yd} [kN,kNm]	`$_{0,d}$ / `$_{my,d}$ [N/mm²]	$f_{0,d}$ / $f_{my,d}$ [N/mm²]	' [-]
DS23	*(L = 4.22 m, $k_{c,y}$ = 0.69, $k_{c,z}$ = 0.60, k_{crit} = 1.00)*						
	2.26	2	0.90	-350.76	7.97	19.38	
				0.34	0.21	23.26	0.69

Querkraft
Abs. 6.1.7

[illegible]

	x [m]	Ek	k_{mod} [-]	$V_{z,d}$ [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	' [-]
OG1	24.76	2	0.90	32.86	0.86	2.42	0.36
UG2	0.00	2	0.90	9.01	0.24	2.42	0.10
DS14	0.00	1	0.60	0.33	0.02	1.62	0.01
DS15	0.00	1	0.60	0.33	0.02	1.62	0.01
DS16	0.00	1	0.60	0.33	0.02	1.62	0.01
DS17	0.00	1	0.60	0.33	0.02	1.62	0.01
DS18	0.00	1	0.60	0.33	0.02	1.62	0.01
DS19	0.00	1	0.60	0.33	0.02	1.62	0.01
DS20	0.00	1	0.60	0.33	0.02	1.62	0.01
DS21	0.00	1	0.60	0.33	0.02	1.62	0.01
DS22	0.00	1	0.60	0.33	0.02	1.62	0.01
DS23	0.00	1	0.60	0.33	0.02	1.62	0.01

[illegible]
Abs. 6.3

[illegible]

[illegible]
Folgende [illegible]

[illegible]

	l [m]	$l_{ef,cy}$ [m]	$l_{ef,cz}$ [m]	$l_{ef,m}$ [m]
OG1	27.51	-	-	-
UG2	27.40	2.74	2.70	2.70
PF3	1.00	1.00	1.00	1.00
PF4	1.25	1.25	1.25	1.25
PF5	1.49	1.49	1.49	1.49
PF6	1.74	1.74	1.74	1.74
PF7	1.98	1.98	1.98	1.98
PF8	2.23	2.23	2.23	2.23
PF9	2.47	2.47	2.47	2.47
PF10	2.72	2.72	2.72	2.72
PF11	2.96	2.96	2.96	2.96
PF12	3.21	3.21	3.21	3.21
PF13	3.45	3.45	3.45	3.45
DS14	3.01	3.01	3.01	3.01
DS15	3.01	3.01	3.01	3.01
DS16	3.24	3.24	3.24	3.24
DS17	3.24	3.24	3.24	3.24
DS18	3.53	3.53	3.53	3.53
DS19	3.53	3.53	3.53	3.53
DS20	3.86	3.86	3.86	3.86
DS21	3.86	3.86	3.86	3.86
DS22	4.22	4.22	4.22	4.22
DS23	4.22	4.22	4.22	4.22

Nachweise (GZG) — Nachweise im Grenzzustand der Gebrauchstauglichkeit nach DIN EN 1995-1-1

Verformungen
Abs. 7.2

Nachweise der Verformungen

	x [m]	Ek	Norm	w_{vorh} [mm]		w_{zul} [mm]	' [-]
OG1	*(L= 2.75 m, NKL 1, k_{def} = 0.60)*						
	4.13	34	$w_{net,fin}$	0.6	l/300=	9.2	0.07
UG2	*(L= 27.40 m, NKL 1, k_{def} = 0.60)*						
	11.72	34	$w_{net,fin}$	35.2	l/300=	91.3	0.39

[illegible] Fachwerkfeld [illegible] Verformungen werden dabei bezogen auf die [illegible] ermittelt.

Die Untergurtverformungen werden stellvertretend [illegible] Gesamtsystems betrachtet. [illegible] bezogen [illegible]

[illegible] — [illegible]

Char. Auflagerkr.

	Aufl.	$F_{x,k}$ [kN]	$F_{z,k}$ [kN]
Einw. *Gk*	A	0.00	73.95
	B	0.00	75.32
Einw. *Qk.S.A*	A	0.00	126.72
	B	0.00	123.07
Einw. *Qk.S.B*	A	0.00	78.66
	B	0.00	106.69
Einw. *Qk.S.C*	A	0.00	111.41
	B	0.00	77.91
Einw. *Qk.W.000*	A	0.76	2.07
	B	0.00	6.42
Einw. *Qk.W.090*	A	-4.85	-27.11
	B	0.00	-27.10
Einw. *Qk.W.180*	A	0.81	6.70
	B	0.00	2.35
Einw. *Qk.W.270*	A	-4.70	-26.30
	B	0.00	-26.29

Zusammenfassung — Zusammenfassung der Nachweise

Nachweise (GZT) — Nachweise im Grenzzustand der Tragfähigkeit

Nachweis		' [-]
Biegung	OK	0.88
Querkraft	OK	0.36

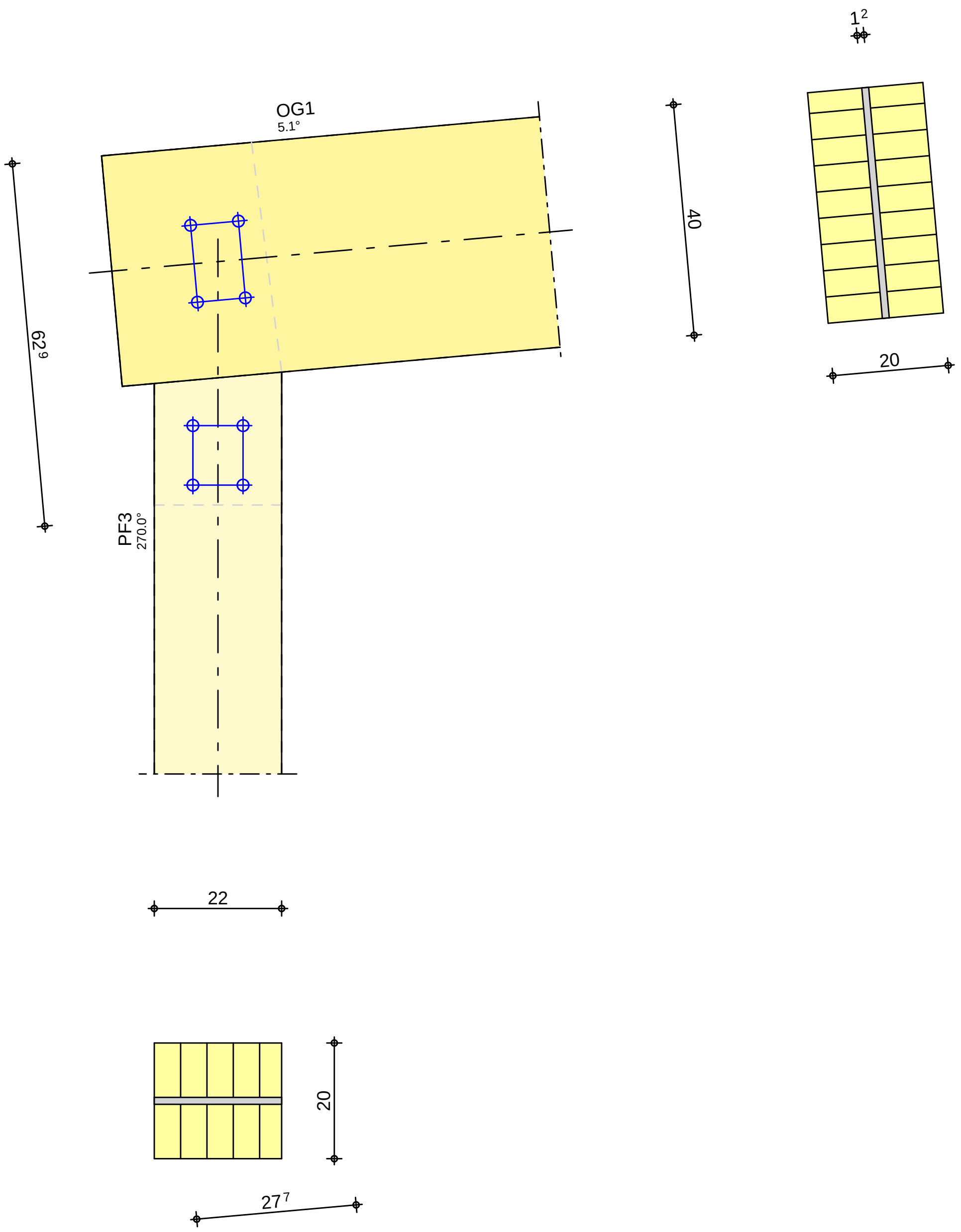
Nachweise (GZG) — Nachweise im Grenzzust. der Gebrauchstauglichkeit

Nachweis		' [-]
Durchhang	OK	0.39

Pos. T2_DA_3-O1 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:13

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ωcϐ	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	26	BSH GL28h[f]
PF3	1	270.0	20/22	21	BSH GL28h[f]

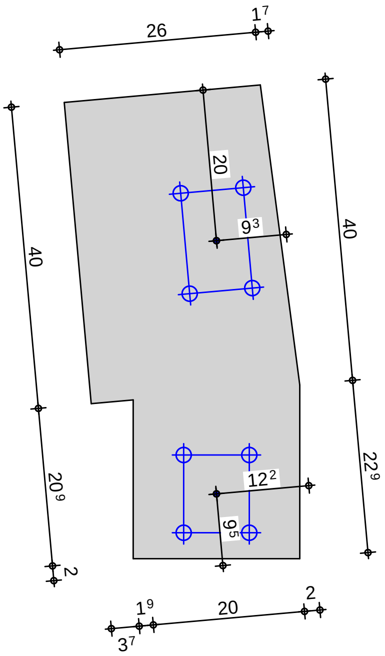
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	2x2	Passbolzen	M20	8.8
PF3	2x2	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O1	rechts	-0.87	9.78	0.00
	(a)	PF3	O1		-9.82		
Einw. *Ed.2*	(a)	OG1	O1	rechts	-0.87	9.78	0.00
	(a)	PF3	O1		-9.82		
Einw. *Ed.3*	(a)	OG1	O1	rechts	-0.87	9.78	0.00
	(a)	PF3	O1		-9.82		
Einw. *Ed.4*	(a)	OG1	O1	rechts	-0.87	9.78	0.00
	(a)	PF3	O1		-9.82		
Einw. *Ed.5*	(a)	OG1	O1	rechts	-0.87	9.78	0.00
	(a)	PF3	O1		-9.82		
Einw. *Ed.6*	(a)	OG1	O1	rechts	-0.87	9.78	0.00
	(a)	PF3	O1		-9.82		
Einw. *Ed.7*	(a)	OG1	O1	rechts	-2.70	30.23	0.00
	(a)	PF3	O1		-30.35		
Einw. *Ed.8*	(a)	OG1	O1	rechts	-1.62	18.09	0.00
	(a)	PF3	O1		-18.17		
Einw. *Ed.9*	(a)	OG1	O1	rechts	-1.62	18.09	0.00
	(a)	PF3	O1		-18.17		
Einw. *Ed.10*	(a)	OG1	O1	rechts	-2.70	30.23	0.00
	(a)	PF3	O1		-30.35		
Einw. *Ed.11*	(a)	OG1	O1	rechts	-2.70	30.23	0.00
	(a)	PF3	O1		-30.35		
Einw. *Ed.12*	(a)	OG1	O1	rechts	-1.62	18.09	0.00

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF3	O1		-18.17		
Einw. *Ed.13*	(a) OG1	O1	rechts	-2.55	28.52	0.00
	(a) PF3	O1		-28.63		
Einw. *Ed.14*	(a) OG1	O1	rechts	-0.24	2.72	0.00
	(a) PF3	O1		-2.73		
Einw. *Ed.15*	(a) OG1	O1	rechts	-0.24	2.72	0.00
	(a) PF3	O1		-2.73		
Einw. *Ed.16*	(a) OG1	O1	rechts	-2.55	28.52	0.00
	(a) PF3	O1		-28.63		
Einw. *Ed.17*	(a) OG1	O1	rechts	-2.55	28.52	0.00
	(a) PF3	O1		-28.63		
Einw. *Ed.18*	(a) OG1	O1	rechts	-0.24	2.72	0.00
	(a) PF3	O1		-2.73		

(a) aus Pos. 'T2_DA_2', Ort 'O1' (Seite 191)

[illegible]

[illegible]

	Stab	F_{Res} [kN]	h_{Res} [illegible]	N [kN]	V [kN]
Ed.1	OG1	9.82	95.1	-0.87	9.78
Ed.2	OG1	9.82	95.1	-0.87	9.78
Ed.3	OG1	9.82	95.1	-0.87	9.78
Ed.4	OG1	9.82	95.1	-0.87	9.78
Ed.5	OG1	9.82	95.1	-0.87	9.78
Ed.6	OG1	9.82	95.1	-0.87	9.78
Ed.7	OG1	30.35	95.1	-2.70	30.23
Ed.8	OG1	18.17	95.1	-1.62	18.09
Ed.9	OG1	18.17	95.1	-1.62	18.09
Ed.10	OG1	30.35	95.1	-2.70	30.23
Ed.11	OG1	30.35	95.1	-2.70	30.23
Ed.12	OG1	18.17	95.1	-1.62	18.09
Ed.13	OG1	28.63	95.1	-2.55	28.52
Ed.14	OG1	2.73	95.1	-0.24	2.72
Ed.15	OG1	2.73	95.1	-0.24	2.72
Ed.16	OG1	28.63	95.1	-2.55	28.52
Ed.17	OG1	28.63	95.1	-2.55	28.52
Ed.18	OG1	2.73	95.1	-0.24	2.72

Gleichgewicht

[illegible]

	F_{Res} [kN]	h_{Res} [illegible]	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00

	F_{Res} [kN]	h_{Res} ώc6	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maũgebenden Kombinationen

ăŭŅỵŘλƎĸØ2ŊŇōŜŊƎ

Ek	KLED	ɿ (ᴶ * ˔ *EW)
1	st	1.00*Ed.1
7	ku	1.00*Ed.7

st: ăŭŅỵŘλƎ
ku: kurz

Nachweise (GZT)

bl·ŎKøŜλăŜ λϓ DŊŜỵÎÎdzăŭl·ỵŘ ŘŜŊ ¢Ŋl·ƎŦŅKλƎ1Ŝŭ ỵl·ŎK 5Łb 9b мффрπмπм

OG1

Nettoquerschnitt Holz	$A_{ef,H}$	=	676.80	cm^2
Blech	$A_{ef,S}$	=	43.20	cm^2
9ÈÎŜỵŭŊλÎλŭŅŭăōŜλøŜŊŭ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
7	0.90	7.59	36.08	0.21

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜλă ŘŜŊ b2ŊϓI·f1ŊI·ŦŭŊI·ƎŦŅKλƎ1Ŝŭ

EK	k_{mod}	N_d [kN]	` 0,d [N/mm²]	$f_{0,d}$ [N/mm²]	'
7	0.90	-2.70	-0.04	19.38	0.00

Querkraft
Abs. 6.1.7

bl·ŎKøŜλă ŘŜŊ vdzŜŊ1ŊI·ŦŭŊI·ƎŦŅKλƎ1Ŝŭ

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
7	0.90	30.23	0.94	2.42	0.39

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	V_d [kN]	` v,d [N/mm²]	` R,d [N/mm²]	'
7	-2.70	30.23	18.19	275.00	0.07

Querzug

bl·ŎKøŜλă ŘŜŊ vdzŜŊÎdzƎŭŊI·ƎŦŅKλƎ1Ŝŭ

Queranschluss h_e/h = 0.67 Ӝ 0.70

dzỵØŜŊăŭŅŊ1ŭ

Ek	k_{mod}	$F_{v,Ed}$	$F_{90,Rd}$	'
	[-]	[kN]	[kN]	[-]
7	0.90	15.12	36.72	0.41

PF3

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyǘǸÎǸǘŅǘăōŜǸǿŜǸǘ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$*	$F_{v,Rd,ef}$*	'
		[kN]	[kN]	
7	0.90	7.59	38.38	0.20

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bÌŎKǿŜǸă ŘŜǸ b2ǸYÌfʅǸÌŦǘǸÌ∃ŦŅKǸ∃ʅŜǸǘ

EK	k_{mod}	N_d	`$_{0,d}$	$f_{0,d}$	'
		[kN]	[N/mm²]	[N/mm²]	
7	0.90	-30.35	-0.90	19.38	0.05

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d	`$_d$	`$_{R,d}$	'
	[kN]	[N/mm²]	[N/mm²]	
7	-30.35	14.05	275.00	0.05

Nachweise (Brand)

bÌŎKǿŜǸăŜ ŘŜǸ CŜǆŜǸǿǸŘŜǸăǘÌ·yŘăŦŅKǸ∃ʅŜǸǘ yÌŎK 5Lb 9b мффрπмπн

OG1

Nettoquerschnitt Holz	$A_{ef,H}$	=	646.43	cm^2
Blech	$A_{ef,S}$	=	43.20	cm^2
9ÈÎŜyǘǸÎǸǘŅǘăōŜǸǿŜǸǘ	k_{te}	=	1.00	

Querzug

bÌŎKǿŜǸă ŘŜǸ vǆŜǸÎǆ∃ǘǸÌ∃ŦŅKǸ∃ʅŜǸǘ

Queranschluss h_e/h = 0.67 Ж 0.70

PF3

Nettoquerschnitt Holz	$A_{ef,H}$	=	318.11	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyǘǸÎǸǘŅǘăōŜǸǿŜǸǘ	k_{te}	=	1.00	

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

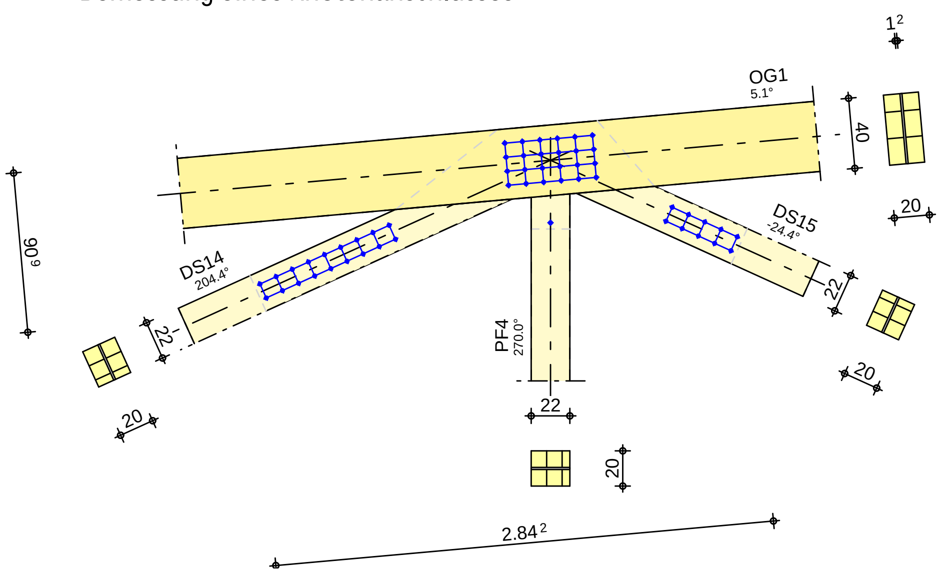
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		'
			[-]
Verbindungsmittel	OG1	OK	0.21
Stabquerschnitt	OG1	OK	0.39
Blechquerschnitt	OG1	OK	0.07

Pos. T2_DA_3-O2 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:43

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	57	BSH GL28h[f]
PF4	1	270.0	20/22	18	BSH GL28h[f]
DS14	1	204.4	20/22	91	BSH GL28h[f]
DS15	1	-24.4	20/22	58	BSH GL28h[f]

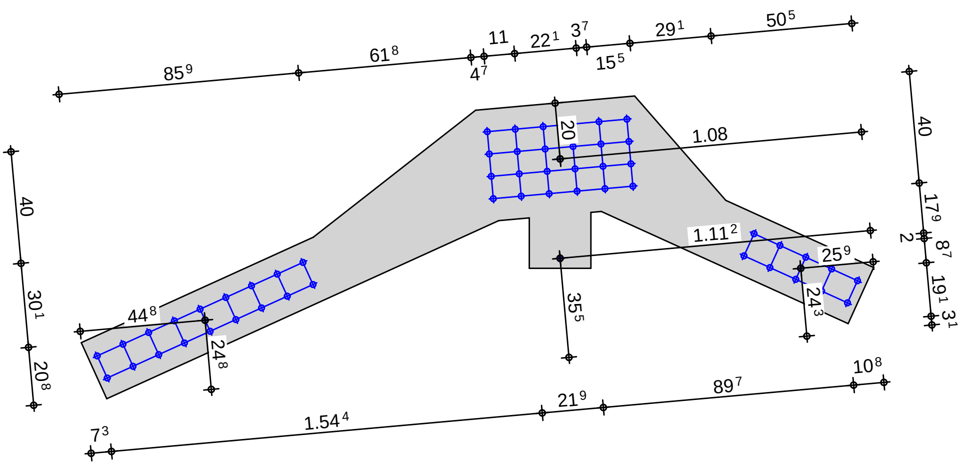
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	6x4	Passbolzen	M20	8.8
PF4	1x1	Passbolzen	M20	8.8
DS14	9x2	Passbolzen	M20	8.8
DS15	5x2	Passbolzen	M20	8.8

Blech
M 1:27



Anzahl	Dicke [mm]	Material
1	12.0	S 355

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		
	(a)	DS15	O2		109.35		
Einw. *Ed.2*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		
	(a)	DS15	O2		109.35		
Einw. *Ed.3*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		
	(a)	DS15	O2		109.35		
Einw. *Ed.4*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		
	(a)	DS15	O2		109.35		
Einw. *Ed.5*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		
	(a)	DS15	O2		109.35		
Einw. *Ed.6*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		
	(a)	DS15	O2		109.35		
Einw. *Ed.7*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		
	(a)	DS15	O2		109.35		
Einw. *Ed.8*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		
	(a)	DS15	O2		109.35		
Einw. *Ed.9*	(a)	OG1	O2	links	0.69	-7.69	2.88
	(a)	OG1	O2	rechts	-290.63	8.63	2.88
	(a)	PF4	O2		-2.07		
	(a)	DS14	O2		-207.77		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS15	O2		109.35		
Einw. *Ed.10*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.11*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.12*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.13*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.14*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.15*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.16*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.17*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.18*	(a) OG1	O2	links	0.69	-7.69	2.88
	(a) OG1	O2	rechts	-290.63	8.63	2.88
	(a) PF4	O2		-2.07		
	(a) DS14	O2		-207.77		
	(a) DS15	O2		109.35		
Einw. *Ed.19*	(a) OG1	O2	links	1.23	-13.78	5.93
	(a) OG1	O2	rechts	-574.42	15.75	5.93
	(a) PF4	O2		-5.74		
	(a) DS14	O2		-404.55		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS15	O2		222.33		
Einw. *Ed.20*	(a) OG1	O2	links	2.30	-25.73	5.34
	(a) OG1	O2	rechts	-760.71	27.58	5.34
	(a) PF4	O2		-8.48		
	(a) DS14	O2		-551.55		
	(a) DS15	O2		277.99		
Einw. *Ed.21*	(a) OG1	O2	links	2.24	-25.11	7.05
	(a) OG1	O2	rechts	-843.44	27.51	7.05
	(a) PF4	O2		-9.15		
	(a) DS14	O2		-604.06		
	(a) DS15	O2		316.00		
Einw. *Ed.22*	(a) OG1	O2	links	1.23	-13.78	5.93
	(a) OG1	O2	rechts	-574.42	15.75	5.93
	(a) PF4	O2		-5.74		
	(a) DS14	O2		-404.55		
	(a) DS15	O2		222.33		
Einw. *Ed.23*	(a) OG1	O2	links	2.30	-25.73	5.34
	(a) OG1	O2	rechts	-760.71	27.58	5.34
	(a) PF4	O2		-8.48		
	(a) DS14	O2		-551.55		
	(a) DS15	O2		277.99		
Einw. *Ed.24*	(a) OG1	O2	links	1.23	-13.78	5.93
	(a) OG1	O2	rechts	-574.42	15.75	5.93
	(a) PF4	O2		-5.74		
	(a) DS14	O2		-404.55		
	(a) DS15	O2		222.33		
Einw. *Ed.25*	(a) OG1	O2	links	1.23	-13.78	5.93
	(a) OG1	O2	rechts	-574.42	15.75	5.93
	(a) PF4	O2		-5.74		
	(a) DS14	O2		-404.55		
	(a) DS15	O2		222.33		
Einw. *Ed.26*	(a) OG1	O2	links	2.30	-25.73	5.34
	(a) OG1	O2	rechts	-760.71	27.58	5.34
	(a) PF4	O2		-8.48		
	(a) DS14	O2		-551.55		
	(a) DS15	O2		277.99		
Einw. *Ed.27*	(a) OG1	O2	links	2.12	-23.74	4.59
	(a) OG1	O2	rechts	-685.36	25.35	4.59
	(a) PF4	O2		-7.94		
	(a) DS14	O2		-497.69		
	(a) DS15	O2		249.64		
Einw. *Ed.28*	(a) OG1	O2	links	2.24	-25.11	7.05
	(a) OG1	O2	rechts	-843.44	27.51	7.05
	(a) PF4	O2		-9.15		
	(a) DS14	O2		-604.06		
	(a) DS15	O2		316.00		
Einw. *Ed.29*	(a) OG1	O2	links	2.12	-23.74	4.59
	(a) OG1	O2	rechts	-685.36	25.35	4.59
	(a) PF4	O2		-7.94		
	(a) DS14	O2		-497.69		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS15	O2		249.64		
Einw. *Ed.30*	(a) OG1	O2	links	2.24	-25.11	7.05
	(a) OG1	O2	rechts	-843.44	27.51	7.05
	(a) PF4	O2		-9.15		
	(a) DS14	O2		-604.06		
	(a) DS15	O2		316.00		
Einw. *Ed.31*	(a) OG1	O2	links	2.24	-25.11	7.05
	(a) OG1	O2	rechts	-843.44	27.51	7.05
	(a) PF4	O2		-9.15		
	(a) DS14	O2		-604.06		
	(a) DS15	O2		316.00		
Einw. *Ed.32*	(a) OG1	O2	links	1.23	-13.78	5.93
	(a) OG1	O2	rechts	-574.42	15.75	5.93
	(a) PF4	O2		-5.74		
	(a) DS14	O2		-404.55		
	(a) DS15	O2		222.33		
Einw. *Ed.33*	(a) OG1	O2	links	2.24	-25.11	7.05
	(a) OG1	O2	rechts	-843.44	27.51	7.05
	(a) PF4	O2		-9.15		
	(a) DS14	O2		-604.06		
	(a) DS15	O2		316.00		
Einw. *Ed.34*	(a) OG1	O2	links	1.23	-13.78	5.93
	(a) OG1	O2	rechts	-574.42	15.75	5.93
	(a) PF4	O2		-5.74		
	(a) DS14	O2		-404.55		
	(a) DS15	O2		222.33		
Einw. *Ed.35*	(a) OG1	O2	links	1.23	-13.78	5.93
	(a) OG1	O2	rechts	-574.42	15.75	5.93
	(a) PF4	O2		-5.74		
	(a) DS14	O2		-404.55		
	(a) DS15	O2		222.33		
Einw. *Ed.36*	(a) OG1	O2	links	2.24	-25.11	7.05
	(a) OG1	O2	rechts	-843.44	27.51	7.05
	(a) PF4	O2		-9.15		
	(a) DS14	O2		-604.06		
	(a) DS15	O2		316.00		
Einw. *Ed.37*	(a) OG1	O2	links	0.39	-7.01	2.21
	(a) OG1	O2	rechts	-242.37	7.73	2.21
	(a) PF4	O2		-1.96		
	(a) DS14	O2		-174.10		
	(a) DS15	O2		90.04		
Einw. *Ed.38*	(a) OG1	O2	links	2.37	-21.48	3.96
	(a) OG1	O2	rechts	-614.32	22.92	3.96
	(a) PF4	O2		-6.93		
	(a) DS14	O2		-447.14		
	(a) DS15	O2		223.19		
Einw. *Ed.39*	(a) OG1	O2	links	1.99	-23.90	6.35
	(a) OG1	O2	rechts	-784.34	26.07	6.35
	(a) PF4	O2		-8.87		
	(a) DS14	O2		-562.31		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS15	O2		293.07		
Einw. *Ed.40*	(a) OG1	O2	links	0.91	-1.93	1.09
	(a) OG1	O2	rechts	-96.88	2.34	1.09
	(a) PF4	O2		0.14		
	(a) DS14	O2		-69.66		
	(a) DS15	O2		36.92		
Einw. *Ed.41*	(a) OG1	O2	links	2.05	-24.52	4.64
	(a) OG1	O2	rechts	-701.61	26.15	4.64
	(a) PF4	O2		-8.20		
	(a) DS14	O2		-509.81		
	(a) DS15	O2		255.06		
Einw. *Ed.42*	(a) OG1	O2	links	0.91	-1.93	1.09
	(a) OG1	O2	rechts	-96.88	2.34	1.09
	(a) PF4	O2		0.14		
	(a) DS14	O2		-69.66		
	(a) DS15	O2		36.92		
Einw. *Ed.43*	(a) OG1	O2	links	0.91	-1.93	1.09
	(a) OG1	O2	rechts	-96.88	2.34	1.09
	(a) PF4	O2		0.14		
	(a) DS14	O2		-69.66		
	(a) DS15	O2		36.92		
Einw. *Ed.44*	(a) OG1	O2	links	2.05	-24.52	4.64
	(a) OG1	O2	rechts	-701.61	26.15	4.64
	(a) PF4	O2		-8.20		
	(a) DS14	O2		-509.81		
	(a) DS15	O2		255.06		
Einw. *Ed.45*	(a) OG1	O2	links	0.91	-1.93	1.09
	(a) OG1	O2	rechts	-96.88	2.34	1.09
	(a) PF4	O2		0.14		
	(a) DS14	O2		-69.66		
	(a) DS15	O2		36.92		
Einw. *Ed.46*	(a) OG1	O2	links	2.06	-23.06	6.46
	(a) OG1	O2	rechts	-774.81	25.25	6.46
	(a) PF4	O2		-8.68		
	(a) DS14	O2		-554.42		
	(a) DS15	O2		290.77		
Einw. *Ed.47*	(a) OG1	O2	links	0.91	-1.93	1.09
	(a) OG1	O2	rechts	-96.88	2.34	1.09
	(a) PF4	O2		0.14		
	(a) DS14	O2		-69.66		
	(a) DS15	O2		36.92		
Einw. *Ed.48*	(a) OG1	O2	links	2.06	-23.06	6.46
	(a) OG1	O2	rechts	-774.81	25.25	6.46
	(a) PF4	O2		-8.68		
	(a) DS14	O2		-554.42		
	(a) DS15	O2		290.77		
Einw. *Ed.49*	(a) OG1	O2	links	1.99	-23.90	6.35
	(a) OG1	O2	rechts	-784.34	26.07	6.35
	(a) PF4	O2		-8.87		
	(a) DS14	O2		-562.31		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	DS15	O2		293.07		
Einw. *Ed.50*	(a)	OG1	O2	links	0.91	-1.93	1.09
	(a)	OG1	O2	rechts	-96.88	2.34	1.09
	(a)	PF4	O2		0.14		
	(a)	DS14	O2		-69.66		
	(a)	DS15	O2		36.92		
Einw. *Ed.51*	(a)	OG1	O2	links	1.99	-23.90	6.35
	(a)	OG1	O2	rechts	-784.34	26.07	6.35
	(a)	PF4	O2		-8.87		
	(a)	DS14	O2		-562.31		
	(a)	DS15	O2		293.07		
Einw. *Ed.52*	(a)	OG1	O2	links	0.91	-1.93	1.09
	(a)	OG1	O2	rechts	-96.88	2.34	1.09
	(a)	PF4	O2		0.14		
	(a)	DS14	O2		-69.66		
	(a)	DS15	O2		36.92		
Einw. *Ed.53*	(a)	OG1	O2	links	0.91	-1.93	1.09
	(a)	OG1	O2	rechts	-96.88	2.34	1.09
	(a)	PF4	O2		0.14		
	(a)	DS14	O2		-69.66		
	(a)	DS15	O2		36.92		
Einw. *Ed.54*	(a)	OG1	O2	links	1.99	-23.90	6.35
	(a)	OG1	O2	rechts	-784.34	26.07	6.35
	(a)	PF4	O2		-8.87		
	(a)	DS14	O2		-562.31		
	(a)	DS15	O2		293.07		

(a) aus Pos. 'T2_DA_2', Ort 'O2' (Seite 191)

! yãǑKſdzăăʅǊŅŦűŜ

ǊŜădzſűʎŜǊŜyŘŜ ! yãǑKſdzăăʅǊŅŦűŜ ŦÑǊ ŘŜʏ I l·dzLJűăűl·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	OG1	291.86	176.7	-291.4	16.90
Ed.2	OG1	291.86	176.7	-291.4	16.90
Ed.3	OG1	291.86	176.7	-291.4	16.90
Ed.4	OG1	291.86	176.7	-291.4	16.90
Ed.5	OG1	291.86	176.7	-291.4	16.90
Ed.6	OG1	291.86	176.7	-291.4	16.90
Ed.7	OG1	291.86	176.7	-291.4	16.90
Ed.8	OG1	291.86	176.7	-291.4	16.90
Ed.9	OG1	291.86	176.7	-291.4	16.90
Ed.10	OG1	291.86	176.7	-291.4	16.90
Ed.11	OG1	291.86	176.7	-291.4	16.90
Ed.12	OG1	291.86	176.7	-291.4	16.90
Ed.13	OG1	291.86	176.7	-291.4	16.90
Ed.14	OG1	291.86	176.7	-291.4	16.90
Ed.15	OG1	291.86	176.7	-291.4	16.90
Ed.16	OG1	291.86	176.7	-291.4	16.90
Ed.17	OG1	291.86	176.7	-291.4	16.90
Ed.18	OG1	291.86	176.7	-291.4	16.90

	Stab	FRes [kN]	h Res ώcϐ	N [kN]	V [kN]
Ed.19	OG1	576.47	177.0	-575.7	29.97
Ed.20	OG1	764.97	176.0	-763.1	53.90
Ed.21	OG1	847.41	176.4	-845.7	53.20
Ed.22	OG1	576.47	177.0	-575.7	29.97
Ed.23	OG1	764.97	176.0	-763.1	53.90
Ed.24	OG1	576.47	177.0	-575.7	29.97
Ed.25	OG1	576.47	177.0	-575.7	29.97
Ed.26	OG1	764.97	176.0	-763.1	53.90
Ed.27	OG1	689.30	175.9	-687.5	49.52
Ed.28	OG1	847.41	176.4	-845.7	53.20
Ed.29	OG1	689.30	175.9	-687.5	49.52
Ed.30	OG1	847.41	176.4	-845.7	53.20
Ed.31	OG1	847.41	176.4	-845.7	53.20
Ed.32	OG1	576.47	177.0	-575.7	29.97
Ed.33	OG1	847.41	176.4	-845.7	53.20
Ed.34	OG1	576.47	177.0	-575.7	29.97
Ed.35	OG1	576.47	177.0	-575.7	29.97
Ed.36	OG1	847.41	176.4	-845.7	53.20
Ed.37	OG1	243.27	176.4	-242.8	15.17
Ed.38	OG1	618.35	175.8	-616.7	44.83
Ed.39	OG1	787.99	176.3	-786.4	50.41
Ed.40	OG1	97.95	177.2	-97.84	4.71
Ed.41	OG1	705.56	175.8	-703.7	51.11
Ed.42	OG1	97.95	177.2	-97.84	4.71
Ed.43	OG1	97.95	177.2	-97.84	4.71
Ed.44	OG1	705.56	175.8	-703.7	51.11
Ed.45	OG1	97.95	177.2	-97.84	4.71
Ed.46	OG1	778.44	176.4	-776.9	48.75
Ed.47	OG1	97.95	177.2	-97.84	4.71
Ed.48	OG1	778.44	176.4	-776.9	48.75
Ed.49	OG1	787.99	176.3	-786.4	50.41
Ed.50	OG1	97.95	177.2	-97.84	4.71
Ed.51	OG1	787.99	176.3	-786.4	50.41
Ed.52	OG1	97.95	177.2	-97.84	4.71
Ed.53	OG1	97.95	177.2	-97.84	4.71
Ed.54	OG1	787.99	176.3	-786.4	50.41

Gleichgewicht

ǁŜădzťŭʎŜǁŜyŘŜ Yy2ŭŜy˥ǁŅŦŭŜ ∃ť2ōǀ·ť

	FRes [kN]	h Res ώcϐ	Fx [kN]	Fz [kN]	My [kNm]
Ed.1	0.59	270.0	0.00	-0.59	0.00
Ed.2	0.59	270.0	0.00	-0.59	0.00
Ed.3	0.59	270.0	0.00	-0.59	0.00
Ed.4	0.59	270.0	0.00	-0.59	0.00
Ed.5	0.59	270.0	0.00	-0.59	0.00
Ed.6	0.59	270.0	0.00	-0.59	0.00
Ed.7	0.59	270.0	0.00	-0.59	0.00
Ed.8	0.59	270.0	0.00	-0.59	0.00
Ed.9	0.59	270.0	0.00	-0.59	0.00
Ed.10	0.59	270.0	0.00	-0.59	0.00

	F_{Res} [kN]	hRes ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.11	0.59	270.0	0.00	-0.59	0.00
Ed.12	0.59	270.0	0.00	-0.59	0.00
Ed.13	0.59	270.0	0.00	-0.59	0.00
Ed.14	0.59	270.0	0.00	-0.59	0.00
Ed.15	0.59	270.0	0.00	-0.59	0.00
Ed.16	0.59	270.0	0.00	-0.59	0.00
Ed.17	0.59	270.0	0.00	-0.59	0.00
Ed.18	0.59	270.0	0.00	-0.59	0.00
Ed.19	0.44	270.0	0.00	-0.44	0.00
Ed.20	0.59	270.0	0.00	-0.59	0.00
Ed.21	0.59	270.0	0.00	-0.59	0.00
Ed.22	0.44	270.0	0.00	-0.44	0.00
Ed.23	0.59	270.0	0.00	-0.59	0.00
Ed.24	0.44	270.0	0.00	-0.44	0.00
Ed.25	0.44	270.0	0.00	-0.44	0.00
Ed.26	0.59	270.0	0.00	-0.59	0.00
Ed.27	0.44	270.0	0.00	-0.44	0.00
Ed.28	0.59	270.0	0.00	-0.59	0.00
Ed.29	0.44	270.0	0.00	-0.44	0.00
Ed.30	0.59	270.0	0.00	-0.59	0.00
Ed.31	0.59	270.0	0.00	-0.59	0.00
Ed.32	0.44	270.0	0.00	-0.44	0.00
Ed.33	0.59	270.0	0.00	-0.59	0.00
Ed.34	0.44	270.0	0.00	-0.44	0.00
Ed.35	0.44	270.0	0.00	-0.44	0.00
Ed.36	0.59	270.0	0.00	-0.59	0.00
Ed.37	0.44	270.0	0.00	-0.44	0.00
Ed.38	0.44	270.0	0.00	-0.44	0.00
Ed.39	0.44	270.0	0.00	-0.44	0.00
Ed.40	0.44	270.0	0.00	-0.44	0.00
Ed.41	0.44	270.0	0.00	-0.44	0.00
Ed.42	0.44	270.0	0.00	-0.44	0.00
Ed.43	0.44	270.0	0.00	-0.44	0.00
Ed.44	0.44	270.0	0.00	-0.44	0.00
Ed.45	0.44	270.0	0.00	-0.44	0.00
Ed.46	0.44	270.0	0.00	-0.44	0.00
Ed.47	0.44	270.0	0.00	-0.44	0.00
Ed.48	0.44	270.0	0.00	-0.44	0.00
Ed.49	0.44	270.0	0.00	-0.44	0.00
Ed.50	0.44	270.0	0.00	-0.44	0.00
Ed.51	0.44	270.0	0.00	-0.44	0.00
Ed.52	0.44	270.0	0.00	-0.44	0.00
Ed.53	0.44	270.0	0.00	-0.44	0.00
Ed.54	0.44	270.0	0.00	-0.44	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maŭgebenden Kombinationen

	Ek	KLED	ɿ (ɹ * ˖ *EW)
ăűŅyŘλƎкØƧŴÑōŜŴƎφ	1	st	1.00*Ed.1
	20	ku	1.00*Ed.20

Ek	KLED	ɩ (ɹ* ˎ *EW)
21	ku	1.00*Ed.21

st: ǎűŃyŘƛƎ
ku: kurz

Nachweise (GZT) bŀŎKǿŜƛǎŜ ƛY DŊŜyĨĨdzǎűŀyŘ ŘŜŊ ¢ŊŀƎŦŅKƛƎʅŜƛű yŀŎK 5Łb 9b мффртмтм

OG1

Nettoquerschnitt Holz $A_{ef,H}$ = 601.60 cm^2

Verbindungsmittel Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
21	0.90	35.31	34.79	1.01

* je Verbindungsmittel

Biegung Abs. 6.1

bŀŎKǿŜƛǎ ŘŜŊ .ƛŜƎŜűŊŀƎŦŅKƛƎʅŜƛű

EK	k_{mod}	N_d / M_d [kNm]	`$_{0,d}$ / `$_{m,d}$ [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
21	0.90	2.24	0.04	15.44	0.08
		7.05	1.60	19.38	
rechts					
21	0.90	-843.44	-14.02	19.38	0.61
		7.05	1.60	19.38	

Querkraft Abs. 6.1.7

bŀŎKǿŜƛǎ ŘŜŊ vdzŜŊʅŊŀŦűŊŀƎŦŅKƛƎʅŜƛű

EK	k_{mod}	V_d [kN]	_$_d$ [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
20	0.90	-25.73	-0.90	2.42	0.37
rechts					
20	0.90	27.58	0.96	2.42	0.40

Querzug

bŀŎKǿŜƛǎ ŘŜŊ vdzŜŊĨdzƎűŊŀƎŦŅKƛƎʅŜƛű

Queranschluss h_e/h = 0.80 > 0.70

Der Querzugnachweis ist nicht erforderlich.

PF4

Nettoquerschnitt Holz $A_{ef,H}$ = 376.00 cm^2
Blech $A_{ef,S}$ = 24.00 cm^2
9ȄĨŜyűŊƛĨƛűŅűǎōŜƛǿŜŊű k_{te} = 1.00

Verbindungsmittel Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
21	0.90	9.15	25.93	0.35

* je Verbindungsmittel

Normalkraft Abs. 6.1

bŀŎKǿŜƛǎ ŘŜŊ bƻŊYŀƒʅŊŀŦűŊŀƎŦŅKƛƎʅŜƛű

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
21	0.90	-9.15	-0.24	19.38	0.01

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
21	-9.15	3.81	355.00	0.01

DS14

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ÈÎSyúÑÀÎÀúŅúăōSÀøSÑú	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
21	0.90	33.56	32.86	1.02

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜÀă ŘŜÑ b2ÑY l·f1ÑI·ŦúÑI·ƎŦŅKÀƎ1ŜÀú

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
21	0.90	-604.06	-17.85	19.38	0.92

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
21	-604.1	279.66	355.00	0.79

DS15

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ÈÎSyúÑÀÎÀúŅúăōSÀøSÑú	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
21	0.90	31.60	34.89	0.91

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜÀă ŘŜÑ b2ÑY l·f1ÑI·ŦúÑI·ƎŦŅKÀƎ1ŜÀú

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$* [N/mm²]	'
21	0.90	316.00	9.34	10.29	0.91

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
21	316.00	146.29	355.00	0.41

Nachweise (Brand)

bl·ŎKøŜÀăŜ ŘŜÑ CŜdzŜÑøÀŘŜÑăúl·yŘăŦŅKÀƎ1ŜÀú yl·ŎK 5Łb 9b мффртмπн

OG1

Nettoquerschnitt Holz $A_{ef,H}$ = 573.47 cm²

Querzug

bl·ŎKøŜÀă ŘŜÑ vdzŜÑÎdzƎúÑl·ƎŦŅKÀƎ1ŜÀú

Queranschluss h_e/h = 0.80 > 0.70

Der Querzugnachweis ist nicht erforderlich.

PF4

Nettoquerschnitt Holz	$A_{ef,H}$	=	354.59	cm^2
Blech	$A_{ef,S}$	=	24.00	cm^2
9ÈÎŜyǘŊʎÎʎǘŅǘăōŜʎøŜŊǘ	k_{te}	=	1.00	

DS14

Nettoquerschnitt Holz	$A_{ef,H}$	=	318.11	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyǘŊʎÎʎǘŅǘăōŜʎøŜŊǘ	k_{te}	=	1.00	

DS15

Nettoquerschnitt Holz	$A_{ef,H}$	=	318.11	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyǘŊʎÎʎǘŅǘăōŜʎøŜŊǘ	k_{te}	=	0.67	

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

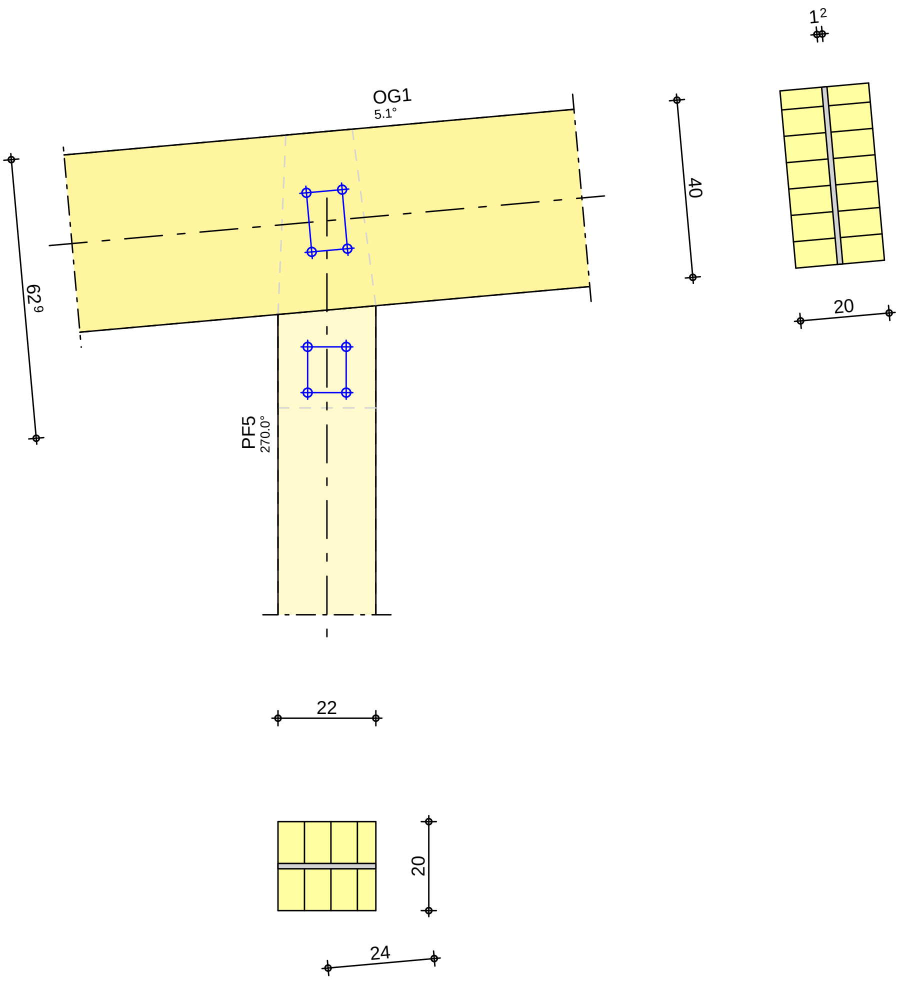
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	DS14	OK	1.02
Stabquerschnitt	DS14	OK	0.92
Blechquerschnitt	DS14	OK	0.79

Pos. T2_DA_3-O3 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



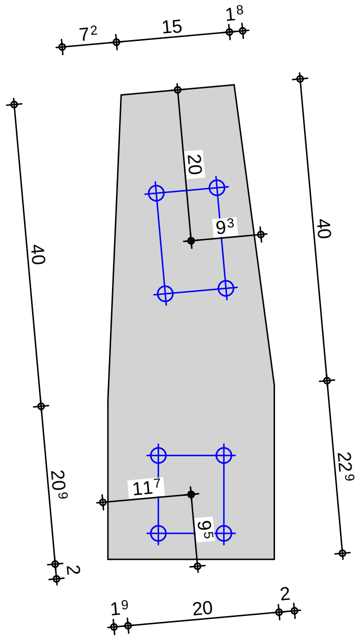
Abmessungen/ Material	Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
	OG1	1	5.1	20/40	15	BSH GL28h[f]
	PF5	1	270.0	20/22	21	BSH GL28h[f]

f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel	Stab	Anordnung	Art	Abm. [mm]	Material
	OG1	2x2	Passbolzen	M20	8.8
	PF5	2x2	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O3	links	-289.07	-8.84	2.59
	(a)	OG1	O3	rechts	-290.61	8.33	2.59
	(a)	PF5	O3		-17.24		
Einw. *Ed.2*	(a)	OG1	O3	links	-289.07	-8.84	2.59
	(a)	OG1	O3	rechts	-290.61	8.33	2.59
	(a)	PF5	O3		-17.24		
Einw. *Ed.3*	(a)	OG1	O3	links	-289.07	-8.84	2.59
	(a)	OG1	O3	rechts	-290.61	8.33	2.59
	(a)	PF5	O3		-17.24		
Einw. *Ed.4*	(a)	OG1	O3	links	-289.07	-8.84	2.59
	(a)	OG1	O3	rechts	-290.61	8.33	2.59
	(a)	PF5	O3		-17.24		
Einw. *Ed.5*	(a)	OG1	O3	links	-289.07	-8.84	2.59
	(a)	OG1	O3	rechts	-290.61	8.33	2.59
	(a)	PF5	O3		-17.24		
Einw. *Ed.6*	(a)	OG1	O3	links	-289.07	-8.84	2.59
	(a)	OG1	O3	rechts	-290.61	8.33	2.59
	(a)	PF5	O3		-17.24		
Einw. *Ed.7*	(a)	OG1	O3	links	-289.07	-8.84	2.59
	(a)	OG1	O3	rechts	-290.61	8.33	2.59
	(a)	PF5	O3		-17.24		
Einw. *Ed.8*	(a)	OG1	O3	links	-289.07	-8.84	2.59
	(a)	OG1	O3	rechts	-290.61	8.33	2.59

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF5	O3		-17.24		
Einw. *Ed.9*	(a) OG1	O3	links	-289.07	-8.84	2.59
	(a) OG1	O3	rechts	-290.61	8.33	2.59
	(a) PF5	O3		-17.24		
Einw. *Ed.10*	(a) OG1	O3	links	-289.07	-8.84	2.59
	(a) OG1	O3	rechts	-290.61	8.33	2.59
	(a) PF5	O3		-17.24		
Einw. *Ed.11*	(a) OG1	O3	links	-289.07	-8.84	2.59
	(a) OG1	O3	rechts	-290.61	8.33	2.59
	(a) PF5	O3		-17.24		
Einw. *Ed.12*	(a) OG1	O3	links	-289.07	-8.84	2.59
	(a) OG1	O3	rechts	-290.61	8.33	2.59
	(a) PF5	O3		-17.24		
Einw. *Ed.13*	(a) OG1	O3	links	-289.07	-8.84	2.59
	(a) OG1	O3	rechts	-290.61	8.33	2.59
	(a) PF5	O3		-17.24		
Einw. *Ed.14*	(a) OG1	O3	links	-289.07	-8.84	2.59
	(a) OG1	O3	rechts	-290.61	8.33	2.59
	(a) PF5	O3		-17.24		
Einw. *Ed.15*	(a) OG1	O3	links	-838.49	-27.83	6.60
	(a) OG1	O3	rechts	-843.34	26.38	6.60
	(a) PF5	O3		-54.44		
Einw. *Ed.16*	(a) OG1	O3	links	-571.57	-16.12	5.42
	(a) OG1	O3	rechts	-574.37	15.29	5.42
	(a) PF5	O3		-31.54		
Einw. *Ed.17*	(a) OG1	O3	links	-838.49	-27.83	6.60
	(a) OG1	O3	rechts	-843.34	26.38	6.60
	(a) PF5	O3		-54.44		
Einw. *Ed.18*	(a) OG1	O3	links	-571.57	-16.12	5.42
	(a) OG1	O3	rechts	-574.37	15.29	5.42
	(a) PF5	O3		-31.54		
Einw. *Ed.19*	(a) OG1	O3	links	-838.49	-27.83	6.60
	(a) OG1	O3	rechts	-843.34	26.38	6.60
	(a) PF5	O3		-54.44		
Einw. *Ed.20*	(a) OG1	O3	links	-571.57	-16.12	5.42
	(a) OG1	O3	rechts	-574.37	15.29	5.42
	(a) PF5	O3		-31.54		
Einw. *Ed.21*	(a) OG1	O3	links	-571.57	-16.12	5.42
	(a) OG1	O3	rechts	-574.37	15.29	5.42
	(a) PF5	O3		-31.54		
Einw. *Ed.22*	(a) OG1	O3	links	-838.49	-27.83	6.60
	(a) OG1	O3	rechts	-843.34	26.38	6.60
	(a) PF5	O3		-54.44		
Einw. *Ed.23*	(a) OG1	O3	links	-680.82	-25.47	4.43
	(a) OG1	O3	rechts	-685.25	24.13	4.43
	(a) PF5	O3		-49.79		
Einw. *Ed.24*	(a) OG1	O3	links	-838.49	-27.83	6.60
	(a) OG1	O3	rechts	-843.34	26.38	6.60
	(a) PF5	O3		-54.44		
Einw. *Ed.25*	(a) OG1	O3	links	-680.82	-25.47	4.43

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) OG1	O3	rechts	-685.25	24.13	4.43
	(a) PF5	O3		-49.79		
Einw. *Ed.26*	(a) OG1	O3	links	-838.49	-27.83	6.60
	(a) OG1	O3	rechts	-843.34	26.38	6.60
	(a) PF5	O3		-54.44		
Einw. *Ed.27*	(a) OG1	O3	links	-838.49	-27.83	6.60
	(a) OG1	O3	rechts	-843.34	26.38	6.60
	(a) PF5	O3		-54.44		
Einw. *Ed.28*	(a) OG1	O3	links	-571.57	-16.12	5.42
	(a) OG1	O3	rechts	-574.37	15.29	5.42
	(a) PF5	O3		-31.54		
Einw. *Ed.29*	(a) OG1	O3	links	-779.80	-26.35	5.97
	(a) OG1	O3	rechts	-784.39	24.99	5.97
	(a) PF5	O3		-51.54		
Einw. *Ed.30*	(a) OG1	O3	links	-95.73	-2.32	1.12
	(a) OG1	O3	rechts	-96.13	2.16	1.12
	(a) PF5	O3		-4.49		
Einw. *Ed.31*	(a) OG1	O3	links	-779.80	-26.35	5.97
	(a) OG1	O3	rechts	-784.39	24.99	5.97
	(a) PF5	O3		-51.54		
Einw. *Ed.32*	(a) OG1	O3	links	-95.73	-2.32	1.12
	(a) OG1	O3	rechts	-96.13	2.16	1.12
	(a) PF5	O3		-4.49		
Einw. *Ed.33*	(a) OG1	O3	links	-779.80	-26.35	5.97
	(a) OG1	O3	rechts	-784.39	24.99	5.97
	(a) PF5	O3		-51.54		
Einw. *Ed.34*	(a) OG1	O3	links	-95.73	-2.32	1.12
	(a) OG1	O3	rechts	-96.13	2.16	1.12
	(a) PF5	O3		-4.49		
Einw. *Ed.35*	(a) OG1	O3	links	-95.73	-2.32	1.12
	(a) OG1	O3	rechts	-96.13	2.16	1.12
	(a) PF5	O3		-4.49		
Einw. *Ed.36*	(a) OG1	O3	links	-779.80	-26.35	5.97
	(a) OG1	O3	rechts	-784.39	24.99	5.97
	(a) PF5	O3		-51.54		
Einw. *Ed.37*	(a) OG1	O3	links	-95.73	-2.32	1.12
	(a) OG1	O3	rechts	-96.13	2.16	1.12
	(a) PF5	O3		-4.49		
Einw. *Ed.38*	(a) OG1	O3	links	-770.27	-25.56	6.04
	(a) OG1	O3	rechts	-774.72	24.24	6.04
	(a) PF5	O3		-50.00		
Einw. *Ed.39*	(a) OG1	O3	links	-95.73	-2.32	1.12
	(a) OG1	O3	rechts	-96.13	2.16	1.12
	(a) PF5	O3		-4.49		
Einw. *Ed.40*	(a) OG1	O3	links	-770.27	-25.56	6.04
	(a) OG1	O3	rechts	-774.72	24.24	6.04
	(a) PF5	O3		-50.00		
Einw. *Ed.41*	(a) OG1	O3	links	-779.80	-26.35	5.97
	(a) OG1	O3	rechts	-784.39	24.99	5.97
	(a) PF5	O3		-51.54		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.42*	(a)	OG1	O3	links	-95.73	-2.32	1.12
	(a)	OG1	O3	rechts	-96.13	2.16	1.12
	(a)	PF5	O3		-4.49		

(a) aus Pos. 'T2_DA_2', Ort 'O3' (Seite 191)

! yãŎKſdzăăʅǋŅŦűŜ

ǋŜădzſűƛŜǋŜyŘŜ ! yãŎKſdzăăʅǋŅŦűŜ ŦǸǋ ŘŜy I I·dzLJűăűI·ō

	Stab	FRes [kN]	hRes ώcϐ	N [kN]	V [kN]
Ed.1	OG1	17.24	95.1	-1.54	17.17
Ed.2	OG1	17.24	95.1	-1.54	17.17
Ed.3	OG1	17.24	95.1	-1.54	17.17
Ed.4	OG1	17.24	95.1	-1.54	17.17
Ed.5	OG1	17.24	95.1	-1.54	17.17
Ed.6	OG1	17.24	95.1	-1.54	17.17
Ed.7	OG1	17.24	95.1	-1.54	17.17
Ed.8	OG1	17.24	95.1	-1.54	17.17
Ed.9	OG1	17.24	95.1	-1.54	17.17
Ed.10	OG1	17.24	95.1	-1.54	17.17
Ed.11	OG1	17.24	95.1	-1.54	17.17
Ed.12	OG1	17.24	95.1	-1.54	17.17
Ed.13	OG1	17.24	95.1	-1.54	17.17
Ed.14	OG1	17.24	95.1	-1.54	17.17
Ed.15	OG1	54.44	95.1	-4.85	54.22
Ed.16	OG1	31.54	95.1	-2.81	31.42
Ed.17	OG1	54.44	95.1	-4.85	54.22
Ed.18	OG1	31.54	95.1	-2.81	31.42
Ed.19	OG1	54.44	95.1	-4.85	54.22
Ed.20	OG1	31.54	95.1	-2.81	31.42
Ed.21	OG1	31.54	95.1	-2.81	31.42
Ed.22	OG1	54.44	95.1	-4.85	54.22
Ed.23	OG1	49.79	95.1	-4.43	49.59
Ed.24	OG1	54.44	95.1	-4.85	54.22
Ed.25	OG1	49.79	95.1	-4.43	49.59
Ed.26	OG1	54.44	95.1	-4.85	54.22
Ed.27	OG1	54.44	95.1	-4.85	54.22
Ed.28	OG1	31.54	95.1	-2.81	31.42
Ed.29	OG1	51.54	95.1	-4.59	51.34
Ed.30	OG1	4.49	95.1	-0.40	4.48
Ed.31	OG1	51.54	95.1	-4.59	51.34
Ed.32	OG1	4.49	95.1	-0.40	4.48
Ed.33	OG1	51.54	95.1	-4.59	51.34
Ed.34	OG1	4.49	95.1	-0.40	4.48
Ed.35	OG1	4.49	95.1	-0.40	4.48
Ed.36	OG1	51.54	95.1	-4.59	51.34
Ed.37	OG1	4.49	95.1	-0.40	4.48
Ed.38	OG1	50.00	95.1	-4.45	49.80
Ed.39	OG1	4.49	95.1	-0.40	4.48
Ed.40	OG1	50.00	95.1	-4.45	49.80
Ed.41	OG1	51.54	95.1	-4.59	51.34

