LEARN HVAC COST

A Costing & Planning Software
for HVAC Engineers

By :
Y.A. Agboatwala &
Fatima.Y. Agboatwala
1802, Jamuna Amrut,
219, Patel Estate, S.V.Road,
Jogeshwari(W), Mumbai - 400102
Phone: 09820792254 , (022) 26783525
Url: www.supercivilcd.com,
www.agboatwala.com
Email : yaa@supercivilcd.com,
yaa@agboatwala.com,
supercivilcd@gmail.com

LEARN HVAC COST

Create New File   🔴

Add / Edit Item Rates   🔴

Add / Edit Quantities   🔴

Sectionwise Quantities/Costs   🔴

Total Cost   🔴

Sectional Labour Consumption   🔴

Total Labour Consumption   🔴

Display Pie / Bar Charts   🔴

Other Programs   🔴

Typical Forms/Formats/Data Sheet   🔴

Copy, Delete, Edit & Export to Excel   🔴

Monthly Cash Flow, Material, men, Consumption & S Curve   🔴

● **The other menu options i.e. Excel Sheet & Fundamentals are self explanatory.**

LEARN HVAC COST STEP BY STEP

STEP NO. 1

Read_Me   F i l e s   Edit _Items _Rates   Add_Edit_Quantities   Summary   Graphics   { Programs_1   Program_2   Funda   Excel Sh.   Forms_1   Forms_2 }

H V A C ...... COST.

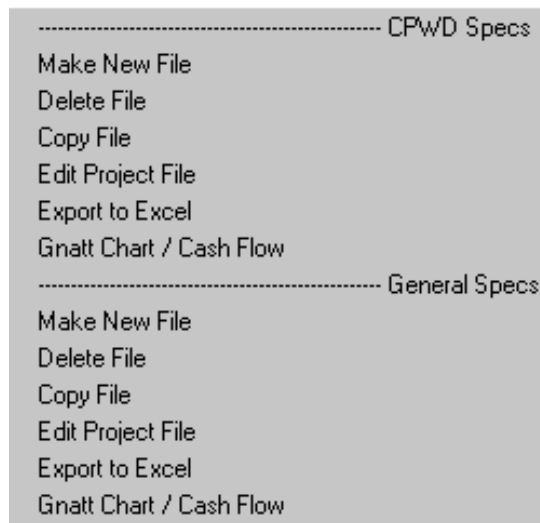**A Costing & Planning Software for HVAC Engineers**
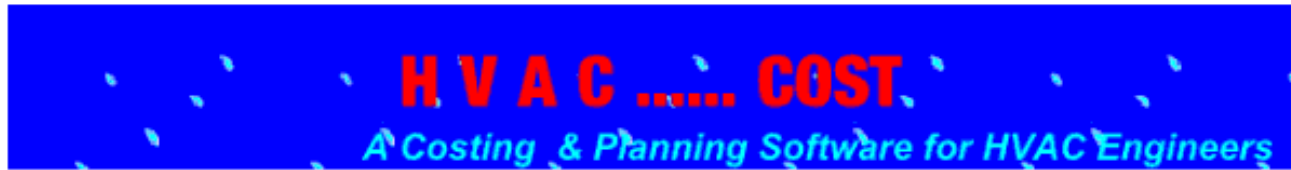
BY: Y. A. Agboatwala
B. E. (Civil), MIE, DBM, FIV

▶ When Program starts, the graphics above is displayed. The Menu bar contains following options.

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the FILES option in the MENU bar. The following window will open.
Note that all the options under the FILES i.e. CPWD Specs and General Specifications are similar in operation.

▶ *We will consider General Specs option only for demonstration purpose.*

4

```
---------------------------------------------- CPWD Specs
Make New File
Delete File
Copy File
Edit Project File
Export to Excel
Gnatt Chart / Cash Flow
---------------------------------------------- General Specs
Make New File
Delete File
Copy File
Edit Project File
Export to Excel
Gnatt Chart / Cash Flow
```

▶ **Now click "Make New File" option. The following window will open.**
You must create a separate Folder / Directory to store your files.
I have created a Directory called " 1hvacstd " in C drive to store my General Spec files.
Now go to this folder & give a file name to your project. I have given " 01 " as the name of my new project file. Click the save button.
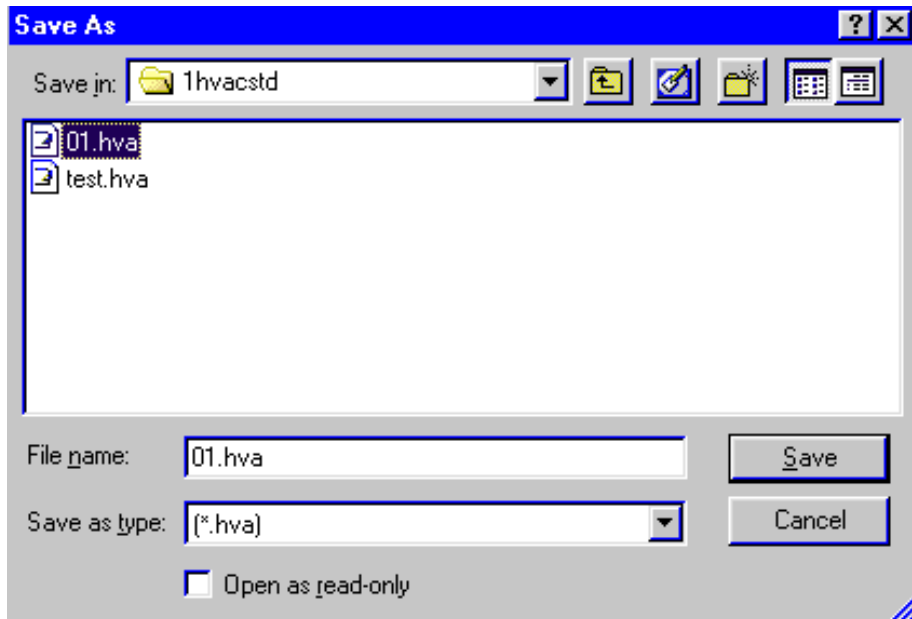
▶ **When you click the save button, following project window will open.**

Project File : Add Project Details

File Name : C:\1hvacstd\01.hva   **Date : 14/5/07**
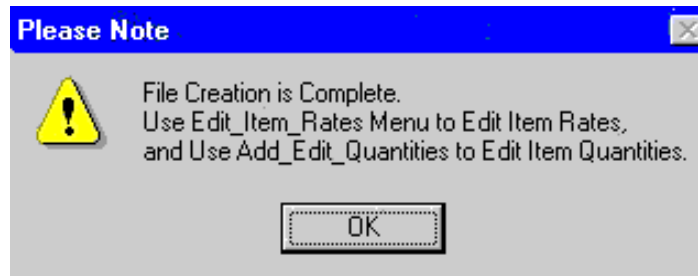
Field	Value
Organization :	Super Civil CD
Project :	Cental AC Sys for Lab
Project No :	8912
Client ID :	y. a. agboatwala
Building / Structure ID :	Lab Building

Field	Value	Field	Value
Project Duration in Months :	24	Project Over Head in %	10
Taxes in %	4	Profit Margin in %	10
Skill labour Wage / day	250	Un Skilled Labour Wage	180
Foreman Cost / day	350	Mobilization Advance in %	10
Recovery of Advance in %	10	Security Deposit in %	10

OK

▶ **The window requires various project details. Whatever values you will fill here will serve as default values for the project.**
I have filled up the above values as required by my new project " 01 ".
You can change these values now OR later by clicking "Edit Project File" option in File Menu.
Now click the OK button, following window will appear.

Please Note

⚠ File Creation is Complete.
Use Edit_Item_Rates Menu to Edit Item Rates,
and Use Add_Edit_Quantities to Edit Item Quantities.

OK

▶ **Click OK button. Now project File creation is complete.**
The above window gives the following two vital information.
1. Use " Edit Item Rates " Menu to add / Edit Rates of various Items &
2. Use " Add Edit Quantities " Menu to add / Edit Quantities of various Items.

STEP NO. 1 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 2

Read_Me F i l e s Edit_Items_Rates Add_Edit_Quantities Summary Graphics { Programs_1 Program_2 Funda Excel Sh. Forms_1 Forms_2 }

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▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the " Edit Item Rates " option in the MENU bar.

▶ *We will consider General Specs option only for demonstration purpose.*

Add_Edit_Quantities
CPWD
General
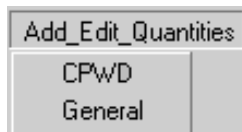
▶ **Now click General option. A " open file window " will be displayed as follows.**
Select File " 01 " & click open.
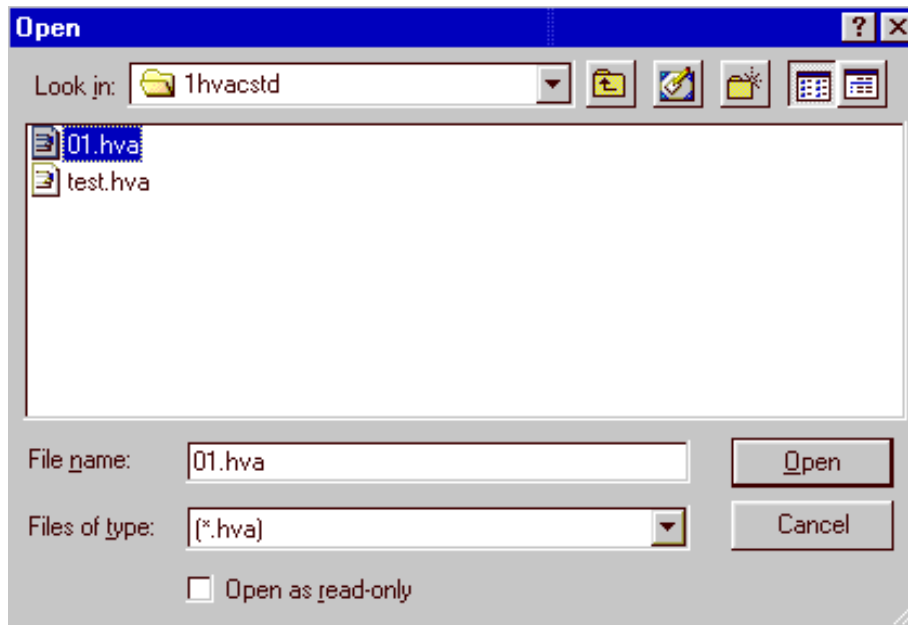
▶ **A new menu will open displaying all the Chapters. Now double click " Chapter - 1 : Piping ".**
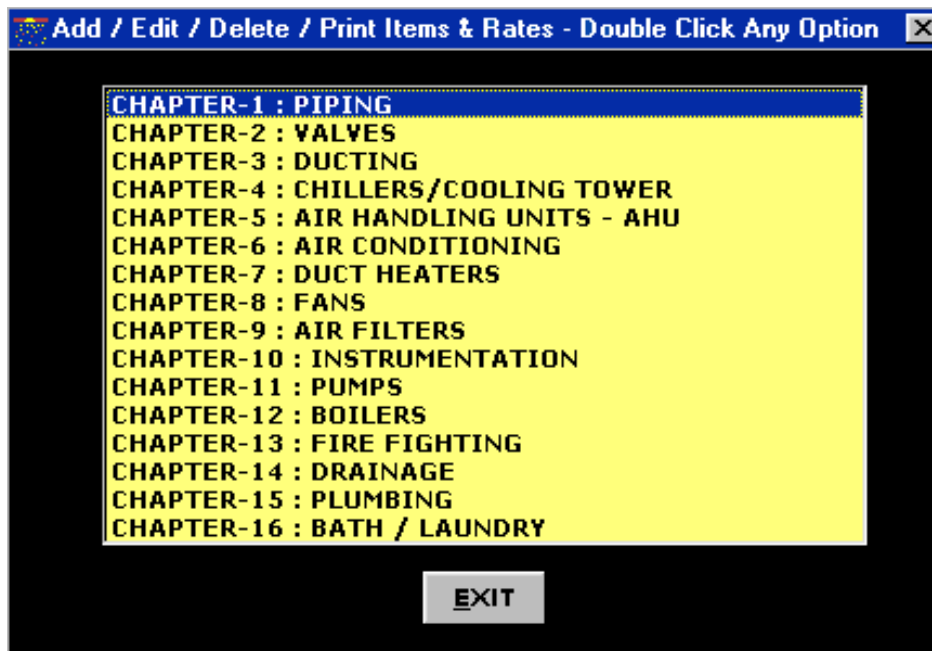
▶ **A new window will appear as follows. This is main window which can perform the following functions.**

- 🔴 **Display all items.**
- 🔴 **Print all items.**
- 🔴 **Add your own items.**
- 🔴 **Delete any existing item.**
- 🔴 **Add Material, Labour, Subcontractor & Equipment Rates.**
- 🔴 **One more field called " Item_ID " is given, in case you want to identify items apart from the existing Item No.**

You can select any item by taking the Blue cursor to that item row or just clicking with the mouse on any item row.

