

Integrated Commissioning Process

ENGAGEMENT MATRIX GUIDELINES - LARGE CAP Projects (>\$5M)

Updated 2.28.17

Level 0 - Leading or co-leading the activity

Level 1- Mandatory. Must be invited to participate and schedules coordinated to ensure an engagement opportunity. Meeting should be tailored to audience. Should be copied on documents or meeting minutes.

Level 2- Invited, Informed or Consulted. Must be informed and given the opportunity for participation. Stakeholders should be copied on documents or meeting minutes.

Level 3 - Optional level of engagement. Stakeholders should advise PM if they want to participate in optional activities. Stakeholders should be copied on documents or meeting minutes.

Level 4 - Copied on final document distribution.

Task	Key Project Roles								Stakeholders					
	Client	Commissioning Agent	GT D&C Engineering Team	Design Professional Architect	Design Professional MEP Engineer	Testing Agency	CM at Risk or GC + Applicable Subcontractors	Designated CPSM Project Contact	Designated D&C Project Manager	O&M - Building Maintenance	O&M - Utilities Maintenance	O&M - Energy Conservation	Office of Sustainability	Johnson Controls

Cx Team Selection

Cx Consultant Selection (Timed to complete with Design Team Selection)

Determine procurement method									0						
Develop RFP/Q			2		2				0						
Post if necessary									0						
Review proposals and create short list			1	2	2				0	3		3			
Selection or Interview of Commissioning Agent for Project			1	2	2				0	3		3			
Negotiate and execute contract(s)			2						0						

Design Phase

Conceptual Design + Programming

Concept Design Page Turn Meeting + Document Review and Comment Period	1	2	1	1	1		2	0	0	2	2			1	1
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Schematic Design

Schematic Design Page Turn Meeting + Document Review and Comment Period	1	1	1	1	1		2	1	0	2	2			1	1
Review of Energy Modeling / EUI Targeting	3	1	0	1	0		3	2	0	3	3	1	4		

Owner's Project Requirements (complete with SD Phase)

OPR Workshops	1	0	1	1	1		3	2	0	1	1	2	4		2
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Design Development

Design Development Page Turn Meeting + Document Review and Comment Period	1	1	1	1	1		2	1	0	1	1			1	1
Review of Energy Modeling / EUI Targeting	3	1	0	1	0		3	2	0	3	3	1	4		

50% Construction Documents

50% Construction Documents Page Turn Meeting + Document Review and Comment Period	1	1	1	1	1		2	1	0	1	1	2		1	1
Review of Energy Modeling / EUI Targeting	3	1	0	1	0		3	2	0	3	3	1	4		

100% Construction Documents

100% Construction Documents Page Turn Meeting (INCLUDE Building System Overview) + Document Review and Comment Period	1	1	1	0	1		2	1	0	1	1	2		1	1
Review of Energy Modeling / EUI Targeting	3	1	0	1	0		3	2	0	3	3	1	4		
Close out of all review comments and CxA comments		0	1	3			3	3	0	3	3	2			

Construction Phase

Meetings

Pre-construction kick-off meeting	1	2	2	1	2		1	2	0	2	2			1	1
Cx Project Kick Off Meeting	2	0	1	2	1		1		0	1	1	2		1	
M&V Project Kick Off Meeting		0	1	3	3		3		0	2	2	2			
Bi-Weekly Cx Meetings + 3D Model Review + Site Walk (START at MEP rough-in)		0	1	2	2		1		1	2	2			1	
Bi-Weekly OAC meetings (optional for O&M staff)				1	3		0	3	1	3	3				

Field Mock Ups

Mock-Ups of MEPF (if applicable)		2	2	1	1		0	3	0	1		2			
Mock-Ups for Building Envelope		2	2	1	2		0	3	0	3					