	Stab	F_{Res} [kN]	η_{Res} ώcϐ	N [kN]	V [kN]
Ed.42	OG1	4.49	95.1	-0.40	4.48

Gleichgewicht

ŊŜăďzƭǘʎŜŊŜyŘŜ Yy2ǘŜyʅŊŅŦǘŜ Ǝƭ2ōl·ƭ

	F_{Res} [kN]	η_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00
Ed.19	0.00		0.00	0.00	0.00
Ed.20	0.00		0.00	0.00	0.00
Ed.21	0.00		0.00	0.00	0.00
Ed.22	0.00		0.00	0.00	0.00
Ed.23	0.00		0.00	0.00	0.00
Ed.24	0.00		0.00	0.00	0.00
Ed.25	0.00		0.00	0.00	0.00
Ed.26	0.00		0.00	0.00	0.00
Ed.27	0.00		0.00	0.00	0.00
Ed.28	0.00		0.00	0.00	0.00
Ed.29	0.00		0.00	0.00	0.00
Ed.30	0.00		0.00	0.00	0.00
Ed.31	0.00		0.00	0.00	0.00
Ed.32	0.00		0.00	0.00	0.00
Ed.33	0.00		0.00	0.00	0.00
Ed.34	0.00		0.00	0.00	0.00
Ed.35	0.00		0.00	0.00	0.00
Ed.36	0.00		0.00	0.00	0.00
Ed.37	0.00		0.00	0.00	0.00
Ed.38	0.00		0.00	0.00	0.00
Ed.39	0.00		0.00	0.00	0.00
Ed.40	0.00		0.00	0.00	0.00
Ed.41	0.00		0.00	0.00	0.00
Ed.42	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ăűŅẙŘλƎĸØ2ŅŇōŜŅƎɸ

Ek	KLED	ʅ (ᶨ* ̦ *EW)
15	ku	1.00*Ed.15

ku: kurz

Nachweise (GZT)

bŀŎKøŜλăŜ λY DŅŜẙÎÎdzăűŀẙŘ ŘŜŅ ¢ŅŀƎŦŅKλƎʅŜλű ẙŀŎK 5Łb 9b мффрпмпм

OG1

Nettoquerschnitt Holz	$A_{ef,H}$ =	676.80	cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
15	0.90	13.61	36.07	0.38

* je Verbindungsmittel

Biegung
Abs. 6.1

bŀŎKøŜλă ŘŜŅ .λŜƎŜűŅŀƎŦŅKλƎʅŜλű

EK	k_{mod}	N_d / M_d [kNm]	` 0,d / ` m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
15	0.90	-838.49	-12.39	19.38	0.48
		6.60	1.36	19.38	
rechts					
15	0.90	-843.34	-12.46	19.38	0.48
		6.60	1.36	19.38	

Querkraft
Abs. 6.1.7

bŀŎKøŜλă ŘŜŅ vdzŜŅʅŅŀŦűŅŀƎŦŅKλƎʅŜλű

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
15	0.90	-27.83	-0.86	2.42	0.36
rechts					
15	0.90	26.38	0.82	2.42	0.34

Querzug

bŀŎKøŜλă ŘŜŅ vdzŜŅÎdzƎűŅŀƎŦŅKλƎʅŜλű

Queranschluss	h_e/h =	0.67	Ӝ 0.70

dzẙØŜŅăűŅŅʅű

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
15	0.90	27.11	36.72	0.74

PF5

Nettoquerschnitt Holz	$A_{ef,H}$ =	338.40	cm^2
Blech	$A_{ef,S}$ =	21.60	cm^2
9ÈÎŜẙűŅλÎλűŅűăōŜλøŜŅű	k_{te} =	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
15	0.90	13.61	38.38	0.35

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ǑKǿŜλă ŘŜ₪ b2₪ƳI·ƭɭ₪I·Ŧǘǘ₪I·ƎŦŅKλƎɭŜλǘ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
15	0.90	-54.44	-1.61	19.38	0.08

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
15	-54.44	25.20	275.00	0.09

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

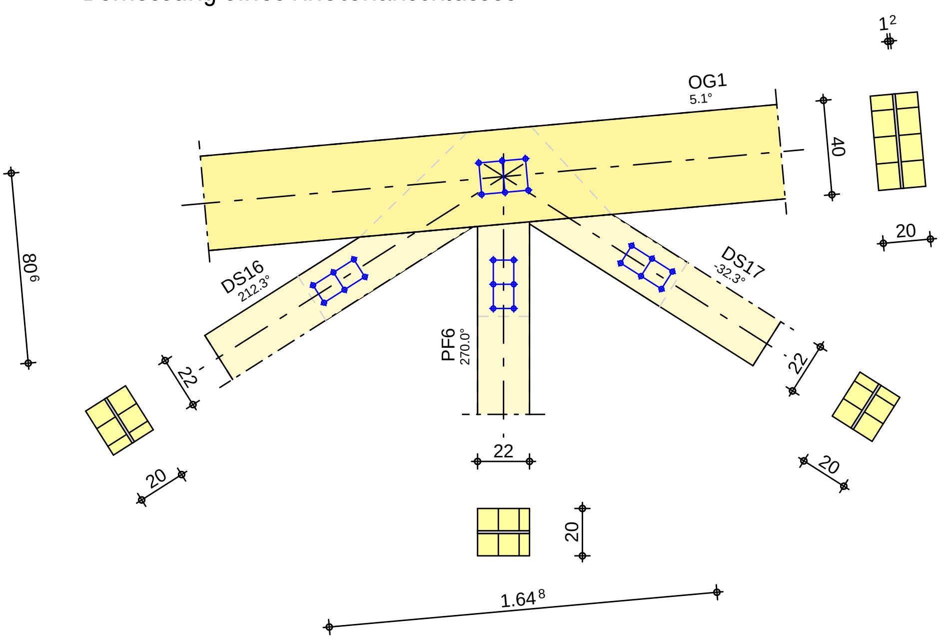
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	OG1	OK	0.38
Stabquerschnitt	OG1	OK	0.48
Blechquerschnitt	PF5	OK	0.09

Pos. T2_DA_3-O4 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:32

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώc6	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	27	BSH GL28h^f
PF6	1	270.0	20/22	38	BSH GL28h^f
DS16	1	212.3	20/22	31	BSH GL28h^f
DS17	1	-32.3	20/22	38	BSH GL28h^f

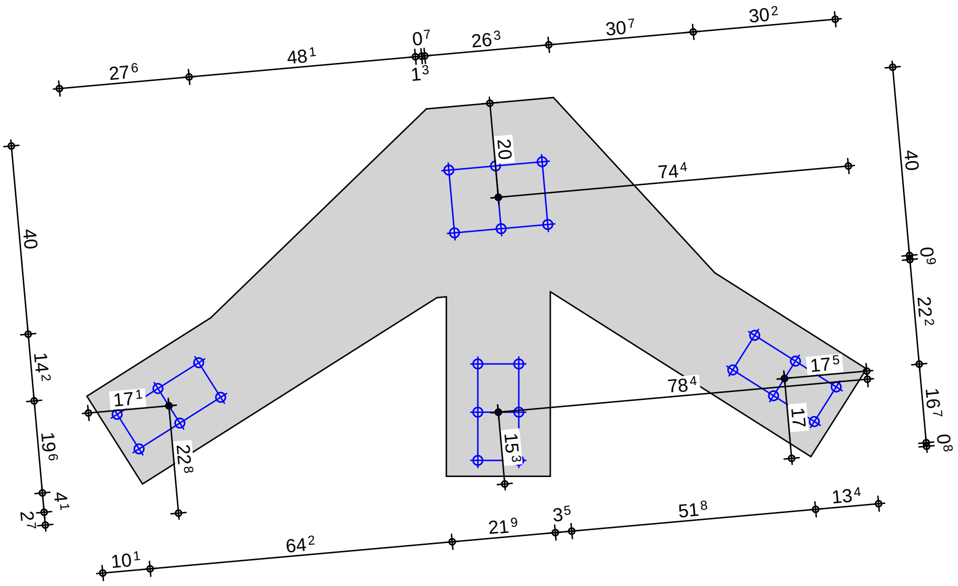
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	3x2	Passbolzen	M20	8.8
PF6	3x2	Passbolzen	M20	8.8
DS16	3x2	Passbolzen	M20	8.8
DS17	3x2	Passbolzen	M20	8.8

Blech
M 1:16



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O4	links	-289.04	-9.14	1.47
	(a)	OG1	O4	rechts	-331.96	8.84	1.47
	(a)	PF6	O4		1.16		
	(a)	DS16	O4		-46.25		
	(a)	DS17	O4		2.44		
Einw. *Ed.2*	(a)	OG1	O4	links	-289.04	-9.14	1.47
	(a)	OG1	O4	rechts	-331.96	8.84	1.47
	(a)	PF6	O4		1.16		
	(a)	DS16	O4		-46.25		
	(a)	DS17	O4		2.44		
Einw. *Ed.3*	(a)	OG1	O4	links	-289.04	-9.14	1.47
	(a)	OG1	O4	rechts	-331.96	8.84	1.47
	(a)	PF6	O4		1.16		
	(a)	DS16	O4		-46.25		
	(a)	DS17	O4		2.44		
Einw. *Ed.4*	(a)	OG1	O4	links	-289.04	-9.14	1.47
	(a)	OG1	O4	rechts	-331.96	8.84	1.47
	(a)	PF6	O4		1.16		
	(a)	DS16	O4		-46.25		
	(a)	DS17	O4		2.44		
Einw. *Ed.5*	(a)	OG1	O4	links	-289.04	-9.14	1.47
	(a)	OG1	O4	rechts	-331.96	8.84	1.47
	(a)	PF6	O4		1.16		
	(a)	DS16	O4		-46.25		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS17	O4		2.44		
Einw. *Ed.6*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.7*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.8*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.9*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.10*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.11*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.12*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.13*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.14*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.15*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS17	O4		2.44		
Einw. *Ed.16*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.17*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.18*	(a) OG1	O4	links	-289.04	-9.14	1.47
	(a) OG1	O4	rechts	-331.96	8.84	1.47
	(a) PF6	O4		1.16		
	(a) DS16	O4		-46.25		
	(a) DS17	O4		2.44		
Einw. *Ed.19*	(a) OG1	O4	links	-838.39	-28.96	3.06
	(a) OG1	O4	rechts	-961.25	28.07	3.06
	(a) PF6	O4		0.39		
	(a) DS16	O4		-133.60		
	(a) DS17	O4		5.22		
Einw. *Ed.20*	(a) OG1	O4	links	-571.52	-16.58	3.65
	(a) OG1	O4	rechts	-686.23	16.31	3.65
	(a) PF6	O4		0.20		
	(a) DS16	O4		-106.62		
	(a) DS17	O4		25.15		
Einw. *Ed.21*	(a) OG1	O4	links	-838.39	-28.96	3.06
	(a) OG1	O4	rechts	-961.25	28.07	3.06
	(a) PF6	O4		0.39		
	(a) DS16	O4		-133.60		
	(a) DS17	O4		5.22		
Einw. *Ed.22*	(a) OG1	O4	links	-571.52	-16.58	3.65
	(a) OG1	O4	rechts	-686.23	16.31	3.65
	(a) PF6	O4		0.20		
	(a) DS16	O4		-106.62		
	(a) DS17	O4		25.15		
Einw. *Ed.23*	(a) OG1	O4	links	-755.65	-29.05	1.29
	(a) OG1	O4	rechts	-835.56	27.92	1.29
	(a) PF6	O4		0.66		
	(a) DS16	O4		-104.92		
	(a) DS17	O4		-16.72		
Einw. *Ed.24*	(a) OG1	O4	links	-571.52	-16.58	3.65
	(a) OG1	O4	rechts	-686.23	16.31	3.65
	(a) PF6	O4		0.20		
	(a) DS16	O4		-106.62		
	(a) DS17	O4		25.15		
Einw. *Ed.25*	(a) OG1	O4	links	-571.52	-16.58	3.65
	(a) OG1	O4	rechts	-686.23	16.31	3.65
	(a) PF6	O4		0.20		
	(a) DS16	O4		-106.62		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS17	O4		25.15		
Einw. *Ed.26*	(a) OG1	O4	links	-838.39	-28.96	3.06
	(a) OG1	O4	rechts	-961.25	28.07	3.06
	(a) PF6	O4		0.39		
	(a) DS16	O4		-133.60		
	(a) DS17	O4		5.22		
Einw. *Ed.27*	(a) OG1	O4	links	-680.71	-26.68	0.91
	(a) OG1	O4	rechts	-749.49	25.63	0.91
	(a) PF6	O4		0.36		
	(a) DS16	O4		-92.93		
	(a) DS17	O4		-17.36		
Einw. *Ed.28*	(a) OG1	O4	links	-646.46	-18.95	4.03
	(a) OG1	O4	rechts	-772.29	18.60	4.03
	(a) PF6	O4		0.50		
	(a) DS16	O4		-118.61		
	(a) DS17	O4		25.78		
Einw. *Ed.29*	(a) OG1	O4	links	-680.71	-26.68	0.91
	(a) OG1	O4	rechts	-749.49	25.63	0.91
	(a) PF6	O4		0.36		
	(a) DS16	O4		-92.93		
	(a) DS17	O4		-17.36		
Einw. *Ed.30*	(a) OG1	O4	links	-646.46	-18.95	4.03
	(a) OG1	O4	rechts	-772.29	18.60	4.03
	(a) PF6	O4		0.50		
	(a) DS16	O4		-118.61		
	(a) DS17	O4		25.78		
Einw. *Ed.31*	(a) OG1	O4	links	-571.52	-16.58	3.65
	(a) OG1	O4	rechts	-686.23	16.31	3.65
	(a) PF6	O4		0.20		
	(a) DS16	O4		-106.62		
	(a) DS17	O4		25.15		
Einw. *Ed.32*	(a) OG1	O4	links	-755.65	-29.05	1.29
	(a) OG1	O4	rechts	-835.56	27.92	1.29
	(a) PF6	O4		0.66		
	(a) DS16	O4		-104.92		
	(a) DS17	O4		-16.72		
Einw. *Ed.33*	(a) OG1	O4	links	-838.39	-28.96	3.06
	(a) OG1	O4	rechts	-961.25	28.07	3.06
	(a) PF6	O4		0.39		
	(a) DS16	O4		-133.60		
	(a) DS17	O4		5.22		
Einw. *Ed.34*	(a) OG1	O4	links	-680.71	-26.68	0.91
	(a) OG1	O4	rechts	-749.49	25.63	0.91
	(a) PF6	O4		0.36		
	(a) DS16	O4		-92.93		
	(a) DS17	O4		-17.36		
Einw. *Ed.35*	(a) OG1	O4	links	-680.71	-26.68	0.91
	(a) OG1	O4	rechts	-749.49	25.63	0.91
	(a) PF6	O4		0.36		
	(a) DS16	O4		-92.93		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS17	O4		-17.36		
Einw. *Ed.36*	(a) OG1	O4	links	-646.46	-18.95	4.03
	(a) OG1	O4	rechts	-772.29	18.60	4.03
	(a) PF6	O4		0.50		
	(a) DS16	O4		-118.61		
	(a) DS17	O4		25.78		
Einw. *Ed.37*	(a) OG1	O4	links	-779.85	-27.43	2.60
	(a) OG1	O4	rechts	-891.15	26.58	2.60
	(a) PF6	O4		0.07		
	(a) DS16	O4		-122.75		
	(a) DS17	O4		2.77		
Einw. *Ed.38*	(a) OG1	O4	links	-94.97	-2.49	0.66
	(a) OG1	O4	rechts	-111.04	2.39	0.66
	(a) PF6	O4		1.14		
	(a) DS16	O4		-16.54		
	(a) DS17	O4		1.88		
Einw. *Ed.39*	(a) OG1	O4	links	-779.85	-27.43	2.60
	(a) OG1	O4	rechts	-891.15	26.58	2.60
	(a) PF6	O4		0.07		
	(a) DS16	O4		-122.75		
	(a) DS17	O4		2.77		
Einw. *Ed.40*	(a) OG1	O4	links	-94.97	-2.49	0.66
	(a) OG1	O4	rechts	-111.04	2.39	0.66
	(a) PF6	O4		1.14		
	(a) DS16	O4		-16.54		
	(a) DS17	O4		1.88		
Einw. *Ed.41*	(a) OG1	O4	links	-697.10	-27.53	0.84
	(a) OG1	O4	rechts	-765.46	26.43	0.84
	(a) PF6	O4		0.35		
	(a) DS16	O4		-94.08		
	(a) DS17	O4		-19.18		
Einw. *Ed.42*	(a) OG1	O4	links	-94.97	-2.49	0.66
	(a) OG1	O4	rechts	-111.04	2.39	0.66
	(a) PF6	O4		1.14		
	(a) DS16	O4		-16.54		
	(a) DS17	O4		1.88		
Einw. *Ed.43*	(a) OG1	O4	links	-94.97	-2.49	0.66
	(a) OG1	O4	rechts	-111.04	2.39	0.66
	(a) PF6	O4		1.14		
	(a) DS16	O4		-16.54		
	(a) DS17	O4		1.88		
Einw. *Ed.44*	(a) OG1	O4	links	-779.85	-27.43	2.60
	(a) OG1	O4	rechts	-891.15	26.58	2.60
	(a) PF6	O4		0.07		
	(a) DS16	O4		-122.75		
	(a) DS17	O4		2.77		
Einw. *Ed.45*	(a) OG1	O4	links	-328.27	-12.45	0.58
	(a) OG1	O4	rechts	-362.84	11.93	0.58
	(a) PF6	O4		0.89		
	(a) DS16	O4		-45.88		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	DS17	O4		-7.70		
Einw. *Ed.46*	(a)	OG1	O4	links	-578.25	-16.57	3.81
	(a)	OG1	O4	rechts	-696.43	16.31	3.81
	(a)	PF6	O4		0.16		
	(a)	DS16	O4		-108.91		
	(a)	DS17	O4		26.96		
Einw. *Ed.47*	(a)	OG1	O4	links	-328.27	-12.45	0.58
	(a)	OG1	O4	rechts	-362.84	11.93	0.58
	(a)	PF6	O4		0.89		
	(a)	DS16	O4		-45.88		
	(a)	DS17	O4		-7.70		
Einw. *Ed.48*	(a)	OG1	O4	links	-578.25	-16.57	3.81
	(a)	OG1	O4	rechts	-696.43	16.31	3.81
	(a)	PF6	O4		0.16		
	(a)	DS16	O4		-108.91		
	(a)	DS17	O4		26.96		
Einw. *Ed.49*	(a)	OG1	O4	links	-770.18	-26.57	2.84
	(a)	OG1	O4	rechts	-885.39	25.78	2.84
	(a)	PF6	O4		0.05		
	(a)	DS16	O4		-123.91		
	(a)	DS17	O4		6.40		
Einw. *Ed.50*	(a)	OG1	O4	links	-94.97	-2.49	0.66
	(a)	OG1	O4	rechts	-111.04	2.39	0.66
	(a)	PF6	O4		1.14		
	(a)	DS16	O4		-16.54		
	(a)	DS17	O4		1.88		
Einw. *Ed.51*	(a)	OG1	O4	links	-770.18	-26.57	2.84
	(a)	OG1	O4	rechts	-885.39	25.78	2.84
	(a)	PF6	O4		0.05		
	(a)	DS16	O4		-123.91		
	(a)	DS17	O4		6.40		
Einw. *Ed.52*	(a)	OG1	O4	links	-94.97	-2.49	0.66
	(a)	OG1	O4	rechts	-111.04	2.39	0.66
	(a)	PF6	O4		1.14		
	(a)	DS16	O4		-16.54		
	(a)	DS17	O4		1.88		
Einw. *Ed.53*	(a)	OG1	O4	links	-697.10	-27.53	0.84
	(a)	OG1	O4	rechts	-765.46	26.43	0.84
	(a)	PF6	O4		0.35		
	(a)	DS16	O4		-94.08		
	(a)	DS17	O4		-19.18		
Einw. *Ed.54*	(a)	OG1	O4	links	-578.25	-16.57	3.81
	(a)	OG1	O4	rechts	-696.43	16.31	3.81
	(a)	PF6	O4		0.16		
	(a)	DS16	O4		-108.91		
	(a)	DS17	O4		26.96		

(a) aus Pos. 'T2_DA_2', Ort 'O4' (Seite 191)

! ÿãÕKƒdzăăꞁꟿŅŦűŜ

ꟿŜădzƒűʎŜꟿŜÿŘŜ ! ÿãÕKƒdzăăꞁꟿŅŦűŜ ŦÑꟿ ŘŜÿ I Ɨ·dzǇűăűƗ·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	OG1	46.79	156.7	-42.96	18.53
Ed.2	OG1	46.79	156.7	-42.96	18.53
Ed.3	OG1	46.79	156.7	-42.96	18.53
Ed.4	OG1	46.79	156.7	-42.96	18.53
Ed.5	OG1	46.79	156.7	-42.96	18.53
Ed.6	OG1	46.79	156.7	-42.96	18.53
Ed.7	OG1	46.79	156.7	-42.96	18.53
Ed.8	OG1	46.79	156.7	-42.96	18.53
Ed.9	OG1	46.79	156.7	-42.96	18.53
Ed.10	OG1	46.79	156.7	-42.96	18.53
Ed.11	OG1	46.79	156.7	-42.96	18.53
Ed.12	OG1	46.79	156.7	-42.96	18.53
Ed.13	OG1	46.79	156.7	-42.96	18.53
Ed.14	OG1	46.79	156.7	-42.96	18.53
Ed.15	OG1	46.79	156.7	-42.96	18.53
Ed.16	OG1	46.79	156.7	-42.96	18.53
Ed.17	OG1	46.79	156.7	-42.96	18.53
Ed.18	OG1	46.79	156.7	-42.96	18.53
Ed.19	OG1	135.72	154.9	-122.9	57.57
Ed.20	OG1	119.48	163.8	-114.7	33.30
Ed.21	OG1	135.72	154.9	-122.9	57.57
Ed.22	OG1	119.48	163.8	-114.7	33.30
Ed.23	OG1	98.50	144.3	-79.96	57.52
Ed.24	OG1	119.48	163.8	-114.7	33.30
Ed.25	OG1	119.48	163.8	-114.7	33.30
Ed.26	OG1	135.72	154.9	-122.9	57.57
Ed.27	OG1	86.69	142.5	-68.82	52.72
Ed.28	OG1	131.52	163.2	-125.9	38.10
Ed.29	OG1	86.69	142.5	-68.82	52.72
Ed.30	OG1	131.52	163.2	-125.9	38.10
Ed.31	OG1	119.48	163.8	-114.7	33.30
Ed.32	OG1	98.50	144.3	-79.96	57.52
Ed.33	OG1	135.72	154.9	-122.9	57.57
Ed.34	OG1	86.69	142.5	-68.82	52.72
Ed.35	OG1	86.69	142.5	-68.82	52.72
Ed.36	OG1	131.52	163.2	-125.9	38.10
Ed.37	OG1	123.92	154.0	-111.3	54.42
Ed.38	OG1	16.95	161.8	-16.10	5.29
Ed.39	OG1	123.92	154.0	-111.3	54.42
Ed.40	OG1	16.95	161.8	-16.10	5.29
Ed.41	OG1	87.37	141.5	-68.39	54.37
Ed.42	OG1	16.95	161.8	-16.10	5.29
Ed.43	OG1	16.95	161.8	-16.10	5.29
Ed.44	OG1	123.92	154.0	-111.3	54.42
Ed.45	OG1	42.57	144.4	-34.60	24.79
Ed.46	OG1	122.82	164.3	-118.2	33.29
Ed.47	OG1	42.57	144.4	-34.60	24.79

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.48	OG1	122.82	164.3	-118.2	33.29
Ed.49	OG1	126.75	155.4	-115.2	52.76
Ed.50	OG1	16.95	161.8	-16.10	5.29
Ed.51	OG1	126.75	155.4	-115.2	52.76
Ed.52	OG1	16.95	161.8	-16.10	5.29
Ed.53	OG1	87.37	141.5	-68.39	54.37
Ed.54	OG1	122.82	164.3	-118.2	33.29

Gleichgewicht

ǊŜădzfűᏲŜǊŜyŘŜ Yyƻ̋ŜyɭǊŅŦűŜ ƎfƻōƖ·f

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.55	270.0	0.00	-0.55	0.00
Ed.2	0.55	270.0	0.00	-0.55	0.00
Ed.3	0.55	270.0	0.00	-0.55	0.00
Ed.4	0.55	270.0	0.00	-0.55	0.00
Ed.5	0.55	270.0	0.00	-0.55	0.00
Ed.6	0.55	270.0	0.00	-0.55	0.00
Ed.7	0.55	270.0	0.00	-0.55	0.00
Ed.8	0.55	270.0	0.00	-0.55	0.00
Ed.9	0.55	270.0	0.00	-0.55	0.00
Ed.10	0.55	270.0	0.00	-0.55	0.00
Ed.11	0.55	270.0	0.00	-0.55	0.00
Ed.12	0.55	270.0	0.00	-0.55	0.00
Ed.13	0.55	270.0	0.00	-0.55	0.00
Ed.14	0.55	270.0	0.00	-0.55	0.00
Ed.15	0.55	270.0	0.00	-0.55	0.00
Ed.16	0.55	270.0	0.00	-0.55	0.00
Ed.17	0.55	270.0	0.00	-0.55	0.00
Ed.18	0.55	270.0	0.00	-0.55	0.00
Ed.19	0.55	270.0	0.00	-0.55	0.00
Ed.20	0.41	270.0	0.00	-0.41	0.00
Ed.21	0.55	270.0	0.00	-0.55	0.00
Ed.22	0.41	270.0	0.00	-0.41	0.00
Ed.23	0.55	270.0	0.00	-0.55	0.00
Ed.24	0.41	270.0	0.00	-0.41	0.00
Ed.25	0.41	270.0	0.00	-0.41	0.00
Ed.26	0.55	270.0	0.00	-0.55	0.00
Ed.27	0.41	270.0	0.00	-0.41	0.00
Ed.28	0.55	270.0	0.00	-0.55	0.00
Ed.29	0.41	270.0	0.00	-0.41	0.00
Ed.30	0.55	270.0	0.00	-0.55	0.00
Ed.31	0.41	270.0	0.00	-0.41	0.00
Ed.32	0.55	270.0	0.00	-0.55	0.00
Ed.33	0.55	270.0	0.00	-0.55	0.00
Ed.34	0.41	270.0	0.00	-0.41	0.00
Ed.35	0.41	270.0	0.00	-0.41	0.00
Ed.36	0.55	270.0	0.00	-0.55	0.00
Ed.37	0.41	270.0	0.00	-0.41	0.00
Ed.38	0.41	270.0	0.00	-0.41	0.00
Ed.39	0.41	270.0	0.00	-0.41	0.00

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.40	0.41	270.0	0.00	-0.41	0.00
Ed.41	0.41	270.0	0.00	-0.41	0.00
Ed.42	0.41	270.0	0.00	-0.41	0.00
Ed.43	0.41	270.0	0.00	-0.41	0.00
Ed.44	0.41	270.0	0.00	-0.41	0.00
Ed.45	0.41	270.0	0.00	-0.41	0.00
Ed.46	0.41	270.0	0.00	-0.41	0.00
Ed.47	0.41	270.0	0.00	-0.41	0.00
Ed.48	0.41	270.0	0.00	-0.41	0.00
Ed.49	0.41	270.0	0.00	-0.41	0.00
Ed.50	0.41	270.0	0.00	-0.41	0.00
Ed.51	0.41	270.0	0.00	-0.41	0.00
Ed.52	0.41	270.0	0.00	-0.41	0.00
Ed.53	0.41	270.0	0.00	-0.41	0.00
Ed.54	0.41	270.0	0.00	-0.41	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maŭgebenden Kombinationen

ăűŅyŘλƎкØ2ℕÒōŜℕƎ¢

Ek	KLED	ɿ (ᶡ* ᵩ *EW)
1	st	1.00*Ed.1
19	ku	1.00*Ed.19
28	ku	1.00*Ed.28

st: ăűŅyŘλƎ
ku: kurz

Nachweise (GZT)

bl·ŎKøŜλăŜ λϒ DℕŜyÎÎdzăűl·yŘ ŘŜℕ ¢ℕl·ƎŦŅKλƎʅŜλű yl·ŎK 5Łb 9b мфφpπмπм

OG1

Nettoquerschnitt Holz $A_{ef,H}$ = 676.80 cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	22.62	37.64	0.60

* je Verbindungsmittel

Biegung
Abs. 6.1

bl·ŎKøŜλă ŘŜℕ .λŜƎŜűℕl·ƎŦŅKλƎʅŜλű

EK	k_{mod}	N_d / M_d [kNm]	` 0,d / ` m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
19	0.90	-838.39	-12.39	19.38	0.44
		3.06	0.63	19.38	
rechts					
19	0.90	-961.25	-14.20	19.38	0.57
		3.06	0.63	19.38	

Querkraft
Abs. 6.1.7

bl·ŎKøŜλă ŘŜℕ vdzŜℕʅℕl·Ŧűℕl·ƎŦŅKλƎʅŜλű

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
19	0.90	-28.96	-0.90	2.42	0.37

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
23	0.90	-29.05	-0.90	2.42	0.37
rechts					
19	0.90	28.07	0.87	2.42	0.36
23	0.90	27.92	0.87	2.42	0.36

Querzug

bl·ŎKǿŜǎ ŘŜ vdzŜÎdzƎúl·ƎŦŅKǺƎʅŜǺú

Queranschluss h_e/h = 0.67 Ӂ 0.70

dzyǾŜǎúŅʅú

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
19	0.90	28.79	51.18	0.56

PF6

Nettoquerschnitt Holz $A_{ef,H}$ = 338.40 cm²
Blech $A_{ef,S}$ = 21.60 cm²
9ÈÎŜyúǺÎǺúŅúǎōŜǺǿŜú k_{te} = 0.67

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	0.19	24.52	0.01

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜǎ ŘŜ bƧYl·ŧʅl·ŦúǺl·ƎŦŅKǺƎʅŜǺú

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
1	0.60	1.16	0.03	6.86	0.00

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
1	1.16	0.54	275.00	0.00

DS16

Nettoquerschnitt Holz $A_{ef,H}$ = 338.40 cm²
Blech $A_{ef,S}$ = 21.60 cm²
9ÈÎŜyúǺÎǺúŅúǎōŜǺǿŜú k_{te} = 1.00

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	22.27	36.79	0.61

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜǎ ŘŜ bƧYl·ŧʅl·ŦúǺl·ƎŦŅKǺƎʅŜǺú

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$ [N/mm²]	'
19	0.90	-133.60	-3.95	19.38	0.20

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
19	-133.6	61.85	275.00	0.22

DS17

Nettoquerschnitt Holz $A_{ef,H}$ = 338.40 cm^2
Blech $A_{ef,S}$ = 21.60 cm^2
9ÈÎŜyǘǜƛÎƛǘŅǘăōŜƛǿŜǜǘ k_{te} = 0.67

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
28	0.90	4.30	36.79	0.12

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bŀŎKǿŜƛă ŘŜǜ b2ǜŸŀŧƪǜŀŦǘǜŀƎŦŅKƛƎƪŜƛǘ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm^2]	$f_{0,d}$* [N/mm^2]	'
28	0.90	25.78	0.76	10.29	0.07

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
46	26.96	12.48	275.00	0.05

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

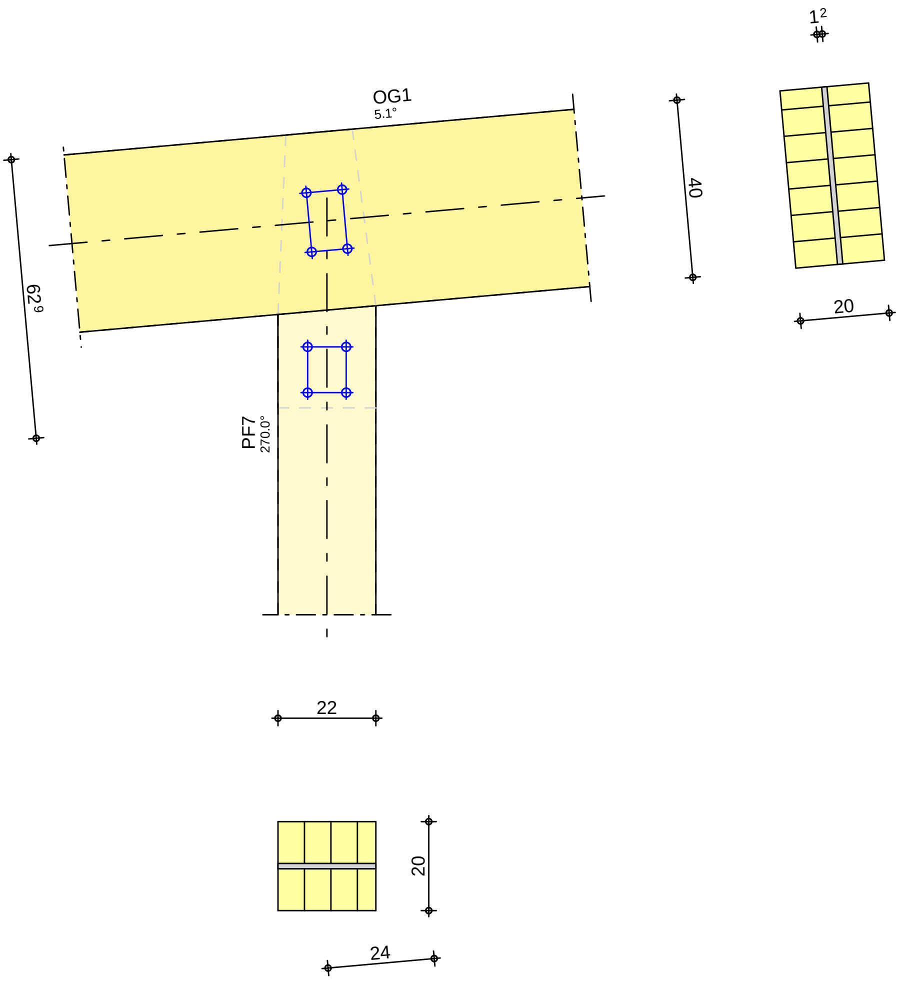
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	DS16	OK	0.61
Stabquerschnitt	OG1	OK	0.57
Blechquerschnitt	DS16	OK	0.22

Pos. T2_DA_3-O5 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	15	BSH GL28h[f]
PF7	1	270.0	20/22	21	BSH GL28h[f]

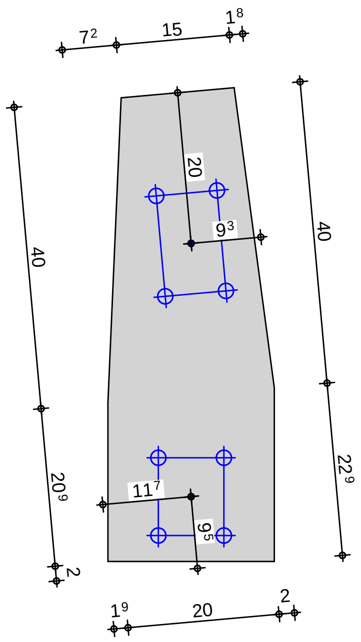
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	2x2	Passbolzen	M20	8.8
PF7	2x2	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.2*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.3*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.4*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.5*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.6*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.7*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.8*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	PF7	O5		-16.51		
Einw. *Ed.9*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.10*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.11*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.12*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.13*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.14*	(a)	OG1	O5	links	-330.39	-8.63	1.77
	(a)	OG1	O5	rechts	-331.86	7.82	1.77
	(a)	PF7	O5		-16.51		
Einw. *Ed.15*	(a)	OG1	O5	links	-956.30	-27.27	4.16
	(a)	OG1	O5	rechts	-960.97	24.90	4.16
	(a)	PF7	O5		-52.38		
Einw. *Ed.16*	(a)	OG1	O5	links	-683.38	-15.57	4.67
	(a)	OG1	O5	rechts	-685.97	13.36	4.67
	(a)	PF7	O5		-29.05		
Einw. *Ed.17*	(a)	OG1	O5	links	-956.30	-27.27	4.16
	(a)	OG1	O5	rechts	-960.97	24.90	4.16
	(a)	PF7	O5		-52.38		
Einw. *Ed.18*	(a)	OG1	O5	links	-683.38	-15.57	4.67
	(a)	OG1	O5	rechts	-685.97	13.36	4.67
	(a)	PF7	O5		-29.05		
Einw. *Ed.19*	(a)	OG1	O5	links	-830.61	-27.42	1.99
	(a)	OG1	O5	rechts	-835.37	25.87	1.99
	(a)	PF7	O5		-53.50		
Einw. *Ed.20*	(a)	OG1	O5	links	-683.38	-15.57	4.67
	(a)	OG1	O5	rechts	-685.97	13.36	4.67
	(a)	PF7	O5		-29.05		
Einw. *Ed.21*	(a)	OG1	O5	links	-683.38	-15.57	4.67
	(a)	OG1	O5	rechts	-685.97	13.36	4.67
	(a)	PF7	O5		-29.05		
Einw. *Ed.22*	(a)	OG1	O5	links	-830.61	-27.42	1.99
	(a)	OG1	O5	rechts	-835.37	25.87	1.99
	(a)	PF7	O5		-53.50		
Einw. *Ed.23*	(a)	OG1	O5	links	-744.95	-25.18	1.53
	(a)	OG1	O5	rechts	-749.33	23.84	1.53
	(a)	PF7	O5		-49.22		
Einw. *Ed.24*	(a)	OG1	O5	links	-769.04	-17.80	5.13
	(a)	OG1	O5	rechts	-772.01	15.39	5.13
	(a)	PF7	O5		-33.33		
Einw. *Ed.25*	(a)	OG1	O5	links	-744.95	-25.18	1.53

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) OG1	O5	rechts	-749.33	23.84	1.53
	(a) PF7	O5		-49.22		
Einw. *Ed.26*	(a) OG1	O5	links	-769.04	-17.80	5.13
	(a) OG1	O5	rechts	-772.01	15.39	5.13
	(a) PF7	O5		-33.33		
Einw. *Ed.27*	(a) OG1	O5	links	-830.61	-27.42	1.99
	(a) OG1	O5	rechts	-835.37	25.87	1.99
	(a) PF7	O5		-53.50		
Einw. *Ed.28*	(a) OG1	O5	links	-683.38	-15.57	4.67
	(a) OG1	O5	rechts	-685.97	13.36	4.67
	(a) PF7	O5		-29.05		
Einw. *Ed.29*	(a) OG1	O5	links	-886.61	-25.84	3.62
	(a) OG1	O5	rechts	-891.03	23.68	3.62
	(a) PF7	O5		-49.72		
Einw. *Ed.30*	(a) OG1	O5	links	-109.88	-2.26	0.85
	(a) OG1	O5	rechts	-110.26	2.01	0.85
	(a) PF7	O5		-4.29		
Einw. *Ed.31*	(a) OG1	O5	links	-886.61	-25.84	3.62
	(a) OG1	O5	rechts	-891.03	23.68	3.62
	(a) PF7	O5		-49.72		
Einw. *Ed.32*	(a) OG1	O5	links	-109.88	-2.26	0.85
	(a) OG1	O5	rechts	-110.26	2.01	0.85
	(a) PF7	O5		-4.29		
Einw. *Ed.33*	(a) OG1	O5	links	-760.91	-25.99	1.45
	(a) OG1	O5	rechts	-765.44	24.65	1.45
	(a) PF7	O5		-50.84		
Einw. *Ed.34*	(a) OG1	O5	links	-109.88	-2.26	0.85
	(a) OG1	O5	rechts	-110.26	2.01	0.85
	(a) PF7	O5		-4.29		
Einw. *Ed.35*	(a) OG1	O5	links	-109.88	-2.26	0.85
	(a) OG1	O5	rechts	-110.26	2.01	0.85
	(a) PF7	O5		-4.29		
Einw. *Ed.36*	(a) OG1	O5	links	-760.91	-25.99	1.45
	(a) OG1	O5	rechts	-765.44	24.65	1.45
	(a) PF7	O5		-50.84		
Einw. *Ed.37*	(a) OG1	O5	links	-109.88	-2.26	0.85
	(a) OG1	O5	rechts	-110.26	2.01	0.85
	(a) PF7	O5		-4.29		
Einw. *Ed.38*	(a) OG1	O5	links	-693.58	-15.56	4.84
	(a) OG1	O5	rechts	-696.16	13.29	4.84
	(a) PF7	O5		-28.96		
Einw. *Ed.39*	(a) OG1	O5	links	-109.88	-2.26	0.85
	(a) OG1	O5	rechts	-110.26	2.01	0.85
	(a) PF7	O5		-4.29		
Einw. *Ed.40*	(a) OG1	O5	links	-693.58	-15.56	4.84
	(a) OG1	O5	rechts	-696.16	13.29	4.84
	(a) PF7	O5		-28.96		
Einw. *Ed.41*	(a) OG1	O5	links	-760.91	-25.99	1.45
	(a) OG1	O5	rechts	-765.44	24.65	1.45
	(a) PF7	O5		-50.84		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.42*	(a)	OG1	O5	links	-109.88	-2.26	0.85
	(a)	OG1	O5	rechts	-110.26	2.01	0.85
	(a)	PF7	O5		-4.29		

(a) aus Pos. 'T2_DA_2', Ort 'O5' (Seite 191)

! yãŎKſdzăăʅNJŅŦűŜ

NJŜădzſűʎŜNJŜyŘŜ ! yãŎKſdzăăʅNJŅŦűŜ ŦǸNJ ŘŜy I I·dzLJűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	OG1	16.51	95.1	-1.47	16.44
Ed.2	OG1	16.51	95.1	-1.47	16.44
Ed.3	OG1	16.51	95.1	-1.47	16.44
Ed.4	OG1	16.51	95.1	-1.47	16.44
Ed.5	OG1	16.51	95.1	-1.47	16.44
Ed.6	OG1	16.51	95.1	-1.47	16.44
Ed.7	OG1	16.51	95.1	-1.47	16.44
Ed.8	OG1	16.51	95.1	-1.47	16.44
Ed.9	OG1	16.51	95.1	-1.47	16.44
Ed.10	OG1	16.51	95.1	-1.47	16.44
Ed.11	OG1	16.51	95.1	-1.47	16.44
Ed.12	OG1	16.51	95.1	-1.47	16.44
Ed.13	OG1	16.51	95.1	-1.47	16.44
Ed.14	OG1	16.51	95.1	-1.47	16.44
Ed.15	OG1	52.38	95.1	-4.67	52.17
Ed.16	OG1	29.05	95.1	-2.59	28.93
Ed.17	OG1	52.38	95.1	-4.67	52.17
Ed.18	OG1	29.05	95.1	-2.59	28.93
Ed.19	OG1	53.50	95.1	-4.76	53.29
Ed.20	OG1	29.05	95.1	-2.59	28.93
Ed.21	OG1	29.05	95.1	-2.59	28.93
Ed.22	OG1	53.50	95.1	-4.76	53.29
Ed.23	OG1	49.22	95.1	-4.38	49.02
Ed.24	OG1	33.33	95.1	-2.97	33.19
Ed.25	OG1	49.22	95.1	-4.38	49.02
Ed.26	OG1	33.33	95.1	-2.97	33.19
Ed.27	OG1	53.50	95.1	-4.76	53.29
Ed.28	OG1	29.05	95.1	-2.59	28.93
Ed.29	OG1	49.72	95.1	-4.43	49.52
Ed.30	OG1	4.29	95.1	-0.38	4.28
Ed.31	OG1	49.72	95.1	-4.43	49.52
Ed.32	OG1	4.29	95.1	-0.38	4.28
Ed.33	OG1	50.84	95.1	-4.53	50.64
Ed.34	OG1	4.29	95.1	-0.38	4.28
Ed.35	OG1	4.29	95.1	-0.38	4.28
Ed.36	OG1	50.84	95.1	-4.53	50.64
Ed.37	OG1	4.29	95.1	-0.38	4.28
Ed.38	OG1	28.96	95.1	-2.58	28.85
Ed.39	OG1	4.29	95.1	-0.38	4.28
Ed.40	OG1	28.96	95.1	-2.58	28.85
Ed.41	OG1	50.84	95.1	-4.53	50.64

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.42	OG1	4.29	95.1	-0.38	4.28

Gleichgewicht

ǈŜǎdzƖǘŜǇŘŜ YǇŉǘŜǇȊǇǐǏƘǘŜ ∃ƒŉŌlƒ

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00
Ed.19	0.00		0.00	0.00	0.00
Ed.20	0.00		0.00	0.00	0.00
Ed.21	0.00		0.00	0.00	0.00
Ed.22	0.00		0.00	0.00	0.00
Ed.23	0.00		0.00	0.00	0.00
Ed.24	0.00		0.00	0.00	0.00
Ed.25	0.00		0.00	0.00	0.00
Ed.26	0.00		0.00	0.00	0.00
Ed.27	0.00		0.00	0.00	0.00
Ed.28	0.00		0.00	0.00	0.00
Ed.29	0.00		0.00	0.00	0.00
Ed.30	0.00		0.00	0.00	0.00
Ed.31	0.00		0.00	0.00	0.00
Ed.32	0.00		0.00	0.00	0.00
Ed.33	0.00		0.00	0.00	0.00
Ed.34	0.00		0.00	0.00	0.00
Ed.35	0.00		0.00	0.00	0.00
Ed.36	0.00		0.00	0.00	0.00
Ed.37	0.00		0.00	0.00	0.00
Ed.38	0.00		0.00	0.00	0.00
Ed.39	0.00		0.00	0.00	0.00
Ed.40	0.00		0.00	0.00	0.00
Ed.41	0.00		0.00	0.00	0.00
Ed.42	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ǎűŅƴŘƛƎкǾƻŊŇōŜŊƎф

Ek	KLED	ɿ (ʲ* ˛ *EW)
19	ku	1.00*Ed.19

ku: kurz

Nachweise (GZT)

bl·ŎKǿŜǎŜ ʎƳ DŊŜƴȊȊdzǎűl·ƴŘ ŘŜŊ ¢Ŋl·ƎŦŅKƛƎʅŜƛű ƴl·ŎK 5Lb 9b мффрπмπм

OG1

Nettoquerschnitt Holz $A_{ef,H}$ = 676.80 cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	13.37	36.07	0.37

* je Verbindungsmittel

Biegung
Abs. 6.1

bl·ŎKǿŜǎ ŘŜŊ .ʎŜƎŜűŊl·ƎŦŅKƛƎʅŜƛű

EK	k_{mod}	N_d / M_d [kNm]	`$_{0,d}$ / `$_{m,d}$ [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
15	0.90	-956.30	-14.13	19.38	0.58
		4.16	0.86	19.38	
rechts					
15	0.90	-960.97	-14.20	19.38	0.58
		4.16	0.86	19.38	

Querkraft
Abs. 6.1.7

bl·ŎKǿŜǎ ŘŜŊ vdzŜŊʅŊl·ŦűŊl·ƎŦŅKƛƎʅŜƛű

EK	k_{mod}	V_d [kN]	_$_d$ [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
19	0.90	-27.42	-0.85	2.42	0.35
rechts					
19	0.90	25.87	0.80	2.42	0.33

Querzug

bl·ŎKǿŜǎ ŘŜŊ vdzŜŊȊdzƎűŊl·ƎŦŅKƛƎʅŜƛű

Queranschluss h_e/h = 0.67 ӝ 0.70

dzƴǾŜŊǎűŅŊʅű

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
19	0.90	26.64	36.72	0.73

PF7

Nettoquerschnitt Holz $A_{ef,H}$ = 338.40 cm^2
Blech $A_{ef,S}$ = 21.60 cm^2
9ÈȊŜƴűŊʎȊʎűŅǎōŜʎǿŜŊű k_{te} = 1.00

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	13.37	38.38	0.35

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜλă ŘŜᴎ b2ᴎϒl·ſƪᴎl·ŦǘᴎIƎŦŅKλƎƪŜλǘ

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$ [N/mm²]	'
19	0.90	-53.50	-1.58	19.38	0.08

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
19	-53.50	24.77	275.00	0.09

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

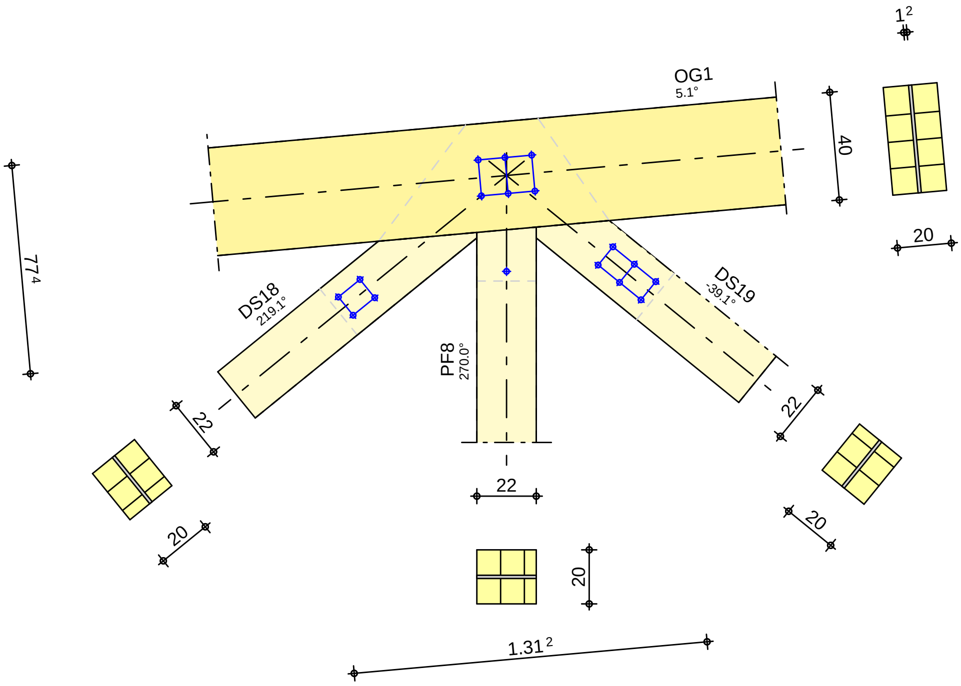
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	OG1	OK	0.37
Stabquerschnitt	OG1	OK	0.58
Blechquerschnitt	PF7	OK	0.09

Pos. T2_DA_3-O6 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:28

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	27	BSH GL28h^f
PF8	1	270.0	20/22	18	BSH GL28h^f
DS18	1	219.1	20/22	28	BSH GL28h^f
DS19	1	-39.1	20/22	31	BSH GL28h^f

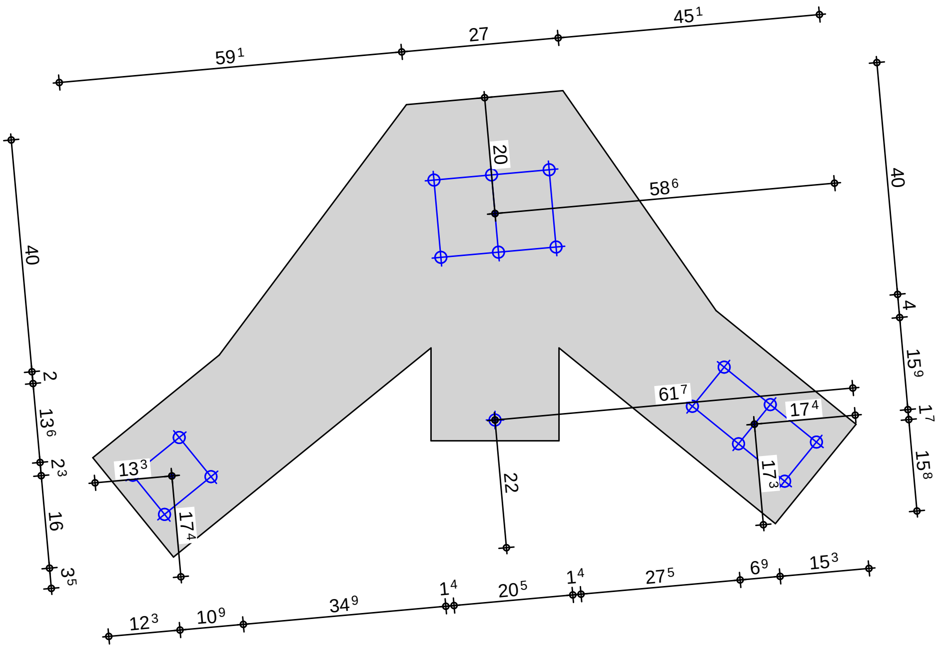
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	3x2	Passbolzen	M20	8.8
PF8	1x1	Passbolzen	M20	8.8
DS18	2x2	Passbolzen	M20	8.8
DS19	3x2	Passbolzen	M20	8.8

Blech
M 1:13



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.2*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.3*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.4*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.5*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.6*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.7*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.8*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.9*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.10*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.11*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.12*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.13*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.14*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76
	(a)	PF8	O6		1.89		
	(a)	DS18	O6		28.48		
	(a)	DS19	O6		-53.28		
Einw. *Ed.15*	(a)	OG1	O6	links	-330.30	-9.65	-0.76
	(a)	OG1	O6	rechts	-268.27	9.18	-0.76

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF8	O6		1.89		
	(a) DS18	O6		28.48		
	(a) DS19	O6		-53.28		
Einw. *Ed.16*	(a) OG1	O6	links	-330.30	-9.65	-0.76
	(a) OG1	O6	rechts	-268.27	9.18	-0.76
	(a) PF8	O6		1.89		
	(a) DS18	O6		28.48		
	(a) DS19	O6		-53.28		
Einw. *Ed.17*	(a) OG1	O6	links	-330.30	-9.65	-0.76
	(a) OG1	O6	rechts	-268.27	9.18	-0.76
	(a) PF8	O6		1.89		
	(a) DS18	O6		28.48		
	(a) DS19	O6		-53.28		
Einw. *Ed.18*	(a) OG1	O6	links	-330.30	-9.65	-0.76
	(a) OG1	O6	rechts	-268.27	9.18	-0.76
	(a) PF8	O6		1.89		
	(a) DS18	O6		28.48		
	(a) DS19	O6		-53.28		
Einw. *Ed.19*	(a) OG1	O6	links	-956.02	-30.44	-3.46
	(a) OG1	O6	rechts	-775.18	29.08	-3.46
	(a) PF8	O6		2.35		
	(a) DS18	O6		82.91		
	(a) DS19	O6		-155.94		
Einw. *Ed.20*	(a) OG1	O6	links	-683.12	-18.51	-2.41
	(a) OG1	O6	rechts	-597.20	24.19	-2.41
	(a) PF8	O6		1.53		
	(a) DS18	O6		28.39		
	(a) DS19	O6		-86.75		
Einw. *Ed.21*	(a) OG1	O6	links	-956.02	-30.44	-3.46
	(a) OG1	O6	rechts	-775.18	29.08	-3.46
	(a) PF8	O6		2.35		
	(a) DS18	O6		82.91		
	(a) DS19	O6		-155.94		
Einw. *Ed.22*	(a) OG1	O6	links	-744.79	-26.97	-2.77
	(a) OG1	O6	rechts	-560.60	19.26	-2.77
	(a) PF8	O6		1.96		
	(a) DS18	O6		95.45		
	(a) DS19	O6		-146.18		
Einw. *Ed.23*	(a) OG1	O6	links	-956.02	-30.44	-3.46
	(a) OG1	O6	rechts	-775.18	29.08	-3.46
	(a) PF8	O6		2.35		
	(a) DS18	O6		82.91		
	(a) DS19	O6		-155.94		
Einw. *Ed.24*	(a) OG1	O6	links	-683.12	-18.51	-2.41
	(a) OG1	O6	rechts	-597.20	24.19	-2.41
	(a) PF8	O6		1.53		
	(a) DS18	O6		28.39		
	(a) DS19	O6		-86.75		
Einw. *Ed.25*	(a) OG1	O6	links	-744.79	-26.97	-2.77
	(a) OG1	O6	rechts	-560.60	19.26	-2.77

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF8	O6		1.96		
	(a) DS18	O6		95.45		
	(a) DS19	O6		-146.18		
Einw. *Ed.26*	(a) OG1	O6	links	-956.02	-30.44	-3.46
	(a) OG1	O6	rechts	-775.18	29.08	-3.46
	(a) PF8	O6		2.35		
	(a) DS18	O6		82.91		
	(a) DS19	O6		-155.94		
Einw. *Ed.27*	(a) OG1	O6	links	-956.02	-30.44	-3.46
	(a) OG1	O6	rechts	-775.18	29.08	-3.46
	(a) PF8	O6		2.35		
	(a) DS18	O6		82.91		
	(a) DS19	O6		-155.94		
Einw. *Ed.28*	(a) OG1	O6	links	-683.12	-18.51	-2.41
	(a) OG1	O6	rechts	-597.20	24.19	-2.41
	(a) PF8	O6		1.53		
	(a) DS18	O6		28.39		
	(a) DS19	O6		-86.75		
Einw. *Ed.29*	(a) OG1	O6	links	-956.02	-30.44	-3.46
	(a) OG1	O6	rechts	-775.18	29.08	-3.46
	(a) PF8	O6		2.35		
	(a) DS18	O6		82.91		
	(a) DS19	O6		-155.94		
Einw. *Ed.30*	(a) OG1	O6	links	-683.12	-18.51	-2.41
	(a) OG1	O6	rechts	-597.20	24.19	-2.41
	(a) PF8	O6		1.53		
	(a) DS18	O6		28.39		
	(a) DS19	O6		-86.75		
Einw. *Ed.31*	(a) OG1	O6	links	-683.12	-18.51	-2.41
	(a) OG1	O6	rechts	-597.20	24.19	-2.41
	(a) PF8	O6		1.53		
	(a) DS18	O6		28.39		
	(a) DS19	O6		-86.75		
Einw. *Ed.32*	(a) OG1	O6	links	-830.42	-29.47	-2.97
	(a) OG1	O6	rechts	-630.15	21.64	-2.97
	(a) PF8	O6		2.45		
	(a) DS18	O6		102.84		
	(a) DS19	O6		-159.99		
Einw. *Ed.33*	(a) OG1	O6	links	-683.12	-18.51	-2.41
	(a) OG1	O6	rechts	-597.20	24.19	-2.41
	(a) PF8	O6		1.53		
	(a) DS18	O6		28.39		
	(a) DS19	O6		-86.75		
Einw. *Ed.34*	(a) OG1	O6	links	-830.42	-29.47	-2.97
	(a) OG1	O6	rechts	-630.15	21.64	-2.97
	(a) PF8	O6		2.45		
	(a) DS18	O6		102.84		
	(a) DS19	O6		-159.99		
Einw. *Ed.35*	(a) OG1	O6	links	-830.42	-29.47	-2.97
	(a) OG1	O6	rechts	-630.15	21.64	-2.97

