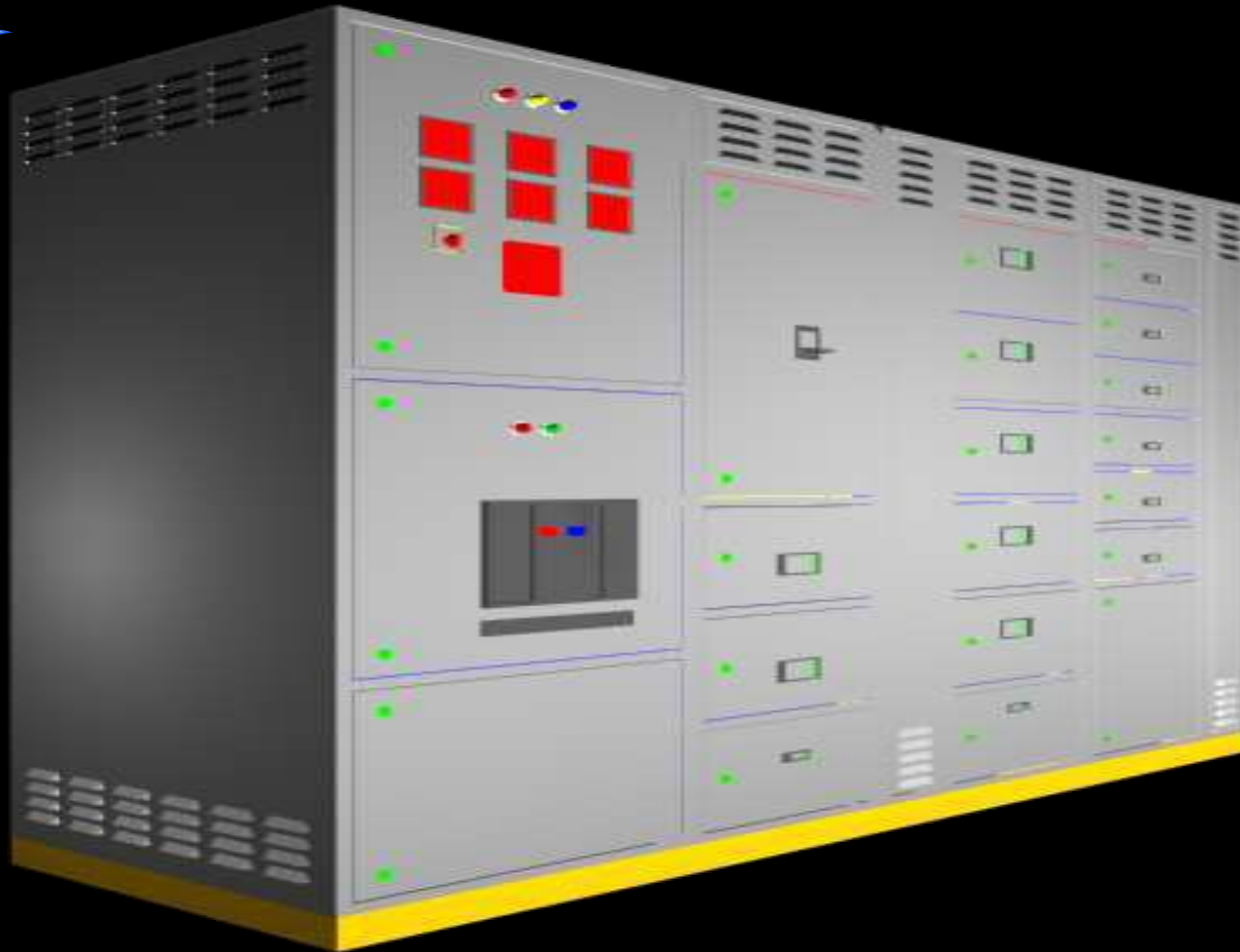


WEESCAD / WEESMOD



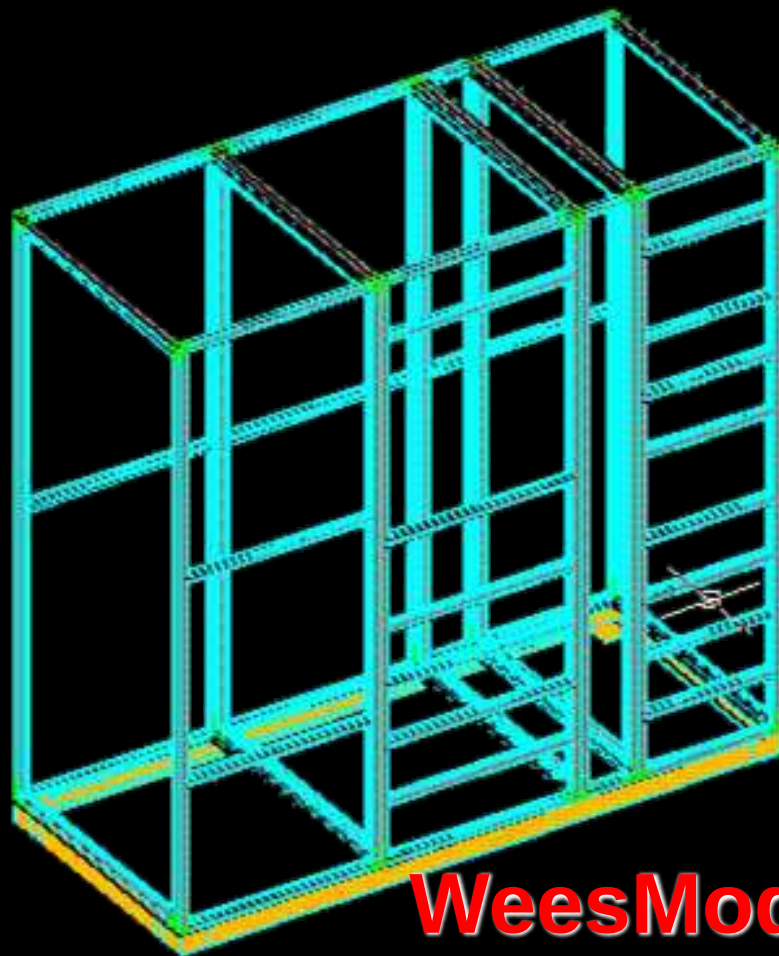
**URNS DREAM
INTO REALITY
FOR ELECTRICAL
SWITCHBOARD
MANUFACTURER**

START



TOTAL SOLUTION FOR ELECTRICAL SWITCHBOARD MANUFACTURER

WeesCad



WeesMod

Users

Benefit

**Award/
Achievement**

**Where to obtain
information?...**

Home



Exit

USER...

Electrical Consultant

Switchboard Manufacturer

WEESCAD

WEESMOD

USERS

BENEFIT

AWARD/
ACHIEVEMENT

Where to
obtain info.?

Home



Exit

USER - Electrical Consultant

Problems

- Differences between architect, M&E consultant/contractors over physical size of the electrical switch-room.
- Lack of assurance in producing the exact type-tested electrical switchboard as planned.
- Shortage of experienced designers/drafting personnel.

Solution

USER - SOLUTIONS

WEESMOD

*CKD Form for Electrical
Switchboard Metal Frame*



WEESCAD

*State of Art in Manufacturing of
LV Electrical Power Switchboard*



Back

USER - Switchboard Mfg.

Problems Facing Conventional Method

Design & Estimation Problems

Manufacturing Problems

Financial Control Problems

Quality Control Problems

**User Main
Menu**

Home



Exit

USER - Switchboard Mfg.

Problems Facing Conventional Method

Design & Estimation Problems

- Inconsistent or inaccurate design
- Inaccurate costing
- Changes in Design
- Last Minute Changes
- 2-D Drawing

**SwitchBoard
Mfg. Main Page**

**Design & Est.
Problems**

**Manufacturing
Problems**

**Financial control
Problem**

**Quality control
Problems**

Solution

USER - Switchboard Mfg.

Problems Facing Conventional Method

Manufacturing Problems

- **Material Wastage**
- **Labour Wastage**
- **Skilled Labour Needed**
- **Poor Space Utilization**
- **Poor Production Planning**

**SwitchBoard
Mfg. Main Page**

**Design & Est.
Problems**

**Manufacturing
Problems**

**Financial control
Problem**

**Quality control
Problems**

Solution

USER - Switchboard Mfg.

Problems Facing Conventional Method

Financial Control Problems

- **Material / Inventory Planning**
- **Large Cost Differences**

**SwitchBoard
Mfg. Main Page**

**Design & Est.
Problems**

**Manufacturing
Problems**

**Financial control
Problem**

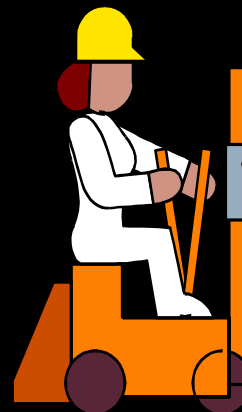
**Quality control
Problems**

Solution

USER - SOLUTIONS

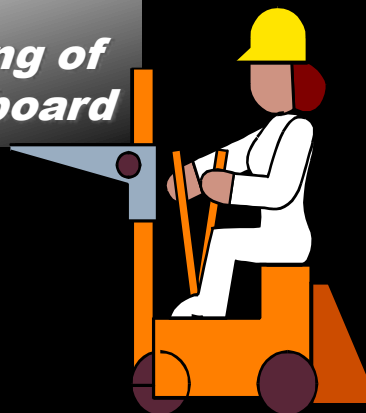
WEESMOD

*CKD Form for Electrical
Switchboard Metal Frame*



WEESCAD

*State of Art in Manufacturing of
LV Electrical Power Switchboard*



Back

AWARD/ACHIEVEMENT

WeesMod History ...

- 1984** - First Singapore Company to Innovate Complete Knock Down Switchboard
- 1987** - First Singapore Company to have their Switchboard “Type-Tested” to BS 5486 for Fault Level of 50kA 3 sec.
- 1988** - First Singapore company to Innovate Artificial Intelligence Software for Manufacturing Switchboards (2 Dimensional)
- 1989** - First Singapore Company to have their Switchboard “Fully Type-Tested” to BS 5483 and IEC 439 covering Fault Level up to 80kA 1 sec. And Temperature Rise for 2500 Amp.
- 1995** - First Singapore Company to migrate their internal usage software to “True 3 Dimensional with fully Design Intelligence” for public use on a PC level (WeesCAD).
- 1997** - WeesCAD was migrated from the DOS platform to the Windows 95/NT environment and made fully compatible with AutoCAD Release 14.

