445 – Project Commissioning

SAMPLE Documents

APPA Facilities Institute
June 26, 2024
San Antonio, Texas

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SWINERTON

SWINERTON COMMISSIONING PLAN

PURPOSE

This program sets forth the specific methods and controls to be employed by the project team for planning, organizing, implementing, evaluating and maintaining the Quality Control Program and Commissioning and Start-Up Plan. The details included within this document include the specific actions and documentation to be performed during each portion of the project including detailed design development, submittal review process, equipment fabrication and installation, infrastructure installation, and functional testing of systems in preparation for start-up. Each step of the process implements tools and tracking mechanisms described herein.

Basic Definitions of Commissioning Process

The definitions of the terms as noted within this document and utilized within the Quality Control and Commissioning documents are as follows:

QC	Quality Control	CX	Commissioning
CxA	Commissioning Authority	GC	General Contractor
EOR	Engineer of Record	OR	Owner's Representative
FM	Facility Manager	CC	Controls Contractor
EC	Electrical Contractor	MC	Mechanical Contractor
VR	Vendor's Representative	IOR	Inspector of Record
BOD	Basis of Design	PFC	Pre-Functional Checklist
FAT	Factory Acceptance Test	O&M	Operations and Maintenance
FPT	Functional Performance Test	OP	Operational Protocol

SOO	Sequence of Operations		

Basis of Design: A document that records the concepts, calculations, decisions, and product selections used to meet the Owner's Project Requirements and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

Commissioning Authority: Typically a 3rd party entity identified by the owner who plans, schedules, and coordinates the commissioning team to implement the Commissioning Process.

Commissioning Field Report: A document that records the activities and results of the Commissioning Process.

Commissioning Execution Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the Commissioning Process typically prepared by the Commissioning Authority.

Commissioning Process: A quality-focused process for enhancing the delivery of a project. The process focuses on verifying and documenting that the facility and all its systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the Owner's Project Requirements.

Commissioning Process Progress & Approval Form: A document that indicates activities completed as part of the Commissioning Process, approval status of the activities, and significant findings from those activities; it is continuously updated during a project.

Commissioning Team: The individuals, who through coordinated actions, are responsible for implementing the Commissioning Process.

Construction Documents: This includes a wide range of documents, which will vary from project to project, owner's needs, regulations, laws, and countries. Construction documents usually include the project manual (specifications), plans (drawings) and General terms of the contract, especially those required by subcontractors and vendors, suppliers and manufacturers of equipment, assemblies and systems.

Contract Documents: This includes a wide range of documents, which will vary from project to project, owner's needs, regulations, laws, and countries. It frequently includes price agreements, construction management process, subcontractor agreements or requirements, requirements and procedures for

submittals, changes, and other construction requirements, timeline for completion, and the Construction Documents.

Coordination Drawings: Drawings showing the work of all trades to illustrate that equipment can be installed in the space allocated without compromising equipment function or access for maintenance and replacement. These drawings graphically illustrate and dimension manufacturers' recommended maintenance clearances. These drawings can be generated from the 3D model established during the BIM Coordination.

Functional Test Procedure: A written protocol that defines methods, personnel, and expectations for tests conducted on components, equipment, assemblies, systems, and interfaces among systems.

Issues Log: A formal and ongoing record of problems or concerns, and their resolution, that have been raised by members of the Commissioning Team during the Commissioning Process.

Owner's Project Requirements: A written document that details the functional requirements of a project and the expectations of how it will be used and operated. This includes project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.

Pre-functional Checklist: A form used by the contractor to verify that appropriate components are on-site, ready for installation, correctly installed, and functional.

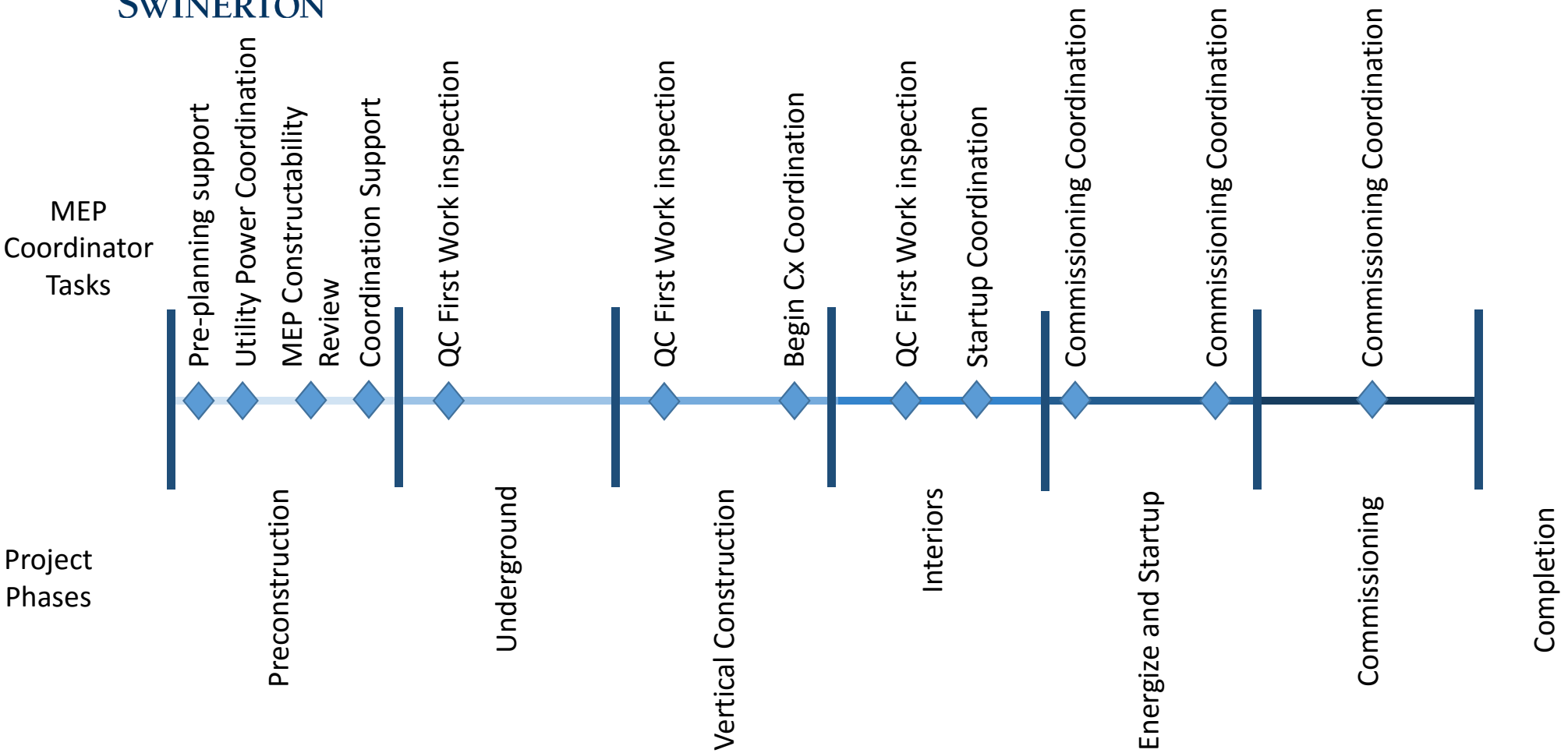
Systems Manual: A system-focused composite document that includes the Commissioning Record, operation manual, maintenance manual, and additional information of use to the owner during the Occupancy and Operations Phase.

Training Plan: A written document that details the expectations, schedule, budget, and deliverables of Commissioning Process activities related to training of project operating and maintenance personnel.

Verification: The process by which specific documents, components, equipment, assemblies, systems, and interfaces among systems are confirmed to comply with the criteria described in the Owner's Project Requirements.

Participants included in this program includes Swinerton, Owner's Representative, Engineer of Record, Vendors / Subcontractors, 3rd party inspection services, and operations personnel. A sample of roles and responsibilities are attached.