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF8	O6		2.45		
	(a) DS18	O6		102.84		
	(a) DS19	O6		-159.99		
Einw. *Ed.36*	(a) OG1	O6	links	-683.12	-18.51	-2.41
	(a) OG1	O6	rechts	-597.20	24.19	-2.41
	(a) PF8	O6		1.53		
	(a) DS18	O6		28.39		
	(a) DS19	O6		-86.75		
Einw. *Ed.37*	(a) OG1	O6	links	-886.49	-28.74	-3.34
	(a) OG1	O6	rechts	-714.94	26.91	-3.34
	(a) PF8	O6		1.89		
	(a) DS18	O6		79.61		
	(a) DS19	O6		-146.88		
Einw. *Ed.38*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		
Einw. *Ed.39*	(a) OG1	O6	links	-880.58	-28.01	-3.30
	(a) OG1	O6	rechts	-717.37	27.32	-3.30
	(a) PF8	O6		1.84		
	(a) DS18	O6		73.93		
	(a) DS19	O6		-141.82		
Einw. *Ed.40*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		
Einw. *Ed.41*	(a) OG1	O6	links	-886.49	-28.74	-3.34
	(a) OG1	O6	rechts	-714.94	26.91	-3.34
	(a) PF8	O6		1.89		
	(a) DS18	O6		79.61		
	(a) DS19	O6		-146.88		
Einw. *Ed.42*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		
Einw. *Ed.43*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		
Einw. *Ed.44*	(a) OG1	O6	links	-880.58	-28.01	-3.30
	(a) OG1	O6	rechts	-717.37	27.32	-3.30
	(a) PF8	O6		1.84		
	(a) DS18	O6		73.93		
	(a) DS19	O6		-141.82		
Einw. *Ed.45*	(a) OG1	O6	links	-886.49	-28.74	-3.34
	(a) OG1	O6	rechts	-714.94	26.91	-3.34

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF8	O6		1.89		
	(a) DS18	O6		79.61		
	(a) DS19	O6		-146.88		
Einw. *Ed.46*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		
Einw. *Ed.47*	(a) OG1	O6	links	-886.49	-28.74	-3.34
	(a) OG1	O6	rechts	-714.94	26.91	-3.34
	(a) PF8	O6		1.89		
	(a) DS18	O6		79.61		
	(a) DS19	O6		-146.88		
Einw. *Ed.48*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		
Einw. *Ed.49*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		
Einw. *Ed.50*	(a) OG1	O6	links	-760.90	-27.77	-2.84
	(a) OG1	O6	rechts	-569.91	19.47	-2.84
	(a) PF8	O6		1.99		
	(a) DS18	O6		99.53		
	(a) DS19	O6		-150.93		
Einw. *Ed.51*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		
Einw. *Ed.52*	(a) OG1	O6	links	-760.90	-27.77	-2.84
	(a) OG1	O6	rechts	-569.91	19.47	-2.84
	(a) PF8	O6		1.99		
	(a) DS18	O6		99.53		
	(a) DS19	O6		-150.93		
Einw. *Ed.53*	(a) OG1	O6	links	-760.90	-27.77	-2.84
	(a) OG1	O6	rechts	-569.91	19.47	-2.84
	(a) PF8	O6		1.99		
	(a) DS18	O6		99.53		
	(a) DS19	O6		-150.93		
Einw. *Ed.54*	(a) OG1	O6	links	-109.10	-2.64	-0.01
	(a) OG1	O6	rechts	-90.21	2.48	-0.01
	(a) PF8	O6		1.37		
	(a) DS18	O6		8.33		
	(a) DS19	O6		-16.50		

(a) aus Pos. 'T2_DA_2', Ort 'O6' (Seite 191)

! ýãÖKfdzăă˥ǋŅŦűŜ

ǋŜădzfűʎŜǋŜýŘŜ ! ýãÖKfdzăă˥ǋŅŦűŜ ŦÑǋ ŘŜý I I·dzLJűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	OG1	64.94	17.3	61.99	19.34
Ed.2	OG1	64.94	17.3	61.99	19.34
Ed.3	OG1	64.94	17.3	61.99	19.34
Ed.4	OG1	64.94	17.3	61.99	19.34
Ed.5	OG1	64.94	17.3	61.99	19.34
Ed.6	OG1	64.94	17.3	61.99	19.34
Ed.7	OG1	64.94	17.3	61.99	19.34
Ed.8	OG1	64.94	17.3	61.99	19.34
Ed.9	OG1	64.94	17.3	61.99	19.34
Ed.10	OG1	64.94	17.3	61.99	19.34
Ed.11	OG1	64.94	17.3	61.99	19.34
Ed.12	OG1	64.94	17.3	61.99	19.34
Ed.13	OG1	64.94	17.3	61.99	19.34
Ed.14	OG1	64.94	17.3	61.99	19.34
Ed.15	OG1	64.94	17.3	61.99	19.34
Ed.16	OG1	64.94	17.3	61.99	19.34
Ed.17	OG1	64.94	17.3	61.99	19.34
Ed.18	OG1	64.94	17.3	61.99	19.34
Ed.19	OG1	190.49	18.4	180.79	60.02
Ed.20	OG1	96.08	26.6	85.88	43.07
Ed.21	OG1	190.49	18.4	180.79	60.02
Ed.22	OG1	189.96	14.2	184.15	46.60
Ed.23	OG1	190.49	18.4	180.79	60.02
Ed.24	OG1	96.08	26.6	85.88	43.07
Ed.25	OG1	189.96	14.2	184.15	46.60
Ed.26	OG1	190.49	18.4	180.79	60.02
Ed.27	OG1	190.49	18.4	180.79	60.02
Ed.28	OG1	96.08	26.6	85.88	43.07
Ed.29	OG1	190.49	18.4	180.79	60.02
Ed.30	OG1	96.08	26.6	85.88	43.07
Ed.31	OG1	96.08	26.6	85.88	43.07
Ed.32	OG1	206.77	14.5	200.23	51.61
Ed.33	OG1	96.08	26.6	85.88	43.07
Ed.34	OG1	206.77	14.5	200.23	51.61
Ed.35	OG1	206.77	14.5	200.23	51.61
Ed.36	OG1	96.08	26.6	85.88	43.07
Ed.37	OG1	180.43	18.1	171.52	56.02
Ed.38	OG1	19.64	16.2	18.86	5.49
Ed.39	OG1	172.42	18.9	163.17	55.71
Ed.40	OG1	19.64	16.2	18.86	5.49
Ed.41	OG1	180.43	18.1	171.52	56.02
Ed.42	OG1	19.64	16.2	18.86	5.49
Ed.43	OG1	19.64	16.2	18.86	5.49
Ed.44	OG1	172.42	18.9	163.17	55.71
Ed.45	OG1	180.43	18.1	171.52	56.02
Ed.46	OG1	19.64	16.2	18.86	5.49
Ed.47	OG1	180.43	18.1	171.52	56.02

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.48	OG1	19.64	16.2	18.86	5.49
Ed.49	OG1	19.64	16.2	18.86	5.49
Ed.50	OG1	196.80	14.0	190.95	47.61
Ed.51	OG1	19.64	16.2	18.86	5.49
Ed.52	OG1	196.80	14.0	190.95	47.61
Ed.53	OG1	196.80	14.0	190.95	47.61
Ed.54	OG1	19.64	16.2	18.86	5.49

Gleichgewicht

ŊŜădzƭűʎŜŊŜƴŘŜ Yƴƻűŝƴʅ ŊŅŦűŜ ∃ƭƻōlˑƒ

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.51	270.0	0.00	-0.51	0.00
Ed.2	0.51	270.0	0.00	-0.51	0.00
Ed.3	0.51	270.0	0.00	-0.51	0.00
Ed.4	0.51	270.0	0.00	-0.51	0.00
Ed.5	0.51	270.0	0.00	-0.51	0.00
Ed.6	0.51	270.0	0.00	-0.51	0.00
Ed.7	0.51	270.0	0.00	-0.51	0.00
Ed.8	0.51	270.0	0.00	-0.51	0.00
Ed.9	0.51	270.0	0.00	-0.51	0.00
Ed.10	0.51	270.0	0.00	-0.51	0.00
Ed.11	0.51	270.0	0.00	-0.51	0.00
Ed.12	0.51	270.0	0.00	-0.51	0.00
Ed.13	0.51	270.0	0.00	-0.51	0.00
Ed.14	0.51	270.0	0.00	-0.51	0.00
Ed.15	0.51	270.0	0.00	-0.51	0.00
Ed.16	0.51	270.0	0.00	-0.51	0.00
Ed.17	0.51	270.0	0.00	-0.51	0.00
Ed.18	0.51	270.0	0.00	-0.51	0.00
Ed.19	0.51	270.0	0.00	-0.51	0.00
Ed.20	0.37	270.0	0.00	-0.37	0.00
Ed.21	0.51	270.0	0.00	-0.51	0.00
Ed.22	0.37	270.0	0.00	-0.37	0.00
Ed.23	0.51	270.0	0.00	-0.51	0.00
Ed.24	0.37	270.0	0.00	-0.37	0.00
Ed.25	0.37	270.0	0.00	-0.37	0.00
Ed.26	0.51	270.0	0.00	-0.51	0.00
Ed.27	0.51	270.0	0.00	-0.51	0.00
Ed.28	0.37	270.0	0.00	-0.37	0.00
Ed.29	0.51	270.0	0.00	-0.51	0.00
Ed.30	0.37	270.0	0.00	-0.37	0.00
Ed.31	0.37	270.0	0.00	-0.37	0.00
Ed.32	0.51	270.0	0.00	-0.51	0.00
Ed.33	0.37	270.0	0.00	-0.37	0.00
Ed.34	0.51	270.0	0.00	-0.51	0.00
Ed.35	0.51	270.0	0.00	-0.51	0.00
Ed.36	0.37	270.0	0.00	-0.37	0.00
Ed.37	0.37	270.0	0.00	-0.37	0.00
Ed.38	0.37	270.0	0.00	-0.37	0.00
Ed.39	0.37	270.0	0.00	-0.37	0.00

	F_{Res} [kN]	h_{Res} ώc6	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.40	0.37	270.0	0.00	-0.37	0.00
Ed.41	0.37	270.0	0.00	-0.37	0.00
Ed.42	0.37	270.0	0.00	-0.37	0.00
Ed.43	0.37	270.0	0.00	-0.37	0.00
Ed.44	0.37	270.0	0.00	-0.37	0.00
Ed.45	0.37	270.0	0.00	-0.37	0.00
Ed.46	0.37	270.0	0.00	-0.37	0.00
Ed.47	0.37	270.0	0.00	-0.37	0.00
Ed.48	0.37	270.0	0.00	-0.37	0.00
Ed.49	0.37	270.0	0.00	-0.37	0.00
Ed.50	0.37	270.0	0.00	-0.37	0.00
Ed.51	0.37	270.0	0.00	-0.37	0.00
Ed.52	0.37	270.0	0.00	-0.37	0.00
Ed.53	0.37	270.0	0.00	-0.37	0.00
Ed.54	0.37	270.0	0.00	-0.37	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ăűŅyŘ∧ЭкØ2ŊŇōŜŊЭ¢

Ek	KLED	ɿ (˩ * ˼ *EW)
1	st	1.00*Ed.1
19	ku	1.00*Ed.19
32	ku	1.00*Ed.32

st: ăűŅyŘ∧Э
ku: kurz

Nachweise (GZT)

bI·ŎKøŜ∧ăŜ ∧Ƴ DŊŜyÎÎdzăűI·yŘ ŘŜŊ ¢ŊI·ЭŦŅK∧Э]Ŝ∧ű yI·ŎK 5Ŀb 9b мффрπмπм

OG1

Nettoquerschnitt Holz $A_{ef,H}$ = 676.80 cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
32	0.90	34.46	37.88	0.91

* je Verbindungsmittel

Biegung
Abs. 6.1

bI·ŎKøŜ∧ă ŘŜŊ .∧ŜЭŜűŊI·ЭŦŅK∧Э]Ŝ∧ű

EK	k_{mod}	N_d / M_d [kNm]	`$_{0,d}$ / `$_{m,d}$ [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
19	0.90	-956.02	-14.13	19.38	0.57
		-3.46	-0.71	19.38	
rechts					
19	0.90	-775.18	-11.45	19.38	0.39
		-3.46	-0.71	19.38	

Querkraft
Abs. 6.1.7

bI·ŎKøŜ∧ă ŘŜŊ vdzŜŊ]ŊI·ŦűŊI·ЭŦŅK∧Э]Ŝ∧ű

EK	k_{mod}	V_d [kN]	_$_d$ [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
19	0.90	-30.44	-0.94	2.42	0.39

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
rechts					
19	0.90	29.08	0.90	2.42	0.37

Querzug

bI·ŎKǿŜλă ŘŜ\ vdzŜ\Îdz∃ú\I·∃ŦŅKλ∃ʅŜλú

Queranschluss h_e/h = 0.67 Ӿ 0.70

dzÿǾŜ\ăúŅ\ʅú

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
19	0.90	30.01	51.25	0.59

PF8

Nettoquerschnitt Holz	$A_{ef,H}$	=	376.00	cm²
Blech	$A_{ef,S}$	=	24.00	cm²
9ÈÎŜÿú\λÎλúŅúăōŜλǿŜ\ú	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}^*$ [kN]	$F_{v,Rd,ef}^*$ [kN]	'
1	0.60	1.89	17.29	0.11

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜλă ŘŜ\ bƻ\ΥI·ŧʅ\I·Ŧú\I·∃ŦŅKλ∃ʅŜλú

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}^*$ [N/mm²]	'
1	0.60	1.89	0.05	6.86	0.01

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
32	2.45	1.02	275.00	0.00

DS18

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ÈÎŜÿú\λÎλúŅúăōŜλǿŜ\ú	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}^*$ [kN]	$F_{v,Rd,ef}^*$ [kN]	'
32	0.90	25.71	38.38	0.67

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜλă ŘŜ\ bƻ\ΥI·ŧʅ\I·Ŧú\I·∃ŦŅKλ∃ʅŜλú

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}^*$ [N/mm²]	'
32	0.90	102.84	3.04	10.29	0.30

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	Nd [kN]	` d [N/mm2]	` R,d [N/mm2]	'
32	102.84	47.61	275.00	0.17

DS19

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyŰŴÎŰŅŰăōŜŴŜŴŰ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
32	0.90	26.66	36.79	0.72

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜŴă ŘŜŴ b2ŴYI·ŧʅŴI·ŦŰŴI·ƎŦŅKŴƎʅŜŴŰ

EK	k_{mod}	N_d [kN]	` 0,d [N/mm2]	$f_{0,d}$ [N/mm2]	'
32	0.90	-159.99	-4.73	19.38	0.24

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	` d [N/mm2]	` R,d [N/mm2]	'
32	-160.0	74.07	275.00	0.27

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

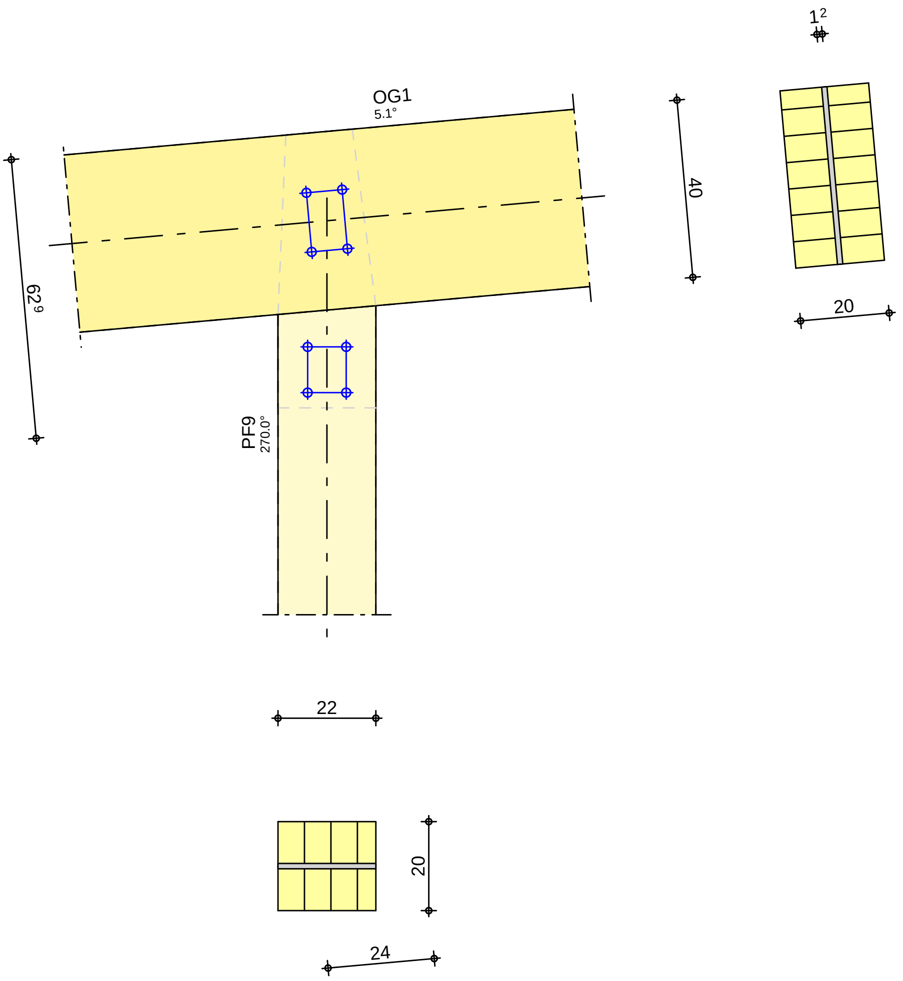
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	OG1	OK	0.91
Stabquerschnitt	OG1	OK	0.57
Blechquerschnitt	DS19	OK	0.27

Pos. T2_DA_3-O7 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	15	BSH GL28h^{f}
PF9	1	270.0	20/22	21	BSH GL28h^{f}

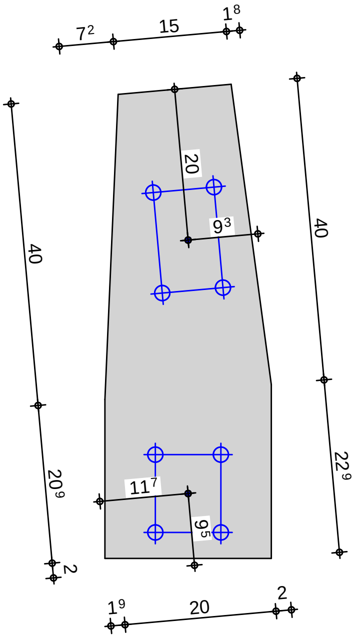
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	2x2	Passbolzen	M20	8.8
PF9	2x2	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O7	links	-266.70	-8.29	0.47
	(a)	OG1	O7	rechts	-268.12	7.53	0.47
	(a)	PF9	O7		-15.88		
Einw. *Ed.2*	(a)	OG1	O7	links	-266.70	-8.29	0.47
	(a)	OG1	O7	rechts	-268.12	7.53	0.47
	(a)	PF9	O7		-15.88		
Einw. *Ed.3*	(a)	OG1	O7	links	-266.70	-8.29	0.47
	(a)	OG1	O7	rechts	-268.12	7.53	0.47
	(a)	PF9	O7		-15.88		
Einw. *Ed.4*	(a)	OG1	O7	links	-266.70	-8.29	0.47
	(a)	OG1	O7	rechts	-268.12	7.53	0.47
	(a)	PF9	O7		-15.88		
Einw. *Ed.5*	(a)	OG1	O7	links	-266.70	-8.29	0.47
	(a)	OG1	O7	rechts	-268.12	7.53	0.47
	(a)	PF9	O7		-15.88		
Einw. *Ed.6*	(a)	OG1	O7	links	-266.70	-8.29	0.47
	(a)	OG1	O7	rechts	-268.12	7.53	0.47
	(a)	PF9	O7		-15.88		
Einw. *Ed.7*	(a)	OG1	O7	links	-266.70	-8.29	0.47
	(a)	OG1	O7	rechts	-268.12	7.53	0.47
	(a)	PF9	O7		-15.88		
Einw. *Ed.8*	(a)	OG1	O7	links	-266.70	-8.29	0.47
	(a)	OG1	O7	rechts	-268.12	7.53	0.47

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF9	O7		-15.88		
Einw. *Ed.9*	(a) OG1	O7	links	-266.70	-8.29	0.47
	(a) OG1	O7	rechts	-268.12	7.53	0.47
	(a) PF9	O7		-15.88		
Einw. *Ed.10*	(a) OG1	O7	links	-266.70	-8.29	0.47
	(a) OG1	O7	rechts	-268.12	7.53	0.47
	(a) PF9	O7		-15.88		
Einw. *Ed.11*	(a) OG1	O7	links	-266.70	-8.29	0.47
	(a) OG1	O7	rechts	-268.12	7.53	0.47
	(a) PF9	O7		-15.88		
Einw. *Ed.12*	(a) OG1	O7	links	-266.70	-8.29	0.47
	(a) OG1	O7	rechts	-268.12	7.53	0.47
	(a) PF9	O7		-15.88		
Einw. *Ed.13*	(a) OG1	O7	links	-266.70	-8.29	0.47
	(a) OG1	O7	rechts	-268.12	7.53	0.47
	(a) PF9	O7		-15.88		
Einw. *Ed.14*	(a) OG1	O7	links	-266.70	-8.29	0.47
	(a) OG1	O7	rechts	-268.12	7.53	0.47
	(a) PF9	O7		-15.88		
Einw. *Ed.15*	(a) OG1	O7	links	-770.23	-26.26	0.41
	(a) OG1	O7	rechts	-774.73	24.06	0.41
	(a) PF9	O7		-50.52		
Einw. *Ed.16*	(a) OG1	O7	links	-557.61	-14.21	2.17
	(a) OG1	O7	rechts	-560.07	13.27	2.17
	(a) PF9	O7		-27.59		
Einw. *Ed.17*	(a) OG1	O7	links	-770.23	-26.26	0.41
	(a) OG1	O7	rechts	-774.73	24.06	0.41
	(a) PF9	O7		-50.52		
Einw. *Ed.18*	(a) OG1	O7	links	-557.61	-14.21	2.17
	(a) OG1	O7	rechts	-560.07	13.27	2.17
	(a) PF9	O7		-27.59		
Einw. *Ed.19*	(a) OG1	O7	links	-661.94	-27.18	-1.45
	(a) OG1	O7	rechts	-666.58	24.63	-1.45
	(a) PF9	O7		-52.02		
Einw. *Ed.20*	(a) OG1	O7	links	-557.61	-14.21	2.17
	(a) OG1	O7	rechts	-560.07	13.27	2.17
	(a) PF9	O7		-27.59		
Einw. *Ed.21*	(a) OG1	O7	links	-557.61	-14.21	2.17
	(a) OG1	O7	rechts	-560.07	13.27	2.17
	(a) PF9	O7		-27.59		
Einw. *Ed.22*	(a) OG1	O7	links	-661.94	-27.18	-1.45
	(a) OG1	O7	rechts	-666.58	24.63	-1.45
	(a) PF9	O7		-52.02		
Einw. *Ed.23*	(a) OG1	O7	links	-592.80	-25.03	-1.57
	(a) OG1	O7	rechts	-597.07	22.68	-1.57
	(a) PF9	O7		-47.90		
Einw. *Ed.24*	(a) OG1	O7	links	-626.76	-16.36	2.29
	(a) OG1	O7	rechts	-629.58	15.22	2.29
	(a) PF9	O7		-31.71		
Einw. *Ed.25*	(a) OG1	O7	links	-592.80	-25.03	-1.57

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) OG1	O7	rechts	-597.07	22.68	-1.57
	(a) PF9	O7		-47.90		
Einw. *Ed.26*	(a) OG1	O7	links	-626.76	-16.36	2.29
	(a) OG1	O7	rechts	-629.58	15.22	2.29
	(a) PF9	O7		-31.71		
Einw. *Ed.27*	(a) OG1	O7	links	-661.94	-27.18	-1.45
	(a) OG1	O7	rechts	-666.58	24.63	-1.45
	(a) PF9	O7		-52.02		
Einw. *Ed.28*	(a) OG1	O7	links	-557.61	-14.21	2.17
	(a) OG1	O7	rechts	-560.07	13.27	2.17
	(a) PF9	O7		-27.59		
Einw. *Ed.29*	(a) OG1	O7	links	-712.83	-24.96	0.12
	(a) OG1	O7	rechts	-717.11	22.86	0.12
	(a) PF9	O7		-48.02		
Einw. *Ed.30*	(a) OG1	O7	links	-89.05	-2.18	0.40
	(a) OG1	O7	rechts	-89.42	1.94	0.40
	(a) PF9	O7		-4.13		
Einw. *Ed.31*	(a) OG1	O7	links	-712.83	-24.96	0.12
	(a) OG1	O7	rechts	-717.11	22.86	0.12
	(a) PF9	O7		-48.02		
Einw. *Ed.32*	(a) OG1	O7	links	-89.05	-2.18	0.40
	(a) OG1	O7	rechts	-89.42	1.94	0.40
	(a) PF9	O7		-4.13		
Einw. *Ed.33*	(a) OG1	O7	links	-604.54	-25.88	-1.74
	(a) OG1	O7	rechts	-608.95	23.44	-1.74
	(a) PF9	O7		-49.51		
Einw. *Ed.34*	(a) OG1	O7	links	-89.05	-2.18	0.40
	(a) OG1	O7	rechts	-89.42	1.94	0.40
	(a) PF9	O7		-4.13		
Einw. *Ed.35*	(a) OG1	O7	links	-89.05	-2.18	0.40
	(a) OG1	O7	rechts	-89.42	1.94	0.40
	(a) PF9	O7		-4.13		
Einw. *Ed.36*	(a) OG1	O7	links	-604.54	-25.88	-1.74
	(a) OG1	O7	rechts	-608.95	23.44	-1.74
	(a) PF9	O7		-49.51		
Einw. *Ed.37*	(a) OG1	O7	links	-604.54	-25.88	-1.74
	(a) OG1	O7	rechts	-608.95	23.44	-1.74
	(a) PF9	O7		-49.51		
Einw. *Ed.38*	(a) OG1	O7	links	-566.92	-14.13	2.33
	(a) OG1	O7	rechts	-569.37	13.22	2.33
	(a) PF9	O7		-27.46		
Einw. *Ed.39*	(a) OG1	O7	links	-604.54	-25.88	-1.74
	(a) OG1	O7	rechts	-608.95	23.44	-1.74
	(a) PF9	O7		-49.51		
Einw. *Ed.40*	(a) OG1	O7	links	-566.92	-14.13	2.33
	(a) OG1	O7	rechts	-569.37	13.22	2.33
	(a) PF9	O7		-27.46		
Einw. *Ed.41*	(a) OG1	O7	links	-604.54	-25.88	-1.74
	(a) OG1	O7	rechts	-608.95	23.44	-1.74
	(a) PF9	O7		-49.51		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.42*	(a)	OG1	O7	links	-89.05	-2.18	0.40
	(a)	OG1	O7	rechts	-89.42	1.94	0.40
	(a)	PF9	O7		-4.13		

(a) aus Pos. 'T2_DA_2', Ort 'O7' (Seite 191)

! yãŎKfdzăă ǃNŅŦűŜ

ǃŜădzfűʎŜǃŜyŘŜ ! yãŎKfdzăă ǃNŅŦűŜ ŦŇǃ ŘŜyˊ I I·dzLJűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	OG1	15.88	95.1	-1.41	15.81
Ed.2	OG1	15.88	95.1	-1.41	15.81
Ed.3	OG1	15.88	95.1	-1.41	15.81
Ed.4	OG1	15.88	95.1	-1.41	15.81
Ed.5	OG1	15.88	95.1	-1.41	15.81
Ed.6	OG1	15.88	95.1	-1.41	15.81
Ed.7	OG1	15.88	95.1	-1.41	15.81
Ed.8	OG1	15.88	95.1	-1.41	15.81
Ed.9	OG1	15.88	95.1	-1.41	15.81
Ed.10	OG1	15.88	95.1	-1.41	15.81
Ed.11	OG1	15.88	95.1	-1.41	15.81
Ed.12	OG1	15.88	95.1	-1.41	15.81
Ed.13	OG1	15.88	95.1	-1.41	15.81
Ed.14	OG1	15.88	95.1	-1.41	15.81
Ed.15	OG1	50.52	95.1	-4.50	50.32
Ed.16	OG1	27.59	95.1	-2.46	27.48
Ed.17	OG1	50.52	95.1	-4.50	50.32
Ed.18	OG1	27.59	95.1	-2.46	27.48
Ed.19	OG1	52.02	95.1	-4.63	51.81
Ed.20	OG1	27.59	95.1	-2.46	27.48
Ed.21	OG1	27.59	95.1	-2.46	27.48
Ed.22	OG1	52.02	95.1	-4.63	51.81
Ed.23	OG1	47.90	95.1	-4.27	47.71
Ed.24	OG1	31.71	95.1	-2.82	31.58
Ed.25	OG1	47.90	95.1	-4.27	47.71
Ed.26	OG1	31.71	95.1	-2.82	31.58
Ed.27	OG1	52.02	95.1	-4.63	51.81
Ed.28	OG1	27.59	95.1	-2.46	27.48
Ed.29	OG1	48.02	95.1	-4.28	47.82
Ed.30	OG1	4.13	95.1	-0.37	4.12
Ed.31	OG1	48.02	95.1	-4.28	47.82
Ed.32	OG1	4.13	95.1	-0.37	4.12
Ed.33	OG1	49.51	95.1	-4.41	49.31
Ed.34	OG1	4.13	95.1	-0.37	4.12
Ed.35	OG1	4.13	95.1	-0.37	4.12
Ed.36	OG1	49.51	95.1	-4.41	49.31
Ed.37	OG1	49.51	95.1	-4.41	49.31
Ed.38	OG1	27.46	95.1	-2.45	27.35
Ed.39	OG1	49.51	95.1	-4.41	49.31
Ed.40	OG1	27.46	95.1	-2.45	27.35
Ed.41	OG1	49.51	95.1	-4.41	49.31

	Stab	F_{Res} [kN]	h_{Res} ώϲϐ	N [kN]	V [kN]
Ed.42	OG1	4.13	95.1	-0.37	4.12

Gleichgewicht

ǋŜădzťűʎŜǋŜyŘŜ Yy2űŜy[ǋŅŦűŜ Ǝť2ōl·ť

	F_{Res} [kN]	h_{Res} ώϲϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00
Ed.19	0.00		0.00	0.00	0.00
Ed.20	0.00		0.00	0.00	0.00
Ed.21	0.00		0.00	0.00	0.00
Ed.22	0.00		0.00	0.00	0.00
Ed.23	0.00		0.00	0.00	0.00
Ed.24	0.00		0.00	0.00	0.00
Ed.25	0.00		0.00	0.00	0.00
Ed.26	0.00		0.00	0.00	0.00
Ed.27	0.00		0.00	0.00	0.00
Ed.28	0.00		0.00	0.00	0.00
Ed.29	0.00		0.00	0.00	0.00
Ed.30	0.00		0.00	0.00	0.00
Ed.31	0.00		0.00	0.00	0.00
Ed.32	0.00		0.00	0.00	0.00
Ed.33	0.00		0.00	0.00	0.00
Ed.34	0.00		0.00	0.00	0.00
Ed.35	0.00		0.00	0.00	0.00
Ed.36	0.00		0.00	0.00	0.00
Ed.37	0.00		0.00	0.00	0.00
Ed.38	0.00		0.00	0.00	0.00
Ed.39	0.00		0.00	0.00	0.00
Ed.40	0.00		0.00	0.00	0.00
Ed.41	0.00		0.00	0.00	0.00
Ed.42	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ăűŅyŘ⅄ƎкØ2ǸŇōŜǸƎф

Ek	KLED	ɿ (ᒧ * ̦ *EW)
19	ku	1.00*Ed.19

ku: kurz

Nachweise (GZT)

bl·ŏKøŜăŜ ⅄Y DǸŜyÎÎdzăűl·yŘ ŘŜǸ ¢Ǹl·ƎŦŅK⅄Ǝ1Ŝ⅄ű yl·ŏK 5Lb 9b мффрπмπм

OG1

Nettoquerschnitt Holz $A_{ef,H}$ = 676.80 cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	13.01	36.07	0.36

* je Verbindungsmittel

Biegung
Abs. 6.1

bl·ŏKøŜ⅄ă ŘŜǸ .⅄ŜƎŜűǸl·ƎŦŅK⅄Ǝ1Ŝ⅄ű

EK	k_{mod}	N_d M_d [kNm]	` 0,d   ` m,d [N/mm²]	$f_{0,d}$ $f_{m,d}$ [N/mm²]	'
links					
15	0.90	-770.23	-11.38	19.38	0.35
		0.41	0.08	19.38	
rechts					
15	0.90	-774.73	-11.45	19.38	0.35
		0.41	0.08	19.38	

Querkraft
Abs. 6.1.7

bl·ŏKøŜ⅄ă ŘŜǸ vdzŜǸ1Ǹl·ŦűǸl·ƎŦŅK⅄Ǝ1Ŝ⅄ű

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
19	0.90	-27.18	-0.84	2.42	0.35
rechts					
19	0.90	24.63	0.76	2.42	0.32

Querzug

bl·ŏKøŜ⅄ă ŘŜǸ vdzŜǸÎdzƎűǸl·ƎŦŅK⅄Ǝ1Ŝ⅄ű

Queranschluss h_e/h = 0.67 Ӿ 0.70

dzyØŜǸăűŅǸ1ű

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
19	0.90	25.91	36.72	0.71

PF9

Nettoquerschnitt Holz $A_{ef,H}$ = 338.40 cm^2
Blech $A_{ef,S}$ = 21.60 cm^2
9ÈÎŜyűǸ⅄Î⅄űŅűăōŜ⅄øŜǸű k_{te} = 1.00

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	13.01	38.38	0.34

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜλă ŘŜ꙲ b2꙲Ƴl·ƭʅ꙲l·ŦǘǘǾ꙲l·ƎŦŅKλƎʅŜλǘ

EK	k_{mod}	N_d [kN]	` $_{0,d}$ [N/mm^2]	$f_{0,d}$ [N/mm^2]	'
19	0.90	-52.02	-1.54	19.38	0.08

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	` $_d$ [N/mm^2]	` $_{R,d}$ [N/mm^2]	'
19	-52.02	24.08	275.00	0.09

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

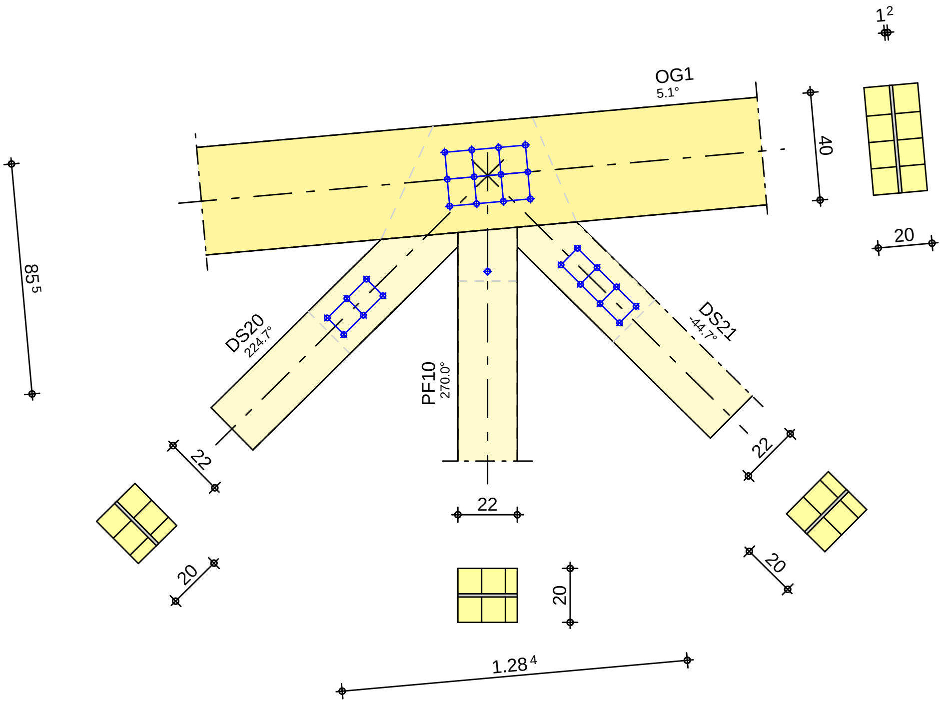
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	OG1	OK	0.36
Stabquerschnitt	OG1	OK	0.35
Blechquerschnitt	PF9	OK	0.09

Pos. T2_DA_3-O8 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:28

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	37	BSH GL28h^{f}
PF10	1	270.0	20/22	18	BSH GL28h^{f}
DS20	1	224.7	20/22	38	BSH GL28h^{f}
DS21	1	-44.7	20/22	41	BSH GL28h^{f}

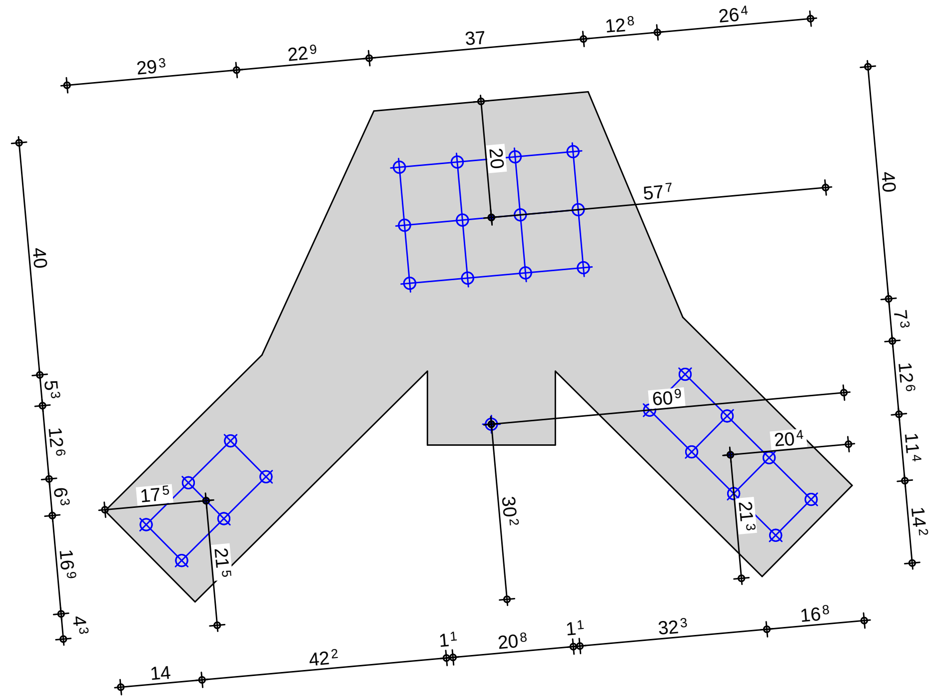
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	4x3	Passbolzen	M20	8.8
PF10	1x1	Passbolzen	M20	8.8
DS20	3x2	Passbolzen	M20	8.8
DS21	4x2	Passbolzen	M20	8.8

Blech
M 1:13



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O8	links	-266.56	-9.94	-2.85
	(a)	OG1	O8	rechts	-150.57	9.52	-2.85
	(a)	PF10	O8		2.28		
	(a)	DS20	O8		74.16		
	(a)	DS21	O8		-90.92		
Einw. *Ed.2*	(a)	OG1	O8	links	-266.56	-9.94	-2.85
	(a)	OG1	O8	rechts	-150.57	9.52	-2.85
	(a)	PF10	O8		2.28		
	(a)	DS20	O8		74.16		
	(a)	DS21	O8		-90.92		
Einw. *Ed.3*	(a)	OG1	O8	links	-266.56	-9.94	-2.85
	(a)	OG1	O8	rechts	-150.57	9.52	-2.85
	(a)	PF10	O8		2.28		
	(a)	DS20	O8		74.16		
	(a)	DS21	O8		-90.92		
Einw. *Ed.4*	(a)	OG1	O8	links	-266.56	-9.94	-2.85
	(a)	OG1	O8	rechts	-150.57	9.52	-2.85
	(a)	PF10	O8		2.28		
	(a)	DS20	O8		74.16		
	(a)	DS21	O8		-90.92		
Einw. *Ed.5*	(a)	OG1	O8	links	-266.56	-9.94	-2.85

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.6*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.7*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.8*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.9*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.10*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.11*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.12*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.13*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.14*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.15*	(a) OG1	O8	links	-266.56	-9.94	-2.85

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.16*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.17*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.18*	(a) OG1	O8	links	-266.56	-9.94	-2.85
	(a) OG1	O8	rechts	-150.57	9.52	-2.85
	(a) PF10	O8		2.28		
	(a) DS20	O8		74.16		
	(a) DS21	O8		-90.92		
Einw. *Ed.19*	(a) OG1	O8	links	-769.78	-31.28	-9.53
	(a) OG1	O8	rechts	-434.18	30.06	-9.53
	(a) PF10	O8		3.29		
	(a) DS20	O8		214.30		
	(a) DS21	O8		-263.96		
Einw. *Ed.20*	(a) OG1	O8	links	-557.22	-18.61	-5.17
	(a) OG1	O8	rechts	-298.61	17.45	-5.17
	(a) PF10	O8		2.50		
	(a) DS20	O8		172.40		
	(a) DS21	O8		-194.73		
Einw. *Ed.21*	(a) OG1	O8	links	-769.78	-31.28	-9.53
	(a) OG1	O8	rechts	-434.18	30.06	-9.53
	(a) PF10	O8		3.29		
	(a) DS20	O8		214.30		
	(a) DS21	O8		-263.96		
Einw. *Ed.22*	(a) OG1	O8	links	-557.22	-18.61	-5.17
	(a) OG1	O8	rechts	-298.61	17.45	-5.17
	(a) PF10	O8		2.50		
	(a) DS20	O8		172.40		
	(a) DS21	O8		-194.73		
Einw. *Ed.23*	(a) OG1	O8	links	-769.78	-31.28	-9.53
	(a) OG1	O8	rechts	-434.18	30.06	-9.53
	(a) PF10	O8		3.29		
	(a) DS20	O8		214.30		
	(a) DS21	O8		-263.96		
Einw. *Ed.24*	(a) OG1	O8	links	-557.22	-18.61	-5.17
	(a) OG1	O8	rechts	-298.61	17.45	-5.17
	(a) PF10	O8		2.50		
	(a) DS20	O8		172.40		
	(a) DS21	O8		-194.73		
Einw. *Ed.25*	(a) OG1	O8	links	-557.22	-18.61	-5.17

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) OG1	O8	rechts	-298.61	17.45	-5.17
	(a) PF10	O8		2.50		
	(a) DS20	O8		172.40		
	(a) DS21	O8		-194.73		
Einw. *Ed.26*	(a) OG1	O8	links	-769.78	-31.28	-9.53
	(a) OG1	O8	rechts	-434.18	30.06	-9.53
	(a) PF10	O8		3.29		
	(a) DS20	O8		214.30		
	(a) DS21	O8		-263.96		
Einw. *Ed.27*	(a) OG1	O8	links	-661.63	-30.71	-9.80
	(a) OG1	O8	rechts	-388.91	29.93	-9.80
	(a) PF10	O8		2.99		
	(a) DS20	O8		166.90		
	(a) DS21	O8		-223.10		
Einw. *Ed.28*	(a) OG1	O8	links	-557.22	-18.61	-5.17
	(a) OG1	O8	rechts	-298.61	17.45	-5.17
	(a) PF10	O8		2.50		
	(a) DS20	O8		172.40		
	(a) DS21	O8		-194.73		
Einw. *Ed.29*	(a) OG1	O8	links	-661.63	-30.71	-9.80
	(a) OG1	O8	rechts	-388.91	29.93	-9.80
	(a) PF10	O8		2.99		
	(a) DS20	O8		166.90		
	(a) DS21	O8		-223.10		
Einw. *Ed.30*	(a) OG1	O8	links	-557.22	-18.61	-5.17
	(a) OG1	O8	rechts	-298.61	17.45	-5.17
	(a) PF10	O8		2.50		
	(a) DS20	O8		172.40		
	(a) DS21	O8		-194.73		
Einw. *Ed.31*	(a) OG1	O8	links	-592.52	-28.13	-9.07
	(a) OG1	O8	rechts	-349.88	27.46	-9.07
	(a) PF10	O8		2.40		
	(a) DS20	O8		147.67		
	(a) DS21	O8		-199.53		
Einw. *Ed.32*	(a) OG1	O8	links	-769.78	-31.28	-9.53
	(a) OG1	O8	rechts	-434.18	30.06	-9.53
	(a) PF10	O8		3.29		
	(a) DS20	O8		214.30		
	(a) DS21	O8		-263.96		
Einw. *Ed.33*	(a) OG1	O8	links	-592.52	-28.13	-9.07
	(a) OG1	O8	rechts	-349.88	27.46	-9.07
	(a) PF10	O8		2.40		
	(a) DS20	O8		147.67		
	(a) DS21	O8		-199.53		
Einw. *Ed.34*	(a) OG1	O8	links	-769.78	-31.28	-9.53
	(a) OG1	O8	rechts	-434.18	30.06	-9.53
	(a) PF10	O8		3.29		
	(a) DS20	O8		214.30		
	(a) DS21	O8		-263.96		
Einw. *Ed.35*	(a) OG1	O8	links	-769.78	-31.28	-9.53

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	OG1	O8	rechts	-434.18	30.06	-9.53
	(a)	PF10	O8		3.29		
	(a)	DS20	O8		214.30		
	(a)	DS21	O8		-263.96		
Einw. *Ed.36*	(a)	OG1	O8	links	-557.22	-18.61	-5.17
	(a)	OG1	O8	rechts	-298.61	17.45	-5.17
	(a)	PF10	O8		2.50		
	(a)	DS20	O8		172.40		
	(a)	DS21	O8		-194.73		
Einw. *Ed.37*	(a)	OG1	O8	links	-712.56	-29.56	-9.09
	(a)	OG1	O8	rechts	-402.98	28.45	-9.09
	(a)	PF10	O8		2.71		
	(a)	DS20	O8		197.06		
	(a)	DS21	O8		-244.30		
Einw. *Ed.38*	(a)	OG1	O8	links	-88.26	-2.71	-0.66
	(a)	OG1	O8	rechts	-51.10	2.57	-0.66
	(a)	PF10	O8		1.50		
	(a)	DS20	O8		23.69		
	(a)	DS21	O8		-29.08		
Einw. *Ed.39*	(a)	OG1	O8	links	-712.56	-29.56	-9.09
	(a)	OG1	O8	rechts	-402.98	28.45	-9.09
	(a)	PF10	O8		2.71		
	(a)	DS20	O8		197.06		
	(a)	DS21	O8		-244.30		
Einw. *Ed.40*	(a)	OG1	O8	links	-88.26	-2.71	-0.66
	(a)	OG1	O8	rechts	-51.10	2.57	-0.66
	(a)	PF10	O8		1.50		
	(a)	DS20	O8		23.69		
	(a)	DS21	O8		-29.08		
Einw. *Ed.41*	(a)	OG1	O8	links	-712.56	-29.56	-9.09
	(a)	OG1	O8	rechts	-402.98	28.45	-9.09
	(a)	PF10	O8		2.71		
	(a)	DS20	O8		197.06		
	(a)	DS21	O8		-244.30		
Einw. *Ed.42*	(a)	OG1	O8	links	-88.26	-2.71	-0.66
	(a)	OG1	O8	rechts	-51.10	2.57	-0.66
	(a)	PF10	O8		1.50		
	(a)	DS20	O8		23.69		
	(a)	DS21	O8		-29.08		
Einw. *Ed.43*	(a)	OG1	O8	links	-88.26	-2.71	-0.66
	(a)	OG1	O8	rechts	-51.10	2.57	-0.66
	(a)	PF10	O8		1.50		
	(a)	DS20	O8		23.69		
	(a)	DS21	O8		-29.08		
Einw. *Ed.44*	(a)	OG1	O8	links	-712.56	-29.56	-9.09
	(a)	OG1	O8	rechts	-402.98	28.45	-9.09
	(a)	PF10	O8		2.71		
	(a)	DS20	O8		197.06		
	(a)	DS21	O8		-244.30		
Einw. *Ed.45*	(a)	OG1	O8	links	-604.41	-28.98	-9.37

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) OG1	O8	rechts	-357.71	28.32	-9.37
	(a) PF10	O8		2.41		
	(a) DS20	O8		149.66		
	(a) DS21	O8		-203.44		
Einw. *Ed.46*	(a) OG1	O8	links	-88.26	-2.71	-0.66
	(a) OG1	O8	rechts	-51.10	2.57	-0.66
	(a) PF10	O8		1.50		
	(a) DS20	O8		23.69		
	(a) DS21	O8		-29.08		
Einw. *Ed.47*	(a) OG1	O8	links	-604.41	-28.98	-9.37
	(a) OG1	O8	rechts	-357.71	28.32	-9.37
	(a) PF10	O8		2.41		
	(a) DS20	O8		149.66		
	(a) DS21	O8		-203.44		
Einw. *Ed.48*	(a) OG1	O8	links	-88.26	-2.71	-0.66
	(a) OG1	O8	rechts	-51.10	2.57	-0.66
	(a) PF10	O8		1.50		
	(a) DS20	O8		23.69		
	(a) DS21	O8		-29.08		
Einw. *Ed.49*	(a) OG1	O8	links	-88.26	-2.71	-0.66
	(a) OG1	O8	rechts	-51.10	2.57	-0.66
	(a) PF10	O8		1.50		
	(a) DS20	O8		23.69		
	(a) DS21	O8		-29.08		
Einw. *Ed.50*	(a) OG1	O8	links	-709.98	-28.75	-8.76
	(a) OG1	O8	rechts	-399.04	27.60	-8.76
	(a) PF10	O8		2.72		
	(a) DS20	O8		199.15		
	(a) DS21	O8		-243.91		
Einw. *Ed.51*	(a) OG1	O8	links	-88.26	-2.71	-0.66
	(a) OG1	O8	rechts	-51.10	2.57	-0.66
	(a) PF10	O8		1.50		
	(a) DS20	O8		23.69		
	(a) DS21	O8		-29.08		
Einw. *Ed.52*	(a) OG1	O8	links	-709.98	-28.75	-8.76
	(a) OG1	O8	rechts	-399.04	27.60	-8.76
	(a) PF10	O8		2.72		
	(a) DS20	O8		199.15		
	(a) DS21	O8		-243.91		
Einw. *Ed.53*	(a) OG1	O8	links	-712.56	-29.56	-9.09
	(a) OG1	O8	rechts	-402.98	28.45	-9.09
	(a) PF10	O8		2.71		
	(a) DS20	O8		197.06		
	(a) DS21	O8		-244.30		
Einw. *Ed.54*	(a) OG1	O8	links	-88.26	-2.71	-0.66
	(a) OG1	O8	rechts	-51.10	2.57	-0.66
	(a) PF10	O8		1.50		
	(a) DS20	O8		23.69		
	(a) DS21	O8		-29.08		

(a) aus Pos. 'T2_DA_2', Ort 'O8' (Seite 191)

! ẏãŎKfdzăă꞊ꞋŅŦűŜ

ꞋŜădzfűλŜꞋŜẏŘŜ ! ẏãŎKfdzăă꞊ꞋŅŦűŜ ŦÑꞋ ŘŜẏ I I·dzǈűăű I·ō

	Stab	F_{Res} [kN]	^{h} Res ώcϐ	N [kN]	V [kN]
Ed.1	OG1	117.64	9.7	115.95	19.92
Ed.2	OG1	117.64	9.7	115.95	19.92
Ed.3	OG1	117.64	9.7	115.95	19.92
Ed.4	OG1	117.64	9.7	115.95	19.92
Ed.5	OG1	117.64	9.7	115.95	19.92
Ed.6	OG1	117.64	9.7	115.95	19.92
Ed.7	OG1	117.64	9.7	115.95	19.92
Ed.8	OG1	117.64	9.7	115.95	19.92
Ed.9	OG1	117.64	9.7	115.95	19.92
Ed.10	OG1	117.64	9.7	115.95	19.92
Ed.11	OG1	117.64	9.7	115.95	19.92
Ed.12	OG1	117.64	9.7	115.95	19.92
Ed.13	OG1	117.64	9.7	115.95	19.92
Ed.14	OG1	117.64	9.7	115.95	19.92
Ed.15	OG1	117.64	9.7	115.95	19.92
Ed.16	OG1	117.64	9.7	115.95	19.92
Ed.17	OG1	117.64	9.7	115.95	19.92
Ed.18	OG1	117.64	9.7	115.95	19.92
Ed.19	OG1	341.20	10.4	335.56	61.80
Ed.20	OG1	261.12	8.0	258.57	36.39
Ed.21	OG1	341.20	10.4	335.56	61.80
Ed.22	OG1	261.12	8.0	258.57	36.39
Ed.23	OG1	341.20	10.4	335.56	61.80
Ed.24	OG1	261.12	8.0	258.57	36.39
Ed.25	OG1	261.12	8.0	258.57	36.39
Ed.26	OG1	341.20	10.4	335.56	61.80
Ed.27	OG1	279.44	12.6	272.68	61.10
Ed.28	OG1	261.12	8.0	258.57	36.39
Ed.29	OG1	279.44	12.6	272.68	61.10
Ed.30	OG1	261.12	8.0	258.57	36.39
Ed.31	OG1	248.98	13.0	242.62	55.93
Ed.32	OG1	341.20	10.4	335.56	61.80
Ed.33	OG1	248.98	13.0	242.62	55.93
Ed.34	OG1	341.20	10.4	335.56	61.80
Ed.35	OG1	341.20	10.4	335.56	61.80
Ed.36	OG1	261.12	8.0	258.57	36.39
Ed.37	OG1	315.00	10.7	309.55	58.35
Ed.38	OG1	37.56	8.6	37.13	5.63
Ed.39	OG1	315.00	10.7	309.55	58.35
Ed.40	OG1	37.56	8.6	37.13	5.63
Ed.41	OG1	315.00	10.7	309.55	58.35
Ed.42	OG1	37.56	8.6	37.13	5.63
Ed.43	OG1	37.56	8.6	37.13	5.63
Ed.44	OG1	315.00	10.7	309.55	58.35
Ed.45	OG1	253.31	13.2	246.67	57.65
Ed.46	OG1	37.56	8.6	37.13	5.63
Ed.47	OG1	253.31	13.2	246.67	57.65

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.48	OG1	37.56	8.6	37.13	5.63
Ed.49	OG1	37.56	8.6	37.13	5.63
Ed.50	OG1	316.03	10.3	310.90	56.69
Ed.51	OG1	37.56	8.6	37.13	5.63
Ed.52	OG1	316.03	10.3	310.90	56.69
Ed.53	OG1	315.00	10.7	309.55	58.35
Ed.54	OG1	37.56	8.6	37.13	5.63

Gleichgewicht

ŊŜădzſűʎŜŊŜyŘŜ Yy2űŜy⁐ŊŅŦűŜ Ǝſ2ōl·f

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.46	270.0	0.00	-0.46	0.00
Ed.2	0.46	270.0	0.00	-0.46	0.00
Ed.3	0.46	270.0	0.00	-0.46	0.00
Ed.4	0.46	270.0	0.00	-0.46	0.00
Ed.5	0.46	270.0	0.00	-0.46	0.00
Ed.6	0.46	270.0	0.00	-0.46	0.00
Ed.7	0.46	270.0	0.00	-0.46	0.00
Ed.8	0.46	270.0	0.00	-0.46	0.00
Ed.9	0.46	270.0	0.00	-0.46	0.00
Ed.10	0.46	270.0	0.00	-0.46	0.00
Ed.11	0.46	270.0	0.00	-0.46	0.00
Ed.12	0.46	270.0	0.00	-0.46	0.00
Ed.13	0.46	270.0	0.00	-0.46	0.00
Ed.14	0.46	270.0	0.00	-0.46	0.00
Ed.15	0.46	270.0	0.00	-0.46	0.00
Ed.16	0.46	270.0	0.00	-0.46	0.00
Ed.17	0.46	270.0	0.00	-0.46	0.00
Ed.18	0.46	270.0	0.00	-0.46	0.00
Ed.19	0.46	270.0	0.00	-0.46	0.00
Ed.20	0.34	270.0	0.00	-0.34	0.00
Ed.21	0.46	270.0	0.00	-0.46	0.00
Ed.22	0.34	270.0	0.00	-0.34	0.00
Ed.23	0.46	270.0	0.00	-0.46	0.00
Ed.24	0.34	270.0	0.00	-0.34	0.00
Ed.25	0.34	270.0	0.00	-0.34	0.00
Ed.26	0.46	270.0	0.00	-0.46	0.00
Ed.27	0.46	270.0	0.00	-0.46	0.00
Ed.28	0.34	270.0	0.00	-0.34	0.00
Ed.29	0.46	270.0	0.00	-0.46	0.00
Ed.30	0.34	270.0	0.00	-0.34	0.00
Ed.31	0.34	270.0	0.00	-0.34	0.00
Ed.32	0.46	270.0	0.00	-0.46	0.00
Ed.33	0.34	270.0	0.00	-0.34	0.00
Ed.34	0.46	270.0	0.00	-0.46	0.00
Ed.35	0.46	270.0	0.00	-0.46	0.00
Ed.36	0.34	270.0	0.00	-0.34	0.00
Ed.37	0.34	270.0	0.00	-0.34	0.00
Ed.38	0.34	270.0	0.00	-0.34	0.00
Ed.39	0.34	270.0	0.00	-0.34	0.00

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.40	0.34	270.0	0.00	-0.34	0.00
Ed.41	0.34	270.0	0.00	-0.34	0.00
Ed.42	0.34	270.0	0.00	-0.34	0.00
Ed.43	0.34	270.0	0.00	-0.34	0.00
Ed.44	0.34	270.0	0.00	-0.34	0.00
Ed.45	0.34	270.0	0.00	-0.34	0.00
Ed.46	0.34	270.0	0.00	-0.34	0.00
Ed.47	0.34	270.0	0.00	-0.34	0.00
Ed.48	0.34	270.0	0.00	-0.34	0.00
Ed.49	0.34	270.0	0.00	-0.34	0.00
Ed.50	0.34	270.0	0.00	-0.34	0.00
Ed.51	0.34	270.0	0.00	-0.34	0.00
Ed.52	0.34	270.0	0.00	-0.34	0.00
Ed.53	0.34	270.0	0.00	-0.34	0.00
Ed.54	0.34	270.0	0.00	-0.34	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maügebenden Kombinationen

ăůŅyŘλЗκØ2ŊŇōŜŊЗɸ

Ek	KLED	ɿ (˩* ˏ *EW)
1	st	1.00*Ed.1
19	ku	1.00*Ed.19

st: ăůŅyŘλЗ
ku: kurz

Nachweise (GZT)

bIŎKøŜλăŜ λY DŊŜyÎÎdzăůIyŘ ŘŜŊ ¢ŊIЗŦŅKλЗƪŜλů yIŎK 5Ŀb 9b мффрπмπм

OG1

Nettoquerschnitt Holz $A_{ef,H}$ = 639.20 cm²

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	28.43	36.87	0.77

* je Verbindungsmittel

Biegung
Abs. 6.1

bIŎKøŜλă ŘŜŊ .λŜЗŜůŊIЗŦŅKλЗƪŜλů

EK	k_{mod}	N_d / M_d [kNm]	`0,d / `m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
19	0.90	-769.78	-12.04	19.38	0.49
		-9.53	-2.06	19.38	
rechts					
19	0.90	-434.18	-6.79	19.38	0.23
		-9.53	-2.06	19.38	

Querkraft
Abs. 6.1.7

bIŎKøŜλă ŘŜŊ vdzŜŊƪŊIŦůŊIЗŦŅKλЗƪŜλů

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
19	0.90	-31.28	-1.03	2.42	0.42
rechts					

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
19	0.90	30.06	0.99	2.42	0.41

Querzug

bI·ŎKǿŜǎ ŘŜ vdzŜĨdzƎǘI·ƎŦŅKƎƖŜǖ

Queranschluss h_e/h = 0.75 > 0.70

Der Querzugnachweis ist nicht erforderlich.