WEESCAD

WEESMOD

USERS

BENEFIT

**AWARD/
ACHIEVEMENT**

Where to
obtain info.?

Home

Exit

AWARD/ACHIEVEMENT

ASTA CERTIFICATES

Cert. no.	Fault Level	Amp.	Remarks	Authority
10675	36KA 3sec	1250	Fully type-tested	ASTA
10683	36KA 3sec	2500	Fully type-tested	ASTA
10684	65KA 1sec	2500	Fully type-tested	ASTA
10685	80KA 1sec	2500	Fully type-tested	ASTA
9744	50KA 3sec	1800	Partial type-tested	ASTA
9745	50KA 3sec	3150	Partial type-tested	ASTA
1025	216pK KA 0.1sec	4000	Partial type-tested	BSCTS



BENEFITS

WEESMOD/WEESCAD - *Cutting Edge For Switchboard Mfg*

***Conventional Method of
Production***

***WeesCAD Expert System
Method of Production***

***Conclusion - See
Example***

WEESCAD

WEESMOD

USERS

BENEFIT

**AWARD/
ACHIEVEMENT**

**Where to
obtain info.?**

Home



Exit

BENEFITS

WEESMOD/WEESCAD - Cutting Edge For Switchboard Mfg

Conventional Method of Production

- Manual design even with CAD help
- Cubicle fabrication (welding method)
- Assembly
- Painting
- Busbar fabrication (piece work)
- Electrical wiring
- Testing

BENEFITS

WEESMOD/WEESCAD - Cutting Edge For Switchboard Mfg

WeesCAD Expert System Method of Production

- By reducing from 7 stages to 4 stages:
 - ◆ Manual design with CAD - WeesCAD
 - ◆ Cubicle Fabrication - WeesMOD
 - ◆ Painting - WeesMOD
 - ◆ Busbar Fabrication - WeesCAD

WEESMOD

***CKD Form for Electrical
Switchboard Metal Frame***

Introduction

Outstanding Features

WeesMod Catalogue

WEESCAD

WEESMOD

USERS

BENEFIT

AWARD/
ACHIEVEMENT

Where to
obtain info.?

Home



Exit

INTRODUCTION

WEESMOD - CKD Form for Electrical Switchboard Metal Frame

was initiated by a group of professional engineers headed by an experienced designer who have altogether successfully developed an unique and versatile modular system electrical powered in switchboard fabrication for all applications.

The concept of the initial design specializes on the corners which are made of standard steel with precision investment casting, thus eliminating the need to weld structures. Only one type of corner is utilized for the left and right side of the cubicle.

Specially designed, heavy-duty hidden hinges enable the doors to operate on flush mounted.

Universal Busbar support is required to cover rating from 800 ~ 4500 Amp, with interrupting capacity from 36 ~ 80 kA, 1 or 3 sec.. Certified by ASTA

OUTSTANDING FEATURES

WEESMOD - CKD Form for Electrical Switchboard Metal Frame

- ↪ A versatile and flexible (knockdown) modular system which allows for extension to meet any requirements.
- ↪ Structures are engineered to meet standard of IEC439 form 1 to 4. Up to 600V AC 50 ~ 60 Hz.
- ↪ Medium and Low Voltage Switchboards.
- ↪ Motor Control Centres (withdrawable or fixed).
- ↪ Generator control Panels.
- ↪ All kinds of Land and Marine Switchboards.
- ↪ 19" equipment racks.

OUTSTANDING FEATURES

WEESMOD - CKD Form for Electrical Switchboard Metal Frame

- ✚ Incorporating a sophisticated busbar structure to withstand a higher fault level up to 80kA certified and tested by ASTA for full compliance to BS 5486/IEC 439.
- ✚ Sturdily constructed to absorb the impact in the most rugged environments.
- ✚ Aesthetically well prescribed flush-mounted doors with hidden heavy-duty specially designed hinges to enable doors with an opening 90° or 120°.
- ✚ Built with various combinations to adapt to all environments, such as front door/cover - IEC 529 Index code up to IP 45.
- ✚ Treated with epoxy powder paint to prevent rust and other damages caused by atmospheric conditions.

WeesMod Catalogue

WEESMOD - CKD Form for Electrical Switchboard Metal Frame

**Typical Electrical
Power Switchboard
(Type-Tested).
Design Accordance
to IEC439 / BS5486
Requirement. Form
III. 50kA 3sec.
Ambient
Temperature 35°C
415 Volts.**



