

FASTRAY 輕而承

結構底板

Structural Tray



建築金屬 圍護系統服務
SOLUTION Provider of Metal Building Envelope

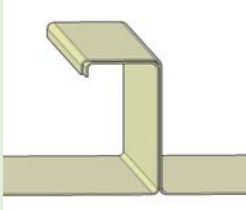
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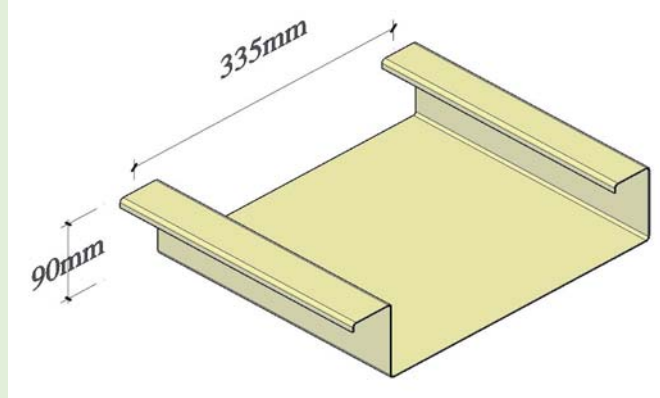
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產品簡介 1. Products

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Laps 搭接



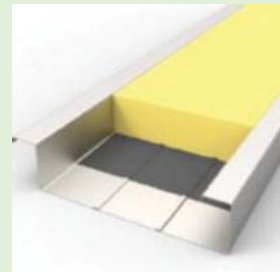
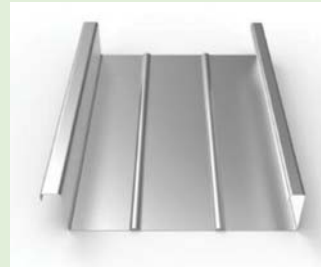
輕而承是一種簡單有效的鋼結構底板，設計符合BS 5950標準。採用穩當可靠的扣合式連接，可取代檁條，直接固定在主梁上，適合作為建築金屬屋面牆面系統的支承單元，它亦作為安裝過程中的安全工作平台。系統安裝完成后無任何外露螺釘，且構成一個平正的天花飾面。

FASTRAY is a simple and effective steel structural tray, design comply to BS 5950. It adopts a stable and reliable buckle connection. It can replace the purlin and be directly fixed on the main beam. It is suitable as a supporting unit for building metal roof and wall systems. It also serves as a safe working platform during the installation process. After the system is installed, there are no exposed screws, and it forms a flat ceiling surface.

FASTRAY 輕而承結構底板為高板肋設計，板槽內有足夠的深度，為鋪設保溫隔熱物料、防水卷材提供所需的空間。當作為天花板使用時，輕而承的板底亦可處理微沖孔加工，配合內部填充的吸聲物料，更能優化建築物室內的聲學效果。

FASTRAY structural tray is designed with high slab ribs, and there is enough depth in the slab groove to provide the required space for laying thermal insulation materials and waterproof membrane materials.

When used as a ceiling, the bottom of FASTRAY can also be processed with micro-punching, and fit with sound-absorbing material filled inside can optimize the acoustic effect of the building.



材質

2. Materials

材質

2. Materials

輕而承底板採用優質的Z275鍍鋅或AZ185鍍鋅鋼板製造，符合AS 1397，EN 10169標準，常規厚度為1.0mm、1.2mm，亦可以訂製提供1.5mm、2.0mm的厚度。產品可以根據建築設計而選擇增加PVDF塗層。

FASTRAY structural tray is made of high-quality Z275 galvanized or AZ185 galvanized steel, coating comply to AS 1397 and EN 10169 with thicknesses of 1.0mm and 1.2mm, and can also be customized to provide thicknesses of 1.5mm and 2.00mm. The product can be added with PVDF coating according to the architectural design.

厚度	鍍層	材質	塗層
1.0 / 1.2	Z 275 / AZ 185	G 450 / G 550	PE/SMP/PVDF
1.5 / 2.0	Z 275 / Z 350	G 350 / G 450	PVDF



Z 275 鍍鋅鋼



AZ 185 鍍鋅鋼

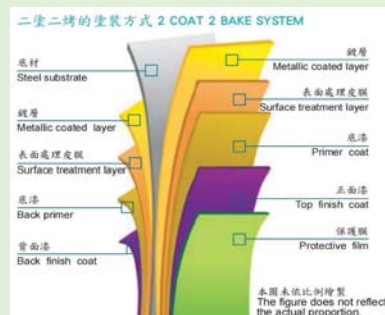
Corrosion		材料	試驗前 (調質後)	23.8 小時	159 小時	581 小時	928 小時	1468 小時	2000 小時
Galv. sheet	Z275g/M2	Z275							
	AZ 180g/M2	AZ 180							
	ZAM 180g/M2	AM 180							



PVDF 16	PVDF 15

PVDF
Polyvinylidene Fluoride
聚偏氟乙烯

- ◆ 极佳之耐候、耐蚀及耐老化性。
- ◆ 优越之耐污性、加工成型及色泽保持性。
- ◆ 具长期经济效益。
- ◆ 适用于严寒、酷热、恶劣环境地区之耐久建材。
- ◆ Outstanding weather-, corrosion- and chemical-resistance.
- ◆ Excellent stain-resistance, formability and color retention.
- ◆ Long-Term economic benefits.
- ◆ Durable building material applicable for rigid, torrid and harsh environments.