PF10

Nettoquerschnitt Holz	$A_{ef,H}$	=	376.00	cm²
Blech	$A_{ef,S}$	=	24.00	cm²
9ȄĨŜyǘIǎĨǘŅǘăōŜǎǿŜǘ	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	2.28	17.29	0.13

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜǎ ŘŜ b2ŊYI·ŦƖI·ŦǘI·ƎŦŅKƎƖŜǖ

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
1	0.60	2.28	0.06	6.86	0.01

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
19	3.29	1.37	275.00	0.00

DS20

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ȄĨŜyǘIǎĨǘŅǘăōŜǎǿŜǘ	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	35.72	36.79	0.97

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜǎ ŘŜ b2ŊYI·ŦƖI·ŦǘI·ƎŦŅKƎƖŜǖ

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
19	0.90	214.30	6.33	10.29	0.62

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
19	214.30	99.21	275.00	0.36

DS21

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²

9ÈÎŜyǘǚλÎλǘŅǘăōŜλøŜǚǘ k_{te} = 1.00

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	33.00	35.71	0.92

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜλă ŘŜǚ b2ǚYl·ƒʅǚl·ŦǘǚI·ƎŦŅKλƎʅŜλǘ

EK	k_{mod}	N_d [kN]	` $_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
19	0.90	-263.96	-7.80	19.38	0.40

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	` $_d$ [N/mm²]	` $_{R,d}$ [N/mm²]	'
19	-264.0	122.21	275.00	0.44

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

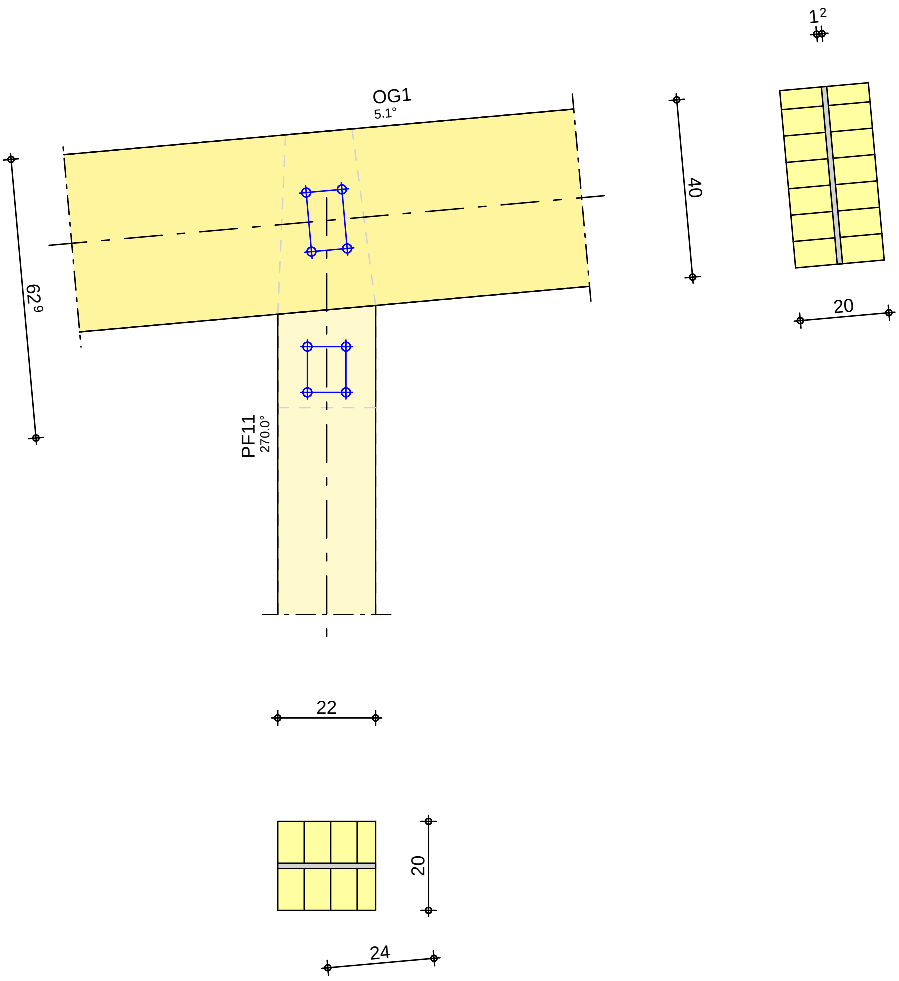
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	DS20	OK	0.97
Stabquerschnitt	DS20	OK	0.62
Blechquerschnitt	DS21	OK	0.44

Pos. T2_DA_3-O9 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	15	BSH GL28h[f]
PF11	1	270.0	20/22	21	BSH GL28h[f]

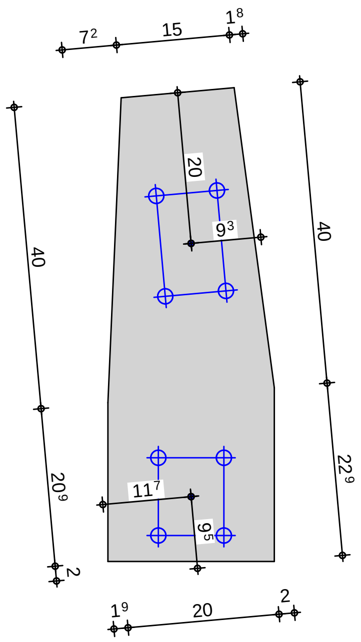
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	2x2	Passbolzen	M20	8.8
PF11	2x2	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen — Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O9	links	-149.01	-7.95	-0.68
	(a)	OG1	O9	rechts	-150.36	7.20	-0.68
	(a)	PF11	O9		-15.21		
Einw. *Ed.2*	(a)	OG1	O9	links	-149.01	-7.95	-0.68
	(a)	OG1	O9	rechts	-150.36	7.20	-0.68
	(a)	PF11	O9		-15.21		
Einw. *Ed.3*	(a)	OG1	O9	links	-149.01	-7.95	-0.68
	(a)	OG1	O9	rechts	-150.36	7.20	-0.68
	(a)	PF11	O9		-15.21		
Einw. *Ed.4*	(a)	OG1	O9	links	-149.01	-7.95	-0.68
	(a)	OG1	O9	rechts	-150.36	7.20	-0.68
	(a)	PF11	O9		-15.21		
Einw. *Ed.5*	(a)	OG1	O9	links	-149.01	-7.95	-0.68
	(a)	OG1	O9	rechts	-150.36	7.20	-0.68
	(a)	PF11	O9		-15.21		
Einw. *Ed.6*	(a)	OG1	O9	links	-149.01	-7.95	-0.68
	(a)	OG1	O9	rechts	-150.36	7.20	-0.68
	(a)	PF11	O9		-15.21		
Einw. *Ed.7*	(a)	OG1	O9	links	-149.01	-7.95	-0.68
	(a)	OG1	O9	rechts	-150.36	7.20	-0.68
	(a)	PF11	O9		-15.21		
Einw. *Ed.8*	(a)	OG1	O9	links	-149.01	-7.95	-0.68
	(a)	OG1	O9	rechts	-150.36	7.20	-0.68

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF11	O9		-15.21		
Einw. *Ed.9*	(a) OG1	O9	links	-149.01	-7.95	-0.68
	(a) OG1	O9	rechts	-150.36	7.20	-0.68
	(a) PF11	O9		-15.21		
Einw. *Ed.10*	(a) OG1	O9	links	-149.01	-7.95	-0.68
	(a) OG1	O9	rechts	-150.36	7.20	-0.68
	(a) PF11	O9		-15.21		
Einw. *Ed.11*	(a) OG1	O9	links	-149.01	-7.95	-0.68
	(a) OG1	O9	rechts	-150.36	7.20	-0.68
	(a) PF11	O9		-15.21		
Einw. *Ed.12*	(a) OG1	O9	links	-149.01	-7.95	-0.68
	(a) OG1	O9	rechts	-150.36	7.20	-0.68
	(a) PF11	O9		-15.21		
Einw. *Ed.13*	(a) OG1	O9	links	-149.01	-7.95	-0.68
	(a) OG1	O9	rechts	-150.36	7.20	-0.68
	(a) PF11	O9		-15.21		
Einw. *Ed.14*	(a) OG1	O9	links	-149.01	-7.95	-0.68
	(a) OG1	O9	rechts	-150.36	7.20	-0.68
	(a) PF11	O9		-15.21		
Einw. *Ed.15*	(a) OG1	O9	links	-429.24	-25.28	-2.96
	(a) OG1	O9	rechts	-433.57	23.16	-2.96
	(a) PF11	O9		-48.63		
Einw. *Ed.16*	(a) OG1	O9	links	-295.76	-14.43	-1.02
	(a) OG1	O9	rechts	-298.22	13.07	-1.02
	(a) PF11	O9		-27.60		
Einw. *Ed.17*	(a) OG1	O9	links	-429.24	-25.28	-2.96
	(a) OG1	O9	rechts	-433.57	23.16	-2.96
	(a) PF11	O9		-48.63		
Einw. *Ed.18*	(a) OG1	O9	links	-295.76	-14.43	-1.02
	(a) OG1	O9	rechts	-298.22	13.07	-1.02
	(a) PF11	O9		-27.60		
Einw. *Ed.19*	(a) OG1	O9	links	-383.96	-25.41	-3.59
	(a) OG1	O9	rechts	-388.33	23.40	-3.59
	(a) PF11	O9		-49.00		
Einw. *Ed.20*	(a) OG1	O9	links	-295.76	-14.43	-1.02
	(a) OG1	O9	rechts	-298.22	13.07	-1.02
	(a) PF11	O9		-27.60		
Einw. *Ed.21*	(a) OG1	O9	links	-295.76	-14.43	-1.02
	(a) OG1	O9	rechts	-298.22	13.07	-1.02
	(a) PF11	O9		-27.60		
Einw. *Ed.22*	(a) OG1	O9	links	-383.96	-25.41	-3.59
	(a) OG1	O9	rechts	-388.33	23.40	-3.59
	(a) PF11	O9		-49.00		
Einw. *Ed.23*	(a) OG1	O9	links	-383.96	-25.41	-3.59
	(a) OG1	O9	rechts	-388.33	23.40	-3.59
	(a) PF11	O9		-49.00		
Einw. *Ed.24*	(a) OG1	O9	links	-295.76	-14.43	-1.02
	(a) OG1	O9	rechts	-298.22	13.07	-1.02
	(a) PF11	O9		-27.60		
Einw. *Ed.25*	(a) OG1	O9	links	-383.96	-25.41	-3.59

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	OG1	O9	rechts	-388.33	23.40	-3.59
	(a)	PF11	O9		-49.00		
Einw. *Ed.26*	(a)	OG1	O9	links	-295.76	-14.43	-1.02
	(a)	OG1	O9	rechts	-298.22	13.07	-1.02
	(a)	PF11	O9		-27.60		
Einw. *Ed.27*	(a)	OG1	O9	links	-383.96	-25.41	-3.59
	(a)	OG1	O9	rechts	-388.33	23.40	-3.59
	(a)	PF11	O9		-49.00		
Einw. *Ed.28*	(a)	OG1	O9	links	-295.76	-14.43	-1.02
	(a)	OG1	O9	rechts	-298.22	13.07	-1.02
	(a)	PF11	O9		-27.60		
Einw. *Ed.29*	(a)	OG1	O9	links	-398.44	-23.97	-2.93
	(a)	OG1	O9	rechts	-402.55	21.99	-2.93
	(a)	PF11	O9		-46.14		
Einw. *Ed.30*	(a)	OG1	O9	links	-49.94	-2.08	0.00
	(a)	OG1	O9	rechts	-50.29	1.83	0.00
	(a)	PF11	O9		-3.93		
Einw. *Ed.31*	(a)	OG1	O9	links	-398.44	-23.97	-2.93
	(a)	OG1	O9	rechts	-402.55	21.99	-2.93
	(a)	PF11	O9		-46.14		
Einw. *Ed.32*	(a)	OG1	O9	links	-49.94	-2.08	0.00
	(a)	OG1	O9	rechts	-50.29	1.83	0.00
	(a)	PF11	O9		-3.93		
Einw. *Ed.33*	(a)	OG1	O9	links	-353.17	-24.10	-3.56
	(a)	OG1	O9	rechts	-357.31	22.23	-3.56
	(a)	PF11	O9		-46.52		
Einw. *Ed.34*	(a)	OG1	O9	links	-49.94	-2.08	0.00
	(a)	OG1	O9	rechts	-50.29	1.83	0.00
	(a)	PF11	O9		-3.93		
Einw. *Ed.35*	(a)	OG1	O9	links	-49.94	-2.08	0.00
	(a)	OG1	O9	rechts	-50.29	1.83	0.00
	(a)	PF11	O9		-3.93		
Einw. *Ed.36*	(a)	OG1	O9	links	-353.17	-24.10	-3.56
	(a)	OG1	O9	rechts	-357.31	22.23	-3.56
	(a)	PF11	O9		-46.52		
Einw. *Ed.37*	(a)	OG1	O9	links	-353.17	-24.10	-3.56
	(a)	OG1	O9	rechts	-357.31	22.23	-3.56
	(a)	PF11	O9		-46.52		
Einw. *Ed.38*	(a)	OG1	O9	links	-49.94	-2.08	0.00
	(a)	OG1	O9	rechts	-50.29	1.83	0.00
	(a)	PF11	O9		-3.93		
Einw. *Ed.39*	(a)	OG1	O9	links	-353.17	-24.10	-3.56
	(a)	OG1	O9	rechts	-357.31	22.23	-3.56
	(a)	PF11	O9		-46.52		
Einw. *Ed.40*	(a)	OG1	O9	links	-49.94	-2.08	0.00
	(a)	OG1	O9	rechts	-50.29	1.83	0.00
	(a)	PF11	O9		-3.93		
Einw. *Ed.41*	(a)	OG1	O9	links	-353.17	-24.10	-3.56
	(a)	OG1	O9	rechts	-357.31	22.23	-3.56
	(a)	PF11	O9		-46.52		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.42*	(a)	OG1	O9	links	-49.94	-2.08	0.00
	(a)	OG1	O9	rechts	-50.29	1.83	0.00
	(a)	PF11	O9		-3.93		

(a) aus Pos. 'T2_DA_2', Ort 'O9' (Seite 191)

! yãŎKfdzăăʅNJŅŦűŜ

NJŜădzfűλŜNJŜyŘŜ ! yãŎKfdzăăʅNJŅŦűŜ ŦÑNJ ŘŜy I I·dzLJűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	OG1	15.21	95.1	-1.35	15.15
Ed.2	OG1	15.21	95.1	-1.35	15.15
Ed.3	OG1	15.21	95.1	-1.35	15.15
Ed.4	OG1	15.21	95.1	-1.35	15.15
Ed.5	OG1	15.21	95.1	-1.35	15.15
Ed.6	OG1	15.21	95.1	-1.35	15.15
Ed.7	OG1	15.21	95.1	-1.35	15.15
Ed.8	OG1	15.21	95.1	-1.35	15.15
Ed.9	OG1	15.21	95.1	-1.35	15.15
Ed.10	OG1	15.21	95.1	-1.35	15.15
Ed.11	OG1	15.21	95.1	-1.35	15.15
Ed.12	OG1	15.21	95.1	-1.35	15.15
Ed.13	OG1	15.21	95.1	-1.35	15.15
Ed.14	OG1	15.21	95.1	-1.35	15.15
Ed.15	OG1	48.63	95.1	-4.33	48.44
Ed.16	OG1	27.60	95.1	-2.46	27.49
Ed.17	OG1	48.63	95.1	-4.33	48.44
Ed.18	OG1	27.60	95.1	-2.46	27.49
Ed.19	OG1	49.00	95.1	-4.36	48.81
Ed.20	OG1	27.60	95.1	-2.46	27.49
Ed.21	OG1	27.60	95.1	-2.46	27.49
Ed.22	OG1	49.00	95.1	-4.36	48.81
Ed.23	OG1	49.00	95.1	-4.36	48.81
Ed.24	OG1	27.60	95.1	-2.46	27.49
Ed.25	OG1	49.00	95.1	-4.36	48.81
Ed.26	OG1	27.60	95.1	-2.46	27.49
Ed.27	OG1	49.00	95.1	-4.36	48.81
Ed.28	OG1	27.60	95.1	-2.46	27.49
Ed.29	OG1	46.14	95.1	-4.11	45.96
Ed.30	OG1	3.93	95.1	-0.35	3.92
Ed.31	OG1	46.14	95.1	-4.11	45.96
Ed.32	OG1	3.93	95.1	-0.35	3.92
Ed.33	OG1	46.52	95.1	-4.14	46.33
Ed.34	OG1	3.93	95.1	-0.35	3.92
Ed.35	OG1	3.93	95.1	-0.35	3.92
Ed.36	OG1	46.52	95.1	-4.14	46.33
Ed.37	OG1	46.52	95.1	-4.14	46.33
Ed.38	OG1	3.93	95.1	-0.35	3.92
Ed.39	OG1	46.52	95.1	-4.14	46.33
Ed.40	OG1	3.93	95.1	-0.35	3.92
Ed.41	OG1	46.52	95.1	-4.14	46.33

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.42	OG1	3.93	95.1	-0.35	3.92

Gleichgewicht

ŊŜădzťűʎŜŊŜyŘŜ Yy2űŜy˥ŊŅŦűŜ Ǝť2ōl·ť

		F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1		0.00		0.00	0.00	0.00
Ed.2		0.00		0.00	0.00	0.00
Ed.3		0.00		0.00	0.00	0.00
Ed.4		0.00		0.00	0.00	0.00
Ed.5		0.00		0.00	0.00	0.00
Ed.6		0.00		0.00	0.00	0.00
Ed.7		0.00		0.00	0.00	0.00
Ed.8		0.00		0.00	0.00	0.00
Ed.9		0.00		0.00	0.00	0.00
Ed.10		0.00		0.00	0.00	0.00
Ed.11		0.00		0.00	0.00	0.00
Ed.12		0.00		0.00	0.00	0.00
Ed.13		0.00		0.00	0.00	0.00
Ed.14		0.00		0.00	0.00	0.00
Ed.15		0.00		0.00	0.00	0.00
Ed.16		0.00		0.00	0.00	0.00
Ed.17		0.00		0.00	0.00	0.00
Ed.18		0.00		0.00	0.00	0.00
Ed.19		0.00		0.00	0.00	0.00
Ed.20		0.00		0.00	0.00	0.00
Ed.21		0.00		0.00	0.00	0.00
Ed.22		0.00		0.00	0.00	0.00
Ed.23		0.00		0.00	0.00	0.00
Ed.24		0.00		0.00	0.00	0.00
Ed.25		0.00		0.00	0.00	0.00
Ed.26		0.00		0.00	0.00	0.00
Ed.27		0.00		0.00	0.00	0.00
Ed.28		0.00		0.00	0.00	0.00
Ed.29		0.00		0.00	0.00	0.00
Ed.30		0.00		0.00	0.00	0.00
Ed.31		0.00		0.00	0.00	0.00
Ed.32		0.00		0.00	0.00	0.00
Ed.33		0.00		0.00	0.00	0.00
Ed.34		0.00		0.00	0.00	0.00
Ed.35		0.00		0.00	0.00	0.00
Ed.36		0.00		0.00	0.00	0.00
Ed.37		0.00		0.00	0.00	0.00
Ed.38		0.00		0.00	0.00	0.00
Ed.39		0.00		0.00	0.00	0.00
Ed.40		0.00		0.00	0.00	0.00
Ed.41		0.00		0.00	0.00	0.00
Ed.42		0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ăŭŅyŘƛƎкǾƻŊŇōŜŊƎɸ

Ek	KLED	ʅ (ᴶ * ˛ *EW)
19	ku	1.00*Ed.19

ku: kurz

Nachweise (GZT)

bΙŎKǿŜƛăŜ ƛΥ DŊŜyΊΊdzăŭΙyŘ ŘŜŊ ¢ŊΙƎŦŅKƛƎʅŜƛŭ yΙŎK 5Lb 9b мффрπмπм

OG1

Nettoquerschnitt Holz	$A_{ef,H}$	=	676.80	cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	12.25	36.07	0.34

* je Verbindungsmittel

Biegung
Abs. 6.1

bΙŎKǿŜƛă ŘŜŊ .ƛŜƎŜŭŊΙƎŦŅKƛƎʅŜƛŭ

EK	k_{mod}	N_d / M_d [kNm]	` $_{0,d}$ / ` $_{m,d}$ [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
15	0.90	-429.24	-6.34	19.38	0.14
		-2.96	-0.61	19.38	
rechts					
15	0.90	-433.57	-6.41	19.38	0.14
		-2.96	-0.61	19.38	

Querkraft
Abs. 6.1.7

bΙŎKǿŜƛă ŘŜŊ vdzŜŊʅŊΙŦŭŊΙƎŦŅKƛƎʅŜƛŭ

EK	k_{mod}	V_d [kN]	_ $_d$ [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
19	0.90	-25.41	-0.79	2.42	0.33
rechts					
19	0.90	23.40	0.73	2.42	0.30

Querzug

bΙŎKǿŜƛă ŘŜŊ vdzŜŊΊdzƎŭŊΙƎŦŅKƛƎʅŜƛŭ

Queranschluss	h_e/h	=	0.67	Ж 0.70

dzyǾŜŊăŭŅŊʅŭ

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
19	0.90	24.40	36.72	0.66

PF11

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈΊŜyŭŊƛΊƛŭŅŭăōŜƛǿŜŊŭ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	12.25	38.38	0.32

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜƛă ŘŜ₪ b2₪ƳI·ƭʅ₪I·ŦΰΰI·ƎŦŅKƛƎʅŜƛΰ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm^2]	$f_{0,d}$ [N/mm^2]	'
19	0.90	-49.00	-1.45	19.38	0.07

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
19	-49.00	22.69	275.00	0.08

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

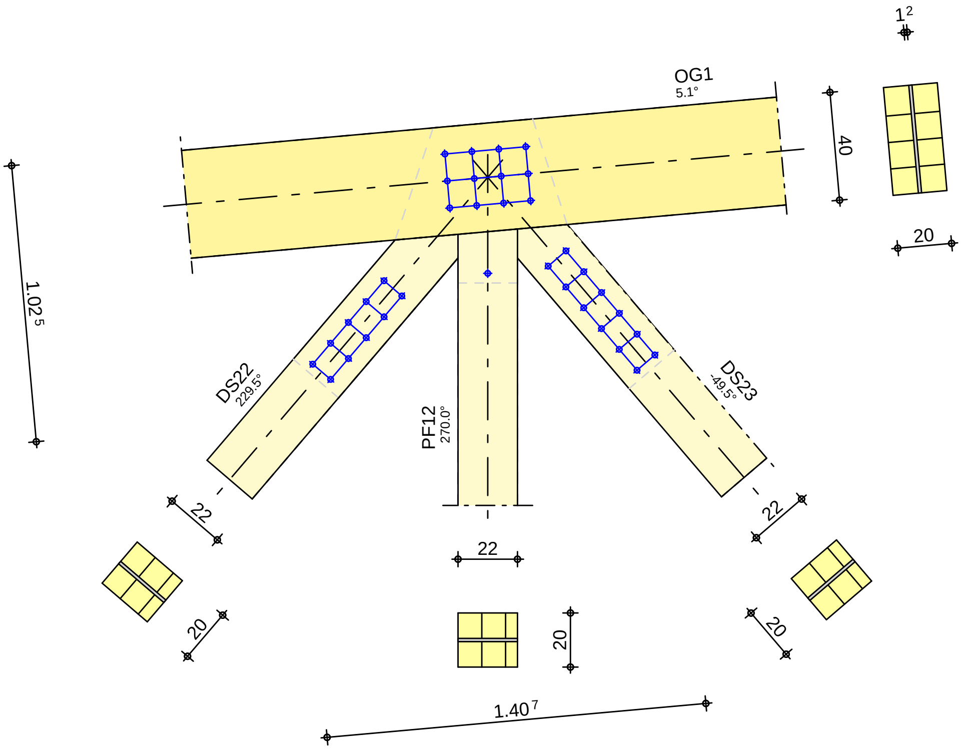
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	OG1	OK	0.34
Stabquerschnitt	OG1	OK	0.33
Blechquerschnitt	PF11	OK	0.08

Pos. T2_DA_3-O10 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:28

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώcβ	b/h [cm]	ue [cm]	Material
OG1	1	5.1	20/40	37	BSH GL28h[f]
PF12	1	270.0	20/22	18	BSH GL28h[f]
DS22	1	229.5	20/22	58	BSH GL28h[f]
DS23	1	-49.5	20/22	61	BSH GL28h[f]

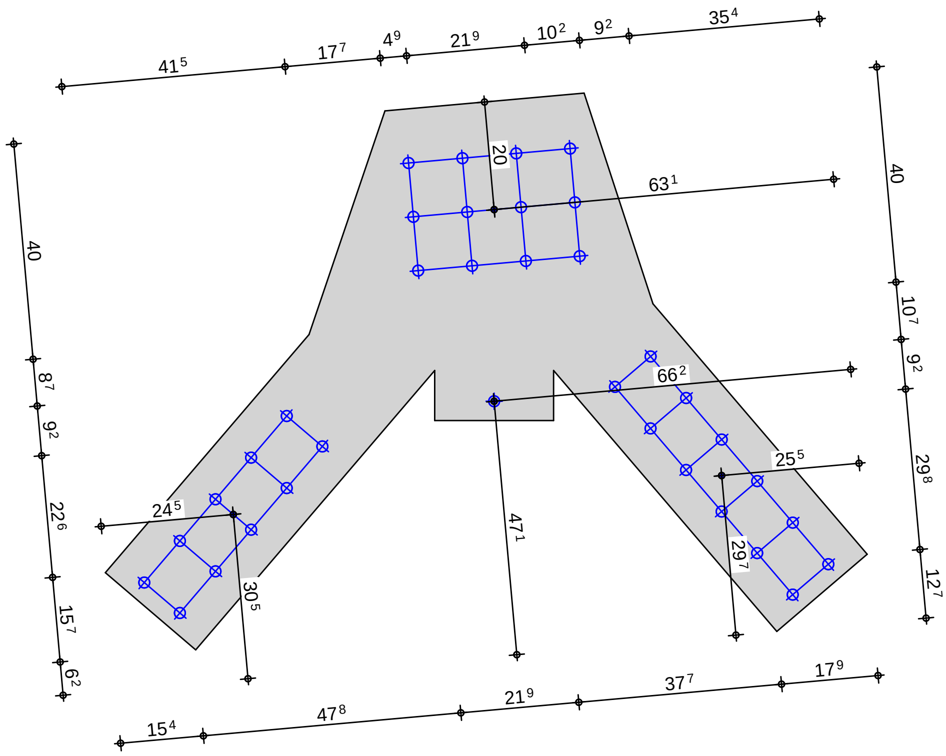
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	4x3	Passbolzen	M20	8.8
PF12	1x1	Passbolzen	M20	8.8
DS22	5x2	Passbolzen	M20	8.8
DS23	6x2	Passbolzen	M20	8.8

Blech
M 1:14



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O10	links	-148.80	-10.27	-4.91
	(a)	OG1	O10	rechts	-0.94	10.52	-4.91
	(a)	PF12	O10		2.22		
	(a)	DS22	O10		108.04		
	(a)	DS23	O10		-121.44		
Einw. *Ed.2*	(a)	OG1	O10	links	-148.80	-10.27	-4.91
	(a)	OG1	O10	rechts	-0.94	10.52	-4.91
	(a)	PF12	O10		2.22		
	(a)	DS22	O10		108.04		
	(a)	DS23	O10		-121.44		
Einw. *Ed.3*	(a)	OG1	O10	links	-148.80	-10.27	-4.91
	(a)	OG1	O10	rechts	-0.94	10.52	-4.91
	(a)	PF12	O10		2.22		
	(a)	DS22	O10		108.04		
	(a)	DS23	O10		-121.44		
Einw. *Ed.4*	(a)	OG1	O10	links	-148.80	-10.27	-4.91
	(a)	OG1	O10	rechts	-0.94	10.52	-4.91
	(a)	PF12	O10		2.22		
	(a)	DS22	O10		108.04		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS23	O10		-121.44		
Einw. *Ed.5*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.6*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.7*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.8*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.9*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.10*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.11*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.12*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.13*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		
	(a) DS23	O10		-121.44		
Einw. *Ed.14*	(a) OG1	O10	links	-148.80	-10.27	-4.91
	(a) OG1	O10	rechts	-0.94	10.52	-4.91
	(a) PF12	O10		2.22		
	(a) DS22	O10		108.04		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	DS23	O10		-121.44		
Einw. *Ed.15*	(a)	OG1	O10	links	-148.80	-10.27	-4.91
	(a)	OG1	O10	rechts	-0.94	10.52	-4.91
	(a)	PF12	O10		2.22		
	(a)	DS22	O10		108.04		
	(a)	DS23	O10		-121.44		
Einw. *Ed.16*	(a)	OG1	O10	links	-148.80	-10.27	-4.91
	(a)	OG1	O10	rechts	-0.94	10.52	-4.91
	(a)	PF12	O10		2.22		
	(a)	DS22	O10		108.04		
	(a)	DS23	O10		-121.44		
Einw. *Ed.17*	(a)	OG1	O10	links	-148.80	-10.27	-4.91
	(a)	OG1	O10	rechts	-0.94	10.52	-4.91
	(a)	PF12	O10		2.22		
	(a)	DS22	O10		108.04		
	(a)	DS23	O10		-121.44		
Einw. *Ed.18*	(a)	OG1	O10	links	-148.80	-10.27	-4.91
	(a)	OG1	O10	rechts	-0.94	10.52	-4.91
	(a)	PF12	O10		2.22		
	(a)	DS22	O10		108.04		
	(a)	DS23	O10		-121.44		
Einw. *Ed.19*	(a)	OG1	O10	links	-428.62	-32.19	-15.38
	(a)	OG1	O10	rechts	-2.94	32.86	-15.38
	(a)	PF12	O10		2.59		
	(a)	DS22	O10		311.04		
	(a)	DS23	O10		-350.36		
Einw. *Ed.20*	(a)	OG1	O10	links	-295.37	-18.81	-8.92
	(a)	OG1	O10	rechts	-1.70	18.98	-8.92
	(a)	PF12	O10		2.04		
	(a)	DS22	O10		218.56		
	(a)	DS23	O10		-236.76		
Einw. *Ed.21*	(a)	OG1	O10	links	-428.62	-32.19	-15.38
	(a)	OG1	O10	rechts	-2.94	32.86	-15.38
	(a)	PF12	O10		2.59		
	(a)	DS22	O10		311.04		
	(a)	DS23	O10		-350.36		
Einw. *Ed.22*	(a)	OG1	O10	links	-295.37	-18.81	-8.92
	(a)	OG1	O10	rechts	-1.70	18.98	-8.92
	(a)	PF12	O10		2.04		
	(a)	DS22	O10		218.56		
	(a)	DS23	O10		-236.76		
Einw. *Ed.23*	(a)	OG1	O10	links	-428.62	-32.19	-15.38
	(a)	OG1	O10	rechts	-2.94	32.86	-15.38
	(a)	PF12	O10		2.59		
	(a)	DS22	O10		311.04		
	(a)	DS23	O10		-350.36		
Einw. *Ed.24*	(a)	OG1	O10	links	-295.37	-18.81	-8.92
	(a)	OG1	O10	rechts	-1.70	18.98	-8.92
	(a)	PF12	O10		2.04		
	(a)	DS22	O10		218.56		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS23	O10		-236.76		
Einw. *Ed.25*	(a) OG1	O10	links	-295.37	-18.81	-8.92
	(a) OG1	O10	rechts	-1.70	18.98	-8.92
	(a) PF12	O10		2.04		
	(a) DS22	O10		218.56		
	(a) DS23	O10		-236.76		
Einw. *Ed.26*	(a) OG1	O10	links	-428.62	-32.19	-15.38
	(a) OG1	O10	rechts	-2.94	32.86	-15.38
	(a) PF12	O10		2.59		
	(a) DS22	O10		311.04		
	(a) DS23	O10		-350.36		
Einw. *Ed.27*	(a) OG1	O10	links	-428.62	-32.19	-15.38
	(a) OG1	O10	rechts	-2.94	32.86	-15.38
	(a) PF12	O10		2.59		
	(a) DS22	O10		311.04		
	(a) DS23	O10		-350.36		
Einw. *Ed.28*	(a) OG1	O10	links	-295.37	-18.81	-8.92
	(a) OG1	O10	rechts	-1.70	18.98	-8.92
	(a) PF12	O10		2.04		
	(a) DS22	O10		218.56		
	(a) DS23	O10		-236.76		
Einw. *Ed.29*	(a) OG1	O10	links	-428.62	-32.19	-15.38
	(a) OG1	O10	rechts	-2.94	32.86	-15.38
	(a) PF12	O10		2.59		
	(a) DS22	O10		311.04		
	(a) DS23	O10		-350.36		
Einw. *Ed.30*	(a) OG1	O10	links	-295.37	-18.81	-8.92
	(a) OG1	O10	rechts	-1.70	18.98	-8.92
	(a) PF12	O10		2.04		
	(a) DS22	O10		218.56		
	(a) DS23	O10		-236.76		
Einw. *Ed.31*	(a) OG1	O10	links	-344.80	-29.28	-14.06
	(a) OG1	O10	rechts	-2.69	30.11	-14.06
	(a) PF12	O10		1.81		
	(a) DS22	O10		246.00		
	(a) DS23	O10		-286.53		
Einw. *Ed.32*	(a) OG1	O10	links	-333.95	-21.47	-10.19
	(a) OG1	O10	rechts	-1.94	21.71	-10.19
	(a) PF12	O10		2.61		
	(a) DS22	O10		246.57		
	(a) DS23	O10		-268.24		
Einw. *Ed.33*	(a) OG1	O10	links	-295.37	-18.81	-8.92
	(a) OG1	O10	rechts	-1.70	18.98	-8.92
	(a) PF12	O10		2.04		
	(a) DS22	O10		218.56		
	(a) DS23	O10		-236.76		
Einw. *Ed.34*	(a) OG1	O10	links	-428.62	-32.19	-15.38
	(a) OG1	O10	rechts	-2.94	32.86	-15.38
	(a) PF12	O10		2.59		
	(a) DS22	O10		311.04		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	DS23	O10		-350.36		
Einw. *Ed.35*	(a)	OG1	O10	links	-428.62	-32.19	-15.38
	(a)	OG1	O10	rechts	-2.94	32.86	-15.38
	(a)	PF12	O10		2.59		
	(a)	DS22	O10		311.04		
	(a)	DS23	O10		-350.36		
Einw. *Ed.36*	(a)	OG1	O10	links	-295.37	-18.81	-8.92
	(a)	OG1	O10	rechts	-1.70	18.98	-8.92
	(a)	PF12	O10		2.04		
	(a)	DS22	O10		218.56		
	(a)	DS23	O10		-236.76		
Einw. *Ed.37*	(a)	OG1	O10	links	-398.00	-30.43	-14.54
	(a)	OG1	O10	rechts	-2.66	31.08	-14.54
	(a)	PF12	O10		2.01		
	(a)	DS22	O10		288.54		
	(a)	DS23	O10		-325.87		
Einw. *Ed.38*	(a)	OG1	O10	links	-49.14	-2.82	-1.36
	(a)	OG1	O10	rechts	-0.89	2.91	-1.36
	(a)	PF12	O10		1.57		
	(a)	DS22	O10		35.20		
	(a)	DS23	O10		-39.53		
Einw. *Ed.39*	(a)	OG1	O10	links	-353.39	-26.65	-12.73
	(a)	OG1	O10	rechts	-2.81	27.20	-12.73
	(a)	PF12	O10		1.97		
	(a)	DS22	O10		256.13		
	(a)	DS23	O10		-288.62		
Einw. *Ed.40*	(a)	OG1	O10	links	-116.70	-7.64	-3.65
	(a)	OG1	O10	rechts	-0.70	7.80	-3.65
	(a)	PF12	O10		1.67		
	(a)	DS22	O10		85.34		
	(a)	DS23	O10		-94.59		
Einw. *Ed.41*	(a)	OG1	O10	links	-398.00	-30.43	-14.54
	(a)	OG1	O10	rechts	-2.66	31.08	-14.54
	(a)	PF12	O10		2.01		
	(a)	DS22	O10		288.54		
	(a)	DS23	O10		-325.87		
Einw. *Ed.42*	(a)	OG1	O10	links	-49.14	-2.82	-1.36
	(a)	OG1	O10	rechts	-0.89	2.91	-1.36
	(a)	PF12	O10		1.57		
	(a)	DS22	O10		35.20		
	(a)	DS23	O10		-39.53		
Einw. *Ed.43*	(a)	OG1	O10	links	-49.14	-2.82	-1.36
	(a)	OG1	O10	rechts	-0.89	2.91	-1.36
	(a)	PF12	O10		1.57		
	(a)	DS22	O10		35.20		
	(a)	DS23	O10		-39.53		
Einw. *Ed.44*	(a)	OG1	O10	links	-398.00	-30.43	-14.54
	(a)	OG1	O10	rechts	-2.66	31.08	-14.54
	(a)	PF12	O10		2.01		
	(a)	DS22	O10		288.54		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	DS23	O10		-325.87		
Einw. *Ed.45*	(a)	OG1	O10	links	-398.00	-30.43	-14.54
	(a)	OG1	O10	rechts	-2.66	31.08	-14.54
	(a)	PF12	O10		2.01		
	(a)	DS22	O10		288.54		
	(a)	DS23	O10		-325.87		
Einw. *Ed.46*	(a)	OG1	O10	links	-49.14	-2.82	-1.36
	(a)	OG1	O10	rechts	-0.89	2.91	-1.36
	(a)	PF12	O10		1.57		
	(a)	DS22	O10		35.20		
	(a)	DS23	O10		-39.53		
Einw. *Ed.47*	(a)	OG1	O10	links	-398.00	-30.43	-14.54
	(a)	OG1	O10	rechts	-2.66	31.08	-14.54
	(a)	PF12	O10		2.01		
	(a)	DS22	O10		288.54		
	(a)	DS23	O10		-325.87		
Einw. *Ed.48*	(a)	OG1	O10	links	-49.14	-2.82	-1.36
	(a)	OG1	O10	rechts	-0.89	2.91	-1.36
	(a)	PF12	O10		1.57		
	(a)	DS22	O10		35.20		
	(a)	DS23	O10		-39.53		
Einw. *Ed.49*	(a)	OG1	O10	links	-49.14	-2.82	-1.36
	(a)	OG1	O10	rechts	-0.89	2.91	-1.36
	(a)	PF12	O10		1.57		
	(a)	DS22	O10		35.20		
	(a)	DS23	O10		-39.53		
Einw. *Ed.50*	(a)	OG1	O10	links	-299.26	-18.83	-8.92
	(a)	OG1	O10	rechts	-1.70	18.98	-8.92
	(a)	PF12	O10		2.06		
	(a)	DS22	O10		221.74		
	(a)	DS23	O10		-239.54		
Einw. *Ed.51*	(a)	OG1	O10	links	-49.14	-2.82	-1.36
	(a)	OG1	O10	rechts	-0.89	2.91	-1.36
	(a)	PF12	O10		1.57		
	(a)	DS22	O10		35.20		
	(a)	DS23	O10		-39.53		
Einw. *Ed.52*	(a)	OG1	O10	links	-398.00	-30.43	-14.54
	(a)	OG1	O10	rechts	-2.66	31.08	-14.54
	(a)	PF12	O10		2.01		
	(a)	DS22	O10		288.54		
	(a)	DS23	O10		-325.87		
Einw. *Ed.53*	(a)	OG1	O10	links	-398.00	-30.43	-14.54
	(a)	OG1	O10	rechts	-2.66	31.08	-14.54
	(a)	PF12	O10		2.01		
	(a)	DS22	O10		288.54		
	(a)	DS23	O10		-325.87		
Einw. *Ed.54*	(a)	OG1	O10	links	-49.14	-2.82	-1.36
	(a)	OG1	O10	rechts	-0.89	2.91	-1.36
	(a)	PF12	O10		1.57		
	(a)	DS22	O10		35.20		

Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
(a) DS23	O10		-39.53		

(a) aus Pos. 'T2_DA_2', Ort 'O10' (Seite 191)

! ÿãÕKfdzăăʅǋŅŦűŜ

ǋŜădzfűʎŜǋŜyŘŜ ! yãÕKfdzăăʅǋŅŦűŜ ŦÑǋ ŘŜy I I·dzĿJűăűl·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	OG1	149.34	8.2	147.82	21.21
Ed.2	OG1	149.34	8.2	147.82	21.21
Ed.3	OG1	149.34	8.2	147.82	21.21
Ed.4	OG1	149.34	8.2	147.82	21.21
Ed.5	OG1	149.34	8.2	147.82	21.21
Ed.6	OG1	149.34	8.2	147.82	21.21
Ed.7	OG1	149.34	8.2	147.82	21.21
Ed.8	OG1	149.34	8.2	147.82	21.21
Ed.9	OG1	149.34	8.2	147.82	21.21
Ed.10	OG1	149.34	8.2	147.82	21.21
Ed.11	OG1	149.34	8.2	147.82	21.21
Ed.12	OG1	149.34	8.2	147.82	21.21
Ed.13	OG1	149.34	8.2	147.82	21.21
Ed.14	OG1	149.34	8.2	147.82	21.21
Ed.15	OG1	149.34	8.2	147.82	21.21
Ed.16	OG1	149.34	8.2	147.82	21.21
Ed.17	OG1	149.34	8.2	147.82	21.21
Ed.18	OG1	149.34	8.2	147.82	21.21
Ed.19	OG1	430.65	8.7	425.64	65.46
Ed.20	OG1	296.11	7.4	293.65	38.10
Ed.21	OG1	430.65	8.7	425.64	65.46
Ed.22	OG1	296.11	7.4	293.65	38.10
Ed.23	OG1	430.65	8.7	425.64	65.46
Ed.24	OG1	296.11	7.4	293.65	38.10
Ed.25	OG1	296.11	7.4	293.65	38.10
Ed.26	OG1	430.65	8.7	425.64	65.46
Ed.27	OG1	430.65	8.7	425.64	65.46
Ed.28	OG1	296.11	7.4	293.65	38.10
Ed.29	OG1	430.65	8.7	425.64	65.46
Ed.30	OG1	296.11	7.4	293.65	38.10
Ed.31	OG1	347.25	9.9	342.08	59.70
Ed.32	OG1	334.82	7.5	331.97	43.60
Ed.33	OG1	296.11	7.4	293.65	38.10
Ed.34	OG1	430.65	8.7	425.64	65.46
Ed.35	OG1	430.65	8.7	425.64	65.46
Ed.36	OG1	296.11	7.4	293.65	38.10
Ed.37	OG1	400.12	8.9	395.32	61.82
Ed.38	OG1	48.59	7.1	48.22	6.04
Ed.39	OG1	354.71	8.8	350.55	54.16
Ed.40	OG1	117.04	7.7	115.98	15.75
Ed.41	OG1	400.12	8.9	395.32	61.82
Ed.42	OG1	48.59	7.1	48.22	6.04
Ed.43	OG1	48.59	7.1	48.22	6.04

	Stab	FRes [kN]	hRes ώcϐ	N [kN]	V [kN]
Ed.44	OG1	400.12	8.9	395.32	61.82
Ed.45	OG1	400.12	8.9	395.32	61.82
Ed.46	OG1	48.59	7.1	48.22	6.04
Ed.47	OG1	400.12	8.9	395.32	61.82
Ed.48	OG1	48.59	7.1	48.22	6.04
Ed.49	OG1	48.59	7.1	48.22	6.04
Ed.50	OG1	299.97	7.3	297.53	38.12
Ed.51	OG1	48.59	7.1	48.22	6.04
Ed.52	OG1	400.12	8.9	395.32	61.82
Ed.53	OG1	400.12	8.9	395.32	61.82
Ed.54	OG1	48.59	7.1	48.22	6.04

Gleichgewicht

ŊŜădzťŭʎŜŊŜyŘŜ Yy2ŭŜy1ŊŅŦŭŜ Ǝť2ōl·f

	FRes [kN]	hRes ώcϐ	Fx [kN]	Fz [kN]	My [kNm]
Ed.1	0.42	270.0	0.00	-0.42	0.00
Ed.2	0.42	270.0	0.00	-0.42	0.00
Ed.3	0.42	270.0	0.00	-0.42	0.00
Ed.4	0.42	270.0	0.00	-0.42	0.00
Ed.5	0.42	270.0	0.00	-0.42	0.00
Ed.6	0.42	270.0	0.00	-0.42	0.00
Ed.7	0.42	270.0	0.00	-0.42	0.00
Ed.8	0.42	270.0	0.00	-0.42	0.00
Ed.9	0.42	270.0	0.00	-0.42	0.00
Ed.10	0.42	270.0	0.00	-0.42	0.00
Ed.11	0.42	270.0	0.00	-0.42	0.00
Ed.12	0.42	270.0	0.00	-0.42	0.00
Ed.13	0.42	270.0	0.00	-0.42	0.00
Ed.14	0.42	270.0	0.00	-0.42	0.00
Ed.15	0.42	270.0	0.00	-0.42	0.00
Ed.16	0.42	270.0	0.00	-0.42	0.00
Ed.17	0.42	270.0	0.00	-0.42	0.00
Ed.18	0.42	270.0	0.00	-0.42	0.00
Ed.19	0.42	270.0	0.00	-0.42	0.00
Ed.20	0.31	270.0	0.00	-0.31	0.00
Ed.21	0.42	270.0	0.00	-0.42	0.00
Ed.22	0.31	270.0	0.00	-0.31	0.00
Ed.23	0.42	270.0	0.00	-0.42	0.00
Ed.24	0.31	270.0	0.00	-0.31	0.00
Ed.25	0.31	270.0	0.00	-0.31	0.00
Ed.26	0.42	270.0	0.00	-0.42	0.00
Ed.27	0.42	270.0	0.00	-0.42	0.00
Ed.28	0.31	270.0	0.00	-0.31	0.00
Ed.29	0.42	270.0	0.00	-0.42	0.00
Ed.30	0.31	270.0	0.00	-0.31	0.00
Ed.31	0.31	270.0	0.00	-0.31	0.00
Ed.32	0.42	270.0	0.00	-0.42	0.00
Ed.33	0.31	270.0	0.00	-0.31	0.00
Ed.34	0.42	270.0	0.00	-0.42	0.00
Ed.35	0.42	270.0	0.00	-0.42	0.00

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.36	0.31	270.0	0.00	-0.31	0.00
Ed.37	0.31	270.0	0.00	-0.31	0.00
Ed.38	0.31	270.0	0.00	-0.31	0.00
Ed.39	0.31	270.0	0.00	-0.31	0.00
Ed.40	0.31	270.0	0.00	-0.31	0.00
Ed.41	0.31	270.0	0.00	-0.31	0.00
Ed.42	0.31	270.0	0.00	-0.31	0.00
Ed.43	0.31	270.0	0.00	-0.31	0.00
Ed.44	0.31	270.0	0.00	-0.31	0.00
Ed.45	0.31	270.0	0.00	-0.31	0.00
Ed.46	0.31	270.0	0.00	-0.31	0.00
Ed.47	0.31	270.0	0.00	-0.31	0.00
Ed.48	0.31	270.0	0.00	-0.31	0.00
Ed.49	0.31	270.0	0.00	-0.31	0.00
Ed.50	0.31	270.0	0.00	-0.31	0.00
Ed.51	0.31	270.0	0.00	-0.31	0.00
Ed.52	0.31	270.0	0.00	-0.31	0.00
Ed.53	0.31	270.0	0.00	-0.31	0.00
Ed.54	0.31	270.0	0.00	-0.31	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maűgebenden Kombinationen

ăůŅyŘλƎкØƶŊÒōŜŊƎɸ

Ek	KLED	ʅ (ˌ* ˎ *EW)
1	st	1.00*Ed.1
19	ku	1.00*Ed.19

st: ăůŅyŘλƎ
ku: kurz

Nachweise (GZT)

bƖŎKøŜλăŜ λY DŊŜyÎÎdzăůƖyŘ ŘŜŊ ¢ŊƖƎŦŅKλƎʅŜλů yƖŎK 5Lb 9b мффрπмπм

OG1

Nettoquerschnitt Holz $A_{ef,H}$ = 639.20 cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	35.89	36.74	0.98

* je Verbindungsmittel

Biegung
Abs. 6.1

bƖŎKøŜλă ŘŜŊ .λŜƎŜůŊƖƎŦŅKλƎʅŜλů

EK	k_{mod}	N_d / M_d [kNm]	` 0,d / ` m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
19	0.90	-428.62	-6.71	19.38	0.29
		-15.38	-3.32	19.38	
rechts					
19	0.90	-2.94	-0.05	19.38	0.17
		-15.38	-3.32	19.38	

Querkraft
Abs. 6.1.7

bƖŎKøŜλă ŘŜŊ vdzŜŊʅŊƖŦůŊƖƎŦŅKλƎʅŜλů

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
19	0.90	-32.19	-1.06	2.42	0.44
rechts					
19	0.90	32.86	1.08	2.42	0.45

Querzug

bI·ŎKǿŜλă ŘŜ vdzŜ Îdz∃ú I·∃ŦŅKλ∃ʅŜλú

Queranschluss	h_e/h	=	0.75	> 0.70

Der Querzugnachweis ist nicht erforderlich.

PF12

Nettoquerschnitt Holz	$A_{ef,H}$	=	376.00	cm²
Blech	$A_{ef,S}$	=	24.00	cm²
9ÈÎŜyúλÎλúŅúăōŜλǿŜú	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	2.22	17.29	0.13

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜλă ŘŜ b2ϒI·ƪʅI·ŦúI·∃ŦŅKλ∃ʅŜλú

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
1	0.60	2.22	0.06	6.86	0.01

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
32	2.61	1.09	275.00	0.00

DS22

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ÈÎŜyúλÎλúŅúăōŜλǿŜú	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	31.10	34.89	0.89

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜλă ŘŜ b2ϒI·ƪʅI·ŦúI·∃ŦŅKλ∃ʅŜλú

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
19	0.90	311.04	9.19	10.29	0.89

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
19	311.04	144.00	275.00	0.52

DS23

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyŭÎŅŭăōŜøŜŭ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
19	0.90	29.20	34.25	0.85

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bŀŎKøŜă ŘŜ b2YŀţŀŦŭŀƎŅKƎŜŭ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
19	0.90	-350.36	-10.35	19.38	0.53

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
19	-350.4	162.20	275.00	0.59

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

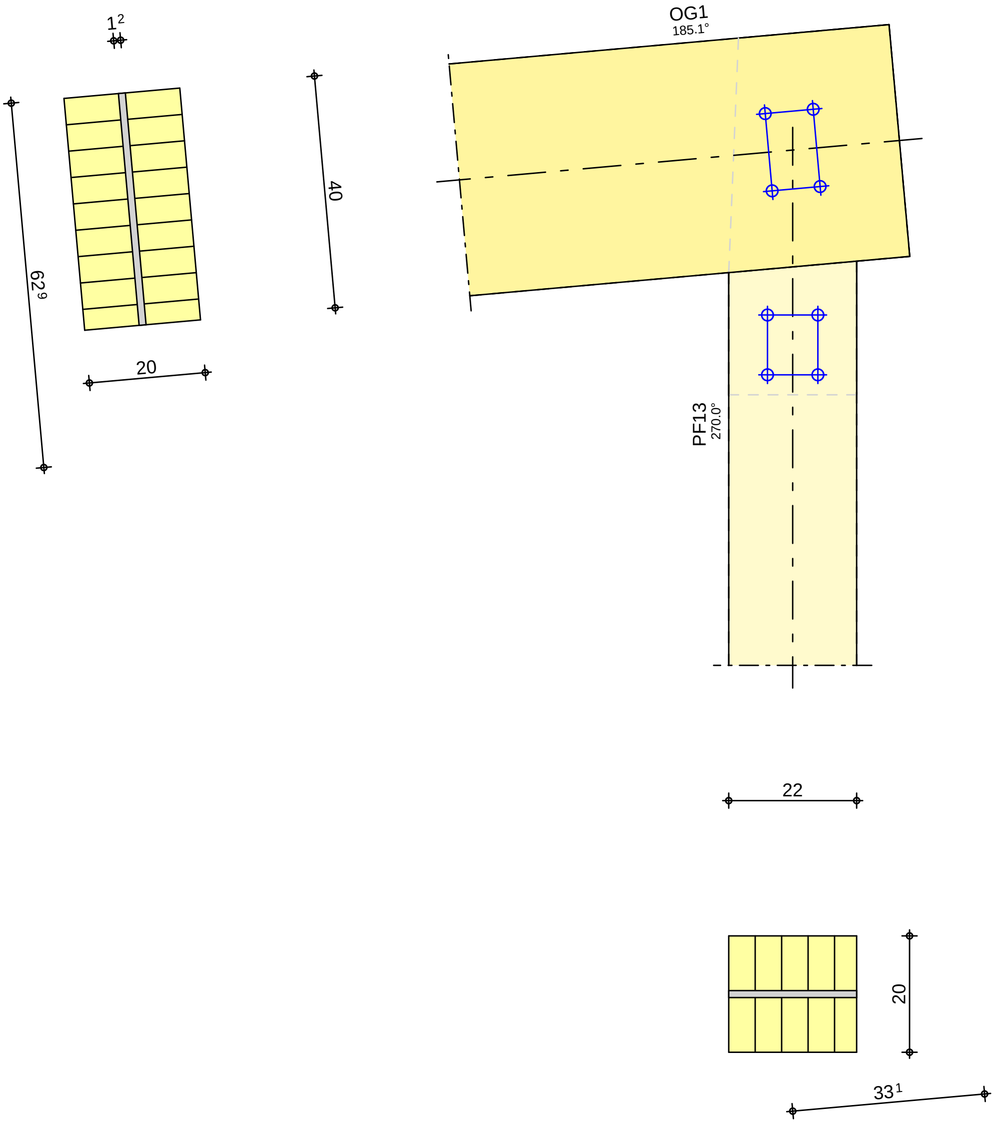
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	OG1	OK	0.98
Stabquerschnitt	DS22	OK	0.89
Blechquerschnitt	DS23	OK	0.59

Pos. T2_DA_3-O11 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:13

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
OG1	1	185.1	20/40	26	BSH GL28h[f]
PF13	1	270.0	20/22	21	BSH GL28h[f]

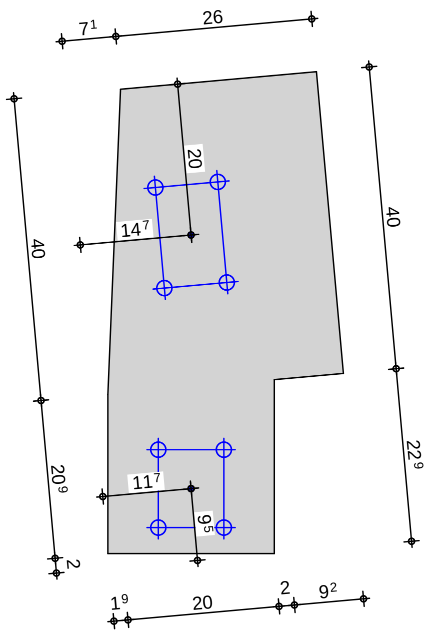
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
OG1	2x2	Passbolzen	M20	8.8
PF13	2x2	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	OG1	O11	links	0.62	-6.95	0.00
	(a)	PF13	O11		-6.98		
Einw. *Ed.2*	(a)	OG1	O11	links	0.62	-6.95	0.00
	(a)	PF13	O11		-6.98		
Einw. *Ed.3*	(a)	OG1	O11	links	0.62	-6.95	0.00
	(a)	PF13	O11		-6.98		
Einw. *Ed.4*	(a)	OG1	O11	links	0.62	-6.95	0.00
	(a)	PF13	O11		-6.98		
Einw. *Ed.5*	(a)	OG1	O11	links	0.62	-6.95	0.00
	(a)	PF13	O11		-6.98		
Einw. *Ed.6*	(a)	OG1	O11	links	0.62	-6.95	0.00
	(a)	PF13	O11		-6.98		
Einw. *Ed.7*	(a)	OG1	O11	links	0.91	-10.13	0.00
	(a)	PF13	O11		-10.17		
Einw. *Ed.8*	(a)	OG1	O11	links	1.52	-16.97	0.00
	(a)	PF13	O11		-17.04		
Einw. *Ed.9*	(a)	OG1	O11	links	1.52	-16.97	0.00
	(a)	PF13	O11		-17.04		
Einw. *Ed.10*	(a)	OG1	O11	links	0.91	-10.13	0.00
	(a)	PF13	O11		-10.17		
Einw. *Ed.11*	(a)	OG1	O11	links	1.52	-16.97	0.00
	(a)	PF13	O11		-17.04		
Einw. *Ed.12*	(a)	OG1	O11	links	0.91	-10.13	0.00

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF13	O11		-10.17		
Einw. *Ed.13*	(a) OG1	O11	links	0.26	-2.96	0.00
	(a) PF13	O11		-2.97		
Einw. *Ed.14*	(a) OG1	O11	links	1.39	-15.60	0.00
	(a) PF13	O11		-15.66		
Einw. *Ed.15*	(a) OG1	O11	links	1.39	-15.60	0.00
	(a) PF13	O11		-15.66		
Einw. *Ed.16*	(a) OG1	O11	links	0.26	-2.96	0.00
	(a) PF13	O11		-2.97		
Einw. *Ed.17*	(a) OG1	O11	links	1.39	-15.60	0.00
	(a) PF13	O11		-15.66		
Einw. *Ed.18*	(a) OG1	O11	links	0.26	-2.96	0.00
	(a) PF13	O11		-2.97		

(a) aus Pos. 'T2_DA_2', Ort 'O11' (Seite 191)

! yãŎKfdzăă⌈ǊŅŦűŜ

ǊŜădzfűʎŜǊŜyŘŜ ! yãŎKfdzăă⌈ǊŅŦűŜ ŦÑǊ ŘŜy I I·dzǈűăűI·ō

	Stab	F_{Res} [kN]	$^{h}{}_{Res}$ ώcϐ	N [kN]	V [kN]
Ed.1	OG1	6.98	275.1	0.62	-6.95
Ed.2	OG1	6.98	275.1	0.62	-6.95
Ed.3	OG1	6.98	275.1	0.62	-6.95
Ed.4	OG1	6.98	275.1	0.62	-6.95
Ed.5	OG1	6.98	275.1	0.62	-6.95
Ed.6	OG1	6.98	275.1	0.62	-6.95
Ed.7	OG1	10.17	275.1	0.91	-10.13
Ed.8	OG1	17.04	275.1	1.52	-16.97
Ed.9	OG1	17.04	275.1	1.52	-16.97
Ed.10	OG1	10.17	275.1	0.91	-10.13
Ed.11	OG1	17.04	275.1	1.52	-16.97
Ed.12	OG1	10.17	275.1	0.91	-10.13
Ed.13	OG1	2.97	275.1	0.26	-2.96
Ed.14	OG1	15.66	275.1	1.39	-15.60
Ed.15	OG1	15.66	275.1	1.39	-15.60
Ed.16	OG1	2.97	275.1	0.26	-2.96
Ed.17	OG1	15.66	275.1	1.39	-15.60
Ed.18	OG1	2.97	275.1	0.26	-2.96

