

工程指示 / 要求簡箋 ENGINEER INSTRUCTIONS(E.I.)

工程指示編號:	EI- 6950	修改版本:	-
	HK- 2553		
工程編號:	J 856	工程名稱:	天榮站
收件人:	生統 / Maggie	發件人:	Jingo
工程項目:	天榮站工廠及地盤所用鐵件驗焊及鍍鋅要求	日期:	06/11/2023

<input checked="" type="checkbox"/> 原合約工程包	<input type="checkbox"/> 原合約工程加 / 減賬 QT-	<input type="checkbox"/> 新工程報價 QT-
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信件批核號碼/圖紙參考編號:	批核模具圖紙編號:
客戶指示附件:	管理內部批簽署:

<input type="checkbox"/> 初步鋁料 B.M.	<input type="checkbox"/> 加工拆圖, 然後生產	<input type="checkbox"/> 尺寸表
<input type="checkbox"/> 正式鋁料 B.M.	<input type="checkbox"/> 技術上資料 / 指示	<input type="checkbox"/> 報價
<input type="checkbox"/> 配件 B.M.	<input type="checkbox"/> 樣辦或貨品說明書	<input type="checkbox"/> 分判合約
<input type="checkbox"/> 其他:		

內容:	天榮站工廠及地盤所用鐵件驗焊及鍍鋅要求: (所有生產未出貨的單)
	1. 需盡量提早通知美特工程部-Jingo/ Ken, 以便安排新鴻基、美特代表視頻檢視驗焊, 目視100% MPI 20% (早好2天前通知)
	2. 需提供鍍鋅報告, 按BD要求鍍鋅厚度不少於85 micron
	3. BD 幕牆及46/F 趟門、窗批圖附件供參考用
完成上列要求日期:	06/11/2023

國內

<input type="checkbox"/> 生產技術總監	<input type="checkbox"/> 連附件	<input checked="" type="checkbox"/> 技術部	<input checked="" type="checkbox"/> 連附件	<input type="checkbox"/> 生產部	<input type="checkbox"/> 連附件
<input type="checkbox"/> 採購部	<input type="checkbox"/> 連附件	<input checked="" type="checkbox"/> 生產統籌部	<input checked="" type="checkbox"/> 連附件	<input type="checkbox"/> 報關組	<input type="checkbox"/> 連附件
<input type="checkbox"/> 質檢部	<input type="checkbox"/> 連附件	<input type="checkbox"/> 會計部	<input type="checkbox"/> 連附件	<input type="checkbox"/> 機械設計部	<input type="checkbox"/> 連附件
<input type="checkbox"/> 香港辦	<input type="checkbox"/> 連附件	<input type="checkbox"/> 其他:			

香港

<input type="checkbox"/> 行政部	<input type="checkbox"/> 連附件	<input type="checkbox"/> 會計部	<input type="checkbox"/> 連附件	<input checked="" type="checkbox"/> 統籌部	<input checked="" type="checkbox"/> 連附件	<input type="checkbox"/> 工程部	<input type="checkbox"/> 連附件
<input checked="" type="checkbox"/> 採購部	<input checked="" type="checkbox"/> 連附件	<input type="checkbox"/> QS部	<input type="checkbox"/> 連附件	<input checked="" type="checkbox"/> 地盤管理	<input checked="" type="checkbox"/> 連附件	<input type="checkbox"/> 維修部	<input type="checkbox"/> 連附件

*發件人簽署: Jingo	*組別成員批核簽署:
傳遞編號:	項目經理簽署:

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GENERAL NOTES FOR TOWER CURTAIN WALL

(Tower 1, 2, 3) (3/4 - 1/4)

1. DESIGN CODES :

- BUILDING (CONSTRUCTION) REGULATIONS, HONG KONG.
- CODE OF PRACTICE FOR THE STRUCTURAL USE OF STEEL 2011, HONG KONG.
- CODE OF PRACTICE FOR THE STRUCTURAL USE OF CONCRETE 2013, HONG KONG.
- CODE OF PRACTICE ON WIND EFFECTS IN HONG KONG 2004.
- CODE OF PRACTICE FOR DEAD AND IMPOSED LOADS 2011.
- BS 818 - THE STRUCTURAL USE OF ALUMINIUM, PART 1 - 1991. (WIND LOAD FACTOR COMPLY TO PNAP APP-53)
- BS 6262 - CODE OF PRACTICE GLAZING FOR BUILDING 2005.
- STRUCTURAL DESIGN OF STAINLESS STEEL, THE STEEL CONSTRUCTION INSTITUTE PUBLICATION P291 (PUBLISHED 2002).

