

Hazen

**Staying on Top of the Construction Documents:
Keeping Project Controls Working for You and Not
the Other Way Around**



Hazen and Sawyer

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Combined 55 yrs. of complex heavy municipal construction

Hazen and Sawyer

- Corporate Headquarters in New York City, New York
- Providing water and wastewater engineering since 1951
- Program Management/Construction Management (PM/CM) group
- Currently provides construction phase services for our infrastructure projects
- Currently managing \$400 million in total construction
- ~ 1,200 employees



Learning Objectives

- *Why consider switching to a 'cloud' based system?*
- *How to engage impacted personnel in the evaluation and decision-making process*
- *How to effectively evaluate different document control software systems*
- *Important considerations in roll-out / migration to new systems*
- *Rapid onboarding of employees to the new system*
- *Incorporating QA/QC into a document management system*



Why Cloud Based?: Typical Hazen Project

Project Control Metrics NTP to date: Complex \$66M, 36-month WWTP upgrade

- *Onsite CM staffing: 3 full time + PM & special inspections/startup (4.5 FTE)*
- *Drawings/Spec Pages: 531/2,550*
- *Submittals: 1,064 (includes O&Ms & startup reports)*
- *Meetings/Agendas/Minutes: 71*
- *NCN: 15*
- *RFI's: 139*
- *RFC'/CO's: 136/5*



Why Cloudbased?: Typical Hazen Project (cont'd)

Project Control Metrics NTP to date: Complex \$66M, 36-month WWTP upgrade

- *Monthly & Special Meetings: 66*
- *Punchlists: 344*
- *Monthly Pay't Requests & Sch Updates: 38*
- *Partial Substantial Completion Requests: 6*
- *Photos: 10,374*
- *Special Inspection Reports: 1,073 (concrete, soils, welding)*
- *Owner Departs/Engineer/Prime Contractor: 4/1/1*
- *Vendors/Subcontractors: 29*



More We Slow Down Faster We Go

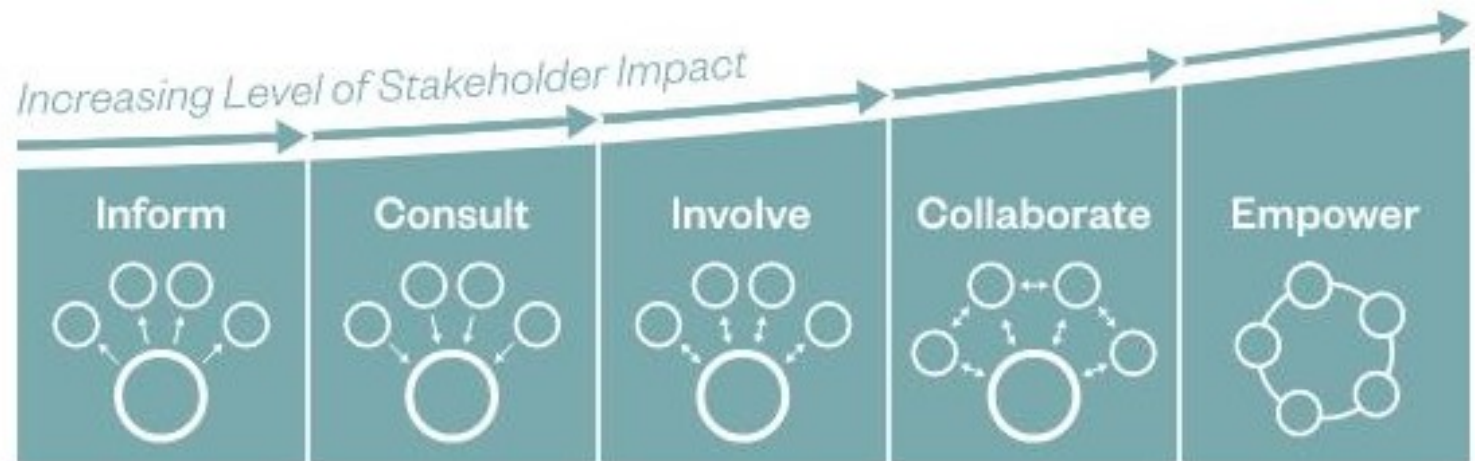
- 1) Don't rush in; know your project needs
- 2) Cloudbased controls software does NOT:
 - *Build relationships*
 - *Replace Professional Judgement/Technical Knowledge /Experience*
 - *Ensure success*
 - *Garbage in/Garbage out*
- 3) Cloudbased software should
 - *Make documentation accessible to multiple disciplinary team members;*
 - *Increase efficiencies for users;*
 - *Give documents a unique code number;*
 - *Keep team members informed;*
 - *Tracking all information flow/status;*
 - *Optimizing information flow;*
 - *"Single platform" for storage;*
 - *Functional document format standardization.*