Gleichgewicht

ǊŜădzfűʎŜǊŜyŘŜ YyƂűŜy⌈ǊŅŦűŜ ∃fƂōI·f

	F_{Res} [kN]	$^{h}{}_{Res}$ ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	6.98	270.0	0.00	-6.98	0.00
Ed.2	6.98	270.0	0.00	-6.98	0.00
Ed.3	6.98	270.0	0.00	-6.98	0.00
Ed.4	6.98	270.0	0.00	-6.98	0.00
Ed.5	6.98	270.0	0.00	-6.98	0.00
Ed.6	6.98	270.0	0.00	-6.98	0.00
Ed.7	10.17	270.0	0.00	-10.17	0.00
Ed.8	17.04	270.0	0.00	-17.04	0.00
Ed.9	17.04	270.0	0.00	-17.04	0.00

	F_{Res} [kN]	$^h{}_{Res}$ ώcß	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.10	10.17	270.0	0.00	-10.17	0.00
Ed.11	17.04	270.0	0.00	-17.04	0.00
Ed.12	10.17	270.0	0.00	-10.17	0.00
Ed.13	2.97	270.0	0.00	-2.97	0.00
Ed.14	15.66	270.0	0.00	-15.66	0.00
Ed.15	15.66	270.0	0.00	-15.66	0.00
Ed.16	2.97	270.0	0.00	-2.97	0.00
Ed.17	15.66	270.0	0.00	-15.66	0.00
Ed.18	2.97	270.0	0.00	-2.97	0.00

**** WARNUNG **** Es wurde eine linksseitige Last auf den einseitigen Hauptstab eingegeben. Last wird ignoriert.

Kombinationen Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ăűŅyŘʎƎĸØƻ№ŇōŜ№Ǝφ

Ek	KLED	ɿ (╵* ˔ *EW)
8	ku	1.00*Ed.8

ku: kurz

Nachweise (GZT) bl·ŎKøŜʎăŜ ʎY DŞyÎÎdzăűl·yŘ ŘŜ ¢l·ƎŦŅKʎƎʅŜʎű yl·ŎK 5Lb 9b мффрпмпм

OG1

Nettoquerschnitt Holz	$A_{ef,H}$	=	676.80	cm²
Blech	$A_{ef,S}$	=	43.20	cm²
9ÈÎŜyűʎÎʎűŅűăōŜʎøŜű	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
8	0.90	4.26	36.08	0.12

* je Verbindungsmittel

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	V_d [kN]	` v,d [N/mm²]	` R,d [N/mm²]	'
8	1.52	-16.97	10.21	275.00	0.04

Querzug

bl·ŎKøŜʎă ŘŜ vdzŜÎdzƎűl·ƎŦŅKʎƎʅŜʎű

Queranschluss h_e/h = 0.67 Ӿ 0.70

dzyØŜăűŅʅű

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
8	0.90	-8.49	36.72	0.23

PF13

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ÈÎŜyűʎÎʎűŅűăōŜʎøŜű	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
8	0.90	4.26	38.38	0.11

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKøŜλă ŘŜ₪ b2₪Y I·ƭ₪I·ŦǘI·ƎŦŅKλƎƭŜλǘ

EK	k_{mod}	N_d [kN]	$`_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
8	0.90	-17.04	-0.50	19.38	0.03

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	$`_d$ [N/mm²]	$`_{R,d}$ [N/mm²]	'
8	-17.04	7.89	275.00	0.03

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

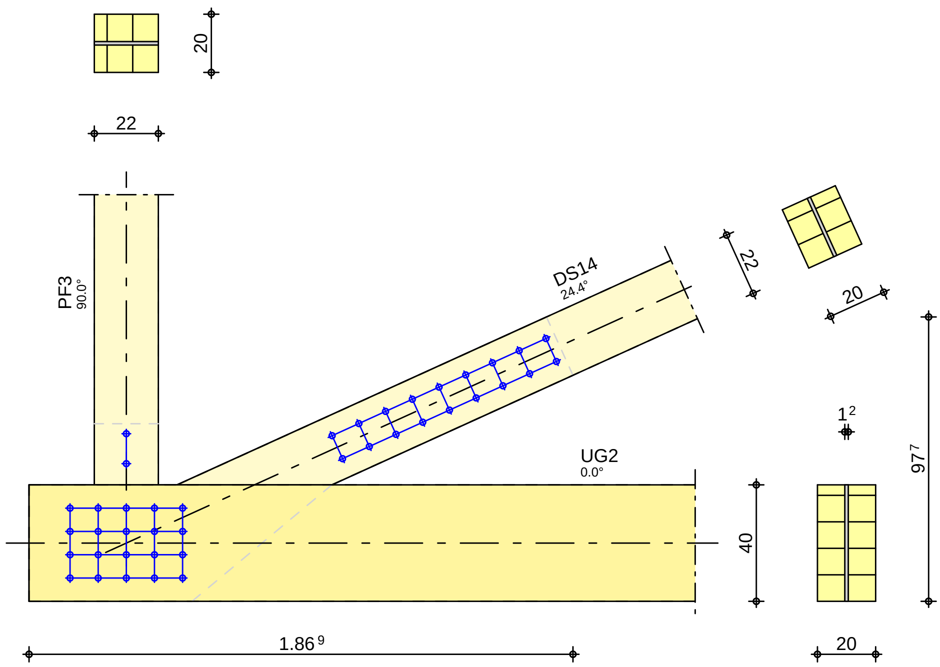
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	OG1	OK	0.12
Stabquerschnitt	PF13	OK	0.03
Blechquerschnitt	OG1	OK	0.04

Pos. T2_DA_3-U1 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:26

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώc6	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	56	BSH GL28h^f
PF3	1	90.0	20/22	21	BSH GL28h^f
DS14	1	24.4	20/22	91	BSH GL28h^f

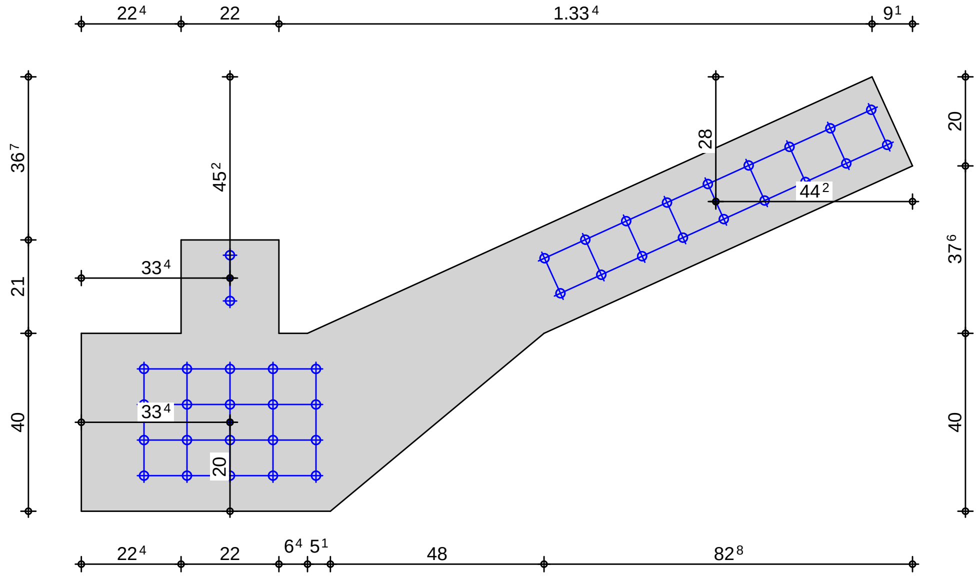
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	5x4	Passbolzen	M20	8.8
PF3	2x1	Passbolzen	M20	8.8
DS14	9x2	Passbolzen	M20	8.8

Blech
M 1:17



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a) UG2	U1	rechts	189.29	3.40	0.00
	(a) PF3	U1		-10.06		
	(a) DS14	U1		-208.06		
Einw. *Ed.2*	(a) UG2	U1	rechts	189.29	3.40	0.00
	(a) PF3	U1		-10.06		
	(a) DS14	U1		-208.06		
Einw. *Ed.3*	(a) UG2	U1	rechts	189.29	3.40	0.00
	(a) PF3	U1		-10.06		
	(a) DS14	U1		-208.06		
Einw. *Ed.4*	(a) UG2	U1	rechts	189.29	3.40	0.00
	(a) PF3	U1		-10.06		
	(a) DS14	U1		-208.06		
Einw. *Ed.5*	(a) UG2	U1	rechts	189.29	3.40	0.00
	(a) PF3	U1		-10.06		
	(a) DS14	U1		-208.06		
Einw. *Ed.6*	(a) UG2	U1	rechts	189.29	3.40	0.00
	(a) PF3	U1		-10.06		
	(a) DS14	U1		-208.06		
Einw. *Ed.7*	(a) UG2	U1	rechts	189.29	3.40	0.00
	(a) PF3	U1		-10.06		
	(a) DS14	U1		-208.06		
Einw. *Ed.8*	(a) UG2	U1	rechts	189.29	3.40	0.00
	(a) PF3	U1		-10.06		
	(a) DS14	U1		-208.06		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.9*	(a) UG2	U1	rechts	368.41	5.93	0.00
	(a) PF3	U1		-18.34		
	(a) DS14	U1		-404.77		
Einw. *Ed.10*	(a) UG2	U1	rechts	550.08	9.01	0.00
	(a) PF3	U1		-30.59		
	(a) DS14	U1		-604.35		
Einw. *Ed.11*	(a) UG2	U1	rechts	368.41	5.93	0.00
	(a) PF3	U1		-18.34		
	(a) DS14	U1		-404.77		
Einw. *Ed.12*	(a) UG2	U1	rechts	550.08	9.01	0.00
	(a) PF3	U1		-30.59		
	(a) DS14	U1		-604.35		
Einw. *Ed.13*	(a) UG2	U1	rechts	550.08	9.01	0.00
	(a) PF3	U1		-30.59		
	(a) DS14	U1		-604.35		
Einw. *Ed.14*	(a) UG2	U1	rechts	368.41	5.93	0.00
	(a) PF3	U1		-18.34		
	(a) DS14	U1		-404.77		
Einw. *Ed.15*	(a) UG2	U1	rechts	550.08	9.01	0.00
	(a) PF3	U1		-30.59		
	(a) DS14	U1		-604.35		
Einw. *Ed.16*	(a) UG2	U1	rechts	368.41	5.93	0.00
	(a) PF3	U1		-18.34		
	(a) DS14	U1		-404.77		
Einw. *Ed.17*	(a) UG2	U1	rechts	56.25	1.25	0.00
	(a) PF3	U1		-2.91		
	(a) DS14	U1		-69.88		
Einw. *Ed.18*	(a) UG2	U1	rechts	512.77	8.32	0.00
	(a) PF3	U1		-28.81		
	(a) DS14	U1		-562.53		
Einw. *Ed.19*	(a) UG2	U1	rechts	56.25	1.25	0.00
	(a) PF3	U1		-2.91		
	(a) DS14	U1		-69.88		
Einw. *Ed.20*	(a) UG2	U1	rechts	512.77	8.32	0.00
	(a) PF3	U1		-28.81		
	(a) DS14	U1		-562.53		
Einw. *Ed.21*	(a) UG2	U1	rechts	512.77	8.32	0.00
	(a) PF3	U1		-28.81		
	(a) DS14	U1		-562.53		
Einw. *Ed.22*	(a) UG2	U1	rechts	56.25	1.25	0.00
	(a) PF3	U1		-2.91		
	(a) DS14	U1		-69.88		
Einw. *Ed.23*	(a) UG2	U1	rechts	512.77	8.32	0.00
	(a) PF3	U1		-28.81		
	(a) DS14	U1		-562.53		
Einw. *Ed.24*	(a) UG2	U1	rechts	56.25	1.25	0.00
	(a) PF3	U1		-2.91		
	(a) DS14	U1		-69.88		

(a) aus Pos. 'T2_DA_2', Ort 'U1' (Seite 191)

! yăÒKfdzăă1ŊŅŦűŜ

ŊŜădzfűʎŜŊŜyŘŜ ! yăÒKfdzăă1ŊŅŦűŜ ŦŇŊ ŘŜy I I·dzĿJűăű I·ō

	Stab	FRes [kN]	hRes ώcϐ	N [kN]	V [kN]
Ed.1	UG2	212.42	333.1	189.42	-96.13
Ed.2	UG2	212.42	333.1	189.42	-96.13
Ed.3	UG2	212.42	333.1	189.42	-96.13
Ed.4	UG2	212.42	333.1	189.42	-96.13
Ed.5	UG2	212.42	333.1	189.42	-96.13
Ed.6	UG2	212.42	333.1	189.42	-96.13
Ed.7	UG2	212.42	333.1	189.42	-96.13
Ed.8	UG2	212.42	333.1	189.42	-96.13
Ed.9	UG2	412.70	333.2	368.51	-185.8
Ed.10	UG2	617.64	333.0	550.22	-280.6
Ed.11	UG2	412.70	333.2	368.51	-185.8
Ed.12	UG2	617.64	333.0	550.22	-280.6
Ed.13	UG2	617.64	333.0	550.22	-280.6
Ed.14	UG2	412.70	333.2	368.51	-185.8
Ed.15	UG2	617.64	333.0	550.22	-280.6
Ed.16	UG2	412.70	333.2	368.51	-185.8
Ed.17	UG2	71.13	333.4	63.62	-31.82
Ed.18	UG2	575.05	332.9	512.14	-261.5
Ed.19	UG2	71.13	333.4	63.62	-31.82
Ed.20	UG2	575.05	332.9	512.14	-261.5
Ed.21	UG2	575.05	332.9	512.14	-261.5
Ed.22	UG2	71.13	333.4	63.62	-31.82
Ed.23	UG2	575.05	332.9	512.14	-261.5
Ed.24	UG2	71.13	333.4	63.62	-31.82

Gleichgewicht

ŊŜădzfűʎŜŊŜyŘŜ Yy2űŜy1ŊŅŦűŜ ∃f2ōI·f

	FRes [kN]	hRes ώcϐ	Fx [kN]	Fz [kN]	My [kNm]
Ed.1	99.53	90.1	-0.13	99.53	0.00
Ed.2	99.53	90.1	-0.13	99.53	0.00
Ed.3	99.53	90.1	-0.13	99.53	0.00
Ed.4	99.53	90.1	-0.13	99.53	0.00
Ed.5	99.53	90.1	-0.13	99.53	0.00
Ed.6	99.53	90.1	-0.13	99.53	0.00
Ed.7	99.53	90.1	-0.13	99.53	0.00
Ed.8	99.53	90.1	-0.13	99.53	0.00
Ed.9	191.72	90.0	-0.10	191.72	0.00
Ed.10	289.61	90.0	-0.13	289.61	0.00
Ed.11	191.72	90.0	-0.10	191.72	0.00
Ed.12	289.61	90.0	-0.13	289.61	0.00
Ed.13	289.61	90.0	-0.13	289.61	0.00
Ed.14	191.72	90.0	-0.10	191.72	0.00
Ed.15	289.61	90.0	-0.13	289.61	0.00
Ed.16	191.72	90.0	-0.10	191.72	0.00
Ed.17	33.88	102.6	-7.37	33.06	0.00
Ed.18	269.83	89.9	0.63	269.83	0.00
Ed.19	33.88	102.6	-7.37	33.06	0.00

	F_{Res} [kN]	h Res ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.20	269.83	89.9	0.63	269.83	0.00
Ed.21	269.83	89.9	0.63	269.83	0.00
Ed.22	33.88	102.6	-7.37	33.06	0.00
Ed.23	269.83	89.9	0.63	269.83	0.00
Ed.24	33.88	102.6	-7.37	33.06	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maűgebenden Kombinationen

ăúŅyŘλƎкǾƨŊÒŜŊƎф

Ek	KLED	ɿ (ᶦ* ˌ *EW)
1	st	1.00*Ed.1
10	ku	1.00*Ed.10

st: ăúŅyŘλƎ
ku: kurz

Nachweise (GZT)

bl·ŎKǿŜλăŜ λY DŊŜyÎÎdzăúl·yŘ ŘŜŊ ¢Ŋl·ƎŦŅKλƎʅŜλú yl·ŎK 5Ƚb 9b мффрпмпм

UG2

Nettoquerschnitt Holz	$A_{ef,H}$	=	601.60	cm^2
Blech	$A_{ef,S}$	=	38.40	cm^2
9ÈÎŜyúŊλÎλúŅúăŌŜλǿŜŊú	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
10	0.90	30.88	36.22	0.85

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜλă ŘŜŊ bƨŊYl·ʄʅŊl·ŦúŊl·ƎŦŅKλƎʅŜλú

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
10	0.90	550.08	9.14	10.29	0.89

* abgemindert mit k,te

Querkraft
Abs. 6.1.7

bl·ŎKǿŜλă ŘŜŊ vdzŜŊʅŊl·ŦúŊl·ƎŦŅKλƎʅŜλú

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
10	0.90	9.01	0.31	2.42	0.13

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	V_d [kN]	`v,d [N/mm²]	`R,d [N/mm²]	'
10	550.22	-280.60	237.85	275.00	0.86

Querzug

bl·ŎKǿŜλă ŘŜŊ vdzŜŊÎdzƎúŊl·ƎŦŅKλƎʅŜλú

Queranschluss h_e/h = 0.80 > 0.70

Der Querzugnachweis ist nicht erforderlich.

PF3

Nettoquerschnitt Holz	$A_{ef,H}$	=	376.00	cm^2
Blech	$A_{ef,S}$	=	24.00	cm^2
9ÈÎŜyúŊλÎλúŅúăŌŜλǿŜŊú	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
10	0.90	15.30	38.38	0.40

* je Verbindungsmittel

Normalkraft
Abs. 6.1

[illegible]

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm^2]	$f_{0,d}$ [N/mm^2]	'
10	0.90	-30.59	-0.81	19.38	0.04

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
10	-30.59	12.75	275.00	0.05

DS14

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
[illegible]	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
10	0.90	33.58	32.86	1.02

* je Verbindungsmittel

Normalkraft
Abs. 6.1

[illegible]

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm^2]	$f_{0,d}$ [N/mm^2]	'
10	0.90	-604.35	-17.86	19.38	0.92

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
10	-604.4	279.79	275.00	1.02

Nachweise (Brand)

[illegible]

UG2

Nettoquerschnitt Holz	$A_{ef,H}$	=	573.47	cm^2
Blech	$A_{ef,S}$	=	38.40	cm^2
[illegible]	k_{te}	=	0.67	

Querzug

[illegible]

Queranschluss h_e/h = 0.80 > 0.70

Der Querzugnachweis ist nicht erforderlich.

PF3

Nettoquerschnitt Holz	$A_{ef,H}$	=	354.59	cm^2
Blech	$A_{ef,S}$	=	24.00	cm^2
[illegible]	k_{te}	=	1.00	

DS14

Nettoquerschnitt Holz	$A_{ef,H}$	=	318.11	cm^2

Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyǘ‌ʎÎʎǘŅǘăōŜʎøŜǘ	k_{te}	=	1.00	

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

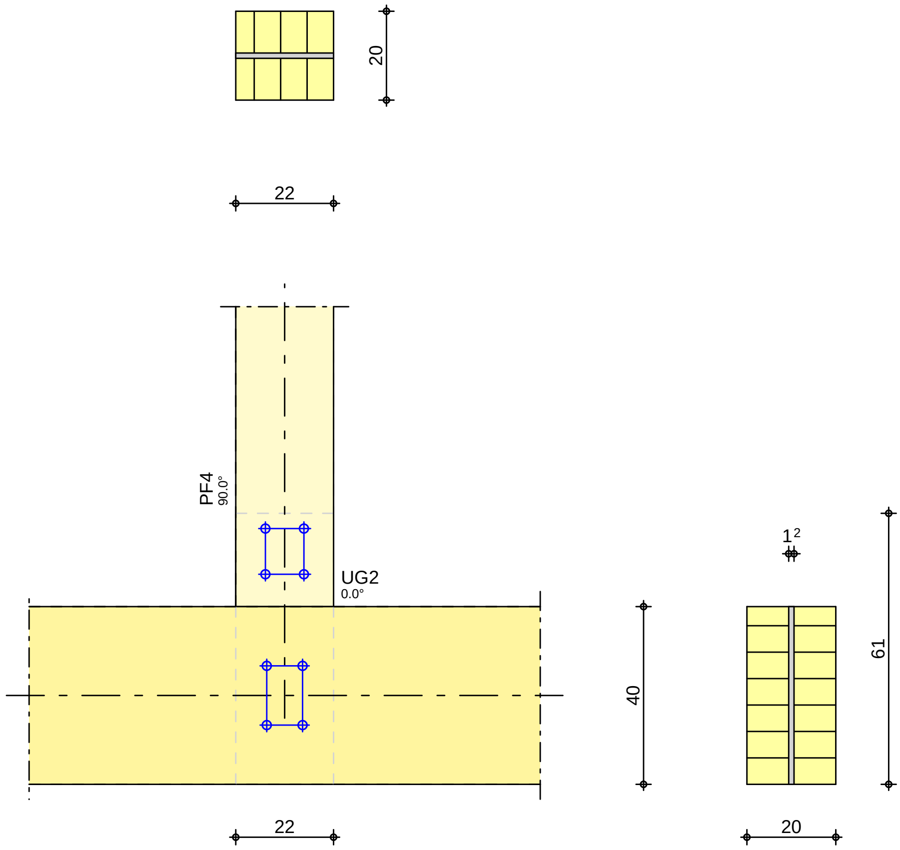
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	DS14	OK	1.02
Stabquerschnitt	DS14	OK	0.92
Blechquerschnitt	DS14	OK	1.02

Pos. T2_DA_3-U2 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	15	BSH GL28h^f
PF4	1	90.0	20/22	21	BSH GL28h^f

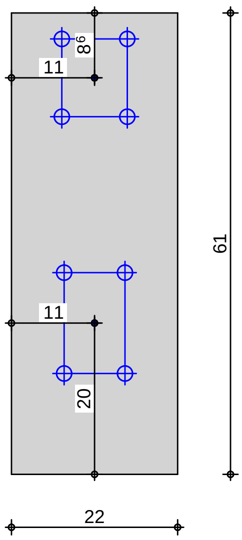
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	2x2	Passbolzen	M20	8.8
PF4	2x2	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.2*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.3*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.4*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.5*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.6*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.7*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.8*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.9*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.10*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.11*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.12*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.13*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.14*	(a)	UG2	U2	links	189.29	2.22	7.71
	(a)	UG2	U2	rechts	189.29	-0.15	7.71
	(a)	PF4	U2		-2.37		
Einw. *Ed.15*	(a)	UG2	U2	links	368.41	5.06	15.05
	(a)	UG2	U2	rechts	368.41	-0.91	15.05
	(a)	PF4	U2		-5.96		
Einw. *Ed.16*	(a)	UG2	U2	links	550.08	7.83	23.06
	(a)	UG2	U2	rechts	550.08	-1.62	23.06
	(a)	PF4	U2		-9.44		
Einw. *Ed.17*	(a)	UG2	U2	links	368.41	5.06	15.05
	(a)	UG2	U2	rechts	368.41	-0.91	15.05
	(a)	PF4	U2		-5.96		
Einw. *Ed.18*	(a)	UG2	U2	links	550.08	7.83	23.06
	(a)	UG2	U2	rechts	550.08	-1.62	23.06
	(a)	PF4	U2		-9.44		
Einw. *Ed.19*	(a)	UG2	U2	links	368.41	5.06	15.05
	(a)	UG2	U2	rechts	368.41	-0.91	15.05
	(a)	PF4	U2		-5.96		
Einw. *Ed.20*	(a)	UG2	U2	links	550.08	7.83	23.06
	(a)	UG2	U2	rechts	550.08	-1.62	23.06
	(a)	PF4	U2		-9.44		
Einw. *Ed.21*	(a)	UG2	U2	links	550.08	7.83	23.06
	(a)	UG2	U2	rechts	550.08	-1.62	23.06
	(a)	PF4	U2		-9.44		
Einw. *Ed.22*	(a)	UG2	U2	links	368.41	5.06	15.05
	(a)	UG2	U2	rechts	368.41	-0.91	15.05
	(a)	PF4	U2		-5.96		
Einw. *Ed.23*	(a)	UG2	U2	links	368.41	5.06	15.05
	(a)	UG2	U2	rechts	368.41	-0.91	15.05
	(a)	PF4	U2		-5.96		
Einw. *Ed.24*	(a)	UG2	U2	links	550.08	7.83	23.06
	(a)	UG2	U2	rechts	550.08	-1.62	23.06
	(a)	PF4	U2		-9.44		
Einw. *Ed.25*	(a)	UG2	U2	links	368.41	5.06	15.05
	(a)	UG2	U2	rechts	368.41	-0.91	15.05

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	PF4	U2		-5.96		
Einw. *Ed.26*	(a)	UG2	U2	links	550.08	7.83	23.06
	(a)	UG2	U2	rechts	550.08	-1.62	23.06
	(a)	PF4	U2		-9.44		
Einw. *Ed.27*	(a)	UG2	U2	links	550.08	7.83	23.06
	(a)	UG2	U2	rechts	550.08	-1.62	23.06
	(a)	PF4	U2		-9.44		
Einw. *Ed.28*	(a)	UG2	U2	links	368.41	5.06	15.05
	(a)	UG2	U2	rechts	368.41	-0.91	15.05
	(a)	PF4	U2		-5.96		
Einw. *Ed.29*	(a)	UG2	U2	links	56.25	0.37	2.21
	(a)	UG2	U2	rechts	56.25	0.29	2.21
	(a)	PF4	U2		-0.08		
Einw. *Ed.30*	(a)	UG2	U2	links	512.77	7.44	21.59
	(a)	UG2	U2	rechts	512.77	-1.64	21.59
	(a)	PF4	U2		-9.08		
Einw. *Ed.31*	(a)	UG2	U2	links	56.25	0.37	2.21
	(a)	UG2	U2	rechts	56.25	0.29	2.21
	(a)	PF4	U2		-0.08		
Einw. *Ed.32*	(a)	UG2	U2	links	512.77	7.44	21.59
	(a)	UG2	U2	rechts	512.77	-1.64	21.59
	(a)	PF4	U2		-9.08		
Einw. *Ed.33*	(a)	UG2	U2	links	56.25	0.37	2.21
	(a)	UG2	U2	rechts	56.25	0.29	2.21
	(a)	PF4	U2		-0.08		
Einw. *Ed.34*	(a)	UG2	U2	links	512.77	7.44	21.59
	(a)	UG2	U2	rechts	512.77	-1.64	21.59
	(a)	PF4	U2		-9.08		
Einw. *Ed.35*	(a)	UG2	U2	links	512.77	7.44	21.59
	(a)	UG2	U2	rechts	512.77	-1.64	21.59
	(a)	PF4	U2		-9.08		
Einw. *Ed.36*	(a)	UG2	U2	links	56.25	0.37	2.21
	(a)	UG2	U2	rechts	56.25	0.29	2.21
	(a)	PF4	U2		-0.08		
Einw. *Ed.37*	(a)	UG2	U2	links	56.25	0.37	2.21
	(a)	UG2	U2	rechts	56.25	0.29	2.21
	(a)	PF4	U2		-0.08		
Einw. *Ed.38*	(a)	UG2	U2	links	512.77	7.44	21.59
	(a)	UG2	U2	rechts	512.77	-1.64	21.59
	(a)	PF4	U2		-9.08		
Einw. *Ed.39*	(a)	UG2	U2	links	56.25	0.37	2.21
	(a)	UG2	U2	rechts	56.25	0.29	2.21
	(a)	PF4	U2		-0.08		
Einw. *Ed.40*	(a)	UG2	U2	links	512.77	7.44	21.59
	(a)	UG2	U2	rechts	512.77	-1.64	21.59
	(a)	PF4	U2		-9.08		
Einw. *Ed.41*	(a)	UG2	U2	links	512.77	7.44	21.59
	(a)	UG2	U2	rechts	512.77	-1.64	21.59
	(a)	PF4	U2		-9.08		
Einw. *Ed.42*	(a)	UG2	U2	links	56.25	0.37	2.21

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
(a)	UG2	U2	rechts	56.25	0.29	2.21
(a)	PF4	U2		-0.08		

(a) aus Pos. 'T2_DA_2', Ort 'U2' (Seite 191)

! yãǑKſdzăă⌉ŅŦűŜ

ŜădzſűʎŜŜyŘŜ ! yãǑKſdzăă⌉ŅŦűŜ ŦÑ ŘŜƴ I I·dzǈűăűl·ō

	Stab	F_{Res} [kN]	h_{Res} ώc϶	N [kN]	V [kN]
Ed.1	UG2	2.37	270.0	0.00	-2.37
Ed.2	UG2	2.37	270.0	0.00	-2.37
Ed.3	UG2	2.37	270.0	0.00	-2.37
Ed.4	UG2	2.37	270.0	0.00	-2.37
Ed.5	UG2	2.37	270.0	0.00	-2.37
Ed.6	UG2	2.37	270.0	0.00	-2.37
Ed.7	UG2	2.37	270.0	0.00	-2.37
Ed.8	UG2	2.37	270.0	0.00	-2.37
Ed.9	UG2	2.37	270.0	0.00	-2.37
Ed.10	UG2	2.37	270.0	0.00	-2.37
Ed.11	UG2	2.37	270.0	0.00	-2.37
Ed.12	UG2	2.37	270.0	0.00	-2.37
Ed.13	UG2	2.37	270.0	0.00	-2.37
Ed.14	UG2	2.37	270.0	0.00	-2.37
Ed.15	UG2	5.96	270.0	0.00	-5.96
Ed.16	UG2	9.44	270.0	0.00	-9.44
Ed.17	UG2	5.96	270.0	0.00	-5.96
Ed.18	UG2	9.44	270.0	0.00	-9.44
Ed.19	UG2	5.96	270.0	0.00	-5.96
Ed.20	UG2	9.44	270.0	0.00	-9.44
Ed.21	UG2	9.44	270.0	0.00	-9.44
Ed.22	UG2	5.96	270.0	0.00	-5.96
Ed.23	UG2	5.96	270.0	0.00	-5.96
Ed.24	UG2	9.44	270.0	0.00	-9.44
Ed.25	UG2	5.96	270.0	0.00	-5.96
Ed.26	UG2	9.44	270.0	0.00	-9.44
Ed.27	UG2	9.44	270.0	0.00	-9.44
Ed.28	UG2	5.96	270.0	0.00	-5.96
Ed.29	UG2	0.08	270.0	0.00	-0.08
Ed.30	UG2	9.08	270.0	0.00	-9.08
Ed.31	UG2	0.08	270.0	0.00	-0.08
Ed.32	UG2	9.08	270.0	0.00	-9.08
Ed.33	UG2	0.08	270.0	0.00	-0.08
Ed.34	UG2	9.08	270.0	0.00	-9.08
Ed.35	UG2	9.08	270.0	0.00	-9.08
Ed.36	UG2	0.08	270.0	0.00	-0.08
Ed.37	UG2	0.08	270.0	0.00	-0.08
Ed.38	UG2	9.08	270.0	0.00	-9.08
Ed.39	UG2	0.08	270.0	0.00	-0.08
Ed.40	UG2	9.08	270.0	0.00	-9.08
Ed.41	UG2	9.08	270.0	0.00	-9.08
Ed.42	UG2	0.08	270.0	0.00	-0.08

Gleichgewicht

ŊŜădzťŭʎŜŊŜyŘŜ Yy2ŭŜyʅŊŅŦŭŜ ƎŧƧōl·ť

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00
Ed.19	0.00		0.00	0.00	0.00
Ed.20	0.00		0.00	0.00	0.00
Ed.21	0.00		0.00	0.00	0.00
Ed.22	0.00		0.00	0.00	0.00
Ed.23	0.00		0.00	0.00	0.00
Ed.24	0.00		0.00	0.00	0.00
Ed.25	0.00		0.00	0.00	0.00
Ed.26	0.00		0.00	0.00	0.00
Ed.27	0.00		0.00	0.00	0.00
Ed.28	0.00		0.00	0.00	0.00
Ed.29	0.00		0.00	0.00	0.00
Ed.30	0.00		0.00	0.00	0.00
Ed.31	0.00		0.00	0.00	0.00
Ed.32	0.00		0.00	0.00	0.00
Ed.33	0.00		0.00	0.00	0.00
Ed.34	0.00		0.00	0.00	0.00
Ed.35	0.00		0.00	0.00	0.00
Ed.36	0.00		0.00	0.00	0.00
Ed.37	0.00		0.00	0.00	0.00
Ed.38	0.00		0.00	0.00	0.00
Ed.39	0.00		0.00	0.00	0.00
Ed.40	0.00		0.00	0.00	0.00
Ed.41	0.00		0.00	0.00	0.00
Ed.42	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

	Ek	KLED	ʅ (˩* ˛ *EW)
ăŭŅyŘʎƎĸØ2ŊǸōŜŊƎɸ	16	ku	1.00*Ed.16

ku: kurz

Nachweise (GZT)

bl·ŎKǿŜǻŜ ʎϒ DŊŜУÎÎdzǻǘl·УŘ ŘŜŊ ¢Ŋl·ƎŦŅKʎƎƪŜʎǘ Уl·ŎK 5Łb 9b мфǿрπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 676.80 cm²

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
16	0.90	2.36	36.62	0.06

* je Verbindungsmittel

Biegung
Abs. 6.1

bl·ŎKǿŜʎǻ ŘŜŊ .ʎŜƎŜǘŊl·ƎŦŅKʎƎƪŜʎǘ

EK	k_{mod}	N_d / M_d [kNm]	`$_{0,d}$ / `$_{m,d}$ [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
16	0.90	550.08	8.13	15.44	0.77
		23.06	4.76	19.38	
rechts					
16	0.90	550.08	8.13	15.44	0.77
		23.06	4.76	19.38	

Querkraft
Abs. 6.1.7

bl·ŎKǿŜʎǻ ŘŜŊ vdzŜŊƪŊl·ŦǘŊl·ƎŦŅKʎƎƪŜʎǘ

EK	k_{mod}	V_d [kN]	_$_d$ [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
16	0.90	7.83	0.24	2.42	0.10
rechts					
16	0.90	-1.62	-0.05	2.42	0.02

Querzug

bl·ŎKǿŜʎǻ ŘŜŊ vdzŜŊÎdzƎǘŊl·ƎŦŅKʎƎƪŜʎǘ

Queranschluss h_e/h = 0.67 Ж 0.70

dzУǾŜŊǻǘŅŊƪǘ

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
16	0.90	-4.72	36.72	0.13

PF4

Nettoquerschnitt Holz $A_{ef,H}$ = 338.40 cm²
Blech $A_{ef,S}$ = 21.60 cm²
9ÈÎŜУǘŊʎÎʎǘŅǘǻŌŜʎǿŜŊǘ k_{te} = 1.00

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
16	0.90	2.36	51.86	0.05

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜʎǻ ŘŜŊ b2ŊϒŀŦƪŊl·ŦǘŊl·ƎŦŅKʎƎƪŜʎǘ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
16	0.90	-9.44	-0.28	19.38	0.01

Spannungen

Nachweis der Spannungen im Blech

DIN EN 1993

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
16	-9.44	4.37	275.00	0.02

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

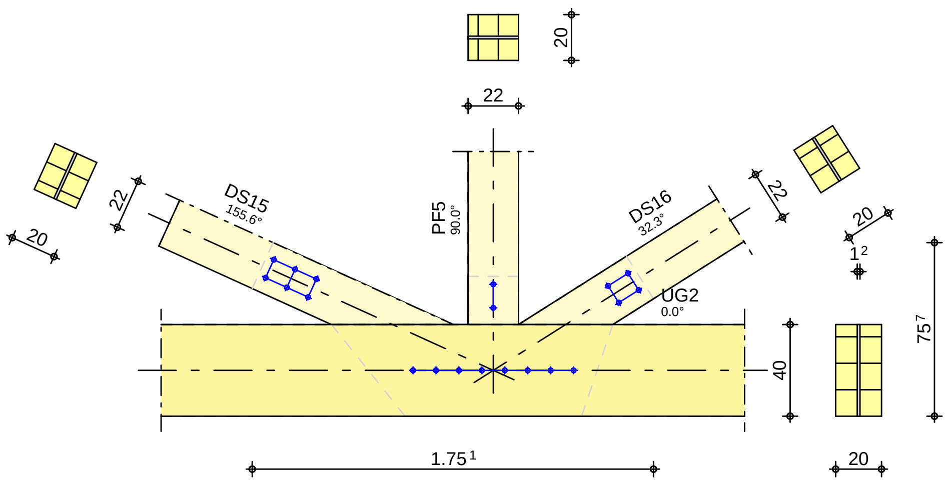
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	UG2	OK	0.06
Stabquerschnitt	UG2	OK	0.77
Blechquerschnitt	PF4	OK	0.02

Pos. T2_DA_3-U3 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:33

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	77	BSH GL28h^{f}
PF5	1	90.0	20/22	21	BSH GL28h^{f}
DS15	1	155.6	20/22	38	BSH GL28h^{f}
DS16	1	32.3	20/22	21	BSH GL28h^{f}

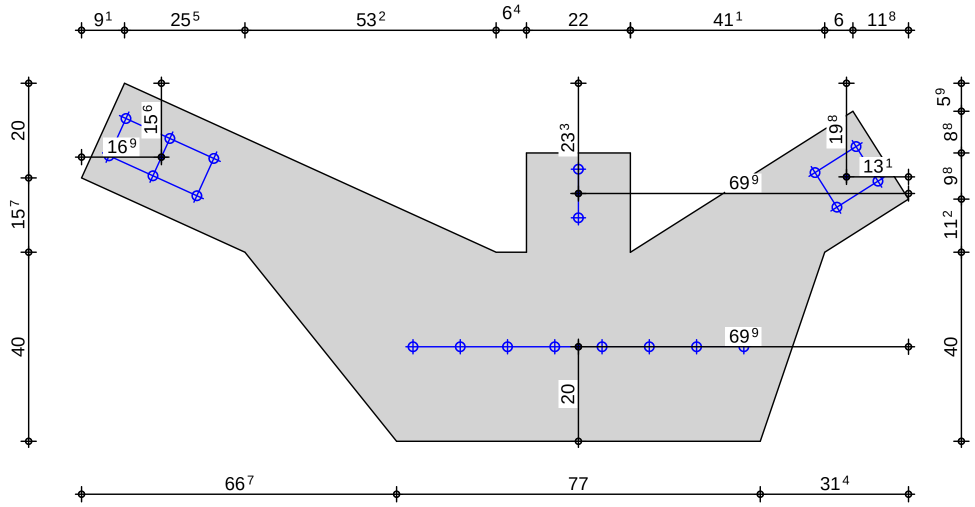
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	8x1	Passbolzen	M20	8.8
PF5	2x1	Passbolzen	M20	8.8
DS15	3x2	Passbolzen	M20	8.8
DS16	2x2	Passbolzen	M20	8.8

Blech
M 1:16



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	UG2	U3	links	189.29	-1.33	5.68
	(a)	UG2	U3	rechts	327.96	0.65	5.68
	(a)	PF5	U3		-17.59		
	(a)	DS15	U3		109.05		
	(a)	DS16	U3		-46.67		
Einw. *Ed.2*	(a)	UG2	U3	links	189.29	-1.33	5.68
	(a)	UG2	U3	rechts	327.96	0.65	5.68
	(a)	PF5	U3		-17.59		
	(a)	DS15	U3		109.05		
	(a)	DS16	U3		-46.67		
Einw. *Ed.3*	(a)	UG2	U3	links	189.29	-1.33	5.68
	(a)	UG2	U3	rechts	327.96	0.65	5.68
	(a)	PF5	U3		-17.59		
	(a)	DS15	U3		109.05		
	(a)	DS16	U3		-46.67		
Einw. *Ed.4*	(a)	UG2	U3	links	189.29	-1.33	5.68
	(a)	UG2	U3	rechts	327.96	0.65	5.68
	(a)	PF5	U3		-17.59		
	(a)	DS15	U3		109.05		
	(a)	DS16	U3		-46.67		
Einw. *Ed.5*	(a)	UG2	U3	links	189.29	-1.33	5.68
	(a)	UG2	U3	rechts	327.96	0.65	5.68
	(a)	PF5	U3		-17.59		
	(a)	DS15	U3		109.05		
	(a)	DS16	U3		-46.67		
Einw. *Ed.6*	(a)	UG2	U3	links	189.29	-1.33	5.68
	(a)	UG2	U3	rechts	327.96	0.65	5.68

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.7*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.8*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.9*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.10*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.11*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.12*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.13*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.14*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.15*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.16*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.17*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.18*	(a) UG2	U3	links	189.29	-1.33	5.68
	(a) UG2	U3	rechts	327.96	0.65	5.68
	(a) PF5	U3		-17.59		
	(a) DS15	U3		109.05		
	(a) DS16	U3		-46.67		
Einw. *Ed.19*	(a) UG2	U3	links	368.41	-1.78	11.37
	(a) UG2	U3	rechts	660.93	0.67	11.37
	(a) PF5	U3		-31.80		
	(a) DS15	U3		222.11		
	(a) DS16	U3		-106.92		
Einw. *Ed.20*	(a) UG2	U3	links	550.08	-2.80	17.01
	(a) UG2	U3	rechts	950.69	0.74	17.01
	(a) PF5	U3		-54.79		
	(a) DS15	U3		315.70		
	(a) DS16	U3		-134.02		
Einw. *Ed.21*	(a) UG2	U3	links	368.41	-1.78	11.37
	(a) UG2	U3	rechts	660.93	0.67	11.37
	(a) PF5	U3		-31.80		
	(a) DS15	U3		222.11		
	(a) DS16	U3		-106.92		
Einw. *Ed.22*	(a) UG2	U3	links	550.08	-2.80	17.01
	(a) UG2	U3	rechts	950.69	0.74	17.01
	(a) PF5	U3		-54.79		
	(a) DS15	U3		315.70		
	(a) DS16	U3		-134.02		
Einw. *Ed.23*	(a) UG2	U3	links	550.08	-2.80	17.01
	(a) UG2	U3	rechts	950.69	0.74	17.01
	(a) PF5	U3		-54.79		
	(a) DS15	U3		315.70		
	(a) DS16	U3		-134.02		
Einw. *Ed.24*	(a) UG2	U3	links	368.41	-1.78	11.37
	(a) UG2	U3	rechts	660.93	0.67	11.37
	(a) PF5	U3		-31.80		
	(a) DS15	U3		222.11		
	(a) DS16	U3		-106.92		
Einw. *Ed.25*	(a) UG2	U3	links	453.21	-2.39	14.04
	(a) UG2	U3	rechts	759.03	0.43	14.04
	(a) PF5	U3		-50.05		
	(a) DS15	U3		249.42		
	(a) DS16	U3		-93.24		
Einw. *Ed.26*	(a) UG2	U3	links	417.49	-2.13	12.84
	(a) UG2	U3	rechts	745.96	0.84	12.84

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF5	U3		-36.37		
	(a) DS15	U3		250.39		
	(a) DS16	U3		-119.02		
Einw. *Ed.27*	(a) UG2	U3	links	368.41	-1.78	11.37
	(a) UG2	U3	rechts	660.93	0.67	11.37
	(a) PF5	U3		-31.80		
	(a) DS15	U3		222.11		
	(a) DS16	U3		-106.92		
Einw. *Ed.28*	(a) UG2	U3	links	550.08	-2.80	17.01
	(a) UG2	U3	rechts	950.69	0.74	17.01
	(a) PF5	U3		-54.79		
	(a) DS15	U3		315.70		
	(a) DS16	U3		-134.02		
Einw. *Ed.29*	(a) UG2	U3	links	368.41	-1.78	11.37
	(a) UG2	U3	rechts	660.93	0.67	11.37
	(a) PF5	U3		-31.80		
	(a) DS15	U3		222.11		
	(a) DS16	U3		-106.92		
Einw. *Ed.30*	(a) UG2	U3	links	550.08	-2.80	17.01
	(a) UG2	U3	rechts	950.69	0.74	17.01
	(a) PF5	U3		-54.79		
	(a) DS15	U3		315.70		
	(a) DS16	U3		-134.02		
Einw. *Ed.31*	(a) UG2	U3	links	550.08	-2.80	17.01
	(a) UG2	U3	rechts	950.69	0.74	17.01
	(a) PF5	U3		-54.79		
	(a) DS15	U3		315.70		
	(a) DS16	U3		-134.02		
Einw. *Ed.32*	(a) UG2	U3	links	368.41	-1.78	11.37
	(a) UG2	U3	rechts	660.93	0.67	11.37
	(a) PF5	U3		-31.80		
	(a) DS15	U3		222.11		
	(a) DS16	U3		-106.92		
Einw. *Ed.33*	(a) UG2	U3	links	368.41	-1.78	11.37
	(a) UG2	U3	rechts	660.93	0.67	11.37
	(a) PF5	U3		-31.80		
	(a) DS15	U3		222.11		
	(a) DS16	U3		-106.92		
Einw. *Ed.34*	(a) UG2	U3	links	550.08	-2.80	17.01
	(a) UG2	U3	rechts	950.69	0.74	17.01
	(a) PF5	U3		-54.79		
	(a) DS15	U3		315.70		
	(a) DS16	U3		-134.02		
Einw. *Ed.35*	(a) UG2	U3	links	550.08	-2.80	17.01
	(a) UG2	U3	rechts	950.69	0.74	17.01
	(a) PF5	U3		-54.79		
	(a) DS15	U3		315.70		
	(a) DS16	U3		-134.02		
Einw. *Ed.36*	(a) UG2	U3	links	453.21	-2.39	14.04
	(a) UG2	U3	rechts	759.03	0.43	14.04

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF5	U3		-50.05		
	(a) DS15	U3		249.42		
	(a) DS16	U3		-93.24		
Einw. *Ed.37*	(a) UG2	U3	links	56.25	-0.58	1.82
	(a) UG2	U3	rechts	103.86	0.40	1.82
	(a) PF5	U3		-4.76		
	(a) DS15	U3		36.70		
	(a) DS16	U3		-16.85		
Einw. *Ed.38*	(a) UG2	U3	links	512.77	-2.52	15.89
	(a) UG2	U3	rechts	883.33	0.57	15.89
	(a) PF5	U3		-51.80		
	(a) DS15	U3		292.85		
	(a) DS16	U3		-123.06		
Einw. *Ed.39*	(a) UG2	U3	links	56.25	-0.58	1.82
	(a) UG2	U3	rechts	103.86	0.40	1.82
	(a) PF5	U3		-4.76		
	(a) DS15	U3		36.70		
	(a) DS16	U3		-16.85		
Einw. *Ed.40*	(a) UG2	U3	links	512.77	-2.52	15.89
	(a) UG2	U3	rechts	883.33	0.57	15.89
	(a) PF5	U3		-51.80		
	(a) DS15	U3		292.85		
	(a) DS16	U3		-123.06		
Einw. *Ed.41*	(a) UG2	U3	links	512.77	-2.52	15.89
	(a) UG2	U3	rechts	883.33	0.57	15.89
	(a) PF5	U3		-51.80		
	(a) DS15	U3		292.85		
	(a) DS16	U3		-123.06		
Einw. *Ed.42*	(a) UG2	U3	links	56.25	-0.58	1.82
	(a) UG2	U3	rechts	103.86	0.40	1.82
	(a) PF5	U3		-4.76		
	(a) DS15	U3		36.70		
	(a) DS16	U3		-16.85		
Einw. *Ed.43*	(a) UG2	U3	links	212.74	-1.29	6.73
	(a) UG2	U3	rechts	361.91	0.37	6.73
	(a) PF5	U3		-23.27		
	(a) DS15	U3		121.02		
	(a) DS16	U3		-46.19		
Einw. *Ed.44*	(a) UG2	U3	links	372.94	-1.80	11.48
	(a) UG2	U3	rechts	670.25	0.69	11.48
	(a) PF5	U3		-31.84		
	(a) DS15	U3		225.24		
	(a) DS16	U3		-109.22		
Einw. *Ed.45*	(a) UG2	U3	links	56.25	-0.58	1.82
	(a) UG2	U3	rechts	103.86	0.40	1.82
	(a) PF5	U3		-4.76		
	(a) DS15	U3		36.70		
	(a) DS16	U3		-16.85		
Einw. *Ed.46*	(a) UG2	U3	links	512.77	-2.52	15.89
	(a) UG2	U3	rechts	883.33	0.57	15.89

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF5	U3		-51.80		
	(a) DS15	U3		292.85		
	(a) DS16	U3		-123.06		
Einw. *Ed.47*	(a) UG2	U3	links	56.25	-0.58	1.82
	(a) UG2	U3	rechts	103.86	0.40	1.82
	(a) PF5	U3		-4.76		
	(a) DS15	U3		36.70		
	(a) DS16	U3		-16.85		
Einw. *Ed.48*	(a) UG2	U3	links	512.77	-2.52	15.89
	(a) UG2	U3	rechts	883.33	0.57	15.89
	(a) PF5	U3		-51.80		
	(a) DS15	U3		292.85		
	(a) DS16	U3		-123.06		
Einw. *Ed.49*	(a) UG2	U3	links	512.77	-2.52	15.89
	(a) UG2	U3	rechts	883.33	0.57	15.89
	(a) PF5	U3		-51.80		
	(a) DS15	U3		292.85		
	(a) DS16	U3		-123.06		
Einw. *Ed.50*	(a) UG2	U3	links	56.25	-0.58	1.82
	(a) UG2	U3	rechts	103.86	0.40	1.82
	(a) PF5	U3		-4.76		
	(a) DS15	U3		36.70		
	(a) DS16	U3		-16.85		
Einw. *Ed.51*	(a) UG2	U3	links	56.25	-0.58	1.82
	(a) UG2	U3	rechts	103.86	0.40	1.82
	(a) PF5	U3		-4.76		
	(a) DS15	U3		36.70		
	(a) DS16	U3		-16.85		
Einw. *Ed.52*	(a) UG2	U3	links	512.77	-2.52	15.89
	(a) UG2	U3	rechts	883.33	0.57	15.89
	(a) PF5	U3		-51.80		
	(a) DS15	U3		292.85		
	(a) DS16	U3		-123.06		
Einw. *Ed.53*	(a) UG2	U3	links	505.54	-2.47	15.65
	(a) UG2	U3	rechts	874.98	0.59	15.65
	(a) PF5	U3		-50.26		
	(a) DS15	U3		290.55		
	(a) DS16	U3		-124.21		
Einw. *Ed.54*	(a) UG2	U3	links	56.25	-0.58	1.82
	(a) UG2	U3	rechts	103.86	0.40	1.82
	(a) PF5	U3		-4.76		
	(a) DS15	U3		36.70		
	(a) DS16	U3		-16.85		

(a) aus Pos. 'T2_DA_2', Ort 'U3' (Seite 191)

! ƴãŎKƒdzăăƮNŅŦűŜ

ƝŜădzƒűʎŜƝŜƴŘŜ ! ƴãŎKƒdzăăƮNŅŦűŜ ŦNƝ ŘŜƴ I l·dzLJűăűl·ō

	Stab	F_{Res} [kN]	h_{Res} [ώcб]	N [kN]	V [kN]
Ed.1	UG2	138.74	1.1	138.71	2.55

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.2	UG2	138.74	1.1	138.71	2.55
Ed.3	UG2	138.74	1.1	138.71	2.55
Ed.4	UG2	138.74	1.1	138.71	2.55
Ed.5	UG2	138.74	1.1	138.71	2.55
Ed.6	UG2	138.74	1.1	138.71	2.55
Ed.7	UG2	138.74	1.1	138.71	2.55
Ed.8	UG2	138.74	1.1	138.71	2.55
Ed.9	UG2	138.74	1.1	138.71	2.55
Ed.10	UG2	138.74	1.1	138.71	2.55
Ed.11	UG2	138.74	1.1	138.71	2.55
Ed.12	UG2	138.74	1.1	138.71	2.55
Ed.13	UG2	138.74	1.1	138.71	2.55
Ed.14	UG2	138.74	1.1	138.71	2.55
Ed.15	UG2	138.74	1.1	138.71	2.55
Ed.16	UG2	138.74	1.1	138.71	2.55
Ed.17	UG2	138.74	1.1	138.71	2.55
Ed.18	UG2	138.74	1.1	138.71	2.55
Ed.19	UG2	292.57	0.6	292.55	2.88
Ed.20	UG2	400.67	0.6	400.65	4.11
Ed.21	UG2	292.57	0.6	292.55	2.88
Ed.22	UG2	400.67	0.6	400.65	4.11
Ed.23	UG2	400.67	0.6	400.65	4.11
Ed.24	UG2	292.57	0.6	292.55	2.88
Ed.25	UG2	305.87	0.6	305.85	3.24
Ed.26	UG2	328.53	0.6	328.51	3.54
Ed.27	UG2	292.57	0.6	292.55	2.88
Ed.28	UG2	400.67	0.6	400.65	4.11
Ed.29	UG2	292.57	0.6	292.55	2.88
Ed.30	UG2	400.67	0.6	400.65	4.11
Ed.31	UG2	400.67	0.6	400.65	4.11
Ed.32	UG2	292.57	0.6	292.55	2.88
Ed.33	UG2	292.57	0.6	292.55	2.88
Ed.34	UG2	400.67	0.6	400.65	4.11
Ed.35	UG2	400.67	0.6	400.65	4.11
Ed.36	UG2	305.87	0.6	305.85	3.24
Ed.37	UG2	47.67	1.7	47.65	1.41
Ed.38	UG2	370.60	0.5	370.59	3.51
Ed.39	UG2	47.67	1.7	47.65	1.41
Ed.40	UG2	370.60	0.5	370.59	3.51
Ed.41	UG2	370.60	0.5	370.59	3.51
Ed.42	UG2	47.67	1.7	47.65	1.41
Ed.43	UG2	149.21	0.8	149.20	2.09
Ed.44	UG2	297.35	0.6	297.34	2.91
Ed.45	UG2	47.67	1.7	47.65	1.41
Ed.46	UG2	370.60	0.5	370.59	3.51
Ed.47	UG2	47.67	1.7	47.65	1.41
Ed.48	UG2	370.60	0.5	370.59	3.51
Ed.49	UG2	370.60	0.5	370.59	3.51
Ed.50	UG2	47.67	1.7	47.65	1.41
Ed.51	UG2	47.67	1.7	47.65	1.41

	Stab	FRes [kN]	hRes ώcϐ	N [kN]	V [kN]
Ed.52	UG2	370.60	0.5	370.59	3.51
Ed.53	UG2	369.49	0.5	369.47	3.49
Ed.54	UG2	47.67	1.7	47.65	1.41

Gleichgewicht

ŊŜădzſűʎŜŊŜƴŘŜ ƳƴƵűŜƴʅŊŅŦűŜ ƎſƵōlˑſ

	FRes [kN]	hRes ώcϐ	Fx [kN]	Fz [kN]	My [kNm]
Ed.1	0.57	266.0	-0.04	-0.57	0.00
Ed.2	0.57	266.0	-0.04	-0.57	0.00
Ed.3	0.57	266.0	-0.04	-0.57	0.00
Ed.4	0.57	266.0	-0.04	-0.57	0.00
Ed.5	0.57	266.0	-0.04	-0.57	0.00
Ed.6	0.57	266.0	-0.04	-0.57	0.00
Ed.7	0.57	266.0	-0.04	-0.57	0.00
Ed.8	0.57	266.0	-0.04	-0.57	0.00
Ed.9	0.57	266.0	-0.04	-0.57	0.00
Ed.10	0.57	266.0	-0.04	-0.57	0.00
Ed.11	0.57	266.0	-0.04	-0.57	0.00
Ed.12	0.57	266.0	-0.04	-0.57	0.00
Ed.13	0.57	266.0	-0.04	-0.57	0.00
Ed.14	0.57	266.0	-0.04	-0.57	0.00
Ed.15	0.57	266.0	-0.04	-0.57	0.00
Ed.16	0.57	266.0	-0.04	-0.57	0.00
Ed.17	0.57	266.0	-0.04	-0.57	0.00
Ed.18	0.57	266.0	-0.04	-0.57	0.00
Ed.19	0.42	266.0	-0.03	-0.42	0.00
Ed.20	0.57	266.0	-0.04	-0.57	0.00
Ed.21	0.42	266.0	-0.03	-0.42	0.00
Ed.22	0.57	266.0	-0.04	-0.57	0.00
Ed.23	0.57	266.0	-0.04	-0.57	0.00
Ed.24	0.42	266.0	-0.03	-0.42	0.00
Ed.25	0.42	266.0	-0.03	-0.42	0.00
Ed.26	0.57	266.0	-0.04	-0.57	0.00
Ed.27	0.42	266.0	-0.03	-0.42	0.00
Ed.28	0.57	266.0	-0.04	-0.57	0.00
Ed.29	0.42	266.0	-0.03	-0.42	0.00
Ed.30	0.57	266.0	-0.04	-0.57	0.00
Ed.31	0.57	266.0	-0.04	-0.57	0.00
Ed.32	0.42	266.0	-0.03	-0.42	0.00
Ed.33	0.42	266.0	-0.03	-0.42	0.00
Ed.34	0.57	266.0	-0.04	-0.57	0.00
Ed.35	0.57	266.0	-0.04	-0.57	0.00
Ed.36	0.42	266.0	-0.03	-0.42	0.00
Ed.37	0.42	266.0	-0.03	-0.42	0.00
Ed.38	0.42	266.0	-0.03	-0.42	0.00
Ed.39	0.42	266.0	-0.03	-0.42	0.00
Ed.40	0.42	266.0	-0.03	-0.42	0.00
Ed.41	0.42	266.0	-0.03	-0.42	0.00
Ed.42	0.42	266.0	-0.03	-0.42	0.00
Ed.43	0.42	266.0	-0.03	-0.42	0.00

	F_{Res} [kN]	h Res ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.44	0.42	266.0	-0.03	-0.42	0.00
Ed.45	0.42	266.0	-0.03	-0.42	0.00
Ed.46	0.42	266.0	-0.03	-0.42	0.00
Ed.47	0.42	266.0	-0.03	-0.42	0.00
Ed.48	0.42	266.0	-0.03	-0.42	0.00
Ed.49	0.42	266.0	-0.03	-0.42	0.00
Ed.50	0.42	266.0	-0.03	-0.42	0.00
Ed.51	0.42	266.0	-0.03	-0.42	0.00
Ed.52	0.42	266.0	-0.03	-0.42	0.00
Ed.53	0.42	266.0	-0.03	-0.42	0.00
Ed.54	0.42	266.0	-0.03	-0.42	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maŭgebenden Kombinationen

ăűŅyŘλ∃κØ2ŊÑōŜŊ∃ɸ

Ek	KLED	ʅ (ˀ* ˬ *EW)
1	st	1.00*Ed.1
20	ku	1.00*Ed.20

st: ăűŅyŘλ∃
ku: kurz

Nachweise (GZT)

bł·ǑKØŜλăŜ λϒ DŊŜyĨĨdzăűł·yŘ ŘŜŊ ¢Ŋł·∃ŦŅKλ∃ʅŜλű yΊ·ǑK 5Ŀb 9b мфферπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 714.40 cm²

