AluPort
carports

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Brief

This report acts as an introductory step for a co operation proposal between AluPort Carports and potential clients/distributors. The full report aims to provide the key tasks, tools and techniques in order to generate and manage the implementation of a market led, technically and commercially viable new carport range manufactured in Japan by the biggest aluminum construction companies, to enrich the product range of our distributors, with minimum risk, time to market and where products & processes are legal, healthy, safe and environmentally friendly.

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YUASA

YUASA Trading is one of the oldest and most respected trading companies of Japan dating back to **1666**.

YUASA's Housing & Building Supplies Division engages in the promotion of high quality Japanese brands of renowned engineering excellence.

More info under: http://www.yuasa.co.jp/english/index.html

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The AluPort Carport range features carports from leading Japanese manufacturers such as :

YKK ap Quality inspires®

http://ykkap.co.jp/

LIXIL

http://global.lixil.co.jp/

SHIKOKU

http://kenzai.shikoku.co.jp/

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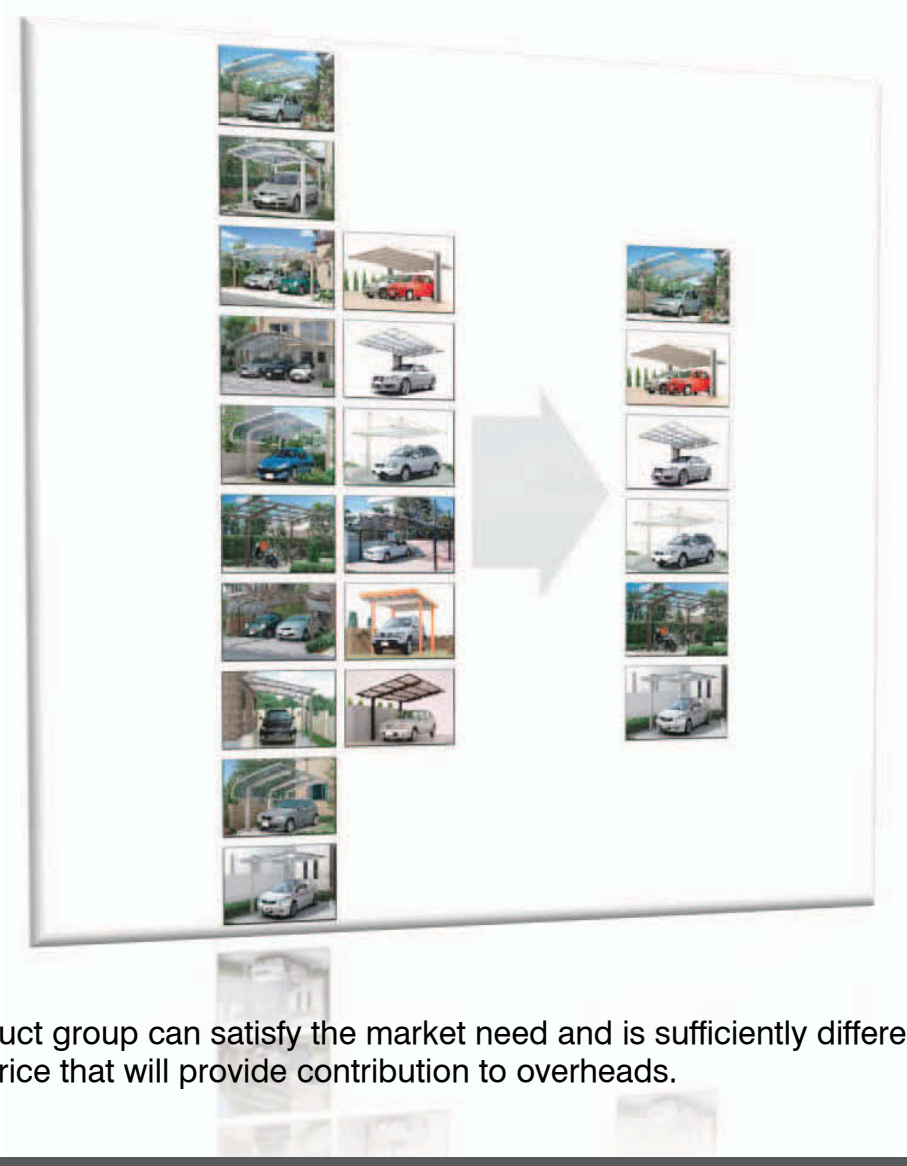
Cooperation Proposal

