



工程指示 / 要求簡箋(E.I.)

工程指示編號：EI/ 6032 /16

修改版次：-

工程編號：J835

工程名稱：TKO66D2 TL118

工程項目：Sample - 鋁啣料樣板

收件人：生統、倉庫

發件人：Stanley

日期：12-10-2016

要求提供 /  確認 事項：

- |                                    |  |                               |
|------------------------------------|--|-------------------------------|
| <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 checked="" type="checkbox"/> 樣辦或貨品說明書 | <input type="checkbox"/> 分判合約 |
| <input type="checkbox"/> 其他：_____  |  |                               |

內容：

請提供圖則要求啣料樣板，一式一份，並需釘裝於樣板箱上：

(註:不需要製作圖中的鐵料樣板)

請在 26-10-2016 前完成上列要求。

附有關圖紙 / 文件：

圖紙六張

以上項目為：

- 原合約工程包       原合約工程加 / 減賬       新工程報價

原因：-

分發東莞各部門：

- ( ) 生產技術總監  連附件    ( ) 技術部  連附件    ( ) 生產部  連附件    ( ) 機械設計部  連附件  
 ( ) 採購部  連附件    ( ) 生產統籌部  連附件  
 ( ) 質檢部  連附件    ( ) 會計部  連附件    ( ) 報關組  連附件    ( ) 其他 \_\_\_\_\_  連附件

分發香港各部門：

- ( ) 行政部  連附件    ( ) 會計部  連附件    ( ) 統籌部  連附件    ( ) 工程部地盤科文  連附件  
 ( ) 採購部  連附件    ( ) QS 部  連附件    ( ) 維修部  連附件    (  ) 其他 林哥、師傅強  連附件

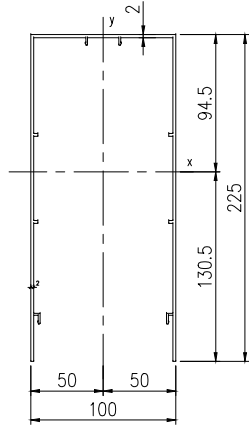
傳遞編號：HK2173 /16

發件人簽署：Hang  
項目經理簽署：

A1H

ALUMINIUM EXTRUSION\_  
MARK: A1

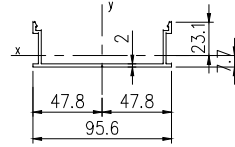
GRADE: 6063-T5



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	1157.74
Perimeter (mm):	1183.79
Bounding Box - X (mm):	-50.00 to 50.00
Bounding Box - Y (mm):	-130.52 to 94.48
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	6181205.73
Moments of inertia - Y (mm <sup>4</sup> ):	2419553.24
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	73.07
Radii of gyration - Y (mm):	45.72
Principal moments along X-Y (mm <sup>4</sup> ):	2419553.24 along [0.00 -1.00]
Principal moments along Y-X (mm <sup>4</sup> ):	6181205.73 along [1.00 0.00]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 47359.79
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 48391.06

ALUMINIUM EXTRUSION\_  
MARK: A2

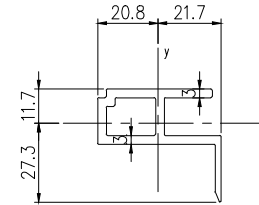
GRADE: 6063-T5



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	323.45
Perimeter (mm):	326.70
Bounding Box - X (mm):	-47.80 to 47.80
Bounding Box - Y (mm):	-7.73 to 23.07
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	30148.89
Moments of inertia - Y (mm <sup>4</sup> ):	402606.93
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	9.65
Radii of gyration - Y (mm):	35.28
Principal moments along X-Y (mm <sup>4</sup> ):	30148.89 along [1.00 0.00]
Principal moments along Y-X (mm <sup>4</sup> ):	402606.93 along [0.00 1.00]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 1306.65
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 8422.74

ALUMINIUM EXTRUSION\_  
MARK: A3

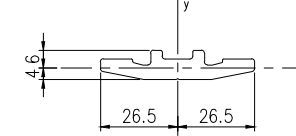
GRADE: 6063-T6



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	361.39
Perimeter (mm):	251.52
Bounding Box - X (mm):	-20.80 to 21.70
Bounding Box - Y (mm):	-27.30 to 11.70
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	23484.59
Moments of inertia - Y (mm <sup>4</sup> ):	70224.92
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	9.00
Radii of gyration - Y (mm):	13.35
Principal moments along X-Y (mm <sup>4</sup> ):	23484.59 along [0.9358 -0.3525]
Principal moments along Y-X (mm <sup>4</sup> ):	70224.92 along [0.3525 0.9358]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 1074.38
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 2970.75

ALUMINIUM EXTRUSION\_  
MARK: A4

GRADE: 6063-T6



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	328.93
Perimeter (mm):	128.49
Bounding Box - X (mm):	-26.5 to 26.5
Bounding Box - Y (mm):	-4.00 to 6.00
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	1569.72
Moments of inertia - Y (mm <sup>4</sup> ):	63609.75
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	2.19
Radii of gyration - Y (mm):	13.91
Principal moments along X-Y (mm <sup>4</sup> ):	1569.72 along [0.9358 -0.3525]
Principal moments along Y-X (mm <sup>4</sup> ):	63609.75 along [0.3525 0.9358]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 262.55
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 2400.37

B.D. Ref.  
F.P.B. Ref.

DATE/REVISION/AMENDMENTS

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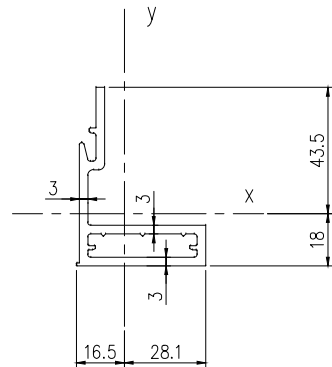
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ALUMINIUM EXTRUSION\_  
MARK: A5

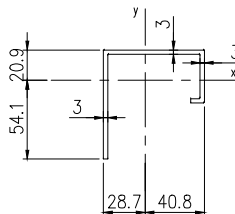
GRADE: 6063-T6



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	498.98
Perimeter (mm):	334.99
Bounding Box - X (mm):	-16.50 to 28.10
Bounding Box - Y (mm):	-18.00 to 43.50
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	61980.9853
Moments of inertia - Y (mm <sup>4</sup> ):	182517.3593
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	16.99
Radii of gyration - Y (mm):	14.19
Principal moments along X-Y (mm <sup>4</sup> ):	61980.9853 along [0.5648 -0.8253]
Principal moments along Y-X (mm <sup>4</sup> ):	182517.3593 along [0.8253 0.5648]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 3310.38
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 3577.69

