



CMCS INSIGHTS · OWNERS · QUALITY

Quality Management on Capital Projects with PMWEB

Eight articles on running quality assurance and quality control in PMWEB, from the first technical submittal to the certificate of initial acceptance: a WIR checklist for every specification section, inspections run with contractor self-checks and mobile evidence, materials, concrete pours and NCRs, equipment and HVAC pre-commissioning, proactive snagging and handover, and the quality dashboard and contractor quality index. Rewritten and consolidated from nineteen earlier articles.

By Bassam Samman, PMP, PSP, EVP, GPM
CEO & Chairman, CMCS

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Quality as a System of Record — The QA/QC Processes Every Capital Project Owner Must Govern

From the quality management plan to handover: one quality record, owned by the owner

A building is delivered to the quality that was inspected, not the quality that was specified. Every inspection that is vague, skipped or lost is a defect the owner will pay for later, usually after the contractor has left site.

Completing a capital project on time and within budget is only part of the objective. The other part is achieving the quality the project was designed and specified for. Owners feel the consequences of poor quality long after handover: failed building services, unhappy occupants and tenants, rework disputes and facilities that lose value. Many of these failures sit in systems that are hidden once the work is closed up, such as electrical conduits and wiring, HVAC ductwork and piping, water supply and drainage piping, telecommunication cabling, fire protection and fire alarm systems.

The usual cause is simple: the work was not executed as designed and specified, and the inspection did not catch it. Treating that risk takes more than one process. It takes a set of quality assurance (QA) and quality control (QC) processes that start with the contractor's first submittal and end with the handover of the facility, each governed, evidenced and reported.

Is this series for you?

This series is written for capital project owners, project management consultants (PMCs), supervision consultants and contractors who are responsible for the quality of what gets built. In particular, it is for organisations that:

- **Manage work inspection requests on paper, spreadsheets or email**, and cannot see across projects which inspections passed, failed or were never requested.
- **Use generic inspection forms** that do not reflect the specification section being inspected, so the inspector decides what to check.
- **Run submittals, inspections, tests and non-compliance reports in separate tools**, so there is no single picture of quality on the project.
- **Discover defects at substantial completion** that could have been recorded and closed months earlier.
- **Report contractor quality performance as opinion** rather than as a score calculated from the records.

Each part shows how a Project Management Information System (PMIS) like PMWEB turns one group of QA/QC processes into governed, evidenced and reportable records.

This series brings together, rewrites and updates nineteen of my earlier articles on how PMWEB is used for quality management on capital projects. Part 1 sets out the quality management plan, the quality processes an owner must govern and why they belong in one system. Parts 2 to 7 take each group in the order the project meets them: technical submittals, the design and the running of work inspection requests, materials and non-compliance, equipment and pre-commissioning, and snagging and handover. Part 8 shows how the records of all these processes become the quality dashboard and the contractor's quality score.

Start with the Quality Management Plan

The Project Quality Management Plan (PQMP) is the written basis of the project's quality assurance and control system. It is a subset of the Project Management Plan, also called the Project Execution Plan (PEP). It identifies the quality requirements, the methods for achieving the quality objectives and the means of continual improvement during execution. It defines the quality team's organisation, roles, responsibilities and authorities, and the templates and reports for every quality process.

Implemented well, the PQMP lets the delivery team minimise construction defects, ensure the work conforms to the contract documents and functional performance requirements, select quality-oriented subcontractors and suppliers, ensure that workmanship is performed by qualified craftsmen, carry out the required inspections and tests on time, minimise rework, and strive for a zero-item list at substantial completion.

Too often the PQMP stays a document. In PMWEB, each of its elements becomes something the team works in every day.

Turning the quality management plan into PMWEB records

PQMP element	How PMWEB applies it
QA/QC organisation chart	Built in the PMWEB organisation chart module from the project's resources, reflecting the PEP and the PQMP
Roles, responsibilities and authorities	A custom form records the job description and performance criteria of each QA/QC role, such as the Construction Quality Manager (CQM)
Contact directory	Every organisation and individual with a quality role is held in the central PMWEB companies directory
Responsibility assignment matrix (RACI)	Each process's responsible, accountable, consulted and informed roles become the steps of its workflow
Weekly quality control meeting	Minutes recorded in the PMWEB meeting minutes module and formally shared with attendees for review and approval
Ad hoc quality actions	PMWEB Activity Boards hold the tasks, owners, due dates, flags and evidence agreed outside formal meetings
Templates and checklists	Every form and checklist in the PQMP, often kept in Excel or Word, rebuilt with the visual custom form builder as a governed process
Quality records and filing	Documents stored in a PMWEB repository structure that matches the project's filing system

The CQM's responsibilities show why this matters. The CQM is responsible for implementing the PQMP; reviewing daily reports; scheduling and attending preparatory and initial inspections; preventing, stopping or correcting deficiencies, defective work and non-compliance, including exercising stop-work authority; investigating quality problems; maintaining QC records; monitoring the submittal register; ensuring as-built drawings are maintained; and assigning additional discipline inspectors when needed. Each of those duties leaves a trace in a PMWEB record, so the owner can see that the role is being performed.

The weekly QC meeting follows a standard agenda: rework items identified and completed since the last meeting; submittals reviewed since the last meeting and those expected in the next two weeks; testing required to support or confirm remedial work; the status of off-site quality activities; special documentation requirements; production or QC problems to resolve; procedures that are less effective than expected; and any items that may require the PQMP itself to be revised. Recorded in PMWEB, each action is assigned, tracked and linked to the records it concerns.

The Quality Processes an Owner Must Govern

Every capital project runs the same family of quality processes, whatever its type. Some are contractual obligations of the contractor, some are services of the supervision consultant, and some belong to the owner. All

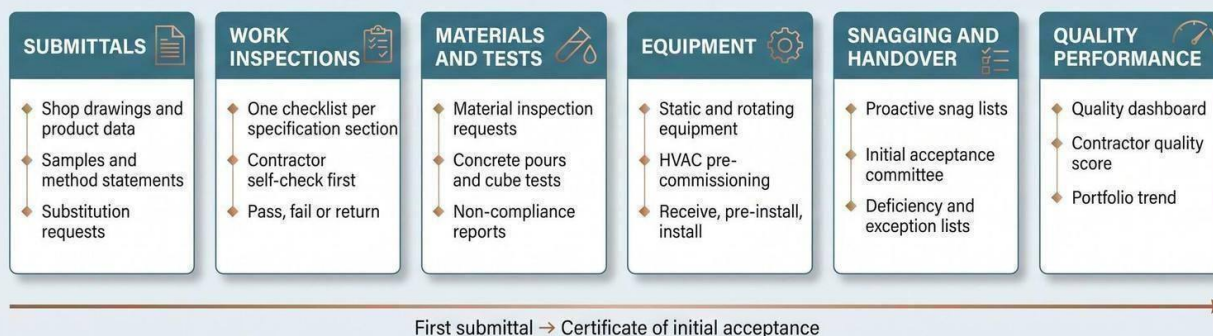
of them produce evidence that the owner will need, whether to certify a payment, defend a claim, accept a facility or hold a contractor to account.

The QA/QC processes covered in this series

Process	What it controls	Part
Technical submittals	Shop drawings, product data, samples, method statements, test certificates, as-built drawings, approved before procurement or installation	Part 2
Material alternatives and substitutions	Contractor requests to use a product other than the one specified	Part 2
Work inspection requests (WIR)	Completed work in place, inspected against the specification section before it is covered up or certified for payment	Parts 3 and 4
Material inspection requests (MIR)	Materials delivered and stored on site, including those claimed in the interim payment certificate	Part 5
Material tests and concrete pours	Test results and pour records for materials whose quality cannot be seen, such as concrete, compaction and rebar	Part 5
Non-compliance reports (NCR)	Work or material that does not meet the specification, its root cause and the corrective action	Part 5
Calibration of testing equipment	Evidence that the instruments used for inspection and testing were within calibration	Parts 5 and 8
Equipment installation and pre-commissioning	Static and rotating equipment, and building systems such as HVAC, before testing and commissioning	Part 6
Snag (punch) lists and initial acceptance	Defects and omissions, and the formal acceptance of completed works by the owner	Part 7
Quality performance reporting	The quality dashboard and the contractor quality score, calculated from the records above	Part 8

THE QUALITY LIFECYCLE IN PMWEB

Every QA/QC process, from first submittal to initial acceptance, in one system of record.



One record per inspection. One quality picture per project.

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Why These Processes Belong in One System

Most projects already run these processes. The problem is where they run. Submittals sit in a document control tool, inspection requests on paper or in spreadsheets, test results in laboratory emails, NCRs in Word files and snag lists in someone's notebook. Each may work on its own, but nobody can answer the questions that matter: how many inspections failed on first attempt, which subcontractor has the most open NCRs, which approved submittal a failed inspection relates to, or whether the quality the owner paid for was actually delivered.

Trying to produce a real-time, single version of the truth on quality from spreadsheets is a great challenge, if not impossible. In a PMIS, the same quality dashboard is a by-product of the work itself, generated from the records and available anytime, anywhere and on any device.

What changes when quality is managed in PMWEB

Question	Disconnected tools	PMWEB
What must be inspected for this activity?	Whatever the inspector remembers	A checklist built from the specification section, the same on every project
Was the work inspected before it was covered?	A signature on a paper form, if it can be found	A WIR record with time stamps, photographs, results and approvals
Why was this work rejected?	A disagreement between consultant and contractor	Each failed item recorded against its acceptance criterion
Which inspections relate to this payment?	Reconciled by hand each month	WIRs and MIRs linked to the work and materials claimed
How is the contractor performing on quality?	An opinion in the monthly report	A score calculated from the records of every quality process

How PMWEB Supports Every Quality Process

PMWEB provides ready-to-use modules for some quality processes, such as submittal items and requests for information (RFI). The rest, including WIRs, MIRs, material tests, concrete pours, NCRs, equipment checklists, pre-commissioning checklists and initial acceptance, are created with PMWEB's **visual custom form**

builder, so each matches the owner's specifications, terminology and even language. Whichever way a process is built, the same capabilities apply to it.

The capabilities shared by every quality record

Capability	What it does for quality
Structured fields and checklists	Each record captures the location, WBS level, schedule activity, CSI or Uniformat code, contractor and inspector, and a checklist of the items that must be confirmed
Attachments and links	Photographs, test certificates, drawings and specifications are attached; related records and imported Outlook emails are linked
Document repository	Every supporting document is stored in a structured folder, under access control, with version history
Workflow	Submit, review and approve steps, with roles, durations, conditions from the Delegation of Authority matrix, and Return and Resubmit actions
Field-level access rights	Each party completes only its own part of the record, for example the contractor's self-check and the inspector's result
Mobile capture	A zero-footprint, browser-based application that works on tablets and phones, with photographs, video and speech-to-text from site
Registers, reports and dashboards	Every record feeds the process register, and every register feeds the quality dashboard

Who Owns the Quality Data

Quality processes must be implemented whether the project control system is run by the owner or by the contractor. The processes are the same; the difference is who owns the data they produce. When the contractor runs them in its own system, the owner receives reports. When the owner runs them in its own PMIS, with the contractor and consultants working inside it, the owner holds the evidence itself, for every project in its portfolio, and the knowledge gained on one project improves the checklists of the next.

That is the position this series argues for: the owner standardises the quality processes and the specifications behind them across the portfolio, and requires every contractor and consultant to work within them.



Registers and reports generated from PMWEB quality records: submittals, inspections, tests and non-compliance. Earlier PMWEB release; sample data.

Key takeaway

Quality is delivered through a family of processes, from the first submittal to the certificate of initial acceptance. Each one produces evidence the owner will need.

When those processes run in disconnected tools, nobody can see the quality picture of the project, let alone the portfolio.

PMWEB gives every quality process the same foundation: structured checklists, attached evidence, governed workflow, mobile capture and real-time reporting.

Owners who run quality in their own PMIS own the evidence, standardise the inspection across projects and score contractors on records rather than opinion.

Next in the series: Part 2 covers technical submittals: the planned submittal log, the completeness checklist, submittal sets, turnaround reporting and requests for material alternatives or substitutions.

Talk to us: If your quality processes still run on paper, spreadsheets and email, CMCS can configure PMWEB quality management for your projects, from submittals and inspection checklists to the quality dashboard. Contact CMCS at info@CMCS-MENA.com.

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About the Author

Bassam Samman, PMP, PSP, EVP, GPM is the Chairman and Chief Executive Officer of CMCS FZCO, the PMWEB Authorised Implementation Partner for the Gulf Cooperation Council and broader Middle East and North Africa region. CMCS holds the PMWEB Global Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar and Kuwait.

Bassam has over four decades of experience providing project management, project controls services and project management information systems to more than two hundred capital projects with a combined value exceeding one hundred billion US dollars. He is the author of four published books on project management digitalisation, and has lectured at more than three hundred and fifty international events. He is a co-founder of the Project Management Institute Arabian Gulf Chapter. He holds a Master's degree in Engineering Administration (Construction Management), with Faculty Commendation, from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive education at Harvard Business School and London Business School.

About PMWEB

PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

About CMCS

CMCS (Collaboration, Management and Control Solutions) is the PMWEB Authorised Implementation Partner for the GCC and MENA regions and PMWEB Global Partner of the Year 2025, with offices in Dubai, Abu Dhabi and Riyadh. CMCS specialises in digital project management solutions for real estate developers, government entities, infrastructure owners, project management consultants and construction companies across the Middle East and North Africa.