Project MEP Timeline



SWINERTON

PROJECT MEP TIMELINE DEFINITIONS/ACTIVITIES

At the start of each project the site team will develop a job specific MEP Flowchart that will detail the critical activities and milestones where MEP support will be utilized. These activities are inclusive of pre-construction scope review and buyout, MEP coordination and critical submittal review, 1st in place work inspections, quality control site reviews, and the development and execution of the commissioning plan. The purpose of this flowchart/timeline is to provide a guideline for the project team for engaging the MEP support staff at the appropriate times during the project. Each key milestone and project phase is defined below with the phase as the section header and the items handled by the MEP coordinator as the bullet points:

Preconstruction project phase: The project phase that is handled from the main office. No construction on site.

MEP Coordination support action items:

- **Pre-Planning Support:** Assist Superintendent in the setup of the project including but not limited to, providing best power routing, site water sizing, municipality coordination, review of commissioning plan.
- **Utility Power Coordination:** Meet with Utility Providers to review project requirements, schedule, and scope.
- **MEP Constructability Review:** Provide a review of the contract documents to assist the project team with any design issues or schedule concerns that may be apparent.
- **Coordination Support:** Assist the project team with BIM coordination and MEP drawing coordination by providing direction and best practices to project engineers. MEP Coordinator will use technical knowledge/expertise to provide suggestions during coordination to help reduce cost and provide solutions that are mutually agreeable to all subconctractors. Running the meetings and performing the clash detection will be the responsibility of the Project Engineers.

Underground phase: All underground construction including piping, MEP site work, and forming of the slab.

MEP Coordination support action items:

- **QC First Work Inspection:** Walk the site to review quality of install of first work, review stub up locations, ensure systems are complete.

Vertical Construction: Installation of structural steel or forming and pouring of structural concrete, including slab on metal deck. All underground MEP systems inside the building footprint complete.

MEP Coordination support action items:

- **QC First Work Inspection:** Walk the site to review quality of install of first work, review stub up locations, review structural slab sleeve locations, and penetration details.
- **Begin Commissioning Coordination:** Meet with CxA, Project Team and Subcontractors to review the Cx plan and start to understand, in-depth, how the Cx plan will be executed. Review all pre-install/post install paperwork.

Interiors: Metal stud framing, in-wall Electrical and Plumbing rough-in, overhead.

MEP Coordination support action items:

- **QC First Work Inspection:** Walk the site to review quality of install of first in-wall work, overhead work, and finished work. Ensure that ducts, pipes and conduits are being properly protected per the project requirements.
- **Startup Coordination:** Meet with the team and subcontractors to review specific startup requirements of each major piece of Mechanical equipment, review Electrical energization plan, Review Lock out Tag out plan and ensure all startup requirements are met.
- **Commissioning Coordination:** Meet with CxA to ensure that project specific Cx requirements are being met, documentation filled out, and all issues are being tracked. Review and coordinate the completion of all prefunctional checklists.

Energize and Startup: Equipment is set, plumbed and wired. Systems have been inspected, pressure tested as necessary and are in a “ready to run” state. The

MEP Coordination support action items:

- **Commissioning Coordination:** Participate in weekly meetings with CxA to ensure that project specific Cx requirements are being met, documentation filled out, and all issues are being tracked.

Commissioning: Building is fully operational and running. Air balance is completed and has been submitted to the CxA. Final finishes may still be ongoing in limited areas. Sequence of operation is ready to test. The MEP Coordination support action items are below:

MEP Coordination support action items:

- **Commissioning Coordination:** Be on site with CxA to execute the functional performance testing, track issues, help coordinate fixes to issues that arose during testing.

Closeout: Commissioning is complete, and all final issues are being addressed.

MEP Cx STANDARD FORMS AND USES

Form A (Equipment Tracking Matrix): As soon as the construction documents are developed to the point where major equipment has been selected, the Form A should be populated with this information. This form should be used to track all large system equipment and provide a granular level of information to be used during the installation and start-up phases of the project. The Form A is not intended to track all smaller "branch" equipment (i.e. VAV's, fire-smoke dampers, branch power panels, unit exhaust fans) but rather system equipment (chillers, boilers, cooling towers, smoke control fans.) The projected installation dates and start-up dates should be extrapolated from the overall baseline P6 schedule and expanded upon in the Form A to prioritize and provide a tracking mechanism for the field. In some cases, a 3rd party commissioning agent may take ownership of this tracking form (or similar form) and Swinerton and the subcontractors will be responsible for providing the projected schedule dates. In either case, the Form A is intended as a detailed scheduling tool for the start-up team.

Template Schedule P6: An overall schedule for start-up and commissioning for a typical high-rise / mid-rise project has been developed and is available for the project team to utilize and modify in P6. It is currently "inactive" and titled "Tony Williamson Commissioning Template." This template can be used as a starting point in the baseline schedule and then modified with the project team in conjunction with the MEP Coordinator and MEP subcontractors to refine the true scopes and durations. These milestones will then be utilized to drill down into the granular equipment level used in the Form A.

BIM 360 Field Commissioning Module: The standard program currently used to implement field issues and punch list is BIM 360 Field. The commissioning / equipment module can be used to track the specific installation of pieces of equipment (as exported from the Form A.) The module can be utilized to create issues lists which are then distributed to the appropriate subcontractor for correction. This can also be used during the formal commissioning process by Swinerton or the 3rd party commissioning agent to track and log commissioning issues.

Swinerton Builders Job No.: 16020028
Revision Date: 06/21/2018

Genesis North Tower

Priority No.	Equipment / System Description	Electrical Panel ID	System	Service/Location	Responsible Subcontractor	Scheduled Dates (Actual Dates)																Comments
						Set Equipment		Electrical Complete		Equipment Startup		TABB Complete		Pre-Functional Checklist		Equipment / System Commissioning		O&M Manuals		Owner Training		
						Yes	No	Target	Actual	Target	Actual	Yes	No	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
1	EF 1-1	2EMH3	SMOKE CONTROL SYSTEM	LOBBY / RETAIL 117	ACCO					7/14/2018												
1	EF 23-3		EXHAUST	ROOF	ACCO					7/14/2018												
1	EF 23-4		EXHAUST	ROOF	ACCO					7/14/2018												
1	EF 23-5		EXHAUST	MECH RM R01	ACCO					7/14/2018												
1	GRV - 1			ROOF	ACCO																	
1	GRV - 2			PENTHOUSE ROOF	ACCO																	
1	SF 22-1	2EDPHR-LR	SMOKE CONTROL SYSTEM	S. STAIRS / FAN RM R07	ACCO	1/5/18																
1	SF 23-1	2EDPHR-LR	SMOKE CONTROL SYSTEM	N. STAIRS / ROOF	ACCO																	
1	SF 23-3	2EDPHR-LR	SMOKE CONTROL SYSTEM	RESTROOMS / ROOF	ACCO																	
1	WSHP 1-6	2L1B	HVAC	FIRE COMMAND ROOM 118	ACCO					7/12/2018												
1	ATS-FP	EX. SWBD	FS	TOWERS / (E) SOUTH TOWER	BFP																	
1	FP-1	ATS-FP	FS	TOWERS / (E) SOUTH TOWER	BFP																	
1	JP-1	ATS-FP	FS	TOWERS / (E) SOUTH TOWER	BFP																	
1	1ATS2-LR	MSB-N2	EM POWER SYSTEM	EM ELEC RM 110	CEI																	
1	1EDPH1-LR		POWER DISTRIBUTION	EM ELEC RM 110	CEI																	
1	1EDPHS2	GEN-1	EM POWER SYSTEM	EM ELEC RM 110	CEI	8/2-8/8				9/7-9/13												
1	1EDPHS2		POWER DISTRIBUTION	EM ELEC RM 110	CEI																	
1	2ATS1-LR	MSB-N2	EM POWER SYSTEM	EM ELEC RM 110	CEI																	
1	2ATS1-LS	MSB-N2	EM POWER SYSTEM	EM ELEC RM 110	CEI																	
1	2DPH22	BUSWAY-HN	POWER DISTRIBUTION	ELEC RM R03	CEI																	
1	2EDPH1-LS	MSB-N2	POWER DISTRIBUTION	EM ELEC RM 110	CEI																	
1	2EDPHR-LR	2ATS1-LR	POWER DISTRIBUTION	EM ELEC RM 110	CEI																	
1	GEN-1	N/A	EM POWER SYSTEM	SITE	CEI																	
1	MSB-N1	PG&E	POWER DISTRIBUTION	ELEC RM 109	CEI																	
1	MSB-N2	PG&E	POWER DISTRIBUTION	ELEC RM 109	CEI																	
1	RMB-N	PG&E	POWER DISTRIBUTION	ELEC RM 109	CEI																	
1	RMB-N2	PG&E	POWER DISTRIBUTION	ELEC RM 109	CEI																	
2	AHU-1	2MH4	HVAC	L01 / MECH RM L01	ACCO																	
2	AHU-10	2EMH9	HVAC	L10 / MECH RM L10	ACCO					10/3/2018						10/8/2018						
2	AHU-11	2EMH12	HVAC	L11 / MECH RM L11	ACCO																	
2	AHU-12	2EMH12	HVAC	L12 / MECH RM L12	ACCO																	
2	AHU-13	2EMH12	HVAC	L13 / MECH RM L13	ACCO																	
2	AHU-14	2EMH15	HVAC	L14 / MECH RM L14	ACCO																	
2	AHU-15	2EMH15	HVAC	L15 / MECH RM L15	ACCO																	
2	AHU-16	2EMH15	HVAC	L16 / MECH RM L16	ACCO																	
2	AHU-17	2EMH18	HVAC	L17 / MECH RM L17	ACCO																	
2	AHU-18	2EMH18	HVAC	L18 / MECH RM L18	ACCO																	
2	AHU-19	2EMH18	HVAC	L19 / MECH RM L19	ACCO																	
2	AHU-2	2EMH3	HVAC	L02 / MECH RM L02	ACCO																	
2	AHU-20	2EMH21	HVAC	L20 / MECH RM L20	ACCO																	
2	AHU-21	2EMH21	HVAC	L21 / MECH RM L21	ACCO																	
2	AHU-3	2EMH3	HVAC	L03 / MECH RM L03	ACCO					10/3/2018						10/8/2018						

