JUNGWOO EMC
MIDDLE EAST FZC

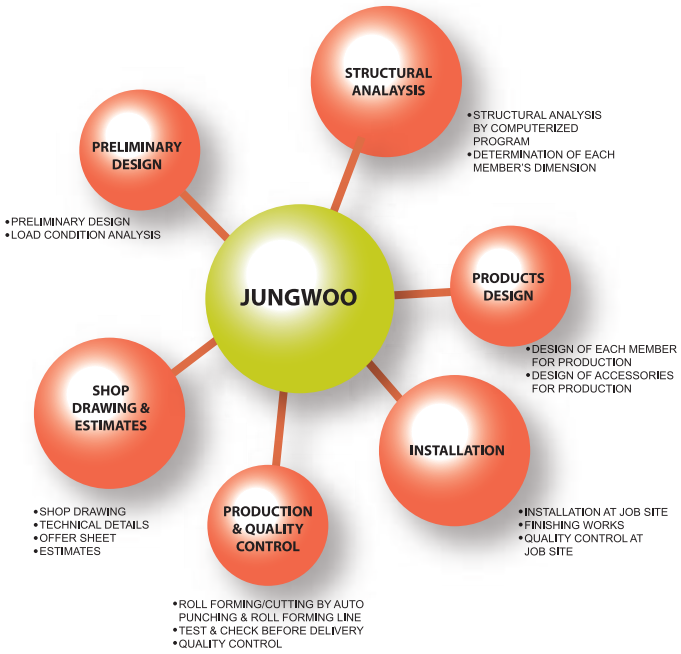
QEB SYSTEM

Quick Pre-Engineered Building System

INNOVATIVE AND HIGH - TECH
PRE-ENGINEERED LIGHT-WEIGHT **GALVANIZED** STEEL STRUCTURE

15 Days

from order placement to completion for 600 sqm



KOREAN TECHNOLOGY AT ITS BEST

THE MOST EFFECTIVE AND ECONOMICAL STEEL STRUCTURE SYSTEM

Total Pre - Engineering & Designing Service

The most Effective and Economical price

Innovative Reduction of Construction Period

Strong structure and Modern appearance

Perfect Quality Control

Superior Durability

Familiar with your Environment and Convenient Re-installation

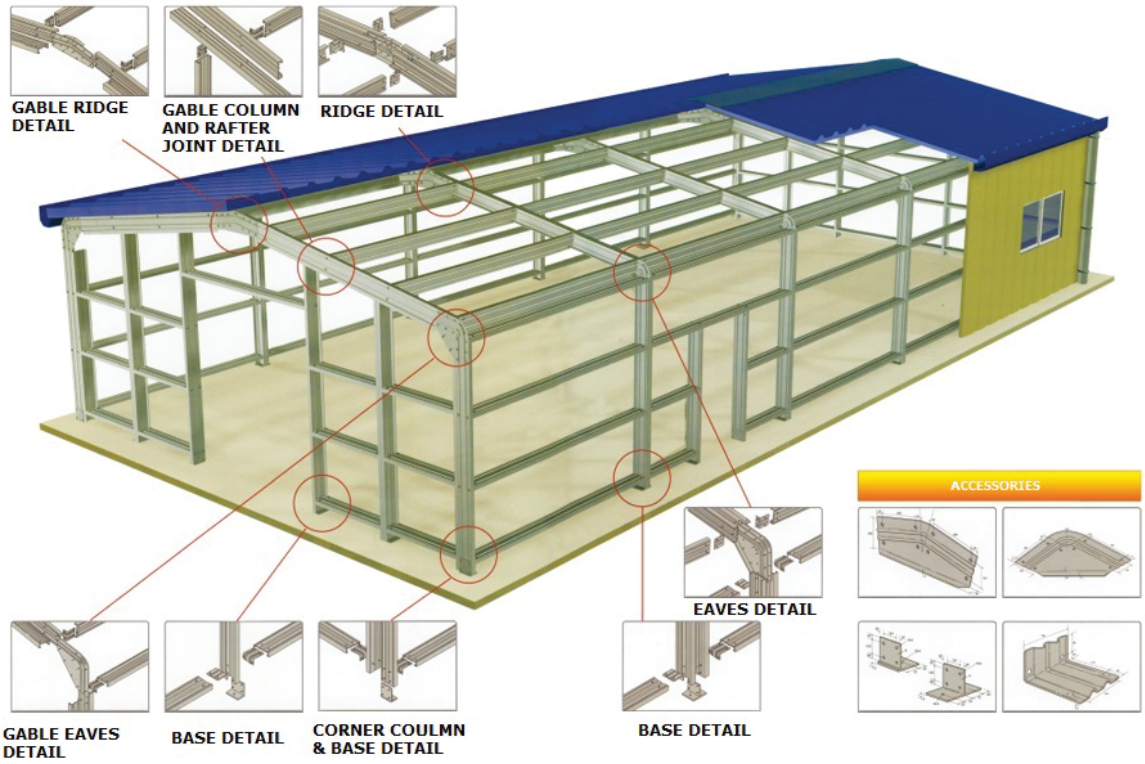
ZERO PERCENT OF LOSS AND WASTE MEANS PERFECT INSTALLATION.