Technical Submittals — Getting the Right Product Approved Before It Reaches Site

The planned submittal log, completeness checklists, submittal sets and requests for substitution

Quality on site starts with what was approved on paper. A product that was never properly submitted, reviewed and approved cannot be inspected into compliance after it has been installed.

On every construction project, the contract documents, and the technical specifications in particular, require the contractor to submit product data, samples and shop drawings to the engineer for approval before materials or equipment can be procured, installed or used. The submittal process is therefore the first quality gate of the project, and the one that every later inspection relies on: a work inspection request checks the work against the approved submittal.

Is this article for you?

- **Owners and PMCs** who want a planned submittal log tied to the schedule, not a list that is built as submittals arrive.
- **Supervision consultants** who review incomplete submittals and want them rejected before they reach the reviewer's desk.
- **Contractors** who need to know, for every specification section, what must be submitted and when.

What the Specification Requires

For projects using the Construction Specifications Institute (CSI) format, Division 01, section 01 33 00 Submittal Procedures, sets out the administrative and procedural requirements for preparing, transmitting, reviewing, approving and returning submittals. It covers the types of submittal, their quantity and format, to whom they are sent, the contractor's responsibility to review, coordinate, approve, submit and resubmit, and the engineer's responsibility for review and approval.

Division 01 also sets the submittal requirements for construction progress schedules (01 32 16), progress reports (01 32 00), survey and layout data (01 71 23), shop drawings, product data and samples (01 33 23), quality control submittals (01 45 00) and construction photographs (01 32 33). Divisions 02 to 49 then add the requirements specific to the products in each section: the information and content required in shop drawings or product data, the particular requirements of each product, and the size and location of samples.

Submittals demonstrate that the contractor understands the contract documents and show how it intends to meet them. They identify the products selected from those the specification accepts, detail how items are constructed and interface with adjacent work, identify optional characteristics, schedule types of products by location, describe physical and performance criteria and certify that the products meet or exceed the specified requirements.

The Planned Submittal Log

PMWEB's ready-to-use **submittal item** module manages every technical submittal the contractor must make: shop drawings, method statements, test certificates, material samples, product data, factory tests, supplier details, operation and maintenance manuals and as-built drawings. Each item records its specification section, title, supplier, subcontractor, WBS level, schedule activity and procurement lead time, and unlimited attributes with lists of values can be added to describe and analyse submittals further. The planned submittal register,

usually prepared in Microsoft Excel, can be imported into PMWEB rather than re-keyed. Each submittal item is then linked to the submittal review and approval activity in the project's detailed schedule, which is imported into PMWEB, so that late submittals and slow reviews show up against the dates that matter.

As the project progresses, the contractor uses the same module to submit each item for review and approval by the owner or its authorised representatives. All supporting documents, such as shop drawings, catalogues, warranties, test results, method statements and as-built drawings, are attached to the submittal record. The planned log therefore updates itself with the actual submission, review and approval of every item.

The screenshot displays the PMWEB interface for a submittal item. The top navigation bar includes a search icon, a dropdown menu for '001 - Sample Project - Air Ha', and a 'SUBMIT' button. The left sidebar lists various project management functions. The main content area is divided into several tabs, with 'MAIN' currently selected. This tab contains a form with fields for project details, dates, and a linked schedule activity. A 'Task' window is also visible, showing a list of tasks with their respective start and finish dates.

PMWEB submittal item: the submittal record with its specification section, dates, linked schedule activity and attachments. Earlier PMWEB release; sample data.

Stopping Incomplete Submittals at the Door

One of the most effective practices in managing technical submittals is a predefined checklist of items the contractor must confirm, for completeness and conformance to the specified requirements, before the submittal goes to the architect or engineer for review. PMWEB lets a checklist be added to each submittal item. The checklist can be the same for all submittals or vary by submittal category.

As a minimum, the checklist should carry the contractor's certification statement: *“By this submittal, we hereby represent that we have determined and verified all field measurements, field construction criteria, materials, dimensions, catalogue numbers and pertinent data, and we have checked and coordinated each item with other applicable approved drawings and all Contract requirements.”* A submittal that arrives without that confirmation can be returned without consuming the reviewer's time.

One item or a set

Many owners require a single item per submittal. Where more than one item must be reviewed together, such as a set of shop drawings or as-built drawings, PMWEB **submittal sets** let the relevant items be submitted as one package. Each submittal set has a predefined workflow that formalises the review and approval steps for the assigned consultant team members.

Reporting Submittals by Type, Section and Turnaround

The data captured in the submittal items produces the planned submittal log, updated automatically with actual review and approval progress. The log can include visuals that summarise submittals by specification section, submittal category and WBS level, and a turnaround report that shows how long reviews are taking against their targets.

Submittals can also be grouped by type. A widely used classification, from the US Army Corps of Engineers and the US Department of the Navy, is shown below.

Submittal types (US Army Corps of Engineers and US Navy classification)

Code	Submittal type	Code	Submittal type
SD-01	Product data	SD-10	Operation and maintenance data
SD-04	Drawings	SD-11	Closeout submittals
SD-06	Instructions	SD-13	Certificates
SD-07	Schedules	SD-14	Samples
SD-08	Statements	SD-18	Records
SD-09	Reports	SD-19	Operation and maintenance manuals



Submittal review turnaround report on PMWEB data: actual against target review durations, and completed and remaining submittals by type. Earlier PMWEB release; sample data.

Material Alternatives and Substitutions

Some contracts allow no substitutions after award unless the contract documents specifically provide for them. Others allow substitutions during construction, with substantial requirements for the contractor's request and the engineer's response. Where substitutions are allowed, acceptance is by a formal substitution request.

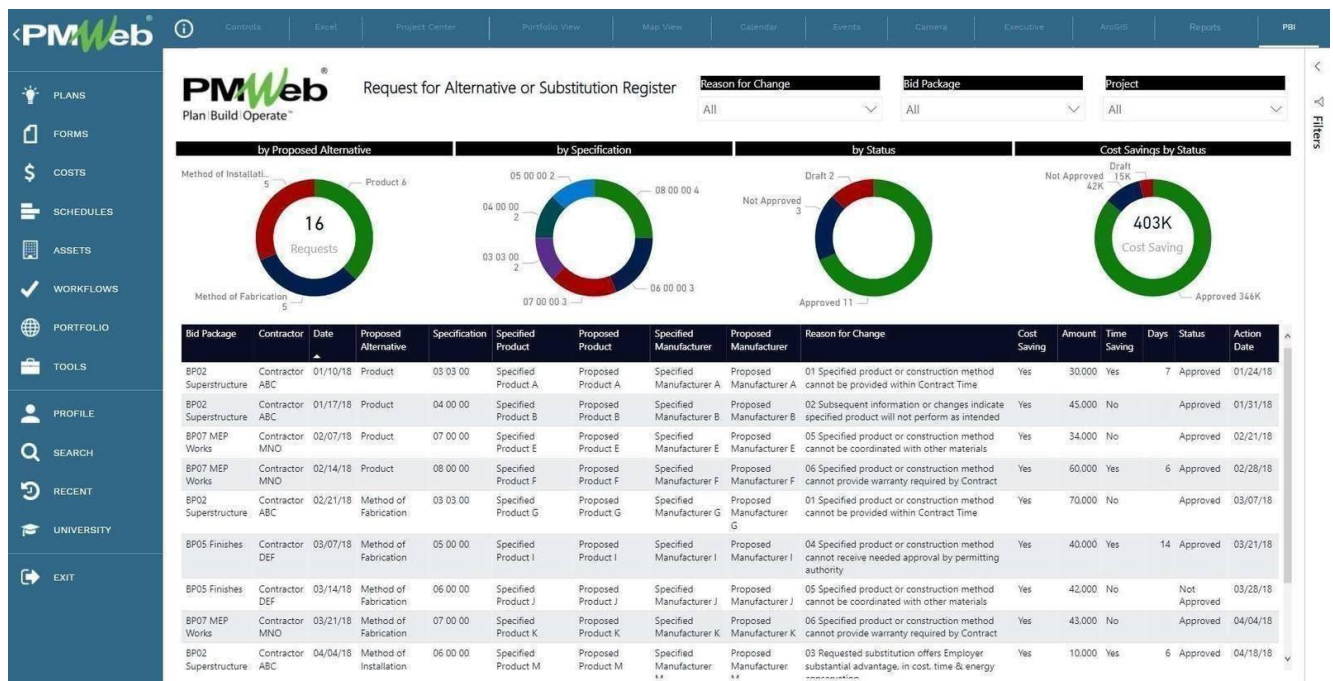
The request requires the contractor to provide samples of the proposed material, product data and test data establishing equal performance with the critical points highlighted, shop or fabrication drawings, installation drawings, a side-by-side product comparison, photographs or video of the installed product, a list of deviations and supporting commentary.

In PMWEB, the visual custom form builder is used to create the **Request for Alternative or Substitution** form. The contractor uses it to explain the reason for the request and the proposed cost and time savings. The form captures the review and approval comments of the engineering consultant and the project management consultant, and carries a predefined checklist of what must be reviewed before a substitution is accepted, typically grouped under product equivalence, effect on the project and effect on the warranty.

What every substitution request must carry

Element	Content
Reason and benefit	Why the substitution is requested, with the proposed cost and time savings
Specifications	The specification of the originally specified product and of the proposed alternative
Product evidence	Brochure, product data and test data, with critical points highlighted, and a side-by-side comparison
Method	Proposed fabrication and installation methods, with drawings
Review checklist	Product equivalence, effect on the project, effect on the warranty
Decision	Consultant and PMC comments, recommendation, approval or rejection through the workflow

Each request has a workflow for its review, approval and final approval. The **Request for Alternative or Substitution register** gives a real-time view of every request and its status, with visuals that summarise requests by type of alternative, by specification section and by status, and the total cost savings associated with them.



Request for Alternative or Substitution register on PMWEB data: requests by type, specification section and status, and the associated cost savings. Earlier PMWEB release; sample data.

The Submittal Gate

Nothing is procured or installed until it is submitted, reviewed and approved.



Every later inspection checks the work against the approved submittal.

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Requests for Information

Requests for information (RFI) are closely tied to submittals, because unanswered questions are a common reason for late or rejected submittals. PMWEB's ready-to-use RFI module captures every RFI, with fields for the proposed solution, the response, the category and type, and the schedule activity the RFI may affect. Further fields record whether the RFI is outside the project scope or has a cost or schedule impact. Field-level access rights limit the contractor to the fields it should complete, and the RFI workflow uses those fields to route each RFI to the right approval authority and team members.

Key takeaway

The submittal is the first quality gate: every later inspection checks the work against what was approved.

Import the planned submittal register, link each item to its schedule activity and let actual progress update the log automatically.

A completeness checklist with the contractor's certification statement stops incomplete submittals before they consume review time.

Substitutions need a formal request with evidence, a review checklist and a register that shows status and savings.

Next in the series: Part 3 turns to the work inspection request: how to design a library of inspection checklists, one for each specification section, that removes the argument about what an inspection should cover.

Talk to us: CMCS can import your submittal registers, configure completeness checklists and substitution forms, and build submittal turnaround reporting in PMWEB. Contact CMCS at info@CMCS-MENA.com.

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Designing the Inspection Library — One Work Inspection Checklist for Every Specification Section

How a standard WIR library ends the argument about what an inspection should cover

Most disputes about inspections are not about the work. They are about what the inspection should have covered. A checklist written from the specification, before site work starts, settles that question for every inspection on every project.

Ensuring that all work installed on site complies with the contract is one of the core obligations in every supervision consultant's scope of services. Those requirements sit in the specifications and contract drawings of each contract. Yet the work inspection request (WIR) is one of the processes most likely to cause disputes, because the supervision consultant and the contractor can disagree on what the inspection should cover. Items that should have been inspected can also be missed, often because the inspector lacks experience or is not familiar with the project's specifications.

The owner pays for both failures. When a consultant rejects completed work inappropriately, because the inspection requirements were unclear or went beyond what was specified, the contractor claims a change order. Since there is no direct contract between the supervision consultant and the contractor, it is the owner who carries the cost and the delay. When an inspection misses a defect, the owner inherits it at handover.

Is this article for you?

- **Owners and owner's engineers** who want the same inspection standard on every project in the portfolio.
- **Supervision consultants** who want inspectors to check what the specification requires, no more and no less.
- **Contractors** who want to know in advance exactly what will be inspected and on what acceptance criteria.

Why Generic WIR Forms Fail

Every capital project has a WIR process, but the forms tend to be generic: one form for all inspections, with a free-text description of what was inspected. A generic form leaves the inspector to decide what to check, so two inspectors inspecting the same work can check different things, and neither may check everything the specification requires.

The alternative is a library of predefined inspection checklists, each written for one specification section, listing every item that must be inspected to verify compliance with that section. The library is improved continuously as new items are found worth checking, and because the owner owns it, that knowledge carries from one project to the next.

Generic forms against a standard WIR library

Aspect	Generic WIR form	Standard WIR library in PMWEB
What is inspected	Decided by the inspector on the day	Every item listed from the specification section

Aspect	Generic WIR form	Standard WIR library in PMWEB
Acceptance criteria	Implicit or argued	Stated per item: approved method statement, shop drawing, material submittal, no-objection letter
Consistency	Varies by inspector and project	The same checklist on every project in the portfolio
Evidence	A signature and a date	Item-by-item results, photographs, NCR flags and time stamps
Learning	Lost when the project ends	Captured in the library and reused

Start with Standard Specifications

A standard WIR library is only possible if the specifications behind it are standard. Owners should enforce standardised specification documents across their portfolio, for example in the CSI format. That allows one WIR process to be used on all projects, and it allows the knowledge gained in inspections on completed and current projects to be captured, analysed and shared.