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						Set Equipment		Electrical Complete		Equipment Startup		TABB Complete		Pre-Functional Checklist		Equipment / System Commissioning		O&M Manuals		Owner Training		
						Yes	No	Target	Actual	Target	Actual	Yes	No	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
2	AHU-4	2EMH3	HVAC	L04 / MECH RM L04	ACCO					9/26/2018						10/1/2018						
2	AHU-5	2EMH6	HVAC	L05 / MECH RM L05	ACCO					9/13/2018						9/18/2018						
2	AHU-6	2EMH6	HVAC	L06 / MECH RM L06	ACCO																	
2	AHU-7	2EMH6	HVAC	L07 / MECH RM L07	ACCO																	
2	AHU-8	2EMH9	HVAC	L08 / MECH RM L08	ACCO					9/14/2018						9/19/2018						
2	AHU-9	2EMH9	HVAC	L09 / MECH RM L09	ACCO					10/17/2018						10/22/2018						
2	B-1	2MLR	HHWS	BOILER PLATFORM	ACCO					8/28/2018												
2	B-2	2MLR	HHWS	BOILER PLATFORM	ACCO					8/28/2018												
2	B-3	2MLR	HHWS	BOILER PLATFORM	ACCO					8/28/2018												
2	CH-1	BUSWAY-HN	CHWS	MECH RM R01	ACCO					7/26/2018												
2	CH-2	BUSWAY-HN	CHWS	MECH RM R01	ACCO					7/26/2018												
2	CHWP-1	2DPH22	CHWS	MECH RM R01	ACCO																	
2	CHWP-2	2DPH22	CHWS	MECH RM R01	ACCO																	
2	CS-1	2DPH22	CWS	ROOF	ACCO																	
2	CT-1	2DPH22	CWS	ROOF	ACCO					7/12/2018												
2	CT-2	2DPH22	CWS	ROOF	ACCO					7/12/2018												
2	CU 1-3		HVAC	Outdoor Unit	ACCO																	
2	CWT-1	2MLR	CWS	ROOF	ACCO					8/12-8/25												
2	EF 1-2	2L1	HVAC	ELEC RM 109	ACCO					7/14/2018												
2	EF 1-3		HVAC	PUMP RM 111	ACCO					7/14/2018												
2	EF 1-4		HVAC	UTILITY RM 115.1	ACCO					7/14/2018												
2	FC1-3B		HVAC	UTILITIES 115	ACCO																	
2	HHWP-1	2DPH22	HHWS	BOILER PLATFORM	ACCO																	
2	HHWP-2	2DPH22	HHWS	BOILER PLATFORM	ACCO																	
2	HWC1-1		HVAC	LOBBY 130	ACCO																	
2	HX-1		HHWS	BOILER PLATFORM	ACCO																	
2	PF-1			BOILER PLATFORM	ACCO																	
2	PF-2			MECH RM R01	ACCO																	
2	PF-3			BOILER PLATFORM	ACCO																	
2	PTWP-1	2DPH22	CWS	MECH RM R01	ACCO																	
2	PTWP-2	2DPH22	CWS	MECH RM R01	ACCO																	
2	REF 10-1	2MH11	HVAC	L10 / MECH RM L10	ACCO					10/3/2018						10/8/2018						
2	REF 11-1	2MH11	HVAC	L11 / MECH RM L11	ACCO																	
2	REF 12-1	2MH11	HVAC	L12 / MECH RM L12	ACCO																	
2	REF 13-1	2MH11	HVAC	L13 / MECH RM L13	ACCO																	
2	REF 14-1	2MH11	HVAC	L14 / MECH RM L14	ACCO																	
2	REF 15-1	2MH18	HVAC	L15 / MECH RM L15	ACCO																	
2	REF 16-1	2MH18	HVAC	L16 / MECH RM L16	ACCO																	
2	REF 17-1	2MH18	HVAC	L17 / MECH RM L17	ACCO																	
2	REF 18-1	2MH18	HVAC	L18 / MECH RM L18	ACCO																	
2	REF 19-1	2MH18	HVAC	L19 / MECH RM L19	ACCO																	
2	REF 20-1	2MH18	HVAC	L20 / MECH RM L20	ACCO																	
2	REF 2-1	2MH4	HVAC	L02 / MECH RM L02	ACCO																	

