

Solicitation Amendment No. 002

To:	Date:
Prospective Proposers	November 26, 2013
Project Title:	Project No.:
Bond Construction Manager at Risk Services	14-04
<p>Description of Solicitation Amendment:</p> <p>The Request for Proposals for Bond Construction Manager at Risk Services (Project No. 14-04) is hereby amended as set forth below:</p> <ol style="list-style-type: none"> 1. The <u>Proposal Due Date/Time</u> (page 3) is <u>extended to January 7, 2014 until 1:00 PM</u> (local time). 2. Page Number references at the bottom of the RFP are corrected to read "Page ___ of 47". 3. The reference to <u>Section 2267</u> in Project Overview (page 2) is updated to <u>Subchapter F</u>. 4. Project B: NW Eldridge (Westside) Campus (Page 7) is designated as a Building Information Modeling (BIM) Project. 5. Project J: NE North Forest Workforce and Early College (page 9) is clarified to reflect that the single building will house both and Early College and Workforce within one building. 6. Project N: Coleman Campus (Page 10) is designated as a Building Information Modeling (BIM) Project. 7. Instruction to Proposers section heading (page 12) is corrected to read III. 	
Acknowledgement of Amendment No. 002 by:	Date:
Company Name (Bidder/Offeror):	
Signed by:	
Name (Type or Print):	Title:

8. Item C.3 Proposal Responses under Instruction to Proposers (page 13) is clarified to note that the 50 page limit shall not include the Proposal Checklist (Attachment No. 6) and Proposal Table of Content.
9. Item 1.6 Tab 5 under Instruction to Proposers – paragraph 5 (page 18) is clarified to reference Tab 2.
10. Item 1.9 Tab 8 under Instruction to Proposers – paragraph 3 (page 19), has been deleted from this section and added to the Sealed Price Proposal under Part IV – Proposals for Multiple Projects.

The following attachments are hereby incorporated and made part of RFP 14-04:

1. Question and Answer responses to all questions received by the submittal deadline (19 pages).
2. Amended Exhibit 2 – Sealed Price Proposal Form (5 pages) including clarifications.
3. Amended Attachment No. 6 – Proposal Checklist (3 page).
4. Summary of Revisions to Contract Documents (1 page) noting changes made to the Sample Form Agreement and Exhibits.
5. Amended Sample Form Agreement and Exhibits A - I
 - i. HCC Construction Manager at Risk Contract (57 pages)
 - ii. HCC Construction Manager at Risk Contract Exhibits A through I (156 pages)
6. HCC Commissioning Plan (54 pages) dated November 25, 2013
7. HCC Subcontractor / Sub-consultant (including Small Business Enterprises) Utilization Report (3 pages)

Except as provided herein, all terms and conditions of the solicitation, remain unchanged and in full force and effect.



RFP 14-04 Bond Construction Manager at Risk Services

QUESTIONS AND ANSWERS

Date: November 27, 2013

To: Prospective Respondents

From: Procurement Operations Department

Subject: Questions & Answers Response

Questions received prior to the pre-proposal meeting

1. Page 15 of 45; Tab 2 – “List at least three and not more than five projects or contracts for Construction Manager at Risk Services, within the last 3 to 5 years, for which your firm has successfully provided services of the type and kind required by this RFP. Is this a total of 5 projects for all the proposed projects we are submitting on OR 3-5 projects per proposed project we are submitting on?

Answer

Proposers may respond with 3-5 projects per project type (i.e. Healthcare, Workforce, Parking Garage, General Classroom) that are relevant and similar to the work being proposed. Information provided shall count towards the 50 page limit.

2. Will there be a reconsideration of the following section:

Page 16 of 45; Tab 3; item g “If Proposer is submitting multiple Sealed Price Proposal Forms with the goal of being awarded multiple projects, Proposer must submit information and resumes for each proposed project team that would be dedicated to each project, and may not propose the same personnel for multiple projects. “

Answer

HCC request that Proposers respond in accordance with the published requirement.

3. How do we define the economy of scale according to pg. 31 of 45 Breakdown of General Conditions / General Requirements Part II? Monthly Labor Costs. Please clarify Full Time. As an example, in the event that multiple projects are awarded to us, we would

look to share Project Director between the 2 to 3 of the projects and would not be a full time charge to any one project.