The owner should require its engineering consultants, for design and for supervision, to develop the checklists and to improve them continuously, because the inspection requirements are an integral part of the specifications they write. The WIR process should be planned and ready before site activities start, so that it can be monitored and controlled from the first inspection.

The specification documents provide the content. For each material item they state the required submittals, such as product samples, LEED documentation, shop drawings, catalogues, guarantees, certificates and method statements, and the requirements for delivery, storage and handling, material receiving inspection, pre-application, site conditions and application.

How Each WIR Template Is Built in PMWEB

PMWEB's **visual custom form builder** is used to create a unique WIR template for each specification section. Typical examples include survey works, excavation, backfilling, blinding concrete, cast-in-place concrete, anti-termite treatment, blockwork, cement plastering, waterproofing, ceramic and porcelain tiling, and the many painting systems on concrete, gypsum, metal and wood surfaces.

A common header

All WIR templates share the same layout. The header records the details of each request: the WIR number and date, the date and time the inspection was requested and completed, the inspector, the contractor or subcontractor responsible for the work, the inspection status (Pass or Fail) and the revision number if a re-inspection was needed. The location is selected from a predefined list by building, floor and space, the same list used by other processes on the project. The template also records the WBS level, the schedule activity the inspection relates to, the cost breakdown structure of the inspected scope, and, where used, the CSI division and code (set by default for the section), the Unifomat code and the BIM model object.

Compliance tables specific to the section

The body of each template is unique. It holds compliance tables for the stages of the work in that section, for example material receiving and inspection, pre-application, site preparation and application for painting works. Each row records the work description, the acceptance criterion (approved method statement, no-objection letter, approved shop drawing or material submittal), the acceptance status (Yes, No or N/A) and the acceptance date. Where photographs are required, a field confirms that they were provided. Where a major deviation is found and the consultant decides to raise a non-compliance report (NCR), a field records that the NCR was issued.

The inspection items carry two status fields. The first is completed by the contractor, confirming that it has inspected the item itself, that it complies with the specification and that it is ready for the consultant's inspection. The second is completed by the supervision consultant's inspector, recording Pass or Fail, with a field for the inspector's remarks. Part 4 explains why this two-step check matters.

The screenshot displays the PMWEB visual custom form builder interface. At the top, there are input fields for 'ID*' (005), 'Name*' (5.00 Application), 'Width' (1000), and a checked 'Display' checkbox. Below this is a 'DEFINE COLUMNS' section with a table of column definitions. The table has columns: COLUMN ORDER, COLUMN TITLE*, COLUMN TYPE, WIDTH (PX), LOCKED, REQUIRED, and CALCULATION1. The defined columns are: 1 No. (Text, 50px, locked), 2 Work Description (Text, 400px, locked), 3 Acceptance Criteria (Text, 150px, locked), 4 Status (Text, 100px, not locked), 5 NCR Issued (Boolean, 50px, not locked), 6 NCR Linked (Text, 50px, not locked), and 7 Date Closed (Date, 200px, not locked). Below the column definition table is an 'ENTER LOCKED VALUES' section with a table of data entries. The table has columns: NO., WORK DESCRIPTION, ACCEPTANCE CRITERIA, STATUS, NCR ISSUED, NCR LINKED, and DATE CLOSED. The data entries are: 5.01 Primed surface is sand-gritted prior to first-coat application, Approved Method Statement, NA, NCR ISSUED; 5.02 Prime the surface with suitable approved epoxy primer, Approved Method Statement, NA, NCR ISSUED; 5.03 Parts not to be painted, are removed/protected/covered prior to commencement of painting works, Approved Method Statement, NA, NCR ISSUED; 5.04 Loose particles of concrete/masonry/plastered surface must be removed prior to application of primer, Approved Method Statement, NA, NCR ISSUED; 5.05 Area must be properly ventilated, Approved Method Statement, NA, NCR ISSUED; 5.06 Roughen the surface to remove glaze, Approved Method Statement, NA, NCR ISSUED; 5.07 As required, neutralize surface of application, Approved Method Statement, NA, NCR ISSUED; and a final row for 'All cracks and holes and any surface imperfection must be repaired and corrected with approved...'. The interface also shows a sidebar with navigation icons and a bottom status bar indicating 'Database: Demo070' and 'User: User A'.

COLUMN ORDER	COLUMN TITLE*	COLUMN TYPE	WIDTH (PX)	LOCKED	REQUIRED	CALCULATION1
1	No.	Text	50	☒	☐	
2	Work Description	Text	400	☒	☐	
3	Acceptance Criteria	Text	150	☒	☐	
4	Status	Text	100	☐	☐	
5	NCR Issued	Boolean	50	☐	☐	
6	NCR Linked	Text	50	☐	☐	
7	Date Closed	Date	200	☐	☐	

NO.	WORK DESCRIPTION	ACCEPTANCE CRITERIA	STATUS	NCR ISSUED	NCR LINKED	DATE CLOSED
5.01	Primed surface is sand-gritted prior to first-coat application.	Approved Method Statement	NA	☐		
5.02	Prime the surface with suitable approved epoxy primer.	Approved Method Statement	NA	☐		
5.03	Parts not to be painted, are removed/protected/covered prior to commencement of painting works.	Approved Method Statement	NA	☐		
5.04	Loose particles of concrete/masonry/plastered surface must be removed prior to application of primer.	Approved Method Statement	NA	☐		
5.05	Area must be properly ventilated.	Approved Method Statement	NA	☐		
5.06	Roughen the surface to remove glaze.	Approved Method Statement	NA	☐		
5.07	As required, neutralize surface of application	Approved Method Statement	NA	☐		
	All cracks and holes and any surface imperfection must be repaired and corrected with approved			☐		

Setting up a WIR compliance table in the PMWEB visual custom form builder (epoxy paint on concrete): the columns for acceptance criteria, status and date, and the compliance items. Earlier PMWEB release; names generalised.

How Many Templates? Two Examples

Painting: one section, around twenty templates

Where an inspection covers materials of different types and application locations, each combination needs its own template. A painting schedule may include interior and exterior surfaces; different substrates such as concrete non-traffic surfaces, concrete non-vehicular traffic surfaces, concrete masonry units and steel; and different paint types such as latex low gloss, epoxy low gloss, 100% solids epoxy high gloss and filled finish latex low gloss. Painting alone may therefore need some twenty unique WIR templates, each with compliance tables specific to the material being inspected.

Electrical: 77 checklists in 12 groups

The *Electrical Inspection Manual* (2014 edition) by Noel Williams and Jeffrey S. Sargent, published by Jones & Bartlett Learning, identifies 77 electrical inspection checklists, in 12 groups, for verifying compliance with the National Electrical Code® (NEC). The NEC is the most widely adopted electrical code in the world and sets the minimum rules electrical installations must follow to be safe for people and property. In PMWEB, each of the 77 checklists becomes a unique template that lists the items to be inspected for that electrical component, the specification reference for each item, the inspection status and the inspector's remarks.

WIR Business Process	Approved	Pending
01 Introduction		
WIR EL-0101 General Safety Checklist for Electrical Inspections	1	0
02 General Requirements Inspections		
WIR EL-0201 General Requirements for Electrical Inspections	3	0
03 Wiring Methods and Devices		
WIR EL-0301 General Wiring Methods	5	1
WIR EL-0302 Boxes and Conduit Bodies	6	2
WIR EL-0303 Cabinets and Cutout Boxes	7	0
WIR EL-0304 Switches and Receptacles	11	0
04 Services, Feeders, and Branch Circuits		
WIR EL-0401 Services	2	3
WIR EL-0402 Feeders	3	1
WIR EL-0403 Branch Circuits	5	0
05 Grounding and Bonding		
WIR EL-0501 Service Grounding and Bonding	8	0
WIR EL-0502 Equipment Grounding and Bonding	9	0
06 Dwelling Units and Mobile/Manufactured Home Sites		
WIR EL-0601 Residential Rough Inspection: General Requirements (All Areas)	11	1
WIR EL-0602 Residential Rough Inspection: Kitchen	1	0

Electrical WIR templates grouped by system, with approved and pending inspections for each. Earlier PMWEB release; sample data.

Anatomy of a WIR Template

One template per specification section. The same structure on every project.

Header	Compliance tables	Each row	Evidence	Access
- WIR number, dates and times - Location: building, floor, space - WBS, schedule activity, CSI code - Contractor, inspector, status	- Material receiving - Pre-application and site preparation - Application - Rows built from the specification	- Acceptance criterion - Contractor self-check - Inspector pass or fail - Photo provided, NCR issued	- Specification sections attached - Photos and videos from site - Folder per division and section	- Project centre per building system - Only authorised WIRs shown - Log of every transaction

Painting ≈ 20 templates · Electrical = 77 templates in 12 groups

The specification decides what is inspected, not the inspector.

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Organising the Library So People Find It

A document structure that mirrors the specification

Every WIR template carries the specification sections it relates to as attachments. To keep all documents, photographs and records of each WIR organised, the PMWEB document repository mirrors the specification. Under a main folder for Quality Management sits a folder for Work Inspection Requests, with a subfolder for each CSI division, for example “Division 09 – Finishes”. Each division holds a subfolder for each specification section, for example “09 90 00 Painting and Coating”, and each section holds a subfolder for each WIR template, for example “09 90 00-01 Painting Works: Interior Concrete Substrates, Non-Traffic Surfaces”.

A project centre for each building system

With hundreds of templates, finding the right one matters. For each building system, a PMWEB project centre screen groups all the relevant WIR templates on a single page. It shows each user only the WIR processes they are authorised to use, on the projects they work on, so the list changes from user to user. Selecting a WIR process shows the log of all its transactions, from which the user can open any record or create a new one.

Key takeaway

Unclear inspection requirements cost the owner twice: change orders for inappropriate rejections, and defects that were never inspected.

Write one WIR checklist for each specification section, from the specification, before site work starts, and require the consultants to keep improving it.

Give every template the same header and section-specific compliance tables, with acceptance criteria, contractor and inspector results, photographs and NCR flags.

Organise the library by specification division and section, and give each building system a project centre so inspectors find the right checklist in seconds.

Next in the series: Part 4 puts the library to work on site: contractor self-inspection, mobile capture, the Return and Resubmit workflow, the link to the payment certificate and WIR performance reporting.

Talk to us: CMCS can build your WIR library in PMWEB from your standard specifications, section by section, and set up the document structure and project centres to go with it. Contact CMCS at info@CMCS-MENA.com.

[#PMWEB](#) [#CMCS](#) [#QualityManagement](#) [#WIR](#) [#WorkInspection](#) [#CSI](#) [#Specifications](#) [#NEC](#) [#CapitalProjects](#) [#PMIS](#)

About the Author

Bassam Samman, PMP, PSP, EVP, GPM is the Chairman and Chief Executive Officer of CMCS FZCO, the PMWEB Authorised Implementation Partner for the Gulf Cooperation Council and broader Middle East and North Africa region. CMCS holds the PMWEB Global Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar and Kuwait.

Bassam has over four decades of experience providing project management, project controls services and project management information systems to more than two hundred capital projects with a combined value exceeding one hundred billion US dollars. He is the author of four published books on project management digitalisation, and has lectured at more than three hundred and fifty international events. He is a co-founder of the Project Management Institute Arabian Gulf Chapter. He holds a Master's degree in Engineering Administration (Construction Management), with Faculty Commendation, from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive education at Harvard Business School and London Business School.

About PMWEB

PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

About CMCS

CMCS (Collaboration, Management and Control Solutions) is the PMWEB Authorised Implementation Partner for the GCC and MENA regions and PMWEB Global Partner of the Year 2025, with offices in Dubai, Abu Dhabi and Riyadh. CMCS specialises in digital project management solutions for real estate developers, government entities, infrastructure owners, project management consultants and construction companies across the Middle East and North Africa.

Running Work Inspections on Site — Self-Inspection, Mobile Evidence and a Workflow That Returns, Not Rejects

How the WIR process is executed, governed, linked to payment and reported

A good checklist is wasted if the contractor uses the consultant's inspection to find its own defects. The WIR process works when the contractor inspects first, the inspector confirms on site, and every return and resubmission stays on the same record.

Part 3 described how to build a library of WIR templates, one for each specification section. This part covers how those templates are used on site: who submits, who checks, how evidence is captured, how failed items are handled, how inspections connect to payment, and how the whole process is measured.

Is this article for you?

- **Supervision consultants** whose inspectors are called to inspect work the contractor has not checked.
- **Contractors and their QA/QC managers** who want subcontractor work accepted before it is offered for inspection.
- **Owners and PMCs** who need to know that the work certified in each payment was actually inspected and approved.

The Contractor Inspects First

The value of an inspection checklist is greatest when the contractor uses it first, to accept work from its own team or its subcontractors. Only if every item complies with the specification should the contractor submit the WIR for the supervision consultant's inspection. That is why each WIR template carries two result columns: the contractor's confirmation that the item is complete, compliant and ready, and the inspector's Pass or Fail.

Self-inspection protects everyone. The consultant's inspectors spend their time on work that is genuinely ready. The contractor avoids failed inspections and the rework and delay that follow. And the owner gets a record showing that both parties checked the same items against the same criteria.

A Workflow That Mirrors Accountability

A **workflow** is assigned to each WIR template to enforce governance over the process. Because different templates cover different materials and systems, the steps and sequence can be specific to each template, so that the right inspectors are always assigned. The workflow maps each task, the role assigned to it, its duration, its type and the actions available, and it can include conditions that enforce the approval authority levels in the Delegation of Authority (DoA) matrix.

