

結構構件計算詳細列式查核

樓層: 2F, 柱代號: C10, 位置: P001-1 [C:0,Y4:0] 尺寸: 50 cm * 50 cm, 柱高: 360.0 cm

主筋計算:

$$\#8 \text{ 主筋(第1組-上層無柱):主筋}+90\text{度彎鉤錨定} = (360+35.57)*12/100 = 47.47 \text{ M}$$

外箍筋計算:

$$\text{外箍長度(方形)} = (50+50)*2-8*4+2*13.89=195.8$$

$$\#4 \text{ 上下箍圈數} = \text{Int}(((360-60)/2)/10.0)+1=16$$

$$\text{上下箍總長} = 195.8*16/100=31.32 \text{ M}$$

$$\#4 \text{ 中央箍圈數} = \text{Int}(((360-60)/2)/10.0)+1=16$$

$$\text{中央箍總長} = 195.8*16/100=31.32 \text{ M}$$

$$\#4 \text{ 外箍-緊密箍筋長度} = (\text{Int}(60/10)+1)*195.8/100=13.70 \text{ M}$$

內繫筋計算

$$X(\text{水平})\text{向長度(方形柱)} = (50-2*[\text{保護層}]4+2*[\text{180度彎鉤}]14.9)*2=143.4$$

$$Y(\text{垂直})\text{向長度(方形柱)} = (50-2*[\text{保護層}]4+2*[\text{180度彎鉤}]14.9)*2=143.4$$

$$\#4 \text{ 上下端圈數} = \text{Int}(((360-60)/2)/10.0)+1=16$$

$$\text{上下端總長} = (143.4+143.4)*16/100=45.9 \text{ M}$$

$$\#4 \text{ 中央端圈數} = \text{Int}(((360-60)/2)/10.0)+1=16$$

$$\text{中央端總長} = (143.4+143.4)*16/100=45.9 \text{ M}$$

$$\#4 \text{ 緊密繫筋長度} = (143.4+143.4)*\text{Int}(60/10)/100= 17.21 \text{ M}$$

模版計算:

$$\text{主模版:}(50+50)*2*360/10000=7.20 \text{ M2}$$

柱樑連接模版扣除:

$$\text{第:1邊:}-(B8) 30*60/10000=0.18$$

$$\text{第:2邊:}-(G4) 30*60/10000=0.18$$

$$\text{第:3邊:}-(B9) 30*60/10000=0.18$$

$$\text{以上小計:}0.54 \text{ M2}$$

柱版連接模版扣除:

$$\text{第:1邊:}20.00*20/10000=0.0400$$

$$\text{第:2邊:}20.00*20/10000=0.0400$$

$$\text{第:3邊:}20.00*20/10000=0.0400$$

$$\text{以上小計:}0.1200 \text{ M2}$$

柱牆連接模版扣除:

$$\text{連接牆:1(樑底):-B9=}20*(360-60)/10000=0.60$$

$$\text{連接牆:2(樑底):-B8=}20*(360-60)/10000=0.60$$

$$\text{以上小計:}1.20 \text{ M2}$$

$$\text{模版總計:}7.20-[\text{柱樑交接}]0.54-[\text{柱版交接}]0.12-[\text{柱牆交接}]1.20=5.34 \text{ M2}$$

RC計算:

$$50*50*360/1000000= 0.900 \text{ M3}$$

----- 計算結果小計 -----

鋼筋計算結果:

$$\#4=185.351 \text{ M} (185.351 \text{ M}*0.994/1000= 0.1842 \text{ T})$$

$$\#8=47.468 \text{ M} (47.468 \text{ M}*3.980/1000= 0.1889 \text{ T})$$

$$\text{鋼筋小計} = 0.3732 \text{ T}$$

$$\text{模版小計} = 5.34 \text{ M2}$$

$$\text{混凝土小計} = 0.900 \text{ M3}$$