

*Theory of Operation*

# AVAproject Fusion





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## Introduction

*AVProject Fusion* unleashes a world of capabilities from the already robust *AVProject Suite*. The purpose of this document is to expose the inner workings of both *AVProject* and *AVProject Fusion* files, as well as provide an operational overview of *AVProject Fusion* and the power it provides.

## Anatomy of an AVAproject File

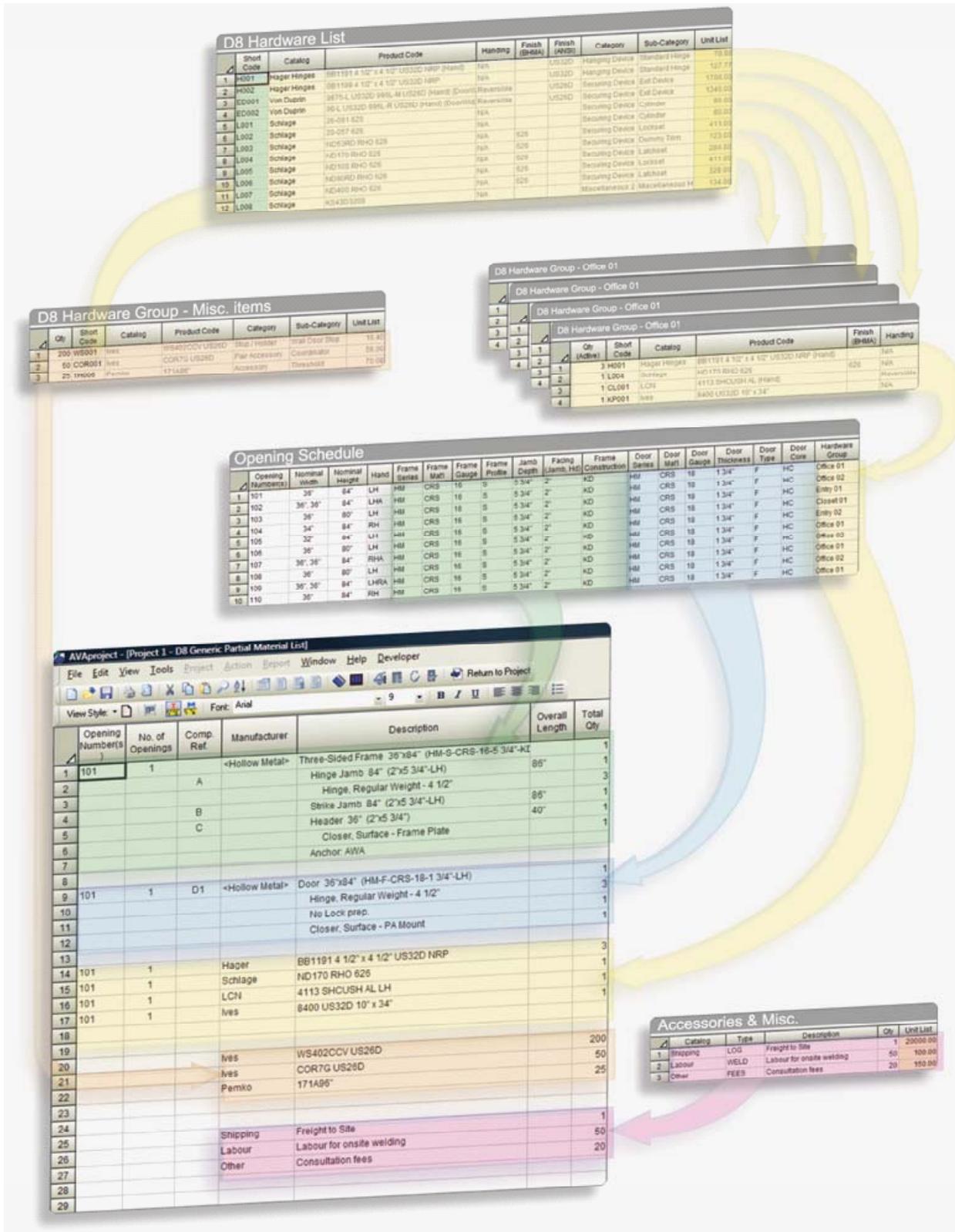
Each project, large or small, is driven by a carefully linked set of tables. While working on a project, these tables are accumulating data from user input, AVAware catalog files and calculations which are constantly being performed.

