

階: Z1 通り: X1 軸i-軸j: Y1-Y2 ブレース符号: BMM1																	
断面				タイプ	材料	Fy	γ	A	θ	ix	iy	γ1	γ2	γ3	α		
H-175x175x7.5x11x12				枠M	SS400	258.50	1.1	51.21	60.00	7.504	4.383	1.00	1.00	1.00	1.2		
部材長	LA	LB	LC	h1	h2	h	L1	L2	L								
	288.7	206.8	201.5	250.0	140.6	390.6	144.3	151.7	592.0								
角度	θA	θB	θC	a	b	c	d	e	f								
	87.1	75.8	17.2	30.0	104.2	45.8	44.2	92.9	42.8								
枠材				wFy	fb	wfs	wA	As	ib	Z							
H-250x250x9x14x16				258.50	249.20	149.24	92.18	22.50	6.292	866.61							
既存部材との接合部	溶込み溶接		隅肉溶接		ボルト接合						ft	fs	h	wn	Lb	Lk	
	gLw	gtw	L	S	種類	径	bfs	bAg	bN	bm							
横枠材	-	-	40.0	2.2	-	-	-	-	-	1	258.50	149.24	5.0	2	500.0	500.0	
縦枠材	-	-	-	-	F8T	M24	89.60	4.520	4	2	258.50	149.24	4.0	2	-	150.0	
基礎梁との接合部	引張りアンカー								せん断アンカー				σB	Ec			
	σy	tN	da	Ag	Ac	Le	c	σy	sN	da	Ag						
	345.00	50	19	2.84	509.18	19.0	10.0	345.00	40	19	2.84	21.0	21682.1				
ブレース接合部	ブレース				ボルト						ガセット				溶接		
	Fu	Ae	e	t	bFu	列	n	Ab	m	p	gFu	gt	gB	ge	種類	Le	S
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A部材の座屈耐力: ANcr			B部材の座屈耐力: BNcr			ブレース接合部耐力: Pu											
A λ x = γ 1 · (LA+LB) / ix = 66.03			B λ x = γ 1 · (LA+LB) / ix = 66.03			Pu = min (Pu1, ..., Pu6) = -											
A λ y = γ 2 · LA / iy = 65.87			B λ y = γ 3 · LB / iy = 47.19			Pu1 = 0.6 · m · 列 · n · Ab · bFu = -											
λ = max (A λ x, A λ y) = 66.03			λ = max (B λ x, B λ y) = 66.03			Pu2 = Ae · Fu = -											
Λ = π √ (E / 0.6Fy) = 114.21			Λ = π √ (E / 0.6Fy) = 114.21			Pu3 = (e + (n-1)p) · 列 · t · Fu = -											
λ ≤ Λ : fcr = (1-0.4(λ/Λ)^2)Fy = 223.94N/mm2			λ ≤ Λ : fcr = (1-0.4(λ/Λ)^2)Fy = 223.94N/mm2			Pu4 = (ge + (n-1)p) · 列 · gt · gFu = -											
ANcr = fcr · A = 1146.84kN			BNcr = fcr · A = 1146.84kN			Pu5 = gt · gB · gFu = -											
A部材の座屈より			B部材の座屈より			Pu6 = 0.7 · S · Le · gFu / √3 = -											
ANcB = ANcr / sin θ A · sin θ B = 1113.01kN			BNcA = BNcr / sin θ B · sin θ A = 1181.71kN			Ny = Fu · A = 1323.81kN											
AQcB = ANcB · cos (f) = 816.22kN			BQcA = BNcA · cos θ = 590.85kN			Nt' = min (Ny, Pu / α) = 1323.81kN											
AQcA = ANcr · cos θ = 573.42kN			BQcB = BNcr · cos (f) = 841.03kN			ANt = Nt', Bnt = Nt'											
A部材の引張り降伏より			B部材の引張り降伏より			bQux = Quc + Qut = 1235.32kN											
ANtB = ANt / sin θ A · sin θ B = 1284.75kN			BNtA = Bnt / sin θ B · sin θ A = 1364.05kN			bQuy = Nc · sin θ 1 + Nt · sin θ 2 = 2139.64kN											
AQtB = ANtB · cos (f) = 942.17kN			BQtA = BNtA · cos θ = 682.02kN														
AQtA = ANt · cos θ = 661.90kN			BQtB = Bnt · cos (f) = 970.81kN														
Quc = AQcA (Nc = ANcr, θ 1 = 0)			Qut = AQtA (Nt = ANt, θ 2 = 0)														
<枠部材の検討>																	
・ 不釣合いせん断力を受ける横枠材																	
∠Q = (Nt - Nc) sin (f) = 116.76kN			∠M = ∠Q · Lb / 4 = 145.95kN·m														
Qsa = As · wfs = 335.80kN			Ma = Z · fb = 215.96kN·m														
判定: Qsa ≥ ∠Q → OK																	
・ 軸力を受ける横枠材																	
λ = Lk / ib = 79.47			λ = Lk / ib = 23.84														
Λ = π √ (E / 0.6wFy) = 114.21			Λ = π √ (E / 0.6wFy) = 114.21														
λ ≤ Λ : Ncr = (1-0.4(λ/Λ)^2)wFy · wA = 1921.35kN			λ ≤ Λ : Ncr = (1-0.4(λ/Λ)^2)wFy · wA = 2341.26kN														
ND = bQux = 1235.32kN			ND = bQuy = 2139.64kN														
判定: Ncr ≥ 1.2 · ND → OK																	
<既存鉄骨部材との接合部の検討>																	
・ 横枠材の接合部																	
Q = bQux / wn = 617.66kN			M = Q · h = 30.88kN·m			Q = bQuy / wn = 1069.82kN			M = Q · h = 42.79kN·m								
・ 隅肉溶接																	
a = 0.7 · S = 1.5cm			Lw = L - 2S = 35.6cm			判定: τ > bfs → NG											
τ M = 6 · M / (2a · (Lw - 2S)^2) = 61.80N/mm2																	
τ Q = Q / (2a · Lw) = 56.33N/mm2																	
τ g = √ (τ M^2 + τ Q^2) = 83.62N/mm2																	
判定: τ g ≤ fs → OK																	
・ ボルト接合 τ = Q / (bAg · bN) = -																	
判定: -																	
<鉄筋コンクリート部材に接合する枠材のアンカー接合部>																	
・ あと施工アンカーの終局引張り耐力																	
Ta = min (Ta1, Ta2, Ta3) = 54.83kN			Qa = 0.7 · min (Qa1, Qa2) = 47.93kN														
Ta1 = σ y · Ag = 97.82kN			Qa1 = 0.7 · σ y · Ag = 68.47kN														
Ta2 = 0.235 √ (σ B) · Ac = 54.83kN			Qa2 = 0.4 √ (Ec · σ B) · Ag = 76.53kN														
Ta3 = τ a · π · da · Le' = 69.24kN			Σ Qa = sN · Qa = 1917.22kN														
Le' = Le - 2 · da = 15.2cm			判定: Σ Qa ≥ 1.2 · bQux → OK														
τ bav = 10 √ (σ B / 21) = 10.00N/mm2																	
τ a = τ bav (0.5(c/Le) + 0.5) = 7.63N/mm2																	
Σ Ta = tN · Ta = 2741.67kN																	
判定: Σ Ta ≥ 1.2 · bQuy → OK																	