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MEETING MEMORANDUM

PRESENT: See attached sign-up sheet Date: April 07,2011

(1:30 PM - 2:30 PM)

From: Rod Revera CC: File

Re: **COMMISSIONING SCOPE MEETING**

Here is the summary of things we discussed in the Commissioning Scope Meeting on 04-06-2011.

- A. Commissioning Agent (CA) explained Commissioning process and goals.
- B. Commissioning Agent (CA) explained Commissioning Plan structure.
- C. CA explained Commissioning Scope: Draft Commissioning Plan has been submitted and parties will review and comment if necessary. Commissioning scope covered HVAC, lighting controls, TAB verification, domestic hot water system, PV, and controls.
- D. List of systems to be commissioned were discussed.
- E. CA briefed the personnel on responsibilities based on management protocol. Regular project protocol will be followed. All parties agreed that this would be a good approach to finishing the commissioning process and the project.
- F. CA discussed preliminary commissioning schedule as follows:
 - CA already submitted CX Plan for review and comment by 04-20-2011. CX plan will be finalized.
 - Subcontractors shall submit O&M manuals and their own start up forms to the CA immediately. No reason O&M manuals have to wait to start submission.
 - Prefunctional Checklists start at the end of May
 - Functional Testing to start early July
- G. CA explained that the contractor has the responsibility to give a complete and operational mechanical system to the owner. This is a contractual requirement.
- H. CA explained that CA will prepare and submit all pre-functional checklists to the contractors. All parties agreed that these pre-functional tests will be done by subcontractors and subcontractors will fill out all necessary paperwork. Paperwork will be collected by Test coordinator (usually the GC) to be given to CA. CA does not need to witness pre-functional tests. Sampling Strategy term

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was explained by CA. There will be no sampling in pre-functional tests. CA will review the completed start up plan which includes O&M start up forms, pre-functional tests, and any start up form shipped with the equipment.

- CA requires Testing, Adjusting and Balancing (TAB) and Controls Contractor Technicians to be in the field for functional tests at all times. Mechanical and Electrical Contractors are also required to be in the field to do training and functional tests.
- J. TAB relevant controls contractor work shall be completed before TAB starts his/her work.
- K. Here is the sequence of the scheduled events:
 - Distribution of Cx Plan for review and comment
 - Maintenance of Cx Issues Log by CA
 - Submission of prefunctional checklists to GC for distribution
 - Prefunctional checklists
 - TAB relevant controls work shall be completed before TAB work.
 - TAB work should be completed and finalized before beginning functional testing.
 - Engineer's site visit and punch list items.
 - Distributions of functional test forms.
 - Correct the punch list items.
 - As-built drawings and all the O&M Manuals shall be ready and reviewed by the consultants before functional tests and training. These are going to be used as part of the functional tests and training.
 - Functional Tests and Training.
 - Repeat the tests which failed the first time (if necessary and at contractors expense).
 - Final Commissioning Report.
- L. CA explained the general procedure of functional testing. Punch lists should be completed and all the items in the punch lists should be corrected before functional tests related to HVAC equipment.
- M. CA explained the section regarding the additional functional test requirements if the test fails. CA explained that if one functional test fails, another system that is ready for functional testing can proceed for the most efficient use of contractor and CA time.
- N. CA explained the training will be conducted by the subcontractors and witnessed by CA.

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- O. Commissioning process does not take away any consultant's or contractor's responsibilities from the normal construction process.
- P. CA explained that submittals will be reviewed prior to functional testing.
- Q. Forms: Normal project forms will be utilized to communicate such as RFI and project schedule etc. Sample training forms, Cx Issues Log and Cx Field Memo forms were included in the Cx Plan.
- R. GC will provide CA access to view all RFIs.
- S. CA answered a couple of questions and adjourned the meeting.