2. DESIGN LOADS :

- WIND LOAD (TOPOGRAPHIC FACTOR $S_o = 1$) :
 HEIGHT ABOVE GROUND LEVEL = 151.8 - 5.91 = 145.89m
 BASIC WIND LOAD: 3.05 kPa (BELOW 150m) FOR TOWER
 DESIGN WIND LOAD ($C_p = +1.0/-1.4$) : $3.05 \times (C_p = +1.0/-1.4) = +3.05/-4.27$ kPa (FOR CURTAIN WALL)
 DESIGN WIND LOAD ($C_p = -2.2$) : $3.05 \times (C_p = -2.2) = -6.71$ kPa (FOR EDGE OF ROOF)

b) HORIZONTAL IMPOSED LOAD :

- (FOR PROTECTIVE BARRIER)
 HORIZONTAL IMPOSED LOAD SHALL BE COMPLIED WITH CODE OF PRACTICE FOR DEAD & IMPOSED LOADS 2011.
 EDGE AREAS (WHERE CONGREGATION OF PEOPLE IS NOT EXPECTED) :
- LIVE LOAD TO BE APPLIED AT A HEIGHT OF 1.1m ABOVE F.F.L. = 0.75 kN/m
 - UNIFORMLY DISTRIBUTED LOAD TO BE APPLIED ON THE INFILL BETWEEN FLOOR AND TOP RAIL = 1.0 kPa
 - CONCENTRATED LOAD TO BE APPLIED ON ANY PART OF THE INFILL BETWEEN FLOOR AND TOP RAIL = 0.5 kN
- c) DEAD LOAD :
 GLASS WEIGHT: 26 kN/m²
 STEEL WEIGHT: 77 kN/m²
 ALUMINIUM WEIGHT: 27.2 kN/m²

3. ALUMINIUM ALLOY :

- ALUMINIUM SHEET :
 ALL ALUMINIUM SHEET TO BE ALLOY 3003-H14 TO ALUMINIUM AND ALUMINIUM ALLOYS - SHEET, STRIP AND PLATE, BS EN 485-2:2008 & ALUMINIUM AND ALUMINIUM ALLOYS CHEMICAL COMPOSITION AND FORM OF WROUGHT PRODUCTS, BS EN 573-3:2009.
 0.2% PROOF (YIELD) STRENGTH = 125 MPa
 MINIMUM ULTIMATE TENSILE STRESS = 145 MPa
 MODULUS OF ELASTICITY (E) = 70000 MPa
- ALUMINIUM EXTRUSION : IN ACCORDANCE WITH DESIGN CODE BS 818-1:1991, COMPLY TO ALUMINIUM AND ALUMINIUM ALLOYS, EXTRUDED ROD/BARS, TUBE AND PROFILES, BS EN 755-2:2008 & ALUMINIUM AND ALUMINIUM ALLOYS CHEMICAL COMPOSITION AND FORM OF WROUGHT PRODUCTS, BS EN 573-3:2009.
 MODULUS OF ELASTICITY = 70000 MPa

ALLOY NAME:	6063-T5	6063-T6	6061-T6
MINIMUM 0.2% PROOF STRENGTH:	$f_{0.2} = 110$ N/mm ²	$f_{0.2} = 160$ N/mm ²	$f_{0.2} = 240$ N/mm ²
LIMITING STRESS FOR BENDING AND OVERALL YIELDING:	$\sigma_b = 110$ N/mm ²	$\sigma_b = 160$ N/mm ²	$\sigma_b = 240$ N/mm ²
LIMITING STRESS FOR LOCAL CAPACITY OF THE SECTION IN TENSION OR COMPRESSION:	$\sigma_t = 130$ N/mm ²	$\sigma_t = 175$ N/mm ²	$\sigma_t = 260$ N/mm ²
LIMITING STRESS IN SHEAR:	$\tau_v = 65$ N/mm ²	$\tau_v = 95$ N/mm ²	$\tau_v = 145$ N/mm ²
LIMITING STRESS IN BEARING:	$\sigma_{bs} = 130$ N/mm ²	$\sigma_{bs} = 175$ N/mm ²	$\sigma_{bs} = 260$ N/mm ²

4. STRUCTURAL MILD STEEL AND FINISH :

- ALL MILD STEEL SHALL BE GRADE S275 (CLASS 1) TO CODE OF PRACTICE FOR THE STRUCTURAL USE OF STEEL 2011 AND COMPLY TO BS EN 10025:2004 (FOR JO) & BS EN 10210-1:2006 (FOR JOH).
- SURFACE TREATMENT SHALL BE HOT-DIP GALVANIZED COMPLIED WITH BS EN ISO 1461:2009.