A recommended WIR workflow

Step	Who	What happens
1	Subcontractor or contractor team member	Submits the WIR for the completed work, with the self-check and photographs

Step	Who	What happens
2	Contractor's QA/QC representative	Reviews the work and the self-check; confirms it is complete and ready, or returns it to the initiator to rectify
3	Supervision consultant's authorised representative	Accepts the request and assigns it to the inspectors for the material or system concerned
4	Consultant's inspectors	Inspect on site and record Pass or Fail per item; approve the WIR, or return it to the contractor to rectify failed items
5	Supervision consultant's authorised representative	Gives final approval of the WIR

The workflow uses the **Return** action rather than Reject when items fail. A returned WIR goes back to the contractor, who rectifies the failed items and resubmits the same record. The full history of each inspection, including every failed attempt, therefore stays on one WIR rather than being scattered across several.

Field-level access rights are aligned with the workflow, so each party can complete only its own part of the form. For every transaction, the workflow tab shows the planned review and approval tasks and the actual history: the date and time of each action, who took it, the action taken, the comments made and whether input from other team members was requested.

The screenshot displays the PMWeb interface for a WIR (Work Inspection Report) workflow. The top navigation bar shows the breadcrumb: (Portfolio) > Forms > RFIS > 004 - Confl. Below this, there are tabs for MAIN, ADDITIONAL INFORMATION, CLAUSES, NOTES, ATTACHMENTS (10), WORKFLOW (2/4), and NOTIFICATIONS (7). The WORKFLOW tab is active, showing a workflow log for 'BUSINESS PROCESS (01 - Standard Approval)'. The log table has columns: EMAIL, GENERAL, STEP, DUE DATE, ATTACHMENTS, ROLE, USER, ACTION DATE, ACTION TIME, ACTION, DELEGATE, TEAM INPUT, and DOCUMENT VALUE. The log shows a sequence of actions: Submit (26-07-2011, 12:11:57 PM), Proceed (26-07-2011, 12:12:07 PM), Return (20-06-2014, 03:19:49 PM), Proceed (10-06-2015, 11:39:13 AM), Proceed (15-07-2015, 02:25:41 PM), and Return (08-10-2018, 02:09:25 PM). Below the log, there is a visual workflow diagram for 'VISUAL WORKFLOW (01 - STANDARD APPROVAL)'. The diagram shows a flow from SUBMITTER to PROJECT ACCOUNTANT to PROJECT ENGINEER to DIRECTOR, with a CFO role also indicated. There are buttons for WITHDRAW and REJECT.

WIR workflow in PMWEB: the planned steps and the actual history of submissions, returns and approvals on one record. Earlier PMWEB release; sample data.

Evidence Captured on Site

PMWEB is a 100% web-enabled, zero-footprint application, so the WIR templates can be opened in the browser of any tablet or phone, with a responsive design that fits the form to the screen. Inspectors capture inspection details directly from site rather than transcribing notes afterwards. On a mobile device, selecting the attachment button offers to take a photograph or video, and the device's speech-to-text function can be used to fill text fields.

Photographs and other documents relevant to the inspection are attached to the WIR, with descriptions that tell the reader what each attachment shows. Related records from other processes, such as the approved submittal or an NCR, can be linked to the WIR. All supporting documents are stored in the PMWEB document repository, in the folder structure described in Part 3.

12:42 PM Sun Oct 24

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PMWeb IIS Windows Server

(Portfolio) > Schedules > Forms > WIR 07 24 00 THERMAL AND MOISTURE PROTECTION EXTERIOR INSULATION AND FINISH SYSTEMS

PMWeb WIR 07 24 00 Thermal and Moisture Protection Exterior Insulation and Finish Systems

Project: [] ID: 1 Date: 24-10-2021

Company: [] Spec: []

CSI: [] Task: []

WBS: [] Location: []

CBS: []

Inspector: []

Revision: 0 Date: 24-10-2021 Status: Draft

07 24 00 Thermal and Moisture Protection Exterior Insulation and Finish Systems

Refresh

NO.	ITEM INSPECTED
1	Layout/minimum panel sizes per manufacturers specifications
2	Manufacturer system as specified by plan
3	Finish coat/substrates/panels and reinforcement match mfrs. specifications
4	Fasteners: correct set for substrates/rough and finish coats
5	Edges and joints: aligned and flush
6	Flashing / drip edges and corners: per plans
7	Expansion joints: damage and finish coat free channels
8	Moisture and drainage system : per specifications and functional
9	Finish coat :color/pattern correct/ no scaffold lines or cold joints
10	Water traps : none; correct slopes on sills and decorative elements
11	Aggregates : correct size and type : uniform application

A WIR opened on a tablet in the browser: the same template and checklist used on site. Earlier PMWEB release; sample data.

The Link to Payment

The WIR is also how the work in place included in the contractor's monthly interim payment certificate (IPC) is verified and approved. Work that has not passed inspection should not be certified for payment. With WIRs in PMWEB, the owner can see, for each payment period, which inspections were approved for the work being claimed. Materials stored on site and claimed for payment are verified in the same way, through the material inspection requests described in Part 5.

Quality-verified payment milestones

Owners can go a step further and tie payment for each item of work directly to verified quality. A predefined checklist for each category of work lists the items that must be verified before each payment milestone: the items that entitle the contractor to X% of the item's price in the bill of quantities or schedule of values, and the items it must complete before it is entitled to the remaining 100–X%. The checklist does not replace the WIRs that verify each element of the work against the specification; it confirms, at the level of the payment item, that the quality the owner is paying for has been delivered.

The checklists are created with the PMWEB custom form builder, one for each category of work for which payment becomes due, and are generic across the owner's portfolio. They should be part of the contract documents, so the contractor knows the payment terms for work in place from the start. Each item is marked Yes, No or N/A by the person responsible for verifying it, with remarks, photographs and links to the related submittals and WIRs. Because the checklist determines how much the contractor is paid, a workflow records who reviewed and approved it, the action taken, when and with what comments.

Example: a pump chamber on a water supply and sanitation project

Milestone	Payment	Items verified before payment
1 • Structure to roof level	60%	Work items up to plinth level, then the work items for the roof level
2 • Completion	40%	Work items needed to complete and finish the pump chamber

One Inspection, One Record

From the subcontractor's self-check to final approval, every step on the same WIR.



Return, not reject: the full history of every inspection on one record.

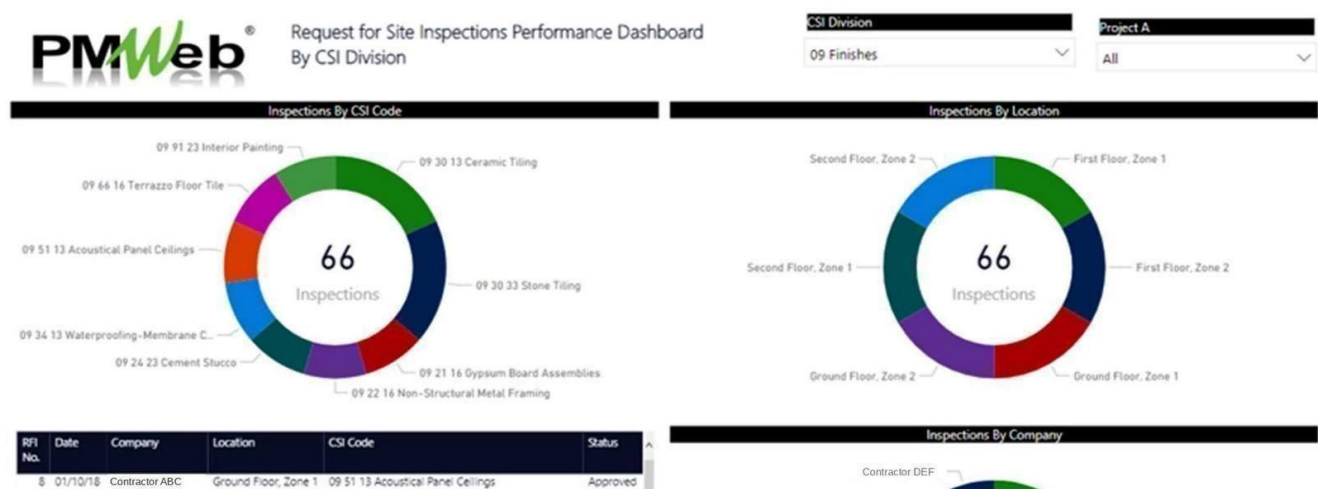
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Measuring the Inspection Process

Because every WIR is a structured record, the inspection process can be reported in real time, as one version of the truth, for a project or the whole portfolio. A WIR status report consolidates all submitted WIRs and groups them by specification division, with drill-down to section, WIR type, location, the contractor or subcontractor and status. The dashboard can include the full log of inspection requests for the selected division.

Measures that show whether the WIR process is working

Measure	What it reveals
WIRs issued per week	Whether inspection activity matches the work being executed, by division, section or WIR type
First-time pass rate	Whether contractors are self-inspecting before they submit
Returns per WIR	Which trades, subcontractors or sections generate repeated failures
Average turnaround time	How long it takes to close a WIR, by division, system or WIR type
WIRs by location and company	Where quality problems concentrate on site, and who is responsible
Open WIRs against claimed work	Whether work in the payment application has been inspected and approved



Inspection performance dashboard on PMWEB data: requests by CSI section, by location and by company, with the log of inspection requests. Earlier PMWEB release; sample data.

Key takeaway

The contractor inspects first, using the same checklist; the consultant's inspector confirms. Two results on every item make both accountable.

Use Return, not Reject, so failed items are rectified and resubmitted on the same WIR and its full history stays together.

Capture evidence on site, on any device, with photographs, video and linked records.

Tie WIRs to the payment certificate, and measure first-time pass rate, returns and turnaround to see where quality is slipping.

Next in the series: Part 5 covers the quality of materials: material inspection requests for stored materials, material tests and concrete pour checklists, and the non-compliance report.

Talk to us: CMCS can configure WIR workflows, mobile inspection and WIR performance dashboards in PMWEB for your projects. Contact CMCS at info@CMCS-MENA.com.

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About the Author

Bassam Samman, PMP, PSP, EVP, GPM is the Chairman and Chief Executive Officer of CMCS FZCO, the PMWEB Authorised Implementation Partner for the Gulf Cooperation Council and broader Middle East and North Africa region. CMCS holds the PMWEB Global Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar and Kuwait.

Bassam has over four decades of experience providing project management, project controls services and project management information systems to more than two hundred capital projects with a combined value exceeding one hundred billion US dollars. He is the author of four published books on project management digitalisation, and has lectured at more than three hundred and fifty international events. He is a co-founder of the Project Management Institute Arabian Gulf Chapter. He holds a Master's degree in Engineering Administration (Construction Management), with Faculty Commendation, from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive education at Harvard Business School and London Business School.

About PMWEB

PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

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Materials, Concrete and Non-Compliance — Controlling the Quality You Cannot See

Material inspection requests, the site laboratory, material tests, concrete pours and the non-compliance report

Some quality can be seen at inspection. The strength of a concrete slab, the compaction of a sub-base or the grade of a rebar cannot. For those, the only proof is the record made at the time: what was delivered, what was tested and what was done when it failed.

Work inspection requests, covered in Parts 3 and 4, verify the work in place. This part covers the processes that verify the materials going into that work, and the process that deals with anything that does not comply: material inspection requests, material tests, concrete pour checklists and non-compliance reports.

Is this article for you?

- **Owners and PMCs** who certify payments for materials stored on site and want proof they were inspected.
- **Structural and materials engineers** who need complete pour records and test results for every element.
- **Supervision consultants** who issue NCRs and want them objective, evidenced and closed out.

Material Inspection Requests

A material inspection request (MIR) is needed whenever materials are delivered to site, and in particular when the contractor includes materials stored on site in its monthly interim payment certificate. The owner should not pay for materials that have not been inspected against the approved submittal.

In PMWEB, the visual custom form builder is used to create the **Material Inspection Request** template. It captures the details of the material delivery and its storage, and the details of the material's manufacturer. A checklist sets out the items that must be verified against the delivered material. The data captured period by period gives the owner and other stakeholders a record of every delivery made during the project and of the materials stored on site at any time. The content and layout of the form can be adapted to each project's reporting requirements.

PMWeb (Portfolio) > Schedules > Forms > MATERIAL INSPECTION REQUEST (MIR) > 1 -

Material Inspection Request (MIR)

Project: [Dropdown] ID: [Text] Date: 24-Dec-2021 [Calendar]

Subcontractor: [Dropdown] Revision: 0 Date: 24-Dec-2021 [Calendar] Status: Draft [Dropdown]

DESCRIPTION OF MATERIAL ITEM

Supplier: [Dropdown] Discipline: [Dropdown] Location of Use: [Dropdown] Material Submittal Reference: [Text]

MATERIAL INFORMATION

MATERIAL INSPECTION

Refresh

SI NO.	DESCRIPTION OF MATERIAL	UOM	SUBMITTED	APPROVED	COMMENTS
No records to display.					

Page Size: 20 0 items in 1 pages

Manufacture: [Dropdown] Storage Location: [Dropdown]

Country of Origin: [Dropdown] Date of Arrival: 10-Nov-2019 [Calendar]

Delivery Note No.: [Text]

VERIFICATION DETAILS

VERIFICATION DETAILS

Material Inspection Request template in PMWEB: material and delivery details, manufacturer, storage location and the verification checklist. Earlier PMWEB release; sample data.