Main Structure

Internal Bracket

Door

**Busbar Support &
Accessories**

**WeesMod Main
Menu**

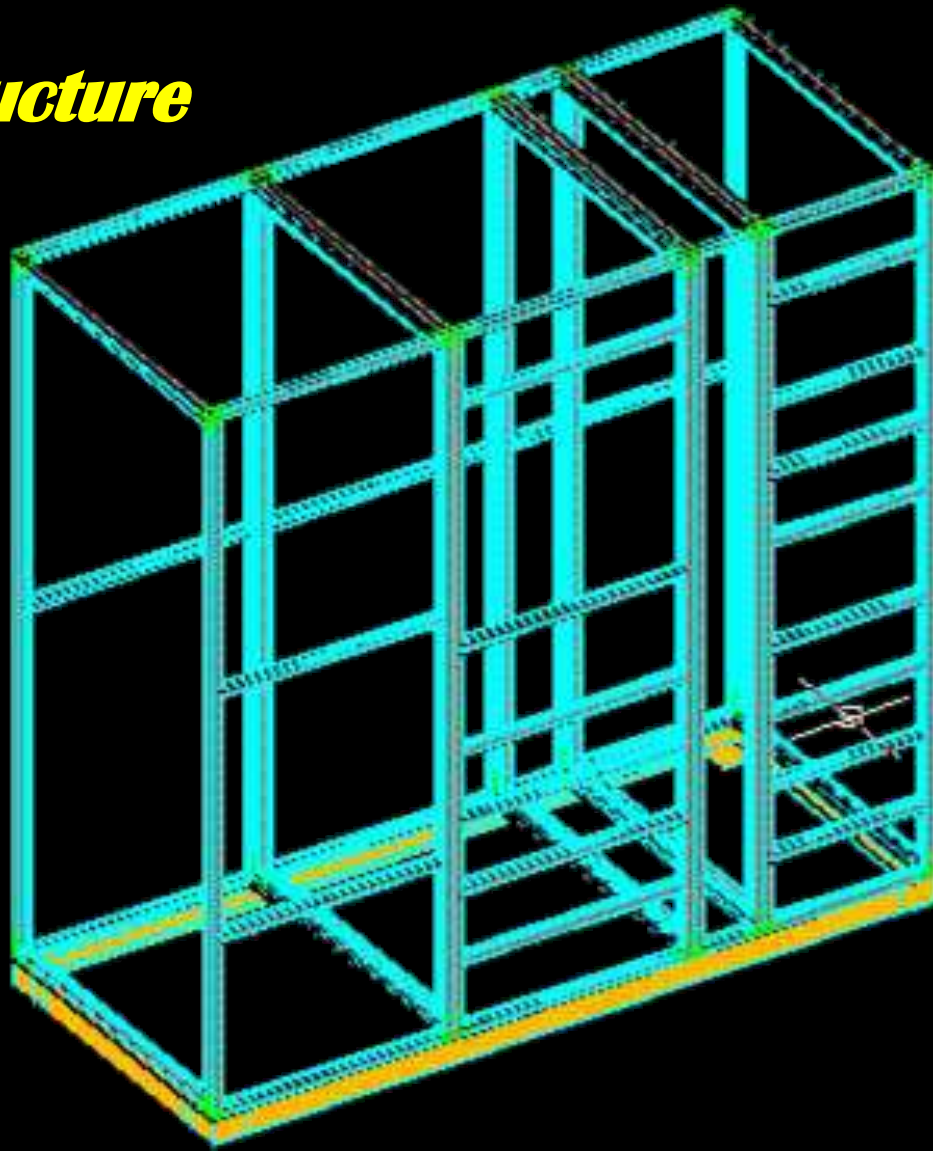
Introduction

**Outstanding
Features**

**WeesMod
Catalogue**

WeesMod Catalogue

Main Structure



Main Structure

Internal Bracket

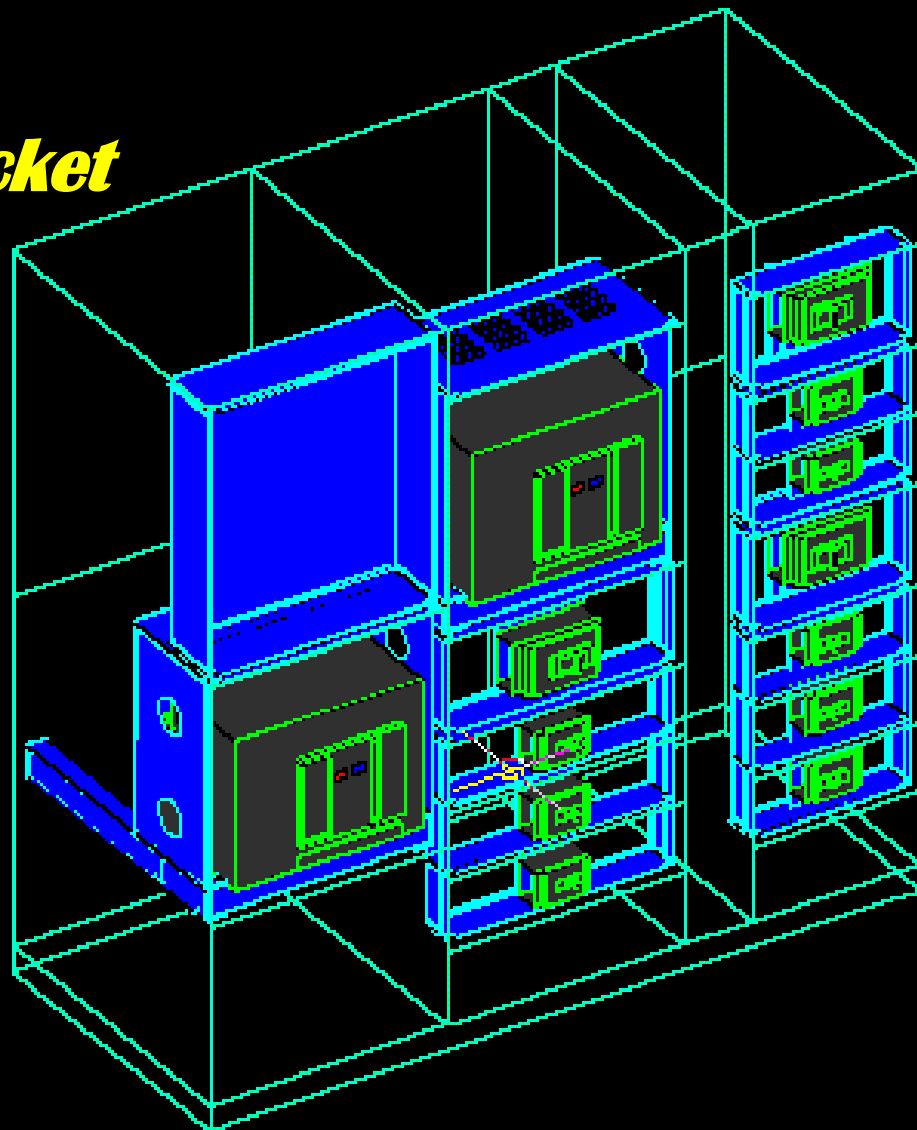
Door

**Busbar Support &
Accessories**

**Catalogue
Main Menu**

WeesMod Catalogue

Internal Bracket



Main Structure

Internal Bracket

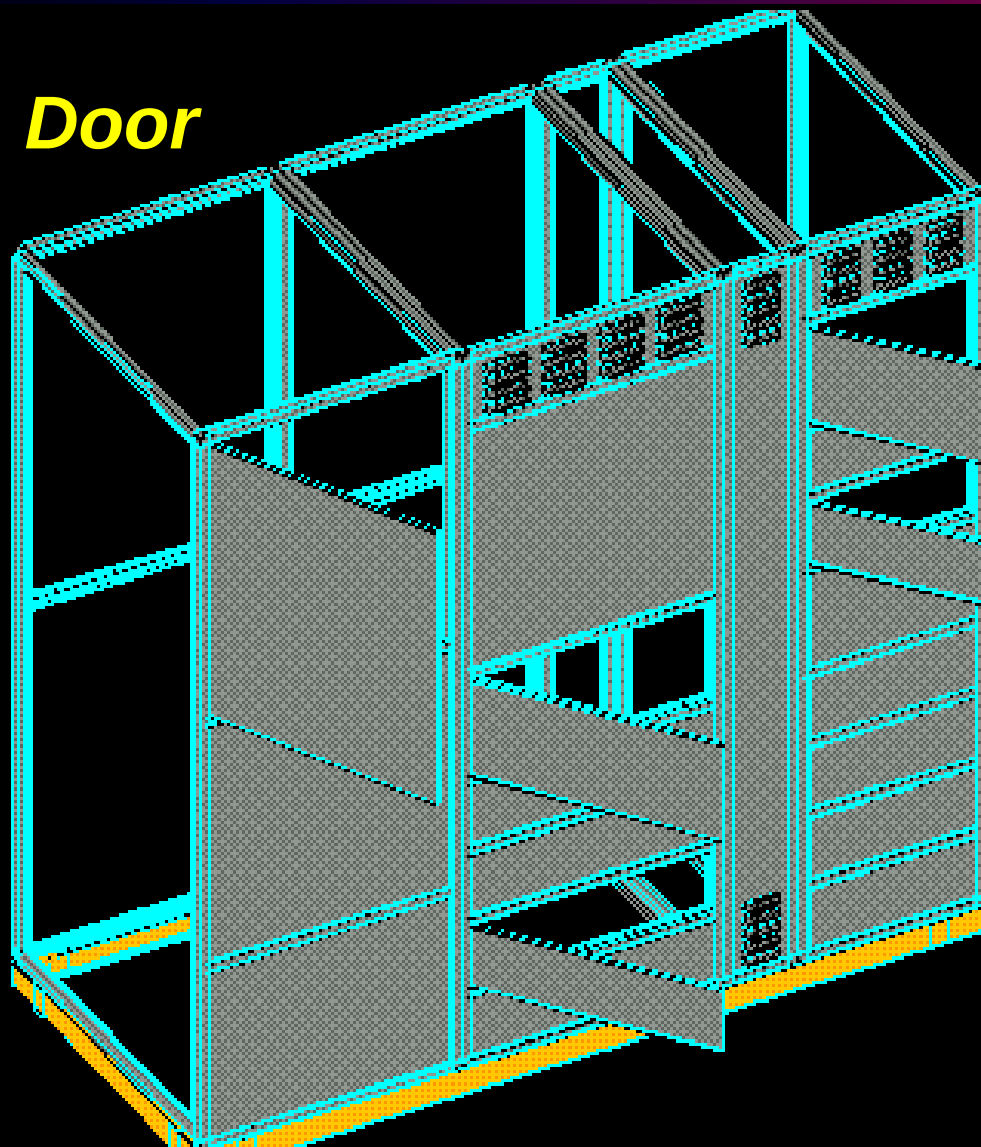
Door

Busbar Support &
Accessories

Catalogue
Main Menu

WeesMod Catalogue

Door



Main Structure

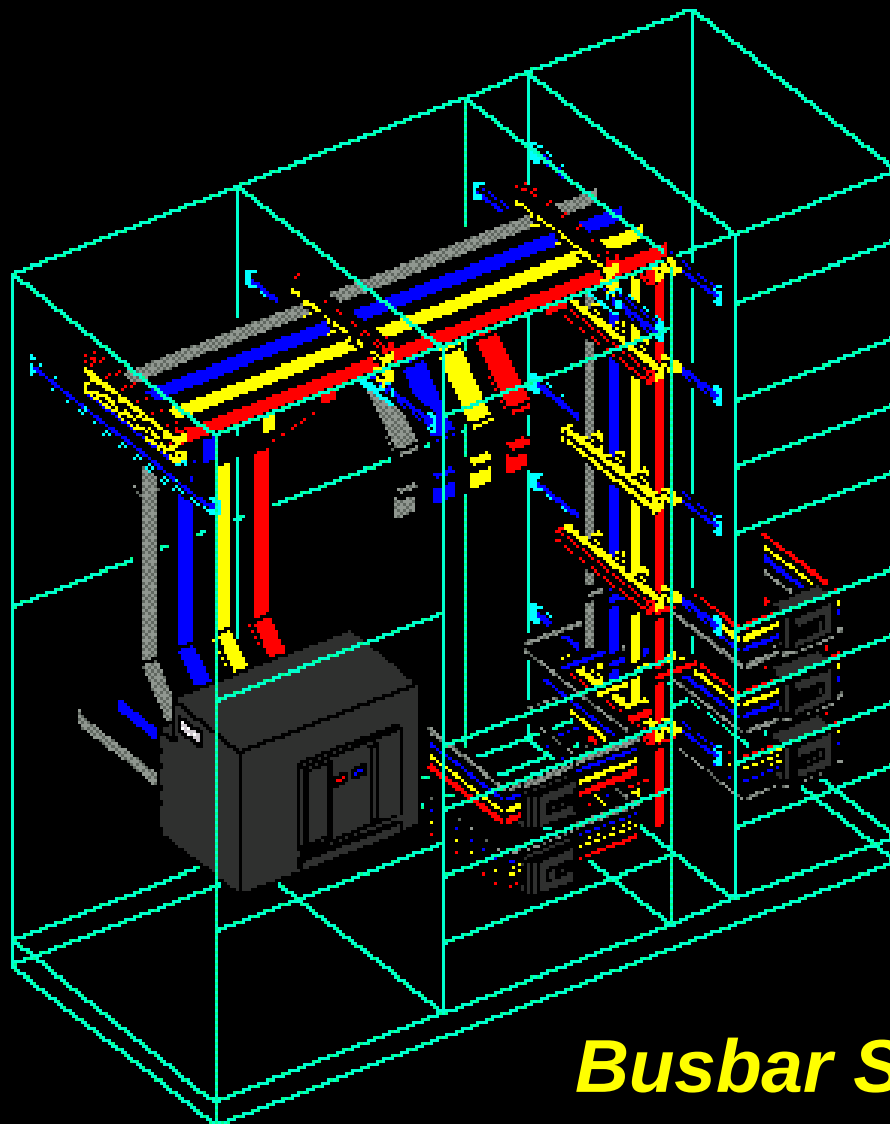
Internal Bracket

Door

Busbar Support &
Accessories

Catalogue
Main Menu

WeesMod Catalogue



Main Structure

Internal Bracket

Door

**Busbar Support &
Accessories**

**Catalogue
Main Menu**

Busbar Support & Access

WEESCAD

***State of Art in Manufacturing of
LV Electrical Power Switchboard***

Introduction

Advantages

Module

Operating System

WEESCAD

WEESMOD

USERS

BENEFIT

**AWARD/
ACHIEVEMENT**

**Where to
obtain info.?**

Home



Exit

INTRODUCTION...

WEESCAD - State of Art in Manufacturing of LV Electrical Power Switchboard

Our establishment has been in the switchboard manufacturing business for the past 20 years. Through many years of Research & Development, finally we have successfully solved numerous manual problems by applying software with built-in Artificial Intelligence.

In the early 1980's the first software package was operated on the Work Station only with 2D graphic for in house use.

Recently, we have perfected a new version of WeesCAD operating on a PC base and a 3D graphic with the aids of AutoCAD drafting software to cater for the user.

**WeeCad Main
Menu**

Introduction

**Operating
System**

Module

Advantages

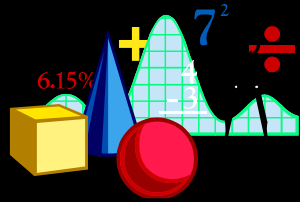
INTRODUCTION...

WEESCAD - *State of Art in Manufacturing of LV Electrical Power Switchboard*

WEESCAD - software package is the ULTIMATE answer to automate and resolve all your manufacturing problems. WeesCAD Built in features includes:

- ↗ Flawless Quantity Estimation
- ↗ Artificial Intelligence Design
- ↗ Brilliant visual Presentation
- ↗ Unique Costing System
- ↗ Lower Drafting & Production Cost
- ↗ Optimization Techniques Employed
- ↗ Uniform Documentation & Record (ISO)
- ↗ Standardization of All Metal Parts

WEESCAD - Advantages...



***Estimation &
Quotation***



Financing

***Management &
Products***



**WeeCad Main
Menu**

Introduction

**Operating
System**

Module

Advantages

WEESCAD - Advantages...

Estimation & Quotation

Problems faced during the estimation and quotation period can be solved by WeesCAD. WeesCAD is able to transform the single line and technical specification into a 3D drawing with built-in accurate detailed costing such as:

- ↙ Master list of material, Structure, Bus-bar, Electrical component, Total Man Hour

WeesCAD built-in capacity is able to export all technical specifications to any word processor format for quotation presentation (without Secretarial involvement).

WeesCAD drawings are in 3D for brilliant presentation with full technical details, thereby covering all grey area in the scope of supply.