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	50.08	51.86	0.97

* je Verbindungsmittel

Biegung
Abs. 6.1

bł·ǑKØŜλă ŘŜŊ .λŜ∃Ŝűŋł·∃ŦŅKλ∃ʅŜλű

EK	k_{mod}	N_d / M_d [kNm]	` 0,d / ` m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
20	0.90	550.08	7.70	15.44	0.67
		17.01	3.39	19.38	
rechts					
20	0.90	950.69	13.31	15.44	1.04
		17.01	3.39	19.38	

Querkraft
Abs. 6.1.7

bł·ǑKØŜλă ŘŜŊ vdzŜŊʅŊł·ŦűŊł·∃ŦŅKλ∃ʅŜλű

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
1	0.60	-1.33	-0.04	1.62	0.02
20	0.90	-2.80	-0.08	2.42	0.03
rechts					
1	0.60	0.65	0.02	1.62	0.01
20	0.90	0.74	0.02	2.42	0.01

Querzug

bI·ŎKǿŜıă ŘŜᴎ vdzŜᴎÎdzƎűᴎI·ƎŦŅKƛƎĩŜƛű

Queranschluss h_e/h = 0.50 Ӝ 0.70

dzyǾŜᴎăűŅᴎĩű

EK	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
20	0.90	2.06	54.87	0.04

PF5

Nettoquerschnitt Holz	$A_{ef,H}$	=	376.00	cm^2
Blech	$A_{ef,S}$	=	24.00	cm^2
9ȀÎŜyűᴎƛÎƛűŅűăōŜƛǿŜᴎű	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	27.39	51.86	0.53

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜıă ŘŜᴎ b2ᴎYI·ſĩᴎI·ŦűűᴎI·ƎŦŅKƛƎĩŜƛű

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
20	0.90	-54.79	-1.46	19.38	0.08

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
20	-54.79	22.83	275.00	0.08

DS15

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ȀÎŜyűᴎƛÎƛűŅűăōŜƛǿŜᴎű	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	52.62	51.86	1.01

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜıă ŘŜᴎ b2ᴎYI·ſĩᴎI·ŦűűᴎI·ƎŦŅKƛƎĩŜƛű

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$* [N/mm²]	'
20	0.90	315.70	9.33	10.29	0.91

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
20	315.70	146.16	275.00	0.53

DS16

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ȀÎŜyűᴎƛÎƛűŅűăōŜƛǿŜᴎű	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	33.50	51.86	0.65

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ÕKøŜλă ŘŜỉ b2ỉYl·ƒʅỉl·ŦǘǘỉI·ƎŦŅKλƎʅŜλǘ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm^2]	$f_{0,d}$ [N/mm^2]	'
20	0.90	-134.02	-3.96	19.38	0.20

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
20	-134.0	62.04	275.00	0.23

Nachweise (Brand)

bl·ÕKøŜλăŜ ŘŜỉ CŜdzŜỉøλŘŜỉăǘl·yŘăŦŅKλƎʅŜλǘ yΊ·ÕK 5Lb 9b мффрπмπн

UG2

Nettoquerschnitt Holz	$A_{ef,H}$	=	682.91	cm^2

Querzug

bl·ÕKøŜλă ŘŜỉ vdzŜỉÎdzƎǘỉI·ƎŦŅKλƎʅŜλǘ

Queranschluss	h_e/h	=	0.50	Ӂ 0.70

PF5

Nettoquerschnitt Holz	$A_{ef,H}$	=	354.59	cm^2
Blech	$A_{ef,S}$	=	24.00	cm^2
9ÈÎŜyǘỉλÎλǘŅǘăōŜλøŜỉǘ	k_{te}	=	1.00	

DS15

Nettoquerschnitt Holz	$A_{ef,H}$	=	318.11	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyǘỉλÎλǘŅǘăōŜλøŜỉǘ	k_{te}	=	0.67	

DS16

Nettoquerschnitt Holz	$A_{ef,H}$	=	318.11	cm^2
Blech	$A_{ef,S}$	=	21.60	cm^2
9ÈÎŜyǘỉλÎλǘŅǘăōŜλøŜỉǘ	k_{te}	=	1.00	

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

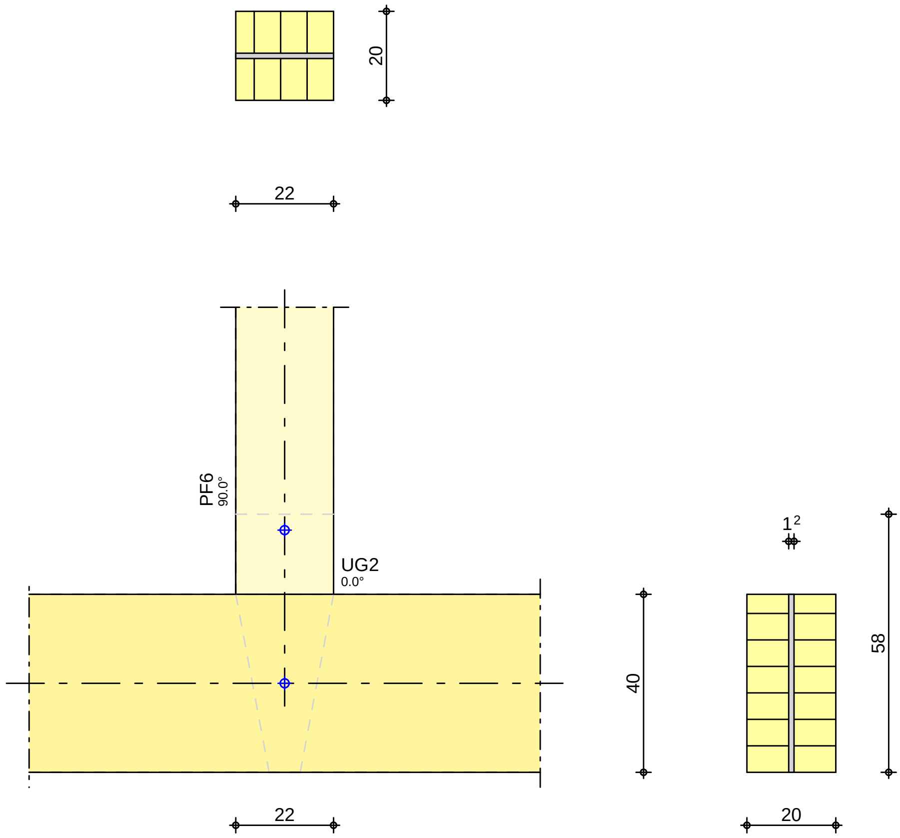
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	DS15	OK	1.01
Stabquerschnitt	UG2	OK	1.04
Blechquerschnitt	DS15	OK	0.53

Pos. T2_DA_3-U4 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	7	BSH GL28h^{f}
PF6	1	90.0	20/22	18	BSH GL28h^{f}

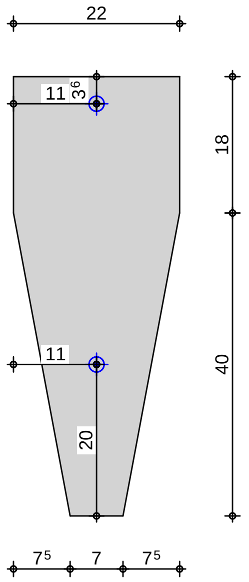
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	1x1	Passbolzen	M20	8.8
PF6	1x1	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	UG2	U4	links	327.96	-0.53	5.85
	(a)	UG2	U4	rechts	327.96	0.21	5.85
	(a)	PF6	U4		0.75		
Einw. *Ed.2*	(a)	UG2	U4	links	327.96	-0.53	5.85
	(a)	UG2	U4	rechts	327.96	0.21	5.85
	(a)	PF6	U4		0.75		
Einw. *Ed.3*	(a)	UG2	U4	links	327.96	-0.53	5.85
	(a)	UG2	U4	rechts	327.96	0.21	5.85
	(a)	PF6	U4		0.75		
Einw. *Ed.4*	(a)	UG2	U4	links	327.96	-0.53	5.85
	(a)	UG2	U4	rechts	327.96	0.21	5.85
	(a)	PF6	U4		0.75		
Einw. *Ed.5*	(a)	UG2	U4	links	327.96	-0.53	5.85
	(a)	UG2	U4	rechts	327.96	0.21	5.85
	(a)	PF6	U4		0.75		
Einw. *Ed.6*	(a)	UG2	U4	links	327.96	-0.53	5.85
	(a)	UG2	U4	rechts	327.96	0.21	5.85
	(a)	PF6	U4		0.75		
Einw. *Ed.7*	(a)	UG2	U4	links	327.96	-0.53	5.85
	(a)	UG2	U4	rechts	327.96	0.21	5.85
	(a)	PF6	U4		0.75		
Einw. *Ed.8*	(a)	UG2	U4	links	327.96	-0.53	5.85
	(a)	UG2	U4	rechts	327.96	0.21	5.85
	(a)	PF6	U4		0.75		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.9*	(a) UG2	U4	links	327.96	-0.53	5.85
	(a) UG2	U4	rechts	327.96	0.21	5.85
	(a) PF6	U4		0.75		
Einw. *Ed.10*	(a) UG2	U4	links	327.96	-0.53	5.85
	(a) UG2	U4	rechts	327.96	0.21	5.85
	(a) PF6	U4		0.75		
Einw. *Ed.11*	(a) UG2	U4	links	327.96	-0.53	5.85
	(a) UG2	U4	rechts	327.96	0.21	5.85
	(a) PF6	U4		0.75		
Einw. *Ed.12*	(a) UG2	U4	links	327.96	-0.53	5.85
	(a) UG2	U4	rechts	327.96	0.21	5.85
	(a) PF6	U4		0.75		
Einw. *Ed.13*	(a) UG2	U4	links	327.96	-0.53	5.85
	(a) UG2	U4	rechts	327.96	0.21	5.85
	(a) PF6	U4		0.75		
Einw. *Ed.14*	(a) UG2	U4	links	327.96	-0.53	5.85
	(a) UG2	U4	rechts	327.96	0.21	5.85
	(a) PF6	U4		0.75		
Einw. *Ed.15*	(a) UG2	U4	links	660.93	-0.20	12.01
	(a) UG2	U4	rechts	660.93	-0.31	12.01
	(a) PF6	U4		-0.10		
Einw. *Ed.16*	(a) UG2	U4	links	950.69	-0.44	17.42
	(a) UG2	U4	rechts	950.69	-0.47	17.42
	(a) PF6	U4		-0.02		
Einw. *Ed.17*	(a) UG2	U4	links	660.93	-0.20	12.01
	(a) UG2	U4	rechts	660.93	-0.31	12.01
	(a) PF6	U4		-0.10		
Einw. *Ed.18*	(a) UG2	U4	links	950.69	-0.44	17.42
	(a) UG2	U4	rechts	950.69	-0.47	17.42
	(a) PF6	U4		-0.02		
Einw. *Ed.19*	(a) UG2	U4	links	844.05	-0.59	15.52
	(a) UG2	U4	rechts	844.05	-0.34	15.52
	(a) PF6	U4		0.25		
Einw. *Ed.20*	(a) UG2	U4	links	660.93	-0.20	12.01
	(a) UG2	U4	rechts	660.93	-0.31	12.01
	(a) PF6	U4		-0.10		
Einw. *Ed.21*	(a) UG2	U4	links	950.69	-0.44	17.42
	(a) UG2	U4	rechts	950.69	-0.47	17.42
	(a) PF6	U4		-0.02		
Einw. *Ed.22*	(a) UG2	U4	links	745.96	-0.34	13.52
	(a) UG2	U4	rechts	745.96	-0.25	13.52
	(a) PF6	U4		0.09		
Einw. *Ed.23*	(a) UG2	U4	links	660.93	-0.20	12.01
	(a) UG2	U4	rechts	660.93	-0.31	12.01
	(a) PF6	U4		-0.10		
Einw. *Ed.24*	(a) UG2	U4	links	950.69	-0.44	17.42
	(a) UG2	U4	rechts	950.69	-0.47	17.42
	(a) PF6	U4		-0.02		
Einw. *Ed.25*	(a) UG2	U4	links	660.93	-0.20	12.01
	(a) UG2	U4	rechts	660.93	-0.31	12.01

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	PF6	U4		-0.10		
Einw. *Ed.26*	(a)	UG2	U4	links	950.69	-0.44	17.42
	(a)	UG2	U4	rechts	950.69	-0.47	17.42
	(a)	PF6	U4		-0.02		
Einw. *Ed.27*	(a)	UG2	U4	links	660.93	-0.20	12.01
	(a)	UG2	U4	rechts	660.93	-0.31	12.01
	(a)	PF6	U4		-0.10		
Einw. *Ed.28*	(a)	UG2	U4	links	844.05	-0.59	15.52
	(a)	UG2	U4	rechts	844.05	-0.34	15.52
	(a)	PF6	U4		0.25		
Einw. *Ed.29*	(a)	UG2	U4	links	103.86	-0.47	1.72
	(a)	UG2	U4	rechts	103.86	0.36	1.72
	(a)	PF6	U4		0.83		
Einw. *Ed.30*	(a)	UG2	U4	links	883.33	-0.31	16.24
	(a)	UG2	U4	rechts	883.33	-0.54	16.24
	(a)	PF6	U4		-0.23		
Einw. *Ed.31*	(a)	UG2	U4	links	103.86	-0.47	1.72
	(a)	UG2	U4	rechts	103.86	0.36	1.72
	(a)	PF6	U4		0.83		
Einw. *Ed.32*	(a)	UG2	U4	links	883.33	-0.31	16.24
	(a)	UG2	U4	rechts	883.33	-0.54	16.24
	(a)	PF6	U4		-0.23		
Einw. *Ed.33*	(a)	UG2	U4	links	361.91	-0.50	6.56
	(a)	UG2	U4	rechts	361.91	0.08	6.56
	(a)	PF6	U4		0.59		
Einw. *Ed.34*	(a)	UG2	U4	links	670.25	-0.18	12.18
	(a)	UG2	U4	rechts	670.25	-0.33	12.18
	(a)	PF6	U4		-0.14		
Einw. *Ed.35*	(a)	UG2	U4	links	883.33	-0.31	16.24
	(a)	UG2	U4	rechts	883.33	-0.54	16.24
	(a)	PF6	U4		-0.23		
Einw. *Ed.36*	(a)	UG2	U4	links	103.86	-0.47	1.72
	(a)	UG2	U4	rechts	103.86	0.36	1.72
	(a)	PF6	U4		0.83		
Einw. *Ed.37*	(a)	UG2	U4	links	103.86	-0.47	1.72
	(a)	UG2	U4	rechts	103.86	0.36	1.72
	(a)	PF6	U4		0.83		
Einw. *Ed.38*	(a)	UG2	U4	links	883.33	-0.31	16.24
	(a)	UG2	U4	rechts	883.33	-0.54	16.24
	(a)	PF6	U4		-0.23		
Einw. *Ed.39*	(a)	UG2	U4	links	103.86	-0.47	1.72
	(a)	UG2	U4	rechts	103.86	0.36	1.72
	(a)	PF6	U4		0.83		
Einw. *Ed.40*	(a)	UG2	U4	links	883.33	-0.31	16.24
	(a)	UG2	U4	rechts	883.33	-0.54	16.24
	(a)	PF6	U4		-0.23		
Einw. *Ed.41*	(a)	UG2	U4	links	874.98	-0.29	16.07
	(a)	UG2	U4	rechts	874.98	-0.54	16.07
	(a)	PF6	U4		-0.25		
Einw. *Ed.42*	(a)	UG2	U4	links	103.86	-0.47	1.72

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
(a)	UG2	U4	rechts	103.86	0.36	1.72
(a)	PF6	U4		0.83		

(a) aus Pos. 'T2_DA_2', Ort 'U4' (Seite 191)

! ўãŎKfdzăă˥ꟿŅŦűŜ

ꟿŜădzfűʎŜꟿŜўŘŜ ! ўãŎKfdzăă˥ꟿŅŦűŜ ŦÑꟿ ŘŜў I I·dzLJűăúI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	UG2	0.75	90.0	0.00	0.75
Ed.2	UG2	0.75	90.0	0.00	0.75
Ed.3	UG2	0.75	90.0	0.00	0.75
Ed.4	UG2	0.75	90.0	0.00	0.75
Ed.5	UG2	0.75	90.0	0.00	0.75
Ed.6	UG2	0.75	90.0	0.00	0.75
Ed.7	UG2	0.75	90.0	0.00	0.75
Ed.8	UG2	0.75	90.0	0.00	0.75
Ed.9	UG2	0.75	90.0	0.00	0.75
Ed.10	UG2	0.75	90.0	0.00	0.75
Ed.11	UG2	0.75	90.0	0.00	0.75
Ed.12	UG2	0.75	90.0	0.00	0.75
Ed.13	UG2	0.75	90.0	0.00	0.75
Ed.14	UG2	0.75	90.0	0.00	0.75
Ed.15	UG2	0.10	270.0	0.00	-0.10
Ed.16	UG2	0.02	270.0	0.00	-0.02
Ed.17	UG2	0.10	270.0	0.00	-0.10
Ed.18	UG2	0.02	270.0	0.00	-0.02
Ed.19	UG2	0.25	90.0	0.00	0.25
Ed.20	UG2	0.10	270.0	0.00	-0.10
Ed.21	UG2	0.02	270.0	0.00	-0.02
Ed.22	UG2	0.09	90.0	0.00	0.09
Ed.23	UG2	0.10	270.0	0.00	-0.10
Ed.24	UG2	0.02	270.0	0.00	-0.02
Ed.25	UG2	0.10	270.0	0.00	-0.10
Ed.26	UG2	0.02	270.0	0.00	-0.02
Ed.27	UG2	0.10	270.0	0.00	-0.10
Ed.28	UG2	0.25	90.0	0.00	0.25
Ed.29	UG2	0.83	90.0	0.00	0.83
Ed.30	UG2	0.23	270.0	0.00	-0.23
Ed.31	UG2	0.83	90.0	0.00	0.83
Ed.32	UG2	0.23	270.0	0.00	-0.23
Ed.33	UG2	0.59	90.0	0.00	0.59
Ed.34	UG2	0.14	270.0	0.00	-0.14
Ed.35	UG2	0.23	270.0	0.00	-0.23
Ed.36	UG2	0.83	90.0	0.00	0.83
Ed.37	UG2	0.83	90.0	0.00	0.83
Ed.38	UG2	0.23	270.0	0.00	-0.23
Ed.39	UG2	0.83	90.0	0.00	0.83
Ed.40	UG2	0.23	270.0	0.00	-0.23
Ed.41	UG2	0.25	270.0	0.00	-0.25
Ed.42	UG2	0.83	90.0	0.00	0.83

Gleichgewicht

[illegible]

	F_{Res} [kN]	h_{Res} [illegible]	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00
Ed.19	0.00		0.00	0.00	0.00
Ed.20	0.00		0.00	0.00	0.00
Ed.21	0.00		0.00	0.00	0.00
Ed.22	0.00		0.00	0.00	0.00
Ed.23	0.00		0.00	0.00	0.00
Ed.24	0.00		0.00	0.00	0.00
Ed.25	0.00		0.00	0.00	0.00
Ed.26	0.00		0.00	0.00	0.00
Ed.27	0.00		0.00	0.00	0.00
Ed.28	0.00		0.00	0.00	0.00
Ed.29	0.00		0.00	0.00	0.00
Ed.30	0.00		0.00	0.00	0.00
Ed.31	0.00		0.00	0.00	0.00
Ed.32	0.00		0.00	0.00	0.00
Ed.33	0.00		0.00	0.00	0.00
Ed.34	0.00		0.00	0.00	0.00
Ed.35	0.00		0.00	0.00	0.00
Ed.36	0.00		0.00	0.00	0.00
Ed.37	0.00		0.00	0.00	0.00
Ed.38	0.00		0.00	0.00	0.00
Ed.39	0.00		0.00	0.00	0.00
Ed.40	0.00		0.00	0.00	0.00
Ed.41	0.00		0.00	0.00	0.00
Ed.42	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

	Ek	KLED	[illegible] (*EW)
[illegible]	1	st	1.00*Ed.1

st: [illegible]

Nachweise (GZT) bI·ŎKǿŜầŜ ⅄Ƴ DŊŜyÎÎdzǻűI·yŘ ŘŜŊ ¢ŊI·ƎŦŅK⅄ƎʅŜ⅄ű yI·ŎK 5Łb 9b мфφрπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 714.40 cm²

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	0.75	12.21	0.06

* je Verbindungsmittel

Biegung
Abs. 6.1

bI·ŎKǿŜầ ŘŜŊ .⅄ŜƎŜűŊI·ƎŦŅK⅄ƎʅŜ⅄ű

EK	k_{mod}	N_d / M_d [kNm]	`0,d / `m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
16	0.90	950.69	13.31	15.44	1.04
		17.42	3.47	19.38	
rechts					
16	0.90	950.69	13.31	15.44	1.04
		17.42	3.47	19.38	

Querkraft
Abs. 6.1.7

bI·ŎKǿŜầ ŘŜŊ vdzŜŊʅŊI·ŦűŊI·ƎŦŅK⅄ƎʅŜ⅄ű

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
1	0.60	-0.53	-0.02	1.62	0.01
30	1.00	-0.31	-0.01	2.69	0.00
rechts					
1	0.60	0.21	0.01	1.62	0.00
30	1.00	-0.54	-0.02	2.69	0.01

Querzug

bI·ŎKǿŜầ ŘŜŊ vdzŜŊÎdzƎűŊI·ƎŦŅK⅄ƎʅŜ⅄ű

Queranschluss h_e/h = 0.50 Ӂ 0.70

dzyØŜŊầűŅŊʅű

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
1	0.60	0.37	11.61	0.03

PF6

Nettoquerschnitt Holz $A_{ef,H}$ = 376.00 cm²
Blech $A_{ef,S}$ = 24.00 cm²
9ÈÎŜyűŊ⅄Î⅄űŅűầōŜ⅄ǿŜŊű k_{te} = 0.67

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	0.75	17.29	0.04

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜầ ŘŜŊ bƻŊY I·ƒʅŊI·ŦűŊI·ƎŦŅK⅄ƎʅŜ⅄ű

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
1	0.60	0.75	0.02	6.86	0.00

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
29	0.83	0.35	275.00	0.00

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

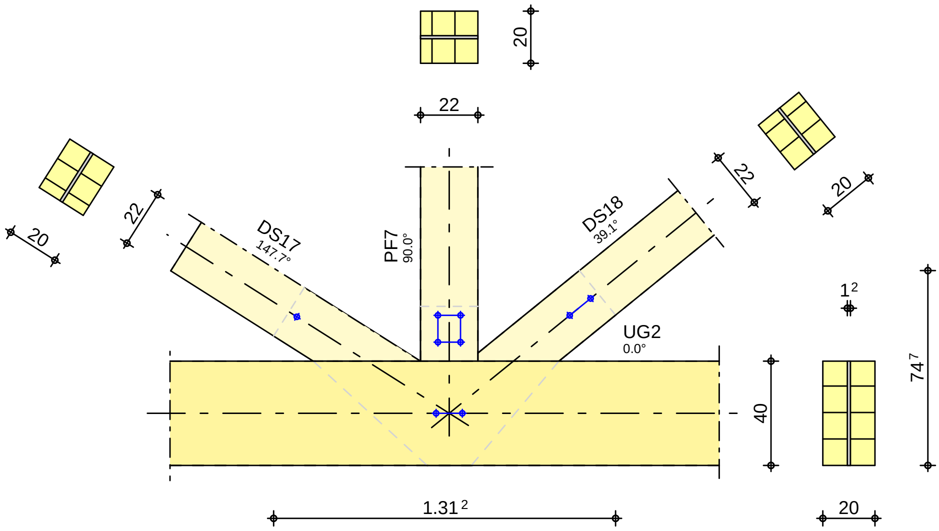
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	UG2	OK	0.06
Stabquerschnitt	UG2	OK	1.04
Blechquerschnitt	PF6	OK	0.00

Pos. T2_DA_3-U5 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:29

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	17	BSH GL28h^f
PF7	1	90.0	20/22	21	BSH GL28h^f
DS17	1	147.7	20/22	18	BSH GL28h^f
DS18	1	39.1	20/22	28	BSH GL28h^f

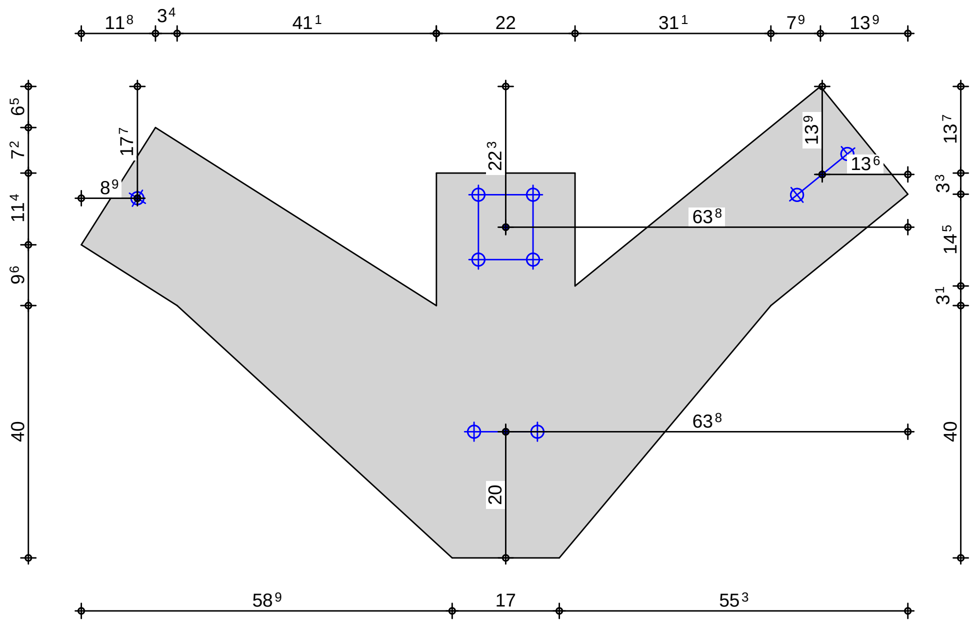
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	2x1	Passbolzen	M20	8.8
PF7	2x2	Passbolzen	M20	8.8
DS17	1x1	Passbolzen	M20	8.8
DS18	2x1	Passbolzen	M20	8.8

Blech
M 1:12



Anzahl	Dicke [mm]	Material
1	12.0	S 235

Belastungen

Belastungen auf das System

Stablasten

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a) UG2	U5	links	327.96	-0.97	4.81
	(a) UG2	U5	rechts	307.94	0.23	4.81
	(a) PF7	U5		-16.98		
	(a) DS17	U5		2.03		
	(a) DS18	U5		27.95		
Einw. *Ed.2*	(a) UG2	U5	links	327.96	-0.97	4.81
	(a) UG2	U5	rechts	307.94	0.23	4.81
	(a) PF7	U5		-16.98		
	(a) DS17	U5		2.03		
	(a) DS18	U5		27.95		
Einw. *Ed.3*	(a) UG2	U5	links	327.96	-0.97	4.81
	(a) UG2	U5	rechts	307.94	0.23	4.81
	(a) PF7	U5		-16.98		
	(a) DS17	U5		2.03		
	(a) DS18	U5		27.95		
Einw. *Ed.4*	(a) UG2	U5	links	327.96	-0.97	4.81
	(a) UG2	U5	rechts	307.94	0.23	4.81
	(a) PF7	U5		-16.98		
	(a) DS17	U5		2.03		
	(a) DS18	U5		27.95		
Einw. *Ed.5*	(a) UG2	U5	links	327.96	-0.97	4.81
	(a) UG2	U5	rechts	307.94	0.23	4.81
	(a) PF7	U5		-16.98		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.6*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.7*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.8*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.9*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.10*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.11*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.12*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.13*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.14*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		
	(a)	DS17	U5		2.03		
	(a)	DS18	U5		27.95		
Einw. *Ed.15*	(a)	UG2	U5	links	327.96	-0.97	4.81
	(a)	UG2	U5	rechts	307.94	0.23	4.81
	(a)	PF7	U5		-16.98		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS17	U5		2.03		
	(a) DS18	U5		27.95		
Einw. *Ed.16*	(a) UG2	U5	links	327.96	-0.97	4.81
	(a) UG2	U5	rechts	307.94	0.23	4.81
	(a) PF7	U5		-16.98		
	(a) DS17	U5		2.03		
	(a) DS18	U5		27.95		
Einw. *Ed.17*	(a) UG2	U5	links	327.96	-0.97	4.81
	(a) UG2	U5	rechts	307.94	0.23	4.81
	(a) PF7	U5		-16.98		
	(a) DS17	U5		2.03		
	(a) DS18	U5		27.95		
Einw. *Ed.18*	(a) UG2	U5	links	327.96	-0.97	4.81
	(a) UG2	U5	rechts	307.94	0.23	4.81
	(a) PF7	U5		-16.98		
	(a) DS17	U5		2.03		
	(a) DS18	U5		27.95		
Einw. *Ed.19*	(a) UG2	U5	links	660.93	-1.19	9.96
	(a) UG2	U5	rechts	660.16	-0.03	9.96
	(a) PF7	U5		-29.39		
	(a) DS17	U5		24.84		
	(a) DS18	U5		28.00		
Einw. *Ed.20*	(a) UG2	U5	links	950.69	-1.65	14.52
	(a) UG2	U5	rechts	890.77	-0.52	14.52
	(a) PF7	U5		-52.85		
	(a) DS17	U5		4.81		
	(a) DS18	U5		82.39		
Einw. *Ed.21*	(a) UG2	U5	links	660.93	-1.19	9.96
	(a) UG2	U5	rechts	660.16	-0.03	9.96
	(a) PF7	U5		-29.39		
	(a) DS17	U5		24.84		
	(a) DS18	U5		28.00		
Einw. *Ed.22*	(a) UG2	U5	links	950.69	-1.65	14.52
	(a) UG2	U5	rechts	890.77	-0.52	14.52
	(a) PF7	U5		-52.85		
	(a) DS17	U5		4.81		
	(a) DS18	U5		82.39		
Einw. *Ed.23*	(a) UG2	U5	links	950.69	-1.65	14.52
	(a) UG2	U5	rechts	890.77	-0.52	14.52
	(a) PF7	U5		-52.85		
	(a) DS17	U5		4.81		
	(a) DS18	U5		82.39		
Einw. *Ed.24*	(a) UG2	U5	links	660.93	-1.19	9.96
	(a) UG2	U5	rechts	660.16	-0.03	9.96
	(a) PF7	U5		-29.39		
	(a) DS17	U5		24.84		
	(a) DS18	U5		28.00		
Einw. *Ed.25*	(a) UG2	U5	links	759.03	-1.27	11.73
	(a) UG2	U5	rechts	670.29	-0.75	11.73
	(a) PF7	U5		-49.57		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS17	U5		-17.66		
	(a) DS18	U5		95.06		
Einw. *Ed.26*	(a) UG2	U5	links	745.96	-1.44	11.21
	(a) UG2	U5	rechts	740.00	0.03	11.21
	(a) PF7	U5		-33.80		
	(a) DS17	U5		25.37		
	(a) DS18	U5		35.25		
Einw. *Ed.27*	(a) UG2	U5	links	660.93	-1.19	9.96
	(a) UG2	U5	rechts	660.16	-0.03	9.96
	(a) PF7	U5		-29.39		
	(a) DS17	U5		24.84		
	(a) DS18	U5		28.00		
Einw. *Ed.28*	(a) UG2	U5	links	950.69	-1.65	14.52
	(a) UG2	U5	rechts	890.77	-0.52	14.52
	(a) PF7	U5		-52.85		
	(a) DS17	U5		4.81		
	(a) DS18	U5		82.39		
Einw. *Ed.29*	(a) UG2	U5	links	660.93	-1.19	9.96
	(a) UG2	U5	rechts	660.16	-0.03	9.96
	(a) PF7	U5		-29.39		
	(a) DS17	U5		24.84		
	(a) DS18	U5		28.00		
Einw. *Ed.30*	(a) UG2	U5	links	950.69	-1.65	14.52
	(a) UG2	U5	rechts	890.77	-0.52	14.52
	(a) PF7	U5		-52.85		
	(a) DS17	U5		4.81		
	(a) DS18	U5		82.39		
Einw. *Ed.31*	(a) UG2	U5	links	844.05	-1.52	12.98
	(a) UG2	U5	rechts	750.12	-0.69	12.98
	(a) PF7	U5		-53.97		
	(a) DS17	U5		-17.14		
	(a) DS18	U5		102.31		
Einw. *Ed.32*	(a) UG2	U5	links	660.93	-1.19	9.96
	(a) UG2	U5	rechts	660.16	-0.03	9.96
	(a) PF7	U5		-29.39		
	(a) DS17	U5		24.84		
	(a) DS18	U5		28.00		
Einw. *Ed.33*	(a) UG2	U5	links	759.03	-1.27	11.73
	(a) UG2	U5	rechts	670.29	-0.75	11.73
	(a) PF7	U5		-49.57		
	(a) DS17	U5		-17.66		
	(a) DS18	U5		95.06		
Einw. *Ed.34*	(a) UG2	U5	links	745.96	-1.44	11.21
	(a) UG2	U5	rechts	740.00	0.03	11.21
	(a) PF7	U5		-33.80		
	(a) DS17	U5		25.37		
	(a) DS18	U5		35.25		
Einw. *Ed.35*	(a) UG2	U5	links	660.93	-1.19	9.96
	(a) UG2	U5	rechts	660.16	-0.03	9.96
	(a) PF7	U5		-29.39		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS17	U5		24.84		
	(a) DS18	U5		28.00		
Einw. *Ed.36*	(a) UG2	U5	links	844.05	-1.52	12.98
	(a) UG2	U5	rechts	750.12	-0.69	12.98
	(a) PF7	U5		-53.97		
	(a) DS17	U5		-17.14		
	(a) DS18	U5		102.31		
Einw. *Ed.37*	(a) UG2	U5	links	103.86	-0.52	1.50
	(a) UG2	U5	rechts	99.01	0.30	1.50
	(a) PF7	U5		-4.64		
	(a) DS17	U5		1.58		
	(a) DS18	U5		7.94		
Einw. *Ed.38*	(a) UG2	U5	links	883.33	-1.42	13.55
	(a) UG2	U5	rechts	823.89	-0.62	13.55
	(a) PF7	U5		-50.07		
	(a) DS17	U5		2.46		
	(a) DS18	U5		79.22		
Einw. *Ed.39*	(a) UG2	U5	links	103.86	-0.52	1.50
	(a) UG2	U5	rechts	99.01	0.30	1.50
	(a) PF7	U5		-4.64		
	(a) DS17	U5		1.58		
	(a) DS18	U5		7.94		
Einw. *Ed.40*	(a) UG2	U5	links	883.33	-1.42	13.55
	(a) UG2	U5	rechts	823.89	-0.62	13.55
	(a) PF7	U5		-50.07		
	(a) DS17	U5		2.46		
	(a) DS18	U5		79.22		
Einw. *Ed.41*	(a) UG2	U5	links	883.33	-1.42	13.55
	(a) UG2	U5	rechts	823.89	-0.62	13.55
	(a) PF7	U5		-50.07		
	(a) DS17	U5		2.46		
	(a) DS18	U5		79.22		
Einw. *Ed.42*	(a) UG2	U5	links	103.86	-0.52	1.50
	(a) UG2	U5	rechts	99.01	0.30	1.50
	(a) PF7	U5		-4.64		
	(a) DS17	U5		1.58		
	(a) DS18	U5		7.94		
Einw. *Ed.43*	(a) UG2	U5	links	776.69	-1.29	12.01
	(a) UG2	U5	rechts	683.25	-0.80	12.01
	(a) PF7	U5		-51.19		
	(a) DS17	U5		-19.48		
	(a) DS18	U5		99.14		
Einw. *Ed.44*	(a) UG2	U5	links	103.86	-0.52	1.50
	(a) UG2	U5	rechts	99.01	0.30	1.50
	(a) PF7	U5		-4.64		
	(a) DS17	U5		1.58		
	(a) DS18	U5		7.94		
Einw. *Ed.45*	(a) UG2	U5	links	103.86	-0.52	1.50
	(a) UG2	U5	rechts	99.01	0.30	1.50
	(a) PF7	U5		-4.64		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) DS17	U5		1.58		
	(a) DS18	U5		7.94		
Einw. *Ed.46*	(a) UG2	U5	links	883.33	-1.42	13.55
	(a) UG2	U5	rechts	823.89	-0.62	13.55
	(a) PF7	U5		-50.07		
	(a) DS17	U5		2.46		
	(a) DS18	U5		79.22		
Einw. *Ed.47*	(a) UG2	U5	links	103.86	-0.52	1.50
	(a) UG2	U5	rechts	99.01	0.30	1.50
	(a) PF7	U5		-4.64		
	(a) DS17	U5		1.58		
	(a) DS18	U5		7.94		
Einw. *Ed.48*	(a) UG2	U5	links	883.33	-1.42	13.55
	(a) UG2	U5	rechts	823.89	-0.62	13.55
	(a) PF7	U5		-50.07		
	(a) DS17	U5		2.46		
	(a) DS18	U5		79.22		
Einw. *Ed.49*	(a) UG2	U5	links	776.69	-1.29	12.01
	(a) UG2	U5	rechts	683.25	-0.80	12.01
	(a) PF7	U5		-51.19		
	(a) DS17	U5		-19.48		
	(a) DS18	U5		99.14		
Einw. *Ed.50*	(a) UG2	U5	links	103.86	-0.52	1.50
	(a) UG2	U5	rechts	99.01	0.30	1.50
	(a) PF7	U5		-4.64		
	(a) DS17	U5		1.58		
	(a) DS18	U5		7.94		
Einw. *Ed.51*	(a) UG2	U5	links	776.69	-1.29	12.01
	(a) UG2	U5	rechts	683.25	-0.80	12.01
	(a) PF7	U5		-51.19		
	(a) DS17	U5		-19.48		
	(a) DS18	U5		99.14		
Einw. *Ed.52*	(a) UG2	U5	links	670.25	-1.20	10.08
	(a) UG2	U5	rechts	672.25	-0.01	10.08
	(a) PF7	U5		-29.31		
	(a) DS17	U5		26.65		
	(a) DS18	U5		26.40		
Einw. *Ed.53*	(a) UG2	U5	links	103.86	-0.52	1.50
	(a) UG2	U5	rechts	99.01	0.30	1.50
	(a) PF7	U5		-4.64		
	(a) DS17	U5		1.58		
	(a) DS18	U5		7.94		
Einw. *Ed.54*	(a) UG2	U5	links	776.69	-1.29	12.01
	(a) UG2	U5	rechts	683.25	-0.80	12.01
	(a) PF7	U5		-51.19		
	(a) DS17	U5		-19.48		
	(a) DS18	U5		99.14		

(a) aus Pos. 'T2_DA_2', Ort 'U5' (Seite 191)

! ӯãŎҜƭdzăăʅ₪ŅŦűŜ

₪Ŝădzƭű⅄Ŝ₪ŜӯŘŜ ! ӯãŎҜƭdzăăʅ₪ŅŦűŜ ŦÑ₪ ŘŜӯ I I·dzǇűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	UG2	20.06	175.1	-19.99	1.73
Ed.2	UG2	20.06	175.1	-19.99	1.73
Ed.3	UG2	20.06	175.1	-19.99	1.73
Ed.4	UG2	20.06	175.1	-19.99	1.73
Ed.5	UG2	20.06	175.1	-19.99	1.73
Ed.6	UG2	20.06	175.1	-19.99	1.73
Ed.7	UG2	20.06	175.1	-19.99	1.73
Ed.8	UG2	20.06	175.1	-19.99	1.73
Ed.9	UG2	20.06	175.1	-19.99	1.73
Ed.10	UG2	20.06	175.1	-19.99	1.73
Ed.11	UG2	20.06	175.1	-19.99	1.73
Ed.12	UG2	20.06	175.1	-19.99	1.73
Ed.13	UG2	20.06	175.1	-19.99	1.73
Ed.14	UG2	20.06	175.1	-19.99	1.73
Ed.15	UG2	20.06	175.1	-19.99	1.73
Ed.16	UG2	20.06	175.1	-19.99	1.73
Ed.17	UG2	20.06	175.1	-19.99	1.73
Ed.18	UG2	20.06	175.1	-19.99	1.73
Ed.19	UG2	1.72	115.8	-0.75	1.55
Ed.20	UG2	59.91	178.4	-59.89	1.66
Ed.21	UG2	1.72	115.8	-0.75	1.55
Ed.22	UG2	59.91	178.4	-59.89	1.66
Ed.23	UG2	59.91	178.4	-59.89	1.66
Ed.24	UG2	1.72	115.8	-0.75	1.55
Ed.25	UG2	88.72	179.4	-88.72	0.91
Ed.26	UG2	6.26	161.4	-5.93	1.99
Ed.27	UG2	1.72	115.8	-0.75	1.55
Ed.28	UG2	59.91	178.4	-59.89	1.66
Ed.29	UG2	1.72	115.8	-0.75	1.55
Ed.30	UG2	59.91	178.4	-59.89	1.66
Ed.31	UG2	93.91	179.2	-93.90	1.36
Ed.32	UG2	1.72	115.8	-0.75	1.55
Ed.33	UG2	88.72	179.4	-88.72	0.91
Ed.34	UG2	6.26	161.4	-5.93	1.99
Ed.35	UG2	1.72	115.8	-0.75	1.55
Ed.36	UG2	93.91	179.2	-93.90	1.36
Ed.37	UG2	4.98	166.0	-4.83	1.20
Ed.38	UG2	59.43	178.9	-59.41	1.18
Ed.39	UG2	4.98	166.0	-4.83	1.20
Ed.40	UG2	59.43	178.9	-59.41	1.18
Ed.41	UG2	59.43	178.9	-59.41	1.18
Ed.42	UG2	4.98	166.0	-4.83	1.20
Ed.43	UG2	93.43	179.5	-93.42	0.88
Ed.44	UG2	4.98	166.0	-4.83	1.20
Ed.45	UG2	4.98	166.0	-4.83	1.20
Ed.46	UG2	59.43	178.9	-59.41	1.18
Ed.47	UG2	4.98	166.0	-4.83	1.20

	Stab	FRes [kN]	hRes ώcϐ	N [kN]	V [kN]
Ed.48	UG2	59.43	178.9	-59.41	1.18
Ed.49	UG2	93.43	179.5	-93.42	0.88
Ed.50	UG2	4.98	166.0	-4.83	1.20
Ed.51	UG2	93.43	179.5	-93.42	0.88
Ed.52	UG2	2.57	38.1	2.02	1.59
Ed.53	UG2	4.98	166.0	-4.83	1.20
Ed.54	UG2	93.43	179.5	-93.42	0.88

Gleichgewicht

ƝŜădzŧŭʎŜƝŜуŘŜ Yу2ŭŜу̃ƝŅŦŭŜ ∃ŧ2ōǀ·ŧ

	FRes [kN]	hRes ώcϐ	Fx [kN]	Fz [kN]	My [kNm]
Ed.1	0.53	266.6	-0.03	-0.53	0.00
Ed.2	0.53	266.6	-0.03	-0.53	0.00
Ed.3	0.53	266.6	-0.03	-0.53	0.00
Ed.4	0.53	266.6	-0.03	-0.53	0.00
Ed.5	0.53	266.6	-0.03	-0.53	0.00
Ed.6	0.53	266.6	-0.03	-0.53	0.00
Ed.7	0.53	266.6	-0.03	-0.53	0.00
Ed.8	0.53	266.6	-0.03	-0.53	0.00
Ed.9	0.53	266.6	-0.03	-0.53	0.00
Ed.10	0.53	266.6	-0.03	-0.53	0.00
Ed.11	0.53	266.6	-0.03	-0.53	0.00
Ed.12	0.53	266.6	-0.03	-0.53	0.00
Ed.13	0.53	266.6	-0.03	-0.53	0.00
Ed.14	0.53	266.6	-0.03	-0.53	0.00
Ed.15	0.53	266.6	-0.03	-0.53	0.00
Ed.16	0.53	266.6	-0.03	-0.53	0.00
Ed.17	0.53	266.6	-0.03	-0.53	0.00
Ed.18	0.53	266.6	-0.03	-0.53	0.00
Ed.19	0.39	266.6	-0.02	-0.39	0.00
Ed.20	0.53	266.6	-0.03	-0.53	0.00
Ed.21	0.39	266.6	-0.02	-0.39	0.00
Ed.22	0.53	266.6	-0.03	-0.53	0.00
Ed.23	0.53	266.6	-0.03	-0.53	0.00
Ed.24	0.39	266.6	-0.02	-0.39	0.00
Ed.25	0.39	266.6	-0.02	-0.39	0.00
Ed.26	0.53	266.6	-0.03	-0.53	0.00
Ed.27	0.39	266.6	-0.02	-0.39	0.00
Ed.28	0.53	266.6	-0.03	-0.53	0.00
Ed.29	0.39	266.6	-0.02	-0.39	0.00
Ed.30	0.53	266.6	-0.03	-0.53	0.00
Ed.31	0.53	266.6	-0.03	-0.53	0.00
Ed.32	0.39	266.6	-0.02	-0.39	0.00
Ed.33	0.39	266.6	-0.02	-0.39	0.00
Ed.34	0.53	266.6	-0.03	-0.53	0.00
Ed.35	0.39	266.6	-0.02	-0.39	0.00
Ed.36	0.53	266.6	-0.03	-0.53	0.00
Ed.37	0.39	266.6	-0.02	-0.39	0.00
Ed.38	0.39	266.6	-0.02	-0.39	0.00
Ed.39	0.39	266.6	-0.02	-0.39	0.00

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.40	0.39	266.6	-0.02	-0.39	0.00
Ed.41	0.39	266.6	-0.02	-0.39	0.00
Ed.42	0.39	266.6	-0.02	-0.39	0.00
Ed.43	0.39	266.6	-0.02	-0.39	0.00
Ed.44	0.39	266.6	-0.02	-0.39	0.00
Ed.45	0.39	266.6	-0.02	-0.39	0.00
Ed.46	0.39	266.6	-0.02	-0.39	0.00
Ed.47	0.39	266.6	-0.02	-0.39	0.00
Ed.48	0.39	266.6	-0.02	-0.39	0.00
Ed.49	0.39	266.6	-0.02	-0.39	0.00
Ed.50	0.39	266.6	-0.02	-0.39	0.00
Ed.51	0.39	266.6	-0.02	-0.39	0.00
Ed.52	0.39	266.6	-0.02	-0.39	0.00
Ed.53	0.39	266.6	-0.02	-0.39	0.00
Ed.54	0.39	266.6	-0.02	-0.39	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ăűŅyŘλƎĸØ2ŊŇōŜŊƎφ

Ek	KLED	ɿ (ᒧ* ˒ *EW)
1	st	1.00*Ed.1
26	ku	1.00*Ed.26
31	ku	1.00*Ed.31

st: ăűŅyŘλƎ
ku: kurz

Nachweise (GZT)

bl·ŎKøŜλăŜ λY DŊŜyÎÎdzăűl·yŘ ŘŜŊ ¢Ŋl·ƎŦŅKλƎʅŜλű yl·ŎK 5Ŀb 9b мфφрπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 714.40 cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
31	0.90	46.95	51.86	0.91

* je Verbindungsmittel

Biegung
Abs. 6.1

bl·ŎKøŜλă ŘŜŊ .λŜƎŜűŊl·ƎŦŅKλƎʅŜλű

EK	k_{mod}	N_d / M_d [kNm]	`0,d / `m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
20	0.90	950.69	13.31	15.44	1.01
		14.52	2.90	19.38	
rechts					
20	0.90	890.77	12.47	15.44	0.96
		14.52	2.90	19.38	

Querkraft
Abs. 6.1.7

bl·ŎKøŜλă ŘŜŊ vdzŜŊʅŊl·ŦűŊl·ƎŦŅKλƎʅŜλű

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
20	0.90	-1.65	-0.05	2.42	0.02

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
25	0.90	-1.27	-0.04	2.42	0.02
rechts					
20	0.90	-0.52	-0.02	2.42	0.01
25	0.90	-0.75	-0.02	2.42	0.01

Querzug

bl·ŎKøŜλă ŘŜ vdzŜŪÎdzƎűŪl·ƎŦŅKλƎʅŜλű

Queranschluss h_e/h = 0.50 Ӿ 0.70

dzyØŜŪăűŅŪʅű

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
1	0.60	0.86	12.21	0.07

PF7

Nettoquerschnitt Holz $A_{ef,H}$ = 338.40 cm²
Blech $A_{ef,S}$ = 21.60 cm²
9ÈÎŜyűŪλÎλűŅűăōŜλøŜŪű k_{te} = 1.00

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}^*$ [kN]	$F_{v,Rd,ef}^*$ [kN]	'
31	0.90	13.49	51.86	0.26

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜλă ŘŜ b2ŪY l·ƭʅŪl·ŦűŪl·ƎŦŅKλƎʅŜλű

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$ [N/mm²]	'
31	0.90	-53.97	-1.59	19.38	0.08

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
31	-53.97	24.99	235.00	0.11

DS17

Nettoquerschnitt Holz $A_{ef,H}$ = 376.00 cm²
Blech $A_{ef,S}$ = 24.00 cm²
9ÈÎŜyűŪλÎλűŅűăōŜλøŜŪű k_{te} = 0.67

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}^*$ [kN]	$F_{v,Rd,ef}^*$ [kN]	'
26	0.90	25.37	25.93	0.98

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜλă ŘŜ b2ŪY l·ƭʅŪl·ŦűŪl·ƎŦŅKλƎʅŜλű

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}^*$ [N/mm²]	'
26	0.90	25.37	0.67	10.29	0.07

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
52	26.65	11.10	235.00	0.05

DS18

Nettoquerschnitt Holz	$A_{ef,H}$	=	376.00	cm^2
Blech	$A_{ef,S}$	=	24.00	cm^2
9ÈÎŜyŰÎŲŰŅŰăōŜøŜŰ	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
31	0.90	51.15	51.86	0.99

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜă ŘŜ b2Ÿ l·f l·ŦŰl·ƎŦŅKƎ Ŝ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm^2]	$f_{0,d}$* [N/mm^2]	'
31	0.90	102.31	2.72	10.29	0.26

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
31	102.31	42.63	235.00	0.18

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

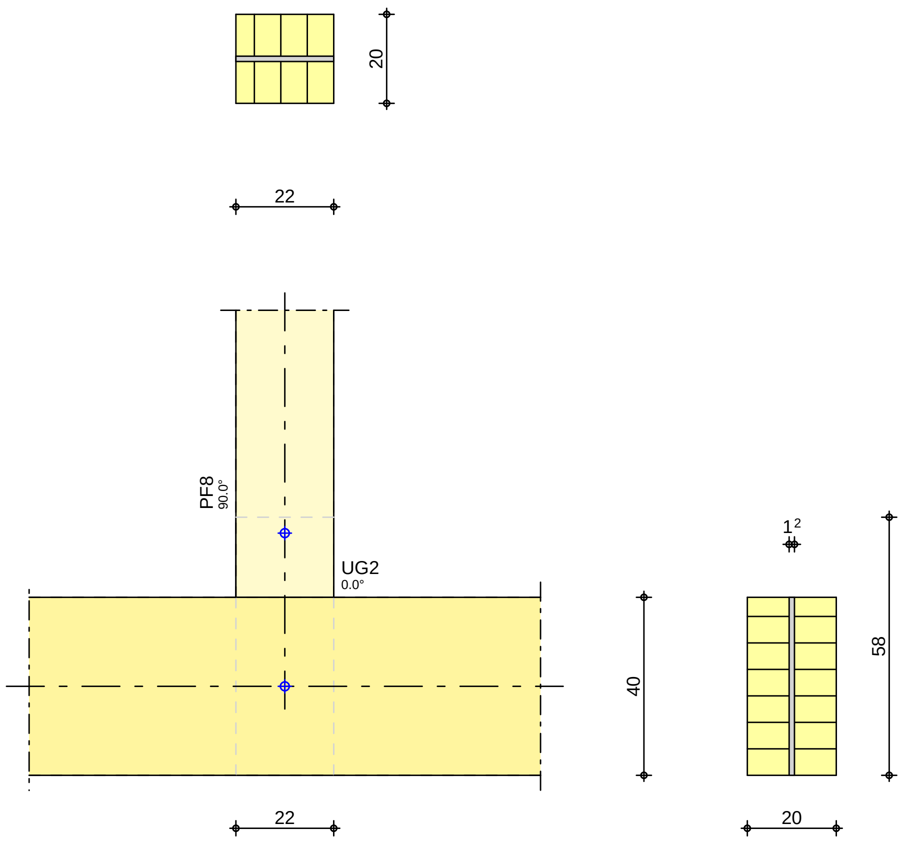
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	DS18	OK	0.99
Stabquerschnitt	UG2	OK	1.01
Blechquerschnitt	DS18	OK	0.18

Pos. T2_DA_3-U6 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	7	BSH GL28h[f]
PF8	1	90.0	20/22	18	BSH GL28h[f]

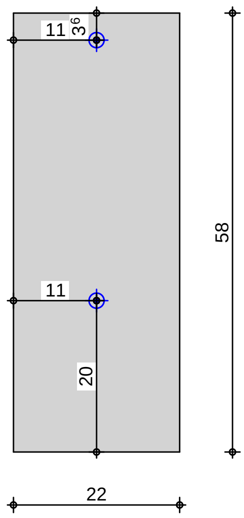
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	1x1	Passbolzen	M20	8.8
PF8	1x1	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 235

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.2*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.3*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.4*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.5*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.6*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.7*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.8*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.9*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.10*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.11*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.12*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.13*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.14*	(a)	UG2	U6	links	307.94	-0.95	3.82
	(a)	UG2	U6	rechts	307.94	0.41	3.82
	(a)	PF8	U6		1.36		
Einw. *Ed.15*	(a)	UG2	U6	links	660.16	-0.91	8.67
	(a)	UG2	U6	rechts	660.16	0.23	8.67
	(a)	PF8	U6		1.14		
Einw. *Ed.16*	(a)	UG2	U6	links	890.77	-1.70	11.47
	(a)	UG2	U6	rechts	890.77	0.12	11.47
	(a)	PF8	U6		1.82		
Einw. *Ed.17*	(a)	UG2	U6	links	660.16	-0.91	8.67
	(a)	UG2	U6	rechts	660.16	0.23	8.67
	(a)	PF8	U6		1.14		
Einw. *Ed.18*	(a)	UG2	U6	links	890.77	-1.70	11.47
	(a)	UG2	U6	rechts	890.77	0.12	11.47
	(a)	PF8	U6		1.82		
Einw. *Ed.19*	(a)	UG2	U6	links	750.12	-1.88	9.46
	(a)	UG2	U6	rechts	750.12	0.05	9.46
	(a)	PF8	U6		1.92		
Einw. *Ed.20*	(a)	UG2	U6	links	660.16	-0.91	8.67
	(a)	UG2	U6	rechts	660.16	0.23	8.67
	(a)	PF8	U6		1.14		
Einw. *Ed.21*	(a)	UG2	U6	links	670.29	-1.63	8.47
	(a)	UG2	U6	rechts	670.29	-0.06	8.47
	(a)	PF8	U6		1.57		
Einw. *Ed.22*	(a)	UG2	U6	links	740.00	-1.16	9.66
	(a)	UG2	U6	rechts	740.00	0.34	9.66
	(a)	PF8	U6		1.49		
Einw. *Ed.23*	(a)	UG2	U6	links	670.29	-1.63	8.47
	(a)	UG2	U6	rechts	670.29	-0.06	8.47
	(a)	PF8	U6		1.57		
Einw. *Ed.24*	(a)	UG2	U6	links	890.77	-1.70	11.47
	(a)	UG2	U6	rechts	890.77	0.12	11.47
	(a)	PF8	U6		1.82		
Einw. *Ed.25*	(a)	UG2	U6	links	670.29	-1.63	8.47
	(a)	UG2	U6	rechts	670.29	-0.06	8.47

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF8	U6		1.57		
Einw. *Ed.26*	(a) UG2	U6	links	890.77	-1.70	11.47
	(a) UG2	U6	rechts	890.77	0.12	11.47
	(a) PF8	U6		1.82		
Einw. *Ed.27*	(a) UG2	U6	links	660.16	-0.91	8.67
	(a) UG2	U6	rechts	660.16	0.23	8.67
	(a) PF8	U6		1.14		
Einw. *Ed.28*	(a) UG2	U6	links	750.12	-1.88	9.46
	(a) UG2	U6	rechts	750.12	0.05	9.46
	(a) PF8	U6		1.92		
Einw. *Ed.29*	(a) UG2	U6	links	99.01	-0.58	1.11
	(a) UG2	U6	rechts	99.01	0.39	1.11
	(a) PF8	U6		0.97		
Einw. *Ed.30*	(a) UG2	U6	links	823.89	-1.50	10.64
	(a) UG2	U6	rechts	823.89	-0.00	10.64
	(a) PF8	U6		1.50		
Einw. *Ed.31*	(a) UG2	U6	links	99.01	-0.58	1.11
	(a) UG2	U6	rechts	99.01	0.39	1.11
	(a) PF8	U6		0.97		
Einw. *Ed.32*	(a) UG2	U6	links	823.89	-1.50	10.64
	(a) UG2	U6	rechts	823.89	-0.00	10.64
	(a) PF8	U6		1.50		
Einw. *Ed.33*	(a) UG2	U6	links	683.25	-1.67	8.62
	(a) UG2	U6	rechts	683.25	-0.08	8.62
	(a) PF8	U6		1.60		
Einw. *Ed.34*	(a) UG2	U6	links	99.01	-0.58	1.11
	(a) UG2	U6	rechts	99.01	0.39	1.11
	(a) PF8	U6		0.97		
Einw. *Ed.35*	(a) UG2	U6	links	683.25	-1.67	8.62
	(a) UG2	U6	rechts	683.25	-0.08	8.62
	(a) PF8	U6		1.60		
Einw. *Ed.36*	(a) UG2	U6	links	99.01	-0.58	1.11
	(a) UG2	U6	rechts	99.01	0.39	1.11
	(a) PF8	U6		0.97		
Einw. *Ed.37*	(a) UG2	U6	links	99.01	-0.58	1.11
	(a) UG2	U6	rechts	99.01	0.39	1.11
	(a) PF8	U6		0.97		
Einw. *Ed.38*	(a) UG2	U6	links	823.02	-1.43	10.66
	(a) UG2	U6	rechts	823.02	0.02	10.66
	(a) PF8	U6		1.45		
Einw. *Ed.39*	(a) UG2	U6	links	99.01	-0.58	1.11
	(a) UG2	U6	rechts	99.01	0.39	1.11
	(a) PF8	U6		0.97		
Einw. *Ed.40*	(a) UG2	U6	links	823.02	-1.43	10.66
	(a) UG2	U6	rechts	823.02	0.02	10.66
	(a) PF8	U6		1.45		
Einw. *Ed.41*	(a) UG2	U6	links	99.01	-0.58	1.11
	(a) UG2	U6	rechts	99.01	0.39	1.11
	(a) PF8	U6		0.97		
Einw. *Ed.42*	(a) UG2	U6	links	683.25	-1.67	8.62

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
(a)	UG2	U6	rechts	683.25	-0.08	8.62
(a)	PF8	U6		1.60		

(a) aus Pos. 'T2_DA_2', Ort 'U6' (Seite 191)