DISPLAY/EDIT/ADDITION OF ITEMS AND RATES
CHAPTER-1 : PIPING

Project No : 8912

Date : 14/5/07

Item_ID	Item No.	Item	Unit	Material R...	Labour Rate	Subcontra...	Equipment	
	1.1	Providing fixing jointing & testing spig...	M	1000	100	50	50	
	1.2	Providing fixing jointing & testing spig...	M					
	1.3	Providing fixing jointing & testing spig...	M					
	1.4	Providing fixing jointing & testing spig...	M					
	1.5	Providing & placing in position sand ca...	M					
	1.6	Providing & placing in position sand ca...	M					
	1.7	Providing & placing in position sand ca...	M					
	1.8	Providing & placing in position sand ca...	M					
	1.9	Providing & placing in position sand ca...	Nos					
	1.10	Providing & placing in position sand ca...	Nos					
	1.11	Providing & placing in position sand ca...	Nos					
	1.12	Providing & placing in position sand ca...	Nos					
	1.13	Providing & placing in position sand ca...	Nos					
	1.20	Providing & placing in position sand ca...	Nos					
	1.21	Providing & placing in position sand ca...	Nos					

Edit Item No. 1.1

Item : Providing fixing jointing & testing spigot & socket (S&S) sand cast iron soil waste & vent pipes conforming to IS:1729 including all fittings like bends tees crosses with or without access doors lead jointing holder bat clamps etc. cutting holes in walls & floors & making good the same complete of nominal dia : 50 mm

Item ID : [ ]   Unit : M   Basic Material Rate : 1000   Basic Labour Rate : 100

Item No : 1.1   Subcontractor Rate : 50   Equipment Rate: 50

Item Rate : 1488   [PRINT]   [ADD ITEM]   [EXIT]   [REMOVE]   [UPDATE]

▶ **We will select the 1st item.**
Enter Labour Rate = 100
Material Rate = 1000
Subcontractor Rate = 50
Equipment Rate = 50

Now Click UPDATE button.
You will see that Item Rate (With Pink background) will change to 1488

▶ **Similarly you can give Rates of more items, which are likely to be used in the project. Always click UPDATE button to see the final rate. This final Item Rate is arrived at after adding default Overheads, Taxes & Profit margin, which you have already indicated while creating File.**
Now Click the EXIT button to leave this window.
You are back to Chapter Menu. Here you can select other sections by double clicking any section & add the item rates of various items which you think will be required for your project.

STEP NO. 2 IS OVER.

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STEP NO. 3

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▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the " Add, Edit Quantities " option in the MENU bar.

▶ *We will consider General Specs option only for demonstration purpose.*

```
Add_Edit_Quantities
    CPWD
    General
```
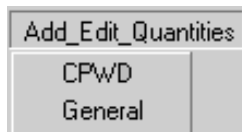
▶ **Now click General option. A " open file window " will be displayed as follows.**
Select File " 1 " & click open.
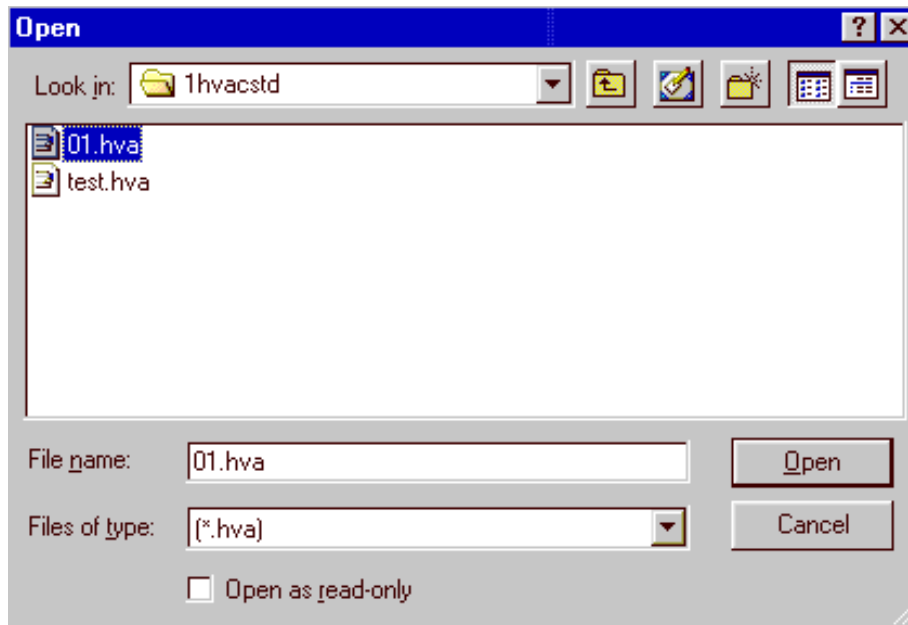
▶ **A new menu will open displaying all the Chapters. Now double click " Chapter - 1 : Piping ".**

▶ **A new window will appear as follows. This is main window which can perform the following functions.**
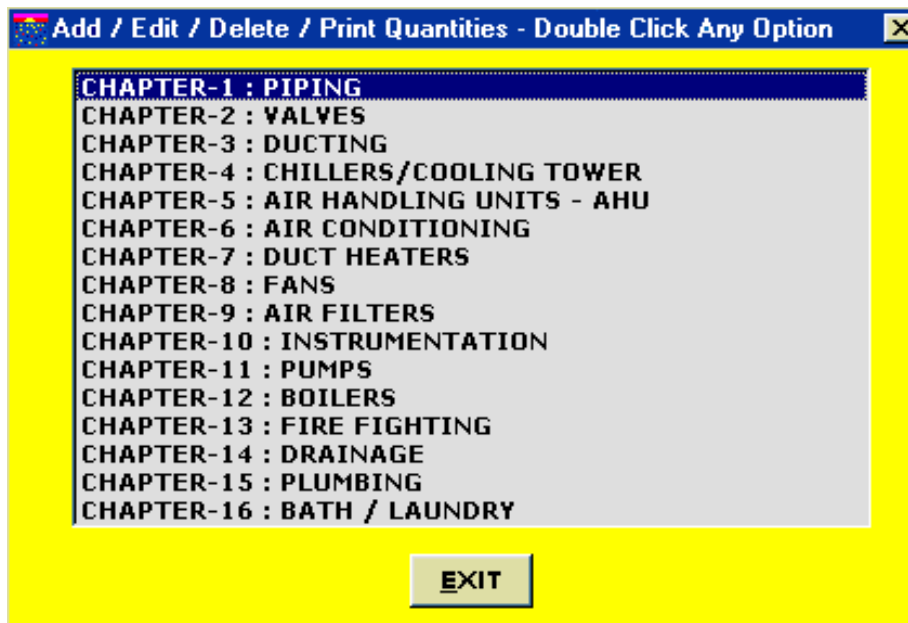
🔴 **Display all items.**
🔴 **Print all items.**
🔴 **Add your own items.**
🔴 **Delete any existing item.**
🔴 **Add Item Quantities.**
🔴 **One more field called " Item_ID " is given, in case you want to identify items apart from the existing Item No.**

You can select any item by taking the Blue cursor to that item row or just clicking with the mouse on any item row.

Note that " Item Rate ", which we had given in previous " Edit Item Rates " option has already appeared here automatically.

DISPLAY/ADD/EDIT/PRINTING OF QUANTITIES
CHAPTER-1 : PIPING

Project No : 8912   Date : 14/5/07

Item_ID	Item No.	Item	Unit	Item_Rate	Quantity	Cost
	1.1	Providing fixing jointing & testing spigot & socket (S&S) ...	M	1488	10	14880
	1.2	Providing fixing jointing & testing spigot & socket (S&S) ...	M			
	1.3	Providing fixing jointing & testing spigot & socket (S&S) ...	M			
	1.4	Providing fixing jointing & testing spigot & socket (S&S) ...	M			
	1.5	Providing & placing in position sand cast iron (S&S) soil ...	M			
	1.6	Providing & placing in position sand cast iron (S&S) soil ...	M			
	1.7	Providing & placing in position sand cast iron (S&S) soil ...	M			
	1.8	Providing & placing in position sand cast iron (S&S) soil ...	M			
	1.9	Providing & placing in position sand cast iron (S&S) bend...	Nos			
	1.10	Providing & placing in position sand cast iron (S&S) bend...	Nos			
	1.11	Providing & placing in position sand cast iron (S&S) bend...	Nos			
	1.12	Providing & placing in position sand cast iron (S&S) bend...	Nos			
	1.13	Providing & placing in position sand cast iron (S&S) plain ...	Nos			
	1.18	Providing & placing in position sand cast iron (S&S) heel ...	Nos			
	1.19	Providing & placing in position sand cast iron (S&S) heel ...	Nos			
	1.20	Providing & placing in position sand cast iron (S&S) heel ...	Nos			
	1.21	Providing & placing in position sand cast iron (S&S) doub...	Nos			
	1.22	Providing & placing in position sand cast iron (S&S) doub...	Nos			

Edit Item No. 1.1   << Click UPDATE Button after Editing. >>

Item : Providing fixing jointing & testing spigot & socket (S&S) sand cast iron soil waste & vent pipes conforming to IS:1729 including all fittings like bends tees crosses with or without access doors lead jointing holder bat clamps etc. cutting holes in walls & floors & making good the same complete of nominal dia : 50 mm

Item ID :   Item No : 1.1   Unit : M   Quantity : 10

MOVE UP   MOVE DOWN   PRINT   ADD ITEM   EXIT   REMOVE   UPDATE

▶ We will select the 1st item.
Enter Quantity = 10

Now Click UPDATE button.
You will see that " Cost " column will indicate 14880 for 1st item.

▶ Similarly you can fill in more item quantities, which are likely to be used in this project. Always click UPDATE button to see the final item cost.
Now Click the EXIT button to leave this window.
You are back to Chapter Menu. Here you can select other sections by double clicking any section & add the item quantities of various items which you think will be required for your project.

