

GOLD WIND ENGINEERING (S) PTE LTD

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Gold Wind Engineering (S) Pte Ltd Proposed Plan Of Racking System

Title: **Heavy Duty Racking**

Project Design Team : **EDWARD ONG / TONG BOON YIK**

Date: **07 Oct 2016**

DESIGN FEATURE

Frame Section : 90 x 70 x 2.0mm thick (Omega Section)
Beam Type : Box Beam 100 x 50 x 1.6t / Box Beam 90 x 50 x 1.6t
Finishing : Epoxy Power Coated
Max Frame Load : 12,000 kgs UDL
Shelf Surface : 18mm thick plywood secure with steel stopper.



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About Us

Gold Wind Engineering (S) Pte Ltd was established in 2011. We provide that delivers material handling products and services to our clients throughout Singapore. Primarily focussing on all kind of storage racking and Warehouse safety inspections, you will find that our services of your storage equipment to a standard.

We specialize in the design, fabrication, installation of storage racking systems. Our company has also started expanding with more professional installation team. This is just the beginning, we are on our way to becoming a first level professional producer of storage logistics equipment in Singapore.

Our Vision

To provide excellent customer service and become the preferred choice of the supplier

Our Mission

The enhancement of safety standards throughout the pallet racking industry. Where there are costs we will find reductions, problems, we shall seek solutions, confusion bring clarity and doubt we shall bring understanding

Why Choose Gold Wind Engineering?

We believe experience is just as important as knowledge. We possess both knowledge and practical experience to provide excellent services to our client.

- High Trained Gold Wind Installation Team
- In-house safety practise weekly.
- Designed & built experience more than 18 Years.
- Ex- Stock in Singapore & Malaysia
- Re-Design our client current racking to new warehouse
- Quickly Sales Response to client.



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Frames:

Frames consist in 2 cold-formed uprights of Omega section with multiple sheets, strengthening the resistance to compression and buckling. Frames are provided with a base plate dimensions suitable for transferring the upright load to the building floor tile. Frames are fastened to the floor, thanks to an anchor bolt of internal expansion.

Uprights have 2 trapezoidal slotted rows at the front. These slots assure the perfect lateral anchorage of the beams. They are equally provided with 2 lateral rows (one at each side) for fastening the bracing and guaranteeing the placement of auxiliary elements. It is possible to level-out the beams vertically every 60mm using the upright slots.

Cross Beam

The Horizontal Support Beams making up the load levels consist of an exclusively-designed Rectangle shape box beam-type section. The essential character of the beam section is that its web is displaced towards the centre of the profile

Stability (4 tongs Connector)

Transversal stability (perpendicular to storage corridors), is reinforced by the transversal support beams of the frame, that fulfil the function of latticing beams.





Cross Beam

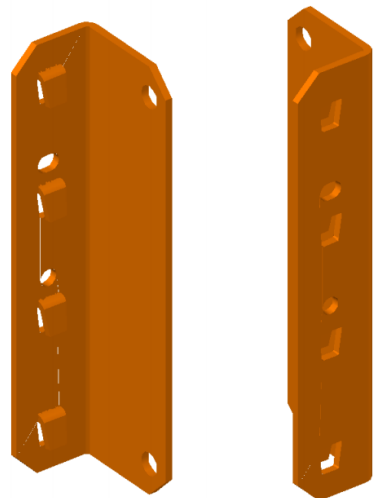
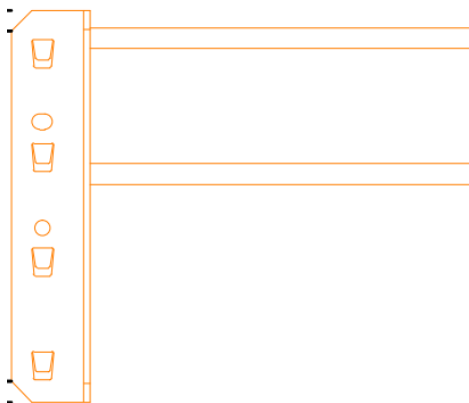
The Horizontal Support Beams making up the load levels consist of an exclusively-designed Rectangle shape box beam-type section. The essential character of the beam section is that its web is displaced towards the centre of the profile

Beam Connector to Upright (4 tongs Connector)