The need for new products emerges from the regular process of following trends in the requirement of consumers. We therefore propose a cooperation between clients/distributors and YUASA for the introduction and sales of the AluPort Carport Range through their nationwide sales network.

The AluPort product range features 14 models in total, in various fixed dimensions.



The selected product group can satisfy the market need and is sufficiently differentiated from competitors at a price that will provide contribution to overheads.

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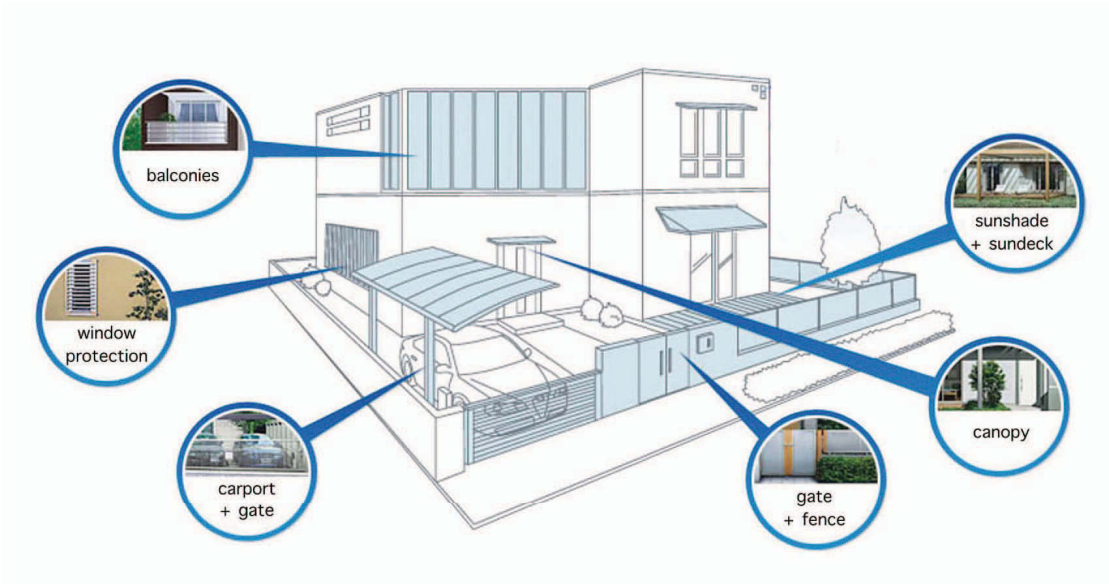
Selection criteria usually include the following:

- Climatic conditions
- Legality of Use
- Market demand
- Value for money
- Ease of transportation, storage, installation
- Competition Analysis

Carports also offer opportunities for cross selling.
Surveys show that a majority of buyers appreciate being informed of additional products or services that may better meet their needs or about new items that were not offered in the past. It's a way of demonstrating that you are aware of their needs and care about their satisfaction.



AluPort carports
AluGate doors & gates
AluFence perimeter decorations

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Product overview & characteristics

Different carport types, executions and options are available. AluPort carports consist of an anodized aluminum framework and UV-resistant polycarbonate. All carports featured in the AluPort Range meet the high quality and safety standards that are an essential requirement for all our products.