ALUMINIUM EXTRUSION\_  
MARK: A6

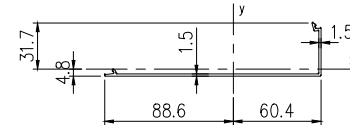
GRADE: 6063-T5



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	544.50
Perimeter (mm):	367.71
Bounding Box - X (mm):	-28.70 to 40.80
Bounding Box - Y (mm):	-54.10 to 20.90
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	190109.32
Moments of inertia - Y (mm <sup>4</sup> ):	496132.06
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	21.69
Radii of gyration - Y (mm):	28.11
Principal moments along X-Y (mm <sup>4</sup> ):	190109.32 along [0.886 0.464]
Principal moments along Y-X (mm <sup>4</sup> ):	496132.06 along [-0.464 0.886]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 4737.88
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 10546.96

ALUMINIUM EXTRUSION\_  
MARK: A7

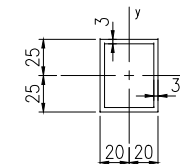
GRADE: 6063-T5



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	285.87
Perimeter (mm):	384.07
Bounding Box - X (mm):	-88.60 to 60.40
Bounding Box - Y (mm):	-4.80 to 31.70
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	17694.66
Moments of inertia - Y (mm <sup>4</sup> ):	692885.27
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	9.23
Radii of gyration - Y (mm):	48.99
Principal moments along X-Y (mm <sup>4</sup> ):	17694.66 along [0.995 0.099]
Principal moments along Y-X (mm <sup>4</sup> ):	692885.27 along [-0.099 0.995]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 767.88
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 7743.43

ALUMINIUM EXTRUSION\_  
MARK: A8

GRADE: 6063-T6



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	504.00
Perimeter (mm):	336.00
Bounding Box - X (mm):	-20.00 to 20.00
Bounding Box - Y (mm):	-25.00 to 25.00
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	175312.00
Moments of inertia - Y (mm <sup>4</sup> ):	122552.00
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	18.65
Radii of gyration - Y (mm):	15.59
Principal moments along X-Y (mm <sup>4</sup> ):	175312.00 along [1.000 0.000]
Principal moments along Y-X (mm <sup>4</sup> ):	122552.00 along [0.000 1.000]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 7012.48
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 6127.60

PROJECT  
PROPOSED RESIDENTIAL  
DEVELOPMENT AT  
TSEUNG KWAN O  
AREA 66D2, T.K.O.T.L. 118

TITLE  
SECTION PROPERTIES OF CURTAIN WALL  
( 1 OF 4 )

FILE NAME

DRAWN BY

CHECKED BY

PRINTED DATE

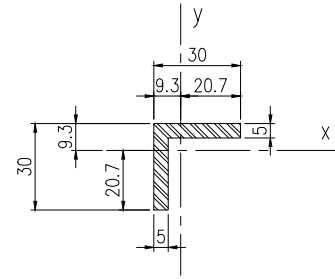
SCALE 1:5

JOB No.	DRAWING No.	REV.
J-835	J835-CW-GN02	-

R.S.E.

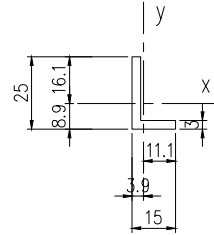
FOR B.D. APPROVAL

A1H  
STEEL MARK: MARK: A9  
30x30x5mm THK. G.M.S ANGLE  
GRADE: S275



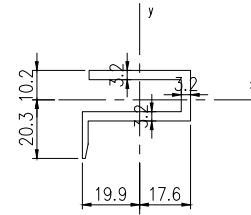
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	275.00
Perimeter (mm):	120.00
Bounding Box - X (mm):	-9.30 to 20.70
Bounding Box - Y (mm):	-9.30 to 20.70
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	9379.76
Moments of inertia - Y (mm <sup>4</sup> ):	34947.94
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	8.98
Radii of gyration - Y (mm):	8.98
Principal moments along X-Y (mm <sup>4</sup> ):	9379.76 along [1.000 0.000]
Principal moments along Y-X (mm <sup>4</sup> ):	34947.94 along [0.000 1.000]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 1071.66
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 1071.66

ALUMINIUM EXTRUSION\_  
MARK: A10  
GRADE: 6063-T6



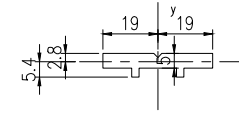
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	111.00
Perimeter (mm):	80.00
Bounding Box - X (mm):	-3.90 to 11.10
Bounding Box - Y (mm):	-8.90 to 16.10
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	1152.91
Moments of inertia - Y (mm <sup>4</sup> ):	7580.08
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	7.87
Radii of gyration - Y (mm):	4.09
Principal moments along X-Y (mm <sup>4</sup> ):	1152.91 along [1.000 0.000]
Principal moments along Y-X (mm <sup>4</sup> ):	7580.08 along [0.000 1.000]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 427.97
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 167.74

ALUMINIUM EXTRUSION\_  
MARK: A11  
GRADE: 6063-T6



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	289.63
Perimeter (mm):	198.83
Bounding Box - X (mm):	-19.90 to 17.60
Bounding Box - Y (mm):	-10.20 to 20.30
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	15096.71
Moments of inertia - Y (mm <sup>4</sup> ):	45168.79
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	7.69
Radii of gyration - Y (mm):	12.20
Principal moments along X-Y (mm <sup>4</sup> ):	15096.71 along [1.000 0.000]
Principal moments along Y-X (mm <sup>4</sup> ):	45168.79 along [0.000 1.000]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 842.53
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 2171.93

ALUMINIUM EXTRUSION\_  
MARK: A12  
GRADE: 6063-T6



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	203.90
Perimeter (mm):	99.89
Bounding Box - X (mm):	-19.00 to 19.00
Bounding Box - Y (mm):	-2.80 to 5.40
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	643.35
Moments of inertia - Y (mm <sup>4</sup> ):	23826.00
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	1.78
Radii of gyration - Y (mm):	10.81
Principal moments along X-Y (mm <sup>4</sup> ):	643.35 along [1.000 0.000]
Principal moments along Y-X (mm <sup>4</sup> ):	23826.00 along [0.000 1.000]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 120.45
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 1254.00

B.D. Ref.

F.P.B. Ref.