! yãŎKfdzăăʅǸŅŦűŜ

ǸŜădzfűλŜǸŜyŘŜ ! yãŎKfdzăăʅǸŅŦűŜ ŦǸǸ ŘŜy I I·dzLJűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	UG2	1.36	90.0	0.00	1.36
Ed.2	UG2	1.36	90.0	0.00	1.36
Ed.3	UG2	1.36	90.0	0.00	1.36
Ed.4	UG2	1.36	90.0	0.00	1.36
Ed.5	UG2	1.36	90.0	0.00	1.36
Ed.6	UG2	1.36	90.0	0.00	1.36
Ed.7	UG2	1.36	90.0	0.00	1.36
Ed.8	UG2	1.36	90.0	0.00	1.36
Ed.9	UG2	1.36	90.0	0.00	1.36
Ed.10	UG2	1.36	90.0	0.00	1.36
Ed.11	UG2	1.36	90.0	0.00	1.36
Ed.12	UG2	1.36	90.0	0.00	1.36
Ed.13	UG2	1.36	90.0	0.00	1.36
Ed.14	UG2	1.36	90.0	0.00	1.36
Ed.15	UG2	1.14	90.0	0.00	1.14
Ed.16	UG2	1.82	90.0	0.00	1.82
Ed.17	UG2	1.14	90.0	0.00	1.14
Ed.18	UG2	1.82	90.0	0.00	1.82
Ed.19	UG2	1.92	90.0	0.00	1.92
Ed.20	UG2	1.14	90.0	0.00	1.14
Ed.21	UG2	1.57	90.0	0.00	1.57
Ed.22	UG2	1.49	90.0	0.00	1.49
Ed.23	UG2	1.57	90.0	0.00	1.57
Ed.24	UG2	1.82	90.0	0.00	1.82
Ed.25	UG2	1.57	90.0	0.00	1.57
Ed.26	UG2	1.82	90.0	0.00	1.82
Ed.27	UG2	1.14	90.0	0.00	1.14
Ed.28	UG2	1.92	90.0	0.00	1.92
Ed.29	UG2	0.97	90.0	0.00	0.97
Ed.30	UG2	1.50	90.0	0.00	1.50
Ed.31	UG2	0.97	90.0	0.00	0.97
Ed.32	UG2	1.50	90.0	0.00	1.50
Ed.33	UG2	1.60	90.0	0.00	1.60
Ed.34	UG2	0.97	90.0	0.00	0.97
Ed.35	UG2	1.60	90.0	0.00	1.60
Ed.36	UG2	0.97	90.0	0.00	0.97
Ed.37	UG2	0.97	90.0	0.00	0.97
Ed.38	UG2	1.45	90.0	0.00	1.45
Ed.39	UG2	0.97	90.0	0.00	0.97
Ed.40	UG2	1.45	90.0	0.00	1.45
Ed.41	UG2	0.97	90.0	0.00	0.97
Ed.42	UG2	1.60	90.0	0.00	1.60

Gleichgewicht

ǋŜădzƭǘƛŜǋŜyŘŜ Yy2ǘŜy[ǋŅŦǘŜ ∃ƭ2ōl·ƭ

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00
Ed.19	0.00		0.00	0.00	0.00
Ed.20	0.00		0.00	0.00	0.00
Ed.21	0.00		0.00	0.00	0.00
Ed.22	0.00		0.00	0.00	0.00
Ed.23	0.00		0.00	0.00	0.00
Ed.24	0.00		0.00	0.00	0.00
Ed.25	0.00		0.00	0.00	0.00
Ed.26	0.00		0.00	0.00	0.00
Ed.27	0.00		0.00	0.00	0.00
Ed.28	0.00		0.00	0.00	0.00
Ed.29	0.00		0.00	0.00	0.00
Ed.30	0.00		0.00	0.00	0.00
Ed.31	0.00		0.00	0.00	0.00
Ed.32	0.00		0.00	0.00	0.00
Ed.33	0.00		0.00	0.00	0.00
Ed.34	0.00		0.00	0.00	0.00
Ed.35	0.00		0.00	0.00	0.00
Ed.36	0.00		0.00	0.00	0.00
Ed.37	0.00		0.00	0.00	0.00
Ed.38	0.00		0.00	0.00	0.00
Ed.39	0.00		0.00	0.00	0.00
Ed.40	0.00		0.00	0.00	0.00
Ed.41	0.00		0.00	0.00	0.00
Ed.42	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maūgebenden Kombinationen

ăǘŅyŘƛ∃κØ2ǋǸōŜǋ∃ɸ

Ek	KLED	ʅ (׀ * ˗ *EW)
1	st	1.00*Ed.1

st: ăǘŅyŘƛ∃

Nachweise (GZT)

bl·ŎKǿŜàŜ ʎY DŊŜyÎÎdzǎǘl·yŘ ŘŜŊ ȼŊl·ƎŦŅKʎƎȠŜʎǘ yl·ŎK 5Lb 9b мффрπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 714.40 cm²

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	1.36	12.21	0.11

* je Verbindungsmittel

Biegung
Abs. 6.1

bl·ŎKǿŜʎă ŘŜŊ .ʎŜƎŜǘŊl·ƎŦŅKʎƎȠŜʎǘ

EK	k_{mod}	N_d / M_d [kNm]	`0,d / `m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
16	0.90	890.77	12.47	15.44	0.93
		11.47	2.29	19.38	
rechts					
16	0.90	890.77	12.47	15.44	0.93
		11.47	2.29	19.38	

Querkraft
Abs. 6.1.7

bl·ŎKǿŜʎă ŘŜŊ vdzŜŊȠŊl·ŦǘŊl·ƎŦŅKʎƎȠŜʎǘ

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
1	0.60	-0.95	-0.03	1.62	0.02
19	0.90	-1.88	-0.06	2.42	0.02
rechts					
1	0.60	0.41	0.01	1.62	0.01
19	0.90	0.05	0.00	2.42	0.00

Querzug

bl·ŎKǿŜʎă ŘŜŊ vdzŜŊÎdzƎǘŊl·ƎŦŅKʎƎȠŜʎǘ

Queranschluss h_e/h = 0.50 Ӿ 0.70

dzyǾŜŊăǘŅŊȠǘ

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
1	0.60	0.68	11.61	0.06

PF8

Nettoquerschnitt Holz $A_{ef,H}$ = 376.00 cm²
Blech $A_{ef,S}$ = 24.00 cm²
9ÈÎŜyǘŊʎÎʎǘŅǘăōŜʎǿŜŊǘ k_{te} = 0.67

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	1.36	17.29	0.08

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜʎă ŘŜŊ bƧŊY l·ƒȠŊl·ŦǘŊl·ƎŦŅKʎƎȠŜʎǘ

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
1	0.60	1.36	0.04	6.86	0.01

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
19	1.92	0.80	235.00	0.00

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

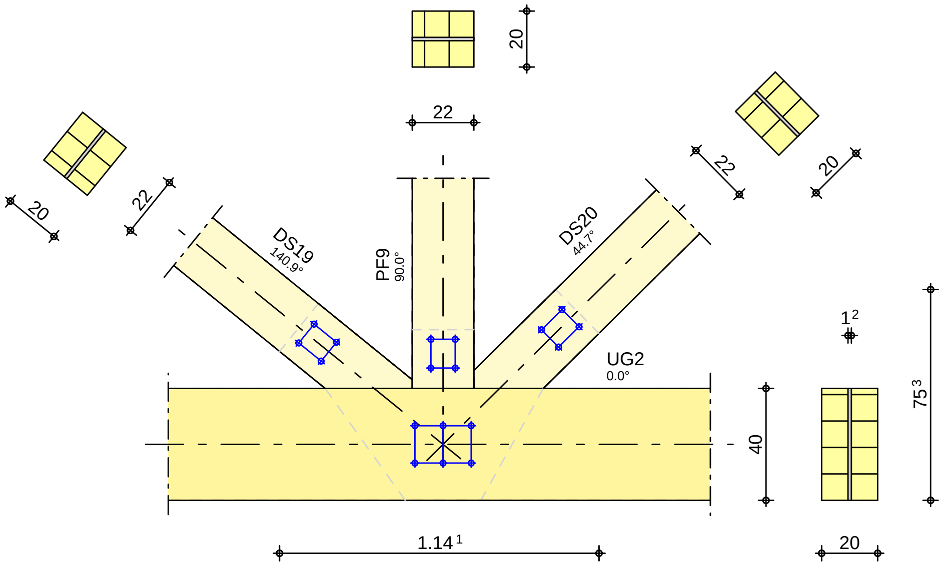
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	UG2	OK	0.11
Stabquerschnitt	UG2	OK	0.93
Blechquerschnitt	PF8	OK	0.00

Pos. T2_DA_3-U7 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:27

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώcß	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	27	BSH GL28h f
PF9	1	90.0	20/22	21	BSH GL28h f
DS19	1	140.9	20/22	21	BSH GL28h f
DS20	1	44.7	20/22	28	BSH GL28h f

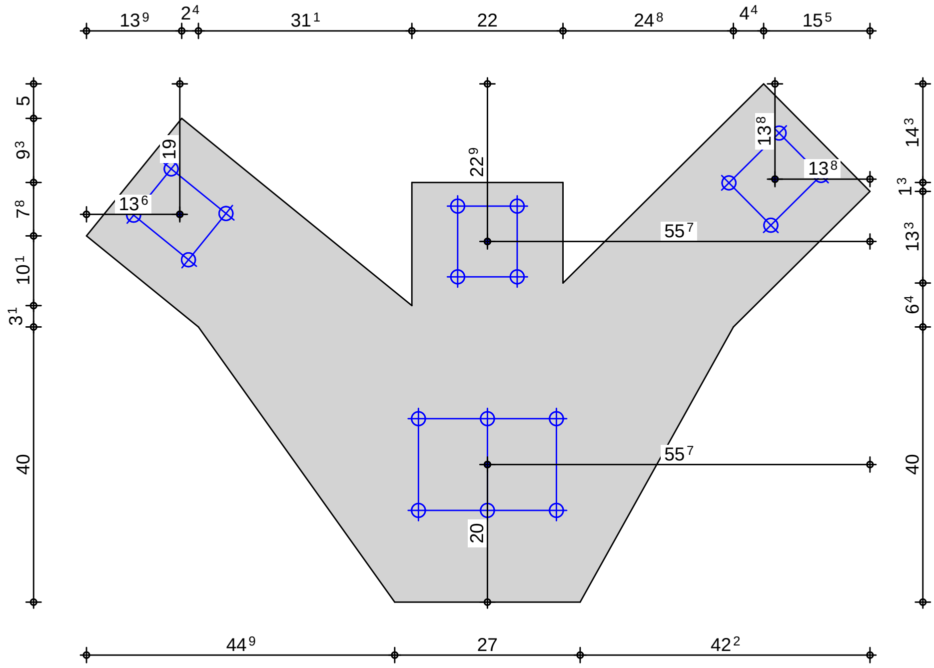
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	3x2	Passbolzen	M20	8.8
PF9	2x2	Passbolzen	M20	8.8
DS19	2x2	Passbolzen	M20	8.8
DS20	2x2	Passbolzen	M20	8.8

Blech
M 1:11



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	UG2	U7	links	307.94	-0.78	3.32
	(a)	UG2	U7	rechts	213.93	0.10	3.32
	(a)	PF9	U7		-16.46		
	(a)	DS19	U7		-53.81		
	(a)	DS20	U7		73.51		
Einw. *Ed.2*	(a)	UG2	U7	links	307.94	-0.78	3.32
	(a)	UG2	U7	rechts	213.93	0.10	3.32
	(a)	PF9	U7		-16.46		
	(a)	DS19	U7		-53.81		
	(a)	DS20	U7		73.51		
Einw. *Ed.3*	(a)	UG2	U7	links	307.94	-0.78	3.32
	(a)	UG2	U7	rechts	213.93	0.10	3.32
	(a)	PF9	U7		-16.46		
	(a)	DS19	U7		-53.81		
	(a)	DS20	U7		73.51		
Einw. *Ed.4*	(a)	UG2	U7	links	307.94	-0.78	3.32
	(a)	UG2	U7	rechts	213.93	0.10	3.32
	(a)	PF9	U7		-16.46		
	(a)	DS19	U7		-53.81		
	(a)	DS20	U7		73.51		
Einw. *Ed.5*	(a)	UG2	U7	links	307.94	-0.78	3.32
	(a)	UG2	U7	rechts	213.93	0.10	3.32

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.6*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.7*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.8*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.9*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.10*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.11*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.12*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.13*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.14*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.15*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.16*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.17*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.18*	(a) UG2	U7	links	307.94	-0.78	3.32
	(a) UG2	U7	rechts	213.93	0.10	3.32
	(a) PF9	U7		-16.46		
	(a) DS19	U7		-53.81		
	(a) DS20	U7		73.51		
Einw. *Ed.19*	(a) UG2	U7	links	660.16	-0.64	8.11
	(a) UG2	U7	rechts	487.94	-0.67	8.11
	(a) PF9	U7		-48.34		
	(a) DS19	U7		-87.14		
	(a) DS20	U7		147.20		
Einw. *Ed.20*	(a) UG2	U7	links	890.77	-1.06	10.18
	(a) UG2	U7	rechts	617.52	-0.91	10.18
	(a) PF9	U7		-51.11		
	(a) DS19	U7		-156.47		
	(a) DS20	U7		213.65		
Einw. *Ed.21*	(a) UG2	U7	links	670.29	-0.93	7.11
	(a) UG2	U7	rechts	434.37	-0.70	7.11
	(a) PF9	U7		-28.02		
	(a) DS19	U7		-146.57		
	(a) DS20	U7		171.92		
Einw. *Ed.22*	(a) UG2	U7	links	890.77	-1.06	10.18
	(a) UG2	U7	rechts	617.52	-0.91	10.18
	(a) PF9	U7		-51.11		
	(a) DS19	U7		-156.47		
	(a) DS20	U7		213.65		
Einw. *Ed.23*	(a) UG2	U7	links	750.12	-1.14	7.97
	(a) UG2	U7	rechts	489.83	-0.67	7.97
	(a) PF9	U7		-32.29		
	(a) DS19	U7		-160.52		
	(a) DS20	U7		190.98		
Einw. *Ed.24*	(a) UG2	U7	links	660.16	-0.64	8.11
	(a) UG2	U7	rechts	487.94	-0.67	8.11
	(a) PF9	U7		-48.34		
	(a) DS19	U7		-87.14		
	(a) DS20	U7		147.20		
Einw. *Ed.25*	(a) UG2	U7	links	890.77	-1.06	10.18
	(a) UG2	U7	rechts	617.52	-0.91	10.18

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF9	U7		-51.11		
	(a) DS19	U7		-156.47		
	(a) DS20	U7		213.65		
Einw. *Ed.26*	(a) UG2	U7	links	740.00	-0.85	8.97
	(a) UG2	U7	rechts	543.41	-0.64	8.97
	(a) PF9	U7		-52.61		
	(a) DS19	U7		-101.09		
	(a) DS20	U7		166.25		
Einw. *Ed.27*	(a) UG2	U7	links	670.29	-0.93	7.11
	(a) UG2	U7	rechts	434.37	-0.70	7.11
	(a) PF9	U7		-28.02		
	(a) DS19	U7		-146.57		
	(a) DS20	U7		171.92		
Einw. *Ed.28*	(a) UG2	U7	links	890.77	-1.06	10.18
	(a) UG2	U7	rechts	617.52	-0.91	10.18
	(a) PF9	U7		-51.11		
	(a) DS19	U7		-156.47		
	(a) DS20	U7		213.65		
Einw. *Ed.29*	(a) UG2	U7	links	670.29	-0.93	7.11
	(a) UG2	U7	rechts	434.37	-0.70	7.11
	(a) PF9	U7		-28.02		
	(a) DS19	U7		-146.57		
	(a) DS20	U7		171.92		
Einw. *Ed.30*	(a) UG2	U7	links	890.77	-1.06	10.18
	(a) UG2	U7	rechts	617.52	-0.91	10.18
	(a) PF9	U7		-51.11		
	(a) DS19	U7		-156.47		
	(a) DS20	U7		213.65		
Einw. *Ed.31*	(a) UG2	U7	links	740.00	-0.85	8.97
	(a) UG2	U7	rechts	543.41	-0.64	8.97
	(a) PF9	U7		-52.61		
	(a) DS19	U7		-101.09		
	(a) DS20	U7		166.25		
Einw. *Ed.32*	(a) UG2	U7	links	670.29	-0.93	7.11
	(a) UG2	U7	rechts	434.37	-0.70	7.11
	(a) PF9	U7		-28.02		
	(a) DS19	U7		-146.57		
	(a) DS20	U7		171.92		
Einw. *Ed.33*	(a) UG2	U7	links	750.12	-1.14	7.97
	(a) UG2	U7	rechts	489.83	-0.67	7.97
	(a) PF9	U7		-32.29		
	(a) DS19	U7		-160.52		
	(a) DS20	U7		190.98		
Einw. *Ed.34*	(a) UG2	U7	links	660.16	-0.64	8.11
	(a) UG2	U7	rechts	487.94	-0.67	8.11
	(a) PF9	U7		-48.34		
	(a) DS19	U7		-87.14		
	(a) DS20	U7		147.20		
Einw. *Ed.35*	(a) UG2	U7	links	660.16	-0.64	8.11
	(a) UG2	U7	rechts	487.94	-0.67	8.11

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF9	U7		-48.34		
	(a) DS19	U7		-87.14		
	(a) DS20	U7		147.20		
Einw. *Ed.36*	(a) UG2	U7	links	890.77	-1.06	10.18
	(a) UG2	U7	rechts	617.52	-0.91	10.18
	(a) PF9	U7		-51.11		
	(a) DS19	U7		-156.47		
	(a) DS20	U7		213.65		
Einw. *Ed.37*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.38*	(a) UG2	U7	links	823.89	-0.88	9.43
	(a) UG2	U7	rechts	568.42	-0.96	9.43
	(a) PF9	U7		-46.72		
	(a) DS19	U7		-147.28		
	(a) DS20	U7		198.67		
Einw. *Ed.39*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.40*	(a) UG2	U7	links	823.02	-0.86	9.50
	(a) UG2	U7	rechts	572.96	-0.95	9.50
	(a) PF9	U7		-48.45		
	(a) DS19	U7		-142.21		
	(a) DS20	U7		196.58		
Einw. *Ed.41*	(a) UG2	U7	links	683.25	-0.95	7.21
	(a) UG2	U7	rechts	440.74	-0.72	7.21
	(a) PF9	U7		-27.90		
	(a) DS19	U7		-151.33		
	(a) DS20	U7		176.00		
Einw. *Ed.42*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.43*	(a) UG2	U7	links	823.89	-0.88	9.43
	(a) UG2	U7	rechts	568.42	-0.96	9.43
	(a) PF9	U7		-46.72		
	(a) DS19	U7		-147.28		
	(a) DS20	U7		198.67		
Einw. *Ed.44*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.45*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.46*	(a) UG2	U7	links	823.02	-0.86	9.50
	(a) UG2	U7	rechts	572.96	-0.95	9.50
	(a) PF9	U7		-48.45		
	(a) DS19	U7		-142.21		
	(a) DS20	U7		196.58		
Einw. *Ed.47*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.48*	(a) UG2	U7	links	823.02	-0.86	9.50
	(a) UG2	U7	rechts	572.96	-0.95	9.50
	(a) PF9	U7		-48.45		
	(a) DS19	U7		-142.21		
	(a) DS20	U7		196.58		
Einw. *Ed.49*	(a) UG2	U7	links	672.25	-0.64	8.29
	(a) UG2	U7	rechts	498.86	-0.68	8.29
	(a) PF9	U7		-49.95		
	(a) DS19	U7		-86.83		
	(a) DS20	U7		149.18		
Einw. *Ed.50*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.51*	(a) UG2	U7	links	683.25	-0.95	7.21
	(a) UG2	U7	rechts	440.74	-0.72	7.21
	(a) PF9	U7		-27.90		
	(a) DS19	U7		-151.33		
	(a) DS20	U7		176.00		
Einw. *Ed.52*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.53*	(a) UG2	U7	links	99.01	-0.48	0.99
	(a) UG2	U7	rechts	69.39	0.27	0.99
	(a) PF9	U7		-4.57		
	(a) DS19	U7		-16.90		
	(a) DS20	U7		23.21		
Einw. *Ed.54*	(a) UG2	U7	links	823.89	-0.88	9.43
	(a) UG2	U7	rechts	568.42	-0.96	9.43
	(a) PF9	U7		-46.72		
	(a) DS19	U7		-147.28		
	(a) DS20	U7		198.67		

(a) aus Pos. 'T2_DA_2', Ort 'U7' (Seite 191)

! ÿãÕKfdzăăʅNŅŦűŜ

NŜădzfűʎŜNŜÿŘŜ ! ÿãÕKfdzăăʅNŅŦűŜ ŦÑN ŘŜÿ I I·dzLJűăűI·ō

	Stab	FRes [kN]	hRes ώcϐ	N [kN]	V [kN]
Ed.1	UG2	94.00	179.2	-93.99	1.36
Ed.2	UG2	94.00	179.2	-93.99	1.36
Ed.3	UG2	94.00	179.2	-93.99	1.36
Ed.4	UG2	94.00	179.2	-93.99	1.36
Ed.5	UG2	94.00	179.2	-93.99	1.36
Ed.6	UG2	94.00	179.2	-93.99	1.36
Ed.7	UG2	94.00	179.2	-93.99	1.36
Ed.8	UG2	94.00	179.2	-93.99	1.36
Ed.9	UG2	94.00	179.2	-93.99	1.36
Ed.10	UG2	94.00	179.2	-93.99	1.36
Ed.11	UG2	94.00	179.2	-93.99	1.36
Ed.12	UG2	94.00	179.2	-93.99	1.36
Ed.13	UG2	94.00	179.2	-93.99	1.36
Ed.14	UG2	94.00	179.2	-93.99	1.36
Ed.15	UG2	94.00	179.2	-93.99	1.36
Ed.16	UG2	94.00	179.2	-93.99	1.36
Ed.17	UG2	94.00	179.2	-93.99	1.36
Ed.18	UG2	94.00	179.2	-93.99	1.36
Ed.19	UG2	172.20	179.9	-172.2	0.34
Ed.20	UG2	273.23	179.9	-273.2	0.64
Ed.21	UG2	235.90	179.9	-235.9	0.59
Ed.22	UG2	273.23	179.9	-273.2	0.64
Ed.23	UG2	260.27	179.8	-260.3	0.94
Ed.24	UG2	172.20	179.9	-172.2	0.34
Ed.25	UG2	273.23	179.9	-273.2	0.64
Ed.26	UG2	196.57	179.8	-196.6	0.69
Ed.27	UG2	235.90	179.9	-235.9	0.59
Ed.28	UG2	273.23	179.9	-273.2	0.64
Ed.29	UG2	235.90	179.9	-235.9	0.59
Ed.30	UG2	273.23	179.9	-273.2	0.64
Ed.31	UG2	196.57	179.8	-196.6	0.69
Ed.32	UG2	235.90	179.9	-235.9	0.59
Ed.33	UG2	260.27	179.8	-260.3	0.94
Ed.34	UG2	172.20	179.9	-172.2	0.34
Ed.35	UG2	172.20	179.9	-172.2	0.34
Ed.36	UG2	273.23	179.9	-273.2	0.64
Ed.37	UG2	29.62	177.8	-29.60	1.12
Ed.38	UG2	255.45	179.9	-255.5	0.28
Ed.39	UG2	29.62	177.8	-29.60	1.12
Ed.40	UG2	250.04	179.9	-250.0	0.27
Ed.41	UG2	242.49	179.9	-242.5	0.59
Ed.42	UG2	29.62	177.8	-29.60	1.12
Ed.43	UG2	255.45	179.9	-255.5	0.28
Ed.44	UG2	29.62	177.8	-29.60	1.12
Ed.45	UG2	29.62	177.8	-29.60	1.12
Ed.46	UG2	250.04	179.9	-250.0	0.27
Ed.47	UG2	29.62	177.8	-29.60	1.12

	Stab	F_{Res} [kN]	h Res ώcϐ	N [kN]	V [kN]
Ed.48	UG2	250.04	179.9	-250.0	0.27
Ed.49	UG2	173.38	179.9	-173.4	0.32
Ed.50	UG2	29.62	177.8	-29.60	1.12
Ed.51	UG2	242.49	179.9	-242.5	0.59
Ed.52	UG2	29.62	177.8	-29.60	1.12
Ed.53	UG2	29.62	177.8	-29.60	1.12
Ed.54	UG2	255.45	179.9	-255.5	0.28

Gleichgewicht

ŊŜădzƭűʎŜŊŜƴŘŜ YƴƧűŜƴʅŊŅŦűŜ ƎƭƧōŀƭ

	F_{Res} [kN]	h Res ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.48	267.2	-0.02	-0.48	0.00
Ed.2	0.48	267.2	-0.02	-0.48	0.00
Ed.3	0.48	267.2	-0.02	-0.48	0.00
Ed.4	0.48	267.2	-0.02	-0.48	0.00
Ed.5	0.48	267.2	-0.02	-0.48	0.00
Ed.6	0.48	267.2	-0.02	-0.48	0.00
Ed.7	0.48	267.2	-0.02	-0.48	0.00
Ed.8	0.48	267.2	-0.02	-0.48	0.00
Ed.9	0.48	267.2	-0.02	-0.48	0.00
Ed.10	0.48	267.2	-0.02	-0.48	0.00
Ed.11	0.48	267.2	-0.02	-0.48	0.00
Ed.12	0.48	267.2	-0.02	-0.48	0.00
Ed.13	0.48	267.2	-0.02	-0.48	0.00
Ed.14	0.48	267.2	-0.02	-0.48	0.00
Ed.15	0.48	267.2	-0.02	-0.48	0.00
Ed.16	0.48	267.2	-0.02	-0.48	0.00
Ed.17	0.48	267.2	-0.02	-0.48	0.00
Ed.18	0.48	267.2	-0.02	-0.48	0.00
Ed.19	0.36	267.2	-0.02	-0.36	0.00
Ed.20	0.48	267.2	-0.02	-0.48	0.00
Ed.21	0.36	267.2	-0.02	-0.36	0.00
Ed.22	0.48	267.2	-0.02	-0.48	0.00
Ed.23	0.48	267.2	-0.02	-0.48	0.00
Ed.24	0.36	267.2	-0.02	-0.36	0.00
Ed.25	0.48	267.2	-0.02	-0.48	0.00
Ed.26	0.48	267.2	-0.02	-0.48	0.00
Ed.27	0.36	267.2	-0.02	-0.36	0.00
Ed.28	0.48	267.2	-0.02	-0.48	0.00
Ed.29	0.36	267.2	-0.02	-0.36	0.00
Ed.30	0.48	267.2	-0.02	-0.48	0.00
Ed.31	0.48	267.2	-0.02	-0.48	0.00
Ed.32	0.36	267.2	-0.02	-0.36	0.00
Ed.33	0.48	267.2	-0.02	-0.48	0.00
Ed.34	0.36	267.2	-0.02	-0.36	0.00
Ed.35	0.36	267.2	-0.02	-0.36	0.00
Ed.36	0.48	267.2	-0.02	-0.48	0.00
Ed.37	0.36	267.2	-0.02	-0.36	0.00
Ed.38	0.36	267.2	-0.02	-0.36	0.00
Ed.39	0.36	267.2	-0.02	-0.36	0.00

	F_{Res} [kN]	h_{Res} ώcб	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.40	0.36	267.2	-0.02	-0.36	0.00
Ed.41	0.36	267.2	-0.02	-0.36	0.00
Ed.42	0.36	267.2	-0.02	-0.36	0.00
Ed.43	0.36	267.2	-0.02	-0.36	0.00
Ed.44	0.36	267.2	-0.02	-0.36	0.00
Ed.45	0.36	267.2	-0.02	-0.36	0.00
Ed.46	0.36	267.2	-0.02	-0.36	0.00
Ed.47	0.36	267.2	-0.02	-0.36	0.00
Ed.48	0.36	267.2	-0.02	-0.36	0.00
Ed.49	0.36	267.2	-0.02	-0.36	0.00
Ed.50	0.36	267.2	-0.02	-0.36	0.00
Ed.51	0.36	267.2	-0.02	-0.36	0.00
Ed.52	0.36	267.2	-0.02	-0.36	0.00
Ed.53	0.36	267.2	-0.02	-0.36	0.00
Ed.54	0.36	267.2	-0.02	-0.36	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maũgebenden Kombinationen

ăűŅyŘƛƎĸØ2ŊŇōŜŊƎɸ

Ek	KLED	ɿ (ɹ* ˛ *EW)
1	st	1.00*Ed.1
20	ku	1.00*Ed.20
23	ku	1.00*Ed.23
26	ku	1.00*Ed.26

st: ăűŅyŘƛƎ
ku: kurz

Nachweise (GZT)

bŀŎKøŜƛăŜ ƛY DŊŜyÎÎdzăűŀyŘ ŘŜŊ ¢ŊŀƎŦŅKƛƎɿŜƛű yŀŎK 5Lb 9b мφφрπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 676.80 cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	45.54	51.86	0.88

* je Verbindungsmittel

Biegung
Abs. 6.1

bŀŎKøŜƛă ŘŜŊ .ƛŜƎŜűŊŀƎŦŅKƛƎɿŜƛű

EK	k_{mod}	N_d / M_d [kNm]	` 0,d / ` m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
20	0.90	890.77	13.16	15.44	0.96
		10.18	2.10	19.38	
rechts					
20	0.90	617.52	9.12	15.44	0.70
		10.18	2.10	19.38	

Querkraft
Abs. 6.1.7

bŀŎKøŜƛă ŘŜŊ vdzŜŊɿŊŀŦűŊŀƎŦŅKƛƎɿŜƛű

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'

links

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
1	0.60	-0.78	-0.02	1.62	0.01
20	0.90	-1.06	-0.03	2.42	0.01
rechts					
1	0.60	0.10	0.00	1.62	0.00
20	0.90	-0.91	-0.03	2.42	0.01

Querzug

bl·ǑKøŜλă ŘŜN vdzŜNÎdzƎűNl·ƎŦŅKλƎ̃Ŝλű

Queranschluss h_e/h = 0.67 Ж 0.70

dzyØŜNăűŅÑű

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
1	0.60	0.68	34.35	0.02

PF9

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ȄÎŜyűNλÎλűŅűăōŜλøŜNű	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
26	0.90	13.15	51.86	0.25

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ǑKøŜλă ŘŜN b2NYl·f̃Nl·ŦűNl·ƎŦŅKλƎ̃Ŝλű

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$ [N/mm²]	'
26	0.90	-52.61	-1.55	19.38	0.08

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
26	-52.61	24.36	275.00	0.09

DS19

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ȄÎŜyűNλÎλűŅűăōŜλøŜNű	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
23	0.90	40.13	51.86	0.77

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ǑKøŜλă ŘŜN b2NYl·f̃Nl·ŦűNl·ƎŦŅKλƎ̃Ŝλű

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$ [N/mm²]	'
23	0.90	-160.52	-4.74	19.38	0.24

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	Nd [kN]	`d [N/mm²]	`R,d [N/mm²]	'
23	-160.5	74.31	275.00	0.27

DS20

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ÈÎŜyǘƛÎƛǘŅǘăōŜƛǿŜǘ	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	53.41	51.86	1.03

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜƛă ŘŜ b2Ƴl·ƭʅl·ŦǘǘlƎŦŅKƛƎʅŜƛǘ

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
20	0.90	213.65	6.31	10.29	0.61

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
20	213.65	98.91	275.00	0.36

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

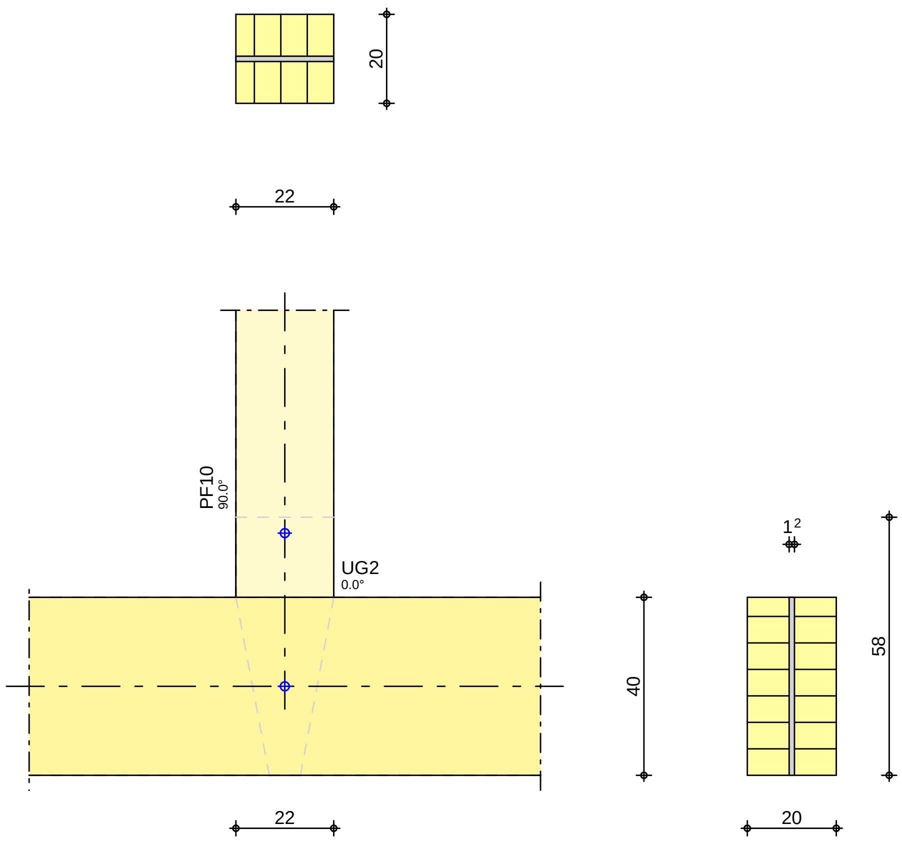
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	DS20	OK	1.03
Stabquerschnitt	UG2	OK	0.96
Blechquerschnitt	DS20	OK	0.36

Pos. T2_DA_3-U8 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	7	BSH GL28h[f]
PF10	1	90.0	20/22	18	BSH GL28h[f]

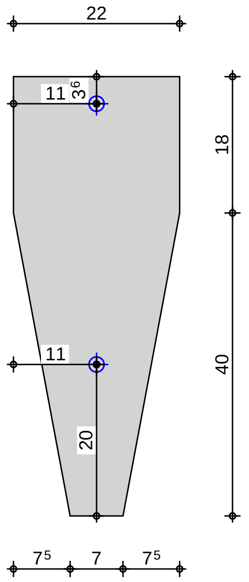
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	1x1	Passbolzen	M20	8.8
PF10	1x1	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	UG2	U8	links	213.93	-1.08	1.97
	(a)	UG2	U8	rechts	213.93	0.55	1.97
	(a)	PF10	U8		1.64		
Einw. *Ed.2*	(a)	UG2	U8	links	213.93	-1.08	1.97
	(a)	UG2	U8	rechts	213.93	0.55	1.97
	(a)	PF10	U8		1.64		
Einw. *Ed.3*	(a)	UG2	U8	links	213.93	-1.08	1.97
	(a)	UG2	U8	rechts	213.93	0.55	1.97
	(a)	PF10	U8		1.64		
Einw. *Ed.4*	(a)	UG2	U8	links	213.93	-1.08	1.97
	(a)	UG2	U8	rechts	213.93	0.55	1.97
	(a)	PF10	U8		1.64		
Einw. *Ed.5*	(a)	UG2	U8	links	213.93	-1.08	1.97
	(a)	UG2	U8	rechts	213.93	0.55	1.97
	(a)	PF10	U8		1.64		
Einw. *Ed.6*	(a)	UG2	U8	links	213.93	-1.08	1.97
	(a)	UG2	U8	rechts	213.93	0.55	1.97
	(a)	PF10	U8		1.64		
Einw. *Ed.7*	(a)	UG2	U8	links	213.93	-1.08	1.97
	(a)	UG2	U8	rechts	213.93	0.55	1.97
	(a)	PF10	U8		1.64		
Einw. *Ed.8*	(a)	UG2	U8	links	213.93	-1.08	1.97
	(a)	UG2	U8	rechts	213.93	0.55	1.97
	(a)	PF10	U8		1.64		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.9*	(a) UG2	U8	links	213.93	-1.08	1.97
	(a) UG2	U8	rechts	213.93	0.55	1.97
	(a) PF10	U8		1.64		
Einw. *Ed.10*	(a) UG2	U8	links	213.93	-1.08	1.97
	(a) UG2	U8	rechts	213.93	0.55	1.97
	(a) PF10	U8		1.64		
Einw. *Ed.11*	(a) UG2	U8	links	213.93	-1.08	1.97
	(a) UG2	U8	rechts	213.93	0.55	1.97
	(a) PF10	U8		1.64		
Einw. *Ed.12*	(a) UG2	U8	links	213.93	-1.08	1.97
	(a) UG2	U8	rechts	213.93	0.55	1.97
	(a) PF10	U8		1.64		
Einw. *Ed.13*	(a) UG2	U8	links	213.93	-1.08	1.97
	(a) UG2	U8	rechts	213.93	0.55	1.97
	(a) PF10	U8		1.64		
Einw. *Ed.14*	(a) UG2	U8	links	213.93	-1.08	1.97
	(a) UG2	U8	rechts	213.93	0.55	1.97
	(a) PF10	U8		1.64		
Einw. *Ed.15*	(a) UG2	U8	links	434.37	-1.58	3.99
	(a) UG2	U8	rechts	434.37	0.44	3.99
	(a) PF10	U8		2.02		
Einw. *Ed.16*	(a) UG2	U8	links	617.52	-2.09	6.07
	(a) UG2	U8	rechts	617.52	0.55	6.07
	(a) PF10	U8		2.65		
Einw. *Ed.17*	(a) UG2	U8	links	434.37	-1.58	3.99
	(a) UG2	U8	rechts	434.37	0.44	3.99
	(a) PF10	U8		2.02		
Einw. *Ed.18*	(a) UG2	U8	links	617.52	-2.09	6.07
	(a) UG2	U8	rechts	617.52	0.55	6.07
	(a) PF10	U8		2.65		
Einw. *Ed.19*	(a) UG2	U8	links	617.52	-2.09	6.07
	(a) UG2	U8	rechts	617.52	0.55	6.07
	(a) PF10	U8		2.65		
Einw. *Ed.20*	(a) UG2	U8	links	487.94	-1.54	5.08
	(a) UG2	U8	rechts	487.94	0.37	5.08
	(a) PF10	U8		1.92		
Einw. *Ed.21*	(a) UG2	U8	links	487.94	-1.54	5.08
	(a) UG2	U8	rechts	487.94	0.37	5.08
	(a) PF10	U8		1.92		
Einw. *Ed.22*	(a) UG2	U8	links	489.83	-1.86	4.50
	(a) UG2	U8	rechts	489.83	0.59	4.50
	(a) PF10	U8		2.44		
Einw. *Ed.23*	(a) UG2	U8	links	434.37	-1.58	3.99
	(a) UG2	U8	rechts	434.37	0.44	3.99
	(a) PF10	U8		2.02		
Einw. *Ed.24*	(a) UG2	U8	links	617.52	-2.09	6.07
	(a) UG2	U8	rechts	617.52	0.55	6.07
	(a) PF10	U8		2.65		
Einw. *Ed.25*	(a) UG2	U8	links	434.37	-1.58	3.99
	(a) UG2	U8	rechts	434.37	0.44	3.99

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) PF10	U8		2.02		
Einw. *Ed.26*	(a) UG2	U8	links	617.52	-2.09	6.07
	(a) UG2	U8	rechts	617.52	0.55	6.07
	(a) PF10	U8		2.65		
Einw. *Ed.27*	(a) UG2	U8	links	487.94	-1.54	5.08
	(a) UG2	U8	rechts	487.94	0.37	5.08
	(a) PF10	U8		1.92		
Einw. *Ed.28*	(a) UG2	U8	links	617.52	-2.09	6.07
	(a) UG2	U8	rechts	617.52	0.55	6.07
	(a) PF10	U8		2.65		
Einw. *Ed.29*	(a) UG2	U8	links	69.39	-0.60	0.54
	(a) UG2	U8	rechts	69.39	0.42	0.54
	(a) PF10	U8		1.02		
Einw. *Ed.30*	(a) UG2	U8	links	572.96	-1.83	5.70
	(a) UG2	U8	rechts	572.96	0.40	5.70
	(a) PF10	U8		2.23		
Einw. *Ed.31*	(a) UG2	U8	links	69.39	-0.60	0.54
	(a) UG2	U8	rechts	69.39	0.42	0.54
	(a) PF10	U8		1.02		
Einw. *Ed.32*	(a) UG2	U8	links	572.96	-1.83	5.70
	(a) UG2	U8	rechts	572.96	0.40	5.70
	(a) PF10	U8		2.23		
Einw. *Ed.33*	(a) UG2	U8	links	568.42	-1.84	5.60
	(a) UG2	U8	rechts	568.42	0.41	5.60
	(a) PF10	U8		2.25		
Einw. *Ed.34*	(a) UG2	U8	links	69.39	-0.60	0.54
	(a) UG2	U8	rechts	69.39	0.42	0.54
	(a) PF10	U8		1.02		
Einw. *Ed.35*	(a) UG2	U8	links	498.86	-1.56	5.22
	(a) UG2	U8	rechts	498.86	0.37	5.22
	(a) PF10	U8		1.93		
Einw. *Ed.36*	(a) UG2	U8	links	380.92	-1.46	3.44
	(a) UG2	U8	rechts	380.92	0.45	3.44
	(a) PF10	U8		1.91		
Einw. *Ed.37*	(a) UG2	U8	links	69.39	-0.60	0.54
	(a) UG2	U8	rechts	69.39	0.42	0.54
	(a) PF10	U8		1.02		
Einw. *Ed.38*	(a) UG2	U8	links	572.96	-1.83	5.70
	(a) UG2	U8	rechts	572.96	0.40	5.70
	(a) PF10	U8		2.23		
Einw. *Ed.39*	(a) UG2	U8	links	69.39	-0.60	0.54
	(a) UG2	U8	rechts	69.39	0.42	0.54
	(a) PF10	U8		1.02		
Einw. *Ed.40*	(a) UG2	U8	links	572.96	-1.83	5.70
	(a) UG2	U8	rechts	572.96	0.40	5.70
	(a) PF10	U8		2.23		
Einw. *Ed.41*	(a) UG2	U8	links	69.39	-0.60	0.54
	(a) UG2	U8	rechts	69.39	0.42	0.54
	(a) PF10	U8		1.02		
Einw. *Ed.42*	(a) UG2	U8	links	568.42	-1.84	5.60

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
(a)	UG2	U8	rechts	568.42	0.41	5.60
(a)	PF10	U8		2.25		

(a) aus Pos. 'T2_DA_2', Ort 'U8' (Seite 191)

! yãŎKfdzăă1ŊŊŦűŜ

ŊŜădzfűʎŜŊŜyŘŜ ! yãŎKfdzăă1ŊŊŦűŜ ŦǸŊ ŘŜy I I·dzLJűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	UG2	1.64	90.0	0.00	1.64
Ed.2	UG2	1.64	90.0	0.00	1.64
Ed.3	UG2	1.64	90.0	0.00	1.64
Ed.4	UG2	1.64	90.0	0.00	1.64
Ed.5	UG2	1.64	90.0	0.00	1.64
Ed.6	UG2	1.64	90.0	0.00	1.64
Ed.7	UG2	1.64	90.0	0.00	1.64
Ed.8	UG2	1.64	90.0	0.00	1.64
Ed.9	UG2	1.64	90.0	0.00	1.64
Ed.10	UG2	1.64	90.0	0.00	1.64
Ed.11	UG2	1.64	90.0	0.00	1.64
Ed.12	UG2	1.64	90.0	0.00	1.64
Ed.13	UG2	1.64	90.0	0.00	1.64
Ed.14	UG2	1.64	90.0	0.00	1.64
Ed.15	UG2	2.02	90.0	0.00	2.02
Ed.16	UG2	2.65	90.0	0.00	2.65
Ed.17	UG2	2.02	90.0	0.00	2.02
Ed.18	UG2	2.65	90.0	0.00	2.65
Ed.19	UG2	2.65	90.0	0.00	2.65
Ed.20	UG2	1.92	90.0	0.00	1.92
Ed.21	UG2	1.92	90.0	0.00	1.92
Ed.22	UG2	2.44	90.0	0.00	2.44
Ed.23	UG2	2.02	90.0	0.00	2.02
Ed.24	UG2	2.65	90.0	0.00	2.65
Ed.25	UG2	2.02	90.0	0.00	2.02
Ed.26	UG2	2.65	90.0	0.00	2.65
Ed.27	UG2	1.92	90.0	0.00	1.92
Ed.28	UG2	2.65	90.0	0.00	2.65
Ed.29	UG2	1.02	90.0	0.00	1.02
Ed.30	UG2	2.23	90.0	0.00	2.23
Ed.31	UG2	1.02	90.0	0.00	1.02
Ed.32	UG2	2.23	90.0	0.00	2.23
Ed.33	UG2	2.25	90.0	0.00	2.25
Ed.34	UG2	1.02	90.0	0.00	1.02
Ed.35	UG2	1.93	90.0	0.00	1.93
Ed.36	UG2	1.91	90.0	0.00	1.91
Ed.37	UG2	1.02	90.0	0.00	1.02
Ed.38	UG2	2.23	90.0	0.00	2.23
Ed.39	UG2	1.02	90.0	0.00	1.02
Ed.40	UG2	2.23	90.0	0.00	2.23
Ed.41	UG2	1.02	90.0	0.00	1.02
Ed.42	UG2	2.25	90.0	0.00	2.25

Gleichgewicht

ŊŜădzſűʎŜŊŜyŘŜ Yƴƻű̋Ŝyʅ̨̀ŊŦűŜ ƎſƻōI·ſ

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00
Ed.19	0.00		0.00	0.00	0.00
Ed.20	0.00		0.00	0.00	0.00
Ed.21	0.00		0.00	0.00	0.00
Ed.22	0.00		0.00	0.00	0.00
Ed.23	0.00		0.00	0.00	0.00
Ed.24	0.00		0.00	0.00	0.00
Ed.25	0.00		0.00	0.00	0.00
Ed.26	0.00		0.00	0.00	0.00
Ed.27	0.00		0.00	0.00	0.00
Ed.28	0.00		0.00	0.00	0.00
Ed.29	0.00		0.00	0.00	0.00
Ed.30	0.00		0.00	0.00	0.00
Ed.31	0.00		0.00	0.00	0.00
Ed.32	0.00		0.00	0.00	0.00
Ed.33	0.00		0.00	0.00	0.00
Ed.34	0.00		0.00	0.00	0.00
Ed.35	0.00		0.00	0.00	0.00
Ed.36	0.00		0.00	0.00	0.00
Ed.37	0.00		0.00	0.00	0.00
Ed.38	0.00		0.00	0.00	0.00
Ed.39	0.00		0.00	0.00	0.00
Ed.40	0.00		0.00	0.00	0.00
Ed.41	0.00		0.00	0.00	0.00
Ed.42	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

	Ek	KLED	ɿ (ˌ* ˎ *EW)
ăűŅyŘʎƎĸǾƻŊǸōŜŊƎφ	16	ku	1.00*Ed.16

ku: kurz

Nachweise (GZT)

bI·ŎKǿŜǎŜ ʎY DŜyÎÎdzǎúI·yŘ ŘŜ ¢I·ƎŦŅKʎƎʅŜʎú yI·ŎK 5Lb 9b мффрπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 714.40 cm²

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
16	0.90	2.65	18.31	0.14

* je Verbindungsmittel

Biegung
Abs. 6.1

bI·ŎKǿŜǎ ŘŜ .ʎŜƎŜúI·ƎŦŅKʎƎʅŜʎú

EK	k_{mod}	N_d / M_d [kNm]	` 0,d / ` m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
16	0.90	617.52	8.64	15.44	0.62
		6.07	1.21	19.38	
rechts					
16	0.90	617.52	8.64	15.44	0.62
		6.07	1.21	19.38	

Querkraft
Abs. 6.1.7

bI·ŎKǿŜǎ ŘŜ vdzŜʅI·ŦúI·ƎŦŅKʎƎʅŜʎú

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
1	0.60	-1.08	-0.03	1.62	0.02
16	0.90	-2.09	-0.06	2.42	0.03
rechts					
1	0.60	0.55	0.02	1.62	0.01
16	0.90	0.55	0.02	2.42	0.01

Querzug

bI·ŎKǿŜǎ ŘŜ vdzŜÎdzƎúI·ƎŦŅKʎƎʅŜʎú

Queranschluss h_e/h = 0.50 Ӿ 0.70

dzyǾŜǎúŅʅú

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
16	0.90	1.32	17.41	0.08

PF10

Nettoquerschnitt Holz $A_{ef,H}$ = 376.00 cm²
Blech $A_{ef,S}$ = 24.00 cm²
9ÈÎŜyúʎÎʎúŅúǎōŜʎǿŜú k_{te} = 0.67

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
16	0.90	2.65	25.93	0.10

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKǿŜǎ ŘŜ bƧYI·ʄʅI·ŦúI·ƎŦŅKʎƎʅŜʎú

EK	k_{mod}	N_d [kN]	` 0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
16	0.90	2.65	0.07	10.29	0.01

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
16	2.65	1.10	275.00	0.00

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

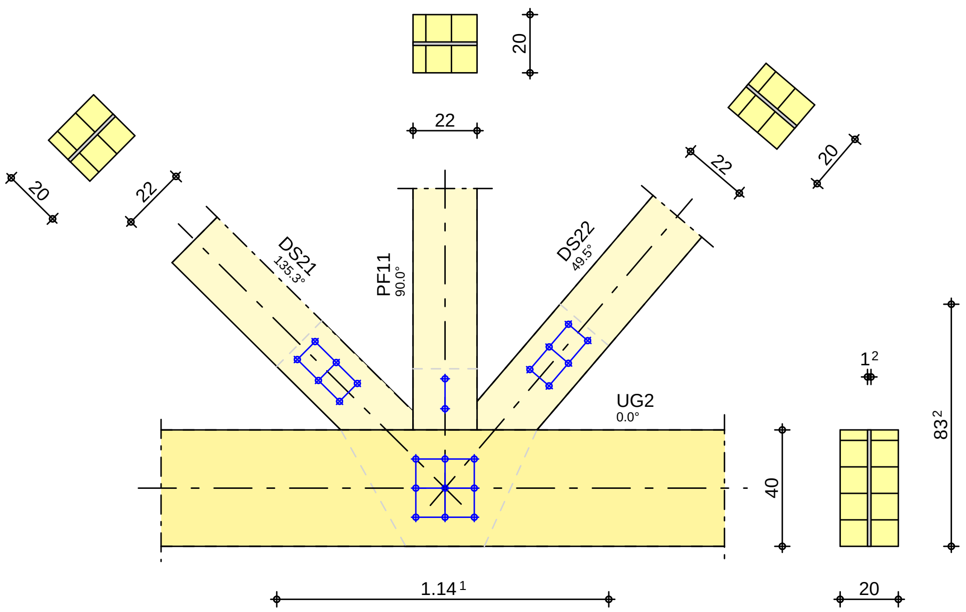
Nachweise im Grenzzustand der TragfÑhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	UG2	OK	0.14
Stabquerschnitt	UG2	OK	0.62
Blechquerschnitt	PF10	OK	0.00

Pos. T2_DA_3-U9	Holz-Fachwerk-Knotennachweise

Geometrie
M 1:26

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h ώc6	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	27	BSH GL28h^f
PF11	1	90.0	20/22	21	BSH GL28h^f
DS21	1	135.3	20/22	31	BSH GL28h^f
DS22	1	49.5	20/22	38	BSH GL28h^f

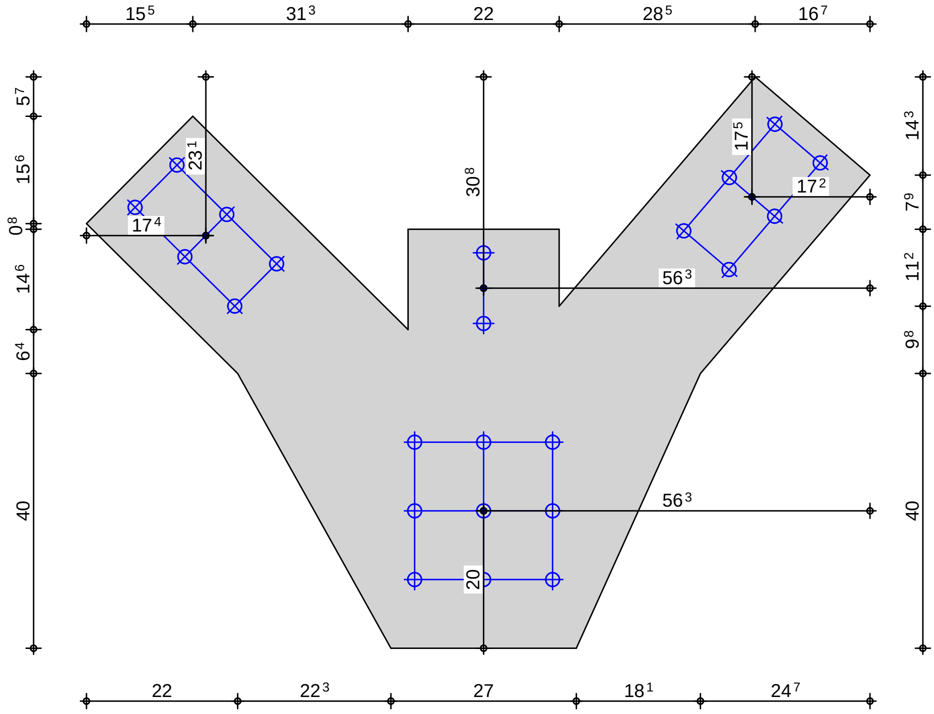
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	3x3	Passbolzen	M20	8.8
PF11	2x1	Passbolzen	M20	8.8
DS21	3x2	Passbolzen	M20	8.8
DS22	3x2	Passbolzen	M20	8.8

Blech
M 1:11



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.2*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.3*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.4*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.5*	(a) UG2	U9	links	213.93	-0.63	1.86

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.6*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.7*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.8*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.9*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.10*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.11*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.12*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.13*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.14*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.15*	(a) UG2	U9	links	213.93	-0.63	1.86

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.16*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.17*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.18*	(a) UG2	U9	links	213.93	-0.63	1.86
	(a) UG2	U9	rechts	79.16	0.12	1.86
	(a) PF11	U9		-15.91		
	(a) DS21	U9		-91.56		
	(a) DS22	U9		107.28		
Einw. *Ed.19*	(a) UG2	U9	links	434.37	-0.43	4.00
	(a) UG2	U9	rechts	154.03	-0.59	4.00
	(a) PF11	U9		-28.12		
	(a) DS21	U9		-195.21		
	(a) DS22	U9		217.99		
Einw. *Ed.20*	(a) UG2	U9	links	617.52	-0.63	5.96
	(a) UG2	U9	rechts	227.91	-0.82	5.96
	(a) PF11	U9		-49.33		
	(a) DS21	U9		-264.61		
	(a) DS22	U9		310.27		
Einw. *Ed.21*	(a) UG2	U9	links	434.37	-0.43	4.00
	(a) UG2	U9	rechts	154.03	-0.59	4.00
	(a) PF11	U9		-28.12		
	(a) DS21	U9		-195.21		
	(a) DS22	U9		217.99		
Einw. *Ed.22*	(a) UG2	U9	links	617.52	-0.63	5.96
	(a) UG2	U9	rechts	227.91	-0.82	5.96
	(a) PF11	U9		-49.33		
	(a) DS21	U9		-264.61		
	(a) DS22	U9		310.27		
Einw. *Ed.23*	(a) UG2	U9	links	543.41	-0.67	5.39
	(a) UG2	U9	rechts	206.90	-0.61	5.39
	(a) PF11	U9		-49.71		
	(a) DS21	U9		-223.75		
	(a) DS22	U9		273.25		
Einw. *Ed.24*	(a) UG2	U9	links	434.37	-0.43	4.00
	(a) UG2	U9	rechts	154.03	-0.59	4.00
	(a) PF11	U9		-28.12		
	(a) DS21	U9		-195.21		
	(a) DS22	U9		217.99		
Einw. *Ed.25*	(a) UG2	U9	links	617.52	-0.63	5.96

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) UG2	U9	rechts	227.91	-0.82	5.96
	(a) PF11	U9		-49.33		
	(a) DS21	U9		-264.61		
	(a) DS22	U9		310.27		
Einw. *Ed.26*	(a) UG2	U9	links	489.83	-0.60	4.48
	(a) UG2	U9	rechts	174.56	-0.56	4.48
	(a) PF11	U9		-32.25		
	(a) DS21	U9		-218.95		
	(a) DS22	U9		245.81		
Einw. *Ed.27*	(a) UG2	U9	links	434.37	-0.43	4.00
	(a) UG2	U9	rechts	154.03	-0.59	4.00
	(a) PF11	U9		-28.12		
	(a) DS21	U9		-195.21		
	(a) DS22	U9		217.99		
Einw. *Ed.28*	(a) UG2	U9	links	617.52	-0.63	5.96
	(a) UG2	U9	rechts	227.91	-0.82	5.96
	(a) PF11	U9		-49.33		
	(a) DS21	U9		-264.61		
	(a) DS22	U9		310.27		
Einw. *Ed.29*	(a) UG2	U9	links	434.37	-0.43	4.00
	(a) UG2	U9	rechts	154.03	-0.59	4.00
	(a) PF11	U9		-28.12		
	(a) DS21	U9		-195.21		
	(a) DS22	U9		217.99		
Einw. *Ed.30*	(a) UG2	U9	links	617.52	-0.63	5.96
	(a) UG2	U9	rechts	227.91	-0.82	5.96
	(a) PF11	U9		-49.33		
	(a) DS21	U9		-264.61		
	(a) DS22	U9		310.27		
Einw. *Ed.31*	(a) UG2	U9	links	543.41	-0.67	5.39
	(a) UG2	U9	rechts	206.90	-0.61	5.39
	(a) PF11	U9		-49.71		
	(a) DS21	U9		-223.75		
	(a) DS22	U9		273.25		
Einw. *Ed.32*	(a) UG2	U9	links	434.37	-0.43	4.00
	(a) UG2	U9	rechts	154.03	-0.59	4.00
	(a) PF11	U9		-28.12		
	(a) DS21	U9		-195.21		
	(a) DS22	U9		217.99		
Einw. *Ed.33*	(a) UG2	U9	links	617.52	-0.63	5.96
	(a) UG2	U9	rechts	227.91	-0.82	5.96
	(a) PF11	U9		-49.33		
	(a) DS21	U9		-264.61		
	(a) DS22	U9		310.27		
Einw. *Ed.34*	(a) UG2	U9	links	434.37	-0.43	4.00
	(a) UG2	U9	rechts	154.03	-0.59	4.00
	(a) PF11	U9		-28.12		
	(a) DS21	U9		-195.21		
	(a) DS22	U9		217.99		
Einw. *Ed.35*	(a) UG2	U9	links	434.37	-0.43	4.00