A frequently used definition of quality is satisfying customer need. Our definition of quality is satisfying customer wishes which is a rather more demanding definition. The design philosophy and manufacturing methodology is almost similar for all carport types.

An example based on the most popular carport type “Nagoya” Is presented in the following pages.

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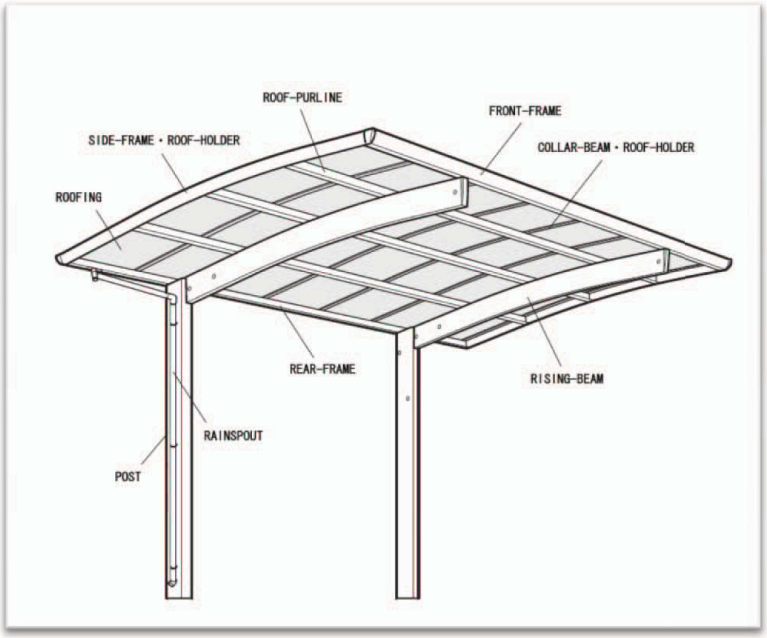
The single Nagoya Carport



Nagoya Carport - basic parts

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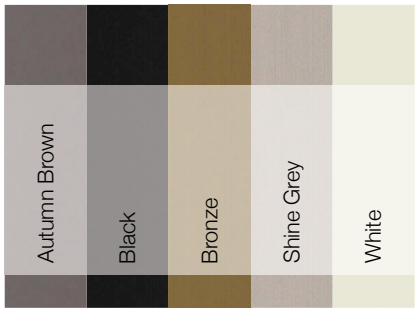
Polycarbonate Roofing Options

NA	NK	PB	PR	PC	
Aqua-Shine PC	Therma PC	Normal PC	Normal PC	Normal PC	ROOF TYPE
Clear Blue	Frosted Blue	Smoke Blue	Clear Brown	Frosted White	ROOF MATERIAL
15%	16%	31%	49%	83%	MATERIAL COLOUR
49%	48%	37%	34%	20%	LIGHT TRANSMISSION
99.9%	99.9%	99.9%	99.9%	99.9%	SOLAR HEAT REJECTION
					UV PROTECTION