Material Tests

Material tests vary with the material being tested. Typical examples include concrete, ground compaction, steel reinforcement and blockwork tests. Each test type is created with the PMWEB custom form builder as its own template, with the fields and acceptance values its standard requires, and with the laboratory certificate attached. Like every other quality record, each test can carry its supporting documents, linked records and imported Outlook emails, and each has a workflow that formalises its submission, review and approval.

The Site Laboratory and Calibrated Testing Equipment

Construction quality control rests on two elements: testing and inspection. Testing control covers the types of test, their frequency and the stage at which they are carried out; inspection control covers the timing of inspections, what is inspected and the procedures followed. Many site tests on materials and works are carried out by the contractor during construction, which requires a well-equipped, properly operating site laboratory as part of the quality assurance plan. Test results are only as reliable as the equipment that produced them.

A **Checklist of Site Testing Laboratory Equipment**, created with the PMWEB custom form builder, records the equipment the prime contractor must provide in the site laboratory. Its table lists each item of equipment, the test it is used for, and confirmation that the right equipment is available and approved for use. It can be extended with the frequency and stage of each test, and a second checklist can list the specialised tests to be carried out by third-party laboratories.

The details of each item of equipment and the specification section that requires it are attached to the checklist, together with its calibration certificates and other tests. These documents are stored in a dedicated folder in the PMWEB repository, with every revision issued after the project starts. The checklist is submitted to the supervision consultant at the start of the project, and its workflow maps the review and approval tasks. Calibration of testing equipment is also one of the measures in the contractor's quality score in Part 8.

Concrete Pour Checklists

The stability and safety of a building depend on its structure being built as designed, which makes the concrete pour one of the most important quality records on any project. Whether the project control system is run by the owner or the contractor, the pour records must be available to every party that needs them; what differs is who owns the data.

The **Concrete Pour Checklist**, created with the PMWEB visual custom form builder, captures the data for each pour and organises the inspection into the stages of the pour.

The sections of the concrete pour checklist

Section	What it records
Pour details	Element, location, structural system, design mix and strength, planned quantity, date and time
Pre-placement	Items inspected before concrete is placed, such as formwork, reinforcement, embedded items and cleanliness
Placement	Items inspected while the concrete is being placed
Concrete records	Each transit mixer truck delivered, with batch ticket, slump test result and whether test cubes were taken
Post-placement curing	Items inspected after the pour is complete, including the curing method
Cube test results	The results of the cube tests taken from the pour, against the specified strength

Supporting documents, such as slump and other test results, copies of batch tickets and photographs of the pour, are attached to the checklist. A workflow distributes the checklist to the intended recipients; it can be initiated by the contractor and then routed to the designated team members.

PMWeb

PLANS

FORMS

COSTS

SCHEDULES

ASSETS

WORKFLOWS

PORTFOLIO

TOOLS

PROFILE

SEARCH

RECENT

UNIVERSITY

EXIT

(Portfolio) > Tools > Forms > CONCRETE POUR CHECKLIST > 1 -

PMWeb

Concrete Pour Checklist

Project

ID 1

Date

Revision 0

Date 24-09-2021

Status Draft

Subject

Concrete Pour Details

Pour Date 20-01-2019

Location

Quantity in M3 0

Structural System

Batching Plant

Mix Design No.

Design Strength

Placing Method

Allowable Pour Rate CM Per Hour 0

Allowable Slump Range

Maximum Aggregate Size

Curing Method

Finish Type

Pre-Placement Checklist

Refresh

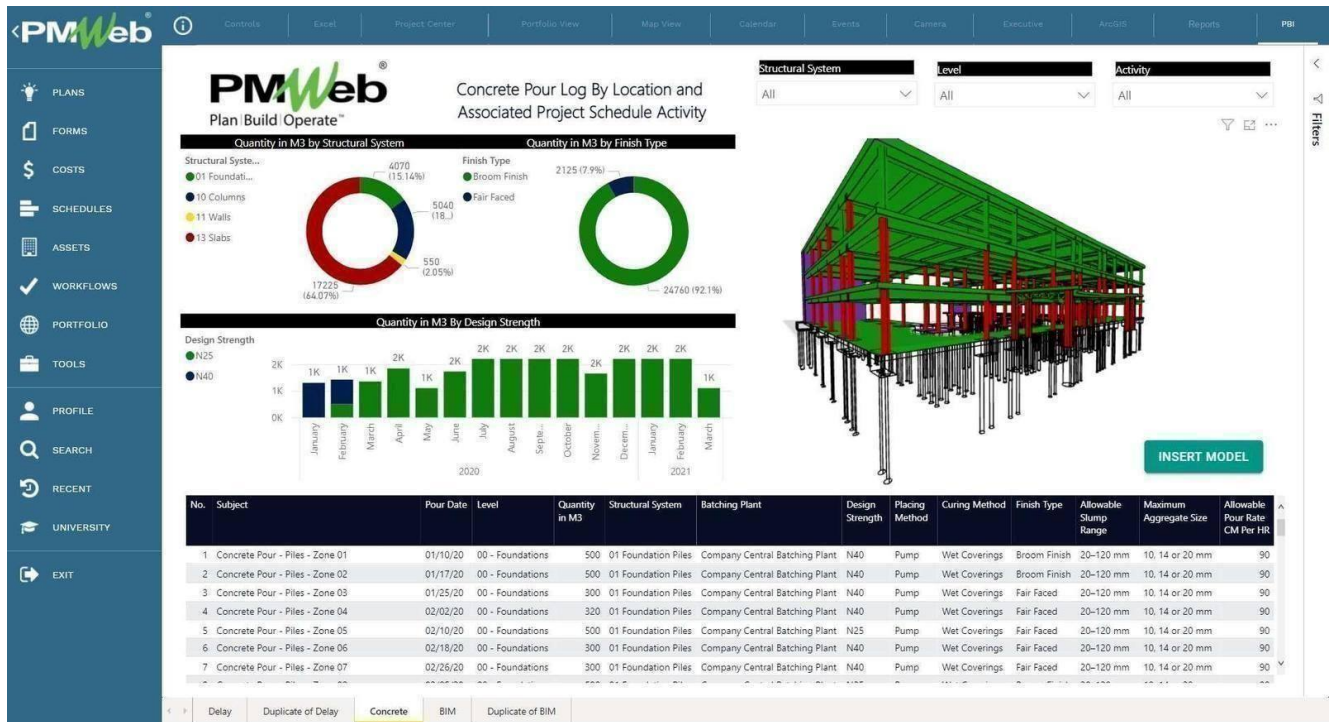
NO.	ITEMS	STATUS
1	Subgrade / Construction Joint Preparation	
2	Formwork	
3	Line and Grade	
4	Reinforcing Steel	
5	Embedded Items: Anchors	
6	Embedded Items: Miscellaneous Steel	
7	Embedded Items: Piping	
8	Embedded Items: Electrical	
9	Inside Formwork Cleanup	
10	Release for Placement	

PAGE SIZE: 20

10 items in 1 pages

Concrete Pour Checklist in PMWEB: pour details and the pre-placement inspection table. Earlier PMWEB release; sample data.

A concrete pour register gives the details of every pour on the project, with visuals that summarise poured quantities by structural system, location, finish type and period. Using Microsoft Power BI, the PMWEB data can also be associated with the project’s BIM model, so the reader can see in the model which elements each pour relates to.



Concrete pour log by location and schedule activity on PMWEB data, linked to the BIM model in Power BI. Earlier PMWEB release; sample data.

The Non-Compliance Report

When work or material does not meet the specification, the supervision consultant issues a non-compliance report (NCR). The most common situations are work not built as shown on the approved issued-for-construction drawings; work outside the specified tolerances; work performed with unapproved methods or standards; a testing and inspection plan that was not followed as agreed; test results showing the product does not meet the approved standards; material used without approval as a substitute; a design that does not represent actual field conditions; and an approved procedure that was not followed. An NCR can lead to rework, delay and dispute, so it must be objective and complete.

The **NCR** template, created with the PMWEB custom form builder, includes the general details of the NCR and a table listing the possible reasons for issuing it. These reasons should be selected from a predefined list, which captures lessons from previous projects and keeps NCRs objective. For each reason recorded, the issuer confirms whether a photograph was attached.

What every NCR must answer

Question	Recorded in the NCR
What was found?	The reason, selected from the predefined list, with photographs
Why does it not meet the specification?	The specification requirement and how the work or material departs from it
What caused it?	The main reason for the non-compliance
What will be done?	The corrective action taken or to be taken
How will it be prevented?	What will be done to stop the problem happening again
Was the correction acceptable?	Acceptance of the corrective action and the date it was completed

NCRs are linked to the WIR, MIR or test that revealed the problem, so the reader can follow the chain from the failed item to its close-out. Open NCRs, their age and their causes are reported in the NCR register and, as Part 8 shows, the rate at which the contractor rectifies them becomes part of its quality score.

PMWeb (Portfolio) > Schedules > Forms > NON COMPLIANCE REPORT (NCR) > 3 -

000674+

MAIN NOTES ATTACHMENTS (4) WORKFLOW

Non Compliance Report (NCR)

Project: Sample Project ID: 3 Date: 03-11-2019

Company: Dexter Concrete Priority: High Location: Entranceway

Revision: 0 Date: 03-11-2019 Status: Withdrawn

REASON FOR ISSUING THE NCR

Edit Add Delete Refresh

SELECT	NO.	REASON	PHOTO
Yes	1	Work that was not built as indicated in the approved issued for Construction drawings	Attached
	2	Work that fails to meet specified tolerances as established in the project specifications	
	3	Work that is being performed using non-approved methods or standards	
	4	Failure to follow the approved testing and inspection plan	
	5	Testing results demonstrate that the product does not meet established and approved standards	
	6	Material used that has not been approved as a substitute (equal or similar)	
	7	Design is not accurate and does not represent actual field conditions	
	8	Approved procedure was not followed, and quality defects have been identified by the project team	

8 items in 1 pages

NCR DETAILS AND CORRECTIVE ACTION STATUS

What is the main reason for the NCR or what went wrong?

You can use the text generator tools like - Dummy text generator and Blind text generator. Most of the web designers also use Lorem Ipsum text generator as a placeholder text. Such dummy text generator is a good for test data.

Why the work doesn't meet specifications?

You can use the text generator tools like - Dummy text generator and Blind text generator. Most of the web designers also use Lorem Ipsum text generator as a placeholder text. Such dummy text generator is a good for test data.

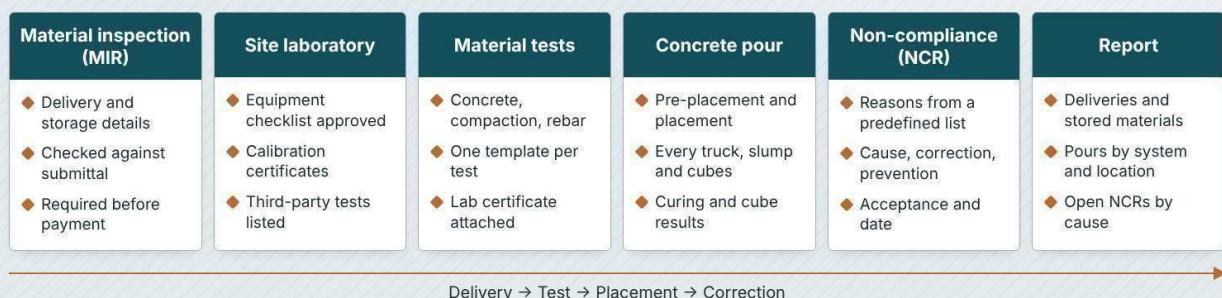
What can be done to prevent the problem from happening again?

You can use the text generator tools like - Dummy text generator and Blind text generator. Most of the web designers also use Lorem Ipsum text generator as a placeholder text. Such dummy text generator is a good for test data.

Non-Compliance Report in PMWEB: reasons selected from a predefined list, explanation, root cause, preventive and corrective action, and acceptance. Earlier PMWEB release; sample data.

Proving the Quality You Cannot See

Materials are inspected on delivery, tested when they cannot be seen, and corrected on record.



For hidden quality, the record made at the time is the only proof.

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Key takeaway

Materials claimed in a payment certificate should first pass a material inspection request against the approved submittal.

The site laboratory's equipment is approved at the start of the project, and its calibration certificates are kept on record.

Each material test is its own template with its acceptance values and laboratory evidence attached.

The concrete pour checklist records every stage of the pour, every truck and every cube test, and can be viewed against the BIM model.

NCRs are objective when their reasons come from a predefined list, and complete when they record cause, correction, prevention and acceptance.

Next in the series: Part 6 covers the installation of equipment: static and rotating equipment inspection checklists, and pre-commissioning checklists for HVAC systems.

Talk to us: CMCS can configure material inspection, testing, concrete pour and NCR processes in PMWEB, with the registers and reports to go with them. Contact CMCS at info@CMCS-MENA.com.

#PMWEB #CMCS #QualityManagement #MaterialInspection #ConcretePour #NCR #MaterialTesting #CapitalProjects
#PMIS #Construction

About the Author

Bassam Samman, PMP, PSP, EVP, GPM is the Chairman and Chief Executive Officer of CMCS FZCO, the PMWEB Authorised Implementation Partner for the Gulf Cooperation Council and broader Middle East and North Africa region. CMCS holds the PMWEB Global Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar and Kuwait.