STEP NO. 3 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 4

H V A C .... COST.
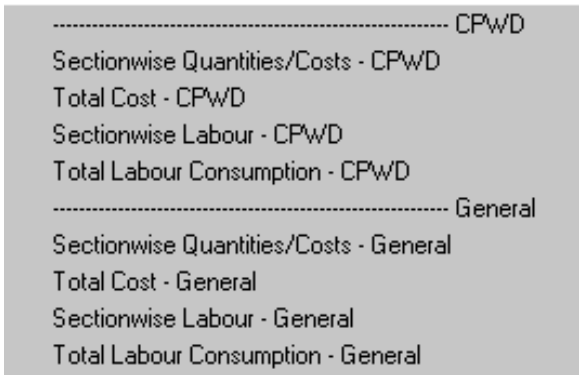*A Costing & Planning Software for HVAC Engineers*

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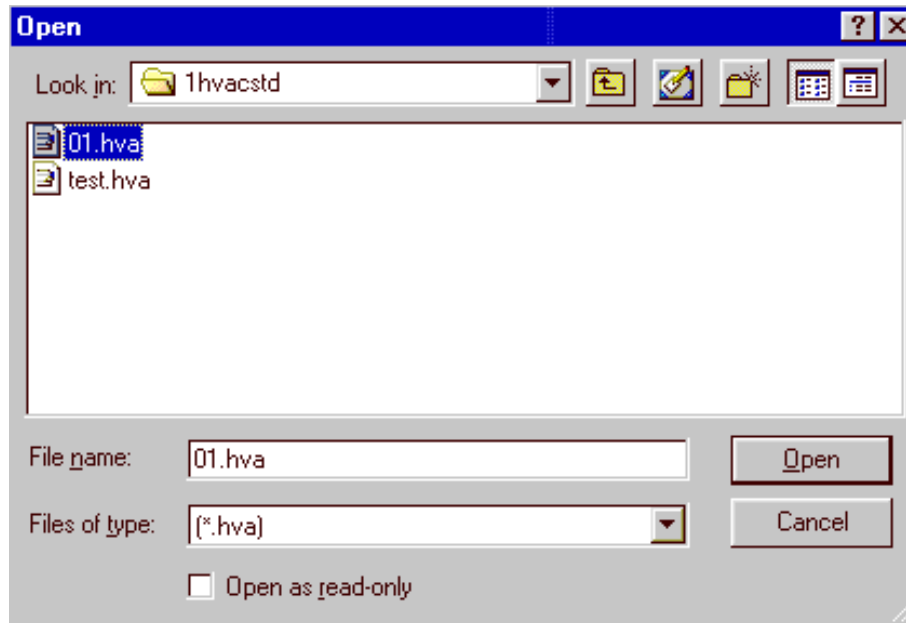▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the " Summary " option in the MENU bar. Following sub menu is displayed.

▶ *We will consider General Specs option only for demonstration purpose.*

```
-------------------------------------------------- CPWD
Sectionwise Quantities/Costs - CPWD
Total Cost - CPWD
Sectionwise Labour - CPWD
Total Labour Consumption - CPWD
-------------------------------------------------- General
Sectionwise Quantities/Costs - General
Total Cost - General
Sectionwise Labour - General
Total Labour Consumption - General
```

▶ **Now click Sectionwise Quantities/Costs - General**
A " open file window " will be displayed as follows.
Select File " 01 " & click open.

▶ **A new menu will open as follows displaying all the Chapters.**
  Now double click " Chapter - 1 : Piping ".
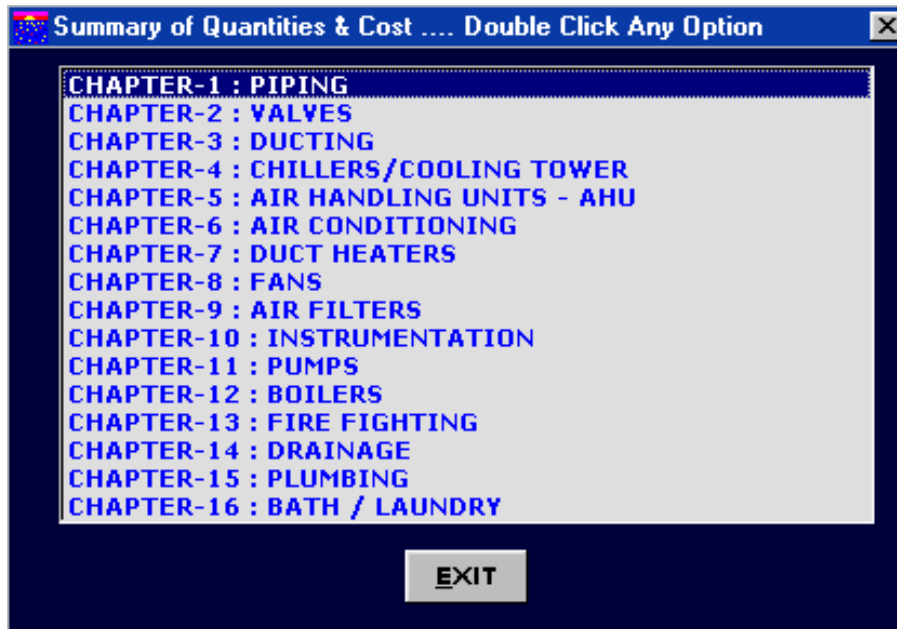
▶ **Following window is displayed.**

  This window displays the following parameters.

  ● **Sectional Item Quantity, Rate and Cost.**
  ● **Sectional Item Overhead, Profit and Taxes.**
  ● **Total Sectional Overhead, Profit, Taxes and Cost.**
  ● **By Clicking " PRINT " button, all the records will be printed.**

SECTIONAL SUMMARY OF QUANTITIES/COSTS

Project No : 8912　　　　　**CHAPTER-1 : PIPING**　　　　　**Date : 15/5/07**

ITEM_ID	ITEM NO.	ITEM	UNIT	QUANTITY	RATE	COST	
	1.1	Providing fixing jointing & testing...	M	10	1488	14880	

Overhead : 1199.999　　　　Taxes : 479.999　　　　Profit : 1199.999

Total Overhead : 1199.999　　Total Taxes : 479.999　　Total Profit : 1199.999
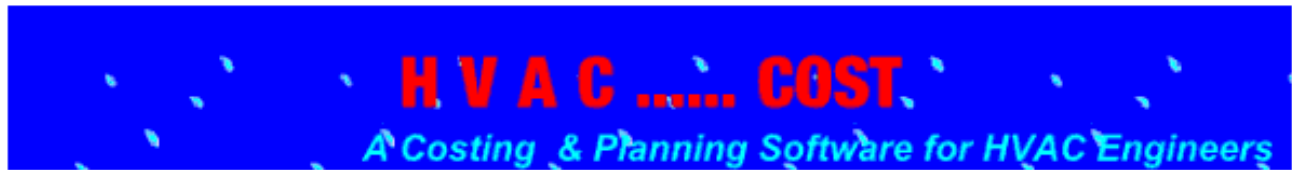
Total Sectional Cost : 14880　　　　PRINT　　　　EXIT

▶ **Now Click the EXIT button to leave this window.**
You are back to Chapter Menu.
Similarly you can display cost of the required section by double clicking the selected section.
Now click EXIT to leave this option.

STEP NO. 4 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 5

H V A C ...... COST.

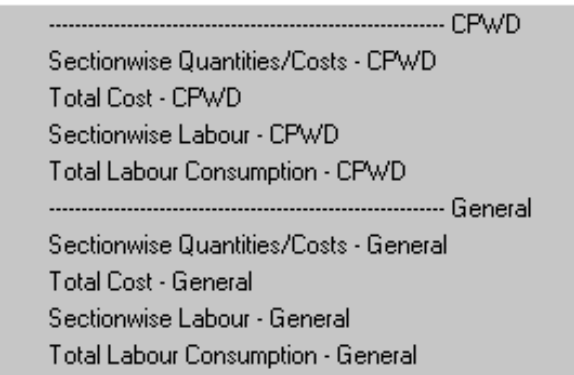*A Costing & Planning Software for HVAC Engineers*

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▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the " Summary " option in the MENU bar. Following sub menu is displayed.

▶ *We will consider General Specs option only for demonstration purpose.*

```
---------------------------------------------------- CPWD
Sectionwise Quantities/Costs - CPWD
Total Cost - CPWD
Sectionwise Labour - CPWD
Total Labour Consumption - CPWD
---------------------------------------------------- General
Sectionwise Quantities/Costs - General
Total Cost - General
Sectionwise Labour - General
Total Labour Consumption - General
```

▶ **Now click Total Cost - General**
A " open file window " will be displayed as follows.
Select File " 01 " & click open.
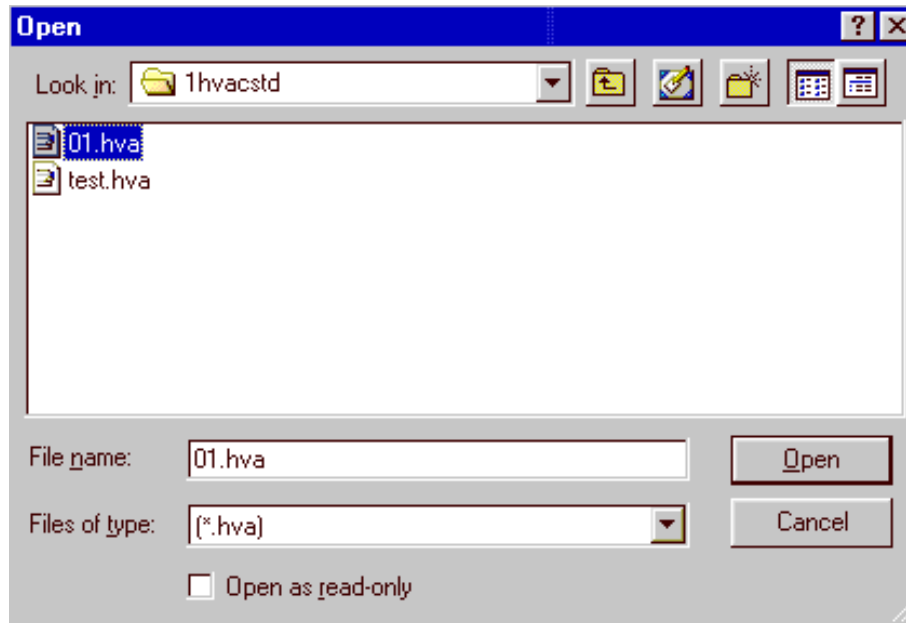
▶ **Following window is displayed.**

This window displays the following parameters.

● **Sectional Item Overhead, Profit, Taxes and Costs.**
● **Total Project Overhead, Profit, Taxes and Cost.**
● **By Clicking " PRINT " button, all the records will be printed.**

SUMMARY OF PROJECT COST

Organization :   Super Civil CD

Project :   Central AC Sys for Lab.