Testing and Start Up

Pipe Testing and Flushing		1		3		1	0		2	3	3				
Building Envelope Testing		1		1		1	0		1						
Ductwork Cleaning		1		3			0			3					
Ductwork Testing		1		3	2	1	0			3					
Controls Point to Point Checkout		1		3	2		0			3				1	
Equipment Pre-Functional Testing		1		3	2		0		2	3				1	
Equipment Start Up		1		3	2		0		2	2				1	
Functional Performance Testing		0		3	2		1		2	2				1	
Field Quality Assurance Testing (Waterproofing - Water Testing)		1		1		0	1		0						
Test and Balance		1		3	2		0		2	3				1	

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Training															
Manufacturer Training (video record)	2	3		3	2		0		2	1		2			2
Building Management Training and Systems Training - Overview How the Building is Supposed to Operate (video record)	2	0	2	3	0		1		2	1	1	1			1
Metasys Interface Training + Troubleshooting	2	1	2	3	2		0		2	1				0	1
Milestone Inspections and Punchlist Development															
50% Complete - Inspection	2	1	2	1	1		0		1	1	2				
80% Complete - Inspection	2	1	2	1	1		0		1	1	2				
MEPF Punchlist Development Inspection Walk	2	1	2	3	0		1		0	1				1	
100% Complete - Certificate of Occupancy Inspection				1			0		1						2
MEPF Punchlist Sign Off				3	1		1		0	2	2				2
Close Out and Final Reporting															
Final Tab Report		2	4	1	4		0		4	4		4			4
Cx Issues Log Close-Out + Final Report		0	4	4	4		0		4	4					4
Final Cx Report		0	4	4	4		4		4	4		4			4
Final Systems Manual		0	4	4	4		0		4	4					4
Review of Close Out Documents (Review Period)		1	2	1	1		0		1	1					2
Turn Over of Close Out Documents: O&M Docs, Warranties, etc.	4	4	4	4	4		0		0	4	4				4
Material Completion - Turn Over to GT O&M + Warranty Period															
Warranty Phase / Measurement and Verification Phase															
Warranty Period - Quarter 1															
Quarterly Building Operation, Outstanding Issues, M&V Meeting	2	0	3						0	1		2			1
Additional Training (1 day) to Facility Staff, as needed	2	0							2	1					1
Warranty Issue Resolution Meetings	2	2	3						0	1					1
Measurement & Verification Quarterly Progress Report + EUI Review and Report		0	4						4	4	4	4	4		4
Seasonal Test and Balance, as applicable in this quarter	1	0	2			0	0		1	2					1
Warranty Period - Quarter 2															
Quarterly Building Operation, Outstanding Issues, M&V Meeting	2	0	3						0	1		2			1
Additional Training (1 day) to Facility Staff, as needed	2	0							2	1					1
Warranty Issue Resolution Meetings	2	2	3						0	1					1
Measurement & Verification Quarterly Progress Report + EUI Review and Report		0	4						4	4	4	4	4		4
Seasonal Test and Balance, as applicable in this quarter	1	0	2			0	0		1	2					1
Warranty Period - Quarter 3															
Quarterly Building Operation, Outstanding Issues, M&V Meeting	2	0	3						0	1		2			1
Additional Training (1 day) to Facility Staff, as needed	2	0							2	1					1
Warranty Issue Resolution Meetings	2	2	3						0	1					1
Measurement & Verification Quarterly Progress Report + EUI Review and Report		0	4						4	4	4	4	4		4
Seasonal Test and Balance, as applicable in this quarter	1	0	2			0	0		1	2					1
Warranty Period - Quarter 4															
Ten Month Warranty Walk-Through (prior to warranty expiration)	1		2				1		1	1	2				1
Quarterly Building Operation, Outstanding Issues, M&V Meeting	2	0	3						0	1		2			1
Additional Training (1 day) to Facility Staff, as needed	2	0							2	1					1
Warranty Issue Resolution Meetings	2	2	3						0	1					1
Measurement & Verification Quarterly Progress Report + EUI Review and Report		0	4						4	4	4	4	4		4
Seasonal Test and Balance, as applicable in this quarter	1	0	2			0	0		1	2					1
Final Measurement & Verification Report		0	4						4	4	4	4	4		4