Anodised Aluminum Body Options



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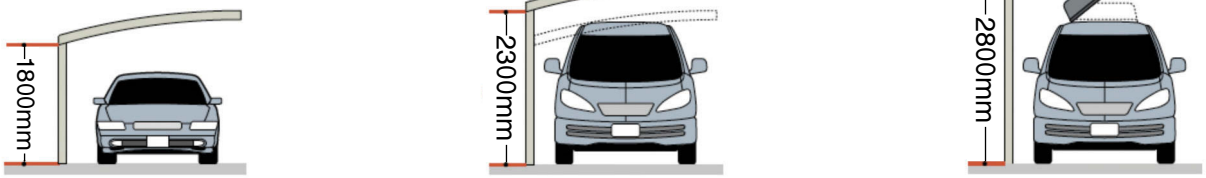
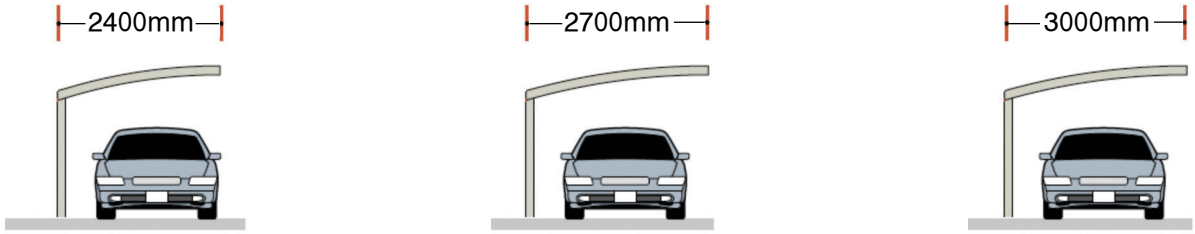
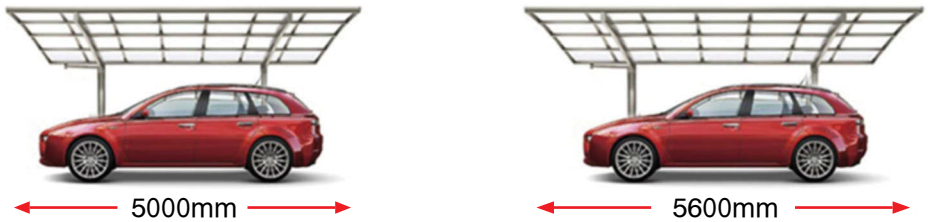
Nagoya - Fixed Dimensions



Available in the following fixed heights, in **mm**.



Available in the following fixed roof spans, in **mm**.



Available in the following fixed lengths, in **mm**.

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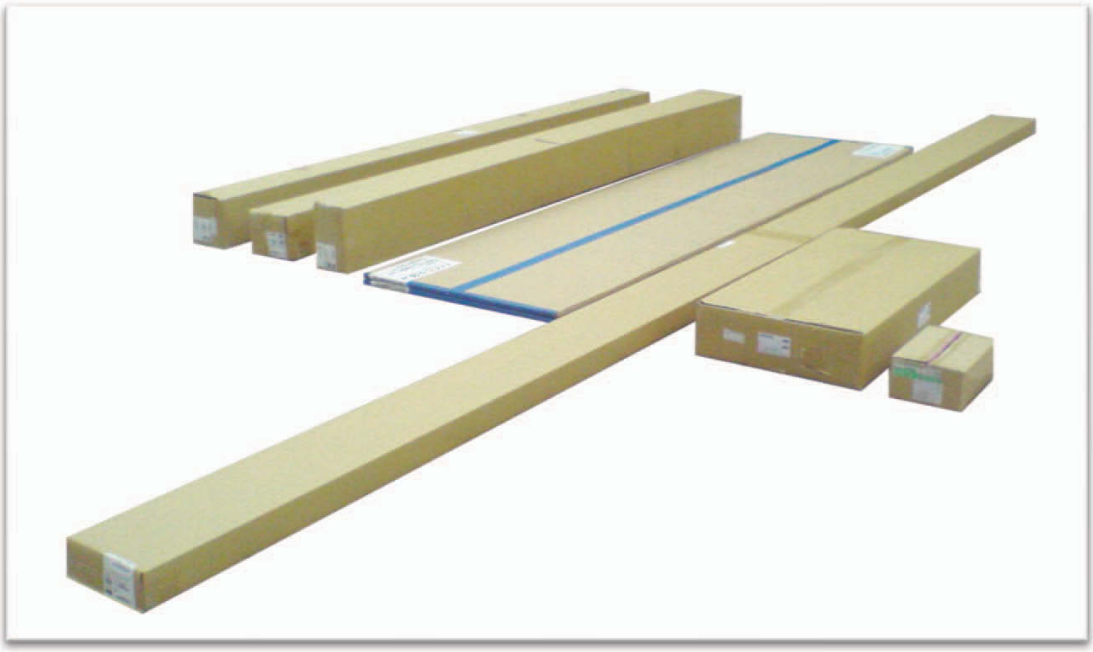

A single unit comes in 8 boxes as depicted above.