Structure ID :   Lab Building

Total Project Cost :   217868

Total Taxes :   7028

Client : y. a. agbaotawala

Project No : 8912

Date : 15/5/07

Total Overhead :   17570

Total Profit :   17570

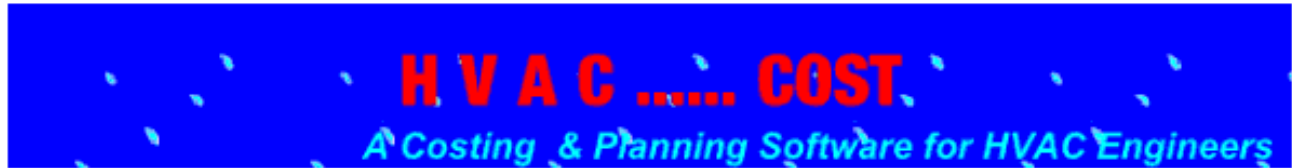| SECTION	COST	OVERHEAD	TAX	PROFIT	% TOTAL	
CHAPTER-1 : PIPING	14880	1200	480	1200	6.82	
CHAPTER-2 : VALVES	16368	1320	528	1320	7.51	
CHAPTER-3 : DUCTING	12276	990	396	990	5.63	
CHAPTER-4 : CHILLERS/COOLING TOWER	16368	1320	528	1320	7.51	
CHAPTER-5 : AIR HANDLING UNITS - A...	19592	1580	632	1580	8.99	
CHAPTER-6 : AIR CONDITIONING	13640	1100	440	1100	6.26	
CHAPTER-7 : DUCT HEATERS	10230	825	330	825	4.69	
CHAPTER-8 : FANS	12276	990	396	990	5.63	
CHAPTER-9 : AIR FILTERS	13764	1110	444	1110	6.31	
CHAPTER-10 : INSTRUMENTATION	13764	1110	444	1110	6.31	
CHAPTER-11 : PUMPS	13950	1125	450	1125	6.4	
CHAPTER-12 : BOILERS	14260	1150	460	1150	6.54	
CHAPTER-13 : FIRE FIGHTING	12276	990	396	990	5.63	
CHAPTER-14 : DRAINAGE	10912	880	352	880	5	
CHAPTER-15 : PLUMBING	10912	880	352	880	5	
CHAPTER-16 : BATH / LAUNDRY	12400	1000	400	1000	5.69	

▶ **Now Click the EXIT button to leave this option.**

STEP NO. 5 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 6

Read_Me Files Edit_Items_Rates Add_Edit_Quantities Summary Graphics { Programs_1 Program_2 Funda Excel Sh. Forms_1 Forms_2 }

H V A C .... COST.
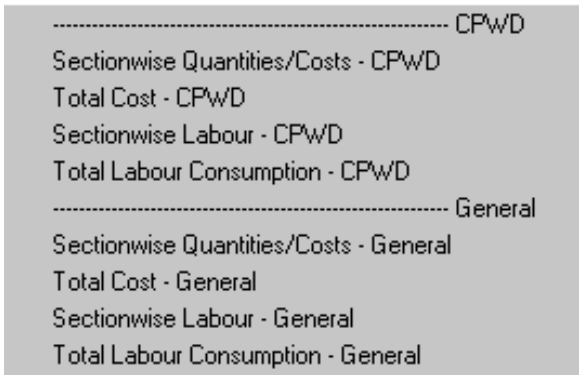*A Costing & Planning Software for HVAC Engineers*

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▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**
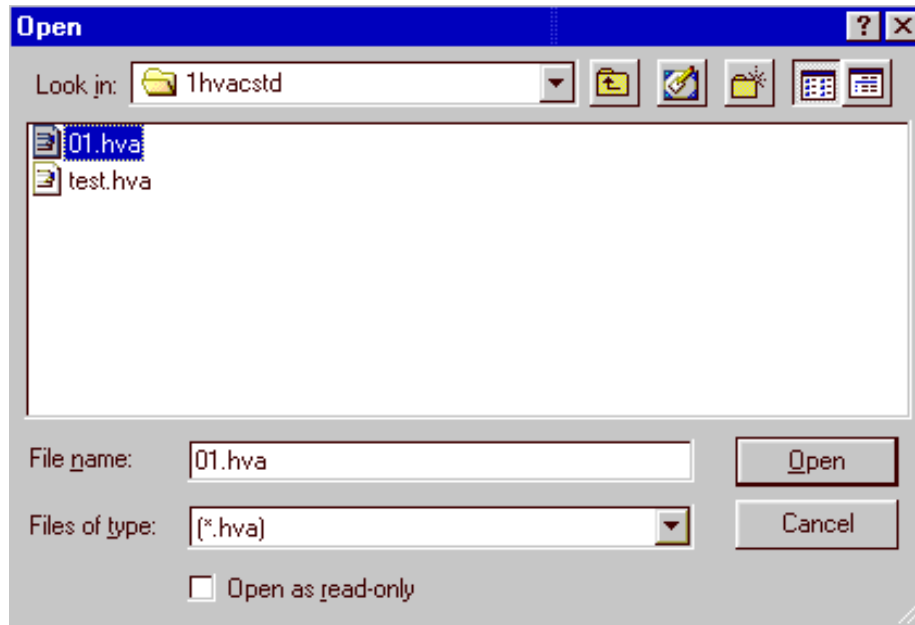
I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the " Summary " option in the MENU bar. Following sub menu is displayed.

▶ *We will consider General Specs option only for demonstration purpose.*

```
-------------------------------------------------------- CPWD
Sectionwise Quantities/Costs - CPWD
Total Cost - CPWD
Sectionwise Labour - CPWD
Total Labour Consumption - CPWD
-------------------------------------------------------- General
Sectionwise Quantities/Costs - General
Total Cost - General
Sectionwise Labour - General
Total Labour Consumption - General
```

▶ **Now click Sectionwise Labour - General**
A " open file window " will be displayed as follows.
Select File " 01 " & click open.

Open

Look in: 📁 1hvacstd

📄 01.hva
📄 test.hva

File name: 01.hva

Files of type: (*.hva)

☐ Open as read-only

[Open] [Cancel]

▶ **A new menu will open as follows displaying all the Chapters.**
Now double click " Chapter - 1 : Piping ".

Sectionwise Consumption of Labour....... Double Click Any Option

CHAPTER-1 : PIPING
CHAPTER-2 : VALVES
CHAPTER-3 : DUCTING
CHAPTER-4 : CHILLERS/COOLING TOWER
CHAPTER-5 : AIR HANDLING UNITS - AHU
CHAPTER-6 : AIR CONDITIONING
CHAPTER-7 : DUCT HEATERS
CHAPTER-8 : FANS
CHAPTER-9 : AIR FILTERS
CHAPTER-10 : INSTRUMENTATION
CHAPTER-11 : PUMPS
CHAPTER-12 : BOILERS
CHAPTER-13 : FIRE FIGHTING
CHAPTER-14 : DRAINAGE
CHAPTER-15 : PLUMBING
CHAPTER-16 : BATH / LAUNDRY

EXIT
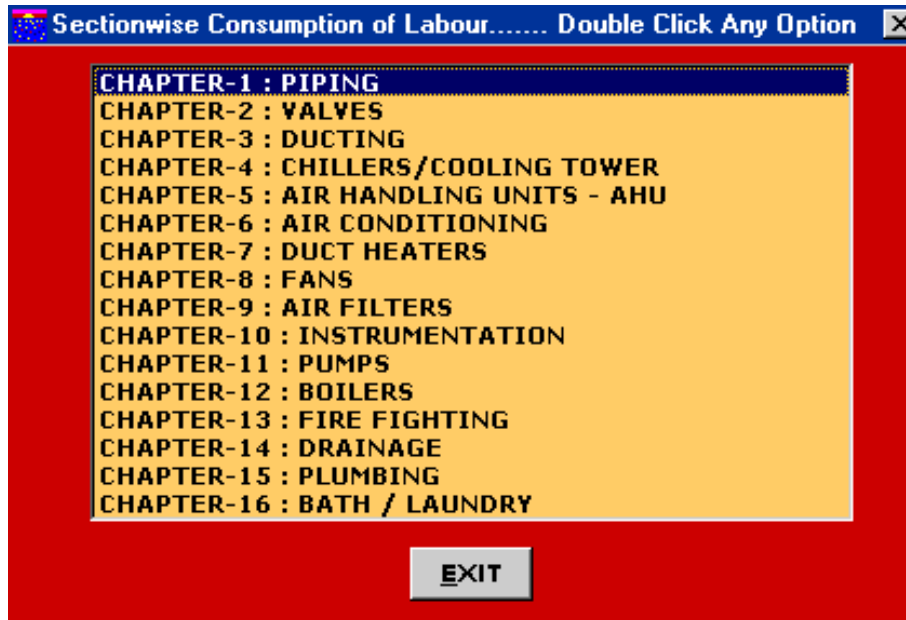
▶ **Following window is displayed.**

This window displays the following parameters.

🔴 **Sectional Itemwise Skilled Labour, Un Skilled Labour & Foreman Quantities in Nos.**
🔴 **Total Sectional Skilled Labour, Un Skilled Labour & Foreman Quantities in Nos.**
🔴 **By Clicking " PRINT " button, all the records will be printed.**

LABOUR CONSUMPTION OF SECTION

CHAPTER-1 : PIPING

Project No : 8912   Date : 15/5/07

Item_ID	Item_No	Item	Skill_Labour	Labour	Foreman	
	1.1	Providing fixing jointing & testing spigot & soc...	1.47	2.94	.294	

Item : Providing fixing jointing & testing spigot & socket (S&S) sand cast iron soil waste & vent pipes conforming to IS:1729 including all fittings like bends tees crosses with or without access doors lead jointing holder bat clamps etc. cutting holes in walls & floors & making good the same complete of nominal dia : 50 mm

Total Skill Labour in Nos : 1.47
(Of This Section)

Total Un Skill Labour in Nos : 2.94
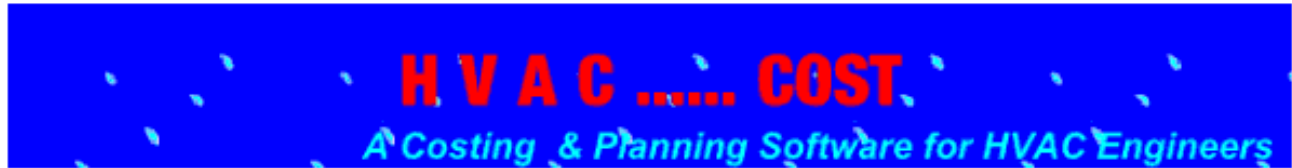
EXIT   PRINT

Total Foreman in Nos : .29

▶ **Now Click the EXIT button to leave this window.**
You are back to Chapter Menu.
Similarly you can display labour consumption of the required section by double clicking the selected section. Now click EXIT to leave this option.

STEP NO. 6 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 7

When Program starts, the graphics above is displayed. The Menu bar contains following options.

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the " Summary " option in the MENU bar. Following sub menu is displayed.

We will consider General Specs option only for demonstration purpose.

Now click Total Labour Consumption - General
A " open file window " will be displayed as follows.
Select File " 01 " & click open.

▶ **Following window is displayed.**

This window displays the following parameters.

● **Total Skilled, Un Skilled Labour & Foreman in Nos.**
● **Total Skilled, Un Skilled Labour & Foreman Cost.**
● **By Clicking " PRINT " button, all the records will be printed.**

LABOUR CONSUMPTION

Organization :   Super Civil CD

Project :   Central AC Sys for Lab.

Client :   y. a. agbaotawala

Date :   15/5/07

Structure ID :   Lab Building

Project No :   8912

Skill Labour - Nos	22.75
Un Skill Labour - Nos	63.19
Foreman - Nos	3.25
Total Manpower	89.19

Skill Labour Cost	5687.5
Un Skill Labour Cost	11374.2
Foreman Cost	1137.5
Total Labour Cost	18199.2

PRINT   EXIT

▶ **Now Click the EXIT button to leave this option.**

STEP NO. 7 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 8

H V A C ...... COST.