Stakeholder Engagement

Varies by:

- *Project*
- *Owner*
- *Project delivery method*
- *Number of stakeholders*
- *Security needs*



Needs/Benefits: 2016 Survey

- 1) Existing Software version was support was to be discontinued resulting in evaluation of additional Document Control Software(s)
- 2) Survey Metrics of how four software's handled the following:
 - *Document control*
 - *Shop drawings/submittals*
 - *Plan mark ups and review*
 - *Specifications*
 - *Daily inspection reports*
 - *Progress photographs*
 - *Meetings*
 - *Change orders*
 - *RFIs*
 - *Pay requests*
 - *Progress schedule*
 - *Email/correspondence*



So Many Choices...



Overall goal is to optimize document control, communication and collaboration during the construction phase of projects

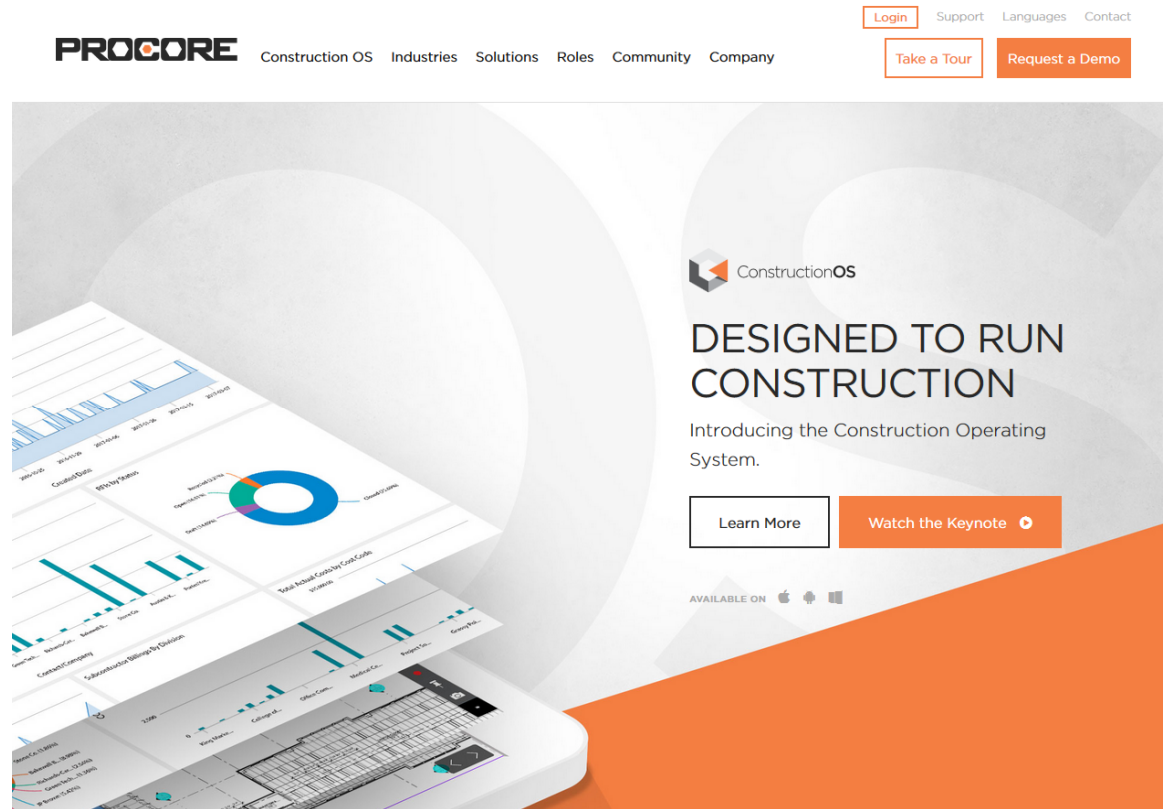
Hazen CM Software Survey Results

- *November/December 2016*
- *Included Approx. 90 Hazen Staff*
- *40% Response Rate*
- *Procore was highest ranked*

Program Feature	Average Rating Scores			
	CM14	Procore	EADOC	e-Builder
Number of Responses	13	9	4	10
Document Control	3.9	4.3	4.5	4.1
Shop Drawings/Submittals	3.8	4.3	4.3	4.0
Plan mark ups and review	1.7	4.4	---	2.8
Specifications	2.1	4.3	4.0	3.7
Daily Inspection Reports	3.5	4.8	3.0	2.9
Progress photographs	2.6	4.4	4.0	3.0
Meetings	3.9	4.3	4.0	2.9
Change orders	3.2	3.7	3.8	2.8
RFIs	4.1	4.6	4.8	3.7
Pay requests	3.0	4.0	3.5	3.0
Progress schedule	2.3	4.0	3.5	2.4
Email/correspondence	3.3	4.2	2.8	3.2
Implementation	3.2	4.3	3.8	3.2
User friendliness	2.7	4.4	3.8	3.0
Ease of use	3.2	4.4	3.8	3.2
Technical support	2.2	4.7	4.7	3.4
Training	2.5	4.0	4.3	3.3
Mobile applications	1.9	4.8	1.5	2.2
Archiving and Data Storage	3.2	4.2	4.3	4.1
Reliability and network interface	3.0	4.6	4.5	4.2
Overall performance	3.1	4.4	4.3	3.2
average rating	2.83	4.34	3.63	3.10