(MIN. THICKNESS = 85 MICRONS)

FOR THICKNESS "t" : 1516mm (GRADE S275)	205,000 N/mm ²
YOUNG'S MODULUS	205,000 N/mm ²
DENSITY	77 kN/m ³
YIELD STRENGTH	275 N/mm ²
TENSILE STRENGTH	275 N/mm ²
BENDING STRENGTH	275 N/mm ²
WEAR STRENGTH	158.8 N/mm ²

5. GLASS :

- GLASS USED TO BE :
 (1) IGU GLASS (8mm THICK HEAT STRENGTHENED GLASS + 12mm THICK AIR + 10mm THICK TEMPERED GLASS)
 (2) IGU GLASS (8mm THICK HEAT STRENGTHENED GLASS + 12mm THICK AIR + 8mm THICK TEMPERED GLASS)

8. FASTENERS

ALL FASTENERS, SCREWS, BOLTS & NUTS SHALL BE STAINLESS STEEL GRADE A4-70 COMPLYING WITH BS EN ISO 3506:2009.

MINIMUM YIELD STRENGTH, F_{yk}	= 450 MPa
ULTIMATE TENSILE STRENGTH, F_{ub}	= 700 MPa
SHEAR STRENGTH, F_{sb}	= 311 MPa
TENSILE STRENGTH, F_{tb}	= 450 MPa
BEARING STRENGTH, F_{pb}	= 828 MPa

UNLESS OTHER SPECIFIED, ALL SCREWS SHALL BE M5 AT 300 C/C GRADE A4-70 STAINLESS STEEL COMPLIED WITH BS EN ISO 3506:2009.

10. STAINLESS STEEL :
 ALL STAINLESS STEEL TO BE
 AND GRADE 316 (L) TO BE

YOUNG'S MODULUS

SECURITY

MIN. 0.2% ROOF STRENGTH

9. FIRE STOP SHALL BE "ROXUL ROCKSAFE" (THK=135mm, DENSITY=60kg/m³)

BD REF. : BD-D163

10. ANCHOR BOLT (FOR ALUM. CAPPING ONLY)

- ALL DRILL-IN ANCHOR BOLTS SHALL BE HILTI HST3-R AS SHOWN IN THE DRAWINGS, AND SHALL BE DESIGNED
- THE INSTALLATION OF DRILL-IN ANCHOR BOLTS SHALL BE STRICTLY IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION & RECOMMENDATION.
- COVER-METER SHOULD BE APPLIED TO PREVENT ANCHOR BOLTS HIT THE EXISTING REINFORCEMENT BARS.

FOR CRACKED CONCRETE TABLE :

ANCHOR TYPE	MINIMUM SPACING (mm)	MINIMUM EDGE DISTANCE (mm)	EFFECTIVE ANCHORAGE LENGTH (mm) TO SOUND CONCRETE	RECOMMENDED LOAD (N) FOR CRACKED CONCRETE INCLUDING FACTOR FOR CRACK 450 CONCRETE = 1.34 TENSION	TENSILE TEST LOAD (N) = 5.36k1.5	MINIMUM AGE AFTER CASTING (days)
HILTI HST3-R M10	80 (40)	45 (53)	60	441.3k = 5.36	8.4k1.3k = 11.26	120

INCLUDING FACTOR FOR GRADE 450 CONCRETE = 1.34. TEST LOAD SHOULD BE 1.5xRECOMMENDED TENSION LOAD.

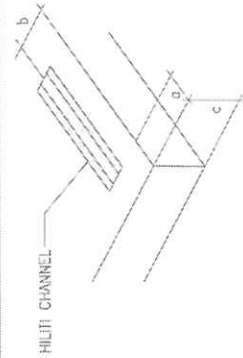
11. ALUMINIUM STUD BY DRAWN ARC STUD WELD

- ALUMINIUM STUD SHALL BE M6 GRADE 5754 AND DESIGNED TO BS 8118-1:1991. DESIGN AND QUALITY ASSURANCE OF DRAWN ARC STUD WELD SHALL COMPLY WITH BS EN ISO 14555:2017.
- ALUMINIUM STUD TYPE SHALL BE THREADED STUD (PT) AND COMPLY WITH BS EN ISO 13918:2018.
- MINIMUM 0.2% PROOF STRENGTH: $f_{0.2} = 80$ N/mm²