*A Costing & Planning Software for HVAC Engineers*
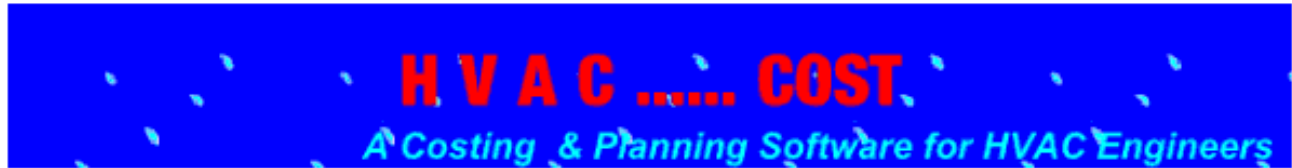
BY: Y. A. Agboatwala
B. E. (Civil), MIE, DBM, FIV

▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the " Graphics " option in the MENU bar. Following sub menu is displayed.

▶ *We will consider General Specs option only for demonstration purpose.*

Graphics
CPWD
General
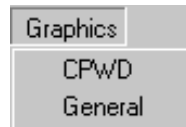
▶ **Now click General.**
A " open file window " will be displayed as follows.
Select File " 01 " & click open.
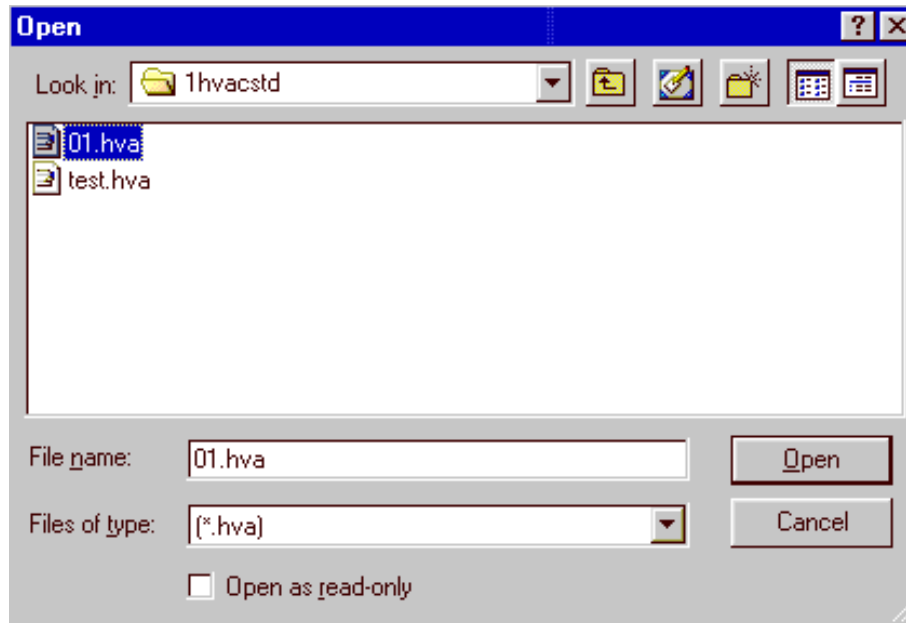
▶ **Following Chart Menu window is displayed.**

This window displays the following parameters.

🔴 **Total Cost : Pie Chart**
🔴 **Total Cost : bar Chart**
🔴 **Total Labour : Pie Chart**
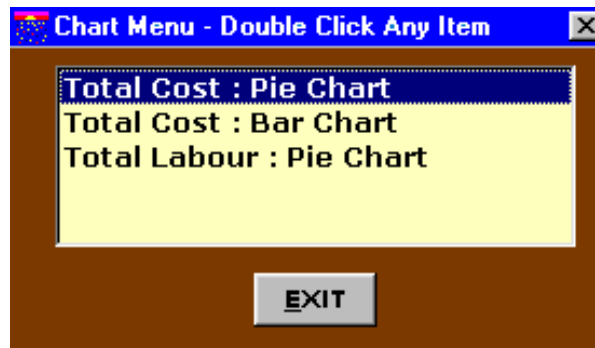
▶ **Now Click the Total Cost : Pie Chart option.**
Following window opens up, displaying Sectional Costs (Chapter Wise) as % of total Cost.

SECTIONAL COSTS – PIE CHART

CHAPTER-1 : PIPING
CHAPTER-2 : VALVES
CHAPTER-3 : DUCTING
CHAPTER-4 : CHILLERS/COOLING TOWER
CHAPTER-5 : AIR HANDLING UNITS - AHU
CHAPTER-6 : AIR CONDITIONING
CHAPTER-7 : DUCT HEATERS
CHAPTER-8 : FANS
CHAPTER-9 : AIR FILTERS
CHAPTER-10 : INSTRUMENTATION
CHAPTER-11 : PUMPS
CHAPTER-12 : BOILERS
CHAPTER-13 : FIRE FIGHTING
CHAPTER-14 : DRAINAGE
CHAPTER-15 : PLUMBING
CHAPTER-16 : BATH / LAUNDRY
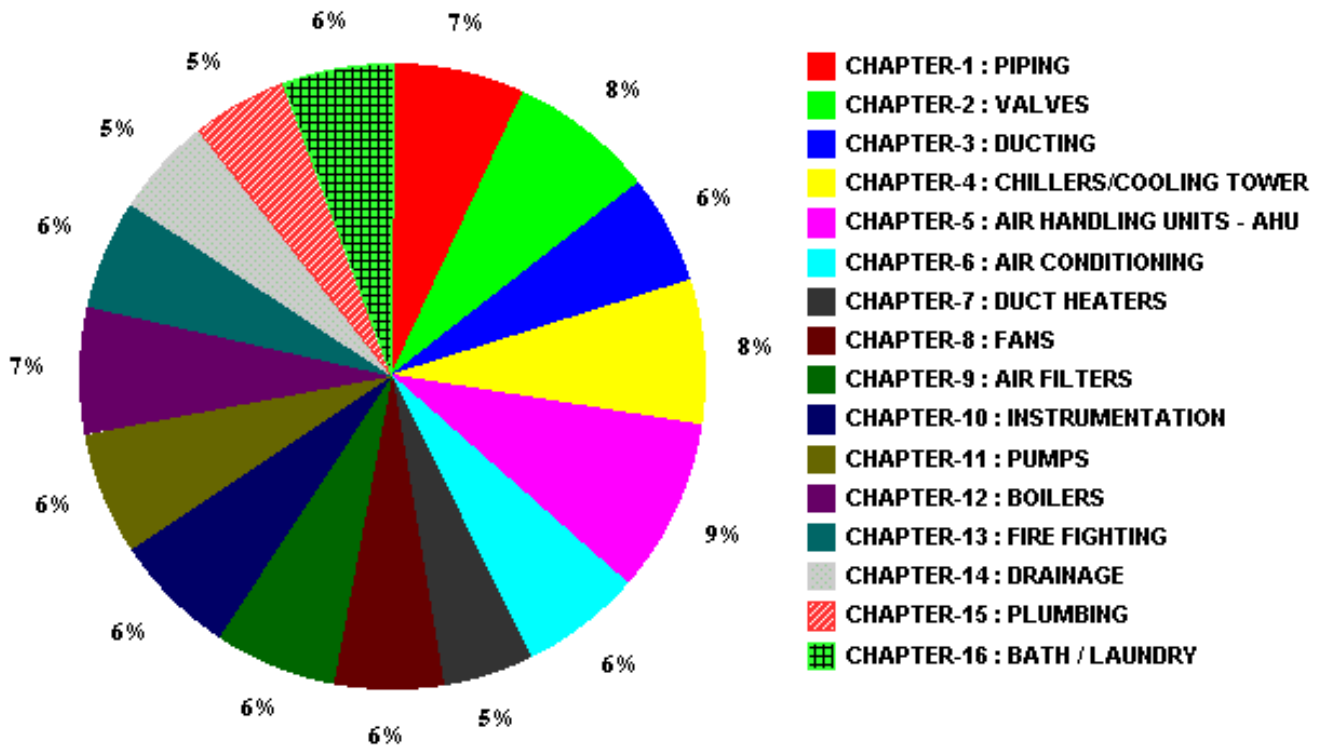
▶ **Similarly a user can display other Charts.**
Now Click the EXIT button to leave this option.

STEP NO. 8 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 9

Read_Me   F i l e s   Edit_Items_Rates   Add_Edit_Quantities   Summary   Graphics   { Programs_1   Program_2   Funda   Excel Sh.   Forms_1   Forms_2 }

H V A C .... COST
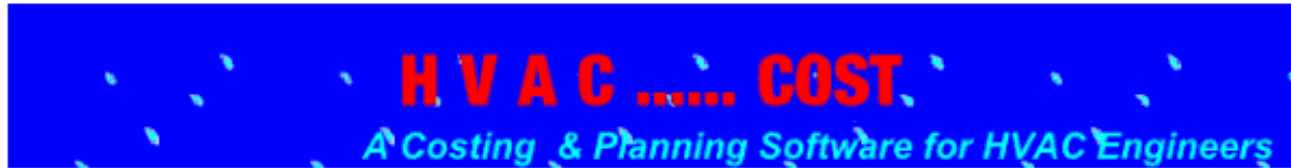
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▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

Click the " Programs_1 " option in the MENU bar. Following sub menu is displayed.

Cooling Load
Heating Load
Energy Consumption
Energy Consumption - Alt.
Motor Heat Gain
Agricultural Heat Gain
Heat Gain + Loss
psychrometrics
Steam Table
Water Properties
Steam Pressure Drop
Unit Conversion
Air Supply - Sensible
Air Supply - Latent
+ Ve Ventilation
Ventilation - Outside Wind
Ventilation - Temp. Difference
Combine Ventilation
Duct Heat Gain
Equivalent Duct Dia
Friction factor
Pressure and Head Loss
Duct Friction Loss
Piping Friction Loss

▶ **If you click the " Programs_2 " option in the MENU bar. Following sub menu is displayed.**

Compressible Flow Pr. Loss
Gas Friction Loss
Fan Properties + Eqv. Duct Size
Temp. Rise in Pumps
Self Venting Line Size
Gas Density
Open Channel Flow
Tank Draining Calc.
Heat Exchanger Sizing
Vessel Volume
Mannings Equation
Energy Equation
Static Pressure
Minor Loss
Major Loss - Darcy
Major Loss - Hazen
Equivalent Pipe Length
Flow Rate

▶ **If any option is clicked, corresponding program is displayed. For example if " Cooling Load " option is clicked following screen will be displayed.**

HVAC COST

File   Exit

COOLING LOAD CALCULATIONS OF

BUILDINGS / COLD STORAGE

FOR INDIAN CITIES

▶ **If " File " option is clicked, two more options viz; " New " & " Open " are displayed.**
This file creation option is similar to what is explained in step no. 1.
Once the file is created & saved, following screen will be displayed.

