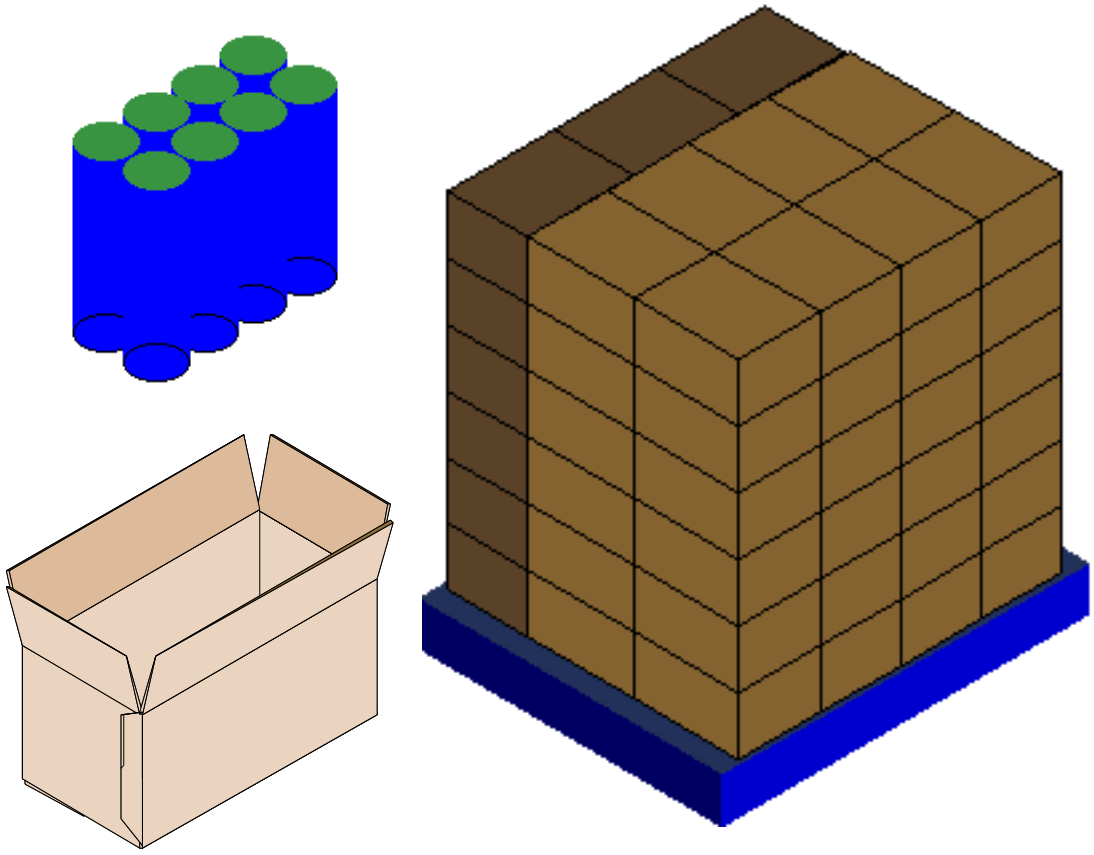
SCA Mecánica

QUICK PALLET MAKER



Version 1.0.9
Macintosh & Windows
Instruction Manual
Updated 10/06/2000

Chapter 1: General Instructions

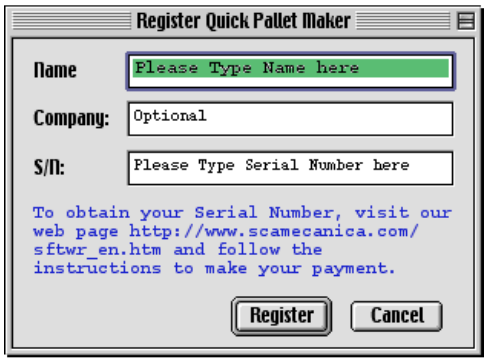
How to install Quick Pallet Maker.

Quick Pallet Maker is available online at the SCA Mecanica web page: http://www.scamecanica.com/index_en.htm. Follow the downloading instructions that appear. Your web browser will automatically save the application in a selected folder that can be accessed through the web browser's settings. To finish installation, move the folder to whichever place you deem more convenient in your hard disk.

How to Register Quick Pallet Maker.

In order to use all the file-handling functions within QPM, which are Saving, Exporting, Copying and Printing (without the DEMO message), you must register the application. This involves making a payment that is a function of the amount of computers on which you wish to use the application. The procedure is the following.

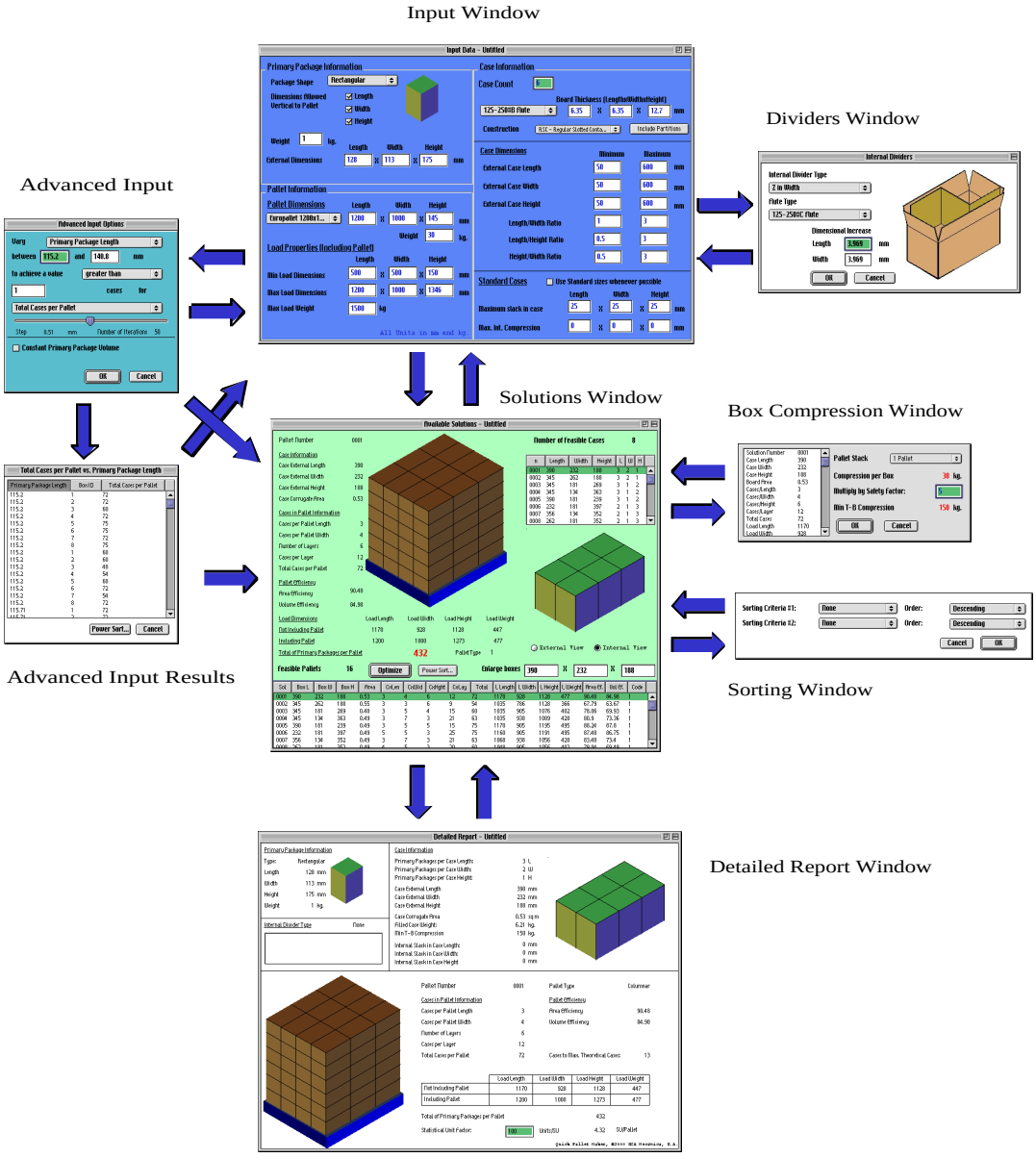
- Pick a payment method, which may be online with a Credit Card or through conventional mail with cash or checks. You may also fax your credit card numbers to the payment processing company. The instructions to do so are available at the SCA Mecanica web site. If you have doubts about this, contact us at sales@scamecanica.com.
- If you made your payment online, a temporary Serial Number will be delivered to you by email. In the next 48 hours, a final Serial Number will be sent. If you made the payment by slower methods (fax, postal mail, etc.), the final Serial Number will be delivered by email once the payment is received. Remember to keep your Serial Number in a safe place, as it will be your reference if you need to request technical assistance.
- Open Quick Pallet Maker and select Register from the Apple Menu at left. Windows users may select from the Window menu at right. A window like the one at right will appear.
- Type in your name EXACTLY as it has been specified in the email that was sent to you. Then type in the name of your Company (optional) and the Serial Number EXACTLY as it was written. Any change in spacing will alter the results and will not unlock the hidden features.
- Once this information has been inputted, the Save, Open, Export, Print and Page Setup menus should be visible (not gray).
- It is recommended to quit Quick Pallet Maker after registering and restart the application.