WEESCAD - Advantages...

Financing

- ↪ There is substantial financing saving in man hour in the following sectors:
- ↪ Drawing/Drafting:
- ↪ Preparation of Quotation/Presentation
- ↪ Fabricating bus-bar (mass production)
- ↪ Electrical components can be purchased in the later stage of the manufacturing process (applying just-in-time formula).

WEESCAD - Advantages...

Management & Products

Problems faced by the management and production department can be solved by WeesCAD as follows:

- Avoiding differences between estimated and actual production operated.
- WeesCAD software list and bills of materials data base covering man hour, copper, electrical component and profit margin are only accessible by authorized personnel with security code. With this facilities, it can prevent a sale personnel from under quoting the project.
- WeesCAD software with built-in 3D details construction can even show bus-bar arrangement and manufacturing drawing together with electrical component. With that information, we are able to fabricate bus-bar in advance without the help of the electrical components such as ACB, MCCB in present. All electrical component are only required at the latest stage when switchboards are ready for delivery.

WEESCAD - Advantages...

Management & Products

- WeesCAD software provides all detailed drawings for bus-bar fabrication. It therefore enables manufacturer to minimize wastage on copper bus-bar. It is also able to fabricate bus-bar on a mass production basis.
- WeesCAD software provides labour hour spent on all the component installation and bus-bar fabrication. This therefore allows the management to monitor at any stages the progress of the job. Once this method of productivity is monitored, workers idling time can be prevented.
- WeesCAD software provides all necessary quality control and specifications for easy submission to meet ISO requirements.

WEESCAD - Modules...

(Standard module is 2001 the rest are add on package).

Introduction

Operating System

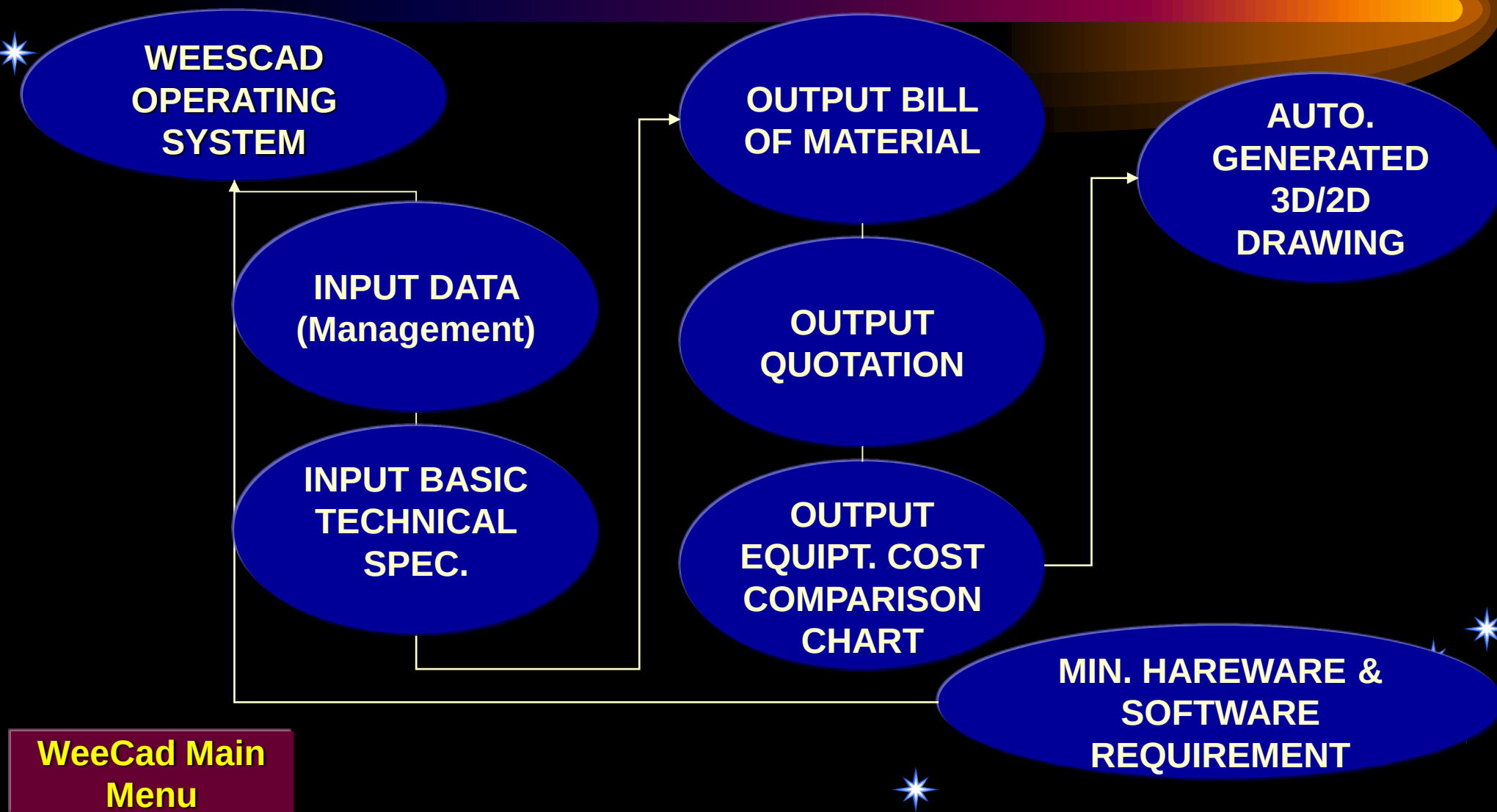
Module

Advantages

WeeCad Main Menu

	Max. 2 INCOMING	Max. 3 INCOMING	Max. 4 INCOMING
Incoming	2001	3001	4001
Type Tested Design According to IEC 439			
Form III..IV Module			
Basic Drawing Module			
- Main General Arrangement c/w busbar			
- 2D Layout			
- 3D Cubicle Arrangement			
Bill of Materials (WeesMod's Parts)			
<u>ADD ON PACKAGE</u>			
ATS Module	2002	3002	4002
Capacitor	2003	3003	4003
Form I..II Module	2004	3004	4004
Space Constraint	2005	3005	4005
Vertical Mounting Module	2006	3006	4006
Ottermill Compatibility Pack	2007	3007	4007
User Specification Module	2008	3008	4008
Quotation Module	2009	3009	4009
Management Chart Information Module	2010	3010	4010
Costing Module	2011	3011	4011
- Bill of Materials (Busbar)			
- Bill of Materials (Equipment)			
- Database and Setting			
Single Line Module	2012	3012	4012
Busbar Module	2013	3013	4013
- Individual Busbar			
- Busbar Fabrication Information			

WEESCAD - Operating Systems...



Over View WeesCad Operating System...

**Operating
System**

Input Data

**Basic Tech
Spec.**

**Output
Quotation**

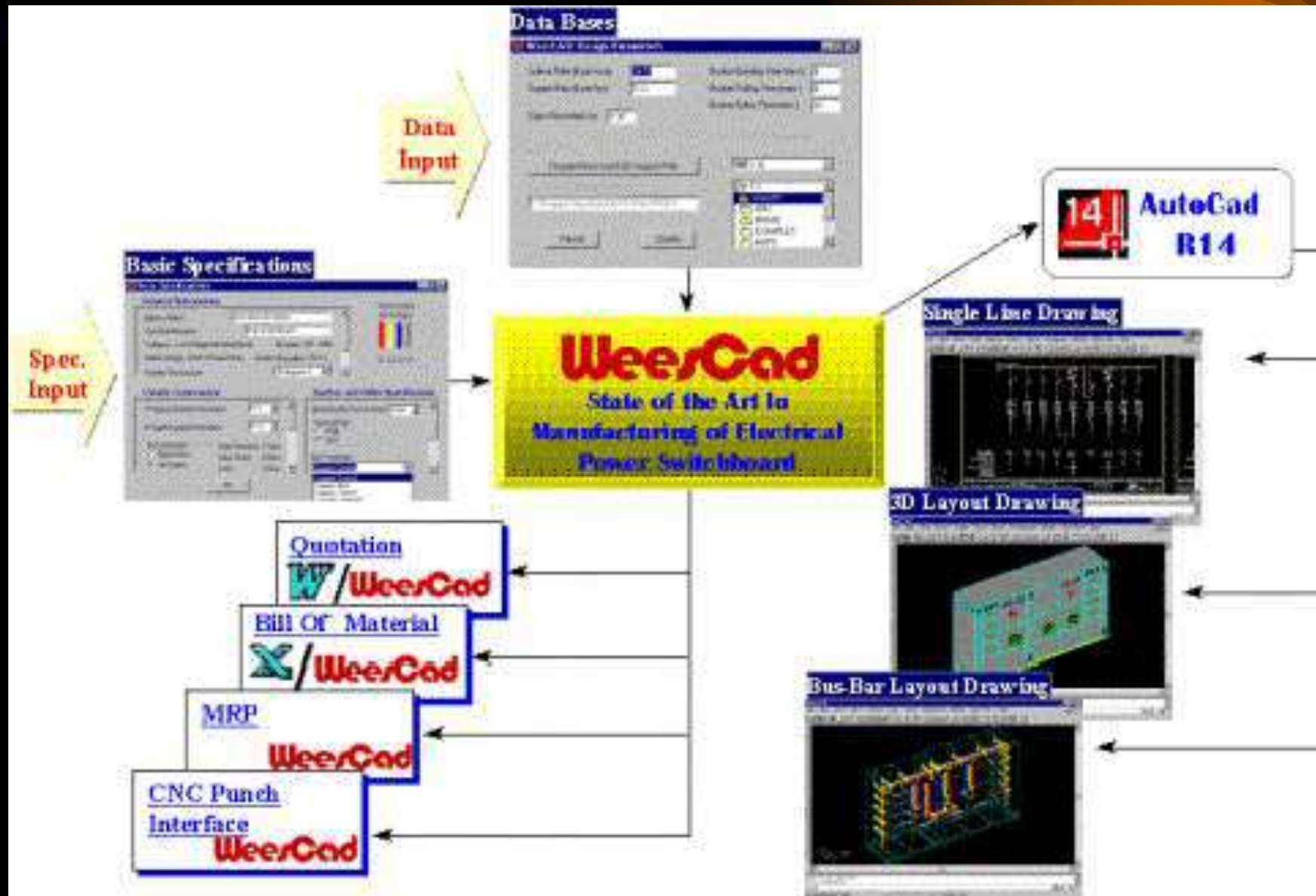
**Output Bill of
Material**

**Output Cost
Comparison**

**Auto Gen.
3D/2D**

**Min.
Requirement**

**WeeCad Main
Menu**



OPERATING SYSTEM - INPUT DATA (Management)

WeesCAD Design Parameters

Labour Rate (\$ per hour)

Busbar Bending Time (mins.)