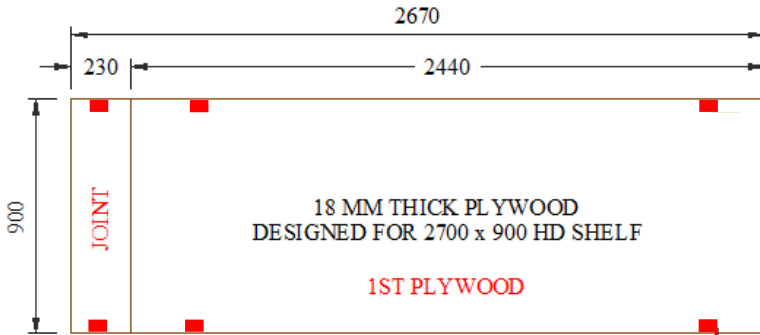
Transversal stability (perpendicular to storage corridors), is reinforced by the transversal support beams of the frame, that fulfil the function of latticing beams.

Safety Pin

Safety pin are provided 2 pcs each piece of cross beam (Connector)



//////////////////////////////////// Plywood on Shelf



BOTTOM VIEW
SCALE 1 : 30

STEEL STOPPER

Beam Span (mm)	1 st Plywood	Joint Plywood	Code Number
1350 mm	1330mm x 900mm	No Joint	01-PLY18-1390
1850 mm	1830mm x 900mm	No Joint	01-PLY18-1890
2460 mm	2440mm x 900mm	No Joint	01-PLY18-2490
2700 mm	2440mm x 900mm	230mm x 900mm	01-PLY18-2690
3000 mm	2440mm x 900mm	530mm x 900mm	01-PLY18-3090
3300 mm	2440mm x 900mm	830mm x 900mm	01-PLY18-3390
3600 mm	2440mm x 900mm	1130mm x 900mm	01-PLY18-3690
3900 mm	2440mm x 900mm	1130mm x 900mm	01-PLY18-3990

Plywood:

Plywood is made of thin layers of wood bonded together with an adhesive. It's original size 4'x 8' (2440mm x 1220mm) from Malaysia or Indonesia.

The most common thickness of plywood used in storage shelf are 18mm or 25mm.



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TECHNICAL SPECIFICATIONS OF HEAVY DUTY ADJUSTABLE PALLET RACKING

Endframe

Upright Dimension	: 90 x 2.0 mm thk
Endframe Dimension	: 2400/3000/3600/4800/6000mm(H) x 900mm(D)
Endframe Load Capacity	: 12,000 kgs per endframe
Base Plate	: 125mmL x 156mmW x 4.0mm thk
Anchoring	: M10 x 75mm Sleeve Anchors
Manufacturing Method	: Cold Formed – Roll Forming
Adjustability	: 60mm pitch
Factor of Safety	: 1/1.95 at Yield

Beam

Bay Clear Entry	: 1350/1850/2460/2700mm
Beam Size	: Box Beam 90mm x 50mm x 1350mm (L) Box Beam 90mm x 50mm x 1850mm (L) Box Beam 90mm x 50mm x 2460mm (L) Box Beam 90mm x 50mm x 2700mm (L)
Beam Type	: Box Beam with 4 corners curved Interlocking lips
Beam Capacity	: Min.2000 kgs (UDL) / pair respectively
Beam Deflection	: L/200
Locking Device	: Safety pins
Factor of Safety	: 1/1.65 at Yield
Connection Details	: 4 Hook Connectors @ 60mm pitch
Welding Details	: MIG C02 – Argon weld
Manufacturing Method	: Cold Formed – Roll Forming

Treatment

Treatment	: Pretreatment process c/w Iron Phosphating
Finish	: Epoxy Powder Coating Thickness > 70 um Gloss (AT 60 DEG ISO 2813) > 85% Adhesion (DIN 53151) GT = 0 Hardness (ASTM D 3363) = 2H

Colour

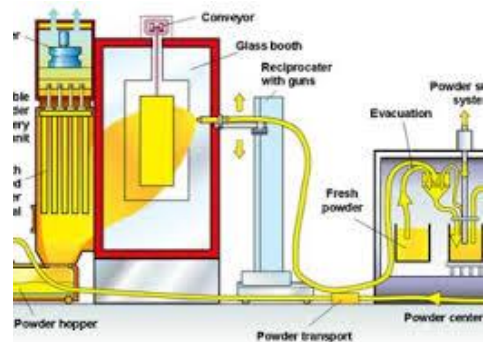
Upright	: Blue
Beam	: Safety Orange
Bracing	: Blue

Steel Grade

Steel Grade	: CR - JIS G 3141 SPCC-1BM
Yield Strength	: Min.450 MPA
Tensile Strength	: Min.450 MPA



// Epoxy Powder Coating



What Is Powder Coating?