DATE/REVISION/AMENDMENTS

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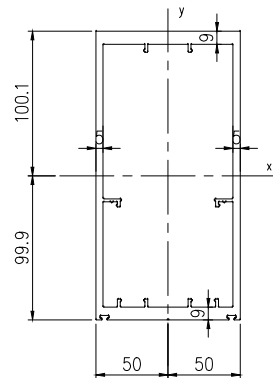
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TEL: 28278111 FAX: 28270717

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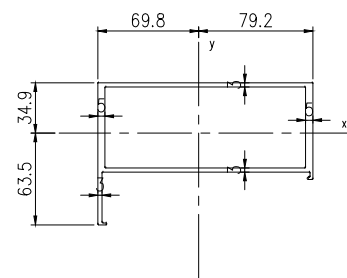
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ALUMINIUM EXTRUSION\_  
MARK: M1  
GRADE: 6063-T6



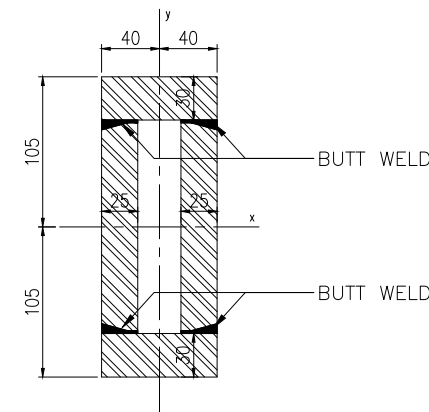
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	3730.37
Perimeter (mm):	1299.38
Bounding Box - X (mm):	-50.00 to 50.00
Bounding Box - Y (mm):	-99.99 to 100.10
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	21737231.53
Moments of inertia - Y (mm <sup>4</sup> ):	5688542.00
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	76.34
Radii of gyration - Y (mm):	39.05
Principal moments along X-Y (mm <sup>4</sup> ):	5688542.00 along [1.000 0.000]
Principal moments along Y-X (mm <sup>4</sup> ):	21737231.53 along [0.000 1.000]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 217194.34
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 113770.84

ALUMINIUM EXTRUSION\_  
MARK: T1  
GRADE: 6063-T6



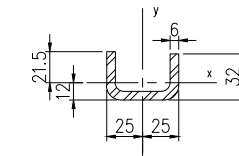
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	1580.09
Perimeter (mm):	901.42
Bounding Box - X (mm):	-69.80 to 79.20
Bounding Box - Y (mm):	-63.50 to 34.90
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	1180524.79
Moments of inertia - Y (mm <sup>4</sup> ):	5225082.07
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	27.69
Radii of gyration - Y (mm):	57.33
Principal moments along X-Y (mm <sup>4</sup> ):	1180524.79 along [0.996 0.088]
Principal moments along Y-X (mm <sup>4</sup> ):	5225082.07 along [-0.088 0.996]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 19067.48
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 65606.20

STEEL MARK: S1  
210x80x30x25mm THK. G.M.S.  
BUILD-UP RHS  
GRADE: S275



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	12200.00
Perimeter (mm):	932.00
Bounding Box - X (mm):	-40.00 to 40.00
Bounding Box - Y (mm):	-104.00 to 104.00
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	51888266.67
Moments of inertia - Y (mm <sup>4</sup> ):	8541664.00
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	65.22
Radii of gyration - Y (mm):	26.46
Principal moments along X-Y (mm <sup>4</sup> ):	51888266.67 along [1.000 0.000]
Principal moments along Y-X (mm <sup>4</sup> ):	8541664.00 along [0.000 1.000]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 498925.64
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 213541.60

STEEL MARK: S2  
50x32x6mm THK. G.M.S CHANNEL  
(CUT FROM 50x50x6mm THK. G.M.S SHS)  
GRADE: S275



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	593.53
Perimeter (mm):	205.27
Bounding Box - X (mm):	-24.70 to 25.30
Bounding Box - Y (mm):	-12.00 to 21.50
Centroid - X (mm):	0.00
Centroid - Y (mm):	0.00
Moments of inertia - X (mm <sup>4</sup> ):	57933.10
Moments of inertia - Y (mm <sup>4</sup> ):	201319.98
Product of inertia - XY (mm <sup>4</sup> ):	0.00
Radii of gyration - X (mm):	9.89
Radii of gyration - Y (mm):	18.41
Principal moments along X-Y (mm <sup>4</sup> ):	57933.10 along [1.000 -0.029]
Principal moments along Y-X (mm <sup>4</sup> ):	201319.98 along [0.029 1.000]
Elastic Modulus - Zx (mm <sup>3</sup> ):	I / y-max= 2703.82
Elastic Modulus - Zy (mm <sup>3</sup> ):	J / x-max= 7942.12

PROJECT  
PROPOSED RESIDENTIAL  
DEVELOPMENT AT  
TSEUNG KWAN O  
AREA 66D2, T.K.O.T.L. 118

TITLE  
SECTION PROPERTIES OF CURTAIN WALL  
( 2 OF 4)

FILE NAME

DRAWN BY

CHECKED BY

PRINTED DATE

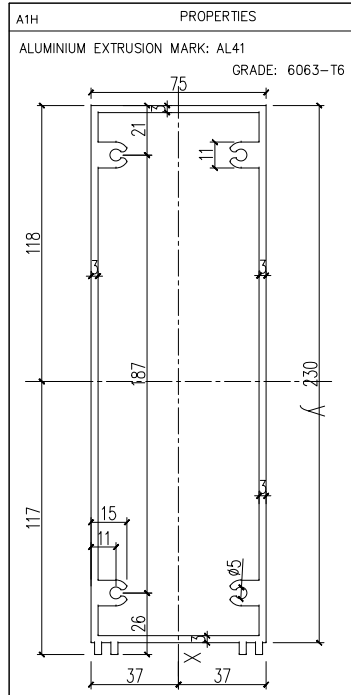
SCALE 1:5

JOB No. DRAWING No. REV.

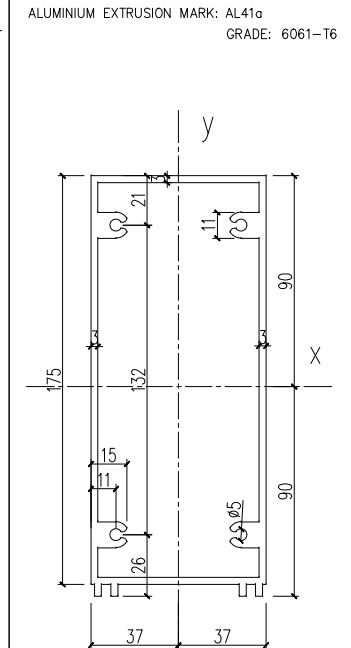
J-835 J835-CW-GN03 -

R.S.E.

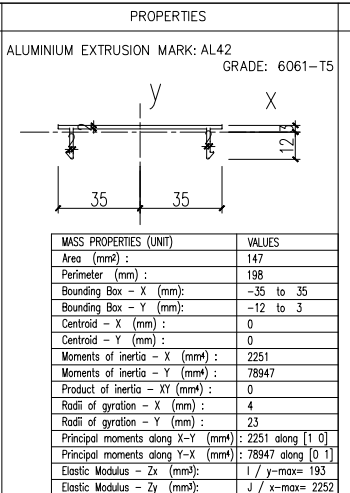
FOR B.D. APPROVAL



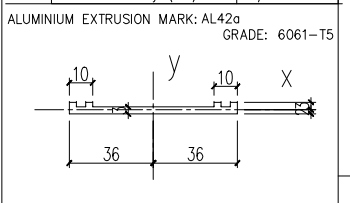
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	2282
Perimeter (mm)	1376
Bounding Box - X (mm)	-118 to 117
Bounding Box - Y (mm)	-37 to 37
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	2367575
Moments of inertia - Y (mm <sup>4</sup> )	15804207
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	32
Radii of gyration - Y (mm)	84
Principal moments along X-Y (mm <sup>4</sup> )	2367575 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	15804207 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 63136
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 133860