A Few of Procore's Features and Benefits

- *Cloud based*
- *Features many contract management, document control and field tools*
- *Unlimited users and data storage*
- *Direct training and IT support from Procore*
- *Fully integrated mobile apps (Android and Apple) for tablets and phones*
- *Streamline file archiving at project completion*



A Few of Procore's Features and Benefits (cont'd)

PROJECT HOME

PROJECT TEAM

Role
Project Manager
Construction Manager
Resident Project Engineer

PROJECT OVERVIEW

Overview	Overdue	Next 7 Days	> 7 Days	Total Open
RFIs	1	0	0	1
Submittals	0	4	0	4
Inspections	0	2	0	2
Punch List	0	9	0	9
Meetings	0	44	0	44

MY OPEN ITEMS

Item Type	Details	Status	Due Date
No Open Items			

RECENTLY CHANGED ITEMS

Item Type	Details	From	Date Created
Submittals	#03200-016.A: Rebar for AT 7-10 Modifications	Brandon Moretz	07/24/17
Document	D-16121-004-A Medium Voltage Cable - Install Plan.pdf	Luke DeGarmo	08/07/17
Photo	41448EB5-C95D-4E84-AE7D-17295ED84E9D.jpg	Andrew Rotermund	08/07/17

PROJECT ADDRESS
4000 Westmont Drive
Charlotte, North Carolina 28217
United States

PROJECT WEATHER
Partly Cloudy

Date:	Aug 07, 2017
Time:	11:14 AM EDT
Temp:	78°F
Wind:	11.0 mph 212
Humidity:	80%

Click for forecast

Minimize Sidebar

A Few of Procore's Features and Benefits (cont'd)

HAZEN AND SAWYER
30863-009 - Irwin C...
TOOLBOX
Specifications
FAVORITES

Export
Subscribe

All Divisions
Current (238)

	Number	Description	Revision	Issued Date	Received Date	Set
00 - Bidding And Contract Requirements						
<input type="checkbox"/>	Edit Info Open	000000		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	000001		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	000002		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00010		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00100		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00200		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00210		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00250		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00300		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00500		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00700		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00800		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00850		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00875		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	00900		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
01 - General Requirements						
<input type="checkbox"/>	Edit Info Open	01005		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	01010		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	01015		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	01110		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs
<input type="checkbox"/>	Edit Info Open	01152		03/14/2016	03/11/2016	Irwin Creek WWTP - Phase 2 Conformed Specs

Upload Specifications
Manually Create Divisions
Manually Create Spec Sections
Open Current Spec Book
Download
Email
Bulk Edit
Delete Spec Section Revisio...