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Genesis North Tower

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						Set Equipment		Electrical Complete		Equipment Startup		TABB Complete		Pre-Functional Checklist		Equipment / System Commissioning		O&M Manuals		Owner Training		
						Yes	No	Target	Actual	Target	Actual	Yes	No	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
2	REF 21-1	2MH18	HVAC	L21 / MECH RM L21	ACCO																	
2	REF 22-1	2MH18	HVAC	L22 / MECH RM L22	ACCO																	
2	REF 3-1	2MH4	HVAC	L03 / MECH RM L03	ACCO					10/3/2018						10/8/2018						
2	REF 4-1	2MH4	HVAC	L04 / MECH RM L04	ACCO					9/26/2018						10/1/2018						
2	REF 5-1	2MH4	HVAC	L05 / MECH RM L05	ACCO					9/13/2018						9/18/2018						
2	REF 6-1	2MH4	HVAC	L06 / MECH RM L06	ACCO																	
2	REF 7-1	2MH4	HVAC	L07 / MECH RM L07	ACCO																	
2	REF 8-1	2MH11	HVAC	L08 / MECH RM L08	ACCO					9/14/2018						9/19/2018						
2	REF 9-1	2MH11	HVAC	L09 / MECH RM L09	ACCO					10/17/2018						10/22/2018						
2	RMP - 1			MECH RM R01	ACCO																	
2	SF 23-2	2EDPHR-LR	HVAC	ELEV MACH RM / FAN RM R07	ACCO																	
2	SF 23-4	2ELR	HVAC	FSAE CTL RM / ROOF	ACCO																	
2	SF 23-5	2EDPHR-LR	HVAC	MECH RM R01	ACCO																	
2	STWP-1	2DPH22	CWS	BOILER PLATFORM	ACCO																	
2	STWP-2	2DPH22	CWS	BOILER PLATFORM	ACCO																	
2	TF 10-1	2EML9	HVAC	EM ELEC RM 1015	ACCO					10/3/2018						10/8/2018						
2	TF 11-1	2EML12	HVAC	EM ELEC RM 1115	ACCO																	
2	TF 11-2	2EML12	HVAC	EM ELEC RM 1104	ACCO																	
2	TF 12-1	2EML12	HVAC	EM ELEC RM 1215	ACCO																	
2	TF 12-2	2EML12	HVAC	EM ELEC RM 1204	ACCO																	
2	TF 13-1	2EML12	HVAC	EM ELEC RM 1315	ACCO																	
2	TF 14-1	2EML15	HVAC	EM ELEC RM 1415	ACCO																	
2	TF 14-2	2EML15	HVAC	EM ELEC RM 1404	ACCO																	
2	TF 15-1	2EML15	HVAC	EM ELEC RM 1515	ACCO																	
2	TF 15-2	2EML15	HVAC	EM ELEC RM 1504	ACCO																	
2	TF 16-1	2EML15	HVAC	EM ELEC RM 1615	ACCO																	
2	TF 17-1	2EML18	HVAC	EM ELEC RM 1715	ACCO																	
2	TF 17-2	2EML18	HVAC	EM ELEC RM 1704	ACCO																	
2	TF 18-1	2EML18	HVAC	EM ELEC RM 1815	ACCO																	
2	TF 18-2	2EML18	HVAC	EM ELEC RM 1804	ACCO																	
2	TF 19-1	2EML18	HVAC	EM ELEC RM 1915	ACCO																	
2	TF 20-1	2EML21	HVAC	EM ELEC RM 2015	ACCO																	
2	TF 20-2	2EML21	HVAC	EM ELEC RM 2004	ACCO																	
2	TF 2-1	2EML3	HVAC	EM ELEC RM 215	ACCO																	
2	TF 21-1	2EML21	HVAC	EM ELEC RM 2115	ACCO																	
2	TF 3-1	2EML3	HVAC	EM ELEC RM 315	ACCO					10/3/2018						10/8/2018						
2	TF 3-2	2EML3	HVAC	EM ELEC RM 304	ACCO					10/3/2018						10/8/2018						
2	TF 4-1	2EML4	HVAC	EM ELEC RM 415	ACCO					9/26/2018						10/1/2018						
2	TF 5-1	2EML6	HVAC	EM ELEC RM 515	ACCO					9/13/2018						9/18/2018						
2	TF 5-2	2EML6	HVAC	EM ELEC RM 504	ACCO					9/13/2018						9/18/2018						
2	TF 6-1	2EML6	HVAC	EM ELEC RM 615	ACCO																	
2	TF 6-2	2EML6	HVAC	EM ELEC RM 604	ACCO																	
2	TF 7-1	2EML6	HVAC	EM ELEC RM 715	ACCO																	

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						Set Equipment		Electrical Complete		Equipment Startup		TABB Complete		Pre-Functional Checklist		Equipment / System Commissioning		O&M Manuals		Owner Training		
						Yes	No	Target	Actual	Target	Actual	Yes	No	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
2	TF 8-1	2EML9	HVAC	EM ELEC RM 815	ACCO					9/14/2018						9/19/2018						
2	TF 8-2	2EML9	HVAC	EM ELEC RM 804	ACCO					9/14/2018						9/19/2018						
2	TF 9-1	2EML9	HVAC	EM ELEC RM 915	ACCO					10/17/2018						10/22/2018						
2	TF 9-2	2EML9	HVAC	EM ELEC RM 904	ACCO					10/17/2018						10/22/2018						
2	WSHP 1-1	2EML3	HVAC	EM ELEC RM 110	ACCO					7/12/2018												
2	WSHP 1-10	2L1	HVAC	SECURITY 112	ACCO					7/12/2018												
2	WSHP 1-11	2L1	HVAC	SUPPORT 133	ACCO					7/12/2018												
2	WSHP 1-12	2L1	HVAC	SUPPORT 133	ACCO					7/12/2018												
2	WSHP 1-2A	2EML3	HVAC	CONF RM 121	ACCO					7/12/2018												
2	WSHP 1-2B	2L1B	HVAC	CONF RM 121	ACCO					7/12/2018												
2	WSHP 1-3	2L1B	HVAC	CONF RM 122	ACCO					7/12/2018												
2	WSHP 1-4	2L1B	HVAC	CONF RM 123	ACCO					7/12/2018												
2	WSHP 1-5A	2L1B	HVAC	CONF RM 124	ACCO					7/12/2018												
2	WSHP 1-5B	2L1B	HVAC	CONF RM 124	ACCO					7/12/2018												
2	WSHP 1-7	2L1B	HVAC	AV CLOSET	ACCO					7/12/2018												
2	WSHP 1-8	2L1	HVAC	TEL MPOE 114	ACCO					7/12/2018												
2	WSHP 1-9	2L1	HVAC	FACILITIES 115	ACCO					7/12/2018												
2	WSHP 22-1	2EML21	HVAC	ELEC RM R04/R05	ACCO					7/12/2018												
2	FC 1-3A		HVAC	UTILITIES 115	ACCO																	
2	BP-1	2EH1-OS	DCW	PUMP RM 111	Pribuss																	
2	CP-1		DHW	L16-21 / JANITOR RM L16	Pribuss																	
2	CP-2		DHW	L11-15 / JANITOR RM L11	Pribuss																	
2	CP-3		DHW	L06-10 / JANITOR RM L06	Pribuss																	
2	CP-4		DHW	L01-05 / ELEV LOBBY 103	Pribuss																	
2	HX-1		DHW	JANITOR RM L11	Pribuss																	
2	HX-2		DHW	JANITOR RM L11	Pribuss																	
2	HX-3		DHW	JANITOR RM L08	Pribuss																	
2	HX-4		DHW	ELEV LOBBY 103	Pribuss																	
3	EF 22-2	2EDPHR2	LAB EXHAUST	LABS / ROOF	ACCO	2/19/18				7/14/2018												
3	EF 22-3	2EDPHR2	LAB EXHAUST	LABS / ROOF	ACCO	2/19/18				7/14/2018												
3	EF 22-4	2EDPHR2	LAB EXHAUST	LABS / ROOF	ACCO	2/19/18				7/14/2018												
3	AC-1		COMPRESSED AIR	UTILITY RM 115.1	Pribuss																	