Chapter 2: How Quick Pallet Maker works

Introduction

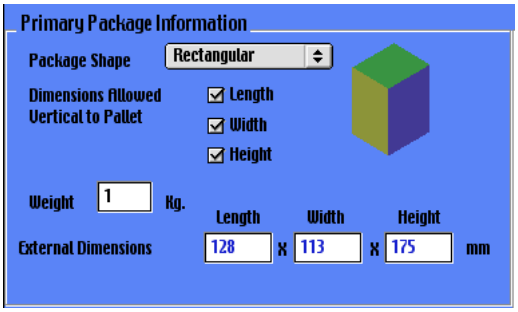
Quick Pallet Maker is essentially a calculating application. In other words, the user will input some data at one stage and issue a calculating command in order to obtain a set of results that are tailored to the input data. The results can be handled to supply the user with modified results from which he/she will calculate the final solution. There are three main windows in Quick Pallet Maker, the Input Window, the Results Window and the Report Window. The user can move through these windows as in the following graph.



When the program starts, the user is presented with the Input Window (darker blue). The basic data is entered in that window and in the Case partitions (dividers) window. The user can use the Advanced Input Options window to vary one of the input parameters and obtain either a table of solutions or just one. The Results Window is accessible directly through the Input Window, or through either the Advanced Input Window or the Advanced Input Table. The detailed report is generated only from the Results Window.

Chapter 3: Setting up the Input Data

Primary Package Section.



The first step the user should take is to set up the information for the Primary Package. The primary package is defined as the largest element that will be packed into boxes. If the user wishes to work with existent boxes and fit them into new spaces, then in this case the Primary Package will be the box and there will be no Secondary Package. Examples of Primary Packages are shampoo bottles, tuna fish cans and Ice Cream boxes.[i]

When setting up the Primary Package, the user must pick from two basic types of packages, which are Rectangular Packages and Cylindrical Packages. Almost all real-life packages can be approximated to either shape. Examples of Rectangular packages are milk cartons, books, drug cartons. Examples of Cylindrical packages are almost all cans (aerosol, tuna fish, cat food, soft drinks, etc.) and most bottles (wine, ketchup, drinks, etc.).

The next step is to choose which one of the dimensions will be allowed vertical to the pallet (upwards or downwards). This option is important because not all Primary Packages (PP) can be stacked in any form. For example, although wine is best kept while lying down, the glass bottles are very fragile when stacked this way. Hence, wine bottles are always placed upwards when shipping. When a PP direction is checked, the program considers that PP direction as an option for stacking upwards. To constrain the PP to fewer positions, simply uncheck some options.

The Primary Package dimensions represent the external dimensions of the Package that is being fit into the boxes. Remember to allow for package (both PP and box) construction error when introducing these dimensions or else a slightly bigger PP or a smaller box may render the calculations useless. In any case, slack can always be added at the end when a box has been chosen. It is not necessary to expand the dimensions of the Primary Package when using internal case dividers, as Quick Pallet Maker will do that automatically.

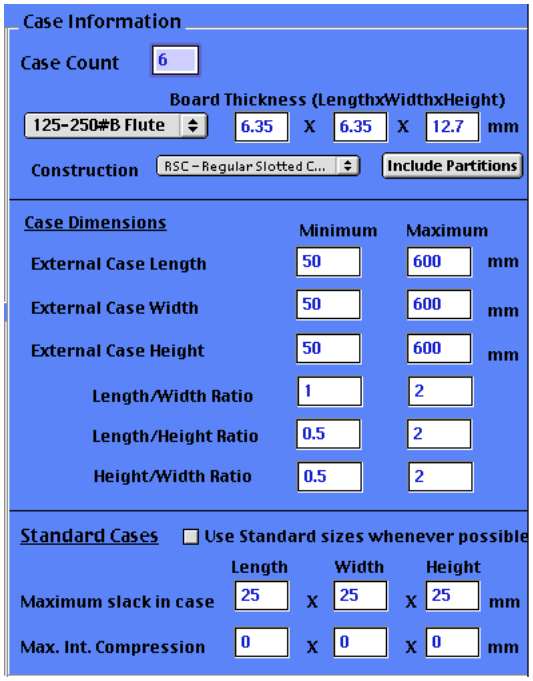
Hidden Feature: Quick Pallet Maker allows the user to test existent boxes in new spaces. An application for this feature is when current boxes are to be applied to new pallets or spaces. This is possible by using the following method:

- Select Rectangular Primary Package.
- Select only PP height in pallet height, unless your box can be placed upwards.
- Input the exact external dimensions of your box in the PP input.
- Select 1 as Case Count
- Type zeros as the corrugate widths to not increase the box dimensions beyond their nominal dimensions.
- Make sure that the box limitations don't affect your box dimensions. For example, if your box were 600x200x300, specifying the maximum Length/Width ratio as 2 would yield no results.
- If you wish to ship on a pallet, select the pallet and its limitations.
- If you wish to ship on a truck or in a container, type zero on the pallet dimensions and type the internal truck dimensions as the maximum dimensions.
- Recalculate and the program will show the boxes as they are placed on the pallet.
- You can optimize the results you obtain and attempt to fit more boxes in the specified space.

Secondary Package Section.

Once the Primary Package information has been completed, the user must specify the characteristics and limitations of the boxes that are to be produced. First of all, the user must specify the case count, which is the amount of Primary Packages per corrugate box. Next, the box construction should be specified. In this case, Quick Pallet Maker will add the board thickness to the internal package dimensions as a function on the amount of corrugate

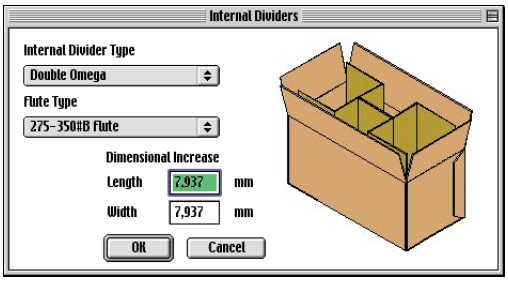
layers that are added to each side of the case and of the thickness of each one of the layers. QPM presents the user with two case options, which are RSC and Trays. The board thickness depends mostly on the board construction or the flute type, which are in this case English Unit standards. Please note that in case the box construction does not fit any of the standard options that are displayed, the added thickness values can be manually typed into their respective boxes. A common practice is to measure the physical board thickness and multiply it by the number of times that the board is placed in each box direction.