PVDF 16	PVDF 19	PVDF 18	PVDF 17

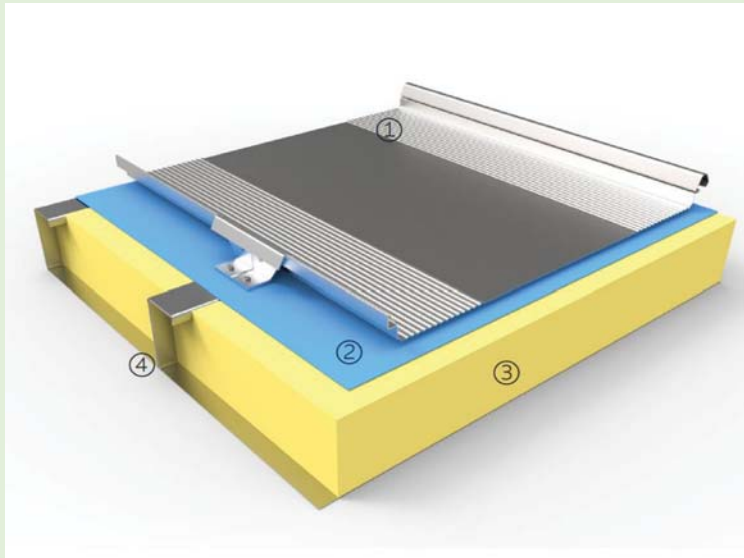
本圖表依比例繪製
The figure does not reflect the actual proportion.

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系統應用 3 . System application

3 . 系統應用 System application

屋面系統 Roof system



- ① 金屬屋面板 Metal roof panel
- ② 防水透氣膜 Breather membrane
- ③ 保溫層 Insulation
- ④ 輕而承結構底板 FASTRAY

牆面系統 Wall system

- ① 金屬牆面板 Metal cladding panel
- ② 防水透氣膜 Breather membrane
- ③ 保溫層 Insulation
- ④ 輕而承結構底板 FASTRAY



截面特性

4 . Section Property

4 . 截面特性 Section Property

Designing Strength	Bare metal thickness	Sagging moment capacity	Hogging moment capacity	Web crushing resistance	Web shear capacity	Gross area	Second moment of gross section	Second moment for deflection			
								Under sagging moment	Under hogging moment	Single Span (lg+ls)/2	Multiple Span (2lg+ls+lh)/2
Py(MPa)	t(mm)	M _{xs} (kNm/m)	M _{xh} (kNm/m)	Pw (kNm/m)	Pw (kNm/m)	A _p (mm ² /m)	I _g (cm ⁴ /m)	I _s (cm ⁴ /m)	I _h (cm ⁴ /m)	(cm ⁴ /m)	(cm ⁴ /m)
550	1	11.18	12.62	50.79	71.3	1600	185.46	117.39	170.44	151.43	164.69
	1.2	15.13	16.06	68.19	97.94	1920	222.56	149.59	214.3	186.08	202.25
450	1.5	16.64	18.5	88.65	110.74	2400	278.23	212.27	278.23	245.25	261.74
	2	23.23	24.88	142	147.65	3200	371.06	314.23	371.06	342.65	356.85

5 . 跨度表 Load Span Table

單跨 Single Span

Bare metal thickness	Yield strength	Limit States		Span (mm)							
				3000	3500	4000	4500	5000	5500	6000	
t (mm)	Py (MPa)										
1.0	550	Ultimate - factored load	Live load control	9.93	7.30	5.59	4.41	3.57	2.95	2.48	
			Wind load control	11.21	8.24	6.31	4.98	4.03	3.33	2.80	
		Serviceability - unfactored load	Live load control	4.80	3.02	2.02	1.42	1.03	0.77	0.60	
			Wind load control	10.67	6.71	4.50	3.16	2.30	1.73	1.33	
1.2	550	Ultimate - factored load	Live load control	13.44	9.88	7.56	5.97	4.84	4.00	3.36	
			Wind load control	14.27	10.48	8.03	6.34	5.13	4.24	3.56	
		Serviceability - unfactored load	Live load control	5.89	3.71	2.48	1.74	1.27	0.95	0.73	
			Wind load control	13.10	8.25	5.52	3.88	2.83	2.12	1.63	
1.5	450	Ultimate - factored load	Live load control	14.79	10.86	8.32	6.57	5.32	4.40	3.69	
			Wind load control	16.44	12.08	9.25	7.30	5.92	4.89	4.11	
		Serviceability - unfactored load	Live load control	7.63	4.80	3.21	2.26	1.64	1.23	0.95	
			Wind load control	16.95	10.67	7.15	5.05	3.66	2.75	2.11	
2.0	450	Ultimate - factored load	Live load control	20.64	15.17	11.66	9.17	7.43	6.14	5.16	
			Wind load control	22.11	16.24	12.44	9.82	7.96	6.57	5.52	
		Serviceability - unfactored load	Live load control	10.40	6.55	4.38	3.08	2.24	1.68	1.30	
			Wind load control	23.12	14.55	9.75	6.85	4.99	3.75	2.89	