DESCRIPTION	MODEL		C/T SIZE(MM)			VOL	WEIGHT(KG)		C/T UNIT	TOTAL VOL	TOTAL WEIGHT(KG)	
			H	W	L	M3	NET	GROSS		M3	NET	GROSS
	8RAA17SC	LONG POST 24-2750 2PCS	170	178	2837	0.086	19.9	20.9	1	0.086	19.9	20.9
MajorPort II	8RAB31SC	RISING BEAM 27 2PCS	135	199	2574	0.069	11.5	12.5	1	0.069	11.5	12.5
R2750SCK	8RAC07SC	FRONT/REAR FRAME 50	80	215	4975	0.086	16.9	17.9	1	0.086	16.9	17.9
	8RAC36SC	SIDE FRAME 2750	131	143	2700	0.051	11.3	12.3	1	0.051	11.3	12.3
Long Post	8RAB51ZZ	JOINT 24-27 2PCS	100	580	730	0.042	17.5	18.5	1	0.042	17.5	18.5
Shine Grey	8RAB60SC	PARTS BOX	140	290	375	0.015	2.3	3.3	1	0.015	2.3	3.3
Heat Protection PC	8RAA53LC	PC ROOF PANEL 27 3PCS HEAT PROTECTION	15	700	2704	0.028	12.7	13.7	1	0.028	12.7	13.7
	8RAA59LC	PC ROOF PANEL 27 4PCS HEAT PROTECTION	15	700	2704	0.028	16.7	17.7	1	0.028	16.7	17.7

All components are included in the packaging, as listed above.

No modification is needed prior to installation.
No additional parts are required for installation.

A simplified, DIY Installation Instructions Manual provided in Appendix B.
A list of basic tools needed for installation is provided in Appendix C.

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AluPort Carports are Modular

Modular design is an attempt to combine the advantages of standardization with those of customization.

▶ Single

▷ Single Extended

Single carport units can be independently sold to cover a single car space.

Two or more single units can be interconnected to form a Y, M or J system.

▶ Hyper systems can be formatted to drive multiple functionalities.

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Besides reduction in cost (due to lesser customization and less stock levels), and flexibility in design, modularity offers other benefits such as augmentation (adding new solution by merely plugging in a new module), and exclusion.

Our system offers all the benefits associated with mass production, complete automated manufacturing and modular design concept.

- Standardized superior design, which is pre-approved, with a rapid and simplified procurement process.
- Standardized components allowing easier assembly with the opportunity for the exchange or addition of modules.
- Consistent quality.
- Reduced site build time with associated reduction of work in high risk environments and reduction of associated site costs.
- Improved programmed certainty through standard build times.
- Reduced lead times from standard components.
- Improved cost certainty.
- No material waste. Efficient factory production techniques are much less wasteful and installation is less disruptive on site.
- Short build times.
- Reduced site labour requirement. The erection and finishing teams, which install and complete modular carports, involve less workers on site than traditional constructions.
- Reduced professional fees. The standardized design details, simplify and reduce the need for specialist design input.

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Logistics

The modular concept reduces stock levels. Advice on storage organization can also be given by our dedicated AluPort team.



The optimal ordering quantity (for basic models) is 50 carports, which can be transported in one single 20 ft.container.

Delivery by boat - directly from Tokyo Port Japan.
Containers are delivered to the ordering firm, allowing about one day for unloading.

Financing
Payment will be done by letter of credit (commitment on payment within 60 days).