Copper Rate (\$ per kg.)

Busbar Cutting Time (mins.)

Sales Price Mark Up

Busbar Splice Time (mins.)

Change/Reset AutoCAD Support Path

Current AutoCAD Support Path

c: []

C:\
WEESCAD2
DBASE
EXAMPLES
MAPS
PARTS

Cancel

Confirm

Operating
System

Input Data

Basic Tech
Spec.

Output
Quotation

Output Bill of
Material

Output Cost
Comparison

Auto Gen.
3D/2D

Min.
Requirement

WeeCad Main
Menu

OPERATING SYSTEM - Input Basic Technical Spec. (1)

Operating
System

Input Data

Basic Tech
Spec.

Output
Quotation

Output Bill of
Material

Output Cost
Comparison

Auto Gen.
3D/2D

Min.
Requirement

WeeCad Main
Menu

Basic Specifications

General Information

Name of Client

IVE DEVELOPER TECHNOLOGIES

Panel Identification

MAIN DISTRIBUTION PANEL

Category : Low Voltage Electrical Panel

Standard : IEC - 439

Rated Voltage : 415V 3 Phase 50 Hz

System Grounding : TN & S

Ambient Temperature

35 degrees

Front to Back

Left to Right

L1 L2 L3 N

Cubicle Construction

IP Against Liquid Penetration

IP x3

Door Operation

☐ Right Opens

☒ Left Opens

Main Structure : 2.0mm

Base Frame : 2.0mm

Door : 2.0mm

Panel and Cover Thickness

2.0 mm

OK

Busbar and Other Specifications

Main Busbar Size (in Amps)

3200

Neutral Size

☐ Half

☒ Full

Bar Treatment

Copper Coated

Copper Coated

Copper Bare

Copper Tinned

Copper Sleeved

OPERATING SYSTEM - Input Basic Technical Spec. (2)

Characteristic
and a typical
Incoming/
Outgoing
Feeder

Incoming Feeder - Line Configuration

Line Description: Incoming Feeder 1
Similar to: nil

Power Grid Comp.
☒ No
☐ Yes

Repetition
☒ Different (enter new data)
☐ Similar (use previous data)

Disconnecter Configuration
ACB 3P Drawout

AE: 3200 AI: 0

Disconnecter Properties
Operation: Manual
Accessory: Shunt

Meters
☒ Voltmeter
☐ Single Ammeter
☒ Three Ammeters
☐ Frequency
☐ Kilowatt
☐ Hour Run
☐ Kilowatt Hour
☐ Kvar
☐ Power Factor

Over Current
☐ nil
☐ OC - DTL
☒ OC - IDMTL
☐ OC - Solid State

Earth Fault
☐ nil
☐ ELR
☐ EF - DTL
☒ EF - IDMTL
☐ EF - Solid State

Protection CT (VA): 15
Protection CT Class: 5 P 5
Metering CT (VA): 5
Metering CT Class: 0.5
Status Lamps: On - Off
Phase Lamps: 2 Set of 3

Other Relays: nil
Volt. Selector Sw.: 4 Position
Entry Pt./Type: top, busduct
Remarks:

Navigation: < >

Buttons: Confirm This and Exit, Cancel This and Exit

OPERATING SYSTEM - Output Quotation

Operating
System

Input Data

Basic Tech
Spec.

Output
Quotation

Output Bill of
Material

Output Cost
Comparison

Auto Gen.
3D/2D

Min.
Requirement

WeeCad Main
Menu

userspec.doc

1. General Information

Name of Client : INNOVATIVE DEVELOPER TECHNOLOGIES
Panel Identification : MAIN DISTRIBUTION PANEL
Category : Low Voltage Electrical Panel
Standard : IEC 439
Rated Voltage : 380V 3Phase 50Hz
System Grounding : TN-S
Type of Switchboard : Main Distribution Board
Ambient Temperature : 35 degrees C
Separation Form : FORM3: Comp., BarExps.
Fault Level : 36 kA 3sec.

2. Cubicle Construction

IP Against Particle Penetration : IP 2
IP Against Liquid Penetration : IP x3
Door Operation : Left Opens
Main Structure Thickness : 2.0 mm
Door Thickness : 2.0 mm
Base Frame Thickness : 2.5 mm
Panel & Cover Thickness : 2.0 mm
Accessibility : Front Door/Rear Cover
Space Constraint : Use Normal Height
Type of Design : Full Type Tested Design

OPERATING SYSTEM - Output Bill of Materials

Operating System

Input Data

Basic Tech Spec.

Output Quotation

Output Bill of Material

Output Cost Comparison

Auto Gen. 3D/2D

Min. Requirement

WeeCad Main Menu

	A	B	C	D	E	F	G	H	I	J
47		MG-00042	4P ACB 1600AF Drawout	1.000	pcs	\$6,751.00	150.00	60		
48		MG-00102	3P MCCB 100AF Fixed	1.000	pcs	\$132.00	1.60	20		
49		MG-00120	3P MCCB 400AF Fixed	1.000	pcs	\$420.00	6.00	20		
50		MG-00125	3P MCCB 630AF Fixed	1.000	pcs	\$470.50	6.00	20		
51		BL-41170	Volt Selector Sw.	1.000	pcs	\$100.00	1.00	30		
52		CR-31610	Ammeter	3.000	pcs	\$297.00	3.00	30		
53		CR-34610	Voltmeter	1.000	pcs	\$99.00	1.00	10		
54		IZ-42132	Indicating Light R	2.000	pcs	\$0.00	0.00	0		
55		IZ-42232	Indicating Light Y	2.000	pcs	\$0.00	0.00	0		
56		IZ-42332	Indicating Light B	2.000	pcs	\$0.00	0.00	0		
57										
58			Busbar Bends	80.000	nos.			480		
59			Busbar Cuts	110.000	nos.			660		
60			Busbar Splices	0.000	nos.			0		
61										
62						\$17,336.73	797.85	2547		
63										
64			SwitchBoard Dimension : 1600W x 900D x 2025H							
65			Material Cost of SwitchBoard : \$17336.73							
66			Total Weight of SwitchBoard : 797.8 kgs.							
67			Total Time to Build SwitchBoard : 42.5 hrs.							
68			Labour Cost of SwitchBoard : \$ 1048.52							
69			Grand Total Cost of SwitchBoard : \$ 18385.25							
70										

OPERATING SYSTEM - Output Equipment Cost Comparison

Master Material List

Notes :

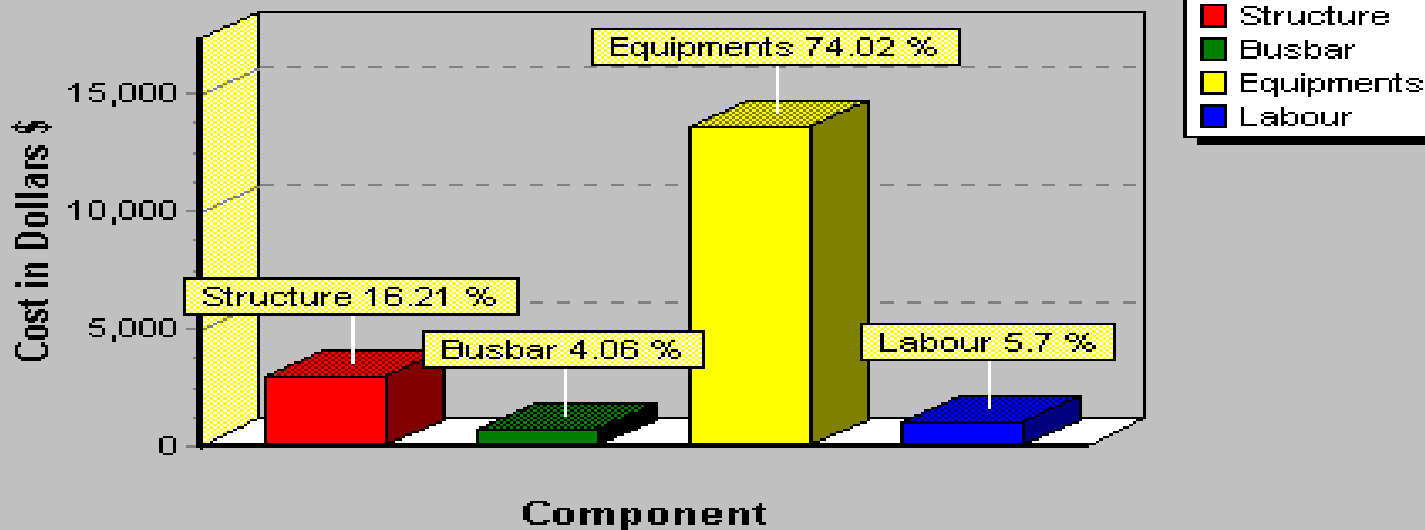
Execute Microsoft Excel to generate materials list.
Ensure no other Excel Applications are running before proceeding.
You may format this "raw" form to suit your own needs.
View this document in the Microsoft Excel Interface