Internal Case Dividers (Partitions): Quick Pallet Maker offers the user the ability to include standard internal case dividers inside each box. The dividers that are available are the following:

- Length Single Divider
- Width Single Divider
- Z in Length
- Z in Width
- Single Omega
- Double Omega
- Cell Partition
- Square Liner
- Double Z
- Length H
- Width H

The function of the internal dividers is to add compression strength to the cases and to protect the box contents. A common example of the use of dividers is for packing wine into individual cells by using a cell divider. This adds strength to the box and protects the bottles from damaging each other. Once the Divider type has been selected, the user must select the board thickness from the list of standard board types or use a custom thickness. If the user selects the custom option, then the program will display a box where the user can introduce the thickness.



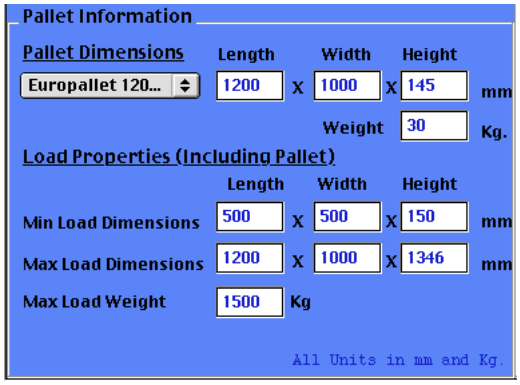
The next step within the box definition is to specify the dimension limitations in the box construction. The user must specify the minimum and maximum case dimensions (external length, width and height). Although in theory a box can have multiple dimensions, in most plants the boxes will share some maximum and minimum dimensions. This is useful to speed up processing time. If you are unaware of the maximum and minimum dimensions for your boxes, use very large values for the maximums and very low values for the minimums.

The ratios between the box external dimensions are a simple way of controlling the performance of the boxes within the plant distribution process. Quick Pallet Maker can allow the user to prevent his/her boxes to be too long (or too short), too narrow (or too wide) or too tall (or too short). These ratios are calculated by dividing the related dimensions. For example, a box 400-mm long by 250 mm wide will have a Length/ratio of 1.6. If the user wishes to produce similar boxes, the Length Width ratios should at least span between 1 and 2.

Standard Cases: Quick Pallet Maker features a Standard Case option that allows the program to choose from the case with standard dimensions that is closest to the case that results from calculations. The slack that will be added to the cases or the compression that will be given to achieve this value will depend on the values that the user has specified. For example, if QPM has obtained a case that measures 235 x 190 x 230 mm (external dimensions), it will be approximated to a case measuring 240 x 200 x 230 mm. This box can be placed on a 1200 x 1000 mm Europallet with 100% area efficiency. For standard cases with English units (inches), Quick Pallet Maker will approximate the

Case Height in addition to the case Length and Width. Packaging facilities that operate only with standard cases have greater chances of packing multiple products efficiently on a pallet. A complete list of the Standard Cases that are embedded into Quick Pallet Maker appears at the end of this manual.

Pallet Input Section.

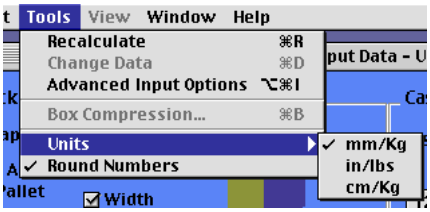


Most loads are transported on some type of Standard shipping pallets. This represents a convenient method of stacking and storing in warehouses and loading into trucks and containers. Forklift trucks are used to quickly shift the pallets from one place to the other.

The user can pick from a list of Standard pallets or type in the dimension of the pallet she/he chose. If the boxes are transported without pallets, the user can opt to type zeroes in all the pallet dimensions. The pallet has a weight that is associated with it and must be inserted in order to calculate the box compression resistance once the solutions are obtained.

Once the shipping pallet has been specified, the user must determine the minimum and maximum load dimensions. This will allow the program to reach an optimal solution quickly. The minimum load Length and Width will determine the maximum underhang that is allowed on the pallet sides[ii]. These dimensions are indicators of the acceptable area efficiency, while the minimum load height is an indicator of the lowest volume efficiency. If you are unsure of these minimum values, zeroes can be placed as values for the program to accept any pallet. The maximum load length and width are usually constrained to the pallet length and width, as overhang is usually unacceptable (hence the default values). However, the user may override the default values and type in the values he/she chooses (to add overhang). When shipping directly into a truck or container, the maximum dimensions will correspond to the truck or container dimensions. The maximum load weight should include both shipping pallet and load. Most of the time, this value will be limited by the maximum weight that the plant forklift trucks can carry. Please ask the logistics supervisors at the plants and/or distribution center for this value.

Changing the Work Units

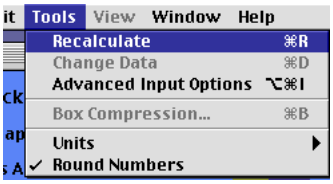


Prior to the introduction of data, the user must select the work units for his/her project. Quick Pallet Maker allows millimeters, centimeters or inches as length units and kilograms or pounds as weight units. The combinations are mm/kg, cm/kg and in/lbs. If the units are changed after some data has been introduced, the data will be lost. To change the units, the user must choose an option from the Tools menu (see picture). The round numbers option will limit the decimals to zero for the resulting case and load dimensions. This is highly recommended when using mm and it is discouraged when using inches (as an inch is a large unit). For centimeters it's up to the user.

Saving and Opening Input Data

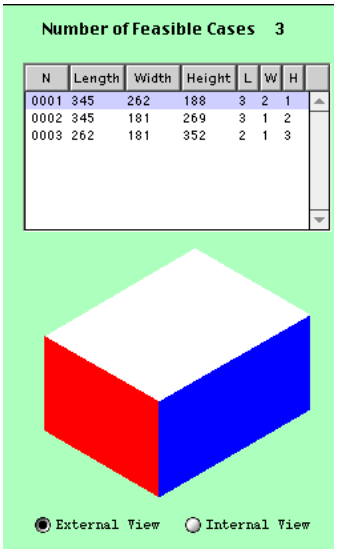
Quick Pallet Maker allows the user to save the Input Data onto a hard disk or other media, through the Save command. This data can be later called by QPM through the Open command. Save and Open windows act in the same form as most application windows for the Operating System that you are working with (Windows or Macintosh). The QPM file is a text-based file that can be read by any application that can read text files. Tampering with the file may render it useless. The information that is contained includes units settings and whether the application will use round numbers or not, besides all the information on the main Input Window and the Dividers window. To see the name of the file in use, select the Window menu as in the examples at right.

Chapter 4: Analyzing the Results



To obtain the results for the input data that has been introduced, the user must select the Recalculate command from the Tools menu (see picture). If the program couldn't find at least one solution that would abide with the input data, then a message box appears. Most of the time it may be related to the limitations that are used. If this occurs, then the solution ranges must be made wider. If this problem is recurrent, then send an email to qpmfdback@scamecanica.com and one of our contacts will assist you.

