



## ➤ MATERIALS MANAGEMENT

*The Materials Management Subsystem (MMS) provides a robust materials testing, management, and Laboratory Information (LIMS) system for transportation agencies with an emphasis on allowing the day-to-day materials activities to be managed from a single location.*

ExeVision's Materials Management/LIMS Subsystem (MMS), provides agencies with a robust software solution for construction materials sampling, testing, and management. This includes the ability to track labs, employee certification, equipment calibration and other tasks associated with the management of materials. MMS may be used as a stand-alone materials management solution or as a module in ExeVision's Integrated Project Development (iPDWeb) solution. Using MMS, agencies can also provide contractors as much transparency as desired into the entire materials management process allowing them to view missing tests, test results, upcoming test requirements, etc.

iPDWeb's MMS emphasizes the central role of a material sample in the overall material management process and promotes efficiency for users by allowing the day-to-day materials activities to be managed from a single location within the application. While the process flow design provides for work to be completed in a centralized fashion, the flexibility for modification to workflows, task timers, notifications, etc. is maintained.

Beginning with sample logging, the focus of the MMS solution is the Sample Management Window. From one location, all samples for a contract, a project, a user, or all samples in the system are easily viewed with their associated attributes, assignments, sample status and other key information related to the sample. Tests that have been assigned by default to specific sample types or categories are viewable at a glance and tests may be executed from this same sample management window including repeat testing and Independent Assurance (IA) testing.

To increase user efficiency, user-specific filters may be applied in the Sample Management window to return only the relevant sample information to a specific contract, material, user, user role or organization.

### Material Setup

Users define materials by setting up material attributes, their component/sub-materials, and the relationship between the material and contract pay items. Materials engineers also set up prequalified materials, brands, vendors, locations, and the relationships between materials and tests based on frequency, quantity or other agency specific requirements. Inventory locations may be created, and materials tracked and tested at these locations, including ties to certifications. The system makes default assignments between materials and pay items based on the Material definition, but authorized engineers have the ability to override these defaults, as is the case with other default settings in MMS. Once the material assignments are complete, the engineer assigns required ASTM, AASHTO, or agency defined tests including assigning the parameters, passing values, etc. for each test.

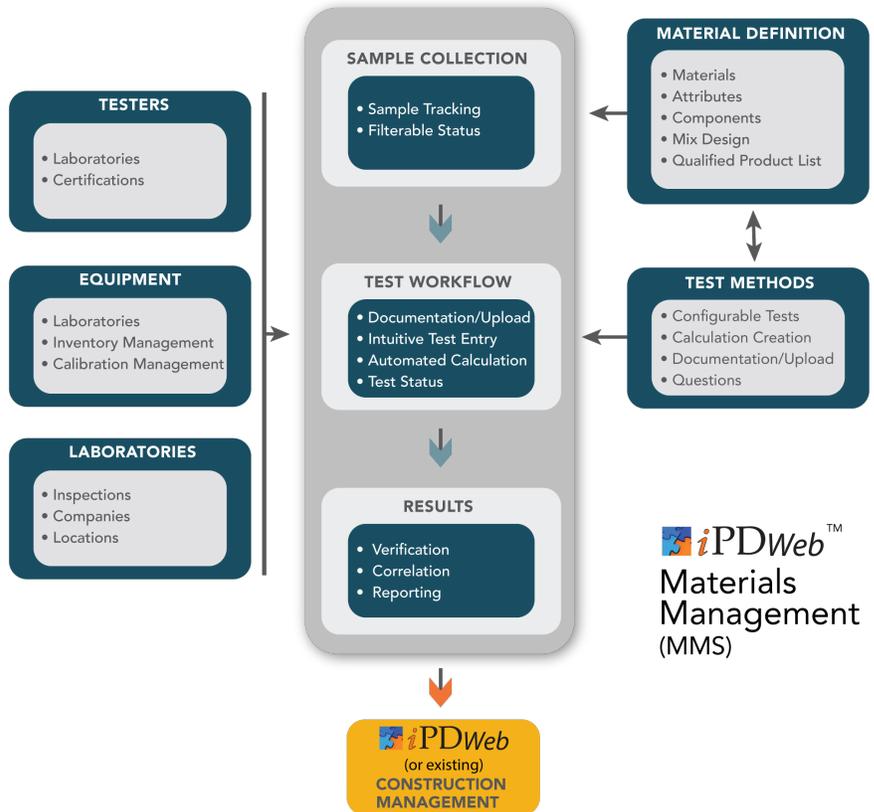
For agencies that implement the Materials Management Subsystems along with ExeVision's iPDWeb Construction Management system, pay factors and adjustments are automatically generated by the system based on the agency's business rules and may be included on CMS pay estimates as defined by agency business rules. When pay items are placed or installed, they are recorded in the Construction Management (CMS) Ledger and the engineer selects the Material Source for that particular placement. MMS automatically tracks the date, amount and location of each placement and calculates when tests are required for each material based on the defined test frequencies or quantities. If test requirements are not met, notification is provided, and rules may be configured to disallow a Ledger Entry from inclusion on a Pay Estimate.

## Material Test Setup

A key benefit to the MMS/LIMS solution is the ability to define and manage an agency's own Material tests. Central to MMS is a highly flexible test definition engine that enables users to configure tests with virtually any combination of questions and answers by specifying text boxes, drop-down lists, radio buttons, checkboxes, etc.

A sophisticated and integrated calculation engine that includes MS Excel functions, may be used to apply functions to individual fields on the test form, combine and reference multiple fields in a single computation, define conditional calculations, group functions, etc. Calculations are incorporated in the tests and automatically computed when the test is performed. Test results may include "pass", "fail" or specified result values determined by a test definition.

Defining sample management pages for different types of samples is also supported. Samples can be tracked from collection to the laboratory (field or central) and include assigning testers, moving samples among laboratories, splitting samples, correlating split samples and retesting, etc. Reporting laboratory performance and tracking the materials process is available through various standard reports and an integrated ad hoc reporting engine.



### iPDWeb Materials Management functionality includes:

- Define materials, vendors, locations and relationships
- Define component/sub materials
- Define laboratories for off-site testing and certifications for materials production
- Track inventory including test sites
- Assign materials to bid items with item substitutions
- Create reports for materials inventory and materials testing requirements based on contractor's bid item submission
- Sample management: track location, tests, testers, results, vendor certifications, etc.
- Define tests, calculations, value ranges, etc.
- Maintain test libraries
- Provide agency employees or contractors access rights to log into MMS and create, conduct, and record materials tests
- Calculate pay factor adjustments in CMS based on testing requirements and results from MMS
- Test schedules based on item quantities and/or test frequencies
- And much more...

## About ExeVision

ExeVision, Inc., is the developer of the iPDWeb solution, a comprehensive, project development system fully integrating all functional aspects of road and bridge construction from estimate creation and electronic bidding, through final contractor payment. ExeVision is also the creator of the iCXWeb application, designed to assist contractors in the creation and submission of responsive bids and facilitate seamless bid communication between contractors and the agency. These two solutions provide substantial time and cost savings for the state transportation agencies that have implemented them. ExeVision has been developing and deploying mission critical applications for over 25 years and is a Utah based company.

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