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跨度表 5. Load Span Table

雙跨 Double Span

Bare metal thickness t (mm)	Yield strength Py (MPa)	Limit States		Span (mm)						
				3000	3500	4000	4500	5000	5500	6000
1.0	550	Ultimate - factored load	Live load control	7.66	6.02	4.86	4.01	3.37	2.87	2.47
			Wind load control	7.16	5.60	4.50	3.70	3.10	2.63	2.27
		Serviceability - unfactored load	Live load control	11.59	7.30	4.89	3.43	2.50	1.88	1.44
			Wind load control	25.77	16.23	10.87	7.63	5.56	4.18	3.22
1.2	550	Ultimate - factored load	Live load control	9.99	7.83	6.31	5.20	4.36	3.71	3.20
			Wind load control	9.96	7.55	6.08	5.00	4.19	3.56	3.06
		Serviceability - unfactored load	Live load control	14.24	8.96	6.00	4.22	3.07	2.31	1.78
			Wind load control	31.65	19.93	13.35	9.37	6.83	5.13	3.95
1.5	450	Ultimate - factored load	Live load control	12.12	9.46	7.59	6.42	5.22	4.43	3.81
			Wind load control	11.37	8.84	7.07	5.79	4.83	4.10	3.52
		Serviceability - unfactored load	Live load control	18.43	11.60	7.77	5.46	3.98	2.99	2.30
			Wind load control	40.96	25.79	17.28	12.13	8.84	6.64	5.12
2.0	450	Ultimate - factored load	Live load control	17.45	13.53	10.81	8.84	7.36	6.23	5.34
			Wind load control	16.70	12.92	10.30	8.41	7.00	5.91	5.07
		Serviceability - unfactored load	Live load control	25.13	15.82	10.60	7.44	5.42	4.07	3.14
			Wind load control	55.84	35.16	23.56	16.54	12.06	9.06	6.98

三跨 Triple Span

Bare metal thickness t (mm)	Yield strength Py (MPa)	Limit States		Span (mm)						
				3000	3500	4000	4500	5000	5500	6000
1.0	550	Ultimate - factored load	Live load control	9.17	7.23	5.85	4.84	4.07	3.48	3.01
			Wind load control	8.59	6.74	5.44	4.48	3.76	3.2	2.76
		Serviceability - unfactored load	Live load control	9.09	5.72	3.83	2.69	1.96	1.47	1.13
			Wind load control	20.2	12.72	8.52	5.98	4.36	3.27	2.52
1.2	550	Ultimate - factored load	Live load control	11.96	9.41	7.61	6.29	5.28	4.51	3.89
			Wind load control	11.58	9.09	7.34	6.05	5.08	4.33	3.73
		Serviceability - unfactored load	Live load control	11.16	7.03	4.71	3.3	2.41	1.81	1.39
			Wind load control	24.81	15.62	10.47	7.35	5.36	4.02	3.1
1.5	450	Ultimate - factored load	Live load control	14.55	11.4	9.18	7.56	6.33	5.39	4.64
			Wind load control	13.68	10.67	8.57	7.04	5.88	4.99	4.29
		Serviceability - unfactored load	Live load control	14.45	9.1	6.09	4.28	3.12	2.34	1.8
			Wind load control	32.11	20.22	13.54	9.51	6.93	5.21	4.01
2.0	450	Ultimate - factored load	Live load control	21.03	16.37	13.11	10.75	8.97	7.61	6.53
			Wind load control	20.16	15.65	12.51	10.24	8.54	7.23	6.2
		Serviceability - unfactored load	Live load control	19.7	12.4	8.31	5.83	4.25	3.19	2.46
			Wind load control	43.78	27.57	18.47	12.97	9.45	7.1	5.47

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6 . 參考 Reference



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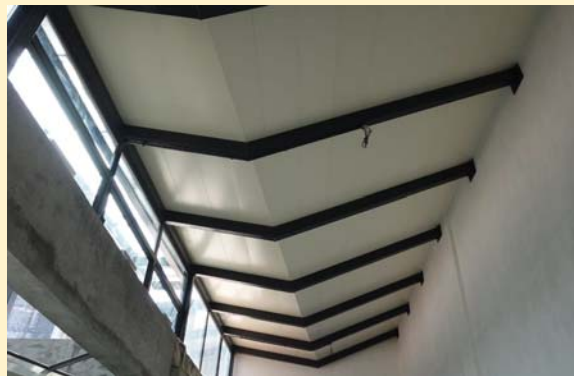
6 . 參考 Reference



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