Powder coating is the process of applying a dry powdered paint compound made of pigments, specialized resins and fillers that melt and fuse together during the curing process to form a painted finish. The solid powder particles are electrostatically charged when exiting the low-velocity air powered spray gun. This electrostatic charge attracts paint particles to the work surface and holds them during the high temperature curing process which can exceed 350 degrees.

Why Is It Environmentally Friendly?

Powder coating is recognized as an environmentally friendly process because it doesn't rely on solvents or chemical carriers like traditional wet-paint systems. Because powder coating relies on the electrostatic charge to hold the paint to the work piece, powder coating eliminates VOC emission problems.

How Durable Is It?

Powder coatings are very resistant to cracking and peeling and provide very high abrasion, corrosion and chemical resistance. These attributes vary according to the specific application and paint choice. Powder coatings typically meet or exceed the finish performance characteristics of conventional solvent based wet paint coatings



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REPORT NO.: J20121270318

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Appendix IV

Photograph of sample



Signature



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Appendix X

Photograph of the sample under Compression Machine



Signature

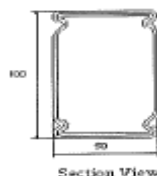
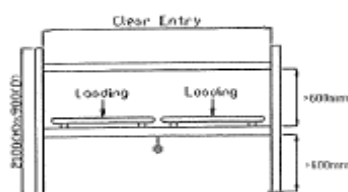


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PRACTICAL LOADING TEST

Experiment Date : 21/5/2014	Location : Loading Test Area.	Experimental nature: current Product
Product : Box Beam 100/50/1.6/2700mm	Actual beam size = 2685 * 50 * 100 * 1.6 mm	
Allowable deflection (L/200)	13.5 mm	Persons undertaken: Shah, Dahaman

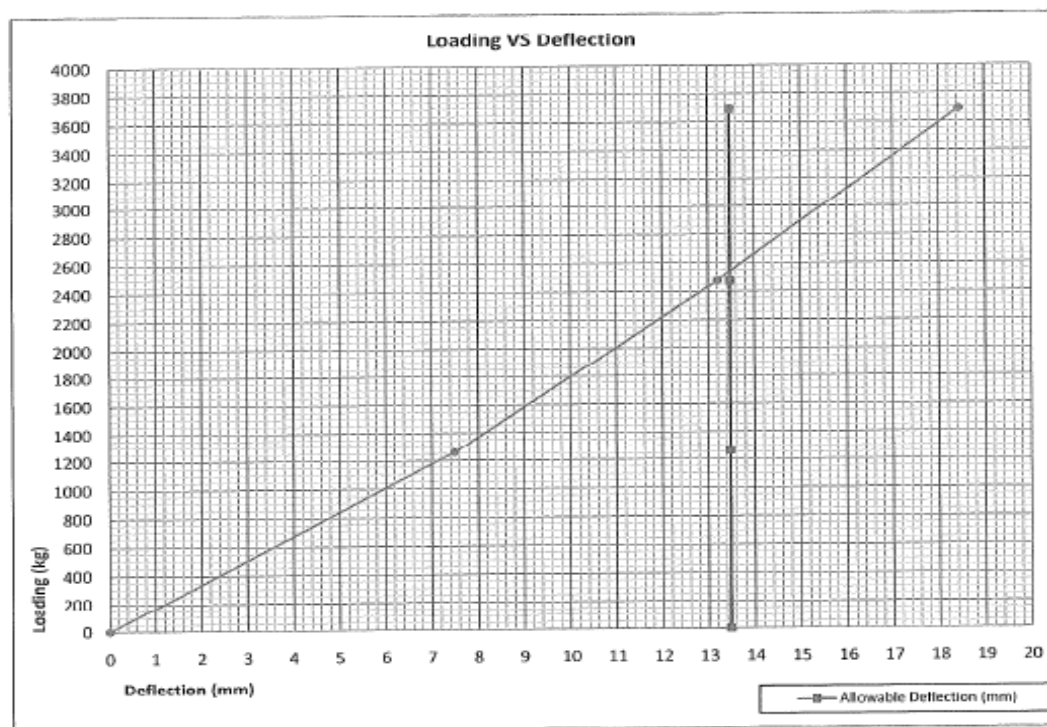
No.	Loading (kg)	Deflection (mm)	Allowable deflection (mm)	Status	Day 2 Deflection (mm)	Day 3 Deflection (mm)	Unload Deflection (mm)
1	0	0	13.5	Accepted	-	-	1.12
2	1260.8	7.5	13.5	Accepted	-	-	-
3	2476	13.2	13.5	Accepted	-	-	-
4	3691.2	18.44	13.5	Critical	18.61	18.66	-
5							
6							



According AS 4084 Clause 8.3.2.4.
Allowable vertical deflection = Beam length/200.