COOLING LOAD CALCULATIONS

Field	Value
Select Nearest City	Mumbai
Total Floor Area of Bldg. in M2 Excluding GF + Roof	5000
Total Vol. of Bldg. in M3	15000
Area of Roof in M2	500
Bldg. having Windows on :	2 Sides
Total # of Doors in Building	40
Average Door Usage	Medium
No. of Bldg. Occupants	100
Roof Type	< 150 tk CC Slab - No Shade

External Wall Area in M2 + thk + Color + Outside Shade

Facing	Area	Type
Facing South	235	230 tk brick Dark Color/Shade
Facing SW	235	230 tk brick Light Color/No Shad
Facing West	235	300 tk brick Dark/Shade
Facing NW	235	300 tk brick Dark/No Shade
Facing North	235	200 tk Hollow Block Dark/No Sha
Facing NE	235	200 tk Hollow Block Dark/No Sha
Facing East	235	150 tk Concrete Dark/Shade
Facing SE	235	150 tk Concrete Light/No Shade

Window/Glass Area in M2 and Type

Facing	Area	Type
Facing South	100	No Shade
Facing South West	100	Inside Shade
Facing West	100	Tinted
Facing North West	100	Outside Shade
Facing North	100	No Shade
Facing North East	100	Inside Shade
Facing East	100	Tinted
Facing South East	100	Outside Shade

Field	Value
Total Area of Partitions in M2	2000
Building Type	Apartment
AC Ducting	No
User : Activity	Seated
Total Lights in Watts	25000
Total Appliances in Watts	15000
Total Motor Loads in Watts	10000
Heat Gain from Fruit/Veg. in Watts	20000
Any Other Consumption in Watts	10000
Outside Sp. Humidity in grms/Kg	16.4
Inside Sp. Humidity in grms/Kg	11.1
Outside DBT	35.6
Inside DBT	24

Degree Centigrade

Calculate Load   **EXIT**

▶ **If the " Calculate Load " button is clicked, another screen will display the design results.**
Note that the parameters given above are editable.
" Heating Load " design program is similar to Cooling Loads.
All other programs are straight forward, without file create & save facilities.
Now Click the EXIT button to leave this option.

STEP NO. 9 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 10

Read_Me   F i l e s   Edit_Items_Rates   Add_Edit_Quantities   Summary   Graphics   { Programs_1   Program_2   Funda   Excel Sh.   Forms_1   Forms_2 }
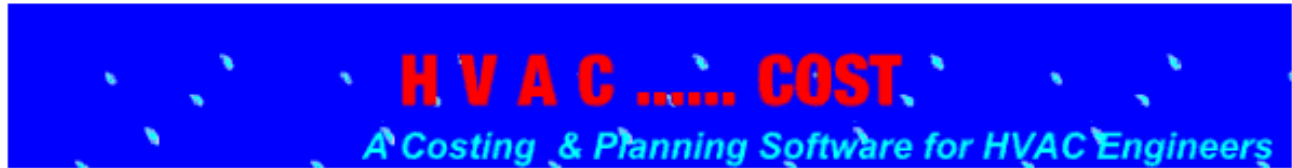
▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

If you click the Forms_1 option then following graphics will appear.

Measurement Sheet
R A Bill - CPWD Item Rate
R A Bill - CPWD Lump Sum
Advance Payment - CPWD
R A Bill - General
Projected Delay Report
Projected Profit
Projected Material Consumption
Projected Labour Consumption
Actual Delay Report
Actual Profit / Loss
Actual Material Consumption
Actual Labour Consumption
Profit Control
Material Control
Labour Control
Daily Progress Report
Material Inward Report
Material Transfer Receipt
Material Issue Slip
Daily Store Consumption
Daily Departmental Labour Slip
Watchman Report - Material
Watchman Report - Visitors
Inspection Report
Indent Slip
Pending Requisitions
Material Consumption Statement

▶ **If you click the Forms_2 option then following graphics will appear.**

```
Fan / Blower Data Sheet
Element Filter Data Sheet
Heat Exchanger Data Sheet
Agitator / Mixer Data Sheet
Pump Data Sheet
Compressor
Condenser
Chiller
Refrigerant Piping
A H U
Cooling Tower
Centrifugal Pumps
Water Piping
Electrical
Controls/Ducting/Insulation
Electricity Consumption Statement
Water Consumption Statement
Machinery Status Report
Machinery Maintainance Report
Excess Material List
Progress Report
Material Planning Schedule
Activity Schedule
Crash Cost Schedule
Calendar Date / Working Day
Material Order/Receipt Schedule
Labour Payment Schedule
```

▶ **The Forms_1 & Forms_2 options display various typical Data Sheets / forms, formats or templates generally used in HVACI Construction industry. A typical quantity measurement sheet is displayed as under.**

MEASUREMENT / QUANTITY SHEET

SECTION XXX – : ZZZZZZZZZ

SN	Item No	Item – Description	Unit	Nos				QTY
1								
2								
3								
4								
5								
6								
7								

▶ **All the above Forms / Formats / Templates are in M. S. WORD format.**
In case of any difficulty in opening the above documents, user can directly access the above files from C: \ Program files \ HVAC COST \ Forms directory.

STEP NO. 10 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 11

H V A C .... COST.
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▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

▶ *We will consider General option only for demonstration purpose.*

Click the FILE option in the MENU bar. The following window will open.

```
--------------------------------------------- CPWD Specs
Make New File
Delete File
Copy File
Edit Project File
Export to Excel
Gnatt Chart / Cash Flow
--------------------------------------------- General Specs
Make New File
Delete File
Copy File
Edit Project File
Export to Excel
Gnatt Chart / Cash Flow
```

► **Now click Copy File option. A new window will appear as follows, asking for the name of the File to be copied.**

Open

Look in: 🗁 1hvacstd

📄 01.hva
📄 test.hva

File name: 01.hva   Open

Files of type: (*.hva)   Cancel

☐ Open as read-only
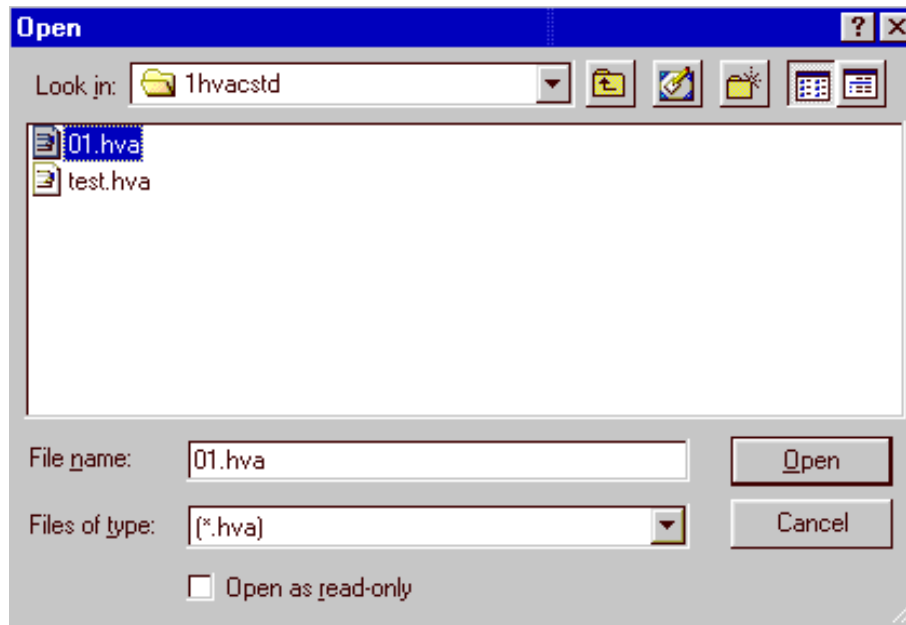
► **Now click " 01 " file & click open. A new window will appear as follows, asking for the name of the destination file.**

File Copy

Enter Destination File name without Extension   OK

Cancel

XYZ
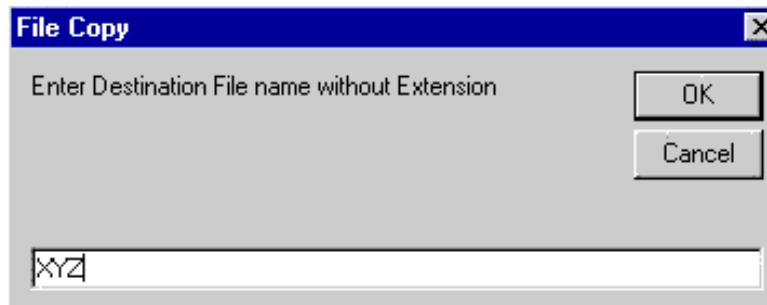
► **Give the destination file name as " XYZ ". Press " OK " button. A new message window will appear as follows.**

Please Note :

⚠ Copying of File is Over.

OK
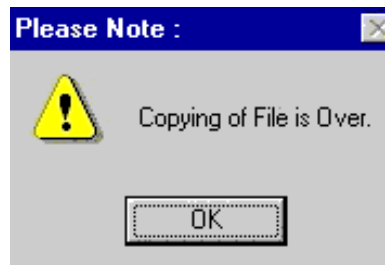
► **The above message confirms the copying of all respective files to new XYZ file. Note that original file " 01 " is intact. Press " OK " button to exit.**

► **Again Now click Delete File option. A new window will appear as follows, asking for the name of the File to be deleted.**
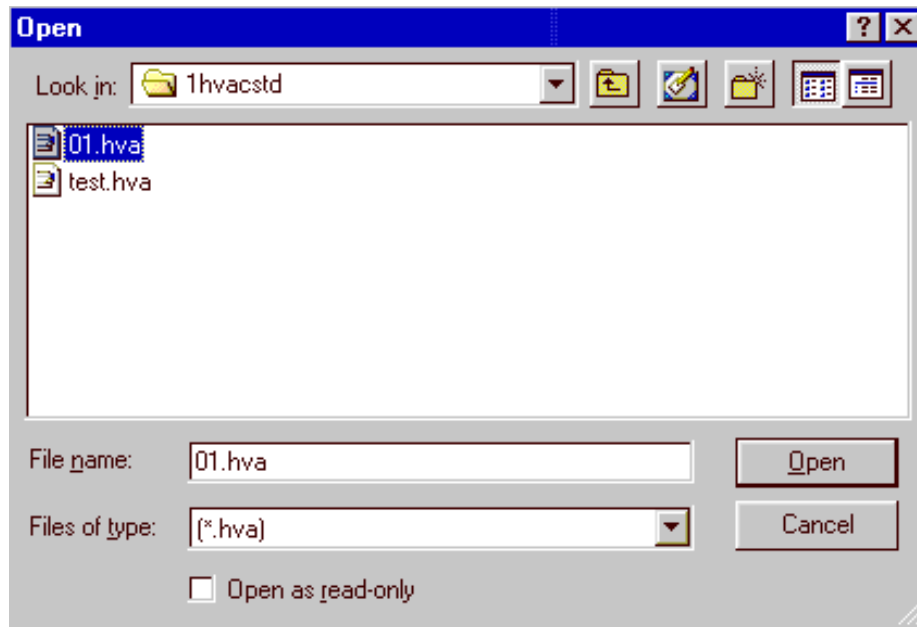
▶ **Select " test " file & click " Open " button. A new window will open as follows, requiring confirmation.**
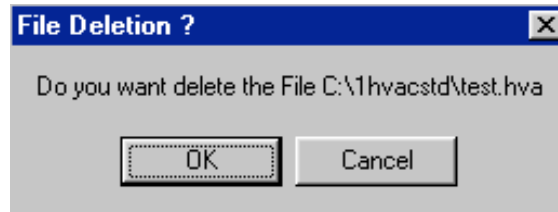
▶ **Click the " OK " button, again a new window will open as follows, confirming deletion of " test " file.**
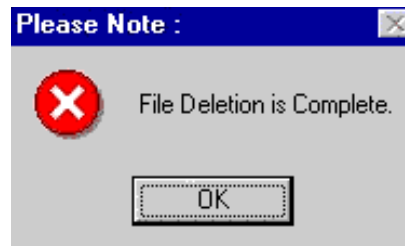
▶ **Now click Edit Project File option. A new window will appear as follows, asking for the name of the project File to be Edited.**
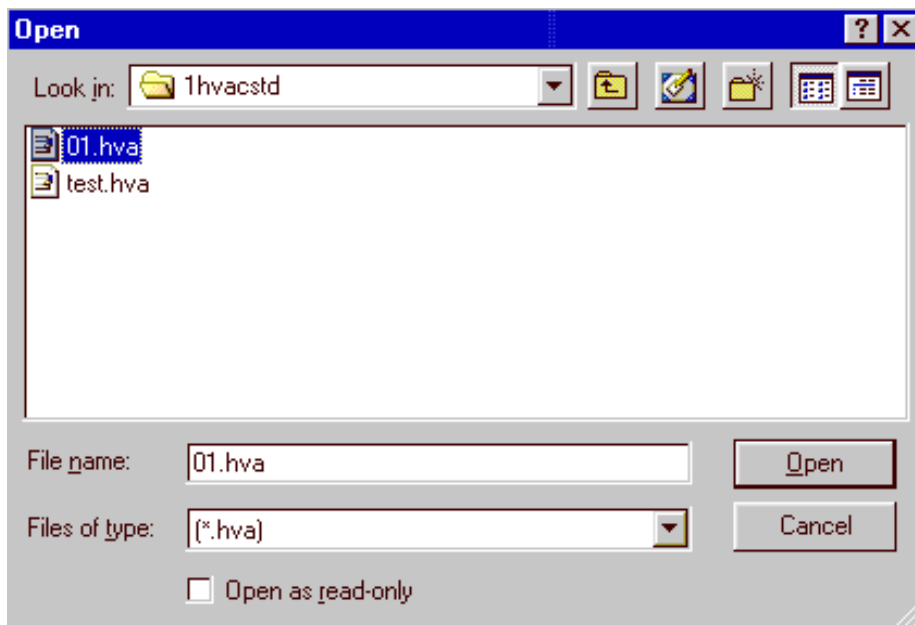
▶ **Now click " 1 " file & click open. A new window will appear as follows, enabling user to change the various project parameters.**