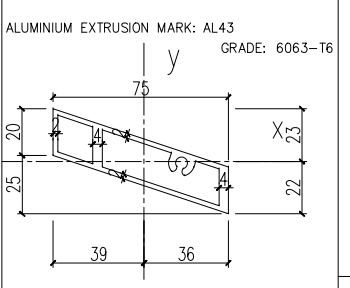
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	1932
Perimeter (mm)	1156
Bounding Box - X (mm)	-37 to 37
Bounding Box - Y (mm)	-90 to 90
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	8001110
Moments of inertia - Y (mm <sup>4</sup> )	1939655
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	64
Radii of gyration - Y (mm)	32
Principal moments along X-Y (mm <sup>4</sup> )	1939655 along [0 -1]
Principal moments along Y-X (mm <sup>4</sup> )	8001110 along [1 0]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 88661
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 51725



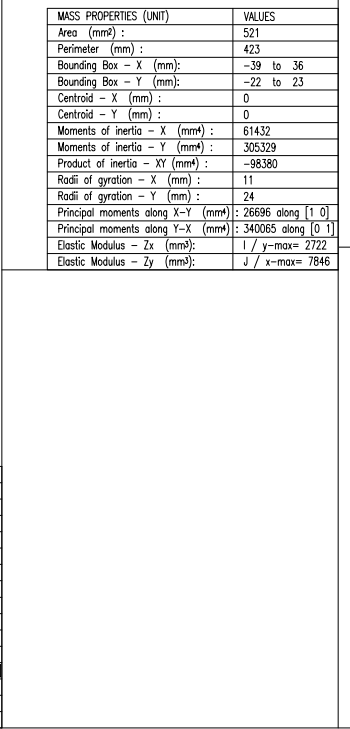
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	147
Perimeter (mm)	198
Bounding Box - X (mm)	-35 to 35
Bounding Box - Y (mm)	-12 to 3
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	2251
Moments of inertia - Y (mm <sup>4</sup> )	78947
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	4
Radii of gyration - Y (mm)	23
Principal moments along X-Y (mm <sup>4</sup> )	2251 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	78947 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 193
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 2252



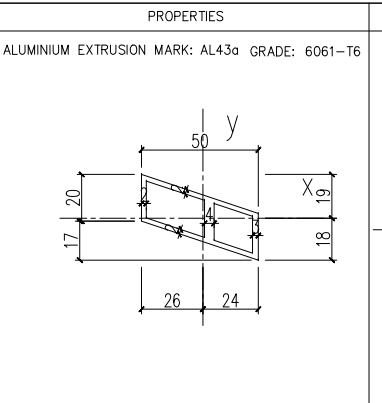
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	240
Perimeter (mm)	186
Bounding Box - X (mm)	-36 to 36
Bounding Box - Y (mm)	-2 to 3
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	305
Moments of inertia - Y (mm <sup>4</sup> )	116685
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	1
Radii of gyration - Y (mm)	22
Principal moments along X-Y (mm <sup>4</sup> )	305 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	116685 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 94
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 3241



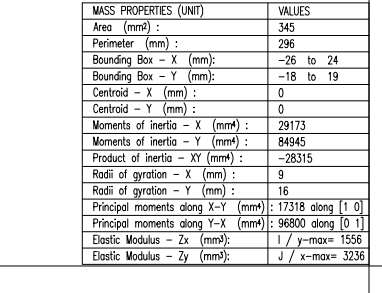
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	521
Perimeter (mm)	423
Bounding Box - X (mm)	-39 to 36
Bounding Box - Y (mm)	-22 to 23
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	61432
Moments of inertia - Y (mm <sup>4</sup> )	305329
Product of inertia - XY (mm <sup>4</sup> )	-98380
Radii of gyration - X (mm)	11
Radii of gyration - Y (mm)	24
Principal moments along X-Y (mm <sup>4</sup> )	26696 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	340065 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 2722
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 7846



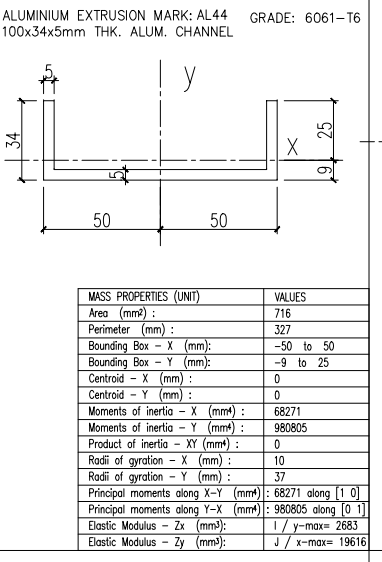
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	1700
Perimeter (mm)	680
Bounding Box - X (mm)	-45 to 45
Bounding Box - Y (mm)	-45 to 45
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	2054167
Moments of inertia - Y (mm <sup>4</sup> )	2054167
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	35
Radii of gyration - Y (mm)	35
Principal moments along X-Y (mm <sup>4</sup> )	2054167 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	2054167 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 45648
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 45648



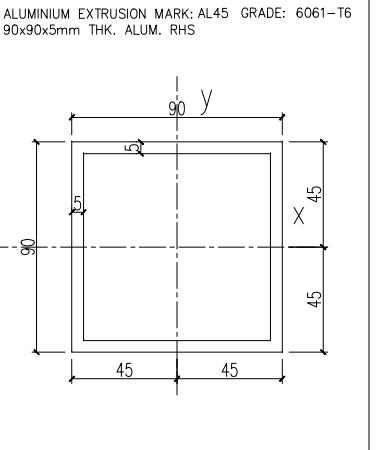
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	345
Perimeter (mm)	296
Bounding Box - X (mm)	-26 to 24
Bounding Box - Y (mm)	-18 to 19
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	29173
Moments of inertia - Y (mm <sup>4</sup> )	84945
Product of inertia - XY (mm <sup>4</sup> )	-28315
Radii of gyration - X (mm)	9
Radii of gyration - Y (mm)	16
Principal moments along X-Y (mm <sup>4</sup> )	17318 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	96800 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 1556
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 3236



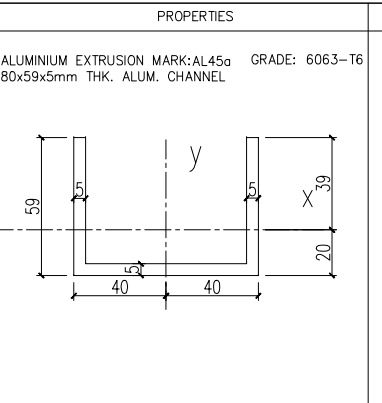
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	716
Perimeter (mm)	327
Bounding Box - X (mm)	-50 to 50
Bounding Box - Y (mm)	-9 to 25
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	68271
Moments of inertia - Y (mm <sup>4</sup> )	980805
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	10
Radii of gyration - Y (mm)	37
Principal moments along X-Y (mm <sup>4</sup> )	68271 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	980805 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 2683
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 19616