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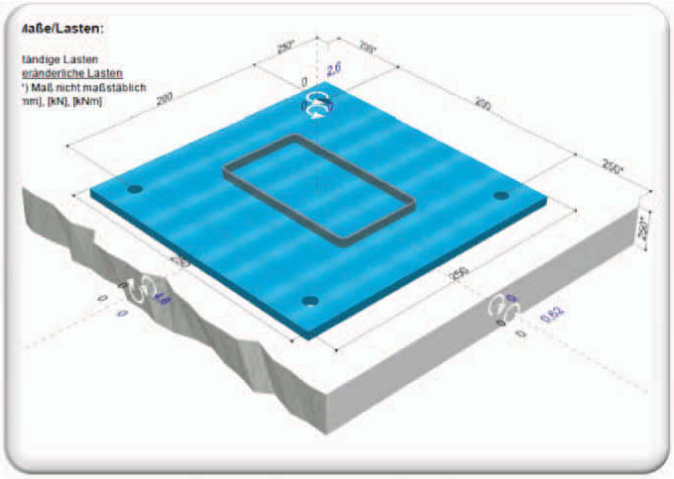
Product Installation

Concrete foundations are required for the installation of the carports. Details on foundation size, concrete density etc. are provided in each installation manual.

A common practice in EU that speeds up the installation process is the use of optional steel plates.



Taking into account the local climate, preparatory concrete works should be carried out at least two days prior to carport installation.

No modifications or additional parts are required.
The carport comes with a simplified DIY installation manual.

Site build time takes approximately 6 hours per carport (2 men / 3 hours).
An installation video can be downloaded from our server.

After - sales

In urgent cases, spare parts have to be taken from the local package stock. Missing or damaged parts are rather exceptional, due to the quality of Japanese production combined with efficient storage during transport.

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Training

Commercial product seminars and technical training require about one day each and can be arranged by the AluPort team.

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3-1 Installing the front frame, roof purlins and the rear frame

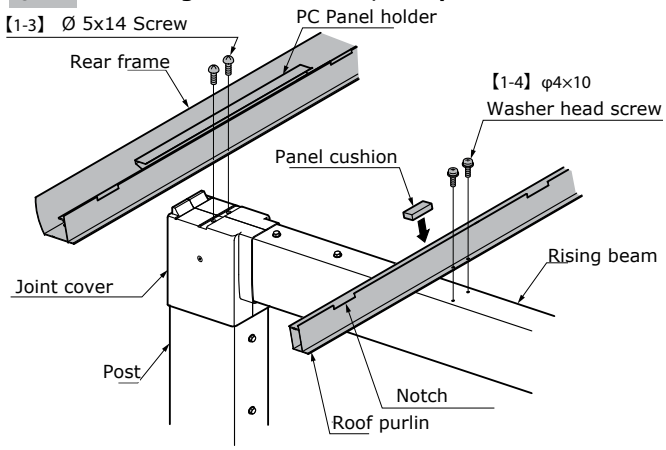


Diagram 3-1

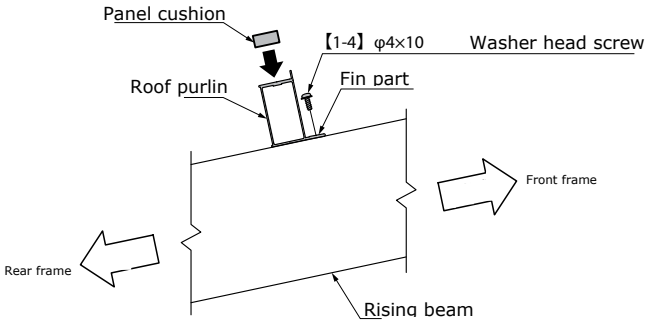
① Please fix the rear frame to the joint cover (1-3). (Diagram 3-1)

Point

Please place the PC panel holder so, that the space between the two nothes are equal.