Case Results



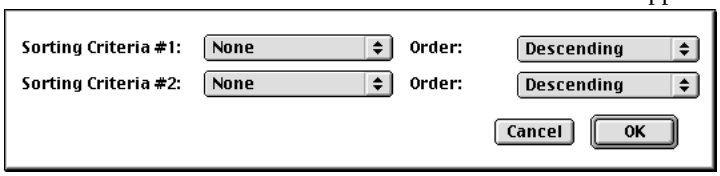
If the application has recalculated successfully, the user will be presented with at least one case configuration and at least two pallets (two per type of case). A drawing of the selected case will appear below the list of cases that were obtained. By clicking on a solution, the drawing will update to match the solution. Once the box list has been activated, the user can move between boxes with the up and down keys. Selecting internal view will display the primary packages within the box. The colors of the PP match those of the Input Window. The last three column headings indicate the number of primary packages per case length, case width and case height, respectively. Although internal dividers are not pictured in the case drawings, they are taken into account during the calculations. Standard cases are represented in bold letters.

Pallet Results.

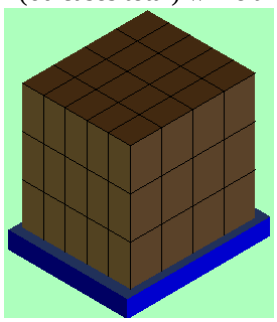
For each case that has been obtained, Quick Pallet Maker will generate two pallets. The first pallet is a result of fitting the case length into the pallet length and the case width into the pallet width (pallet type #1). Fitting the case length into the pallet width and the case width into the pallet length produces the second pallet (pallet type #2). The last column on the pallet table will indicate the type of pallet. Navigating within the Pallet Results table will update the box for the pallet that has been selected. Each pallet on the result table contains the following information:

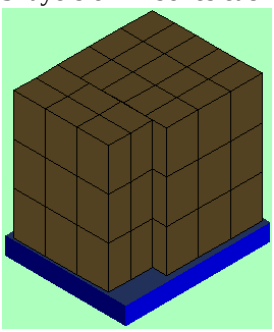
- Pallet Number
- Box External Length
- Box External Width
- Box External Height
- Knocked Down Flat (KDF) board area
- Cases per Pallet Length
- Cases per Pallet Width
- Cases per Pallet Height (Number of layers)
- Cases per Layer
- Total cases per pallet (Number of layers x cases per layer)
- Load Length (not including pallet)
- Load Width (not including pallet)
- Load Height (not including pallet)
- Load Weight (including pallet)
- Area Efficiency (%)
- Volume Efficiency (%)
- Pallet Type (1 to 4)

The pallet results can be sorted according to the criteria that the user deems most relevant. Clicking on the Power Sort button that is located above the table activates this function. A window similar to the one below will appear. The user can pick from two types of criteria. For example, a reasonable sorting procedure would be to select the Cases per Pallet as the first criteria in a descendant order and the corrugate area as the second criteria in an ascending order. This will allow selecting the pallet that saves the most money by a) fitting more cases per pallet and b) by using boxes with less board area (less corrugate board per box).



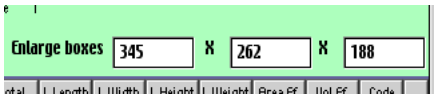
The pallets that have been mentioned earlier are called columnar pallets, where the cases are organized in rows and columns. This method of organizing the cases is the most recommended for automatic packaging systems. However, Quick Pallet Maker can attempt to increase the cases per pallet by moving the rows and columns of cases within the pallet. To optimize a pallet load, press the Optimize button after selecting a pallet. If it is possible to add more identical cases to the pallet, a new pallet will be added to the end of the list. If not, then a message will appear. The following two drawings represent a pallet prior to optimization and after optimization. The pallet at left contains 3 layers of 20 boxes each (60 cases total) while the pallet at right has 3 layers of 21 boxes each (63 total).





The user will note that some boxes may allow four configurations (numbered 1 to 4), which are the #1 and #2 (previously explained) and the #3 and #4 which are the result of optimizing the #1 and #2, respectively. Whether #3 or #4 deliver more boxes, depends on the box and pallet dimensions.

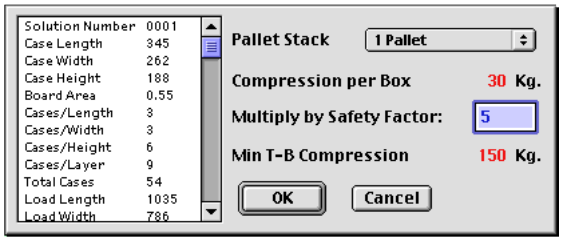
Quick Pallet Maker provides an efficient way to add internal slack to the cases. The user clicks on the preferred pallet and the external box dimensions will appear in rectangular boxes as in the drawing at right.



The featured dimensions are the case Length, the case Width and the case Height. The user can type a new value into the windows and increase the dimensions until they exceed the maximum allowance. The maximum load dimensions that were introduced in the Input Window determine this allowance.

Box Strength Analysis

Quick Pallet Maker provides the user a method of calculating the minimum Top to Bottom compression strength that the loaded container must stand. QPM calculates the weight that the boxes in the bottom layer support and multiplies that number by a safety factor. The weight on the bottom boxes is a function of the number of pallets that are stacked on top of each other. The user can set this value to a maximum stack of 6 pallets. The most important part in this procedure is to set the Safety Factor. Under perfect warehousing and shipping conditions (no humidity, perfect stacking, constant corrugate strength and zero vibrations), this Safety Factor would be equal to 1. However, in real life all these factors must be taken into account. If your company is not acquainted with the safety factor that is used, our first suggestion is to talk to your box vendor. The boxes your company purchases should display their strength on the bottom of the case. If not, the vendor may let you know.



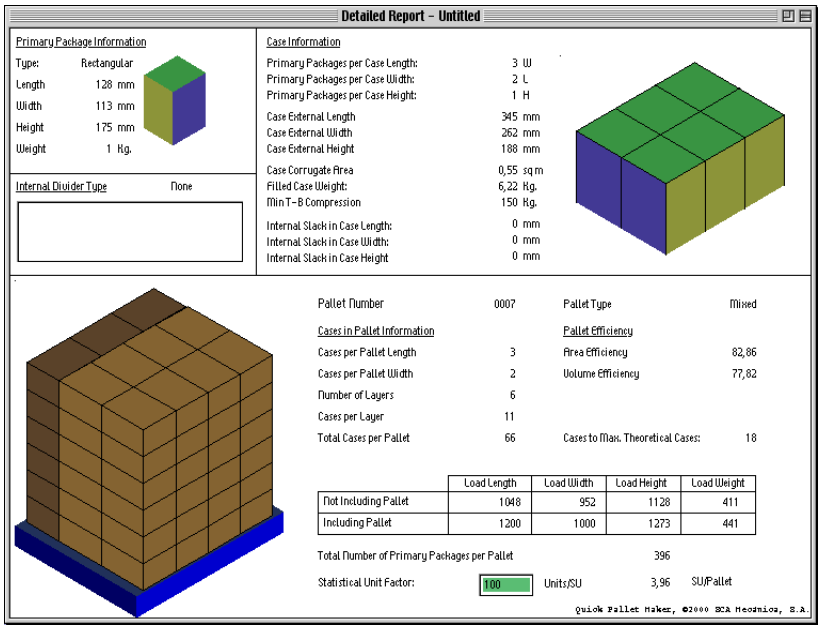
Finding out your current safety factor may help you know what value is safe. However, this should involve other levels of management like the Quality Assurance department, Plant Management, Logistics, Warehousing, Purchasing, etc. SCA Mecánica, S.A. is not responsible for any liabilities involving an incorrect selection of this value.