KOREAN DEVELOPED TECHNOLOGY BUT MADE IN UAE

Most Efficient, Economical and Easy Building System

QEB or Quick Pre-engineered Building System is an innovative building method. This multi-purpose building system has various applications from warehouses to green houses. Jungwoo QEB system is a system where pre-engineered column members are produced through our own fully automated roll forming machines with hot dip galvanized iron.

Our computerized structural analysis and calculation program takes into account loading, weather and structural conditions to provide an accurate design and economical estimate.



Applications

From warehousing to animal farms, the versatile Jungwoo QEB system can be used for several purposes. The main features of our GI steel structure like fast design, economical estimation, easy assembly and disassembly lend itself to applications which you can imagine.

JUNGWOO QUICK PRE-ENGINEERED BUILDING SYSTEM

Multiple Elevation

Poultry House

Cattle House / Animal Farm

Factory / Storage

Green House with Transparent Cladding

Event Shed

Octagonal Horse Walking Shed

Parapet Style

JUNGWOO QUICK PRE-ENGINEERED BUILDING SYSTEM

Interconnected Shed

One Side Parapet

One Side Slop

Military Camp

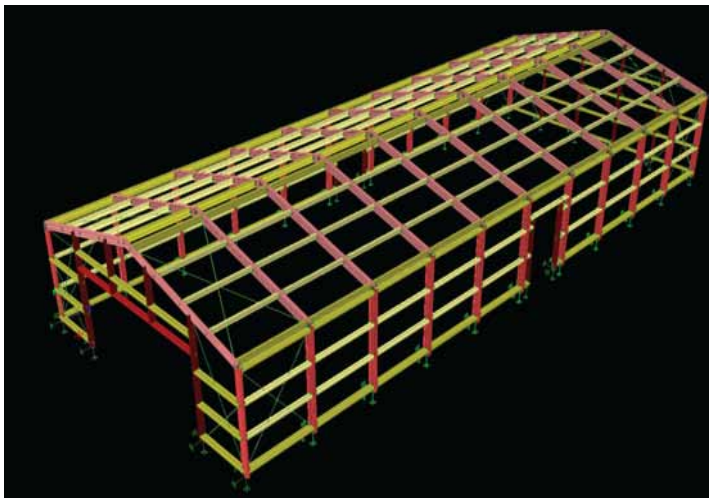
Warehouses

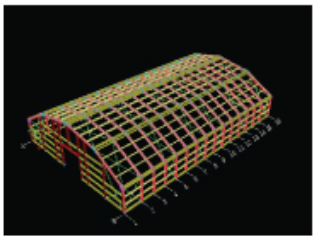
Integrated Structure

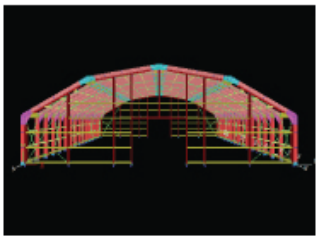
Standard QEB System

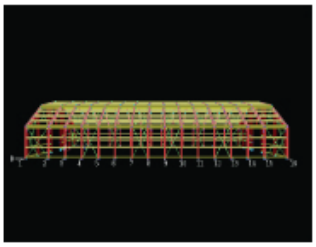
Ridge Reinforcement

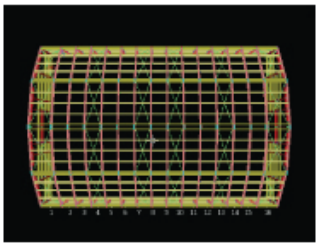
Software Generated Designs











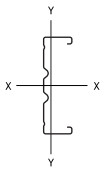
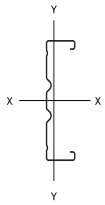
QEB Production Line

Packaging for Transport

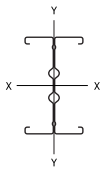
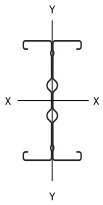
Cold Storage