② Attach the cushioning material in the center of the two nothes.

③ Please turn the fin part to the front frame direction and fix the roof purlin to the rising beam with washer head screws.

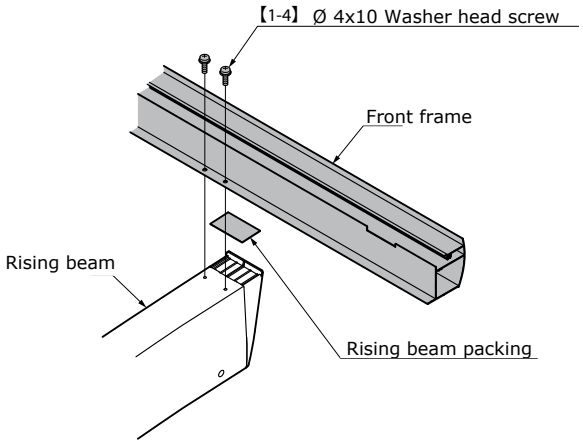


④ Please attach the front frame to the rising beam with washer head screws. (Diagram 3-3)

Point

After moving the posts, adjust the front and brack frame and the roof purlin to the rising beam and drill Ø 5,5 hole in to the back and Ø 4,5 holes into the front frame and into the roof purlin.
Please cover all pre-drilled holes, with cover seals.

Please cover all pre-drilled holes, with cover seals.



AppendixB
Installation Manual

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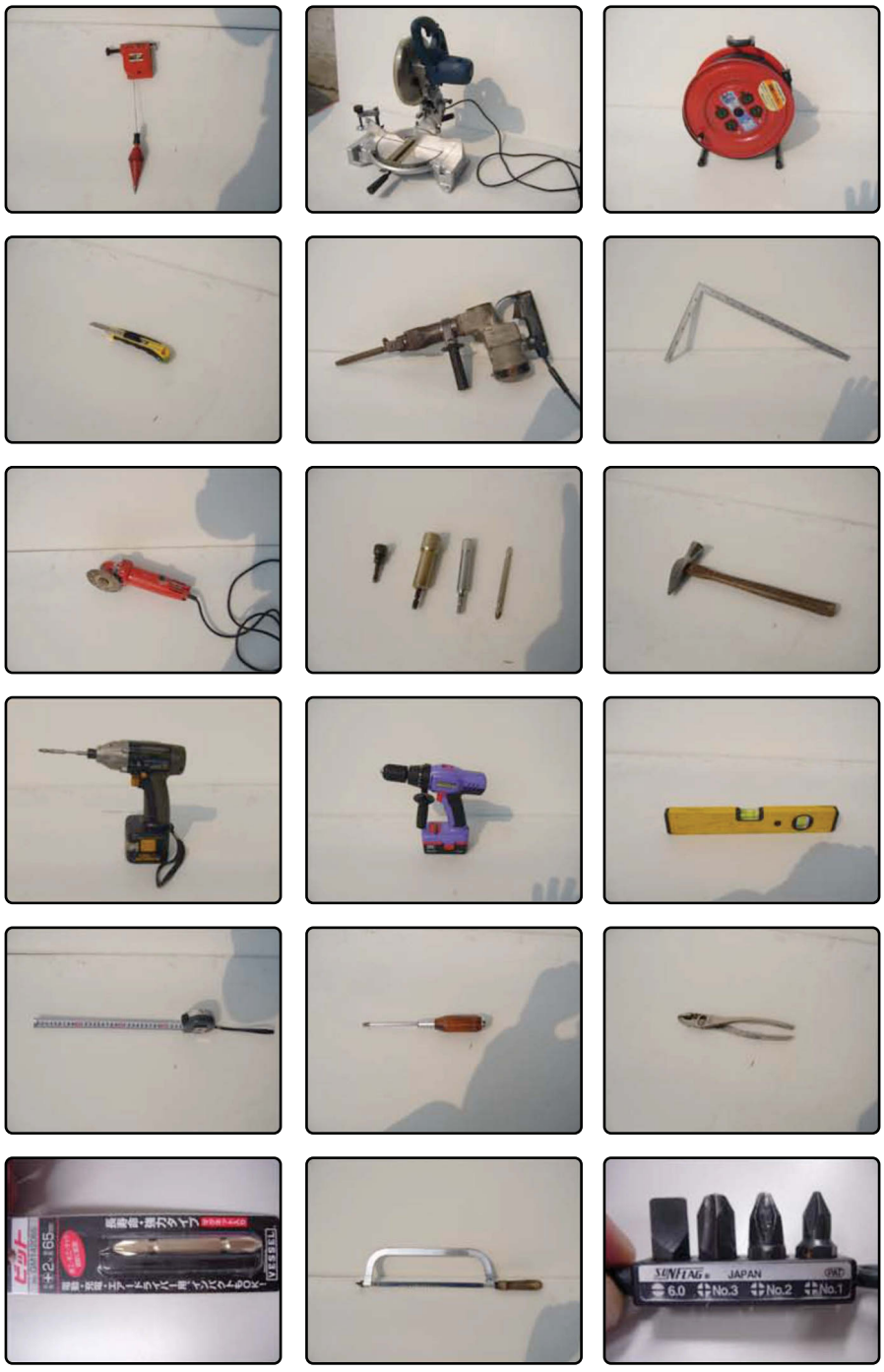