Copying Results to Spreadsheets

The pallet results that are displayed in the table at the bottom of the Output Window can be copied to any application that accepts copy and paste. To do this, select the pallets you wish to copy and select the copy command. This procedure is useful in case the user wishes to present his/her superiors with various options.

Chapter 5: Generating Reports

Quick Pallet Maker can generate a Detailed Report that contains all the information that was used to obtain a particular solution. This includes the Input Data and all the Output Data. The Report Window will look something like this:



Working with Statistical Units

The report displays a small window on the bottom where the user can type in a Statistical Factor. This factor represents the amount of Primary Packages that the company considers a Statistical Unit. For example, if a paper company sells notebooks in SUs of 220 notebooks/SU, then Quick Pallet Maker will display the amount of statistical units that are carried per pallet. In this way, the logistics department will be certain of the amount of pallets to ship depending on a specific order.

Printing the Report

This report can be printed in either a Letter size (11"x8.5") or an A4 sized paper in landscape mode. Color printers are recommended for better output (although not indispensable).

Exporting the Report

The user can select from text-only export or from graphics export. The latter requires installation of Apple QuickTime, which can be downloaded for free at the Apple Computer, Inc. web site http://www.apple.com.[iii] Text-only export is useful for creating custom reports, as it will save all the information in a text format that can be read by common spreadsheet applications or by word processors. The user can export both text and graphics to create a custom report that includes the Primary Package, Box and Pallet drawings. For speed, the default report is recommended as it can easily be exported to a graphics format like JPEG, Windows Bitmap (BMP) or Macintosh PICT and easily shared with colleagues.

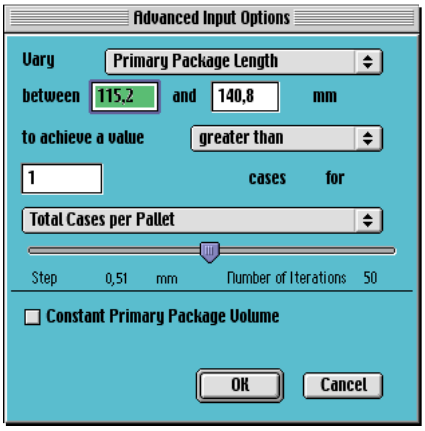
Adding Company Logos

The standard Quick Pallet Maker report displays a window that is 215 x 60 pixels wide at the left side of the report. The user may copy and paste any picture he/she wishes in that section. This only works with pictures, as any text

will be pasted into the Statistical Units section. If the user insists on putting text into the window, a trick is to generate the text with a painting program and copying it as graphics.

Chapter 6: Advanced Features

Using the Advanced Input Features[iv]



Sometimes it is necessary to solve a packaging problem that involves testing how the loads will react to changes in Input Data. Quick Pallet Maker has introduced a method that calculates all the solutions in a given range and selects those that fit a certain criteria. This feature is called the Advanced Input Option. When the AIO feature has been selected, a window similar to the window at right will appear. This method eliminates the guesswork from a packaging decision and speeds up decisions.

Input Types

The input type is the value that will be varied in a determined interval. Quick Pallet Maker allows the user to vary the Primary Package Weight, the PP Length (or Diameter), the PP Width, PP Height, the Case Count, the Maximum Load Height and the Maximum Load Weight. When any of these options are selected, the ranges will update to present reasonable default values.

Output Types

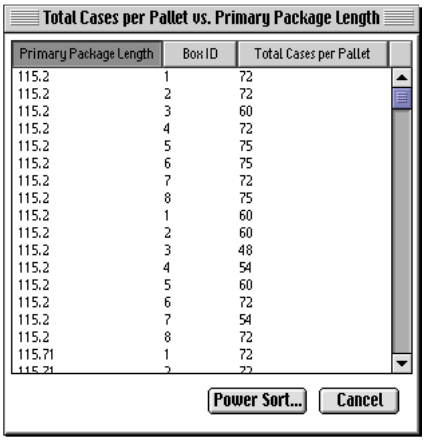
The output type is the target value that the user wishes to obtain. The options are:

- Board Area per box
- Cases per Layer
- Total cases per pallet
- Area Efficiency
- Volume Efficiency
- Primary Packages per Pallet

The latter four are indicators of pallet efficiency. These targets can be met with six different criteria: a) greater than, b) less than, c) in between, d) equal to, e) as low as possible or f) as high as possible. When selecting a, b or d, the user will be prompted with one value. Choosing option c) will prompt the user with two values. The latter two options do not require values. If e) or f) are chosen, the user must pick between displaying a list of results or the pallets for just the best result.

Constant Volume Option

Quick Pallet Maker offers an option to vary the Primary Package dimensions while keeping the PP volume constant. This is useful for designing packages for products that are sold by volume and/or weight and need to be optimized for shipping. When varying one of the Primary Package dimensions, the user can select the constant volume option and the program will adjust the remaining dimensions to accommodate for the change in the main dimension. For example, if the user is varying the PP Diameter in a food can, Quick Pallet Maker will change the PP Height to keep the volume constant.



Viewing the Results

After iterating, Quick Pallet Maker will display a window similar to the one at right, unless the user has chosen to display the best result only. If working with the best result, QPM will automatically calculate the pallets for that specific input. This window will display additional information

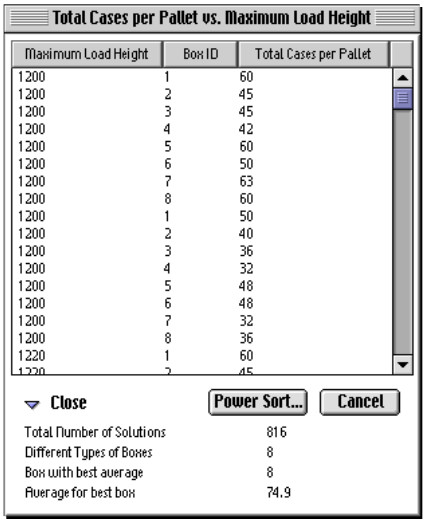
when the box dimensions are kept constant. This occurs when the user has selected PP Weight, Maximum Load Height or Maximum Load Weight as variables. From this window, the user can:

- Copy the data to a spreadsheet application or to any program that accepts text pasting , or
- Double-click on a result to calculate the pallets for that result

Additional Information:

When the user chooses to vary the Primary Package Weight, the Maximum Allowable Pallet Load Height or the Maximum Allowable Pallet Load Weight, the Iterations Window will include information on how to pick the optimal case configuration. Please note that when any of the three properties mentioned before are varied, the Box dimensions will not change between solutions. Therefore, the user will need to pick a specific type of box. To aid that decision, the advanced statistics are shown as in the window at right. These are:

- Total number of solutions.
- Different types of boxes
- Box with best average: In this case, the values for the target solution are averaged and compared. The box number with the best value is shown.
- Average for best box: Value mentioned before.



Chapter 7: Reference

Quick Pallet Maker Menus

Apple Menu (Mac OS only):

- About Quick Pallet Maker: Displays the window with program information.
- Register: Displays the Registration Window. Does not appear if the user has already registered the application.

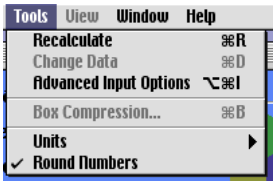
File Menu:

- Open Input Data: Displays a standard Open window where the user selects a file that has been previously saved. Does not appear on the DEMO.
- Save Input Data: Displays a Standard Save Window, where the user can save the Input Data that he/she has been working on. Will not appear on the DEMO, only on the registered product.
- Export Report: Export as text or choose from a variety of graphics formats (BMP, PICT, JPEG, etc.) to save the report information. Will not appear on the DEMO, only on the registered product. This command is visible only from the Report Window.
- Page Setup: Displays a standard Page Setup Window, depending on the user's selected printer. Will not appear on the DEMO, only on the registered product. Available only for the Mac OS. On Windows, use the Print command and select Properties from the Printing window.
- Print Report: Will not appear on the DEMO, only on the registered product.
- Quit: Quits Quick Pallet Maker.