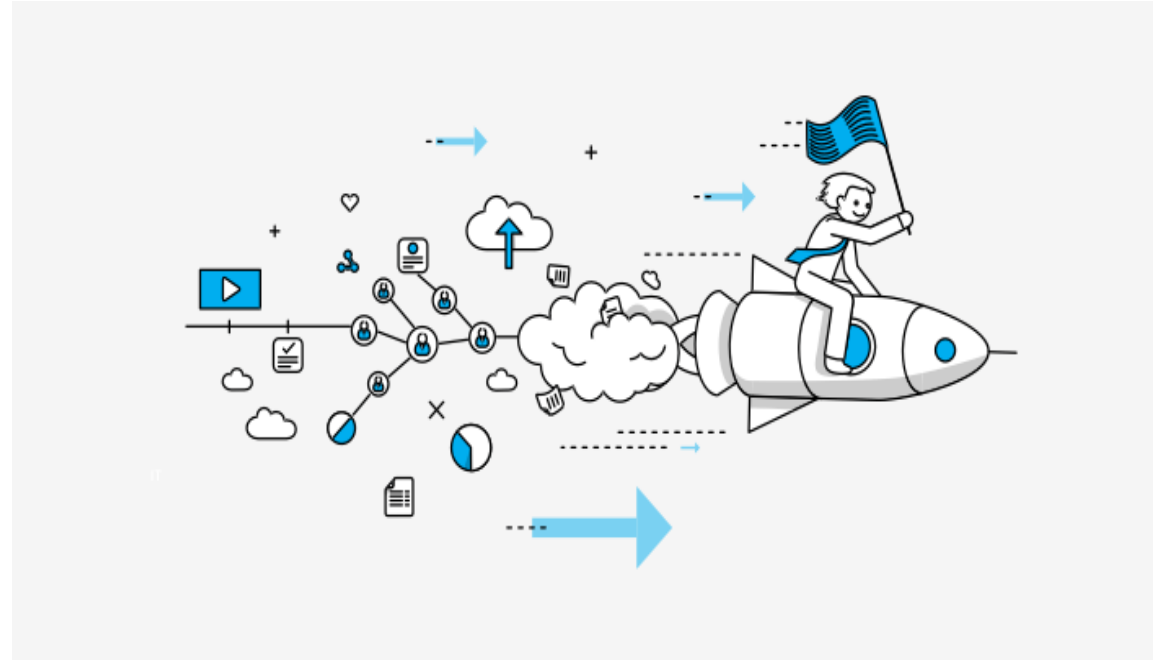
SPECIFICATION REPORTS
All Revisions

TRAINING
Learn how to use the Specifications tool

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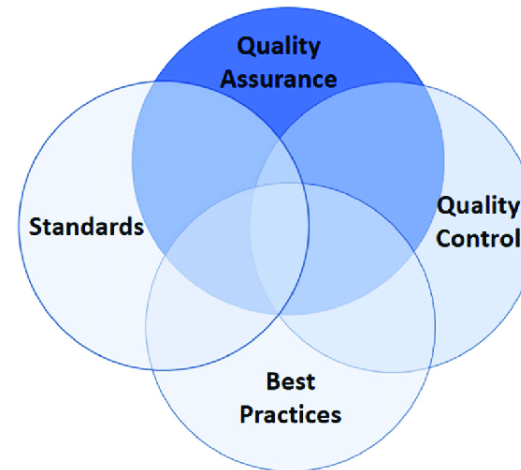
Pre-Roll Out/Roll Out

- 1) *Beta Tested a few select projects ~ 3 to 6 months*
- 2) *Created Internal “How To” documents for staff prior to roll out*
- 3) *Company wide Webinars East/West Coast (2 in one day)*
- 4) *Memorialized by recording available to any existing or “new” staff*
- 5) *Available in smart phone app or a tablet application*
- 6) *Procore “chat” line available to Hazen users*
- 7) *January 2017 Hazen had 20 active projects*
- 8) *Currently have 325 active projects in Procore*
- 9) *General Contractors have embraced the use of Procore*



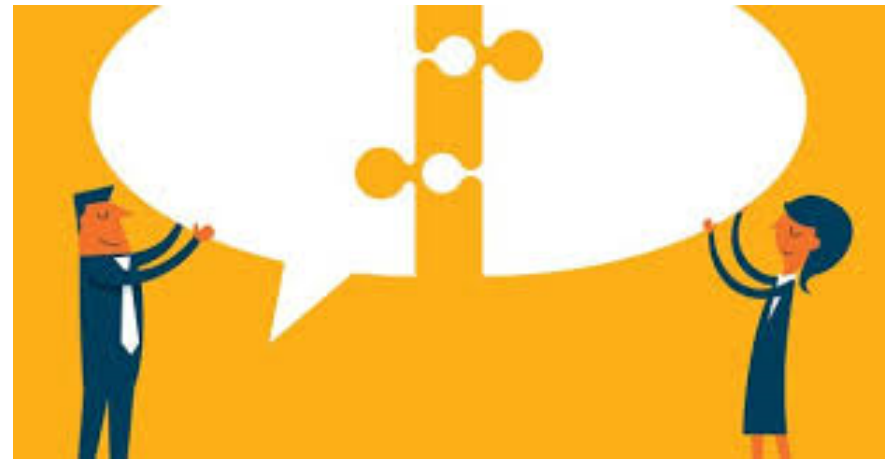
Online QA/QC

- 1) All projects whether Study, Design or Construction require a QA/QC component
- 2) All documents are uploaded to new document control software
- 3) Example Submittal Review:
 - *Internal comments are provided by different engineering disciplines*
 - *One final reviewer looks at all comments and finalizes comments back to close out submittal prior to sending back to the General Contractor*
 - *Process meets internal QA policy*



Summary

- *Cloud based document control systems are a must in today's rapid construction environment*
- *Understand what your document control needs are*
- *When considering the selection of a new system involve shareholders and end users in the decision process*
- *Out of the box system with little customization and input from IT that can be accessed remotely was selected*
- *Beta test system as part of the selection process*
- *Train existing and or new employees in the use of the system*
- *Consider QA/QC requirements as part of selection process*



Questions?



Contact Information

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