MAX. POTENTIAL
LOADING CAPACITY

2540kg



Test result: (a) The load test has been carried out according to Australian Standard 4084 on Steel Storage Racking, As 4084 clause 8.3.2 (Pallet beam in upright frames assembly test)



SAFETY LOAD CHART

* MAXIMUM LOADS IN KILOGRAM (KG) *

LOAD CHART ONLY VALUE FOR GOLD WIND'S PRODUCTS

MAXIMUM LEVEL LOAD CAPACITY

(UDL = UNIFORMLY DISTRIBUTED LOAD)

RACKING STRUCTURAL INFORMATION

NAME OF COMPONENT	SECTION	WEIGHT (APPROXIMATELY)	MAX LOAD
LOAD BEAM 1360L	100 x 60 (2 x 1.8t)	7.6 KGS	4800KG UDL
LOAD BEAM 1860L	100 x 60 (2 x 1.8t)	10 KGS	3600KG UDL
LOAD BEAM 2480L	100 x 60 (2 x 1.8t)	13 KGS	2800KG UDL
LOAD BEAM 2700L	100 x 60 (2 x 1.8t)	14 KGS	2600KG UDL
END FRAME (M TYPE)	80 x 70 x 2.0t	-	12,000KG USWL

NOTE :

1. The chart listed were obtained considering that all components are in a perfect state of assembly and maintenance.
2. Improper use may result in load capacity loss and may lead to replace the damaged components.
3. Any alteration of the configuration of the structure must be notified to **GOLD WIND ENGINEERING (S) PTE LTD.**

MAINTENANCE NOTICE

Conduct regular inspection to check for

1. Correct application and use.
2. load within allowable safe limits
3. Accidental damage
4. Dislodgement of structure components

DO NOT ALTER STRUCTURE WITHOUT OBTAINING NECESSARY APPROVAL OF GOLD WIND.

DO NOT CLIMB PALLET RACK

REPORT ALL RACK DAMAGES TO SAFETY OFFICER.

IF IN DOUBT ALWAYS CONTACT GOLD WIND ENGINEERING (S) P/L

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GOLD WIND ENGINEERING (S) PTE LTD

NO.39 WOODLANDS CLOSE, MEGA @ WOODLANDS #03-23/24, SINGAPORE 737856

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Aeon Earth – Singapore

Aeon Earth Private Limited is one of biggest computer components recycling company in Singapore. To provide teardown IT component recycled in an environmentally responsible manner.

Project

Over the years of business development. Aeon Earth's warehouse demands has been greatly increasing. In 2013, They expanded their warehouse at North East of Singapore.

This project included shift their existing rack to new warehouse of total 500 pallet locations Gold Wind provide manpower / Crane Lorry Transport / New Materials & Reconfigured their Existing component.

To minimum disturbing to the warehouse operation, Gold Wind provided Shifting Time Table For this New and Relocation Rack.



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Certificate of Insurance

Product Liability

Allianz General Insurance Company (Malaysia) Berhad (735426-V)



This is to certify that the under-mentioned Insured is insured under Allianz General Insurance Company (Malaysia) Berhad's Product Liability Insurance Policy detailed as follows:-

Policy No.	: 17LPN0000108-00
Insured	:
Address	:
Period Of Coverage	: 4 November 2017 to 3 November 2018
Products Covered	: a) Heavy Duty Steel Racking and Light Duty Steel Racking b) Roof Trusses (also applicable as solar panel structures)
Limit Of Indemnity	: RM 5,000,000 any one occurrence and in the aggregate (Cost and Expenses inclusive)
Territorial	: Worldwide excluding USA & Canada, UN and/or the EU/EEA Sanction Countries.
Jurisdiction	: Worldwide excluding USA & Canada, UN and/or the EU/EEA Sanction Countries.

* Subject to all terms, exclusions and conditions of the policy


Authorised Signatory
Date : 08 November 2017

Level 29, Menara Allianz Sentral
203, Jalan Tun Sambanthan
Kuala Lumpur Sentral,
50470 Kuala Lumpur.

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Engineering of Storage Solutions



TEL: +65 64827098

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THANKS YOU

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#03-23/24 Singapore 737856

Business Hours:

Monday to Friday : 8:00am to 6:00pm
Saturday : 8:00am to 12:00pm
Sunday & PH : OFF



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