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Equipment Installation and Pre-Commissioning — Catching Problems Before Testing Begins

Static and rotating equipment inspection checklists, and HVAC pre-commissioning checklists

Commissioning is where an owner finds out whether the building systems work. Pre-commissioning is where it finds out early enough to fix them cheaply.

On most capital projects, the contractor's scope includes installing static and rotating equipment and complete building systems such as heating, ventilation and air conditioning (HVAC). The installation must follow the contract, the specifications, the approved shop drawings and the manufacturers' installation manuals. Inspecting it against those requirements is best done with predefined checklists, written for each type of equipment and system.

Is this article for you?

- **Owners of buildings and plants** whose occupancy, comfort or production depend on mechanical systems working from day one.
- **MEP and commissioning engineers** who want installation problems found and closed before testing starts.
- **Contractors and equipment vendors** who need a clear record that equipment was received, installed and checked as required.

Static and Rotating Equipment

Static equipment has no moving parts and is comparatively more reliable. Examples include pressure vessels, heat exchangers, reactors, columns, storage tanks, bins and silos, air-cooled heat exchangers and steam condensers, condensers, evaporators, valves, boilers and furnaces. Rotating equipment includes gas and steam turbines, compressors, pumps, gearboxes, diesel and reciprocating engines, with their controls, instrumentation, ancillaries and accessories. On oil and gas projects in particular, both groups are central to the plant.

In PMWEB, two templates are created with the visual custom form builder: one for **static equipment** and one for **rotating equipment**. Each records the general details of the project and the equipment, such as the report date, equipment type, reference number, installation location and manufacturer. The checklist items are then grouped into three stages, each held in its own table.

The three inspection stages for equipment

Stage	What is checked
Material receiving and control	The equipment delivered against the order and approved submittal, its condition, documentation and storage
Pre-installation	Readiness of the foundation, location and connections, and the approved shop drawings and installation method
Installation	The installation against the manufacturer's manual and the specification, before the equipment is handed to testing

Holding each stage in a separate table means each can be assigned to a different team member, and new stages or new items can be added as the owner's knowledge grows. The delivery note, installation manual, installation shop drawings and photographs of the location before and after installation are attached to the checklist. The workflow captures the review of each table and the final approval of the equipment inspection, whether one person or several are assigned.

PMWeb Static Equipment Checklist

Project: [Dropdown] ID: 1 Date: 24-09-2021 Status: Draft

Revision: [Dropdown]

EQUIPMENT DETAILS

Company: [Dropdown] Subject: [Dropdown] Category: Static Type: Pressure Vessel

System No.: [Dropdown] Equipment Identification: [Dropdown] Location: [Dropdown]

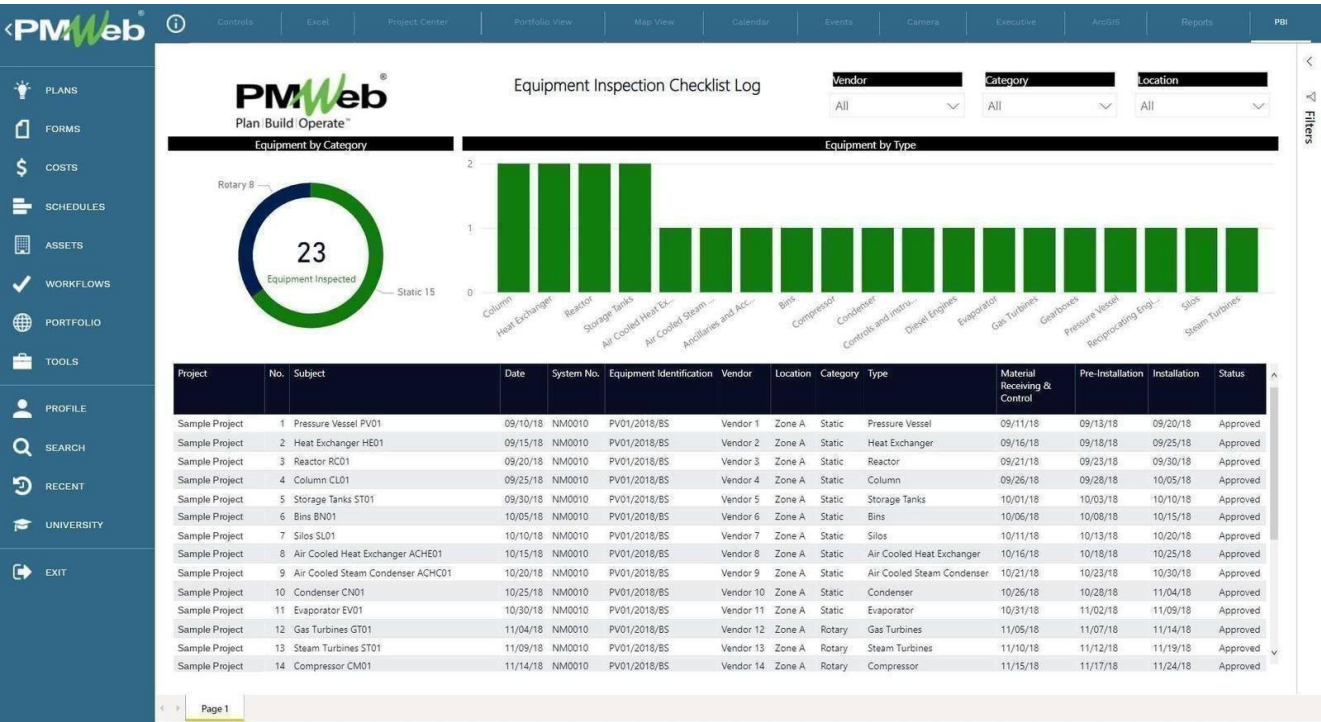
Asset: [Dropdown]

MATERIAL RECEIVING AND CONTROL

Refresh

Static Equipment Checklist in PMWEB: equipment details and the material receiving and control table. Earlier PMWEB release; sample data.

The equipment inspection log brings all static and rotating equipment inspections together. The table lists each item with the actual approval dates for material receiving and control, pre-installation and installation, and visuals show the number of inspected items by category and by type.



Equipment inspection checklist log on PMWEB data: equipment inspected by category and type, with approval dates for each stage. Earlier PMWEB release; sample data.

HVAC: Why Pre-Commissioning Matters

The HVAC system is one of the most critical systems in residential, commercial, hospitality, retail, healthcare, education and government buildings. In the Gulf Cooperation Council (GCC) countries, it is what makes a building habitable at all. An under-performing HVAC system brings complaints from tenants and occupants, and in the worst case a facility nobody wants to occupy.

QA/QC checklists are needed throughout: for installation inspections, air balancing at the air terminals, pre-commissioning, commissioning and performance tests. Poor workmanship is corrected during construction, but

only testing and commissioning can confirm that the system works. Pre-commissioning is the bridge between the two.

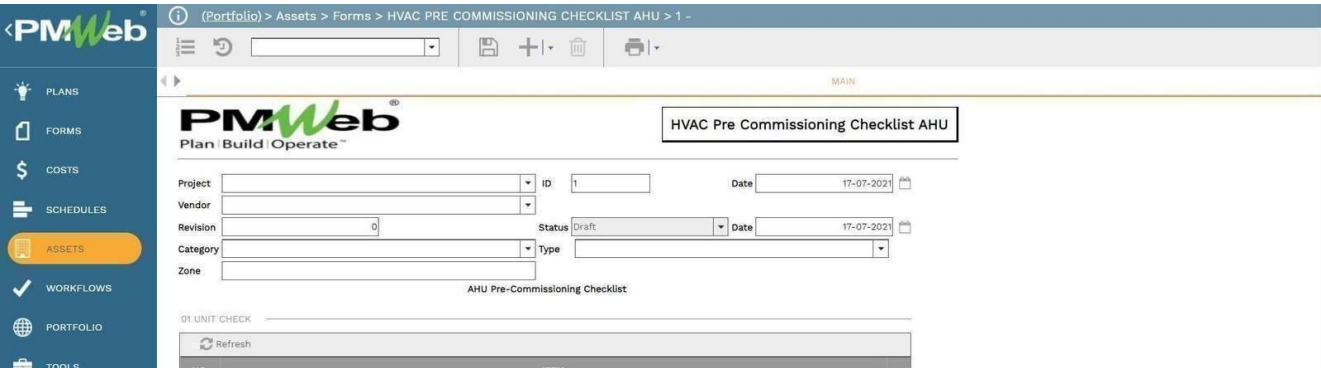
What HVAC pre-commissioning achieves

Benefit	Why it matters
Installation verified against design	Confirms the system was installed as the contract design requires
Problems found before testing	Issues are identified and resolved before commissioning starts
Cheaper remedies	Fixing a problem early is easier and less costly than fixing it during commissioning
Fewer commissioning delays	Early resolution reduces delays to commissioning and to overall project acceptance

HVAC Pre-Commissioning Checklists in PMWEB

There is normally a pre-commissioning checklist for each type of HVAC equipment: air handling units (AHU), fan coil units (FCU), pumps, cooling towers, heat exchangers, reheat coils, variable air volume (VAV) units, split air-conditioning units and others. Each is created as a separate template with the PMWEB visual custom form builder.

The AHU checklist header, for example, records the AHU reference number, the HVAC system or zone it serves, the HVAC subcontractor or vendor, the date and other details. The body lists every item to be checked, grouped into categories. Field-level permissions control which team members can view or complete each category table, so that each person completes only the section assigned to them. That is what turns a shared checklist into governed collaboration.



HVAC Pre-Commissioning Checklist for an air handling unit in PMWEB: header details and checklist categories. Earlier PMWEB release; sample data.

Each checklist carries the documents that support it, such as photographs, as-built drawings, specifications, test results and warranties. Records from other quality processes can be linked to it, including the WIRs, NCRs and submittals for the same equipment, so that the reviewer sees the full history of the unit in one place.

A workflow, aligned with the access rights of the people assigned to each section, maps the sequence for completing the checklist and for its review and approval. It records the submit, review and approve tasks, every comment made and the input of anyone invited to contribute.

From Delivery to Commissioning

Equipment and building systems checked stage by stage, before testing begins.



Find it in pre-commissioning, not in the first summer of operation.

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Key takeaway

Inspect equipment in three recorded stages: material receiving and control, pre-installation and installation.

Give each stage its own table so it can be assigned, extended and approved separately, with the evidence attached.

For HVAC, pre-commissioning checklists for each equipment type find installation problems before commissioning, when they are cheapest to fix.

Link each checklist to the WIRs, NCRs and submittals for the same equipment, so its whole quality history is in one place.

Next in the series: Part 7 covers the end of construction: proactive snag lists used as observation reports throughout the project, and the initial acceptance inspection that leads to handover.

Talk to us: CMCS can configure equipment inspection and pre-commissioning checklists in PMWEB for your building systems and plant. Contact CMCS at info@CMCS-MENA.com.

#PMWEB #CMCS #QualityManagement #Commissioning #PreCommissioning #HVAC #MEP #EquipmentInspection #CapitalProjects #PMIS

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Snagging and Handover — From Proactive Snag Lists to the Certificate of Initial Acceptance

Record defects as they are found, then accept the works through a governed committee process

A snag list compiled only at substantial completion is a list of everything the project failed to record for months. Used as an observation report from the start, it becomes the shortest route to handover.

On construction projects, a snag list, also called a punch list, records the minor defects and omissions in the works that the contractor must rectify. Traditionally it is compiled when the project is considered substantially complete: the owner instructs the engineer to inspect the completed works, the contractor is given a set period to rectify the items, and if it does not, the owner can deduct the cost from the contract and appoint others to do the work. The defects on the list must be rectified before the certificate of practical completion is issued.

A snag list is neither a work inspection request nor a non-compliance report. But it can be used far more effectively than the traditional approach allows.

Is this article for you?

- **Owners and facility managers** who receive buildings with hundreds of open defects at handover.
- **Owner's representatives and consultants** who walk the site every week and want what they see recorded and acted on.
- **Contracts teams** who manage the initial acceptance of completed works, the exceptions and the amounts withheld.

The Proactive Snag List

In the proactive approach, the snag list becomes an **observation report** used throughout construction. It holds every defect or omission identified by the project team that needs to be rectified, as soon as it is seen, and it is shared with the contractor in real time. Defects are closed while the trade is still on site, collaboration between owner, consultant, contractor and subcontractors improves, and far fewer items remain when the project reaches substantial completion. The certificate of practical completion follows sooner.