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Priority No.	Equipment / System Description	Electrical Panel ID	System	Service/Location	Responsible Subcontractor	Scheduled Dates (Actual Dates)																Comments
						Set Equipment		Electrical Complete		Equipment Startup		TABB Complete		Pre-Functional Checklist		Equipment / System Commissioning		O&M Manuals		Owner Training		
						Yes	No	Target	Actual	Target (w/o)	Actual	Yes	No (Target Start)	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
3	WH-1	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/16/2018		4/17/2018		N/A		4/10/2018								Driven by PG&E Gas Available
3	WH-2	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/16/2018		4/17/2018		N/A		4/10/2018								Driven by PG&E Gas Available
3	WH-3	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/16/2018		4/17/2018		N/A		4/10/2018								Driven by PG&E Gas Available
3	WH-4	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/16/2018		4/17/2018		N/A		4/10/2018								Driven by PG&E Gas Available
3	WH-5	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/16/2018		4/17/2018		N/A		4/10/2018								Driven by PG&E Gas Available
3	CP-1	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/23/2018		4/1/2018		N/A		3/25/2018								
3	CP-2	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/23/2018		4/1/2018		N/A		3/25/2018								
3	CP-3	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/23/2018		4/1/2018		N/A		3/25/2018								
3	CP-4	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/23/2018		4/1/2018		N/A		3/25/2018								
3	CP-5	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/23/2018		4/1/2018		N/A		3/25/2018								
3	CP-6	RMA	DHW SYSTEM	L08 PLB RM	OBM			2/23/2018		4/1/2018		N/A		3/25/2018								
3	ET-1	N/A	DHW SYSTEM	L08 PLB RM	OBM			N/A		N/A		N/A										
3	ET-2	N/A	DHW SYSTEM	L08 PLB RM	OBM			N/A		N/A		N/A										
3	ET-3	N/A	DHW SYSTEM	L08 PLB RM	OBM			N/A		N/A		N/A										
3	ET-4	N/A	DHW SYSTEM	L08 PLB RM	OBM			N/A		N/A		N/A										
3	ST-1	N/A	DHW SYSTEM	L08 PLB RM	OBM			N/A		N/A		N/A										
3	BP-1	1MA	DW SYSTEM	B01	OBM			1/26/2018		3/26/2018		N/A		3/19/2018								
3	HT-1	N/A	DW SYSTEM	L08 PLB RM	OBM			N/A		N/A		N/A										
1	MSB	N/A	ELECTRICAL	L01	BRAYER			2/5/2018		N/A		N/A										
1	1DBA	MSB	ELECTRICAL	L01	BRAYER			2/5/2018		N/A		N/A										
1	FSB	MSB	ELECTRICAL	L01	BRAYER			2/5/2018		N/A		N/A										
1	1-MBA	MSB	ELECTRICAL	L01	BRAYER			2/5/2018		N/A		N/A										
3	EF-2	RMA	EXHAUST	ROOF	BCM			2/16/2018		3/26/2018			4/2/2018	3/19/2018								
3	EF-4	1MA	EXHAUST	GAS RM L01	BCM			2/16/2018		3/26/2018			4/2/2018	3/19/2018								
3	EF-5	1MA	EXHAUST	CISTERN / B01	BCM			2/16/2018		3/26/2018			4/2/2018	3/19/2018								
3	EF-6	1MA	EXHAUST	FP ROOM / L01	BCM			2/16/2018		3/26/2018			4/2/2018	3/19/2018								
3	BEF-1	1RA	EXHAUST	L01	BCM			3/28/2018		3/26/2018			4/2/2018	3/19/2018								
1	FP-1	MSB	FIRE SPRINKLER	L01	SUPERIOR			2/5/2018		3/26/2018		N/A		3/19/2018								
1	JP-1	1DBA	FIRE SPRINKLER	L01	SUPERIOR			2/12/2018		3/26/2018		N/A		3/19/2018								
1	GEF-1	RMA	GARAGE EXHAUST	B01 / ROOF	BCM			2/16/2018		3/19/2018	4/9/2018		3/26/2018	3/12/2018								
2	CU-1-1	UNIT LC	HVAC	L01 / ROOF	BCM			3/26/2018		3/28/2018			4/4/2018	3/21/2018								
2	FC-B-1	1MA	HVAC	L01	BCM			3/26/2018		3/29/2018			4/5/2018	3/22/2018								
1	MUA-1	RMA	HVAC	ROOF	BCM			2/12/2018		3/29/2018			4/5/2018	3/22/2018								Driven by PG&E Gas Available
2	FC-1-1	1MA	HVAC	L01	BCM			3/26/2018		4/6/2018			4/13/2018	3/30/2018								
2	FC-8-1	RMA	HVAC	L08	BCM			3/15/2018		4/6/2018			4/13/2018	3/30/2018								
2	CU-8-1	RMA	HVAC	ELEV MR / ROOF	BCM			3/15/2018		4/6/2018			4/13/2018	3/30/2018								
2	CU-B-1	RMA	HVAC	L01 / ROOF	BCM			3/26/2018		4/6/2018			4/13/2018	3/30/2018								
3	BP-2	1MA	RW SYSTEM	B01	OBM			1/26/2018		3/26/2018		N/A		3/19/2018								
3	BP-3	1MA	RW SYSTEM	B01	OBM			1/26/2018		3/26/2018		N/A		3/19/2018								
3	RWS-1	1MA	RW SYSTEM	B01	OBM			1/26/2018		3/26/2018		N/A		3/19/2018								
3	HT-2	N/A	RW SYSTEM	L08 PLB RM	OBM			N/A		N/A		N/A										
2	SE-1	1MA	SS SYSTEM	B01	OBM			1/26/2018		3/30/2018		N/A		3/23/2018								
2	FC-2-1	UNIT LC	UNIT HVAC	L02	BCM			1/31/2018	2/13/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	FC-2-2	UNIT LC	UNIT HVAC	L02	BCM			1/31/2018	2/13/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	FC-2-3	UNIT LC	UNIT HVAC	L02	BCM			1/31/2018	2/13/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	FC-2-4	UNIT LC	UNIT HVAC	L02	BCM			1/31/2018	2/13/2018	3/5/2018			4/4/2018	2/26/2018								
2	FC-2-5	UNIT LC	UNIT HVAC	L02	BCM			1/31/2018	2/13/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	FC-2-6	UNIT LC	UNIT HVAC	L02	BCM			1/31/2018	2/13/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	FC-2-7	UNIT LC	UNIT HVAC	L02	BCM			1/31/2018	2/13/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	FC-2-8	UNIT LC	UNIT HVAC	L02	BCM			1/31/2018	2/13/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								

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						Set Equipment		Electrical Complete		Equipment Startup		TABB Complete		Pre-Functional Checklist		Equipment / System Commissioning		O&M Manuals		Owner Training		
						Yes	No	Target	Actual	Target (w/o)	Actual	Yes	No (Target Start)	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
2	CU-2-1	UNIT LC	UNIT HVAC	L02 / ROOF	BCM			1/31/2018	2/16/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	CU-2-2	UNIT LC	UNIT HVAC	L02 / ROOF	BCM			1/31/2018	2/16/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	CU-2-3	UNIT LC	UNIT HVAC	L02 / ROOF	BCM			1/31/2018	2/16/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	CU-2-4	UNIT LC	UNIT HVAC	L02 / ROOF	BCM			1/31/2018	2/16/2018	3/5/2018			4/4/2018	2/26/2018								
2	CU-2-5	UNIT LC	UNIT HVAC	L02 / ROOF	BCM			1/31/2018	2/16/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	CU-2-6	UNIT LC	UNIT HVAC	L02 / ROOF	BCM			1/31/2018	2/16/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	CU-2-7	UNIT LC	UNIT HVAC	L02 / ROOF	BCM			1/31/2018	2/16/2018	3/5/2018	3/6/2018	4/10/2018	4/4/2018	2/26/2018								
2	FC-3-1	UNIT LC	UNIT HVAC	L03	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	FC-3-2	UNIT LC	UNIT HVAC	L03	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	FC-3-3	UNIT LC	UNIT HVAC	L03	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	FC-3-4	UNIT LC	UNIT HVAC	L03	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	FC-3-5	UNIT LC	UNIT HVAC	L03	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	FC-3-6	UNIT LC	UNIT HVAC	L03	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	FC-3-7	UNIT LC	UNIT HVAC	L03	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	FC-3-8	UNIT LC	UNIT HVAC	L03	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	CU-2-8	UNIT LC	UNIT HVAC	L02 / ROOF	BCM			1/31/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	CU-3-1	UNIT LC	UNIT HVAC	L03 / ROOF	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	CU-3-2	UNIT LC	UNIT HVAC	L03 / ROOF	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	CU-3-3	UNIT LC	UNIT HVAC	L03 / ROOF	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	CU-3-4	UNIT LC	UNIT HVAC	L03 / ROOF	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	CU-3-5	UNIT LC	UNIT HVAC	L03 / ROOF	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	CU-3-6	UNIT LC	UNIT HVAC	L03 / ROOF	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	CU-3-7	UNIT LC	UNIT HVAC	L03 / ROOF	BCM			2/7/2018	2/16/2018	3/12/2018			4/12/2018	3/5/2018								
2	FC-4-1	UNIT LC	UNIT HVAC	L04	BCM			2/22/2018		3/15/2018			4/16/2018	3/8/2018								
2	FC-4-2	UNIT LC	UNIT HVAC	L04	BCM			2/22/2018		3/15/2018			4/16/2018	3/8/2018								
2	FC-4-3	UNIT LC	UNIT HVAC	L04	BCM			2/22/2018		3/15/2018			4/16/2018	3/8/2018								
2	FC-4-4	UNIT LC	UNIT HVAC	L04	BCM			2/22/2018		3/15/2018			4/16/2018	3/8/2018								
2	FC-4-5	UNIT LC	UNIT HVAC	L04	BCM			2/22/2018		3/15/2018			4/16/2018	3/8/2018								
2	CU-3-8	UNIT LC	UNIT HVAC	L03 / ROOF	BCM			2/7/2018	2/16/2018	3/15/2018			4/16/2018	3/8/2018								
2	CU-4-1	UNIT LC	UNIT HVAC	L04 / ROOF	BCM			2/22/2018	2/16/2018	3/15/2018			4/16/2018	3/8/2018								
2	CU-4-2	UNIT LC	UNIT HVAC	L04 / ROOF	BCM			2/22/2018	2/16/2018	3/15/2018			4/16/2018	3/8/2018								
2	CU-4-3	UNIT LC	UNIT HVAC	L04 / ROOF	BCM			2/22/2018	2/16/2018	3/15/2018			4/16/2018	3/8/2018								
2	CU-4-4	UNIT LC	UNIT HVAC	L04 / ROOF	BCM			2/22/2018	2/16/2018	3/15/2018			4/16/2018	3/8/2018								
2	CU-4-5	UNIT LC	UNIT HVAC	L04 / ROOF	BCM			2/22/2018	2/16/2018	3/15/2018			4/16/2018	3/8/2018								
2	FC-5-1	UNIT LC	UNIT HVAC	L05	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	FC-5-2	UNIT LC	UNIT HVAC	L05	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	FC-5-3	UNIT LC	UNIT HVAC	L05	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	FC-5-4	UNIT LC	UNIT HVAC	L05	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	FC-5-5	UNIT LC	UNIT HVAC	L05	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	CU-5-1	UNIT LC	UNIT HVAC	L05 / ROOF	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	CU-5-2	UNIT LC	UNIT HVAC	L05 / ROOF	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	CU-5-3	UNIT LC	UNIT HVAC	L05 / ROOF	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	CU-5-4	UNIT LC	UNIT HVAC	L05 / ROOF	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	CU-5-5	UNIT LC	UNIT HVAC	L05 / ROOF	BCM			3/1/2018		4/3/2018			4/11/2018	3/27/2018								
2	FC-6-1	UNIT LC	UNIT HVAC	L06	BCM			3/8/2018		4/6/2018			4/18/2018	3/30/2018								
2	FC-6-2	UNIT LC	UNIT HVAC	L06	BCM			3/8/2018		4/6/2018			4/18/2018	3/30/2018								
2	FC-6-3	UNIT LC	UNIT HVAC	L06	BCM			3/8/2018		4/6/2018			4/18/2018	3/30/2018								
2	FC-6-4	UNIT LC	UNIT HVAC	L06	BCM			3/8/2018		4/6/2018			4/18/2018	3/30/2018								
2	FC-7-1A	UNIT LC	UNIT HVAC	L07	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								
2	FC-7-1B	UNIT LC	UNIT HVAC	L07	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								
2	FC-7-2A	UNIT LC	UNIT HVAC	L07	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								