Activate Microsoft Excel for Material List

Exit

☒ Show Cost Comparisons

Comparison of Costs



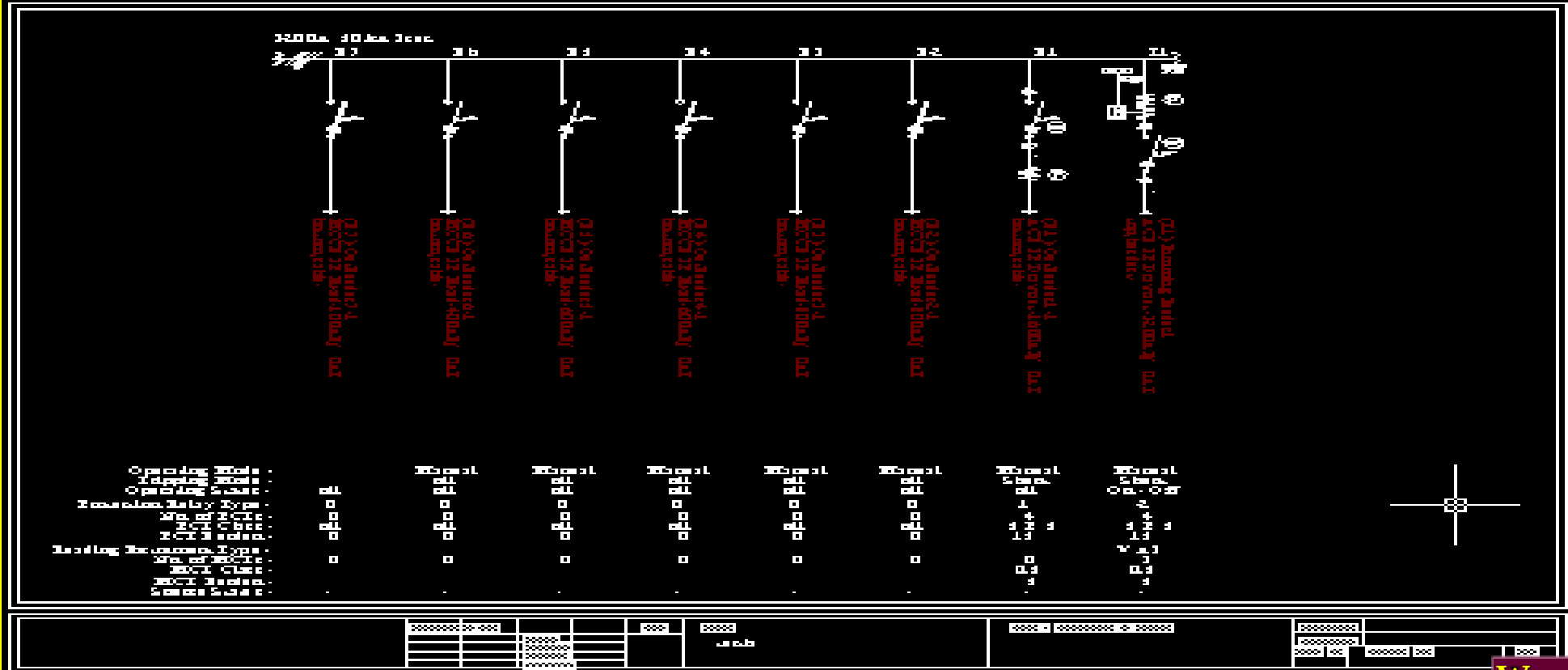
OPERATING SYSTEM - Auto. Generated 3D/2D

-  **Operating System**
- Input Data**
- Basic Tech Spec.**
- Output Quotation**
- Output Bill of Material**
- Output Cost Comparison**
- Auto Gen. 3D/2D**
- Min. Requirement**
- WeeCad Main Menu**

 Single Line	 2D Layout & Dimension	<u>Terminal View</u>
 Busbar Fabrication	 2D Front Cover	 Front View
 3D Full Layout	 2D Base Marking	 Back View
 3D Frame Layout	 2D Busbar Equipment	 Top View
 3D Door Layout	 2D Busbar Support	
 3D Inner Mounting		
 3D Busbar Only		
 3D Back/Top/Side Cover		

OPERATING SYSTEM - Auto. Generated 3D/2D

Single Line Drawing.....



Single Line Drawing

Busbar Fabrication

3D Full Layout

3D Inner Mounting

3D Busbar Only

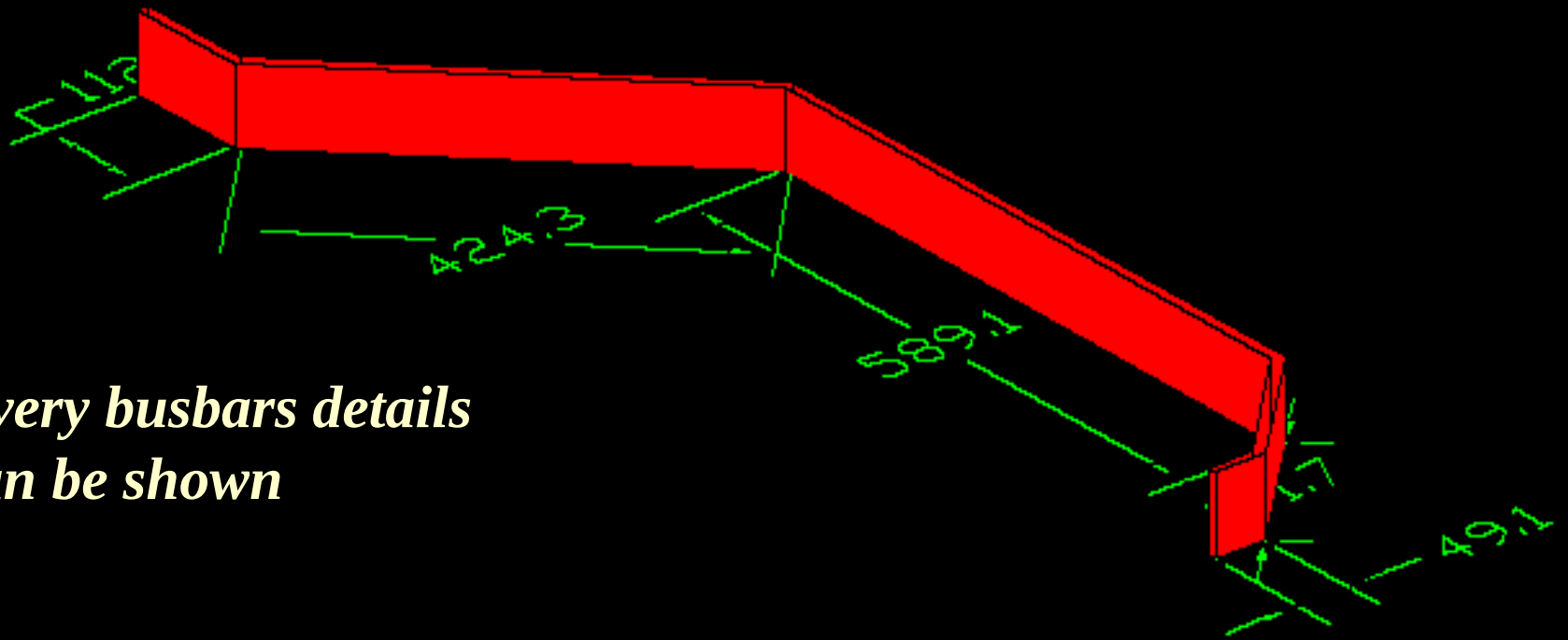
2D Layout & Dimension

Terminal Top View

WeesCad Main Menu

OPERATING SYSTEM - Auto. Generated 3D/2D

Busbar Fabrications.....



*Every busbars details
can be shown*

Single Line
Drawing

**Busbar
Fabrication**

3D Full
Layout

3D Inner
Mounting

3D Busbar
Only

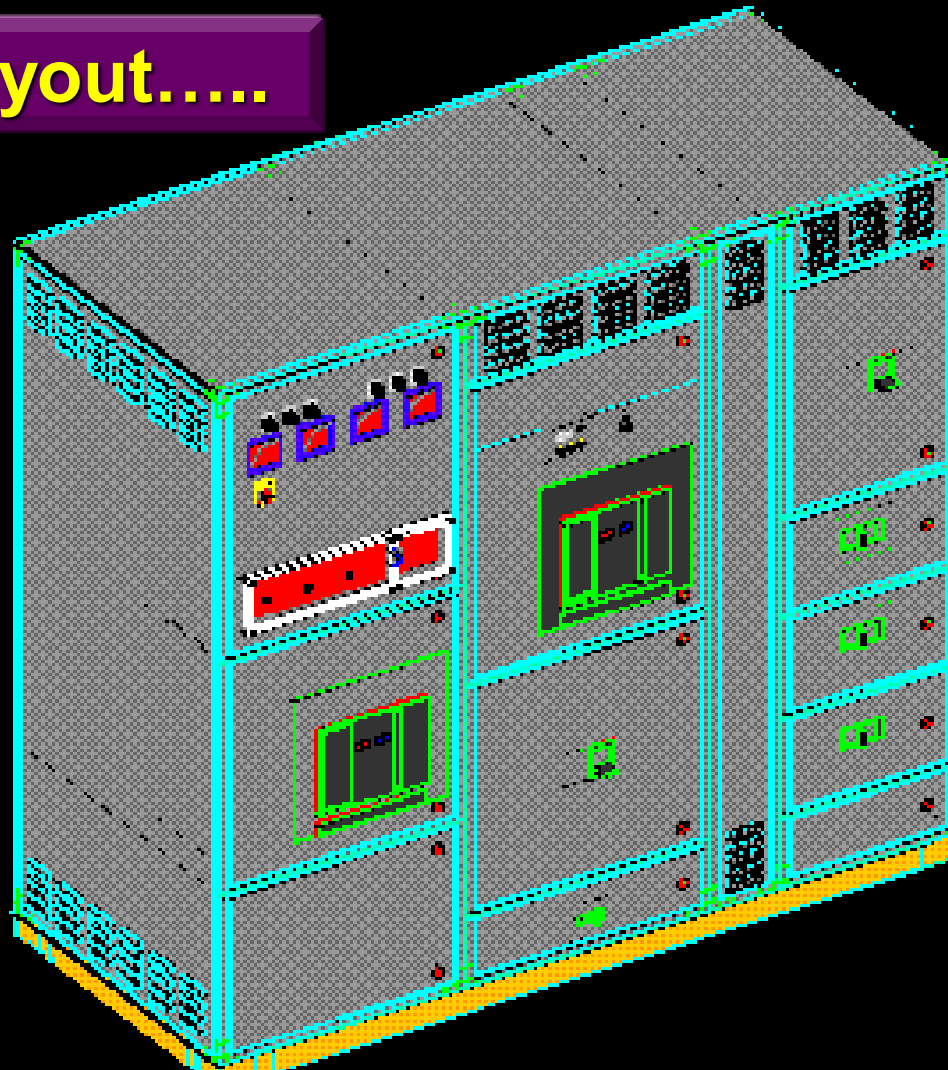
2D Layout &
Dimension

Terminal
Top View

**WeesCad
Main
Menu**

OPERATING SYSTEM - Auto. Generated 3D/2D

3D Full Layout.....