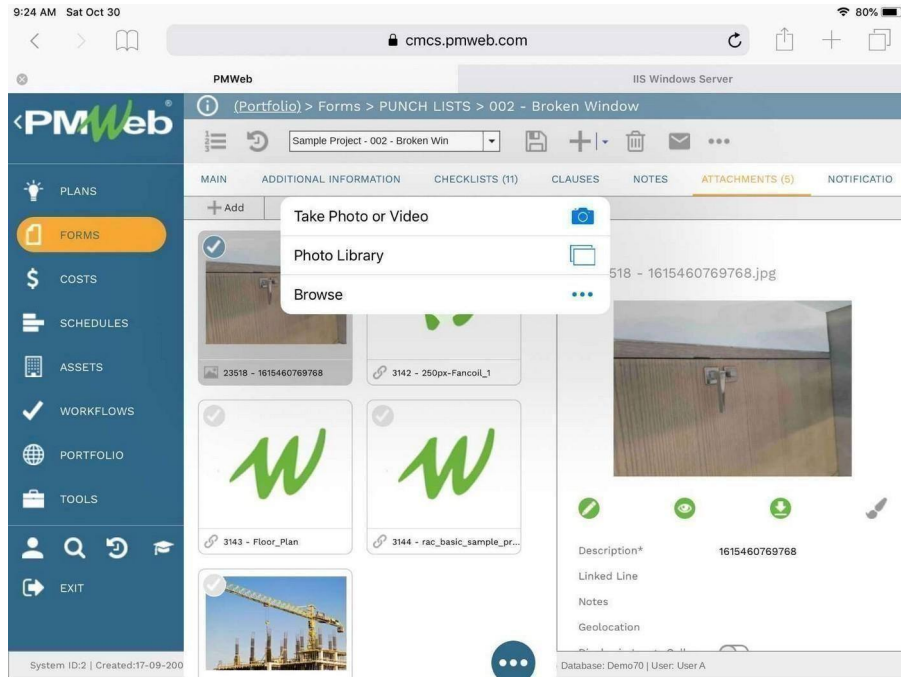
Traditional and proactive snagging

Aspect	Traditional snag list	Proactive snag list in PMWEB
When	At substantial completion	From the start of construction
Who records	The engineer's final inspection team	Every owner and consultant team member who inspects the works
What it holds	Defects found at the end	Every defect and omission, as it is found
Contractor's view	A long list at the worst moment	A live list it can close while trades are on site
Result	A slow route to the completion certificate	Fewer items at completion and a faster certificate

Snag Lists in PMWEB

PMWEB includes a ready-to-use snag (punch) list module, with no limit to the number of snag lists per project. To adopt the proactive approach, a snag list is created for each owner and consultant team member who inspects the works, so each can capture and report the defects and omissions they find on site. Each item records the register it belongs to, who captured it, and the contractor, subcontractor or supplier responsible for rectifying it.

The snag list can be opened in the browser of any device, including tablets, and through the PMWEB mobile app. On a mobile device, speech-to-text can be used to dictate the description of each item, and selecting the attach button offers to take a photograph or video. Documents and photographs are attached to each item, and the PMWEB viewer can be used to add comments and markups to them. Other documents, related PMWEB records and imported emails can be added as needed.



Recording a snag item on a tablet: photographs taken and attached from site. Earlier PMWEB release; sample data.

A predefined workflow distributes each snag list to the right people, usually the contractor and the other stakeholders who must be kept informed, with all review and approval tasks. PMWEB records the actual dates of each task and each reviewer's comments. Stakeholders who are not in the workflow or do not have access to PMWEB can be sent the snag list through PMWEB notifications, and every notification issued is recorded on the snag list. The snag list can also be issued formally using its form, designed to the project's branding.

The defects and omissions reported by all team members are consolidated into a single report for project management, grouped by work category, location, who reported them, who is responsible for rectifying them, the number overdue, or any other attribute recorded.



Punch list report on PMWEB data: defects on the floor plan, and open items by category, location, reporter and responsible party. Earlier PMWEB release; sample data.

The same module is then used for the formal snag listing near completion of the works or any part of them, when the Construction Quality Manager inspects the work, lists the items that do not conform with their estimated correction dates, assesses the funds to be withheld from the contractor's progress invoice until they are corrected, and re-inspects to confirm they have been. After handover, property owners and facility managers use it to report defects found when inspecting buildings and facilities in operation.

The Initial Acceptance Inspection

Before a capital project, or part of it, can be used or occupied, the completed works must be inspected and accepted by the owner and its authorised representatives under the terms of the contract. The inspection is carried out by a committee that usually includes representatives of the owner's team, facility management, the supervision consultant, the project management consultant and the contractor. The **Initial Acceptance Inspection** is the business process that manages it.

The initial acceptance process

Step	Task
1	The contractor completes rectification of all items in the final punch list and initiates the request for initial acceptance
2	The project manager verifies the deliverables and establishes the initial acceptance committee
3	The committee inspects the works and establishes the initial acceptance deficiency list
4	The committee decides to accept or reject the request; if rejected, the contractor rectifies the deficiencies and resubmits
5	On re-inspection, the committee accepts the works or establishes the initial acceptance exceptions list
6	The contractor agrees the adjustments for the exceptions list items and their amounts
7	The committee gives final approval and issues the Certificate of Initial Acceptance, and the final account process starts

The Road to Initial Acceptance

Defects recorded as they are found. Acceptance granted through a governed committee.



Fewer items at completion. A faster certificate.

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Managing Initial Acceptance in PMWEB

The contractor's request

A form created with the PMWEB custom form builder manages every task of the process. When the contractor is ready to turn over a section of the works, it initiates the process by confirming that the required deliverables have been submitted and approved. These usually include as-built drawings and operation and maintenance manuals (both mandatory before inspection), spare parts, warranties for contractor-furnished items, a valid performance bond, change orders and all claims. The contractor attaches the documents for these deliverables and the final approved punch list. All are stored in their folders in the PMWEB document repository, and can be uploaded in bulk.

The committee and the deficiency list

The project manager reviews the submission and rejects it if the deliverables are incomplete. If it is complete, the process moves to the formation of the committee. Its membership differs between organisations, but as a minimum it should include the owner, the facility management team, the supervision consultant, the project management consultant and the contractor. The form records the committee members and their organisations, selected from the PMWEB companies module.

The committee carries out the inspection as scheduled and records every deficiency or incomplete item in the **Initial Acceptance Deficiency List** table, with a field for the date each deficiency is corrected. If the work has not been executed according to the drawings and specifications, the contracts team issues a Rejection of Initial Inspection letter, created with PMWEB Word or as a form template, which communicates the committee's decision and includes the deficiency list.

Exceptions and the certificate

The contractor rectifies the agreed deficiencies and requests re-inspection. If items remain, the committee prepares the **Initial Acceptance Exceptions List**. Only deficiencies that do not affect the safe operation of the facility may be accepted as exceptions. The contracts team classifies each exception as one to be corrected, for which an estimated amount is withheld until it is resolved; one that is technically acceptable, for which an estimated amount is credited to the owner; or one that does not apply under the contract. With the owner's agreement, exceptions can be rectified after the facility has been handed over. The contractor signs and agrees the exceptions list, the number of exceptions and the amounts to be adjusted.

When the exceptions list is final, the site construction team notifies the contracts team, which prepares and issues the **Certificate of Initial Acceptance**, created with PMWEB Word or as a form template, including the exceptions list.

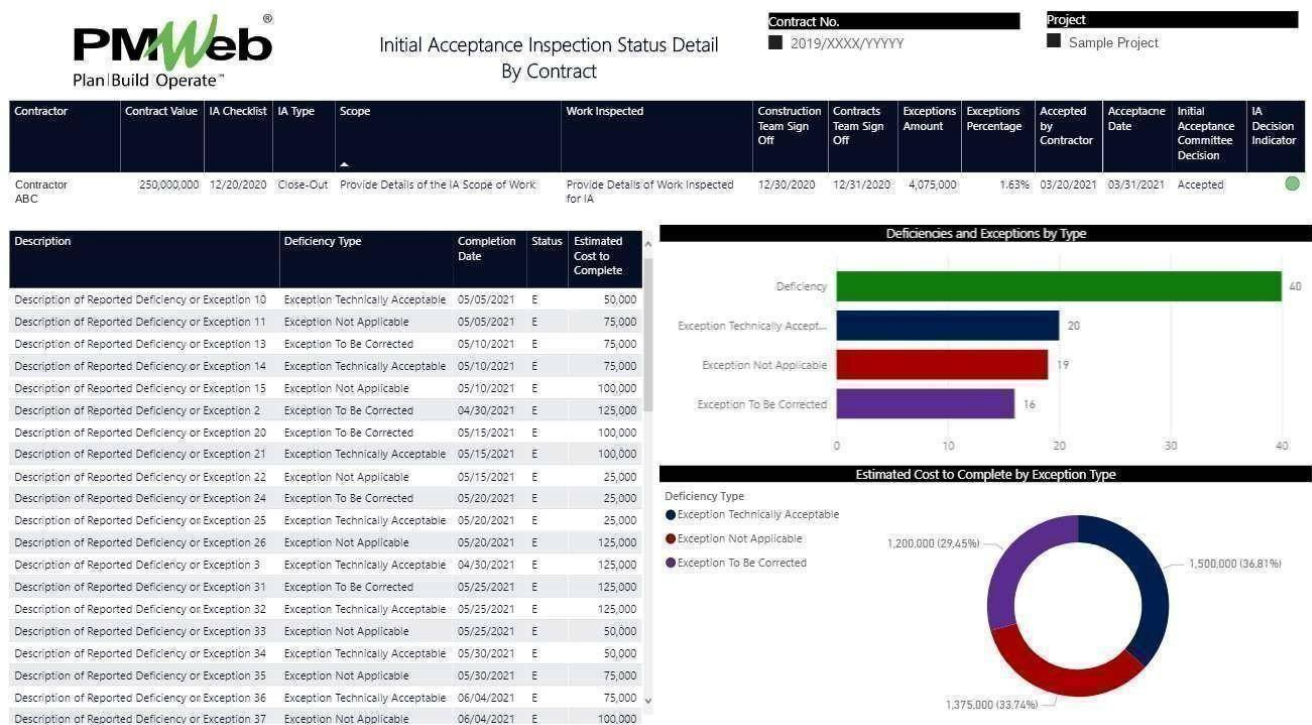
The workflow

The form's workflow maps the steps of the process, who performs each, the time allowed and the actions available. It is always initiated by the contractor when the contractor has access to PMWEB, and access rights to each table and field are aligned with the workflow tasks. When a submission is rejected for deficiencies, the **Return** action sends it back to step 1; after rectification, **Resubmit** skips steps 2 to 4 and goes straight to re-inspection at step 5.

Classifying initial acceptance exceptions

Exception type	Commercial treatment
To be corrected	An estimated amount is withheld until the exception is resolved
Technically acceptable	An estimated amount is credited to the owner
Not applicable	No adjustment, under the contract conditions and documents

PMWEB reports provide logs of the deficiencies and exceptions, of the deliverables and of the completed punch list items, for one contract or for all contracts on the project. Using the PMWEB BI report writer or Microsoft Power BI, the data from every step can also be brought into an executive report: the contract inspected, the key dates and decisions, whether initial acceptance was granted, the log of deficiencies and exceptions with their completion dates and withheld amounts, and visuals of deficiencies and exceptions by type and of the amounts withheld by exception type.



Initial acceptance inspection report on PMWEB data: contract details and decisions, deficiencies and exceptions by type, and amounts withheld. Earlier PMWEB release; sample data.

Key takeaway

Use the snag list as an observation report from the start of construction, with every inspector recording what they see as they see it.

Capture snag items on site with photographs, assign each to the party responsible, and report open and overdue items by location and trade.

Run initial acceptance as a governed process: deliverables first, a formal committee, a deficiency list, an exceptions list with amounts, then the certificate.

Return and Resubmit keep every inspection round on one record, and the exceptions list feeds directly into the final account.

Next in the series: Part 8 brings the series together: the real-time quality performance dashboard and the contractor quality performance index, calculated from the records of every quality process.

Talk to us: CMCS can configure proactive snag lists, the initial acceptance process and handover reporting in PMWEB for your projects. Contact CMCS at info@CMCS-MENA.com.

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Measuring Quality — The Real-Time Quality Dashboard and the Contractor Quality Performance Index

When every quality process is a record, quality performance becomes a number the board can trust

Every project reports its quality performance. Most report an opinion. When submittals, inspections, tests and NCRs are all records in one system, the report writes itself and the score can be traced to the transactions behind it.

Parts 2 to 7 described each quality process in turn. This final part shows what the owner gains once all of them run in PMWEB: a real-time, single version of the truth on quality for every project, available anytime, anywhere and on any device, and an objective way to score each contractor's quality performance, period by period.

Is this article for you?

- **Owners and portfolio managers** who want to compare quality across projects and contractors on the same basis.
- **PMOs and PMCs** who prepare monthly quality reports by hand from several registers.
- **Contractors** who want their quality performance judged on the record, not on impressions.

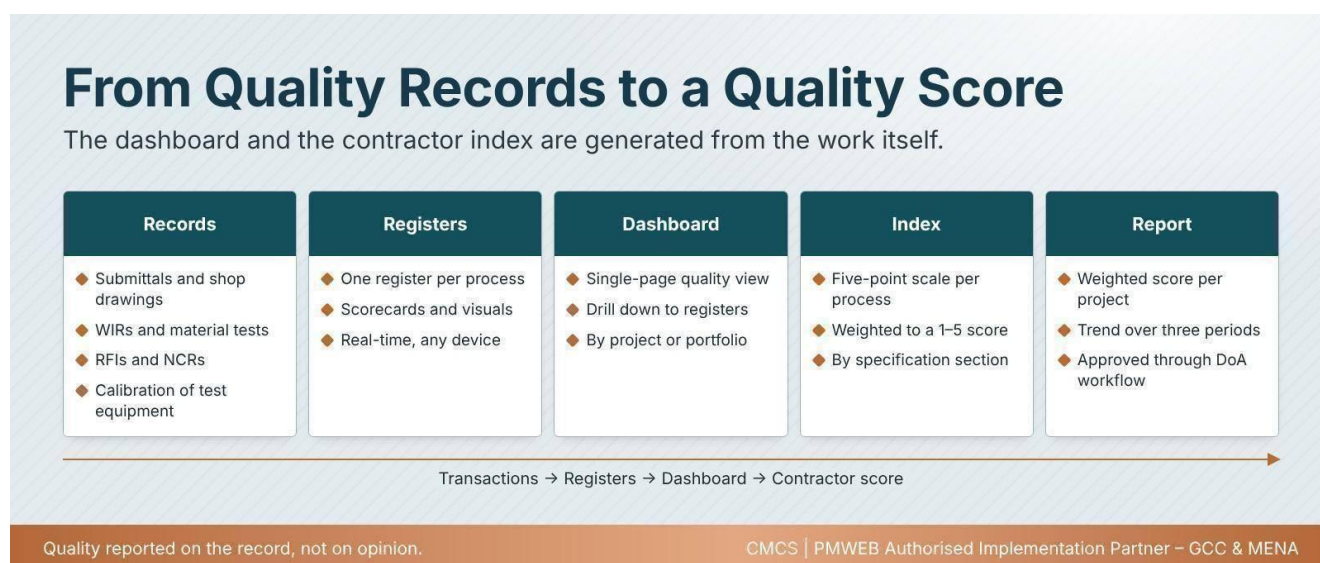
What the Quality Dashboard Draws On

The quality compliance of a project is best monitored, evaluated and reported through the performance of its core quality processes: shop drawing submittals, work inspection requests (WIR), material tests, requests for information (RFI) and non-compliance reports (NCR). Trying to produce such a dashboard from Microsoft Excel, in real time and for every stakeholder, is a great challenge, if not impossible. In PMWEB it is one of the reports generated automatically from the records.