### Division 8

The following is a brief description of the Division 8 tables and their contents:

<b>Table</b>	<b>Contents</b>
Hardware List	Hardware items with all of their respective properties and details
Hardware Groups	Hardware items and their properties, which may or may not be directly pulled from the Hardware List (via Short Codes)
Misc. Hardware Items	Hardware items and their properties for items not belonging to a specific Hardware Group
Openings Schedules	Openings, which include frame information, door information and hardware group references
Accessories & Misc.	Miscellaneous items related to the project
Material List	Each frame, door and hardware item from the Openings Schedules and Hardware Groups. This table also contains items from the Accessories & Misc. table as well as hardware from the Misc. Items table.

# An Illustration of Division 8 Table Linkage

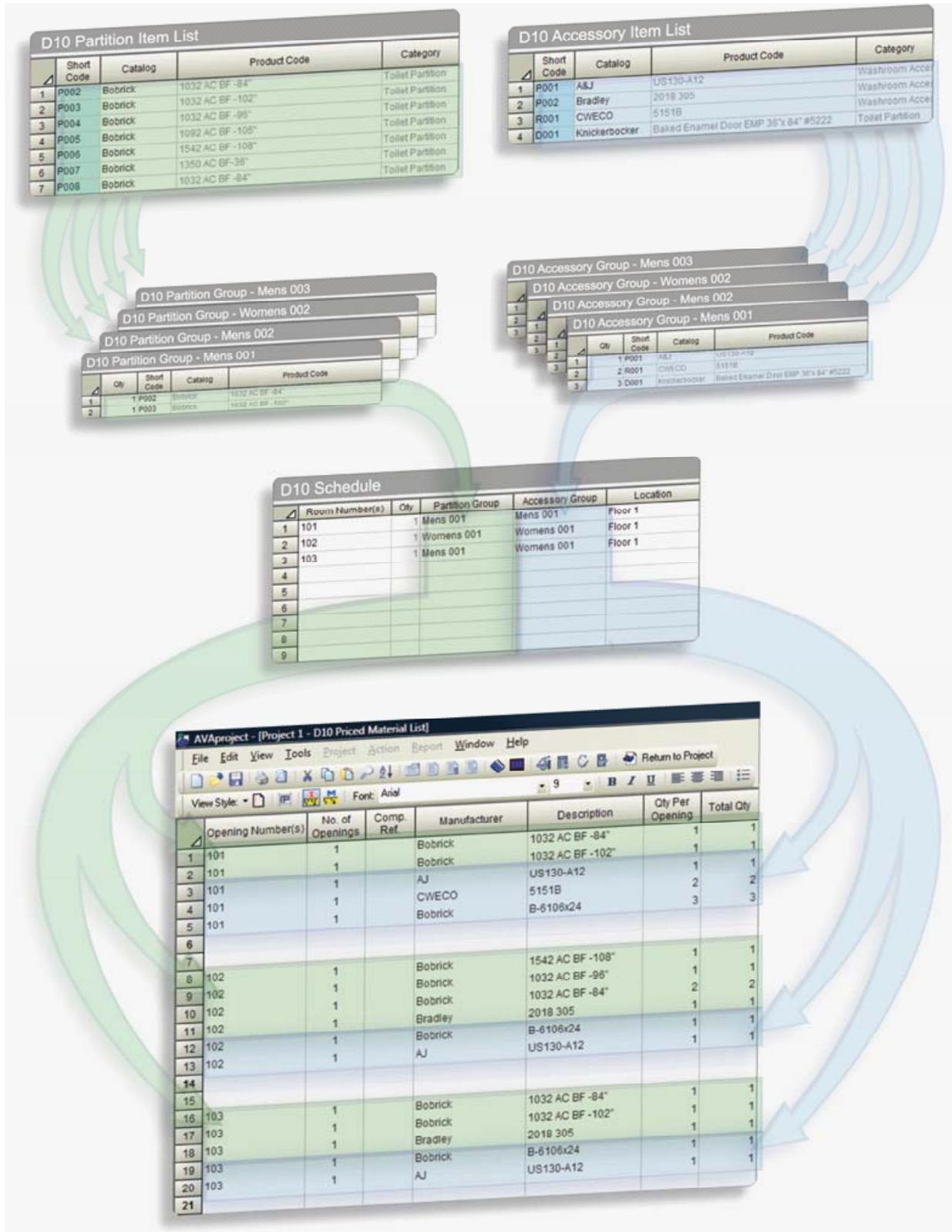


Division 10

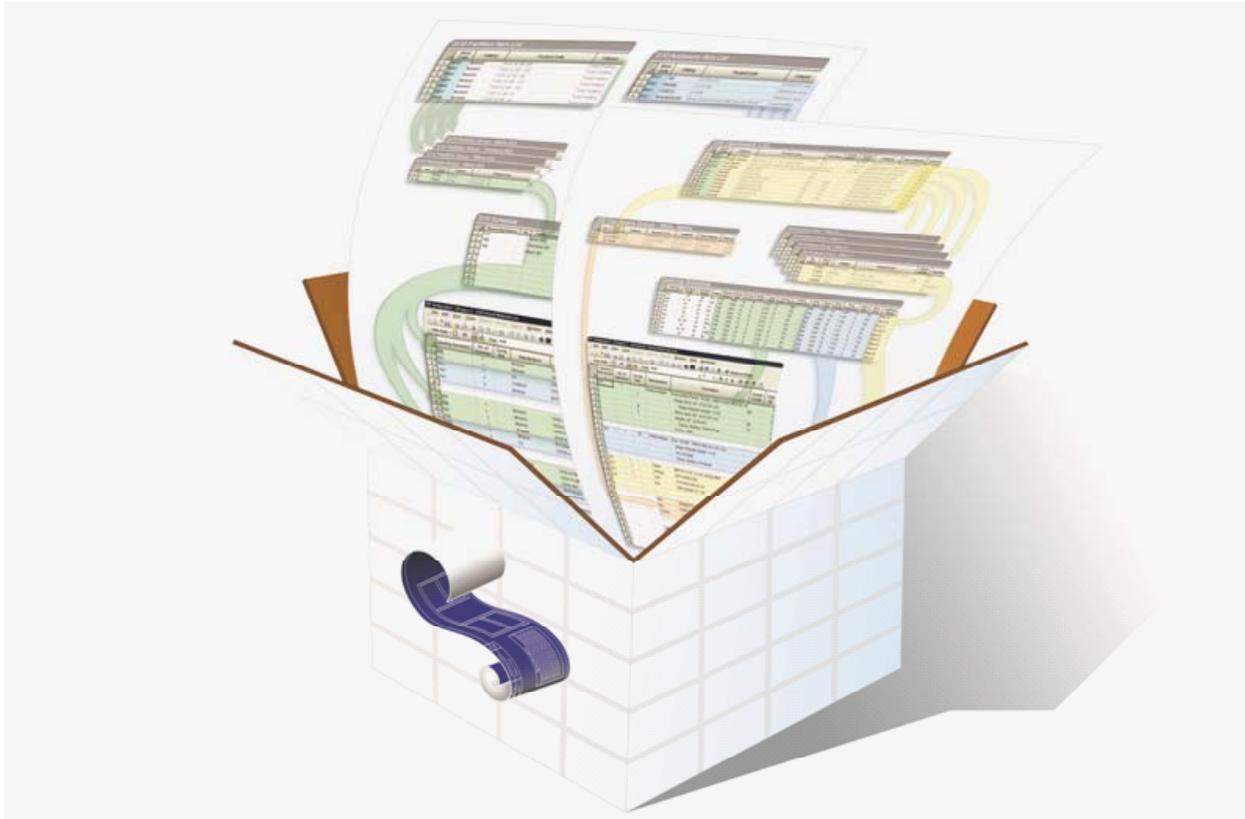
Projects also contain Division 10 tables. These tables are functionally similar to Division 8 tables, with some structural and relationship differences. The following is a brief description of the Division 10 tables and their contents:

<b>Table</b>	<b>Contents</b>
Partition List	Partition items and their properties
Partition Groups	Partition items and their properties, some of which may be pulled directly from the Partition List (via Short Codes)
Accessories List	Accessory items and their properties
Accessory Groups	Accessory items and their properties, some of which may be pulled directly from the Accessory List (via Short Codes)
Washrooms Schedules	Washroom information including room numbers, locations and partition and accessory group references
Material List	Each partition and accessory item related to the project

## An Illustration of Division 10 Table Linkage



Additional information in an *AVAproject* file includes the Project Info data and the Project Log. Combining these tables with both the Division 8 and Division 10 sets gives a comprehensive view of the inner workings of an *AVAproject* file.



## AVaproject Fusion: Introduction

*AVaproject Fusion* is a powerful extension to the AVaproject architectural detailing and estimating system. Fusion extends the already powerful reporting capabilities of *AVaproject* to a new level.

*AVaproject Fusion* does exactly what its name implies; it facilitates the fusion of data. One or multiple *AVaproject* files can be brought into a single *Fusion* file where the contained data can be extracted and manipulated through a series of very powerful tools.

## Combined Material List

The Fusion Material List extends its *AVAproject* counterpart in a variety of ways:

1. View Material Lists for single or multiple projects.
2. Create “merge” reports that directly connect the Material List with its source grids. (i.e. Openings Schedules, Hardware Schedules, etc.)

## User-Defined Report Generator

The Fusion Report Generator allows users to break free of the limitations of pre-defined system reports allowing for the creation of customized reports based upon user-defined layouts and criteria.

1. Create an unlimited number of report formats utilizing any or all data contained in the project files.
2. Extract and sort data based upon a user-specified criteria.
3. Create a library of reusable reports and presentation formats.
4. Export reported data to several common file formats.

## Purchase Orders & Sales Orders

As a complement to its powerful Report Generator, Fusion also generates primary back-end financial documents based upon costing and estimating figures contained in the project files.