QEB Dome Structure

MAIN MEMBERS

A STANDARDS		220X65X18X10				300X65X18X10			
SINGLE TYPE SHAPE									
THICKNESS (mm)		1.5	2.0	2.5	3.0	1.5	2.0	2.5	3.0
WEIGHT (kg)		4.89	6.11	7.02	9.16	5.9	7.36	8.47	11.05
SECTION AREA (mm^2)		665.7	826.9	946.5	1221.0	793.7	966.9	130.5	1461.0
CENTER AXIS	X(mm)	109.2	109.0	108.8	108.5	149.2	149.0	148.8	148.5
	Y(mm)	18.6	18.4	18.3	17.9	15.6	15.4	15.3	14.9
MOMENT OF INERTIA	I_{XX}(cm)	455.1	562.1	645.8	817.9	932.7	1152.9	1314.8	1681.3
	I_{YY}(cm)	36.2	44.1	49.8	62.1	40.4	49.2	55.5	69.2
SECTION MODULOUS	Z_{XX}(cm^3)	41.6	51.5	58.8	75.3	62.5	77.3	88.3	113.2
	Z_{YYMAX}(cm^3)	19.4	23.9	27.2	34.6	25.7	31.8	36.2	46.2
	Z_{YYMIN}(cm^3)	8.1	9.9	11.2	14.0	8.4	10.3	11.7	14.2
RADIUS OF GYRATION	R_{XX}(mm)	82.6	82.4	82.2	81.8	108.4	108.0	107.8	107.2
	R_{YY}(mm)	23.3	23.1	22.9	23.5	22.5	22.3	22.1	21.7

CORNER COLUMN, GABLE COLUMN, PURLIN, GIRT use single type accessories.

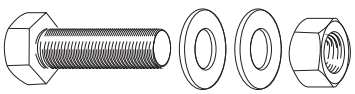
A STANDARDS		220X65X18X10				300X65X18X10			
DOUBLE TYPE SHAPE									
THICKNESS (mm)		1.5	2.0	2.5	3.0	1.5	2.0	2.5	3.0
WEIGHT (kg)		9.77	12.22	14.05	18.32	11.78	14.73	16.94	22.09
SECTION AREA (mm^2)		1331.4	1653.9	1893.7	2442.1	1587.4	1973.9	2261.1	2922.1
CENTER AXIS	X(mm)	109.2	109.0	108.8	108.5	149.2	149.0	148.8	148.5
	Y(mm)	0	0	0	0	0	0	0	0
MOMENT OF INERTIA	I_{XX}(cm^4)	910.2	1124.2	1281.1	1635.9	1865.4	2305.9	2629.6	3362.7
	I_{YY}(cm^4)	121.1	147.4	166.1	206.4	121.1	147.4	166.1	206.4
	Z_{XX}(cm^4)	83.3	103.1	117.7	150.7	125.0	154.7	176.6	226.4
SECTION MODULOUS	Z_{YYMAX}(cm^3)	19.1	23.4	26.4	33.3	19.1	23.4	26.4	33.3
	Z_{YYMIN}(cm^3)	19.1	23.4	26.4	33.3	19.1	23.4	26.4	33.3
RADIUS OF GYRATION	R_{XX}(mm)	82.6	82.4	82.2	81.8	108.4	108.0	107.8	107.2
	R_{YY}(mm)	30.1	29.8	29.6	29.0	27.6	27.3	27.1	26.3

* MAIN COLUMN and RAFTER use double type accessories.

DESCRIPTION OF ACCESSORIES

Each bracket and angle has different shape and dimension according to WEB series LB 220, LB 300 and angle(5°, 10°, 15°)

FRAME FIXING BOLT

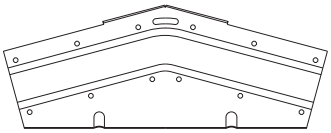


Frame fixing bolts are used for fixing of all members and accessories. This item consists of M16x40 hexagonal headset bolt, nut and two washers.

ANCHOR BOLT

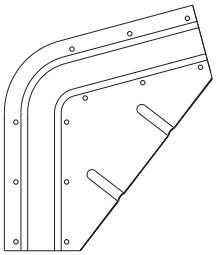
Anchor bolts are used to fix columns to the foundation.This Hilti HSA 16x145mm anchor bolt is suitable for fixing into concrete with minimum strength of 25M/m^2.