The sources of the quality dashboard

Process	PMWEB source	What the dashboard shows
Shop drawings and submittals	Ready-to-use submittal items	Submitted, approved and rejected, turnaround, by section and category
Work inspection requests	Custom WIR templates (Parts 3–4)	Approval rate, by works type, location and company
Material tests	Custom test templates (Part 5)	Tests conducted, passed and failed, by material
Requests for information	Ready-to-use RFI module	Open and closed RFIs and their impact
Non-compliance reports	Custom NCR template (Part 5)	Issued and closed NCRs, by cause

Each process keeps its own register, designed with scorecard tables and visuals to show its status in real time. The single-page quality dashboard then brings the registers together, and the reader can drill down from the dashboard into the register of any process to see how it is performing.



Scoring the Contractor: The Quality Performance Index

Whether or not the owner has digitalised its quality processes, it will always need to report the contractor's quality performance. The question is whether that report is objective. A quality performance index makes it so, by scoring the contractor's performance on each quality process against predefined measures, at the end of every progress period.

The five performance ratings

Rating	Meaning
Action Required	Performance is lacking and must change
Attention Required	Performance must improve
Meets Requirement	Current performance meets the requirement
Valued Performance	Current performance is valued
Outstanding Performance	Current performance is outstanding

To keep the assessment unbiased, predefined measures are set for each process, which determine the score achieved for carrying out its scope of work. The assessment covers the critical quality processes: WIRs; submittals for materials, shop drawings and inspection and test plans; materials received on site; material test results; calibration of testing equipment; and the rectification of NCRs.

Setting the measures: an example for WIRs

For each process, predefined thresholds translate the period's records into a score on a five-point scale. For work inspection requests, the measure is the share of WIRs carried out during the month that were approved, or approved with comments:

Five-point scale for the WIR process

Rating	Score	WIRs approved or approved with comments
Outstanding Performance	5	95% to 100%
Valued Performance	4	80% to 94%
Meets Requirement	3	60% to 79%

Rating	Score	WIRs approved or approved with comments
Attention Required	2	40% to 59%
Action Required	1	Below 40%

A similar approach is used for each of the other processes, taking into account what each one needs to measure. Each process also carries a weight that reflects its contribution to overall quality performance: WIRs might weigh 25% and material submittals 10%, for example. The process score is the weight multiplied by the score achieved, so a WIR process rated Outstanding contributes 1.25 points (25% × 5), Valued Performance 1.00, Meets Requirement 0.75, Attention Required 0.50 and Action Required 0.25. Across all processes, the weighted scores add up to a project quality score between 1.00 and 5.00.

The assessment template

The assessment is captured in a **Quality Performance Index** template created in PMWEB. At the end of each progress period, the owner's team scores every quality process. The template lists all the required quality performance measures, with a field for the score and another for remarks, and a general remarks field captures the analysis of the reported KPI. The template holds the input data and calculates the quality KPI.

Each person assessing a measure must attach the register or log showing the transactions of that quality process for the period. That is what makes the score valid: anyone reviewing it can see the records it was based on.

The screenshot shows the PMWeb interface for the Quality Performance Index. The top navigation bar includes links to PLANS, FORMS, COSTS, SCHEDULES, ASSETS, WORKFLOWS, PORTFOLIO, TOOLS, PROFILE, SEARCH, RECENT, and UNIVERSITY. The main content area displays the 'Quality Performance Index' form. The form has a header section with fields for Project, Contractor, Revision, ID, Date, and Status. Below this is a table with columns for No., KPI Measure, Description, Weight, Score, Outstanding Performance, Valued Performance, Meets Requirement, Attention Required, Action Required, Notes, and Remarks. Two rows of data are visible, showing scores and remarks for 'Work Site Inspections' and 'Material Testing Results'.

Quality Performance Index template in PMWEB: each quality process scored against predefined measures, with remarks. Earlier PMWEB release; sample data.

As with other project control processes, a workflow formalises the submission, review and approval of the reported quality performance, and incorporates the approval authority levels defined in the Delegation of Authority (DoA) matrix.

Two ways to keep the index up to date

PMWEB offers two approaches. In the first, described above, the assigned team members score each process on the Quality Performance Index form at the end of the period, with the registers attached and field access restricted according to the DoA matrix where several people contribute. Its strength is the narrative: the remarks explain the score.

In the second, there is no assessment form. The measures are calculated automatically from the quality processes themselves, such as submittals, WIRs, material inspections, NCRs, RFIs and concrete pours, using the submission, status and status date captured on each transaction, and fed straight into the quality dashboard. It removes the manual step, at the cost of the narrative that explains each KPI. Many owners combine the two: calculated scores, with a short commentary added in the period report.

A Quality Performance Index for Each Specification Section

The same records can also score quality by specification section, which shows where on the project quality is being lost. The method uses the two processes that most directly measure wasted effort. A WIR that is not approved first time, and an NCR that is not rectified on time, both consume contractor and consultant effort that adds no value.

Each CSI MasterFormat® section managed on the project is given a weight, with the weights totalling 100%, and starts with 100 points. As the project progresses, the score is reduced by the percentage of WIRs not approved first time, and by a further 5 points for each NCR with a delayed response. The NCR template therefore records the specification section, the reasons and corrective actions, and a response due date, so that late NCRs are identified automatically.

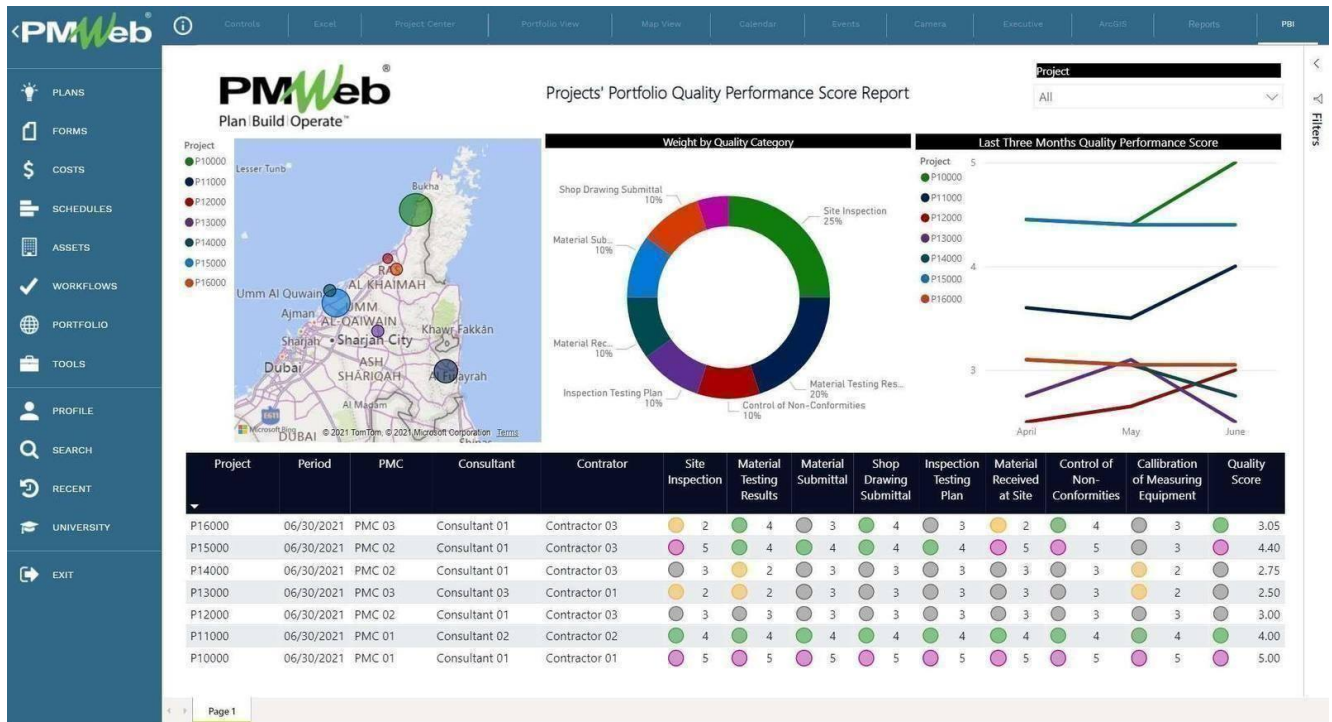
Worked example: 07 12 00 Built-Up Bituminous Waterproofing

Calculation	Points
Starting score	100
30 WIRs issued, 5 not approved first time (17%)	-17
2 NCRs with a delayed response (2 × 5)	-10
Quality Performance Index for the section	73 out of 100

The section scores, weighted, give an index for the whole project. Other quality processes can be added to the calculation, with their own weights; for example, WIRs might carry 30% and NCRs 70%, adjusted so the total always remains 100%. Every input is a PMWEB record, with its documents attached and its workflow history, so the index can be traced back to the inspections and NCRs behind it.

The Contractors' Quality Performance Report

The assessments become the **Contractors' Quality Performance Report**. It covers the whole portfolio the owner, or the contractor, is delivering, with a filter to select a single project or a group of projects. For each project, it shows the score for each quality process and a weighted score across all of them, and a line chart shows the quality performance trend over the last three periods. Further visuals can be added as the owner's reporting needs require.



Projects' portfolio quality performance score report on PMWEB data: projects on the map, weighted scores by process and the trend over recent periods. Earlier PMWEB release; sample data.

From records to a trusted quality score

Principle	How PMWEB applies it
Measured, not judged	Every score is set against predefined measures for each process
Evidenced	The register for the period is attached to each score
Governed	The assessment is reviewed and approved through a DoA-aligned workflow
Comparable	The same index applies to every contractor and every project in the portfolio
Trended	Scores are tracked period by period, so improvement and decline are visible early

Bringing the Series Together

This series has followed quality through a capital project: technical submittals approved before procurement; a library of inspection checklists written from the specification; inspections run with contractor self-checks, mobile evidence and a workflow that returns rather than rejects; materials, tests, concrete pours and NCRs recorded at the time; equipment and HVAC systems checked before commissioning; defects recorded as they are found; and initial acceptance granted through a governed committee. Each is a process, and each produces a record.

The dashboard and the quality performance index are the reward for that discipline. They cost almost nothing to produce once the processes run in PMWEB, and they give the owner what no spreadsheet can: a real-time picture of quality across the portfolio, and a contractor score that can be defended line by line.

Key takeaway

The quality dashboard draws on the records of submittals, WIRs, material tests, RFIs and NCRs, with drill-down into each register.

Score each quality process on a five-point scale with predefined thresholds, weight it, and add the weighted scores into a project score between 1 and 5.

Keep the index current either through a period assessment form with the registers attached, or automatically from the process records.

Score each specification section from first-time WIR approvals and late NCRs to see exactly where quality is being lost.

Report weighted scores and trends across the portfolio, so the board sees quality the same way it sees cost and time.

Talk to us: CMCS can configure the full quality management suite in PMWEB, from submittals and inspection checklists to the quality dashboard and the contractor quality performance index. Contact CMCS at info@CMCS-MENA.com.

#PMWEB #CMCS #QualityManagement #QualityKPI #Dashboard #ContractorPerformance #PowerBI #CapitalProjects
#PMIS #PMO

About the Author

Bassam Samman, PMP, PSP, EVP, GPM is the Chairman and Chief Executive Officer of CMCS FZCO, the PMWEB Authorised Implementation Partner for the Gulf Cooperation Council and broader Middle East and North Africa region. CMCS holds the PMWEB Global Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar and Kuwait.

Bassam has over four decades of experience providing project management, project controls services and project management information systems to more than two hundred capital projects with a combined value exceeding one hundred billion US dollars. He is the author of four published books on project management digitalisation, and has lectured at more than three hundred and fifty international events. He is a co-founder of the Project Management Institute Arabian Gulf Chapter. He holds a Master's degree in Engineering Administration (Construction Management), with Faculty Commendation, from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive education at Harvard Business School and London Business School.

About PMWEB

PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

About CMCS

CMCS (Collaboration, Management and Control Solutions) is the PMWEB Authorised Implementation Partner for the GCC and MENA regions and PMWEB Global Partner of the Year 2025, with offices in Dubai, Abu Dhabi and Riyadh. CMCS specialises in digital project management solutions for real estate developers, government entities, infrastructure owners, project management consultants and construction companies across the Middle East and North Africa.