EDIT PROJECT DETAILS

File Name : C:\1hvacstd\01.hva   Date : 15/5/07

Organization :	Super Civil CD
Project :	Central AC Sys for Lab.
Project No :	8912
Client ID :	y. a. agbaotawala
Building / Structure ID :	Lab Building

Project Duration in Months :	24	Project Over Head in %	10
Taxes in %	4	Profit Margin in %	10
Skill labour Wage / day	250	Un Skilled Labour Wage	180
Foreman Cost / day	350	Mobilization Advance in %	10
Recovery of Advance in %	10	Security Deposit in %	10

EXIT   PRINT

▶ **After you have completed editing the various project parameters click " EXIT " button.**

▶ **Now click Export QTY to EXCEL option. A new window will appear as follows, asking for the name of the project File to be Exported to EXCEL.**

36
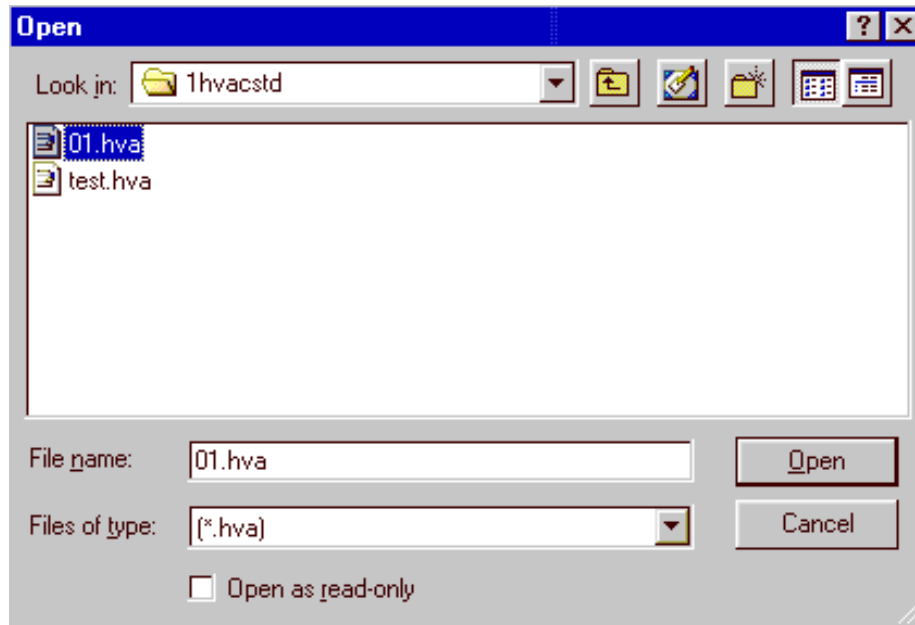
▶ **Now click " test " file & click open. A new window will appear as follows, indicating that all the quantity files are copied to a new file with " .EXL " extension.**
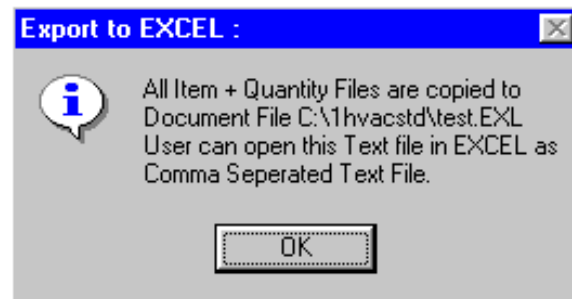
▶ **User can open this Text file in EXCEL as comma separated Text File.**

STEP NO. 11 IS OVER.

LEARN HVAC COST STEP BY STEP

STEP NO. 12

H V A C .... COST.

A Costing & Planning Software for HVAC Engineers

BY: Y. A. Agboatwala
B. E. (Civil), MIE, DBM, FIV

▶ **When Program starts, the graphics above is displayed. The Menu bar contains following options.**

I. Read Me
II. Files
III. Edit Item Rates
IV. Add, Edit Quantities
V. Summary
VI. Graphics
.... Additional Programs / Info.

VII. Programs_1
II X. Programs_2
IX. Funda
X. Excel Sheets
XI. Forms_1
XII. Forms_2

▶ *We will consider General option only for demonstration purpose.*

Click the FILE option in the MENU bar. The following window will open.

```
-------------------------------------------- CPWD Specs
Make New File
Delete File
Copy File
Edit Project File
Export to Excel
Gnatt Chart / Cash Flow
-------------------------------------------- General Specs
Make New File
Delete File
Copy File
Edit Project File
Export to Excel
Gnatt Chart / Cash Flow
```

► **Now click Gnatt Chart / Cash Flow option. A new window will appear as follows, asking for the file name.**

Open   ? X

Look in: 🗀 1hvacstd   ▼   📁 📝 📁 📰 📰

- 01.hva
- test.hva

File name: 01.hva   **Open**

Files of type: (*.hva)   ▼   Cancel

☐ Open as read-only
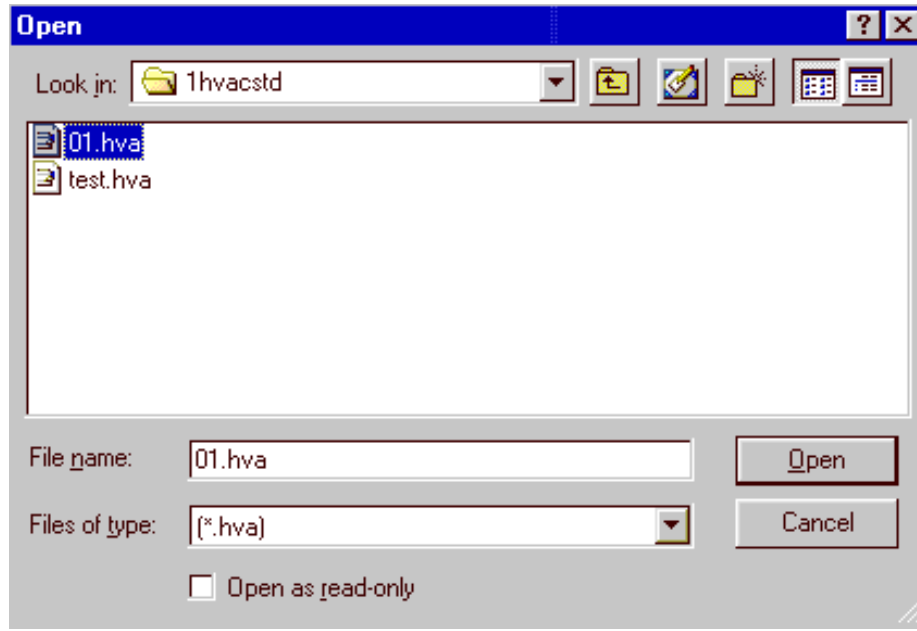
► **Now click " 01 " file & click open. A new window will appear as follows, showing empty Gnatt / Bar Chart.**

DISPLAY / ADDITION / DELETION OF GNATT CHART

Project No : 8912   Project : Central AC Sys for Lab.   Date : 15/5/07

	Chapter / Item	Time in Months
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	PIPING																								
2	VALVES																								
3	DUCTING																								
4	CHILLERS / CT																								
5	A H U																								
6	A C																								
7	DUCT HEATERS																								
8	FANS																								
9	AIR FILTERS																								
10	INSTRUMENT																								
11	PUMPS																								
12	BOILERS																								
13	FIRE FIGHTING																								
14	DRAINAGE																								
15	PLUMBING																								
16	BATH / LAUNDRY																								

Cash Flow / Material / Men : Distribution   **Edit Bar Chart**   **Exit**   **Print**

INSTRUMENTATION | **PUMPS** | **BOILERS** | **FIRE FIGHTING** | **DRAINAGE** | **PLUMBING** | **BATH/LAUNDRY**

PIPING | **VALVES** | **DUCTING** | **CHILLERS** | **A H U** | **A C** | **DUCT HEATER** | **FANS** | **AIR FILTERS**

► **Now let us start constructing Gnatt / Bar Chart.**
Click " Piping " button situated at the left bottom corner of chart. The following window will appear asking for " Enter Start of Piping ". Type 0 & press " OK ".