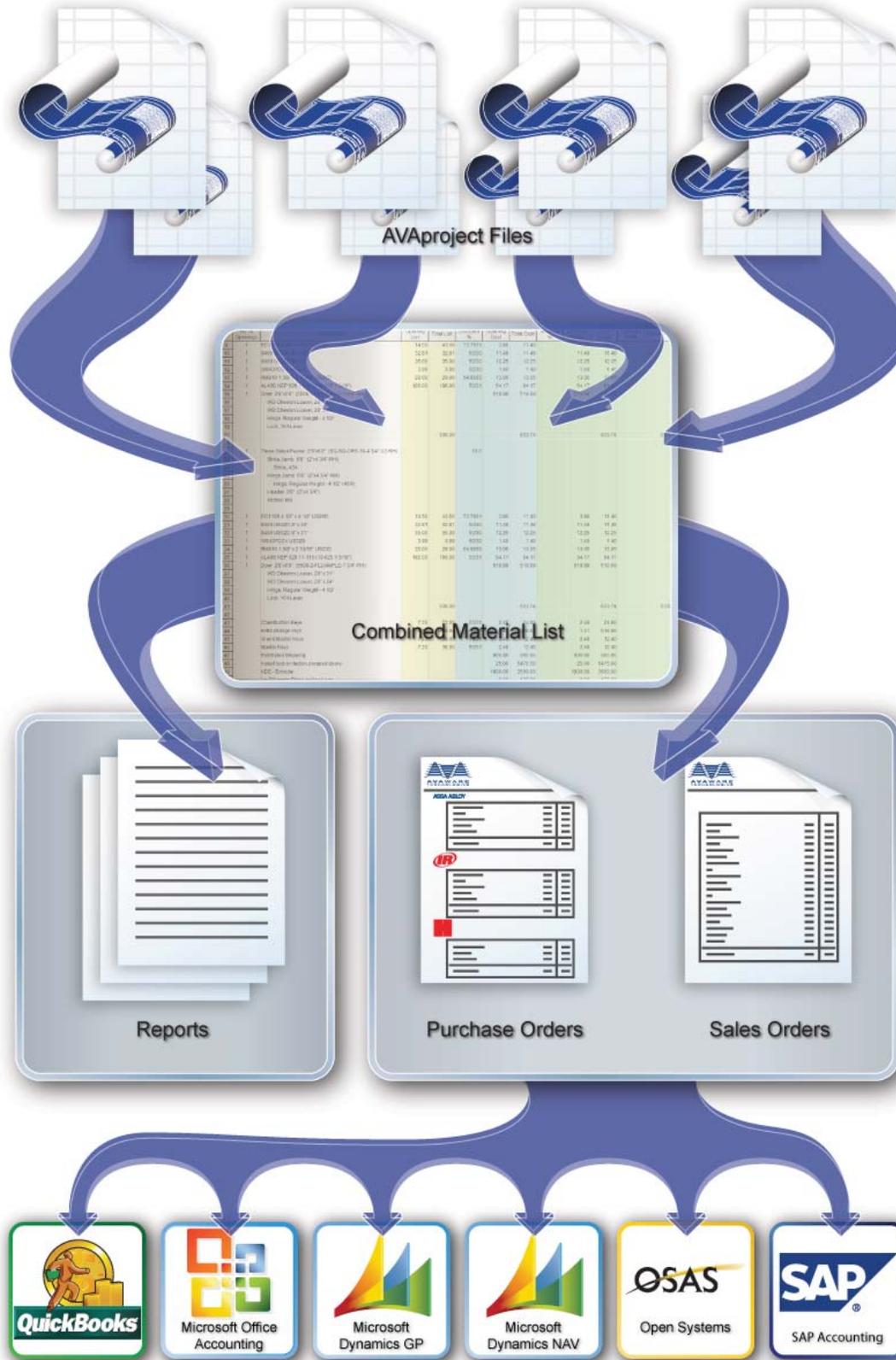
1. Purchase orders, separated by vendor can be generated and completed for simplified product sourcing.
2. Sales Orders, reflecting quoted number can be generated for all or parts of the projects.

## Purchase Orders & Sales Orders

Recognizing that individual user needs vary, Fusion allows businesses to scale their back-end solutions as required. No single accounting system is ideal for every application.

Fusion can be further enhanced with optional accounting interface modules that allow data connectivity to a variety of back-end accounting solutions. Support is offered for applications ranging from single-users to multi-location enterprise solutions. As user needs evolve, different interface modules can be incorporated without having to sacrifice existing data.