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) UG2	U9	rechts	154.03	-0.59	4.00
	(a) PF11	U9		-28.12		
	(a) DS21	U9		-195.21		
	(a) DS22	U9		217.99		
Einw. *Ed.36*	(a) UG2	U9	links	617.52	-0.63	5.96
	(a) UG2	U9	rechts	227.91	-0.82	5.96
	(a) PF11	U9		-49.33		
	(a) DS21	U9		-264.61		
	(a) DS22	U9		310.27		
Einw. *Ed.37*	(a) UG2	U9	links	69.39	-0.45	0.50
	(a) UG2	U9	rechts	25.87	0.28	0.50
	(a) PF11	U9		-4.45		
	(a) DS21	U9		-29.56		
	(a) DS22	U9		34.64		
Einw. *Ed.38*	(a) UG2	U9	links	572.96	-0.47	5.60
	(a) UG2	U9	rechts	211.94	-0.87	5.60
	(a) PF11	U9		-46.66		
	(a) DS21	U9		-244.78		
	(a) DS22	U9		287.98		
Einw. *Ed.39*	(a) UG2	U9	links	69.39	-0.45	0.50
	(a) UG2	U9	rechts	25.87	0.28	0.50
	(a) PF11	U9		-4.45		
	(a) DS21	U9		-29.56		
	(a) DS22	U9		34.64		
Einw. *Ed.40*	(a) UG2	U9	links	572.96	-0.47	5.60
	(a) UG2	U9	rechts	211.94	-0.87	5.60
	(a) PF11	U9		-46.66		
	(a) DS21	U9		-244.78		
	(a) DS22	U9		287.98		
Einw. *Ed.41*	(a) UG2	U9	links	498.86	-0.51	5.03
	(a) UG2	U9	rechts	190.92	-0.66	5.03
	(a) PF11	U9		-47.04		
	(a) DS21	U9		-203.92		
	(a) DS22	U9		250.95		
Einw. *Ed.42*	(a) UG2	U9	links	380.92	-0.43	3.47
	(a) UG2	U9	rechts	134.37	-0.47	3.47
	(a) PF11	U9		-23.73		
	(a) DS21	U9		-172.25		
	(a) DS22	U9		191.10		
Einw. *Ed.43*	(a) UG2	U9	links	572.96	-0.47	5.60
	(a) UG2	U9	rechts	211.94	-0.87	5.60
	(a) PF11	U9		-46.66		
	(a) DS21	U9		-244.78		
	(a) DS22	U9		287.98		
Einw. *Ed.44*	(a) UG2	U9	links	69.39	-0.45	0.50
	(a) UG2	U9	rechts	25.87	0.28	0.50
	(a) PF11	U9		-4.45		
	(a) DS21	U9		-29.56		
	(a) DS22	U9		34.64		
Einw. *Ed.45*	(a) UG2	U9	links	69.39	-0.45	0.50

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a) UG2	U9	rechts	25.87	0.28	0.50
	(a) PF11	U9		-4.45		
	(a) DS21	U9		-29.56		
	(a) DS22	U9		34.64		
Einw. *Ed.46*	(a) UG2	U9	links	572.96	-0.47	5.60
	(a) UG2	U9	rechts	211.94	-0.87	5.60
	(a) PF11	U9		-46.66		
	(a) DS21	U9		-244.78		
	(a) DS22	U9		287.98		
Einw. *Ed.47*	(a) UG2	U9	links	69.39	-0.45	0.50
	(a) UG2	U9	rechts	25.87	0.28	0.50
	(a) PF11	U9		-4.45		
	(a) DS21	U9		-29.56		
	(a) DS22	U9		34.64		
Einw. *Ed.48*	(a) UG2	U9	links	572.96	-0.47	5.60
	(a) UG2	U9	rechts	211.94	-0.87	5.60
	(a) PF11	U9		-46.66		
	(a) DS21	U9		-244.78		
	(a) DS22	U9		287.98		
Einw. *Ed.49*	(a) UG2	U9	links	498.86	-0.51	5.03
	(a) UG2	U9	rechts	190.92	-0.66	5.03
	(a) PF11	U9		-47.04		
	(a) DS21	U9		-203.92		
	(a) DS22	U9		250.95		
Einw. *Ed.50*	(a) UG2	U9	links	69.39	-0.45	0.50
	(a) UG2	U9	rechts	25.87	0.28	0.50
	(a) PF11	U9		-4.45		
	(a) DS21	U9		-29.56		
	(a) DS22	U9		34.64		
Einw. *Ed.51*	(a) UG2	U9	links	572.96	-0.47	5.60
	(a) UG2	U9	rechts	211.94	-0.87	5.60
	(a) PF11	U9		-46.66		
	(a) DS21	U9		-244.78		
	(a) DS22	U9		287.98		
Einw. *Ed.52*	(a) UG2	U9	links	69.39	-0.45	0.50
	(a) UG2	U9	rechts	25.87	0.28	0.50
	(a) PF11	U9		-4.45		
	(a) DS21	U9		-29.56		
	(a) DS22	U9		34.64		
Einw. *Ed.53*	(a) UG2	U9	links	69.39	-0.45	0.50
	(a) UG2	U9	rechts	25.87	0.28	0.50
	(a) PF11	U9		-4.45		
	(a) DS21	U9		-29.56		
	(a) DS22	U9		34.64		
Einw. *Ed.54*	(a) UG2	U9	links	572.96	-0.47	5.60
	(a) UG2	U9	rechts	211.94	-0.87	5.60
	(a) PF11	U9		-46.66		
	(a) DS21	U9		-244.78		
	(a) DS22	U9		287.98		

(a) aus Pos. 'T2_DA_2', Ort 'U9' (Seite 191)

! ȳãŎKfdzăăƖǋŅŦűŜ

ǋŜădzfűƛŜǋŜyŘŜ ! ȳãŎKfdzăăƖǋŅŦűŜ ŦǸǋ ŘŜƴ I I·dzǇűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.1	UG2	134.76	179.5	-134.8	1.19
Ed.2	UG2	134.76	179.5	-134.8	1.19
Ed.3	UG2	134.76	179.5	-134.8	1.19
Ed.4	UG2	134.76	179.5	-134.8	1.19
Ed.5	UG2	134.76	179.5	-134.8	1.19
Ed.6	UG2	134.76	179.5	-134.8	1.19
Ed.7	UG2	134.76	179.5	-134.8	1.19
Ed.8	UG2	134.76	179.5	-134.8	1.19
Ed.9	UG2	134.76	179.5	-134.8	1.19
Ed.10	UG2	134.76	179.5	-134.8	1.19
Ed.11	UG2	134.76	179.5	-134.8	1.19
Ed.12	UG2	134.76	179.5	-134.8	1.19
Ed.13	UG2	134.76	179.5	-134.8	1.19
Ed.14	UG2	134.76	179.5	-134.8	1.19
Ed.15	UG2	134.76	179.5	-134.8	1.19
Ed.16	UG2	134.76	179.5	-134.8	1.19
Ed.17	UG2	134.76	179.5	-134.8	1.19
Ed.18	UG2	134.76	179.5	-134.8	1.19
Ed.19	UG2	280.32	180.0	-280.3	0.17
Ed.20	UG2	389.58	180.0	-389.6	0.26
Ed.21	UG2	280.32	180.0	-280.3	0.17
Ed.22	UG2	389.58	180.0	-389.6	0.26
Ed.23	UG2	336.49	179.9	-336.5	0.50
Ed.24	UG2	280.32	180.0	-280.3	0.17
Ed.25	UG2	389.58	180.0	-389.6	0.26
Ed.26	UG2	315.26	179.9	-315.3	0.48
Ed.27	UG2	280.32	180.0	-280.3	0.17
Ed.28	UG2	389.58	180.0	-389.6	0.26
Ed.29	UG2	280.32	180.0	-280.3	0.17
Ed.30	UG2	389.58	180.0	-389.6	0.26
Ed.31	UG2	336.49	179.9	-336.5	0.50
Ed.32	UG2	280.32	180.0	-280.3	0.17
Ed.33	UG2	389.58	180.0	-389.6	0.26
Ed.34	UG2	280.32	180.0	-280.3	0.17
Ed.35	UG2	280.32	180.0	-280.3	0.17
Ed.36	UG2	389.58	180.0	-389.6	0.26
Ed.37	UG2	43.52	178.6	-43.51	1.07
Ed.38	UG2	361.01	180.0	-361.0	-0.07
Ed.39	UG2	43.52	178.6	-43.51	1.07
Ed.40	UG2	361.01	180.0	-361.0	-0.07
Ed.41	UG2	307.92	180.0	-307.9	0.18
Ed.42	UG2	246.53	179.9	-246.5	0.28
Ed.43	UG2	361.01	180.0	-361.0	-0.07
Ed.44	UG2	43.52	178.6	-43.51	1.07
Ed.45	UG2	43.52	178.6	-43.51	1.07
Ed.46	UG2	361.01	180.0	-361.0	-0.07
Ed.47	UG2	43.52	178.6	-43.51	1.07

	Stab	F_{Res} [kN]	h_{Res} ώcϐ	N [kN]	V [kN]
Ed.48	UG2	361.01	180.0	-361.0	-0.07
Ed.49	UG2	307.92	180.0	-307.9	0.18
Ed.50	UG2	43.52	178.6	-43.51	1.07
Ed.51	UG2	361.01	180.0	-361.0	-0.07
Ed.52	UG2	43.52	178.6	-43.51	1.07
Ed.53	UG2	43.52	178.6	-43.51	1.07
Ed.54	UG2	361.01	180.0	-361.0	-0.07

Gleichgewicht

ŊŜădzţűʎŜŊŜуŘŜ Yу2űŜуʅŊŅŦűŜ ∃ţ2ōl·ţ

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.44	267.6	-0.02	-0.44	0.00
Ed.2	0.44	267.6	-0.02	-0.44	0.00
Ed.3	0.44	267.6	-0.02	-0.44	0.00
Ed.4	0.44	267.6	-0.02	-0.44	0.00
Ed.5	0.44	267.6	-0.02	-0.44	0.00
Ed.6	0.44	267.6	-0.02	-0.44	0.00
Ed.7	0.44	267.6	-0.02	-0.44	0.00
Ed.8	0.44	267.6	-0.02	-0.44	0.00
Ed.9	0.44	267.6	-0.02	-0.44	0.00
Ed.10	0.44	267.6	-0.02	-0.44	0.00
Ed.11	0.44	267.6	-0.02	-0.44	0.00
Ed.12	0.44	267.6	-0.02	-0.44	0.00
Ed.13	0.44	267.6	-0.02	-0.44	0.00
Ed.14	0.44	267.6	-0.02	-0.44	0.00
Ed.15	0.44	267.6	-0.02	-0.44	0.00
Ed.16	0.44	267.6	-0.02	-0.44	0.00
Ed.17	0.44	267.6	-0.02	-0.44	0.00
Ed.18	0.44	267.6	-0.02	-0.44	0.00
Ed.19	0.33	267.6	-0.01	-0.33	0.00
Ed.20	0.44	267.6	-0.02	-0.44	0.00
Ed.21	0.33	267.6	-0.01	-0.33	0.00
Ed.22	0.44	267.6	-0.02	-0.44	0.00
Ed.23	0.44	267.6	-0.02	-0.44	0.00
Ed.24	0.33	267.6	-0.01	-0.33	0.00
Ed.25	0.44	267.6	-0.02	-0.44	0.00
Ed.26	0.44	267.6	-0.02	-0.44	0.00
Ed.27	0.33	267.6	-0.01	-0.33	0.00
Ed.28	0.44	267.6	-0.02	-0.44	0.00
Ed.29	0.33	267.6	-0.01	-0.33	0.00
Ed.30	0.44	267.6	-0.02	-0.44	0.00
Ed.31	0.44	267.6	-0.02	-0.44	0.00
Ed.32	0.33	267.6	-0.01	-0.33	0.00
Ed.33	0.44	267.6	-0.02	-0.44	0.00
Ed.34	0.33	267.6	-0.01	-0.33	0.00
Ed.35	0.33	267.6	-0.01	-0.33	0.00
Ed.36	0.44	267.6	-0.02	-0.44	0.00
Ed.37	0.33	267.6	-0.01	-0.33	0.00
Ed.38	0.33	267.6	-0.01	-0.33	0.00
Ed.39	0.33	267.6	-0.01	-0.33	0.00

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.40	0.33	267.6	-0.01	-0.33	0.00
Ed.41	0.33	267.6	-0.01	-0.33	0.00
Ed.42	0.33	267.6	-0.01	-0.33	0.00
Ed.43	0.33	267.6	-0.01	-0.33	0.00
Ed.44	0.33	267.6	-0.01	-0.33	0.00
Ed.45	0.33	267.6	-0.01	-0.33	0.00
Ed.46	0.33	267.6	-0.01	-0.33	0.00
Ed.47	0.33	267.6	-0.01	-0.33	0.00
Ed.48	0.33	267.6	-0.01	-0.33	0.00
Ed.49	0.33	267.6	-0.01	-0.33	0.00
Ed.50	0.33	267.6	-0.01	-0.33	0.00
Ed.51	0.33	267.6	-0.01	-0.33	0.00
Ed.52	0.33	267.6	-0.01	-0.33	0.00
Ed.53	0.33	267.6	-0.01	-0.33	0.00
Ed.54	0.33	267.6	-0.01	-0.33	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ăűŅyŘλƎкØƧŃÒōŜŃƎ

Ek	KLED	ʅ (ɹ* ˛ *EW)
1	st	1.00*Ed.1
20	ku	1.00*Ed.20
23	ku	1.00*Ed.23

st: ăűŅyŘλƎ
ku: kurz

Nachweise (GZT)

bŀŎKǿŜλăŜ λϒ DŃŜyΐΐdžăűŀyŘ ŘŜŃ ¢ŃŀƎŦŅKλƎʅŜλű yŀŎK 5Łb 9b мффрπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 639.20 cm^2

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	43.29	51.86	0.83

* je Verbindungsmittel

Biegung
Abs. 6.1

bŀŎKǿŜλă ŘŜŃ .λŜƎŜűŃŀƎŦŅKλƎʅŜλű

EK	k_{mod}	N_d / M_d [kNm]	` 0,d / ` m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
20	0.90	617.52	9.66	15.44	0.69
		5.96	1.29	19.38	
rechts					
20	0.90	227.91	3.57	15.44	0.30
		5.96	1.29	19.38	

Querkraft
Abs. 6.1.7

bŀŎKǿŜλă ŘŜŃ vdzŜŃʅŃŀŦűŃŀƎŦŅKλƎʅŜλű

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
1	0.60	-0.63	-0.02	1.62	0.01

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
20	0.90	-0.63	-0.02	2.42	0.01
rechts					
1	0.60	0.12	0.00	1.62	0.00
20	0.90	-0.82	-0.03	2.42	0.01

Querzug

bl·ŎKǿŜλă ŘŜŊ vǳŜŊÎǳ∃ǘŊl·∃ŦŅKλ∃ʅŜλǘ

Queranschluss h_e/h = 0.75 > 0.70

Der Querzugnachweis ist nicht erforderlich.

PF11

Nettoquerschnitt Holz	$A_{ef,H}$	=	376.00	cm²
Blech	$A_{ef,S}$	=	24.00	cm²
9ÈÎŜyǘŊλÎλǘŅǘăōŜλǿŜŊǘ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
23	0.90	24.85	51.86	0.48

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜλă ŘŜŊ b2ŊYl·fʅŊl·ŦǘŊl·∃ŦŅKλ∃ʅŜλǘ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
23	0.90	-49.71	-1.32	19.38	0.07

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
23	-49.71	20.71	275.00	0.08

DS21

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ÈÎŜyǘŊλÎλǘŅǘăōŜλǿŜŊǘ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	44.10	51.86	0.85

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜλă ŘŜŊ b2ŊYl·fʅŊl·ŦǘŊl·∃ŦŅKλ∃ʅŜλǘ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
20	0.90	-264.61	-7.82	19.38	0.40

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
20	-264.6	122.50	275.00	0.45

DS22

Nettoquerschnitt Holz $A_{ef,H}$ = 338.40 cm²

Blech	$A_{ef,S}$	=	21.60 cm²
9ÈÎŜyǘǜλÎλǘŅǘăōŜλøŜǜǘ	k_{te}	=	0.67

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
20	0.90	51.71	51.86	1.00

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bI·ŎKøŜλă ŘŜǜ b2ǜΥI·fʅǜI·ŦǘǜI·ƎŦŅKλƎʅŜλǘ

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
20	0.90	310.27	9.17	10.29	0.89

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`d [N/mm²]	`R,d [N/mm²]	'
20	310.27	143.65	275.00	0.52

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

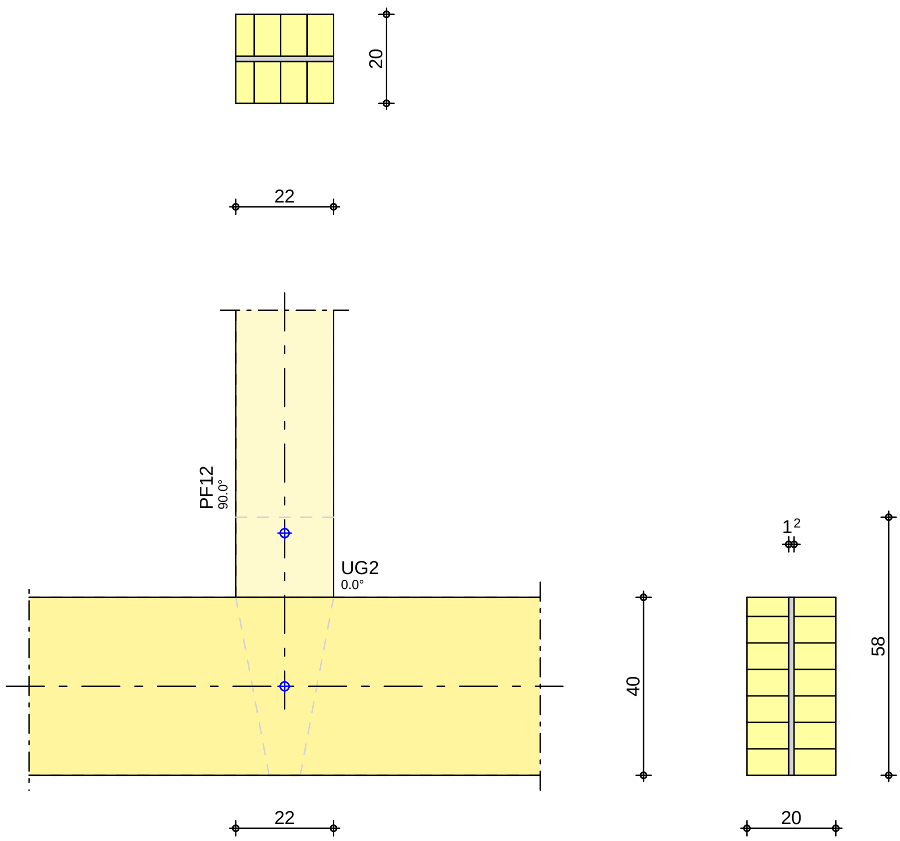
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	DS22	OK	1.00
Stabquerschnitt	DS22	OK	0.89
Blechquerschnitt	DS22	OK	0.52

Pos. T2_DA_3-U10 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/ Material

Stab	Anz.	h ώcϐ	b/h [cm]	ue [cm]	Material
UG2	1	0.0	20/40	7	BSH GL28h[f]
PF12	1	90.0	20/22	18	BSH GL28h[f]

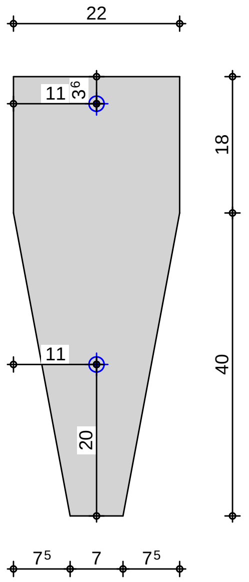
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	1x1	Passbolzen	M20	8.8
PF12	1x1	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.2*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.3*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.4*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.5*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.6*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.7*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.8*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.9*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.10*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.11*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.12*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.13*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.14*	(a)	UG2	U10	links	79.16	-1.07	0.56
	(a)	UG2	U10	rechts	79.16	0.39	0.56
	(a)	PF12	U10		1.46		
Einw. *Ed.15*	(a)	UG2	U10	links	154.03	-1.47	1.18
	(a)	UG2	U10	rechts	154.03	0.01	1.18
	(a)	PF12	U10		1.47		
Einw. *Ed.16*	(a)	UG2	U10	links	227.91	-2.00	2.09
	(a)	UG2	U10	rechts	227.91	-0.17	2.09
	(a)	PF12	U10		1.83		
Einw. *Ed.17*	(a)	UG2	U10	links	154.03	-1.47	1.18
	(a)	UG2	U10	rechts	154.03	0.01	1.18
	(a)	PF12	U10		1.47		
Einw. *Ed.18*	(a)	UG2	U10	links	227.91	-2.00	2.09
	(a)	UG2	U10	rechts	227.91	-0.17	2.09
	(a)	PF12	U10		1.83		
Einw. *Ed.19*	(a)	UG2	U10	links	227.91	-2.00	2.09
	(a)	UG2	U10	rechts	227.91	-0.17	2.09
	(a)	PF12	U10		1.83		
Einw. *Ed.20*	(a)	UG2	U10	links	154.03	-1.47	1.18
	(a)	UG2	U10	rechts	154.03	0.01	1.18
	(a)	PF12	U10		1.47		
Einw. *Ed.21*	(a)	UG2	U10	links	186.37	-1.52	1.95
	(a)	UG2	U10	rechts	186.37	-0.27	1.95
	(a)	PF12	U10		1.24		
Einw. *Ed.22*	(a)	UG2	U10	links	174.56	-1.74	1.32
	(a)	UG2	U10	rechts	174.56	0.11	1.32
	(a)	PF12	U10		1.85		
Einw. *Ed.23*	(a)	UG2	U10	links	154.03	-1.47	1.18
	(a)	UG2	U10	rechts	154.03	0.01	1.18
	(a)	PF12	U10		1.47		
Einw. *Ed.24*	(a)	UG2	U10	links	206.90	-1.79	2.09
	(a)	UG2	U10	rechts	206.90	-0.17	2.09
	(a)	PF12	U10		1.62		
Einw. *Ed.25*	(a)	UG2	U10	links	154.03	-1.47	1.18
	(a)	UG2	U10	rechts	154.03	0.01	1.18

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	PF12	U10		1.47		
Einw. *Ed.26*	(a)	UG2	U10	links	206.90	-1.79	2.09
	(a)	UG2	U10	rechts	206.90	-0.17	2.09
	(a)	PF12	U10		1.62		
Einw. *Ed.27*	(a)	UG2	U10	links	186.37	-1.52	1.95
	(a)	UG2	U10	rechts	186.37	-0.27	1.95
	(a)	PF12	U10		1.24		
Einw. *Ed.28*	(a)	UG2	U10	links	174.56	-1.74	1.32
	(a)	UG2	U10	rechts	174.56	0.11	1.32
	(a)	PF12	U10		1.85		
Einw. *Ed.29*	(a)	UG2	U10	links	25.87	-0.59	0.07
	(a)	UG2	U10	rechts	25.87	0.41	0.07
	(a)	PF12	U10		1.01		
Einw. *Ed.30*	(a)	UG2	U10	links	211.94	-1.75	2.02
	(a)	UG2	U10	rechts	211.94	-0.30	2.02
	(a)	PF12	U10		1.45		
Einw. *Ed.31*	(a)	UG2	U10	links	25.87	-0.59	0.07
	(a)	UG2	U10	rechts	25.87	0.41	0.07
	(a)	PF12	U10		1.01		
Einw. *Ed.32*	(a)	UG2	U10	links	211.94	-1.75	2.02
	(a)	UG2	U10	rechts	211.94	-0.30	2.02
	(a)	PF12	U10		1.45		
Einw. *Ed.33*	(a)	UG2	U10	links	211.94	-1.75	2.02
	(a)	UG2	U10	rechts	211.94	-0.30	2.02
	(a)	PF12	U10		1.45		
Einw. *Ed.34*	(a)	UG2	U10	links	25.87	-0.59	0.07
	(a)	UG2	U10	rechts	25.87	0.41	0.07
	(a)	PF12	U10		1.01		
Einw. *Ed.35*	(a)	UG2	U10	links	190.92	-1.54	2.02
	(a)	UG2	U10	rechts	190.92	-0.30	2.02
	(a)	PF12	U10		1.24		
Einw. *Ed.36*	(a)	UG2	U10	links	25.87	-0.59	0.07
	(a)	UG2	U10	rechts	25.87	0.41	0.07
	(a)	PF12	U10		1.01		
Einw. *Ed.37*	(a)	UG2	U10	links	25.87	-0.59	0.07
	(a)	UG2	U10	rechts	25.87	0.41	0.07
	(a)	PF12	U10		1.01		
Einw. *Ed.38*	(a)	UG2	U10	links	190.92	-1.54	2.02
	(a)	UG2	U10	rechts	190.92	-0.30	2.02
	(a)	PF12	U10		1.24		
Einw. *Ed.39*	(a)	UG2	U10	links	25.87	-0.59	0.07
	(a)	UG2	U10	rechts	25.87	0.41	0.07
	(a)	PF12	U10		1.01		
Einw. *Ed.40*	(a)	UG2	U10	links	190.92	-1.54	2.02
	(a)	UG2	U10	rechts	190.92	-0.30	2.02
	(a)	PF12	U10		1.24		
Einw. *Ed.41*	(a)	UG2	U10	links	25.87	-0.59	0.07
	(a)	UG2	U10	rechts	25.87	0.41	0.07
	(a)	PF12	U10		1.01		
Einw. *Ed.42*	(a)	UG2	U10	links	155.84	-1.49	1.18

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
(a)	UG2	U10	rechts	155.84	0.01	1.18
(a)	PF12	U10		1.49		

(a) aus Pos. 'T2_DA_2', Ort 'U10' (Seite 191)

! ƴăǑKſdzăă1ꞰŅŦűŜ

ꞰŜădzſű⅄ŜꞰŜƴŘŜ ! ƴăǑKſdzăă1ꞰŅŦűŜ ŦÑꞰ ŘŜƴ I I·dzLJűăűI·ō

	Stab	F_{Res} [kN]	h_{Res} ώc϶	N [kN]	V [kN]
Ed.1	UG2	1.46	90.0	0.00	1.46
Ed.2	UG2	1.46	90.0	0.00	1.46
Ed.3	UG2	1.46	90.0	0.00	1.46
Ed.4	UG2	1.46	90.0	0.00	1.46
Ed.5	UG2	1.46	90.0	0.00	1.46
Ed.6	UG2	1.46	90.0	0.00	1.46
Ed.7	UG2	1.46	90.0	0.00	1.46
Ed.8	UG2	1.46	90.0	0.00	1.46
Ed.9	UG2	1.46	90.0	0.00	1.46
Ed.10	UG2	1.46	90.0	0.00	1.46
Ed.11	UG2	1.46	90.0	0.00	1.46
Ed.12	UG2	1.46	90.0	0.00	1.46
Ed.13	UG2	1.46	90.0	0.00	1.46
Ed.14	UG2	1.46	90.0	0.00	1.46
Ed.15	UG2	1.47	90.0	0.00	1.47
Ed.16	UG2	1.83	90.0	0.00	1.83
Ed.17	UG2	1.47	90.0	0.00	1.47
Ed.18	UG2	1.83	90.0	0.00	1.83
Ed.19	UG2	1.83	90.0	0.00	1.83
Ed.20	UG2	1.47	90.0	0.00	1.47
Ed.21	UG2	1.24	90.0	0.00	1.24
Ed.22	UG2	1.85	90.0	0.00	1.85
Ed.23	UG2	1.47	90.0	0.00	1.47
Ed.24	UG2	1.62	90.0	0.00	1.62
Ed.25	UG2	1.47	90.0	0.00	1.47
Ed.26	UG2	1.62	90.0	0.00	1.62
Ed.27	UG2	1.24	90.0	0.00	1.24
Ed.28	UG2	1.85	90.0	0.00	1.85
Ed.29	UG2	1.01	90.0	0.00	1.01
Ed.30	UG2	1.45	90.0	0.00	1.45
Ed.31	UG2	1.01	90.0	0.00	1.01
Ed.32	UG2	1.45	90.0	0.00	1.45
Ed.33	UG2	1.45	90.0	0.00	1.45
Ed.34	UG2	1.01	90.0	0.00	1.01
Ed.35	UG2	1.24	90.0	0.00	1.24
Ed.36	UG2	1.01	90.0	0.00	1.01
Ed.37	UG2	1.01	90.0	0.00	1.01
Ed.38	UG2	1.24	90.0	0.00	1.24
Ed.39	UG2	1.01	90.0	0.00	1.01
Ed.40	UG2	1.24	90.0	0.00	1.24
Ed.41	UG2	1.01	90.0	0.00	1.01
Ed.42	UG2	1.49	90.0	0.00	1.49

Gleichgewicht

ǸŜădzƭǘʎŜǸŜyŘŜ Yy͛ƨǘŜyʅǸŅŦǘŜ ƎƭƨōƖ·ƭ

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	0.00		0.00	0.00	0.00
Ed.2	0.00		0.00	0.00	0.00
Ed.3	0.00		0.00	0.00	0.00
Ed.4	0.00		0.00	0.00	0.00
Ed.5	0.00		0.00	0.00	0.00
Ed.6	0.00		0.00	0.00	0.00
Ed.7	0.00		0.00	0.00	0.00
Ed.8	0.00		0.00	0.00	0.00
Ed.9	0.00		0.00	0.00	0.00
Ed.10	0.00		0.00	0.00	0.00
Ed.11	0.00		0.00	0.00	0.00
Ed.12	0.00		0.00	0.00	0.00
Ed.13	0.00		0.00	0.00	0.00
Ed.14	0.00		0.00	0.00	0.00
Ed.15	0.00		0.00	0.00	0.00
Ed.16	0.00		0.00	0.00	0.00
Ed.17	0.00		0.00	0.00	0.00
Ed.18	0.00		0.00	0.00	0.00
Ed.19	0.00		0.00	0.00	0.00
Ed.20	0.00		0.00	0.00	0.00
Ed.21	0.00		0.00	0.00	0.00
Ed.22	0.00		0.00	0.00	0.00
Ed.23	0.00		0.00	0.00	0.00
Ed.24	0.00		0.00	0.00	0.00
Ed.25	0.00		0.00	0.00	0.00
Ed.26	0.00		0.00	0.00	0.00
Ed.27	0.00		0.00	0.00	0.00
Ed.28	0.00		0.00	0.00	0.00
Ed.29	0.00		0.00	0.00	0.00
Ed.30	0.00		0.00	0.00	0.00
Ed.31	0.00		0.00	0.00	0.00
Ed.32	0.00		0.00	0.00	0.00
Ed.33	0.00		0.00	0.00	0.00
Ed.34	0.00		0.00	0.00	0.00
Ed.35	0.00		0.00	0.00	0.00
Ed.36	0.00		0.00	0.00	0.00
Ed.37	0.00		0.00	0.00	0.00
Ed.38	0.00		0.00	0.00	0.00
Ed.39	0.00		0.00	0.00	0.00
Ed.40	0.00		0.00	0.00	0.00
Ed.41	0.00		0.00	0.00	0.00
Ed.42	0.00		0.00	0.00	0.00

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maŭgebenden Kombinationen

ǎǘŅyŘʎƎκØƨǸÑōŜǸƎφ

Ek	KLED	ʅ (˩* ˬ *EW)
1	st	1.00*Ed.1

st: ǎǘŅyŘʎƎ

Nachweise (GZT) bl·ŎKǿŜǎŜ ʎΥ DŊŜуÎÎdzǎŰl·уŘ ŘŜŊ ¢Ŋl·ƎŦŅKʎƎƖŜʎŰ уl·ŎK 5Łb 9b мффрπмπм

UG2

Nettoquerschnitt Holz $A_{ef,H}$ = 714.40 cm²

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	1.46	12.21	0.12

* je Verbindungsmittel

Biegung
Abs. 6.1

bl·ŎKǿŜǎ ŘŜŊ .ʎŜƎŜŰŊl·ƎŦŅKʎƎƖŜʎŰ

EK	k_{mod}	N_d / M_d [kNm]	`0,d / `m,d [N/mm²]	$f_{0,d}$ / $f_{m,d}$ [N/mm²]	'
links					
16	0.90	227.91	3.19	15.44	0.23
		2.09	0.42	19.38	
rechts					
16	0.90	227.91	3.19	15.44	0.23
		2.09	0.42	19.38	

Querkraft
Abs. 6.1.7

bl·ŎKǿŜǎ ŘŜŊ vdzŜŊƖŊl·ŦŰŊl·ƎŦŅKʎƎƖŜʎŰ

EK	k_{mod}	V_d [kN]	_d [N/mm²]	$f_{v,d}$ [N/mm²]	'
links					
1	0.60	-1.07	-0.03	1.62	0.02
16	0.90	-2.00	-0.06	2.42	0.02
rechts					
1	0.60	0.39	0.01	1.62	0.01
16	0.90	-0.17	-0.01	2.42	0.00

Querzug

bl·ŎKǿŜǎ ŘŜŊ vdzŜŊÎdzƎŰŊl·ƎŦŅKʎƎƖŜʎŰ

Queranschluss h_e/h = 0.50 Ӂ 0.70

dzуǾŜŊǎŰŅŊƖŰ

Ek	k_{mod} [-]	$F_{v,Ed}$ [kN]	$F_{90,Rd}$ [kN]	' [-]
1	0.60	0.73	11.61	0.06

PF12

Nettoquerschnitt Holz $A_{ef,H}$ = 376.00 cm²
Blech $A_{ef,S}$ = 24.00 cm²
9ÈÎŜуŰŊʎÎʎŰŅŰǎōŜʎǿŜŊŰ k_{te} = 0.67

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
1	0.60	1.46	17.29	0.08

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKǿŜǎ ŘŜŊ bƧŊΥl·ƒƖŊl·ŦŰŊl·ƎŦŅKʎƎƖŜʎŰ

EK	k_{mod}	N_d [kN]	`0,d [N/mm²]	$f_{0,d}$* [N/mm²]	'
1	0.60	1.46	0.04	6.86	0.01

* abgemindert mit k,te

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm^2]	`$_{R,d}$ [N/mm^2]	'
22	1.85	0.77	275.00	0.00

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

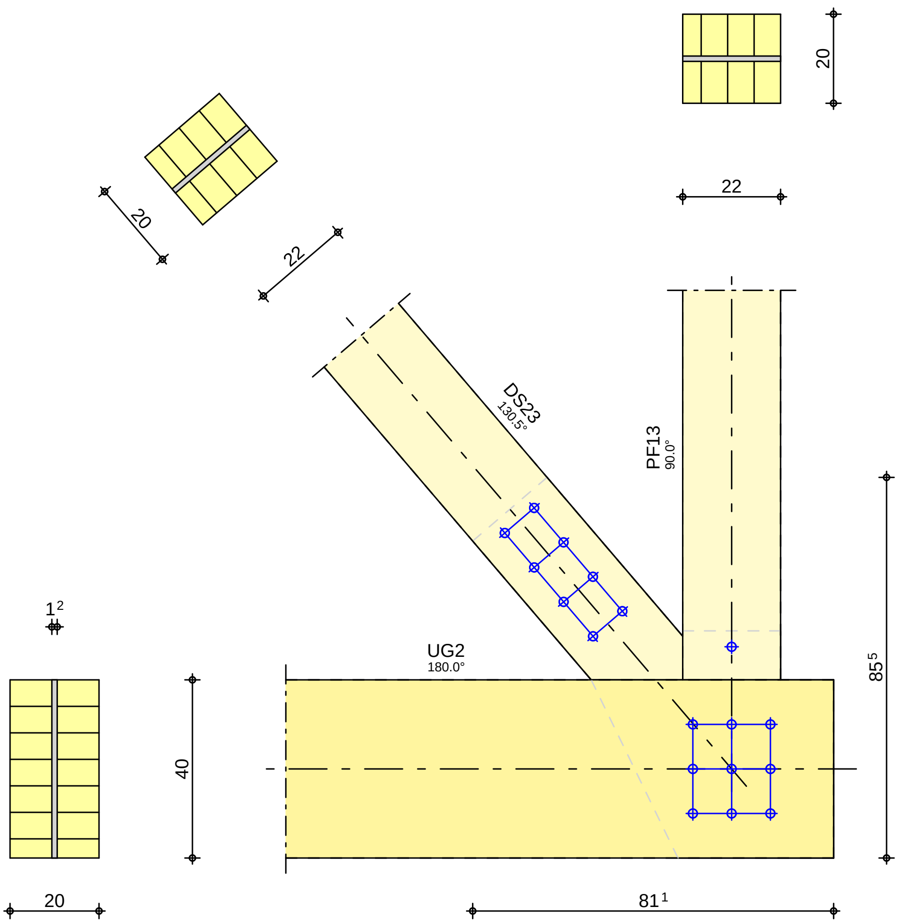
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	UG2	OK	0.12
Stabquerschnitt	UG2	OK	0.23
Blechquerschnitt	PF12	OK	0.00

Pos. T2_DA_3-U11 Holz-Fachwerk-Knotennachweise

Geometrie
M 1:17

Bemessung eines Knotenanschlusses



Abmessungen/
Material

Stab	Anz.	h [°]	b/h [cm]	ue [cm]	Material
UG2	1	180.0	20/40	35	BSH GL28h^f
PF13	1	90.0	20/22	11	BSH GL28h^f
DS23	1	130.5	20/22	41	BSH GL28h^f

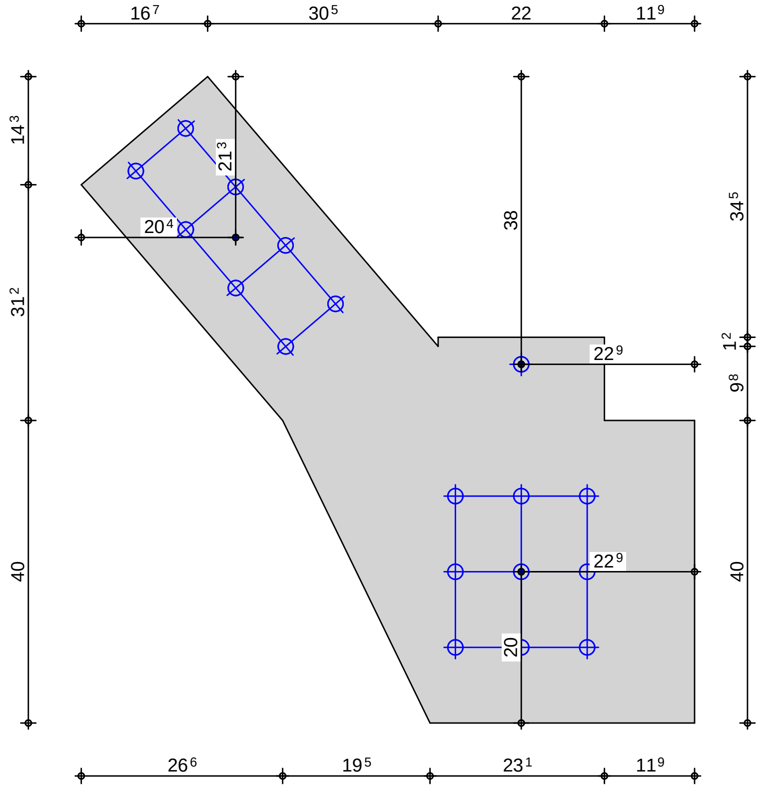
f: Lamellenlage flachkant

Nutzungsklasse 1

Verbindungsmittel

Stab	Anordnung	Art	Abm. [mm]	Material
UG2	3x3	Passbolzen	M20	8.8
PF13	1x1	Passbolzen	M20	8.8
DS23	4x2	Passbolzen	M20	8.8

Blech
M 1:10



Anzahl	Dicke [mm]	Material
1	12.0	S 275

Belastungen

Belastungen auf das System

Stablasten

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.1*	(a)	UG2	U11	links	79.16	-0.79	0.00
	(a)	PF13	U11		-7.79		
	(a)	DS23	U11		-122.20		
Einw. *Ed.2*	(a)	UG2	U11	links	79.16	-0.79	0.00
	(a)	PF13	U11		-7.79		
	(a)	DS23	U11		-122.20		
Einw. *Ed.3*	(a)	UG2	U11	links	79.16	-0.79	0.00
	(a)	PF13	U11		-7.79		
	(a)	DS23	U11		-122.20		
Einw. *Ed.4*	(a)	UG2	U11	links	79.16	-0.79	0.00
	(a)	PF13	U11		-7.79		
	(a)	DS23	U11		-122.20		
Einw. *Ed.5*	(a)	UG2	U11	links	79.16	-0.79	0.00
	(a)	PF13	U11		-7.79		
	(a)	DS23	U11		-122.20		
Einw. *Ed.6*	(a)	UG2	U11	links	79.16	-0.79	0.00
	(a)	PF13	U11		-7.79		
	(a)	DS23	U11		-122.20		

	Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
Einw. *Ed.7*	(a) UG2	U11	links	79.16	-0.79	0.00
	(a) PF13	U11		-7.79		
	(a) DS23	U11		-122.20		
Einw. *Ed.8*	(a) UG2	U11	links	79.16	-0.79	0.00
	(a) PF13	U11		-7.79		
	(a) DS23	U11		-122.20		
Einw. *Ed.9*	(a) UG2	U11	links	154.03	-0.87	0.00
	(a) PF13	U11		-10.78		
	(a) DS23	U11		-237.32		
Einw. *Ed.10*	(a) UG2	U11	links	227.91	-1.36	0.00
	(a) PF13	U11		-17.84		
	(a) DS23	U11		-351.12		
Einw. *Ed.11*	(a) UG2	U11	links	206.90	-1.36	0.00
	(a) PF13	U11		-17.86		
	(a) DS23	U11		-318.77		
Einw. *Ed.12*	(a) UG2	U11	links	154.03	-0.87	0.00
	(a) PF13	U11		-10.78		
	(a) DS23	U11		-237.32		
Einw. *Ed.13*	(a) UG2	U11	links	206.90	-1.36	0.00
	(a) PF13	U11		-17.86		
	(a) DS23	U11		-318.77		
Einw. *Ed.14*	(a) UG2	U11	links	154.03	-0.87	0.00
	(a) PF13	U11		-10.78		
	(a) DS23	U11		-237.32		
Einw. *Ed.15*	(a) UG2	U11	links	227.91	-1.36	0.00
	(a) PF13	U11		-17.84		
	(a) DS23	U11		-351.12		
Einw. *Ed.16*	(a) UG2	U11	links	154.03	-0.87	0.00
	(a) PF13	U11		-10.78		
	(a) DS23	U11		-237.32		
Einw. *Ed.17*	(a) UG2	U11	links	25.87	-0.46	0.00
	(a) PF13	U11		-3.57		
	(a) DS23	U11		-40.10		
Einw. *Ed.18*	(a) UG2	U11	links	211.94	-1.17	0.00
	(a) PF13	U11		-16.25		
	(a) DS23	U11		-326.44		
Einw. *Ed.19*	(a) UG2	U11	links	190.92	-1.17	0.00
	(a) PF13	U11		-16.27		
	(a) DS23	U11		-294.09		
Einw. *Ed.20*	(a) UG2	U11	links	25.87	-0.46	0.00
	(a) PF13	U11		-3.57		
	(a) DS23	U11		-40.10		
Einw. *Ed.21*	(a) UG2	U11	links	190.92	-1.17	0.00
	(a) PF13	U11		-16.27		
	(a) DS23	U11		-294.09		
Einw. *Ed.22*	(a) UG2	U11	links	25.87	-0.46	0.00
	(a) PF13	U11		-3.57		
	(a) DS23	U11		-40.10		
Einw. *Ed.23*	(a) UG2	U11	links	211.94	-1.17	0.00
	(a) PF13	U11		-16.25		

		Stab	Komm.	Seite	N [kN]	V [kN]	M [kNm]
	(a)	DS23	U11		-326.44		
Einw. *Ed.24*	(a)	UG2	U11	links	25.87	-0.46	0.00
	(a)	PF13	U11		-3.57		
	(a)	DS23	U11		-40.10		

(a) aus Pos. 'T2_DA_2', Ort 'U11' (Seite 191)

! yãŎKƒdzăă⁊ǋŅŦůŜ

ǋŜădzƒůʎŜǋŜyŘŜ ! yãŎKƒdzăă⁊ǋŅŦůŜ ŦÑǋ ŘŜy I I·dzǈůăů·ō

	Stab	F_{Res} [kN]	h_{Res} ώcб	N [kN]	V [kN]
Ed.1	UG2	128.23	51.7	79.41	100.68
Ed.2	UG2	128.23	51.7	79.41	100.68
Ed.3	UG2	128.23	51.7	79.41	100.68
Ed.4	UG2	128.23	51.7	79.41	100.68
Ed.5	UG2	128.23	51.7	79.41	100.68
Ed.6	UG2	128.23	51.7	79.41	100.68
Ed.7	UG2	128.23	51.7	79.41	100.68
Ed.8	UG2	128.23	51.7	79.41	100.68
Ed.9	UG2	245.62	51.1	154.22	191.17
Ed.10	UG2	364.86	51.3	228.16	284.72
Ed.11	UG2	332.55	51.5	207.14	260.15
Ed.12	UG2	245.62	51.1	154.22	191.17
Ed.13	UG2	332.55	51.5	207.14	260.15
Ed.14	UG2	245.62	51.1	154.22	191.17
Ed.15	UG2	364.86	51.3	228.16	284.72
Ed.16	UG2	245.62	51.1	154.22	191.17
Ed.17	UG2	42.88	52.6	26.06	34.05
Ed.18	UG2	338.95	51.3	212.12	264.37
Ed.19	UG2	306.64	51.4	191.11	239.80
Ed.20	UG2	42.88	52.6	26.06	34.05
Ed.21	UG2	306.64	51.4	191.11	239.80
Ed.22	UG2	42.88	52.6	26.06	34.05
Ed.23	UG2	338.95	51.3	212.12	264.37
Ed.24	UG2	42.88	52.6	26.06	34.05

Gleichgewicht

ǋŜădzƒůʎŜǋŜyŘŜ YyⱬůŜy⁊ǋŅŦůŜ ⱻƒⱬō I·ƒ

	F_{Res} [kN]	h_{Res} ώcб	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.1	128.23	51.7	79.41	100.68	0.00
Ed.2	128.23	51.7	79.41	100.68	0.00
Ed.3	128.23	51.7	79.41	100.68	0.00
Ed.4	128.23	51.7	79.41	100.68	0.00
Ed.5	128.23	51.7	79.41	100.68	0.00
Ed.6	128.23	51.7	79.41	100.68	0.00
Ed.7	128.23	51.7	79.41	100.68	0.00
Ed.8	128.23	51.7	79.41	100.68	0.00
Ed.9	245.62	51.1	154.22	191.17	0.00
Ed.10	364.86	51.3	228.16	284.72	0.00
Ed.11	332.55	51.5	207.14	260.15	0.00
Ed.12	245.62	51.1	154.22	191.17	0.00

	F_{Res} [kN]	h_{Res} ώcϐ	F_x [kN]	F_z [kN]	M_y [kNm]
Ed.13	332.55	51.5	207.14	260.15	0.00
Ed.14	245.62	51.1	154.22	191.17	0.00
Ed.15	364.86	51.3	228.16	284.72	0.00
Ed.16	245.62	51.1	154.22	191.17	0.00
Ed.17	42.88	52.6	26.06	34.05	0.00
Ed.18	338.95	51.3	212.12	264.37	0.00
Ed.19	306.64	51.4	191.11	239.80	0.00
Ed.20	42.88	52.6	26.06	34.05	0.00
Ed.21	306.64	51.4	191.11	239.80	0.00
Ed.22	42.88	52.6	26.06	34.05	0.00
Ed.23	338.95	51.3	212.12	264.37	0.00
Ed.24	42.88	52.6	26.06	34.05	0.00

**** WARNUNG **** Es wurde eine linksseitige Last auf den einseitigen Hauptstab eingegeben. Last wird ignoriert.

Kombinationen
Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

ăǘŅÝŘλ϶κØ2ǸÑōŜǸ϶ȹ

Ek	KLED	ɿ (˩* ˔ *EW)
10	ku	1.00*Ed.10
11	ku	1.00*Ed.11

ku: kurz

Nachweise (GZT)
bl·ǑKØŜλăŜ λY DǸŜÝÎÎdzăǘl·ÝŘ ŘŜǸ ȼǸl·϶ŦŅKλ϶ʅŜλǘ Ýl·ǑK 5Lb 9b мффрπмπм

UG2

Nettoquerschnitt Holz	$A_{ef,H}$	=	639.20	cm^2
Blech	$A_{ef,S}$	=	40.80	cm^2
9ÈÎŜÝǘǸλÎλǘŅǘăōŜλØŜǸǘ	k_{te}	=	0.67	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
10	0.90	40.54	40.94	0.99

* je Verbindungsmittel

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	V_d [kN]	` v,d [N/mm²]	` R,d [N/mm²]	'
10	228.16	284.72	189.74	275.00	0.69

Querzug
bl·ǑKØŜλă ŘŜǸ vdzŜǸÎdz϶ǘǸl·϶ŦŅKλ϶ʅŜλǘ

Queranschluss h_e/h = 0.75 > 0.70

Der Querzugnachweis ist nicht erforderlich.

PF13

Nettoquerschnitt Holz	$A_{ef,H}$	=	376.00	cm^2
Blech	$A_{ef,S}$	=	24.00	cm^2
9ÈÎŜÝǘǸλÎλǘŅǘăōŜλØŜǸǘ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
11	0.90	17.86	25.93	0.69

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜǻ ŘŜ b2ŸI·ƭƖI·ŦŰI·ƎŦŅKλƎƖŜŰ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
11	0.90	-17.86	-0.47	19.38	0.02

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
11	-17.86	7.44	275.00	0.03

DS23

Nettoquerschnitt Holz	$A_{ef,H}$	=	338.40	cm²
Blech	$A_{ef,S}$	=	21.60	cm²
9ÈÎŜÿŰλÎλŰŅŰăŌŜλøŜŰ	k_{te}	=	1.00	

Verbindungsmittel
Abs. 8.2

Nachweis der Verbindungsmittel

EK	k_{mod}	$F_{v,Ed}$* [kN]	$F_{v,Rd,ef}$* [kN]	'
10	0.90	43.89	51.86	0.85

* je Verbindungsmittel

Normalkraft
Abs. 6.1

bl·ŎKøŜǻ ŘŜ b2ŸI·ƭƖI·ŦŰI·ƎŦŅKλƎƖŜŰ

EK	k_{mod}	N_d [kN]	`$_{0,d}$ [N/mm²]	$f_{0,d}$ [N/mm²]	'
10	0.90	-351.12	-10.38	19.38	0.54

Spannungen
DIN EN 1993

Nachweis der Spannungen im Blech

EK	N_d [kN]	`$_d$ [N/mm²]	`$_{R,d}$ [N/mm²]	'
10	-351.1	162.55	275.00	0.59

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

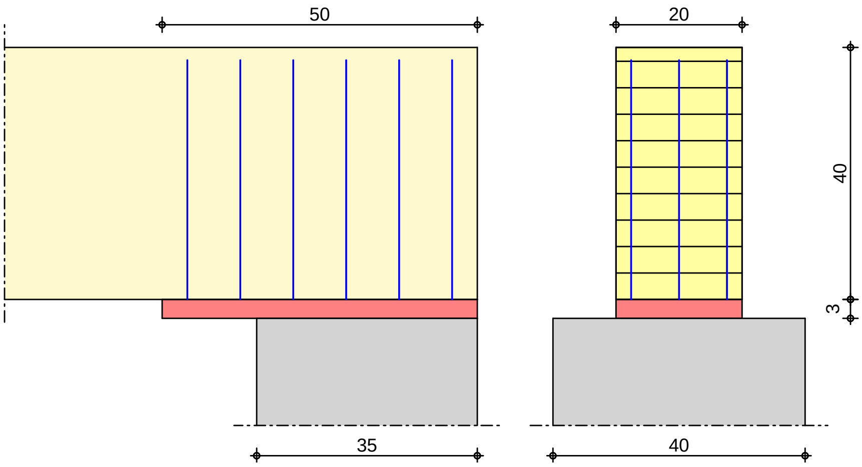
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Stab		' [-]
Verbindungsmittel	UG2	OK	0.99
Stabquerschnitt	DS23	OK	0.54
Blechquerschnitt	UG2	OK	0.69

Pos. T2_DA_4_AL1 — I ƻſÎπ ! ǳŦſŀ·ƎŜǌ Ƴǻǘ ѵǳŜǌŘǌǳŏƪǾŜǌǎǘŅǌƪǳȅƎ

Geometrie
M 1:12

I ƻſÎπ ! ǳŦſŀ·ƎŜǌ ȅΊ·ŎK ǿŜǌǎ Ƴǻǘ ѵǳŜǌŘǌǳŏƪǾŜǌǎǘŅǌƪǳȅƎ ȅΊ·ŎK 5Lb 9b мффрπмπм



Mat./Querschnitt

Bauteil	Material	Querschnitt [cm]
¢ǌŅƎŜǌ	BSH GL28h	20.0/40.0
{ǘŅǘȊŜ	-	35.0/40.0

Nutzungsklasse 1

±ŜǌǎǘŅǌƪǳȅƎ

mit Vollgewindeschrauben und einer Lastplatte

Art	$n_{ſŅȅƎ}$	n_{quer}	Abm. [mm]
I ƻſÎǎŎKǌŀǳōŜ ² ǗǊǘK ! {{¸ LJſǳǎ (Vollgewinde, Senkkopf)[1]	6	3	8.0x380
Lastplatte (l/b/t)			500/200/30

1: ETA-11/0190

Belastungen

Belastungen auf das System

Auflagerlasten

	Komm.	F_z [kN]
Einw. *Ed.1*	A1	99.83
Einw. *Ed.2*	A1	99.83
Einw. *Ed.3*	A1	33.28
Einw. *Ed.4*	A1	295.93

**** WARNUNG **** Der Lastabtrag liefert Lasten in x-Richtung, die nicht ausgewertet werden ƪǀƴƴŜƴ͊

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

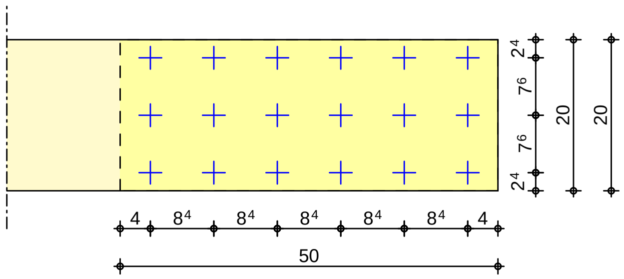
	Ek	KLED	ƪ (˩* ˔ *EW)
ǎǘŅǘƛǎŎƘ ŜƛƴǿŀǊǘǎ	4	ku/sk	1.00*Ed.4

ku/sk: kurz/sehr kurz

Mat./Querschnitt nach DIN EN 1995-1-1

Grafik
M 1:10

¢ǀŅ∃Ŝǀ



Nachweise (GZT)

bl·ŎKǿŜλă λΥ DǀŜyĨĨdzăűl·yŘ ŘŜǀ ¢ǀl·∃ŦŅKλ∃ʅŜλű yl·ŎK 5Ŀb 9b мффрπмπм dzyŘ 9¢!π 11/0190

Querdruck

vertikale Druckkraft

EK	k_{mod} [-]	$F_{c,90,d}$ [kN]	Bauteil	$k_{c,90}$ [-]	$F_{c,90,Rd}$ [kN]	' [-]
4	1.00	295.93	¢ǀŅ∃Ŝǀ	1.75	313.46	0.94 s

s: Υl·ū∃ŜōŜyŘŜ {űŜŧŜγ {ŎKǀl·dzōŜyăĿǀűĨŜ

Lastplatte

bl·ŎKǿŜλă ŘŜǀ ¢ǀl·∃ŦŅKλ∃ʅŜλű ŘŜǀ [l·ăűĿJŧl·űűŜ

EK	Baut.	M [kNm]	` [N/mm²]	`Rd [N/mm²]	' [-]
4		6.68	222.55	213.64	1.04

- Die Druckkraft muss mittels einer starren Lagerung ∃ŧŜλŎKΥŅūλ∃ ǿŜǀűŜλŧű werden.
- 5λŜ {ŎKǀl·dzōŜγăλyŘ ōŃyŘλ∃ ŜλγĨdzŘǀŜŜKŜyφ

Zusammenfassung

Zusammenfassung der Nachweise

Nachweise (GZT)

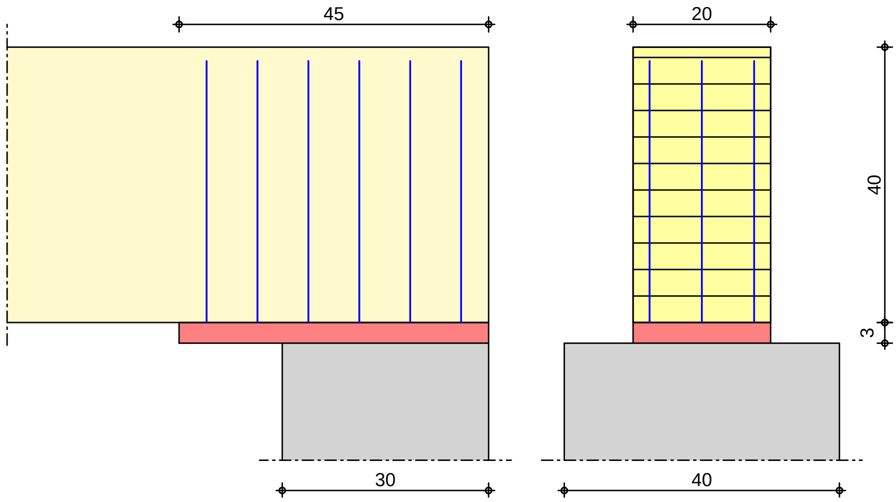
Nachweise im Grenzzustand der TragfŅhigkeit

Nachweis	Bauteil		' [-]
Querdruck	¢ǀŅ∃Ŝǀ	OK	0.94
Lastplatte	¢ǀŅ∃Ŝǀ	OK	1.04

Pos. T2_DA_4_AL2 Ι ƻɫÎπ ! ǳŦɫŀ∃ŜŊ Ύλǘ ѵǳŜŊŘŊǳŎʅǾŜŊǎǘŅŊʅǳȳ∃

Geometrie
M 1:11

Ι ƻɫÎπ ! ǳŦɫŀ∃ŜŊȳŀŎΚǾŜλǎ Ύλǘ ѵǳŜŊŘŊǳŎʅǾŜŊǎǘŅŊʅǳȳ∃ ȳŀŎΚ 5Ln 9b мффрπмπм



Mat./Querschnitt

Bauteil	Material	Querschnitt [cm]
¢ŊŅ∃ŜŊ	BSH GL28h	20.0/40.0
{ǘŃǘÎŜ	-	30.0/40.0

Nutzungsklasse 1

±ŜŊǎǘŅŊʅǳȳ∃

mit Vollgewindeschrauben und einer Lastplatte

Art	$n_{längs}$	n_{quer}	Abm. [mm]
Ι ƻɫÎǎŎΚŊŀǳõŜ ² ŃŊǘΚ ! {{¸ ǅɫǳǎ (Vollgewinde, Senkkopf)[1]	6	3	8.0x380
Lastplatte (l/b/t)			450/200/30

1: ETA-11/0190

Belastungen

Belastungen auf das System

Auflagerlasten

	Komm.	F_z [kN]
Einw. *Ed.1*	A2	101.69
Einw. *Ed.2*	A2	101.69
Einw. *Ed.3*	A2	34.67
Einw. *Ed.4*	A2	292.07

Kombinationen

Kombinationsbildung nach DIN EN 1990
Darstellung der maßgebenden Kombinationen

	Ek	KLED	ʅ (᛫* ˬ *EW)
ǎǘŅŘλ∃κǾƻŊõŜŊ∃ɸ	4	ku/sk	1.00*Ed.4

ku/sk: kurz/sehr kurz

Mat./Querschnitt

nach DIN EN 1995-1-1

Grafik

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