RIDGE BRACKET



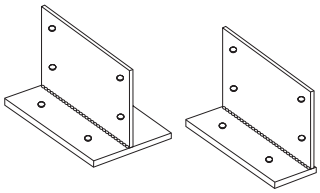
Ridge brackets are generally used in pairs for rafter-to-rafter connections at the ridge. Three types are available to match to three roof slopes.(5°,10°,15°)

EAVE BRACKET



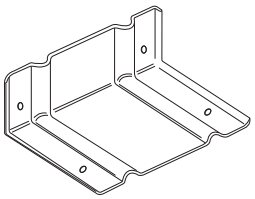
Eaves brackets are generally used in pairs to connect column with rafter. The brackets are to be located between form column and rafter. For efficient connection.Eaves bracket has a pressed rafter shape which allows a profile to give the required roof slopes 5°,10°,15°, Due to given loads on the brackets, it prevents them from buckling under load and slip between member (column and rafter) and bracket.

BASE PLATE



T-shaped base plate is to be located at intermediate position of two columns. The web is to be fastened by bolts between each column. L-shaped base plate is for corner columns. gable posts an door posts where single columns are generally used for uprights.

FIXING CLEATS



Fixing cleats bent by 5°,10°,15° are used for making connections between gable post head and gable rafter trimmer.

STRUCTURAL RESISTANCE EXPERIMENT

△POSCO (RESEARCH INSTITUTE OF INDUSTRIAL SCIENCE & TECHNOWLOGY)

[Ministry of Construction & Transportation Notice No.1988-623]
Agricultural Machinery Store Warehouse Standard drawing and specification approval, notice.

[Ministry of Construction & Transportation Notice No.2000-32.3]
Variable Type Warehouse (Military Basement and warehouse) Standard drawing and specification approval, notice.

Structural review and checklist for drawing

Amount of snow cover for each area in Korea

Section	Area	Amount(cm)
I	South Coast Area	30
II	National Capital Region	50
III	Goonsan, Daegu, etc.	70
IV	Sokcho,Daekwalnyung	150
V	Ulreung - Do	350

Basic wind speed for each area in Korea

Grade		Area	Drawing Basic Wind Speed	Ground Roughness
I	Inland	National Capital Region, Kwangju,Cheongju, Daejeon	35	B
II	Coast (1)	Incheon, Ulsan, Goonsan	40	C
III	Coast (2)	Sokcho,Daekwalnyung	45	C
IV	Island	Ulreung - Do	50	C

Dead load

- Steel main- material of structure and self-weight
- Self- weight of roof material

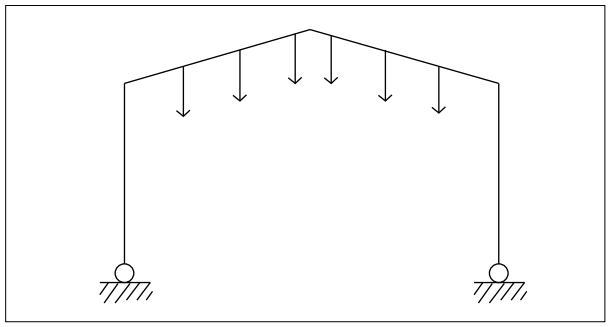
Live load

- Self-weight of fixtures inside facilities which directly forced to building framework
- Self- weight of installing facilities on the roof and ceiling

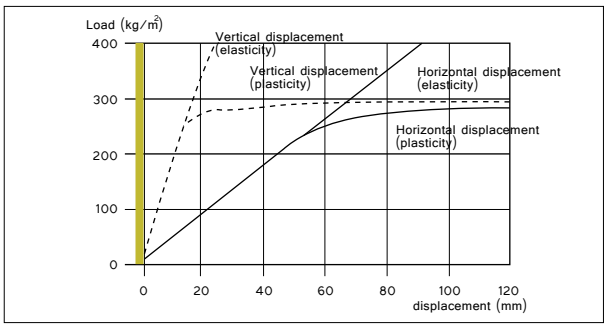
Result of Structure interpretation

The interpretation model shows the same sized experiment object by two dimensions coordinate, and supporting point shows all by Hinge.
The ridge and eave of experiment object is supposed Fully Rigid and load is modelling by testing same location as pre-load situation of experiment object which is same situation of experiment.