Edit Menu:

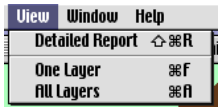
- Cut
- Copy: Will not appear on the DEMO, only on the registered product.
- Paste
- Clear

Tools Menu:



- Recalculate Tool: Calculates solutions based on the available Input Data. Will display the solutions window from the Input Window.
- Change Data: Switches from the Solutions window to the Input Data window or from the Report Window to the Solutions Window.
- Advanced Input Options: Displays the Advanced Input Window where the user can select an input range to seek an optimal solution. This is only possible from the Input Window.
- Box Compression: Displays the Box Compression window, where the user can calculate the minimum top-bottom compression resistance. The user can modify the number of pallets that are stacked on top of each other and the safety factor involved with the corrugate carton design. This procedure is possible only when a pallet has been selected from the Solutions Window.
- Units: User picks from mm/kg, inches/lbs. or cm/kg. This change can occur from the Input Window only.
- Round Numbers: When checked, the solutions will only be available without decimals. Will appear as default for mm and cm.

View Menu:



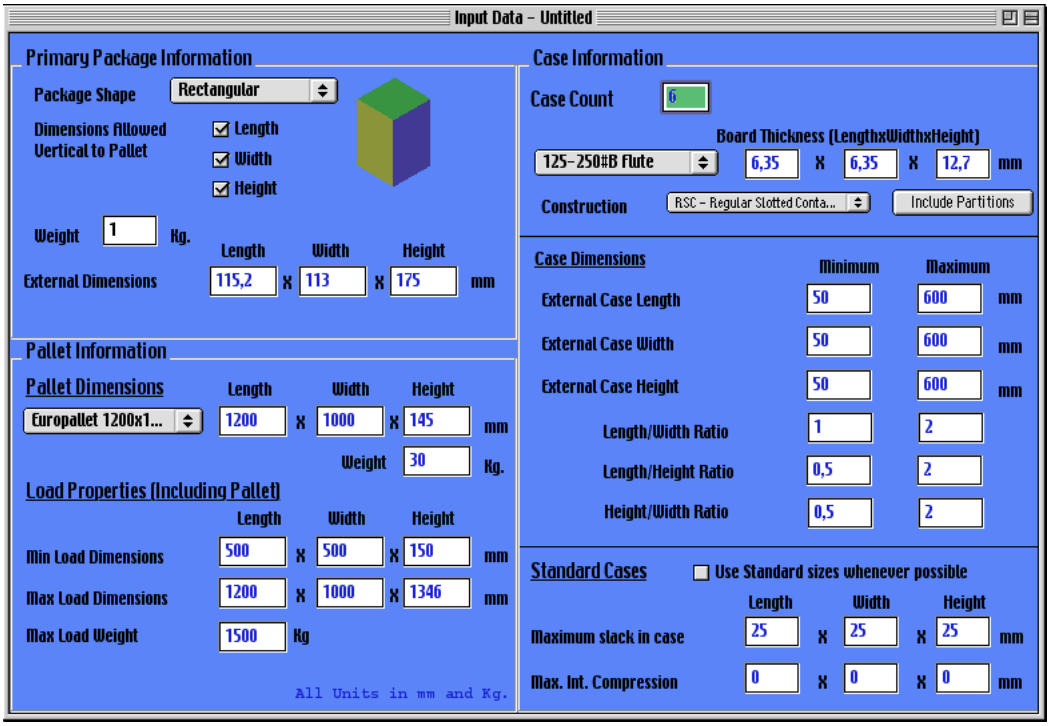
- Detailed Report: From the solutions window, this command will display the final report that summarizes the Packaging Information.
- One Layer: On mixed pallets, will display just the first layer to save time while redrawing.
- All Layers: Will display all layers on mixed pallets.

Window Menu:

- File Name: This will display the name of the file that is currently being used.
- About Quick Pallet Maker (Windows OS only): Displays the window with program information.
- Register (Windows OS Only): Displays the Registration Window. Does not appear if the user has already registered the application.

Quick Pallet Maker Windows

Input Window:

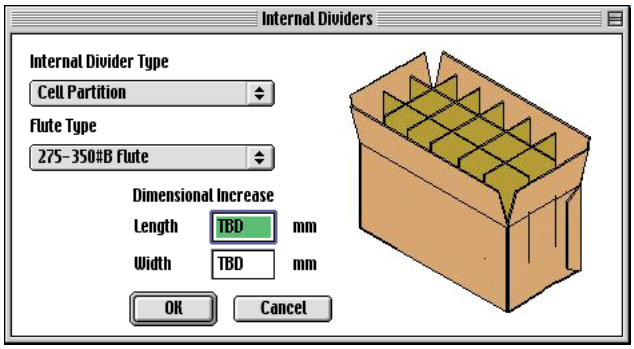


Primary Package Information:

- **Package Shape:** Pick from Rectangular or Cylindrical depending on whether your Primary Package looks more like a can or like a box, respectively.
- **Dimensions allowed vertical to pallet:** If you check all of these, then your Primary Package can be placed in every position within the box. Uncheck some elements if you wish to constrain your Primary Pack to some positions.
- **Weight:** Primary Package Gross Weight.
- **External Dimensions:** Insert the external dimensions of the Primary Package that you are considering. If you wish to find the best solution or test different options, pick the Advanced Input option from the Tools menu.

Case Properties:

- **Case Count:** Insert the number of Primary Packages per case. Again, if this is undefined, choose the Advanced Input Option.
- **Flute Type Pull-Down Menu:** Use this menu if you know the board grade for your boxes. If not, type in the additional space that each box takes in the adjacent spaces; Length, Width and Height respectively.
- **Construction Type:** Pick a Regular Slotted Container or a Tray from this menu. Again, if you wish to type in the data directly, it will overrule this pull-down menu.
- **Include Partitions:** Click here if you wish to add standard internal partitions to your box. For the Partitions window, select the Partition Type and the standard board thickness. Again, typing the internal thickness factor will overrule the partition selections.

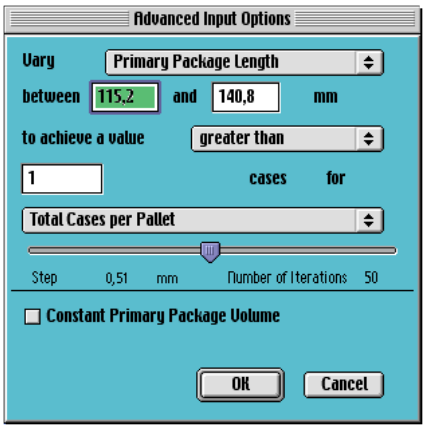


- **Maximum and Minimum Case Length, Width and Height:** If this is not a concern, pick low values for the minimum and high values for the maximum. Most errors rise from a wrong selection of these values.
- **Maximum and Minimum Case Dimensional Ratios:** This option allows you to pick ratios between the external case dimensions. This is useful for production plant logistics as a relatively high, narrow or long box may affect handling. If this is not a concern, pick low values for the minimum and high values for the maximum.
- **Standard Cases:** Check here if you wish to round the case dimensions to European or English standard cases (if possible). In addition to checking the box, a minimum and maximum in-case slack must be set (negative values or compression are acceptable but not recommended).