Start of Bar

Enter Start of Piping Activity

[OK]
[Cancel]

0
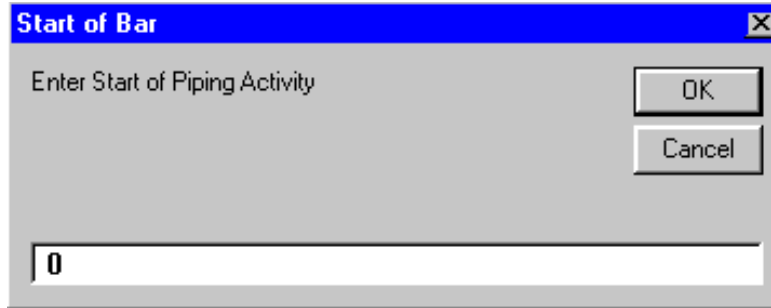
► **Again a new window will appear asking for " Enter End of Piping ". Type 1 & press " OK ". This window is displayed as under.**

Finish of Bar not > 24

Enter End of Piping Activity

[OK]
[Cancel]

1
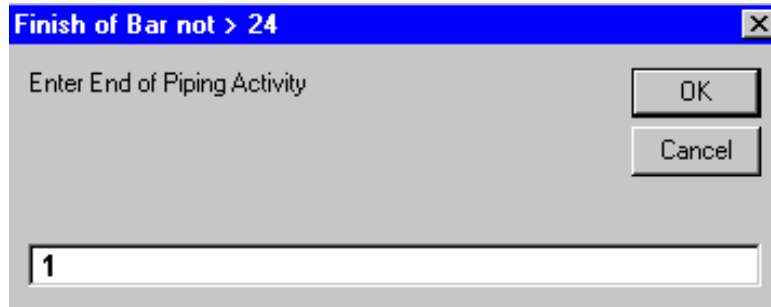
► **Now you will see a RED BAR is displayed between 0 and 1 on the " Piping " ROW.**
Similarly you can prepare the complete GNATT / BAR CHART by clicking various activity buttons such as Valves, Ducting, AHU etc.... I have completed the BAR CHART for the whole project as follows.

Chapter / Item		Time in Months																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	PIPING	■																							
2	VALVES		■																						
3	DUCTING			■																					
4	CHILLERS / CT				■																				
5	A H U					■																			
6	A C						■																		
7	DUCT HEATERS							■																	
8	FANS								■																
9	AIR FILTERS									■															
10	INSTRUMENT										■														
11	PUMPS											■													
12	BOILERS												■												
13	FIRE FIGHTING													■											
14	DRAINAGE														■										
15	PLUMBING															■									
16	BATH / LAUNDRY																		■						

Cash Flow / Material / Men : Distribution	Edit Bar Chart	Exit	Print

INSTRUMENTATION	PUMPS	BOILERS	FIRE FIGHTING	DRAINAGE	PLUMBING	BATH/LAUNDRY

PIPING	VALVES	DUCTING	CHILLERS	A H U	A C	DUCT HEATER	FANS	AIR FILTERS

▶ In case you have made any mistake or wants to change the Bar Chart, just click " Edit Bar Chart " button. Following window will appear.

EDIT/DELETION OF BARS

Section	Item	Bar_Start	Bar_End	
1	PIPING	0	1	
10	INSTRUMENTATI...	9	10	
11	PUMPS	10	11	
12	BOILERS	11	12	
13	FIRE FIGHTING	12	13	
14	DRAINAGE	13	14	
15	PLUMBING	14	16	
16	BATH / LAUNDRY	17	20	
2	VALVES	1	2	
3	DUCTING	2	3	
4	CHILLERS	3	4	
5	AHU	4	5	
6	A C	5	6	
7	DUCT HEATERS	6	7	
8	FANS	7	8	
9	AIR FILTERS	8	9	

Edit Bar Start : 0   Edit Bar End : 1

REMOVE	UPDATE	EXIT

- Just Edit Bar Start or Edit Bar End and click on UPDATE button to register changes. Note that bar end should always be greater then bar start. If you want to delete any activity, (BAR) just take mouse to that ROW & click (select) and press the " REMOVE " button. Now you will notice that the selected activity has disappeared from this edit menu as well as the corresponding RED BAR has also been removed from the BAR CHART. Click Exit.

- Click on the " Cash Flow / Material / Men distribution : " Button to display these parameters. A new window will appear as shown in following 3 nos. of graphics.

COST DISTRIBUTION / CUMULATIVE CASH FLOW :

Organization : Super Civil CD

Client : y. a. agbaotawala

Project : Central AC Sys for Lab.

Project No : 8912

Structure ID : Lab Building

Date : 15/5/07

Month	1	2	3	4	5	6	7	8
Value	14880	16368	12276	16368	19592	13640	10230	12276
% Cumulative	6	14	19	27	36	42	47	53
Over Head	1200	1320	990	1320	1580	1100	825	990
Tax	480	528	396	528	632	440	330	396
Profit	1200	1320	990	1320	1580	1100	825	990
Skill Lab - No	1.25	1.5	1.12	1.5	1	1.25	0.93	1.12
Unskill Lab -...	3.47	4.16	3.12	4.16	2.77	3.47	2.6	3.12
Foreman - No	0.17	0.21	0.16	0.21	0.14	0.17	0.13	0.16
Cash Param...								
Cost	13680	15048	11286	15048	18012	12540	9404.99	11286
Labour Cost	996.6	1197.3	897.6	1197.3	797.6	996.6	746	897.6
Material + O...	12683.4	13850.7	10388.4	13850.7	17214.4	11543.4	8658.99	10388.4
Adv. Recovery	0	1488	1636.8	1227.6	1636.8	1959.2	1364	1023
SD Recovery	0	1488	1636.8	1227.6	1636.8	1959.2	1364	1023
Cash Flow	20790.19	18813.49	17159.59	15394.69	13840.79	11303.38	9925.98	8553.39

9	10	11	12	13	14	15	16	17
13764	13764	13950	14260	12276	10912	5456	5456	0
59	65	72	78	84	89	91	94	94
1110	1110	1125	1150	990	880	440	440	0
444	444	450	460	396	352	176	176	0
1110	1110	1125	1150	990	880	440	440	0
1.37	1.37	1.56	1.87	1.12	1	0.5	0.5	0
3.81	3.81	4.34	5.2	3.12	2.77	1.38	1.38	0
0.19	0.19	0.22	0.26	0.16	0.14	0.07	0.07	0
12654	12654	12825	13110	11286	10031.99	5016	5016	0
1094.79	1094.8	1248.2	1494.5	897.6	797.6	397.9	397.9	0
11559.21	11559.2	11576.79	11615.5	10388.4	9234.39	4618.1	4618.1	0
1227.6	1376.4	1376.4	1395	1426	1227.6	1091.2	545.6	545.6
1227.6	1376.4	1376.4	1395	1426	1227.6	1091.2	545.6	545.6
6890.99	5248.18	3451.98	1540.68	435.58	-929.63	-1832.33	-2483.54	-2736.85

18	19	20	21	22	23	24	Total
4133.33	4133.33	4133.33	0	0	0	0	217867.99
96	98	100	100	100	100	100	100
333.33	333.33	333.33	0	0	0	0	17569.99
133.33	133.33	133.33	0	0	0	0	7027.99
333.33	333.33	333.33	0	0	0	0	17569.99
1.25	1.25	1.25	0	0	0	0	22
3.47	3.47	3.47	0	0	0	0	63
0.17	0.17	0.17	0	0	0	0	3
3799.99	3799.99	3799.99	0	0	0	0	200297.99
996.6	996.6	996.6	0	0	0	0	18139.7
2803.39	2803.39	2803.39	0	0	0	0	182158.28
0	413.33	413.33	413.33	0	0	0	21786.79
0	413.33	413.33	413.33	0	0	0	21786.79
-3733.45	-4226.77	-4720.09	17569.97	0	0	0	17569.97

▶ **The project duration of maximum of 24 months is allowed at a time.**
Note that Cash Flow / Material / Men distribution is entirely dependent on Gnatt Chart.
If you prepare a Bar Chart of 12 months duration & only few required activities then
Cash Flow / Material / Men distribution will correspond to 12 months duration & those
selected activities.

▶ **Lastly Click on the " S CURVE " button. The " S CURVE " will be displayed as under.**

S CURVE
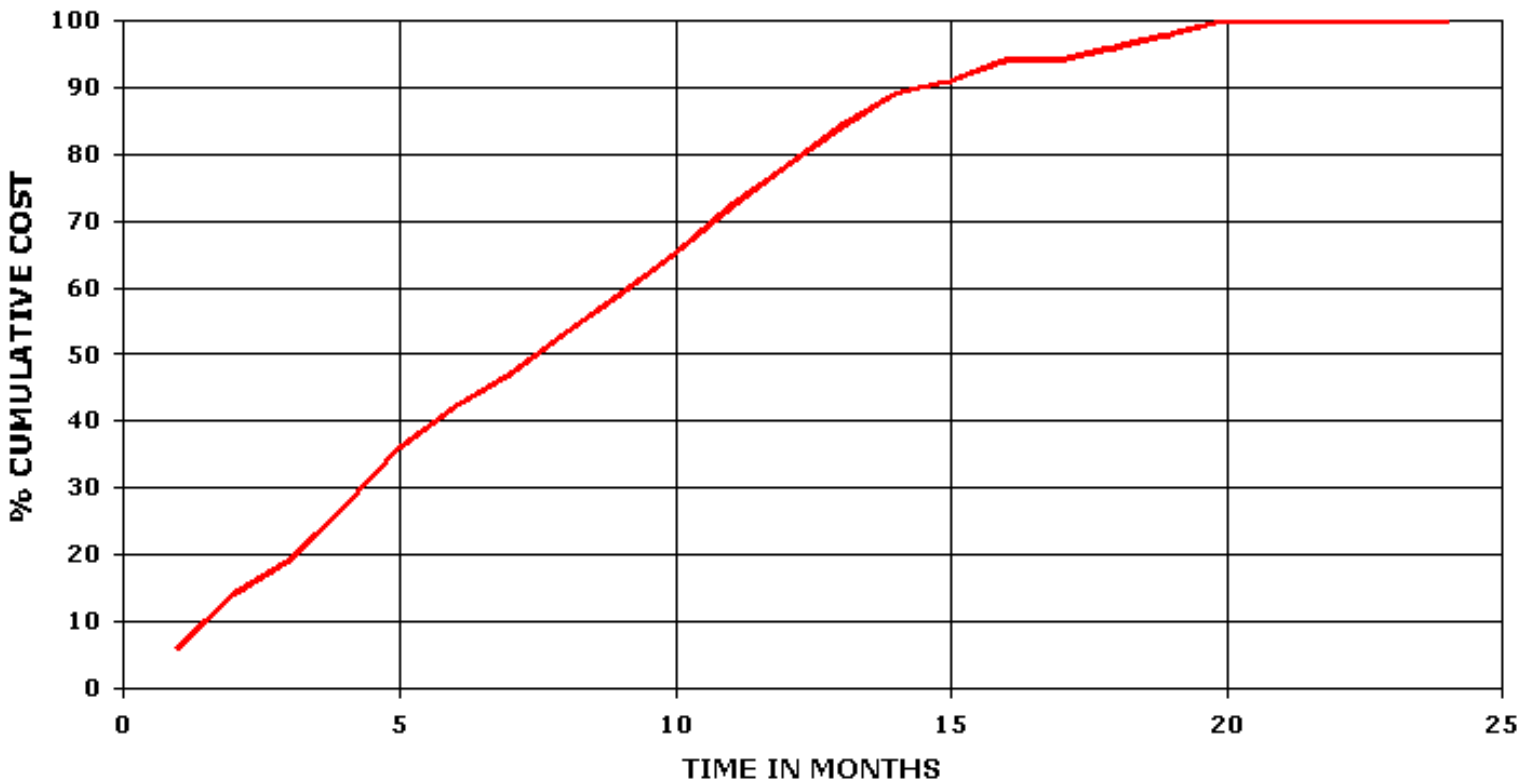
▶ **Click EXIT " 3 " times to return to main menu.**

STEP NO. 12 IS OVER.

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OPTIMIZE_STEEL - A Software for Optimization of Steel Sections from Existing Fabrication Drawing

AutoQty - A Software for Automatic Quantity & Cost Estimation from AutoCAD Drawings