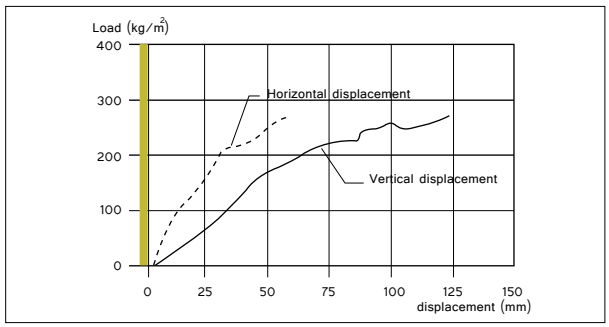
Modelling of pre-load experimental object



Interpretation result of experimental object



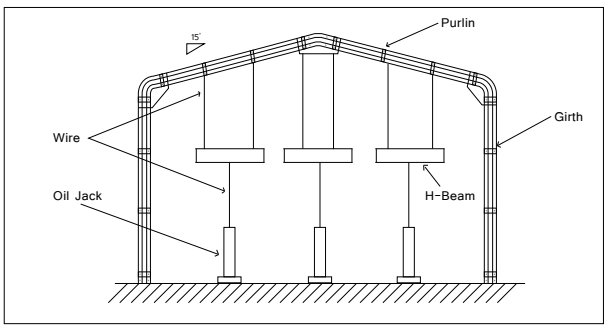
Displacement diagram of experimental object



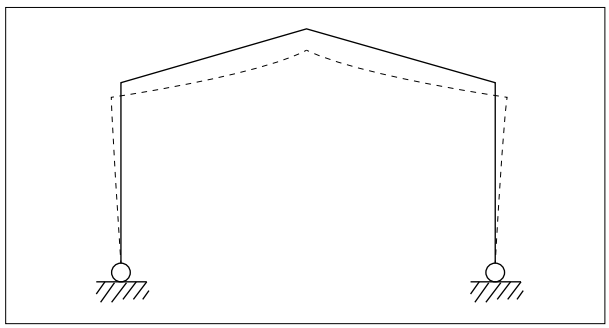
Experiment result of experimental Structure

Pre-load weight for experimental object is pre-loading to line-load at the purlin location connecting pre-load equipment.
Detail points are as below pictures.
Vertical load is, at the purlin location of frame, measured displacement of framework by installing displacement meter as picture to pre-load forcing to line load of 6 points each frame, total 12 points.
Each experimental object is considered all comparatively stable move, and load and displacement is increasing lineraly then shows little bit changing of slope after constant load.
Comparison of between experimental data as following vertical pre-load and actual vertical load is compared from experiment for situation that Dead Load and Snow Load effect at the same time which load combination is the most in adverse condition describes in the Structural Calculation.
Each used load is used load data according to described in the Structural Calculations.

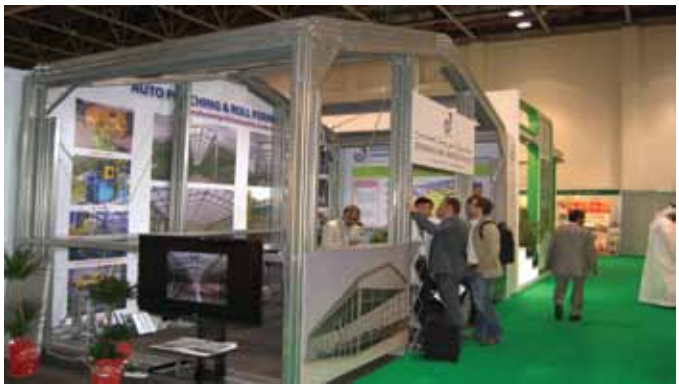
Interpretation result of experimental object



Displacement diagram of experimental object



JUNGWOO Q.E.B SYSTEM WILL MAKE YOUR OWN IDEA REALIZED



COMPARISON WITH GENERAL STEEL STRUCTURE SYSTEM

CLASSIFICATION	GENERAL STEEL STRUCTURE SYSTEM	JUNGWOO Q.E.B SYSTEM
CONSTRUCTION PERIOD	Needs long period to manufacture and install in the construction field.	Needs short period to install pre-engineered construction materials.
QUALITY	Unstable quality, not precise size and small amount of products produced by manual or by old machines.	Uniform, high quality and large quantity of products produced by fully automated and optimized roll forming machine.
INSTALLATION	Complicated installation process requires high skilled workers and welders.	Pre-calculated and pre-engineered materials do not require skillfull workers to install.
INSTALLATION EQUIPMENT	Heavy construction equipments are required and it restrict the range of application.	Applicable to every construction field without heavy construction equipments.
DISMANTLEMENT	Difficult to dismantle and remove.	Quick and easy to dismantle and re-install.
FINISHING	Requires many finishing process like painting to the welded part and touch-up.	By using HGI steel and bolts installation method, no finishing process is required.

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