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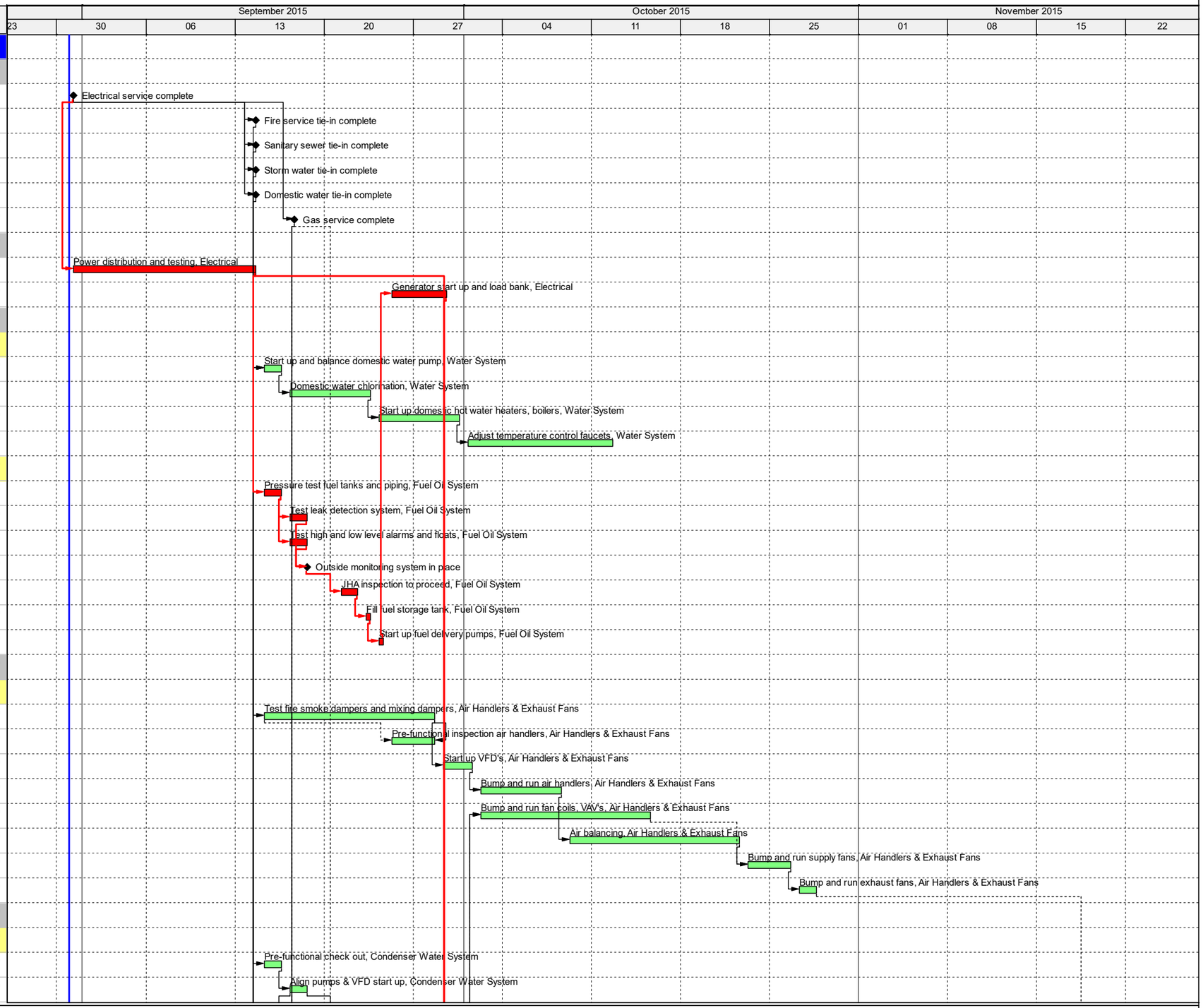
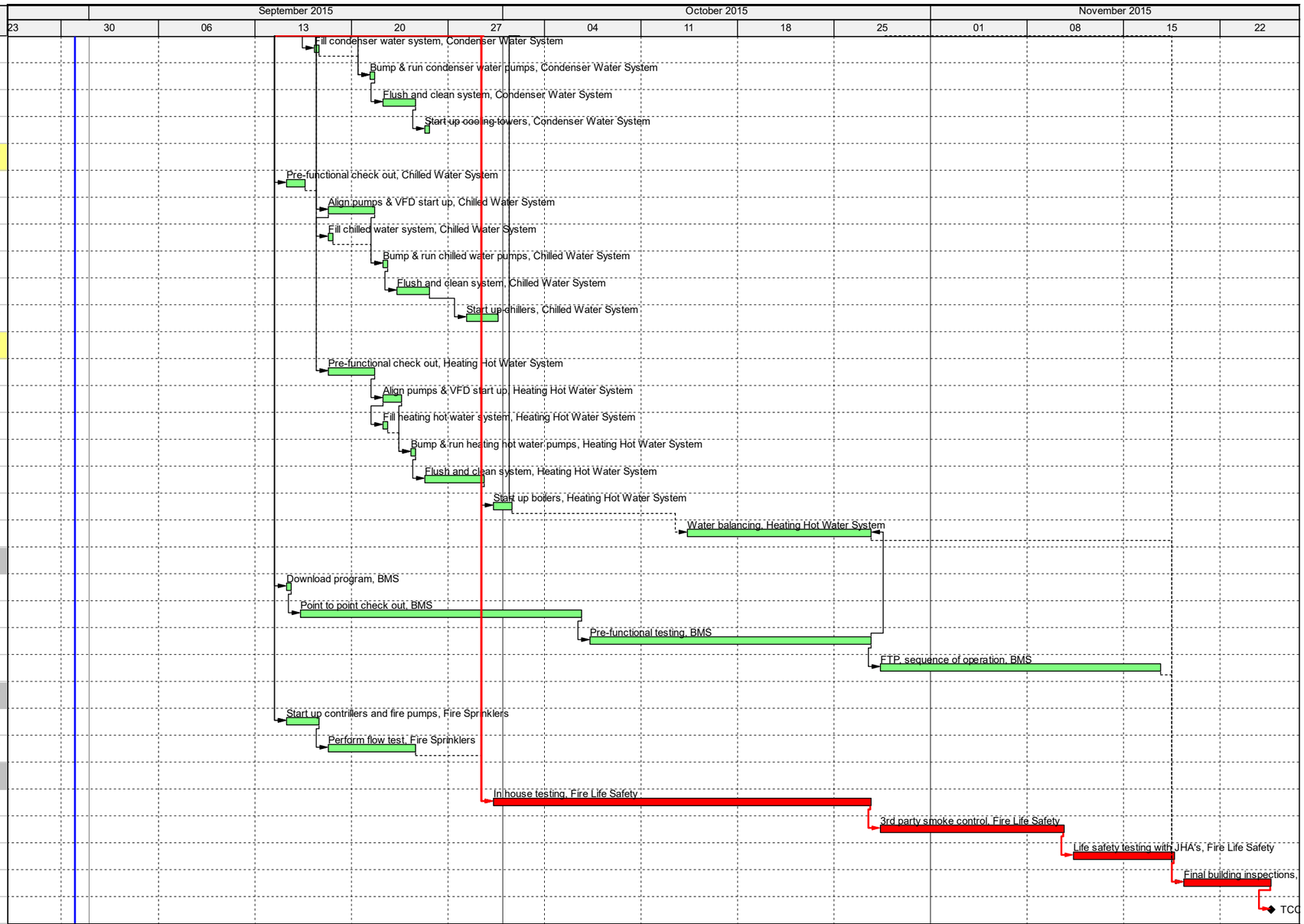
						Set Equipment		Electrical Complete		Equipment Startup		TABB Complete		Pre-Functional Checklist		Equipment / System Commissioning		O&M Manuals		Owner Training		
						Yes	No	Target	Actual	Target (w/o)	Actual	Yes	No (Target Start)	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
2	FC-7-2B	UNIT LC	UNIT HVAC	L07	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								
2	FC-7-3	UNIT LC	UNIT HVAC	L07	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-6-1	UNIT LC	UNIT HVAC	L06 / ROOF	BCM			3/8/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-6-2	UNIT LC	UNIT HVAC	L06 / ROOF	BCM			3/8/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-6-3	UNIT LC	UNIT HVAC	L06 / ROOF	BCM			3/8/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-6-4	UNIT LC	UNIT HVAC	L06 / ROOF	BCM			3/8/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-7-1A	UNIT LC	UNIT HVAC	L07 / ROOF	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-7-1B	UNIT LC	UNIT HVAC	L07 / ROOF	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-7-2A	UNIT LC	UNIT HVAC	L07 / ROOF	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-7-2B	UNIT LC	UNIT HVAC	L07 / ROOF	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								
2	CU-7-3	UNIT LC	UNIT HVAC	L07 / ROOF	BCM			3/15/2018		4/6/2018			4/18/2018	3/30/2018								