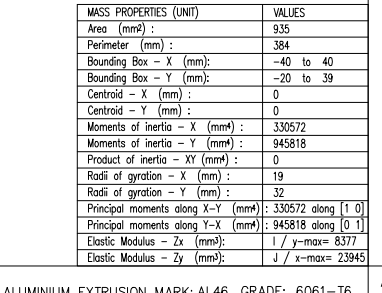
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	705
Perimeter (mm)	372
Bounding Box - X (mm)	-45 to 45
Bounding Box - Y (mm)	-31 to 11
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	111796
Moments of inertia - Y (mm <sup>4</sup> )	828482
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	13
Radii of gyration - Y (mm)	34
Principal moments along X-Y (mm <sup>4</sup> )	111796 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	828482 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 3629
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 18411



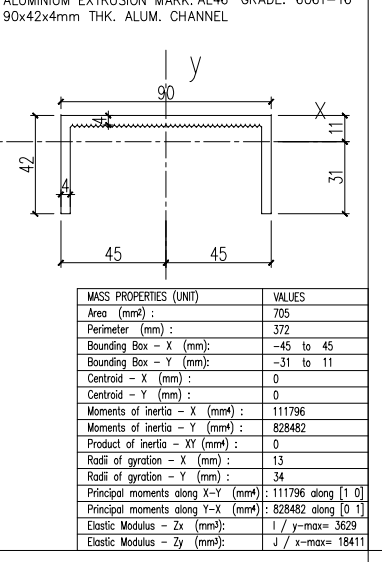
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	629
Perimeter (mm)	262
Bounding Box - X (mm)	-33 to 33
Bounding Box - Y (mm)	-47 to 18
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	255346
Moments of inertia - Y (mm <sup>4</sup> )	120414
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	20
Radii of gyration - Y (mm)	14
Principal moments along X-Y (mm <sup>4</sup> )	120414 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	255346 along [0 -1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 5439
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 3649



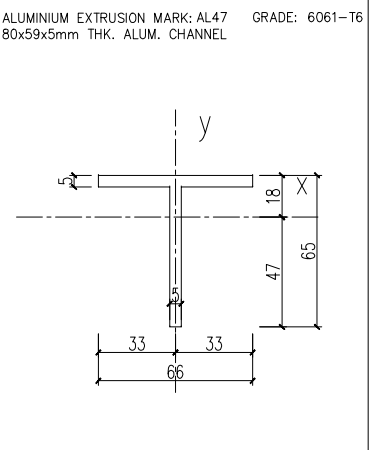
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	935
Perimeter (mm)	384
Bounding Box - X (mm)	-40 to 40
Bounding Box - Y (mm)	-20 to 39
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	330572
Moments of inertia - Y (mm <sup>4</sup> )	945818
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	19
Radii of gyration - Y (mm)	32
Principal moments along X-Y (mm <sup>4</sup> )	330572 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	945818 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 8377
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 23945



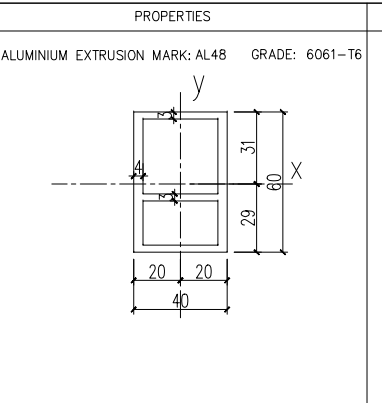
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	705
Perimeter (mm)	372
Bounding Box - X (mm)	-45 to 45
Bounding Box - Y (mm)	-31 to 11
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	111796
Moments of inertia - Y (mm <sup>4</sup> )	828482
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	13
Radii of gyration - Y (mm)	34
Principal moments along X-Y (mm <sup>4</sup> )	111796 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	828482 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 3629
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 18411



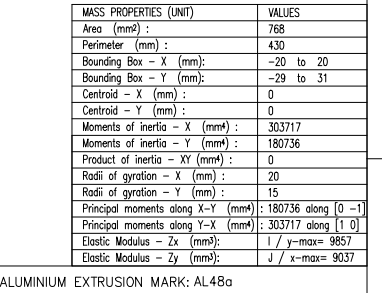
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	681
Perimeter (mm)	282
Bounding Box - X (mm)	-48 to 20
Bounding Box - Y (mm)	-15 to 38
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	177329
Moments of inertia - Y (mm <sup>4</sup> )	304897
Product of inertia - XY (mm <sup>4</sup> )	137711
Radii of gyration - X (mm)	16
Radii of gyration - Y (mm)	21
Principal moments along X-Y (mm <sup>4</sup> )	89348 along [1 1]
Principal moments along Y-X (mm <sup>4</sup> )	392878 along [-1 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 4639
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 6368



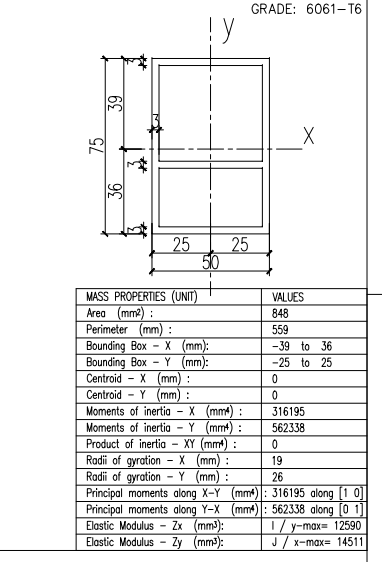
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	768
Perimeter (mm)	430
Bounding Box - X (mm)	-20 to 20
Bounding Box - Y (mm)	-29 to 31
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	303717
Moments of inertia - Y (mm <sup>4</sup> )	180736
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	20
Radii of gyration - Y (mm)	15
Principal moments along X-Y (mm <sup>4</sup> )	180736 along [0 -1]
Principal moments along Y-X (mm <sup>4</sup> )	303717 along [1 0]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 9857
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 9037



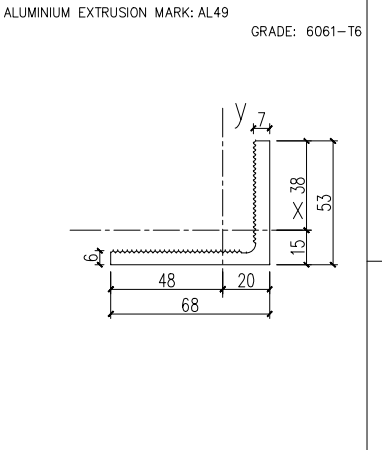
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	648
Perimeter (mm)	559
Bounding Box - X (mm)	-39 to 36
Bounding Box - Y (mm)	-25 to 25
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	316195
Moments of inertia - Y (mm <sup>4</sup> )	562338
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	26
Radii of gyration - Y (mm)	28
Principal moments along X-Y (mm <sup>4</sup> )	316195 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	562338 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 12590
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 14511