12. CAST-IN CHANNEL (BD Ref. : BD-AF137)

- ALL CAST-IN CHANNEL USED TO BE "HILTI" HAC-60 CHANNEL TO CRACKED CONCRETE
- THE INSTALLATION OF CHANNEL FIXING SHALL STRICTLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION AND LIMITATION INCLUDING CONCRETE GRADE EDGE DISTANCE ANCHOR SPACING ETC.
- USED TO BE HBC-C-N 8.8-M12x350mm LONG WHICH COMPLY WITH BS 3692:1987
- 2 NOS. OF M12 GRADE 8.8 F.T. BOLT SPACING REFER TO EMBED DETAIL (DWG. NO. BD-FW-ED01)
- BOTH 350mm, 450mm LENGTH OF HILTI CAST-IN CHANNEL WILL BE TESTED OF THE TEST LOAD.
- METHOD STATEMENT OF TEST WILL BE SUBMITTED ONE WEEK BEFORE THE COMMENCEMENT OF THE CAST-IN CHANNEL.

CHANNEL TYPE	MIN. EDGE DIM. (a)	MIN. EDGE DIM. (b)	MIN. DEPTH DIM. (c)	RECOMMENDED LOAD FOR CHANNEL (kN)	TEST LOAD RECOMMENDATION
HAC-60 W/ 2 NOS. M12 G.M.S.	100mm	200mm	300mm	TENSION : 34.7	SHEAR : 32.3
HBC-C-N T-BOLT (GR. 8.8)				TENSION : 34.7	TENSILE



13. G.M.S. CAST-IN EMBED:

- CAST-IN BENT ROD SHALL BE GRADE S08B TO COMPLIED WITH CS2-2012. SPECIFIED CHARACTERISTIC STRENGTH = 500 N/mm² (EMBED TYPE: E)
- ALL CAST-IN PLATE / ROD SHALL BE GRADE S275 (CLASS 1) TO CODE OF PRACTICE FOR STRUCTURE USE OF STEEL 2011 AND COMPLY TO BS EN 10025:2004 (FOR JO) & BS EN 10210-1:2006 (FOR JOH). YIELD STRENGTH = 275 N/mm²

BS EN 10025:2004
 Mod. ALUM. PLAT
 AT 100% COB

GENERAL NOTES FOR ALUMINIUM WINDOW TOWER 1-3

CODES AND STANDARDS

1. CODE OF PRACTICE ON WIND EFFECTS IN HONG KONG 2004.
2. CODE OF PRACTICE FOR DEAD AND IMPOSED LOADS 2011.
3. CODE OF PRACTICE FOR STRUCTURAL USE OF CONCRETE 2013.
4. CODE OF PRACTICE FOR THE STRUCTURAL USE OF STEEL 2011.
5. CODE OF PRACTICE FOR STRUCTURAL USE OF GLASS 2018.
6. STRUCTURAL USE OF ALUMINIUM, BS 6118-1:1991. (WIND LOAD FACTOR OF 1.4 FOR ALUMINIUM DESIGN TO PRAP APPS.3)
7. BUILDING (CONSTRUCTION) REGULATIONS CAP 123.
8. GEP APPROVAL DATE: 19/01/2023
9. SUPERSTRUCTURE APPROVAL DATE = 07/06/2023
10. APP 37 CURTAIN WALL, WINDOW AND WINDING WALL SYSTEM
11. APP 06 ALUMINIUM WINDOWS
12. NO FIRE RESISTANCE REQUIRED

DESIGN WIND LOAD

CODE OF PRACTICE ON WIND EFFECTS IN HONG KONG 2004.

HEIGHT ABOVE GROUND LEVEL: 148.3m
 BASIC WIND PRESSURE: 3.04kPa
 TOPOGRAPHY FACTOR (Z_{ed}): 1.00
 PRESSURE COEFFICIENT (C_p): +1.0/-1.4
 DESIGN WIND PRESSURE: +3.04k/-4.26kPa
 THERMAL EFFECT: 0 - 5°C TEMPERATURE RANGE

IMPOSED LOAD ON PROTECTIVE BARRIERS (FOR DOMESTIC USE)

CATEGORY	LINE LOAD TO BE APPLIED AT A HEIGHT OF 1.1m ABOVE THE FLOOR LEVEL (kN/m)	UNIFORMLY DISTRIBUTED LOAD TO BE APPLIED ON THE INFILL BETWEEN FLOOR AND TOP RAIL (kPa)	CONCENTRATED LOAD TO BE APPLIED ON ANY PART OF THE INFILL BETWEEN FLOOR AND TOP RAIL (kN)
AREAS WHERE CONGREGATION OF PEOPLE IS NOT EXPECTED	0.75	1.0	0.5

STEEL

ALL STRUCTURAL STEEL SECTIONS SHALL BE GRADE S275 JO CLASS 1 WELTABLE STRUCTURAL STEEL AND COMPLYING WITH BS EN 10210 2006 FOR HOLLOW SECTION AND BS EN 10025 FOR OTHER SECTIONS.