Activity ID	Activity Name	Orig Dur	Rem Dur	Act Dur	Start	Finish
(Template) Tony Williamson Commissioning		62	62	0	08/31/15 08 AM	11/25/15 04 PM
Utilities		13	13	0	08/31/15 08 AM	09/17/15 04 PM
A1000	Electrical service complete	0	0	0		08/31/15 08 AM
A1020	Fire service tie-in complete	0	0	0		09/14/15 04 PM
A1030	Sanitary sewer tie-in complete	0	0	0		09/14/15 04 PM
A1040	Storm water tie-in complete	0	0	0		09/14/15 04 PM
A1050	Domestic water tie-in complete	0	0	0		09/14/15 04 PM
A1060	Gas service complete	0	0	0		09/17/15 04 PM
Electrical		21	21	0	08/31/15 08 AM	09/29/15 04 PM
A1010	Power distribution and testing	10	10	0	08/31/15 08 AM	09/14/15 04 PM
A1070	Generator start up and load bank	3	3	0	09/25/15 08 AM	09/29/15 04 PM
Plumbing		20	20	0	09/15/15 08 AM	10/12/15 04 PM
Water System		20	20	0	09/15/15 08 AM	10/12/15 04 PM
A1080	Start up and balance domestic water pump	2	2	0	09/15/15 08 AM	09/16/15 04 PM
A1090	Domestic water chlorination	5	5	0	09/17/15 08 AM	09/23/15 04 PM
A1100	Start up domestic hot water heaters, boilers	5	5	0	09/24/15 08 AM	09/30/15 04 PM
A1110	Adjust temperature control faucets	8	8	0	10/01/15 08 AM	10/12/15 04 PM
Fuel Oil System		8	8	0	09/15/15 08 AM	09/24/15 04 PM
A1120	Pressure test fuel tanks and piping	2	2	0	09/15/15 08 AM	09/16/15 04 PM
A1130	Test leak detection system	2	2	0	09/17/15 08 AM	09/18/15 04 PM
A1140	Test high and low level alarms and floats	2	2	0	09/17/15 08 AM	09/18/15 04 PM
A1150	Outside monitoring system in place	0	0	0		09/18/15 04 PM
A1160	JHA inspection to proceed	2	2	0	09/21/15 08 AM	09/22/15 04 PM
A1170	Fill fuel storage tank	1	1	0	09/23/15 08 AM	09/23/15 04 PM
A1180	Start up fuel delivery pumps	1	1	0	09/24/15 08 AM	09/24/15 04 PM
HVAC Dry Side		32	32	0	09/15/15 08 AM	10/28/15 04 PM
Air Handlers & Exhaust Fans		32	32	0	09/15/15 08 AM	10/28/15 04 PM
A1190	Test fire smoke dampers and mixing dampers	10	10	0	09/15/15 08 AM	09/28/15 04 PM
A1200	Pre-functional inspection air handlers	2	2	0	09/25/15 08 AM	09/28/15 04 PM
A1210	Start up VFD's	3	3	0	09/29/15 08 AM	10/01/15 04 PM
A1220	Bump and run air handlers	5	5	0	10/02/15 08 AM	10/08/15 04 PM
A1230	Bump and run fan coils, VAV's	10	10	0	10/02/15 08 AM	10/15/15 04 PM
A1240	Air balancing	10	10	0	10/09/15 08 AM	10/22/15 04 PM
A1250	Bump and run supply fans	2	2	0	10/23/15 08 AM	10/26/15 04 PM
A1260	Bump and run exhaust fans	2	2	0	10/27/15 08 AM	10/28/15 04 PM
HVAC Wet Side		31	31	0	09/15/15 08 AM	10/27/15 04 PM
Condenser Water System		9	9	0	09/15/15 08 AM	09/25/15 04 PM
A1270	Pre-functional check out	2	2	0	09/15/15 08 AM	09/16/15 04 PM
A1280	Align pumps & VFD start up	2	2	0	09/17/15 08 AM	09/18/15 04 PM