Single Line
Drawing

Busbar
Fabrication

**3D Full
Layout**

3D Inner
Mounting

3D Busbar
Only

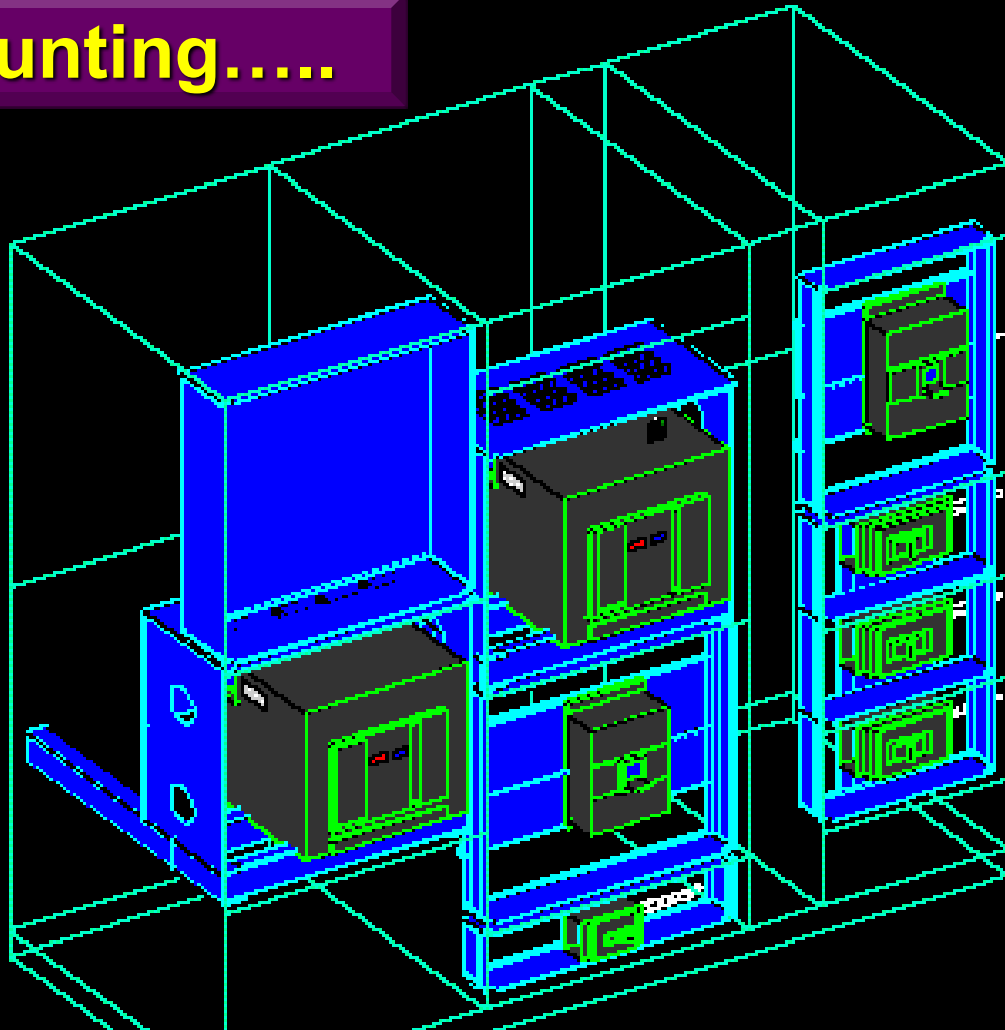
2D Layout &
Dimension

Terminal
Top View

WeesCad
Main
Menu

OPERATING SYSTEM - Auto. Generated 3D/2D

Internal Mounting.....



Single Line
Drawing

Busbar
Fabrication

3D Full
Layout

**3D Inner
Mounting**

3D Busbar
Only

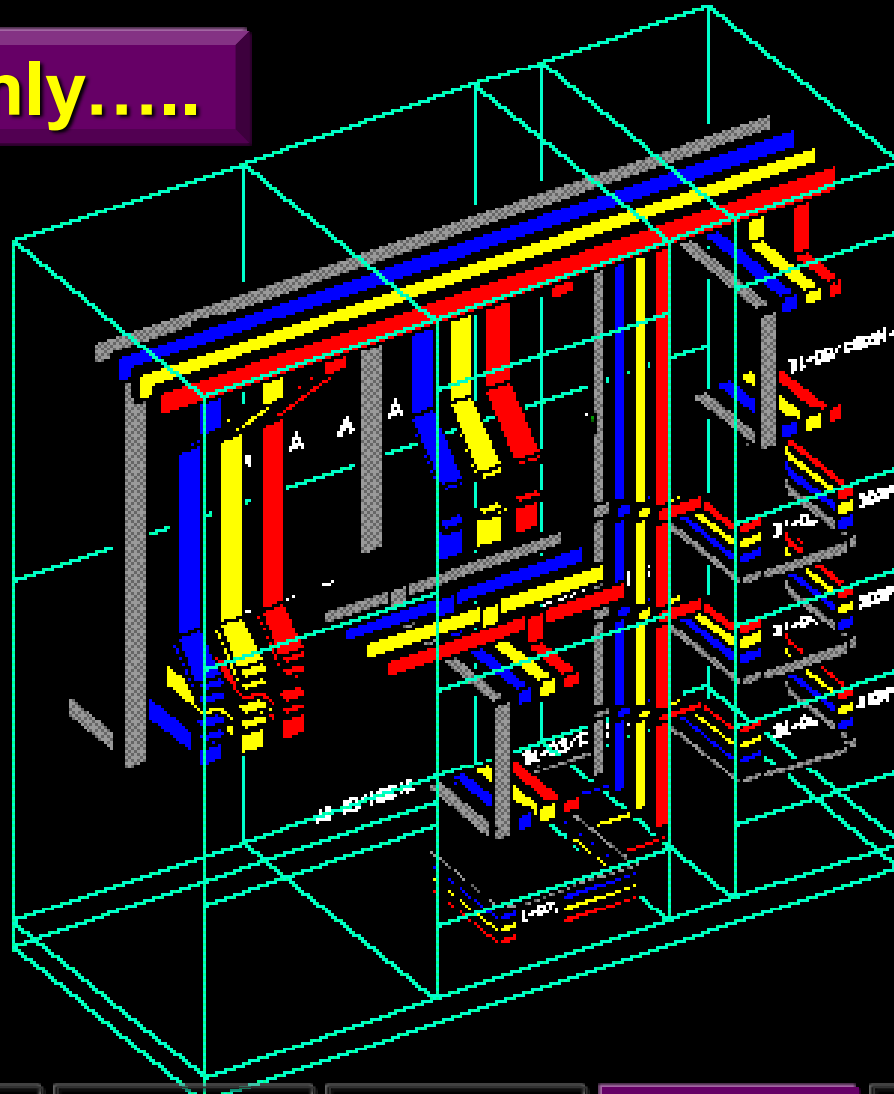
2D Layout &
Dimension

Terminal
Top View

WeesCad
Main
Menu

OPERATING SYSTEM - Auto. Generated 3D/2D

Busbar Only.....



Single Line
Drawing

Busbar
Fabrication

3D Full
Layout

3D Inner
Mounting

**3D Busbar
Only**

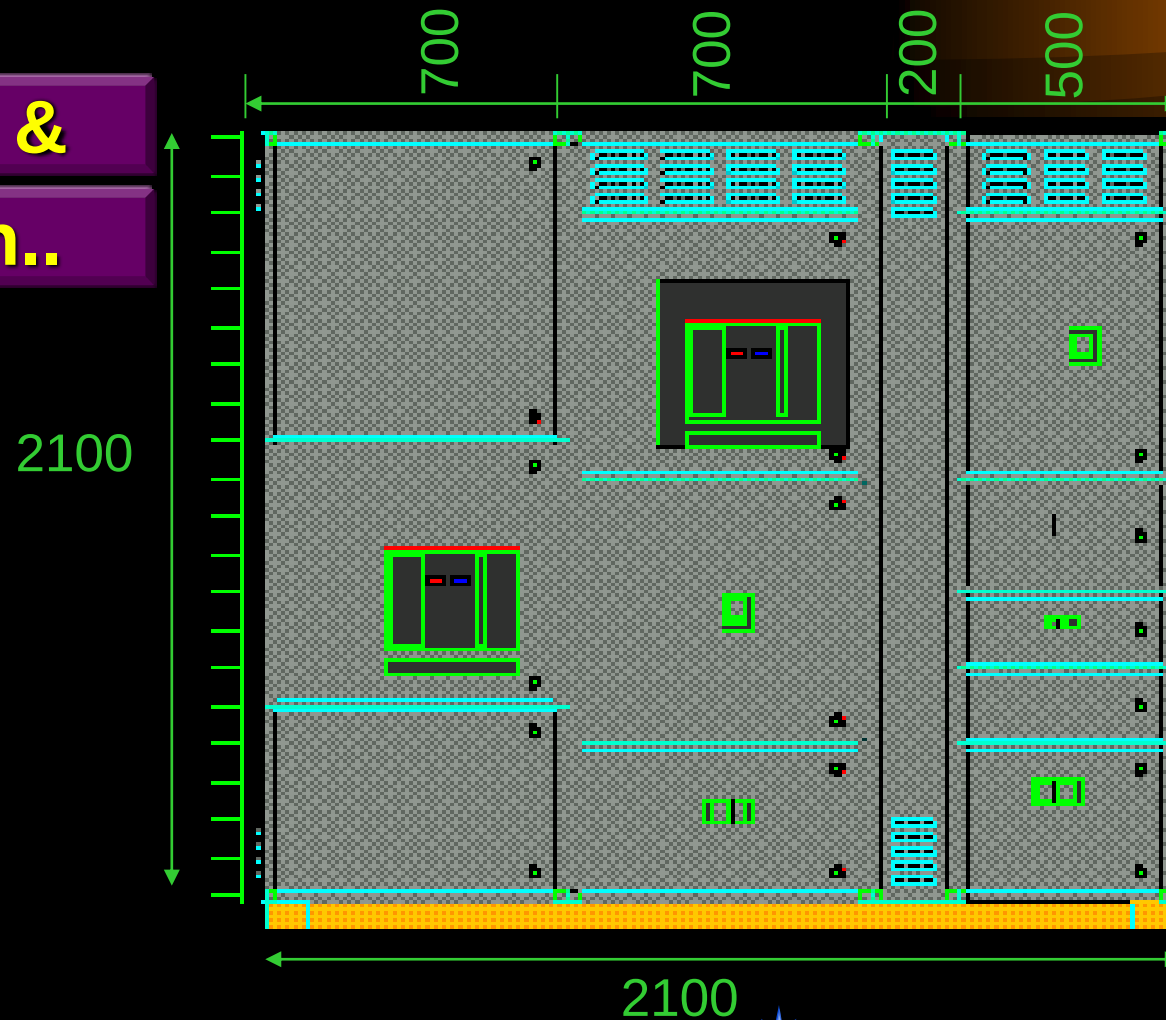
2D Layout &
Dimension

Terminal
Top View

WeesCad
Main
Menu

OPERATING SYSTEM - Auto. Generated 3D/2D

2D Layout & Dimension..