# AVproject Fusion Conceptual Overview



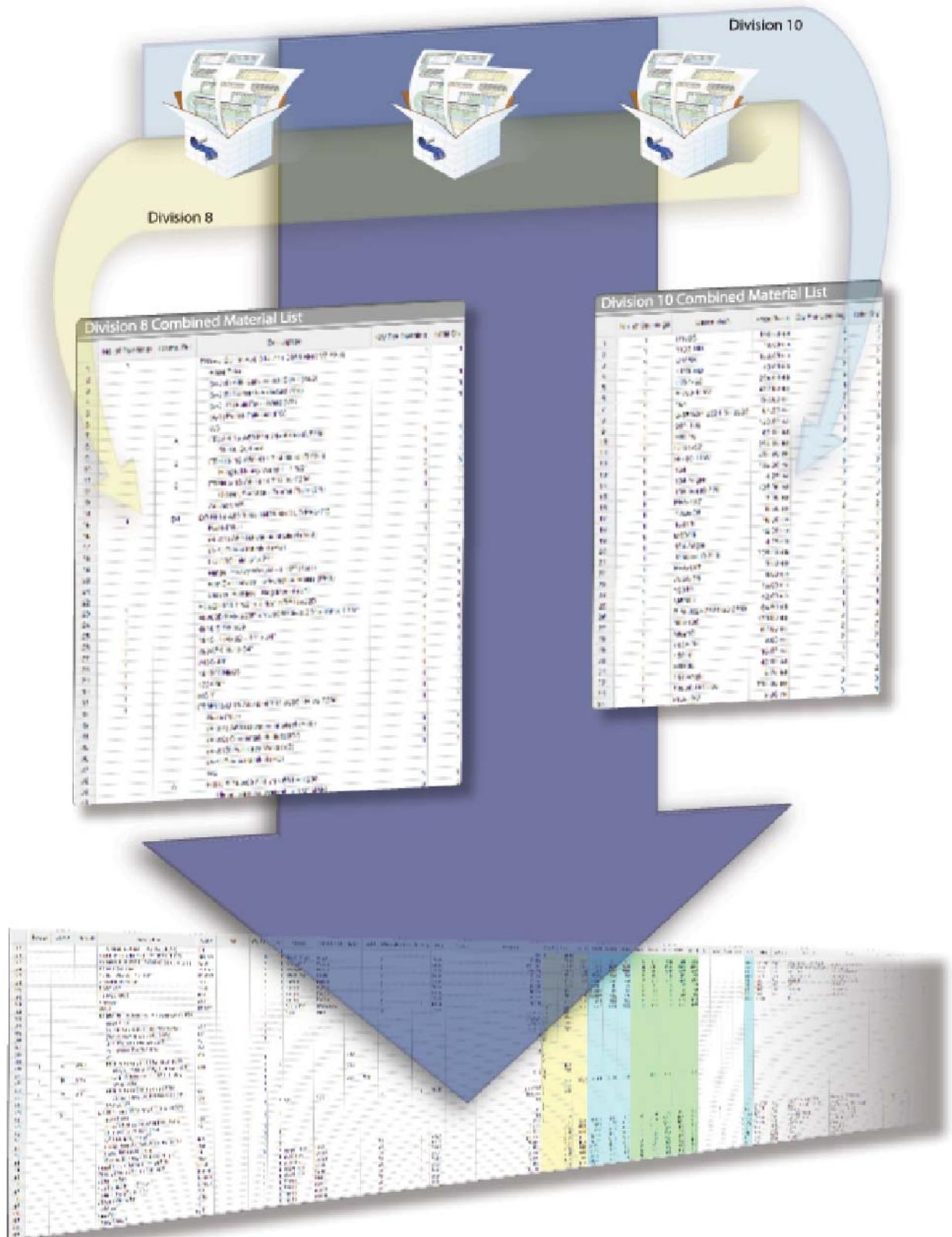
## Anatomy of an AVAproject Fusion File

*AVAproject Fusion* files act as data containers for one or multiple *AVAproject* files. That is, Fusion files absorb a copy of all of the data within Project files. All individual Project file table linkage is preserved and Fusion creates many new table relationships for the purposes of single or cross-project data mining and reporting.

### Combined Material Lists

Fusion creates a Combined Material List from all of the Projects contained in the Fusion file. The Combined Material List behaves the same way as an *AVAproject* Material List – the ability to show and hide columns and the creation of View Styles. Additionally, the Combined Material List can be filtered by product line (doors, frames, hardware, accessories) or manufacturer.

# AVProject Fusion Conceptual Overview



## AVAproject Fusion: Reporting Overview

*AVAproject Fusion* provides new and powerful reporting capabilities to the AVAware suite of products. By taking an advanced approach to reporting, Fusion is able to generate reports based on data from any level, and any table, from one or multiple Project files. This is accomplished by way of the Combined Material List.