Activity ID	Activity Name	Orig Dur	Rem Dur	Act Dur	Start	Finish
A1290	Fill condenser water system	1	1	0	09/17/15 08 AM	09/17/15 04 PM
A1300	Bump & run condenser water pumps	1	1	0	09/21/15 08 AM	09/21/15 04 PM
A1310	Flush and clean system	3	3	0	09/22/15 08 AM	09/24/15 04 PM
A1320	Start up cooling towers	1	1	0	09/25/15 08 AM	09/25/15 04 PM
Chilled Water System		12	12	0	09/15/15 08 AM	09/30/15 04 PM
A1340	Pre-functional check out	2	2	0	09/15/15 08 AM	09/16/15 04 PM
A1350	Align pumps & VFD start up	2	2	0	09/18/15 08 AM	09/21/15 04 PM
A1360	Fill chilled water system	1	1	0	09/18/15 08 AM	09/18/15 04 PM
A1370	Bump & run chilled water pumps	1	1	0	09/22/15 08 AM	09/22/15 04 PM
A1380	Flush and clean system	3	3	0	09/23/15 08 AM	09/25/15 04 PM
A1390	Start up chillers	3	3	0	09/28/15 08 AM	09/30/15 04 PM
Heating Hot Water System		28	28	0	09/18/15 08 AM	10/27/15 04 PM
A1410	Pre-functional check out	2	2	0	09/18/15 08 AM	09/21/15 04 PM
A1420	Align pumps & VFD start up	2	2	0	09/22/15 08 AM	09/23/15 04 PM
A1430	Fill heating hot water system	1	1	0	09/22/15 08 AM	09/22/15 04 PM
A1440	Bump & run heating hot water pumps	1	1	0	09/24/15 08 AM	09/24/15 04 PM
A1450	Flush and clean system	3	3	0	09/25/15 08 AM	09/29/15 04 PM
A1460	Start up boilers	2	2	0	09/30/15 08 AM	10/01/15 04 PM
A1470	Water balancing	10	10	0	10/14/15 08 AM	10/27/15 04 PM
BMS		46	46	0	09/15/15 08 AM	11/17/15 04 PM
A1480	Download program	1	1	0	09/15/15 08 AM	09/15/15 04 PM
A1490	Point to point check out	15	15	0	09/16/15 08 AM	10/06/15 04 PM
A1500	Pre-functional testing	15	15	0	10/07/15 08 AM	10/27/15 04 PM
A1510	FTP, sequence of operation	15	15	0	10/28/15 08 AM	11/17/15 04 PM
Fire Sprinklers		8	8	0	09/15/15 08 AM	09/24/15 04 PM
A1520	Start up contrillers and fire pumps	3	3	0	09/15/15 08 AM	09/17/15 04 PM
A1530	Perform flow test	5	5	0	09/18/15 08 AM	09/24/15 04 PM
Fire Life Safety		41	41	0	09/30/15 08 AM	11/25/15 04 PM
A1540	In house testing	20	20	0	09/30/15 08 AM	10/27/15 04 PM
A1550	3rd party smoke control	10	10	0	10/28/15 08 AM	11/10/15 04 PM
A1560	Life safety testing with JHA's	6	6	0	11/11/15 08 AM	11/18/15 04 PM
A1570	Final building inspections	5	5	0	11/19/15 08 AM	11/25/15 04 PM
A1580	TCO	0	0	0		11/25/15 04 PM



Project Name:
Swinerton Builders Job No.:

Air Handling Unit Verification & StartUp

Subcontractor:	Date:

System Designation		Electrical Panel:
Equipment Location		
Drawing #		

Pre-Startup Data Verification:

Description	Design Data Specific	Actual Data On-site
1) Main Unit		
Make		
Model		
Serial Number		
Type		
Capacity (Total Airflow CFM)		
2) Fan		
CFM		
Ext. S.P. in WG		
3) Motor		
Horse Power		
RPM		
Voltage/Phase		
4) Cooling Coil		
Type (CHW, DX)		
Capacity (MBH)		
GPM (CHW)		
EWT/LWT (Deg F)		
EAT/LAT (Deg F)		
5) Heating Coil		
Type (HW, Gas, Elec)		
Capacity (MBH)		
GPM (HW)		
EWT/LWT (Deg F)		
EAT/LAT (Deg F)		

Pre-Startup Installation Verification:

Description	Ready		Date
	Yes	No	
Unit Supported / Anchored Properly			
Vibration Isolation			
Piping Connections & Flow Direction			
Air Duct Connections			
Electrical Starter & Disconnect Switches			
Electrical Service & Connections			
Control Tubing			
Control Interlock Wiring			
Condensate Drain Piping			
Fan/Motor Rotation			
Check Air Flow Direction Through Coils			
Drive Alignment & Belt Tension			
Belt Guard In Place			
Motor/Bearing Lubrication			
Wheel Clearance & Balance			
Check Coil Fin Condition			
Check Air Vent & Drains at Coils			
Stroke Control Valves			
Check Dampers (Auto, Manual, FSD)			
Unit Free Debris & Obstructions			
Check Conditions of Construction Filter			
Install Permanent Filters			

Remarks: The above equipment/system has been field verified for data and installation; and has been found ready for startup.

Date	Signature	Signature	Signature

Air Handling Unit Startup Witnessed By: **Date:** _____

Subcontractor:			
General Contractor:			Swinerton Builders

Project Name:

Swinerton Builders Job No.:

Distribution Switchboard Verification & StartUp

Subcontractor:	Date:

System Designation		Electrical Panel:
Equipment Location		
Drawing #		

Pre-Startup Data Verification:

Description	Design Data Specific	Actual Data On-site
Switchgear		
Make		
Model		
Serial Number		
Capacity (Volts/Amps)		
Fault Rating (KA)		
Transformer (If Applicable)		
Make		
Model		
Serial Number		
Capacity		
Type (Oil, Dry, etc)		
Pri Volts/Sec Volts		

Pre-Startup Installation Verification:

Description	Ready		Date
	Yes	No	
Switchgear Pre-Startup Check			
Properly Anchored or Supported			
Seismic Braces Installed			
Grounding Checked			
Bus Checked			
Insulation Checked			
Equipment ID Label / Breaker Labels Complete			
Utility Approval of Switchgear			
Pre-Energizing Check			
Feeders Meggered / Tested, Terminations Torqued			
Breakers Set to SCCS Settings			
3rd Party Breaker Testing Complete			
City Inspections / Green Tag Received			
Utility Meters Set / Accounts Set Up			
Interiors Clean and Dry			
Arc Flash Labeling Complete			
Room Ventilation Complete			
Manufacturer Inspection / Start-up Complete			
Building Envelope Complete			

Remarks: The above equipment/system has been field verified for data and installation; and has been found ready for startup.

Date	Signature	Signature	Signature

Distribution Switchboard Startup Witnessed By:

Date: _____

Subcontractor:

General Contractor:

Swinerton Builders

Project Name:

Swinerton Builders Job No.:

Electrical Generator Equipment
Verification & StartUp

Subcontractor:	Date:

System Designation		Electrical Panel:
Equipment Location		
Drawing #		

Pre-Startup Data Verification:

Description	Design Data Specific	Actual Data On-site
Emergency Generator		
Generator		
Make		
Model		
Serial Number		
Capacity Rated		
Engine		
Make		
Model		
Serial Number		
Capacity Rated		
Battery Chargers		
Make		
Model		
Quantity		
Cap. Ea. (Volts/CCA/Amp)		
Misc Data		
Installation (Outdoor, etc)		
Fuel (Gas, Diesel etc)		
Fuel Tank Size (Gallons)		
Cooling (Radiator, etc)		
Muffler Size		

Pre-Startup Installation Verification:

Description	Ready		Date
	Yes	No	
Generator Pre-Startup Check			
Concrete Foundation Properly Installed			
Equipment Properly Anchored			
Seismic Braces Installed			
Equipment Properly Grounded			
Exhaust & Silencer Installed			
Fuel Piping & Vent Installed			
Permit Applied & On Hand			
Fuel Tank Pressure Tested			
Fire Marshal/Haz Mat. Signed Off			
Battery Chargers Mounted			
Battery Chargers Connected			
Fuel Pump Connected			
Jacketed Water Heater Connected			
Radiator Mounted			
Coolant Installed			
Secondary Containment For Fuel Tank			
Double Containment Fuel Piping			
Fuel for Testing Delivered			
Check Oil Level			
Leak Detection Points Monitored			
Load Bank Available For Test			

Remarks: The above equipment/system has been field verified for data and installation; and has been found ready for startup.

Date	Signature	Signature	Signature

Electrical Generator Equipment Startup Witnessed By:

Date: _____

Subcontractor: _____ _____ _____

General Contractor: _____ _____ _____

Swinerton Builders Job No.:

Date:

Field Observation & Deficiency Report

Project Name:	Location:	Report Number:
Originator Name:	Company:	Phone Number:

Equipment/System Location	
Reference Specification	
Reference Drawing	

Category Codes:

M - Mechanical	A - Architectural
E - Electrical	C - Civil
F - Fire Protection	T - Telecommunication
P - Plumbing	IC - Instrument/Control

Note: Please write only one report for a piece of equipment or system, for material and workmanship

Critical Yes/No	Report No.	Description		Category Code	Responsible Subcontractor

Response:

☐ 1. Responsible subcontractor hereby certifies that the above deficiency has been corrected.

☐ 2. Responsible subcontractor hereby submits his comments as follow:

_____

_____

Responsible Subcontractor: _____ _____ _____

Agreed By Originator: _____ _____ _____