ALL STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED AND COMPLY WITH BS EN ISO 1461 WITH MIN 85 μm COATING THICKNESS.

ALL CUT/WELDED AREAS IN GALVANIZED STEEL SHALL BE MADE GOOD BY AT LEAST TWO COATS OF ZINC RICH PRIMER TO BS 4652.

DENSITY	77kN/m ³
YOUNG'S MODULUS	205,000MPa
YIELD STRENGTH	275MPa
MEDIUM TENSILE STRENGTH	430MPa
DESIGN STRENGTH (t=16mm)	275MPa
DESIGN STRENGTH (t=40mm)	265MPa

ALUMINIUM EXTRUSION

UNLESS OTHERWISE STATED, ALL ALUMINIUM EXTRUSIONS SHALL BE GRADE 6063-T5 AND COMPLY WITH BS EN 755-2 AND BS EN 573-3.

DENSITY: 27.7kN/m³

GLASS

ALL GLASS PANELS SHALL BE COMPLIED WITH BS 952 AND DESIGN TO CODE OF PRACTICE FOR STRUCTURAL USE OF GL

IMPACT TEST TO BE COMPLIED WITH BS EN 12660 (CLASS 1)

DENSITY: 26kN/m³
 YOUNG'S MODULUS: 70,000MPa

ULTIMATE DESIGN STRENGTH OF GLASS

BENDING STRENGTH (SHORT TERM DURATION)

HEAT STRENGTHENED GLASS(HS): 40MPa

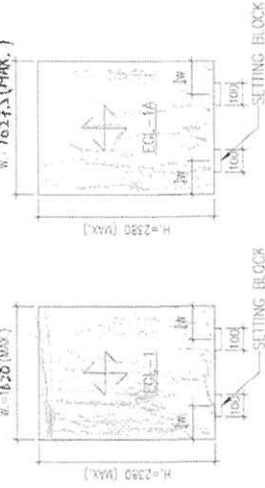
TEMPERED GLASS(TP): 80MPa

ALL TEMPERED GLASS SHALL COMPLY WITH HEAT SOAK TEST REQUIREMENT IN ACCORDANCE WITH PNAP APP. 57-2022. HEAT SOAK PROCESS CONFORMING TO BS EN 14179-1:2016 AND COMPLYING WITH CODE OF PRACTICE FOR STRUCTURE

EGL-1 - 8mmHS+12mm TP AIR GAP+10mmTP THK. I.G.U.

EGL-1A - 8mmHS+12mm TP AIR GAP+8mmTP THK. I.G.U.

THE DESIGN LOAD INCREASE 25% FOR IGLA GLASS AND NO COMPOSITE ACTIONS APPL



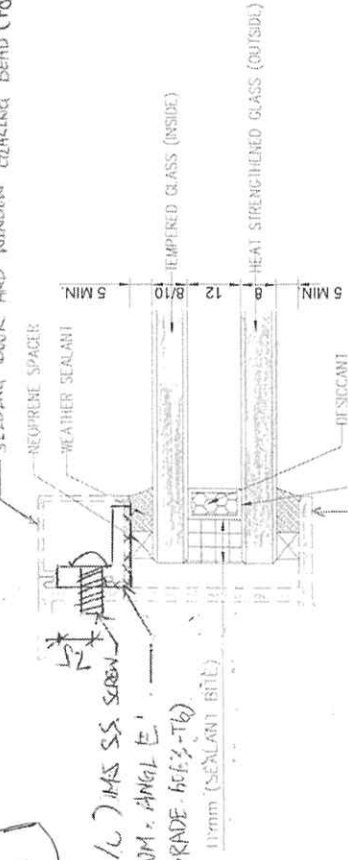
TYPICAL GLASS DETAIL

FOR DOUBLE GLAZING GLASS UNIT (I.G.U.)

QUALITY ASSURANCE DOCUMENT SUCH AS TEST REPORT / CERTIFICATE INDICATING COMPLIES WITH ASTM E2190 OR EC WITH RESPECT TO THE SEAL PERFORMANCE.

FOR INSTALLING GLASS UNIT SHALL BE SUBMITTED BEFORE COMMENCEMENT OF WORK.

SLIDING DOOR AND MOUNTING GLAZING BEAD (FOR INFINT)



ALUMINIUM SHEET
 ALL ALUMINIUM SHEET TO
 BE ALLOY 3003-H14 TO
 BS EN 5082-2:2008. X