Pallet Properties:

- **Pallet Dimensions:** Pick a standard shipping pallet from this pull-down menu. You may override this menu by introducing the Length, Width and Height values at right. The pallet height is for the empty shipping pallet, not the load. If you wish to ship without a pallet, introduce zero for all the values.
- **Pallet Weight:** Type the shipping pallet weight.
- **Minimum Load Dimensions:** Type the Length, Width and Height for the load you wish to obtain. If not a constraint, type a low value.
- **Maximum Load Dimensions:** For this input, Length and Width should be equal to the shipping pallet dimensions unless overhang is added deliberately. Maximum load height includes the shipping pallet. If unsure of this value or if it varies between warehouses, use the Advanced Input Options.
- **Maximum Load Weight:** In Kilograms or lbs. (Including the shipping pallet).

Advanced Input:

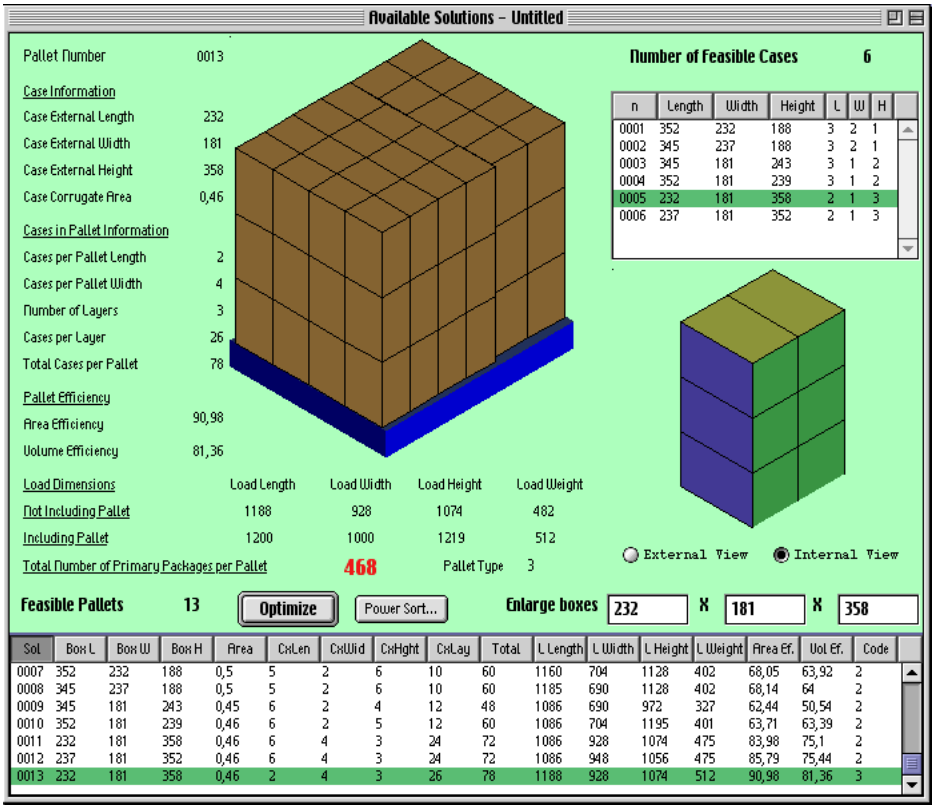


This window was designed to calculate the best solutions by varying the selected input variable. This will override the normal solution calculation process and return a range of solutions for a range of data or the best solution, given the range of data. The selection criteria of the solution can be changed.

- **Vary:** Pick the variable that you wish to work with to produce different solutions.
- **Between:** Choose the lower and superior limits for the variable that you have chosen.

- **Achieve a value:** Select the criteria that match the type of results that you wish to obtain.
- **Value:** Can be a minimum, maximum, range or exact value, depending on the selected criteria.
- **For:** Select the target criteria that will be benchmarked.
- **Constant Volume:** Check this box if you wish your Primary Package to maintain constant volume. This is specially useful for products that are sold by weight or volume (grains, liquids, etc.).
- **Show All Results or Only Show Best Result:** Push either button to obtain only the best solution given the input criteria or a range of solutions that satisfy the criteria.

Output Window:



Box Section:

Pick the internal or external case view options and anyone of the feasible cases, given the input data.

- The table above the box drawing presents the following information:
  - **n:** Indicates the solution number.
  - **Length:** Case External Length
  - **Width:** Case External Width
  - **Height:** Case External Height
  - **L:** Primary Packages per Case Length
  - **W:** Primary Packages per Case Width
  - **H:** Primary Packages per Case Height
- **External or Internal View:** Press this button to view the arrangement of the Primary Packages within the selected case.

Pallet Results Section:

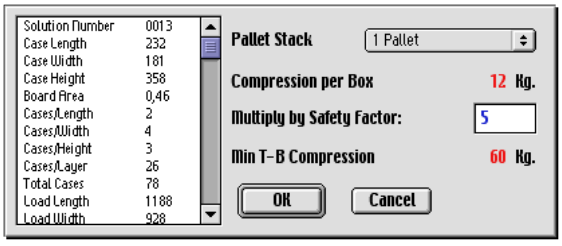
This window displays **all** the solutions that were found using the input data (including the constraints that were established). The following can be done from this section:

- View different pallet solutions by clicking on the solution line or by moving with the up and down arrows. The pallet drawing and the box drawing will immediately update to reflect the pallet that is being chosen. If the user changes pallet number while pressing the Control key (Mac OS only), the case drawing will toggle from internal and external views. For Windows OS, select the case internal and external views manually.
- Optimize the pallet by turning around rows of boxes. Click Optimize after selecting a pallet, press Return (Mac OS) or Enter (Windows OS) to try to add more boxes (of the same size) in the pallet. This is not possible on all pallets. A message box will indicate when it is not possible. Originally, the pallets are arranged in a columnar fashion to comply with most automatic pallet loading equipment. However, this can be overruled to add more cases per pallet by shifting some pallet rows, which is the purpose of the Optimize button. Clicking once on the new pallet will update the pallet drawing.
- Sort the results by clicking on the Power Sort button. Clicking on the headings of the load characteristics will sort them in increasing order (bottom to top).
- Add slack to the cases in order to round the dimensions, to increase box stability or to reduce the risks of box manufacturing fluctuations.

Procedures:

- *Optimizing Pallet Arrangements:* Select the solution you wish to optimize as a function of the case dimensions of your preference. Click the Optimize button or press Return. A new solution will appear. Select the new solution by clicking on it to display the shifted boxes. An alert message will appear if the new solutions do not improve the case count.
- *Sorting the solutions:* To identify the most convenient solution according to your requirement, click on the Power Sort button and select the sorting criteria by variable type and order.
- *Adding slack to cases:* If you would like to add slack to a specific solution, select the pallet solution and the external case dimensions appear in the boxes on top. Increase the values until desired or until the program alerts you. Click again on the solution line to display the expanded cases. Slack is used to add stability to a Pallet Arrangement and to protect against box manufacturing variations.

Box Compression Window:



This window calculates the minimum Top to Bottom compression strength that each case must support, given a safety factor. This factor can be estimated using corrugate design procedures or the default value may be used. To use this feature:

- Open this window after selecting a solution in the Pallet Results table.
- Indicate how many pallets will be stacked on top of each other.
- Introduce a Safety Factor. Please ask your corrugate container supplier on which value to apply.
- The minimum Top to Bottom compression is displayed for the pallet arrangement.