Appendix C
Tool Set

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2) front frame

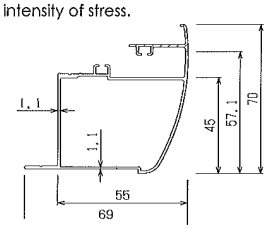
(a) allowable intensity of stress ratio of front frame

◆ cross section quality

cross section of front frame partially have deficiencies at the end. It is inspected with consideration of the end deficiencies which is same part of maximum intensity of stress.

material A6063S-T5

A =	2.55	cm^2
Ix =	9.18	cm^4
Iy =	11.45	cm^4
Zx =	2.99	cm^3
Zy =	3.06	cm^3
F =	110	N/mm^2
J =	12.59	cm^4



torsional constant J is substitute to cross section of box □-45x55x1.1x1.1 to be calculated.

◆ allowable bending stress in overall buckling

lb = 716 mm (collar beam pitch)

M_2/M_1 = -1

My = Z × F = 328900 N·mm

$$C = 1.75 + 1.05\left(\frac{M_2}{M_1}\right) + 0.3\left(\frac{M_2}{M_1}\right)^2 = 1.00 \quad \text{(safe side)}$$

$$M_e = C \times \sqrt{\frac{\pi^2 E I_y G J}{lb^2}} = 2290687 \ \text{N·cm} = 22906867 \ \text{N·mm}$$

$$\lambda_b = \sqrt{\frac{My}{Me}} = 0.12$$

$$_p\lambda_b = 0.6 + 0.3\left(\frac{M_2}{M_1}\right) = 0.30$$

$$_e\lambda_b = \frac{1}{\sqrt{0.5}} = 1.41$$

$$\nu = \frac{3}{2} + \frac{2}{3}\left(\frac{\lambda_b}{{}_e\lambda_b}\right)^2 = 1.50$$

allowable bending stress

fb = 73.1 N/mm^2

◆ allowable bending stress in local buckling

strong axis

flange

$$\Gamma_d = \frac{d}{t}\sqrt{\frac{F}{E}} = 1.90$$

fb = 58.1 N/mm^2

web

$$\Gamma_d = \frac{d}{t}\sqrt{\frac{F}{E}} = 1.54$$

fb = 73.3 N/mm^2

◆ long period allowable intensity of stress ratio

fbx = 58.1 N/mm^2

Appendix D
Static Report