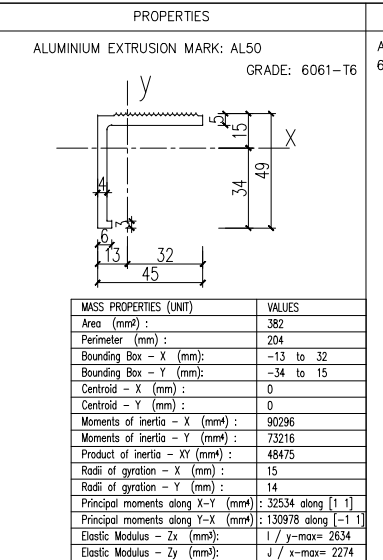
MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	568
Perimeter (mm)	292
Bounding Box - X (mm)	-40 to 40
Bounding Box - Y (mm)	-10 to 25
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	63240
Moments of inertia - Y (mm <sup>4</sup> )	529477
Product of inertia - XY (mm <sup>4</sup> )	0
Radii of gyration - X (mm)	11
Radii of gyration - Y (mm)	31
Principal moments along X-Y (mm <sup>4</sup> )	63240 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> )	529477 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 2492
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 13237



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	382
Perimeter (mm)	204
Bounding Box - X (mm)	-13 to 32
Bounding Box - Y (mm)	-34 to 15
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	90296
Moments of inertia - Y (mm <sup>4</sup> )	73216
Product of inertia - XY (mm <sup>4</sup> )	48475
Radii of gyration - X (mm)	15
Radii of gyration - Y (mm)	14
Principal moments along X-Y (mm <sup>4</sup> )	32534 along [1 1]
Principal moments along Y-X (mm <sup>4</sup> )	130978 along [-1 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 2634
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 2274



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	141
Perimeter (mm)	100
Bounding Box - X (mm)	-18 to 7
Bounding Box - Y (mm)	-7 to 18
Centroid - X (mm)	0
Centroid - Y (mm)	0
Moments of inertia - X (mm <sup>4</sup> )	8204
Moments of inertia - Y (mm <sup>4</sup> )	8204
Product of inertia - XY (mm <sup>4</sup> )	4827
Radii of gyration - X (mm)	8
Radii of gyration - Y (mm)	8
Principal moments along X-Y (mm <sup>4</sup> )	3376 along [1 1]
Principal moments along Y-X (mm <sup>4</sup> )	13031 along [-1 1]
Elastic Modulus - Zx (mm <sup>2</sup> )	1 / y-max= 465
Elastic Modulus - Zy (mm <sup>2</sup> )	1 / x-max= 465



MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> )	135
Perimeter (mm)	80
Bounding	

A1H PROPERTIES

ALUMINIUM EXTRUSION MARK: AL58  
110x30x3mm THK. ALUM ANGLE  
GRADE:

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	411
Perimeter (mm):	280
Bounding Box - X (mm):	-66 to 44
Bounding Box - Y (mm):	-4 to 26
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	19801
Moments of inertia - Y (mm <sup>4</sup> ):	518661
Product of inertia - XY (mm <sup>4</sup> ):	52192
Radii of gyration - X (mm):	7
Radii of gyration - Y (mm):	36
Principal moments along X-Y (mm <sup>4</sup> ):	14403 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> ):	524360 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 775
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 7918

PROPERTIES

ALUMINIUM EXTRUSION MARK: AL59  
65x45x3mm THK. ALUM ANGLE  
GRADE:

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	321
Perimeter (mm):	220
Bounding Box - X (mm):	-45 to 20
Bounding Box - Y (mm):	-10 to 35
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	57418
Moments of inertia - Y (mm <sup>4</sup> ):	142308
Product of inertia - XY (mm <sup>4</sup> ):	53388
Radii of gyration - X (mm):	13
Radii of gyration - Y (mm):	21
Principal moments along X-Y (mm <sup>4</sup> ):	31658 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> ):	168067 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 1656
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 3186

PROPERTIES

ALUMINIUM EXTRUSION MARK: AL54a  
GRADE: 6061-T6

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	299
Perimeter (mm):	205
Bounding Box - X (mm):	-32 to 10
Bounding Box - Y (mm):	-22 to 42
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	123167
Moments of inertia - Y (mm <sup>4</sup> ):	45074
Product of inertia - XY (mm <sup>4</sup> ):	46338
Radii of gyration - X (mm):	20
Radii of gyration - Y (mm):	12
Principal moments along X-Y (mm <sup>4</sup> ):	23525 along [0 1]
Principal moments along Y-X (mm <sup>4</sup> ):	144716 along [-1 0]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 2909
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 1410

PROPERTIES

ALUMINIUM EXTRUSION MARK: AL44a  
GRADE: 6061-T6

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	767
Perimeter (mm):	328
Bounding Box - X (mm):	-50 to 50
Bounding Box - Y (mm):	-12 to 28
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	89033
Moments of inertia - Y (mm <sup>4</sup> ):	1019629
Product of inertia - XY (mm <sup>4</sup> ):	0
Radii of gyration - X (mm):	11
Radii of gyration - Y (mm):	36
Principal moments along X-Y (mm <sup>4</sup> ):	89033 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> ):	1019629 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 3223
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 20383

PROPERTIES

ALUMINIUM EXTRUSION MARK: AL44b  
GRADE: 6061-T6

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	795
Perimeter (mm):	341
Bounding Box - X (mm):	-50 to 50
Bounding Box - Y (mm):	-11 to 27
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	80715
Moments of inertia - Y (mm <sup>4</sup> ):	1082939
Product of inertia - XY (mm <sup>4</sup> ):	0
Radii of gyration - X (mm):	10
Radii of gyration - Y (mm):	37
Principal moments along X-Y (mm <sup>4</sup> ):	80715 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> ):	1082939 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 2993
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 21704

PROPERTIES

100x100x5mm THK. G.M.S. SHS  
STEEL MARK: S1 GRADE: S275

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	1892
Perimeter (mm):	755
Bounding Box - X (mm):	-50 to 50
Bounding Box - Y (mm):	-50 to 50
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	2847031
Moments of inertia - Y (mm <sup>4</sup> ):	2847031
Product of inertia - XY (mm <sup>4</sup> ):	0
Radii of gyration - X (mm):	39
Radii of gyration - Y (mm):	39
Principal moments along X-Y (mm <sup>4</sup> ):	2847031 along [0 -1]
Principal moments along Y-X (mm <sup>4</sup> ):	2847031 along [1 0]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 56941
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 56941

PROPERTIES

120x60x4mm THK. G.M.S. RHS  
STEEL MARK: S2 GRADE: S275

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	1376
Perimeter (mm):	688
Bounding Box - X (mm):	-60 to 60
Bounding Box - Y (mm):	-30 to 30
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	847659
Moments of inertia - Y (mm <sup>4</sup> ):	2551979
Product of inertia - XY (mm <sup>4</sup> ):	0
Radii of gyration - X (mm):	25
Radii of gyration - Y (mm):	43
Principal moments along X-Y (mm <sup>4</sup> ):	847659 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> ):	2551979 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 28255
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 42533