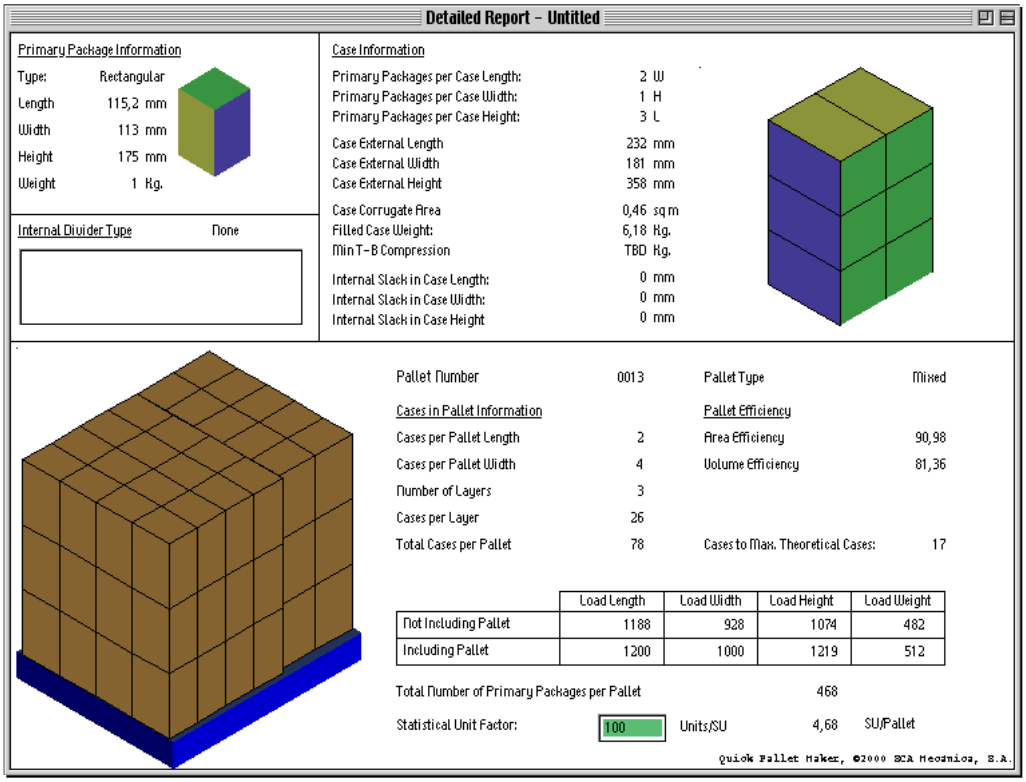
Report Window:

This window displays all the solutions and the input data that was used to solve the specific problem.

Procedures:

- *Change the Statistical Unit factor.* Many companies refer to their products in terms of Statistical Units, which are particular to each product. Enter any factor in this window and Quick Pallet Maker will automatically give a pallet result in terms of statistical units.

- *Print the Report:* The report that is shown will be printed on a page by pressing Command + P (Mac OS) or Control + P (Windows OS). Don't forget to select a Landscape Page Layout for the drawing to not be cropped. Works with Letter size and A4 paper.
- *Export the Report:* The report can be exported as any image file format or as a text-based document. This includes Macintosh PICT, JPEG and Windows Bitmap (BMP). QuickTime 4 (free from Apple Computer) is required for this operation.
- *Add a logo:* Pasting a picture onto the Report will add it within the square at the left side of the report.



Standard Cases embedded in Quick Pallet Maker

As mentioned earlier, the user can pick to convert calculated box dimensions to Standard box dimensions automatically. The user sets an appropriate amount of internal case slack and/or compression. The following is the list of standard cases that Quick Pallet Maker picks from when the user selects this option.

Metric System Standard Cases (mm - Length x Width):
400x300, 400x200, 300x200, 600x400, 600x200, 330x200, 400x240, 500x300, 500x240, 500x200, 500x400, 330x240, 300x240, 240x200 (the same cases are available in cm)
English Units Standard Cases (inches - Length x Width x Height):

8x8x4, 8x6x4, 8x6x6, 8x8x4, 8x8x4.5, 8x8x6, 8x8x8, 8.875x8.5x12, 8x8x36, 8x8x42, 9x5x5, 9x6x6, 9x7x5, 9x9x6, 9x9x9, 10x4x4, 10x5x5, 10x6x4, 10x6x6, 10x8x6, 10x8x8, 10x10x3, 10x10x4, 10x10x5, 10x10x6, 10x10x10, 10x10x12, 11x11x11, 11.25x8.75x5, 11.25x8.75x6, 11.25x8.75x12, 11.75x8.75x4.75, 11.75x8.75x8.75, 12x4x4, 12x6x4, 12x6x6, 12x8x6, 12x8x8, 12x9x2, 12x9x3, 12x9x4, 12x9x6, 12x9x9, 12x9.875x4, 12x10x3, 12x10x8, 12x10x10, 12x12x4, 12x12x6, 12x12x8, 12x12x10, 12x12x12, 12x12x16, 12x12x18, 12x12x24, 12x12x36, 12x12x48, 13x11x5, 13.5x13.5x7.5, 13x13x4, 13x13x7, 13x13x13, 14x6x4, 14x6x6, 14x8x6, 14x8x8, 14x10x4, 14x10x6, 14x10x8, 14x10x10, 14x12x6, 14x12x10, 14x12x12, 14x14x2, 14x14x6, 14x14x8, 14x14x10, 14x14x12, 14x14x14, 14.5x8.75x12, 15x2x9, 15x10x5, 15x12x6, 15x12x10, 15x12x10, 15x12x12, 15x15x12, 15x15x15, 15x15x30, 16x6x6, 16x8x6, 16x10x8, 16x10x10, 16x12x4, 16x12x6, 16x12x8, 16x12x12, 16x16x4, 16x16x6, 16x16x8, 16x16x10, 16x16x12, 16x16x16, 17x17x8, 17x17x12, 17x17x17, 17.25x11.25x6, 17.25x11.25x8, 17.25x11.25x10, 17.25x11.5x6, 17.25x11.5x11, 17x17x17, 18x6x4, 18x6x6, 18x8x6, 18x10x6, 18x11x6, 18x12x6, 18x12x8, 18x12x10, 18x12x12, 18x12x14, 18x14x8, 18x14x12, 18x14x14, 18x16x6, 18x16x14, 18x18x4, 18x18x6, 18x18x12, 18x18x18, 18x18x24, 18x18x30, 20x5x5, 20x10x8, 20x12x6, 20x12x8, 20x12x12, 20x13x10, 20x14x6, 20x14x10, 20x14x12, 20x14x14, 20x15.75x32.5, 20x16x14, 20x18x12, 20x20x4, 20x20x6, 20x20x12, 20x20x14, 20x20x18, 20x20x20, 20x20x26, 20x20x36, 22x14x12, 22x22x22, 24x4x4, 24x5x18, 24x6x6, 24x10x10, 24x12x6, 24x12x12, 24x14x4, 24x14x12, 24x16x4, 24x16x16, 24x18x6, 24x18x12, 24x18x22.5, 24x20x6, 24x20x12, 24x20x20, 24x24x7, 24x24x12, 24x24x18, 24x24x20, 24x24x24, 36x36x36

Please address any questions/remarks to QPMfdback@scamecanica.com

---

[i] There can three maximum types of packages in Quick Pallet Maker; a Primary Package, a Secondary Package (boxes) and a Tertiary Package which is the pallet. Throughout these instructions, the user will note that not necessarily the three types have to exist.

[ii] For example, maximum underhang in Length = Pallet Length - Minimum Load Length. Same applies for the load width.

[iii] Windows (95, 98, NT, 2000) and Macintosh versions available.

[iv] For examples on the use of the Advanced Input Options, visit our web site: http://www.scamecanica.com/index_en.htm