As outlined earlier in the “Anatomy of a Project File”, the Project file’s Material List contains data from the Openings Schedules (doors and frames), Hardware, Accessories and Miscellaneous items. Using the Material List as an index, all of the information from the other Project file tables can be accessed.

The relationship between the Project file’s Material List and all other tables within a Project file is very important for the Fusion reporting engine; it is the conduit by which all data mining is accomplished. Fusion uses its Combined Material Lists and all Project data to create a single pool of information. From this single information pool, any conceivable filter can be applied, and any comparison made.

For example, a report can be generated across multiple projects for **all Openings with Wood Stud Anchors and ABC Manufacturer Exit Devices with 626E Finish**. In AVAproject, these pieces of information exist in different tables (Openings Schedules and Hardware Groups, respectively), but with the information pool generated by Fusion’s reporting engine, reports based on this Criteria are easy to perform. In fact, reports based on any Criteria, broad or narrow, can be created by Fusion with ease.



# Criteria Builder

A Fusion Criteria is a set of rules that define what information to retrieve. The Fusion Criteria Builder provides a structured method of building Criteria, harnessing the power of the reporting engine and allowing users the freedom and flexibility to create any imaginable report. The Criteria Builder acts as a filter for the information pool; it is where the conditions of the report are defined.

Essentially, the Criteria builder is a tool used to give the software the required parameters to be able to select rows containing the desired data.



Criteria can contain one or multiple conditions to satisfy the requirements for the desired report. For example, the condition required to generate a report for all XYZ Hardware would be:

IF Manufacturer IS EQUAL TO XYZ Manufacturer  
AND ProductLine IS EQUAL TO Hardware  
THEN INCLUDE

We can narrow this report by adding another condition to the Criteria:

IF Manufacturer IS EQUAL TO XYZ Manufacturer  
AND ProductLine IS EQUAL TO Hardware  
AND TotalCost IS LESS THAN 100.00  
THEN INCLUDE

There is no limit to how specific the reports can be.

## Comparison Types

Each condition is made up of one or more comparisons. For example:

IF ShortCode IS NOT EQUAL TO SKU

This is a direct evaluation between two columns of the information pool. The fields are underlined to show that they are columns as opposed to manually entered data. This comparison tells the condition to select rows where the ShortCode value is equal to its SKU value.

When the condition requires specific values to be identified, manual entry of comparison data may be used. For instance (from our example):

AND ProductLine IS EQUAL TO Hardware

Note that "Hardware" is not underlined, showing that it was manually typed in. This comparison tells the condition to select rows that have a ProductLine value of "Hardware".

Finally, a prompt comparison can be used when the report needs to be flexible enough to accept the condition value when it is generating, or when the user does not know the value for the comparison when building the condition. For example:

IF Manufacturer IS EQUAL TO <PROMPT>

This comparison tells the condition to prompt the user for the value to compare the manufacturer field to during the generation of the report.

Once a Criteria is built that satisfies the requirements for the desired report, it can be saved. Also, saved Criteria can be loaded back into the Criteria builder for editing.

## Presentation Modules

*AVAproject Fusion* reports are displayed via Presentation Modules. Once a Criteria has been built, it can be passed to a Presentation Module which will display the Criteria's outcome in a format defined by the module.

For instance, if a Purchase Order Presentation Module is given a Criteria to extract the data from the Fusion information pool, it will display this information in the form of a purchase order. Other examples may include sales orders, labels or basic tabular reports.

If a Criteria is run as a report with no Presentation Module specified, the Criteria outcome will be returned as a table, allowing the user to create custom Presentation Modules. These custom modules are built using the same column formatting technique used in all *AVAproject* grids and grants users full control of what data is being reported on and how it is displayed. Company data, logos, headers and footers are optional on applicable Presentation Modules, giving your reports the same personalized look and feel that *AVAproject* provides.



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