PROPERTIES

175x35x6mm THK. G.M.S. ANGLE  
STEEL MARK: S3 GRADE: S275

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	1224
Perimeter (mm):	420
Bounding Box - X (mm):	-5 to 30
Bounding Box - Y (mm):	-75 to 100
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	3745997
Moments of inertia - Y (mm <sup>4</sup> ):	61057
Product of inertia - XY (mm <sup>4</sup> ):	-220725
Radii of gyration - X (mm):	55
Radii of gyration - Y (mm):	7
Principal moments along X-Y (mm <sup>4</sup> ):	47883 along [0 -1]
Principal moments along Y-X (mm <sup>4</sup> ):	3759171 along [1 0]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 37644
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 2069

PROPERTIES

100x50x5mm THK. G.M.S. RHS  
STEEL MARK: S4 GRADE: S275

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	1400
Perimeter (mm):	560
Bounding Box - X (mm):	-50 to 50
Bounding Box - Y (mm):	-25 to 25
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	561667
Moments of inertia - Y (mm <sup>4</sup> ):	1736667
Product of inertia - XY (mm <sup>4</sup> ):	0
Radii of gyration - X (mm):	20
Radii of gyration - Y (mm):	35
Principal moments along X-Y (mm <sup>4</sup> ):	561667 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> ):	1736667 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 22467
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 34733

PROPERTIES

80x80x8mm THK. G.M.S. ANGLE  
STEEL MARK: S5 GRADE: S275

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	1216
Perimeter (mm):	320
Bounding Box - X (mm):	-23 to 57
Bounding Box - Y (mm):	-23 to 57
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	737298
Moments of inertia - Y (mm <sup>4</sup> ):	737298
Product of inertia - XY (mm <sup>4</sup> ):	-436547
Radii of gyration - X (mm):	25
Radii of gyration - Y (mm):	25
Principal moments along X-Y (mm <sup>4</sup> ):	300751 along [1 -1]
Principal moments along Y-X (mm <sup>4</sup> ):	1173845 along [1 1]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 12923
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 12923

PROPERTIES

80x80x5mm THK. G.M.S. SHS  
STEEL MARK: S6 GRADE: S275

MASS PROPERTIES (UNIT)	VALUES
Area (mm <sup>2</sup> ):	1486
Perimeter (mm):	593
Bounding Box - X (mm):	-40 to 40
Bounding Box - Y (mm):	-40 to 40
Centroid - X (mm):	0
Centroid - Y (mm):	0
Moments of inertia - X (mm <sup>4</sup> ):	1391488
Moments of inertia - Y (mm <sup>4</sup> ):	1391488
Product of inertia - XY (mm <sup>4</sup> ):	0
Radii of gyration - X (mm):	31
Radii of gyration - Y (mm):	31
Principal moments along X-Y (mm <sup>4</sup> ):	1391488 along [1 0]
Principal moments along Y-X (mm <sup>4</sup> ):	1391488 along [0 1]
Elastic Modulus - Zx (mm <sup>2</sup> ):	1 / y-max= 34787
Elastic Modulus - Zy (mm <sup>2</sup> ):	J / x-max= 34787

B.D. Ref.  
F.P.B. Ref.

DATE/REVISION/AMENDMENTS

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PROJECT

PROPOSED RESIDENTIAL  
DEVELOPMENT AT  
TSEUNG KWAN O  
AREA 66D2, T.K.O.T.L. 118

TITLE

SECTION PROPERTIES

FILE NAME

DRAWN BY

CHECKED BY

PRINTED DATE

SCALE 1:25

JOB No. J-835 DRAWING No. J835-GR-0004 REV. -

R.S.E.

Lam Kwok Leung  
BS(Eng) CEng MInstREE  
MIRIE, RSE, RPE

FOR B.D. APPROVAL

# GENERAL NOTES

I. SCOPE OF DESIGN:

ALL DIMENSIONS TO BE CHECKED AND VERIFIED ON SITE

II. MAIN MATERIALS AND MECHANICAL PROPERTIES:

1. ALUMINIUM EXTRUSION TO BE ALLOY 6063-T5 TO BS EN755-2:1997 AND DESIGN TO BS 8118	
0.2% PROOF STRESS	Rp0.2= 110 MPa
MINIMUM TENSILE STRENGTH	Rm= 150 MPa
BENDING STRENGTH	po= 110 MPa
SHEAR STRENGTH	pV= 65 MPa
MODULUS OF ELASTICITY	Ea= 70000 MPa
MIN. ELONGATION	A=8%

2. STRUCTURAL STEEL TO BE GRADE S275 TO BS EN 10025: 2004 FOR STEEL PLATE A SECTIONS	
YIELD STRENGTH	Ys= 275 MPa
TENSILE STRENGTH	Us= 430 MPa
DESIGN STRENGTH	pY= 275 MPa
MODULUS OF ELASTICITY	Es= 205000 MPa

3. STAINLESS STEEL BOLT, THROUGH BOLT, SCREW AND NUT TO BS EN ISO 3506:1998 AND DESIGN TO SCI PUBLICATION P291

GRADE	A2-50	A2-70
YIELD STRENGTH (0.2% PROOF STRENGTH)	Yb= 210 MPa	Yb= 450 MPa
MINIMUM TENSILE STRENGTH	Ub= 500 MPa	Ub= 700 MPa
DESIGN TENSILE STRENGTH	pt= 210 MPa	pt= 450 MPa
DESIGN SHEAR STRENGTH	ps= 145 MPa	ps= 311 MPa

4. ALUMINIUM NON-HEAT TREATABLE ALLOYS TO BS EN485-2 : 2004

GRADE	3003-H14
MIN. TENSILE STRENGTH	Rm = 145MPa
0.2% PROOF STRENGTH	RO.2 = 125MPa

SPACING OF STIFFENER (S) = 350mm (MAX.)

5. STAINLESS STEEL LIGHTING FEATURE

- 100MM THK OVERALL LED VINYL SIGNAGE BANNER BOX COMPLETED WITH 3mm THK STAINLESS STEEL CLADDING
- STAINLESS STEEL GENERALLY GRADE 316