Single Line
Drawing

Busbar
Fabrication

3D Full
Layout

3D Inner
Mounting

3D Busbar
Only

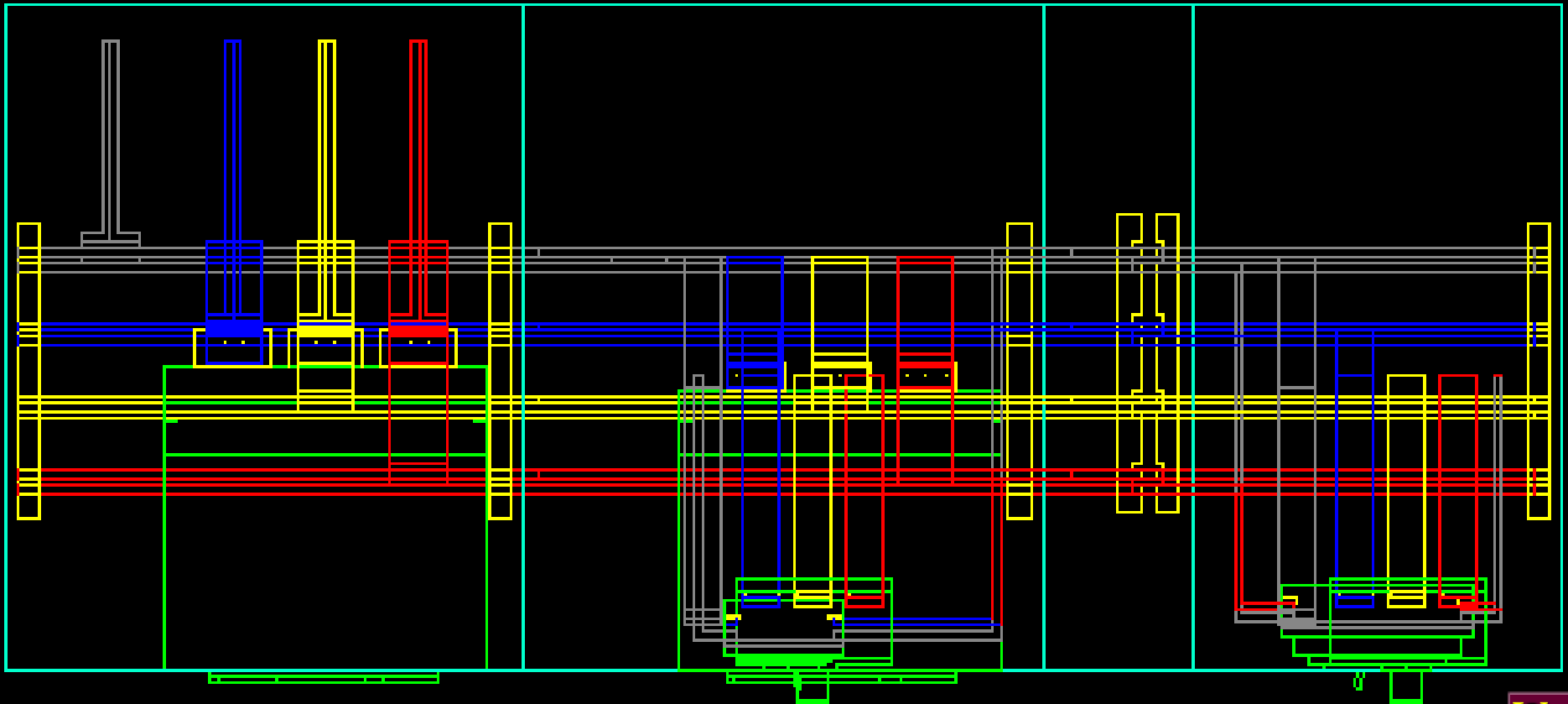
**2D Layout &
Dimension**

Terminal
Top View

WeesCad
Main
Menu

OPERATING SYSTEM - Auto. Generated 3D/2D

Terminal View - Top View.....



**Single Line
Drawing**

**Busbar
Fabrication**

**3D Full
Layout**

**3D Inner
Mounting**

**3D Busbar
Only**

**2D Layout &
Dimension**

**Terminal Top
View**

**WeesCae
Main
Menu**

WEESCAD - Min. Hardware & Software Requirement

Operating
System

Input Data

Basic Tech
Spec.

Output
Quotation

Output Bill of
Material

Output Cost
Comparison

Auto Gen.
3D/2D

**Min.
Requirement**

**WeesCad
Main Menu**

- ◆ Windows 95
- ◆ 64K Ram
- ◆ AutoCAD R14
- ◆ Office 95
- ◆ Pentium 200 MMX or Higher
- ◆ 10MB Hard Disk Space
- ◆ Monitor Min. Resolution 600 x 800



Where to Obtain More Information?...



We welcome any enquiries that you may have.....



Hi!!.. My name is John Yeo.

We provide the following services:-

- ☞ We can help you get started as a switchboard manufacturer.**
- ☞ If you are already a switchboard manufacturer, we can provide “**Type Test Technology**” for you.**
- ☞ We can streamline your existing production from the conventional 7 processes to 3 processes, namely **Assembly, Wiring, Testing**.**

Let us know the product(s) you are interested in or would like to have more information on:



WeesMod



WeesCad Rel. 2

- Type Tested Complete Knock Down Structure.**
- Artificial Intelligence Software**



Our contact information is as follows:

Innovative Developer Technologies (S) Pte Ltd

Mailing Address:

Bukit Timah Post Office

P.O. BOX 306, Singapore 915811

Tel No. (65) 773 6606 / Fax No. 774 6606

e-mail : idt@pacific.net.sg

WEESCAD

WEESMOD

USERS

BENEFIT

**AWARD/
ACHIEVEMENT**

**Where to
obtain info.?**

Home



Exit

USER - Switchboard Mfg.

Problems Facing Conventional Method

QUALITY CONTROL PROBLEMS

- No uniformity in design & fabrications
- Unable to fulfill short circuit requirement
- Unable to determine temperature rise
- Human error & non-standard production cases poor quality

**SwitchBoard
Mfg. Main Page**

**Design & Est.
Problems**

**Manufacturing
Problems**

**Financial control
Problem**

**Quality control
Problems**

Solution

BENEFIT - Conclusion

BENEFIT
MAIN MENU

Expert System
Method
of Production

Conventional
Method of
Production

Sample Data Given :

2 Incoming feeders of 1.5 MVA 380/3/50 Hz transformer & 29nos. Outgoing feeders, no. coupler, power electrical switchboard built according to IEC 429 to withstand 50KA, form III, ambient temperature 35°C complete with standard reading and protection equipment.

QUOTATION & ESTIMATION

Conventional Method

Vs

We's Technology

<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>Result</u>
Design 2D/Estimation/Typing	=	Conceptional Design	

Accuracy in Estimating The Project

Electrical component	=	90%
Switchboard Structure	=	80%
Bus-bar (Cooper)	=	75%
Labour time spent	=	70%
Miscellaneous	=	90%
% of accuracy	405/500	= <u>81%</u>

Type of personnel required

*Min. Yrs Experience

- Designer	3 yrs
- Estimator	2 yrs
- Skilled Typist	1 yrs

*Experience in their filed of work

Labour time spent

Design 2D/Estimation/Typing	Total
8hrs 2hrs 0.5hrs	= <u>10.5 hrs</u>

Cost of personnel

Technician = S\$50.00/hr x 10	=	S\$500.00
Typist = S\$20.00/hr x 0.5	=	<u>S\$ 10.00</u>
Total	=	<u>S\$510.00</u>

<u>1st</u>	<u>Result</u>
Spec input/Auto generated mfg data	= Detailed design

Accuracy in Estimating The Project

Electrical component	=	95%
Switchboard Structure	=	100%
Bus-bar (Cooper)	=	98%
Labour time spent	=	95%
Miscellaneous	=	95%
% of accuracy	478/500	= <u>95.6%</u>

Type of personnel required

- General Clerk

Labour time spent

Specification Input	Total
20mins	= <u>20 mins</u>

Cost of personnel

General Clerk	=	<u>S\$ 6.60</u>
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BENEFIT-Conclusion

BENEFIT
MAIN MENU

Expert System
Method
of Production

Conventional
Method of
Production

Manufacturing Process

Conventional Method

Vs

We's Technology

Detailed Drawing For Manufacturing

Single drawing
2D shop drawing
2D component layout

Type of personnel required

Designer

*Min. Yrs Experience

3 years

(*Experience in their field of work)

Labour tune & cost spent

Design 2D (S\$)
40hrs x S\$50.00/hr 2,000.00

Cubicle Fabrication

Main structure (steel sheet) 1,500.00
Internal bracket (steel sheet) 500.00
Powder Spray (material) 260.00
10% Wastage 260.00

Labour time & cost spent (Skilled labour covering)

Main-structure & internal bracket
- 4man x 8hrs x 5days x \$25.00/hr 4,000.00
Assembly of cubicle & elect. Equipment
- 2man x 8hrs x 2days x \$25.00/hr 800.00

Busbar Fabrication

Busbar + copper wastage 3,000.00

Labour time & cost spent (Skilled labour)

- 2man x 8hrs x 5days x \$25.00/hr 2,000.00
Total cost for design, estimating & mfg. 15,170.00
Total time for design, estimating & mfg. (man/hr) 242.5

Detailed Drawing For Manufacturing

Single drawing
3D shop drawing
3D component layout

Type of personnel required

General Clerk

Labour tune & cost spent

WeesCad automatic generated drawing (S\$)
20mins x S\$20.00/hr 6.60

Cubicle Fabrication Used WeesMod CKD

Main structure & internal parts 4,500.00

Labour time & cost spent

Assembly of cubicle & elect. Equipment
- 2man x 8hrs x 2days x \$25.00/hr 800.00

Busbar Fabrication

Busbar copper 2,800.00
WeesCad busbar waste mgt. system

Labour time & cost spent (Semi-skilled labour)

- 2man x 8hrs x 5days x \$15.00/hr 480.00
Total cost for design, estimating & mfg. 8,593.20
Total time for design, estimating & mfg. (man/hr) 64.66

BENEFITS - Conclusion...

Conclusion:

Assuming other manufacturing process stages are the same, a substantial saving are shown:

	Conventional Method	- We's Tech.	= Saving
Saving in cost of manufacturing =	15,170.00	- 8,593.20	= <u>6,576.80</u>
Saving in time of manufacturing =	242.5	- 64.66	= <u>177.84 man/hr</u>

Conventional Method

We's Technology

Documentation presentation

** *

Accuracy estimation

** *

One stop documentation

** *

Higher productivity

** *

Lower in material wastage

** *

Lower Production cost

** *

Lower inventory financial cost

** *

Fully utilization of floor space

** *

Better quality/uniform design

** *

Lower utilization of skilled labour

** *