III. DESIGN CODES AND STANDARDS

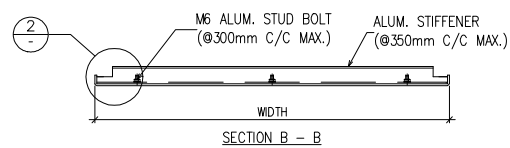
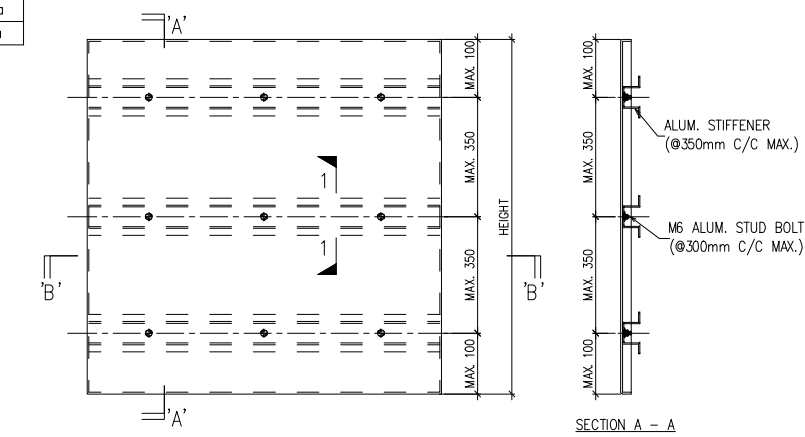
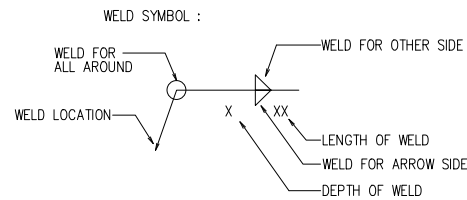
- BS 8118 : 1991 "THE STRUCTURAL USE OF ALUMINIUM"
- HONG KONG "CODE OF PRACTICE FOR THE STRUCTURAL USE OF STEEL" - 2011
- CODE OF PRACTICE ON WIND EFFECTS IN HONG KONG - 2004
- BUILDING (CONSTRUCTION) REGULATIONS 1990
- HONG KONG "CODE OF PRACTICE FOR THE STRUCTURAL USE OF CONCRETE" - 2004

IV. DESIGN CRITERIA:

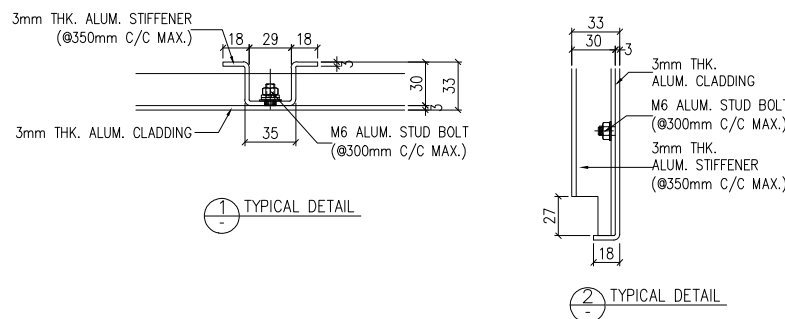
DESIGN WIND LOAD (AS PER CODE OF PRACTICE ON WIND EFFECTS IN HK-2004)  
 BASIC WIND LOAD : qb = 2.57kPa (Building height above ground level < 50 m)  
 WIND PRESSURE COEFFICIENT : Cp = 1.4  
 DESIGN WIND PRESSURE : qd = qb X Cp = 3.598kPa

V. FABRICATION & INSTALLATION

- ALL DIMENSIONS SHOWN ON SHOP DRAWING TO BE READ IN MILLIMETER (mm), EXCEPT THE FLOOR LEVEL MARK TO BE READ IN METER (m)
- CORROSION PROTECTION / PREVENTION FOR BIMETALLIC EFFECTS BITUMINOUS PAINT FOR CONTACTED SURFACES BETWEEN ALUMINIUM & R.C. STRUCTURE OR GALVANIZED STEEL
- WELDING FOR STRUCTURAL STEEL:
  - ALL WELDING SHALL COMPLY WITH BS EN 1011
  - SITE WELD SURFACES TO BE PROTECTED BY ZINC CHROMATE
  - DESIGN WELD STRENGTH: pw=220 MPa
  - ALL WELDING SHOULD BE 4mm FILLET WELD UNLESS OTHERWISE NOTED



TYPICAL ALUM. CLADDING UNIT DETAIL



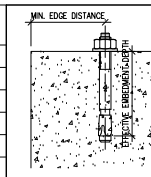
4. PROTECTIVE TREATMENT:

ALL STRUCTURAL MILD STEEL WORKS TO BE HOT DIP GALVANIZED OF ZINC TO BS EN ISO 1461:1999 WITH MIN. THK. OF 85mm

5. HILTI ANCHOR BOLT:

INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS

ANCHOR BOLT	M8x75 HILTI HST3-R	M10x90 HILTI HST3-R
EFFECTIVE EMBEDMENT DEPTH (mm)	47	60
MAX. WORKING TENSILE LOAD (kN)	1.7	3
MAX. WORKING SHEAR LOAD (kN)	4.3	6.7
TENSILE TEST LOAD (kN)	2.55	4.5
MIN. EDGE DISTANCE (mm)	45	50
MIN. BOLT SPACING	40	55



MEMBER LIST		MEMBER LIST	
MEMBER MARK : M1	ALUM. TRANSOM	MEMBER MARK : M3	ALUM. TRANSOM
AREA (mm <sup>2</sup> )	3145.8	AREA (mm <sup>2</sup> )	2637.0
Ixx (mm <sup>4</sup> )	5,685,847.9	Ixx (mm <sup>4</sup> )	5262146.1
Iyy (mm <sup>4</sup> )	4,163,358.9	Iyy (mm <sup>4</sup> )	8897618.8
Zxx (mm <sup>3</sup> )	65,036	Zxx (mm <sup>3</sup> )	54746.7
Zyy (mm <sup>3</sup> )	148,744	Zyy (mm <sup>3</sup> )	69516.9
REMARK	GR.: 6063-T6	REMARK	GR.: 6063-T6
MEMBER MARK : M2	ALUM. ADAPTER	MEMBER MARK : M4	ALUM. COVER
AREA (mm <sup>2</sup> )	601.8	AREA (mm <sup>2</sup> )	66.6
Ixx (mm <sup>4</sup> )	109,044.8	Ixx (mm <sup>4</sup> )	1326.5
Iyy (mm <sup>4</sup> )	515,499	Iyy (mm <sup>4</sup> )	4870.3
Zxx (mm <sup>3</sup> )	6265	Zxx (mm <sup>3</sup> )	105.7
Zyy (mm <sup>3</sup> )	12,035	Zyy (mm <sup>3</sup> )	315.9
REMARK	GR.: 6063-T6	REMARK	GR.: 6063-T6
MEMBER MARK : M5	ALUM. EXTRUSION		
AREA (mm <sup>2</sup> )	473.4		
Ixx (mm <sup>4</sup> )	53980.8		
Iyy (mm <sup>4</sup> )	100637.3		
Zxx (mm <sup>3</sup> )	3837		
Zyy (mm <sup>3</sup> )	3679		
REMARK	GR.: 6063-T5		

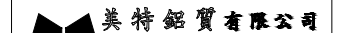
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TITLE  
 GENERAL NOTES FOR PODIUM  
 ALUM. CLADDING,  
 ALUM. FEATURE &  
 LIGHTING FEATURE

FILE NAME

DRAWN BY

CHECKED BY

PRINTED DATE

SCALE

JOB No. DRAWING No. REV.

J835-GN01 -

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FOR B.D. APPROVAL