Answer

HCC is seeking separate full time staff, dedicated to each project (no sharing of resources).

4. Same section as above question - pg. 31 of 45 Breakdown of General Conditions / General Requirements Part II. Monthly Labor Costs. Can the prescribed staff be used to fulfill multiple roles? As an example, an Assistant Superintendent could also fulfill the Project Engineer role.

Answer

No, HCC expects that Proposers will respond with dedicated staff for each project role that is assigned to a single project. For purposes of the proposal response, all positions shall be considered dedicated, onsite, full-time staff for each project role.

5. Submitting under Category (i), can the Proposer submit the same project staff for multiple projects, since by submitting under Category (i), it is understood that only one project will be awarded to the Proposer, thus requiring this staff only once?

Answer

Yes, it is at the discretion of the Proposer to respond with the team that may be deemed most qualified, if responding to multiple projects with the intent of being awarded one project.

6. I-Request for Proposals-Summary, Item 8-The description calls for the acknowledgement of addendum (attachments) on the Sealed Price Proposal Form and Attachment 1- Proposal/Contract Award Form. Where on these forms are these to be listed? Or, Are we to create a separate tab, since the Amendments themselves require acknowledgement by signature on each?

Answer

Attachment No. 1 Proposal Contract Award Form which states: “The undersigned certifies that he/she has read, understands, and agrees to be bound by the requirements, terms and conditions and all amendments issued by HCC and made a part of this solicitation as set forth or referenced in this RFP” as noted in the second paragraph.

7. Project J: NE North Forest Workforce and Early College – Are there two buildings to be constructed under this project? If so, what will be the square footage of each, cost value, etc.? The description reads as though there might be two buildings.

Answer

One building that contains two (2) programs within (Early College and Workforce).

8. IV. Instructions to Proposers, D.1.7. Tab 6-Safety Plan. Our safety and hurricane plan is quite extensive. Instead of providing a printed document, may this be provided to you in electronic form (and referenced accordingly in our Response)?

Answer

Proposers are asked to submit one complete copy (of all items requested in the RFP) in print and one complete copy in electronic form as noted in the RFP.

9. IV. Instructions to Proposers, C. 4). Aside from our Financial Statement are all of the following documents considered part of the Firm's Financial Status – a) financial institution validation of at least 6 month working capital, b) annual reports, c) short and long-term credit rating, d) CPA letter of financial stability, e) letter from surety, f) Insurance certificate? And, are these to be included in a separate sealed envelope? Do you need an electronic version of these?

Answer

As noted in Tab 9 – Part A, “Provide evidence of the firm's financial stability including but not limited to, any one or more of the following.” Proposers are asked to submit one complete copy (of all items requested in the RFP) in print and one complete copy in electronic form as noted in the RFP.

10. IV. Instructions to Proposers, C. 4).The third to last sentence of this paragraph requires the electronic version to “include the entire submission.” This implies the electronic version is to include all the “Separate Sealed Price Proposal Forms” and Financial Status documents, along with the rest of the Response. Is this correct?

Answer

Yes, Proposers are asked to submit one complete copy (of all items requested in the RFP) in print and one complete copy in electronic form as noted in the RFP.

11. IV. Instructions to Proposers, D.1.3. Tab 2-Firm's Demonstrated Qualifications and Project Experience. Are you requesting a list of 3 to 5 projects for each category; i.e. 3 to 5 College & University projects, 3 to 5 K-12 & ISD projects, 3 to 5 Teaching Healthcare projects, etc.?

Answer

Proposers may respond with 3-5 projects per project type (i.e. Healthcare, Workforce, Parking Garage, General Classroom) that are relevant and similar to the work being proposed. Information provided shall count towards the 50 page limit.

12. Is IV. Instructions to Proposers really supposed to be III. Instructions to Proposers?

Answer

Yes.

13. Will there be available a sample contract that will be issued for review before submittal?

Answer

Yes, the form of agreement was distributed and is included as part of Solicitation Amendment No. 1 (dated November 6, 2013). Please note that certain sections of the form of agreement have been updated as part of Solicitation Amendment No. 2, and the changes are summarized in the Solicitation Amendment No. 2.

14. SBDP – there are numerous certified minority, women-owned and disadvantaged business entities available to propose on the projects outlined in the above referenced RFP, who do not have the “small business” certification. If these entities bid on these projects and are the successful subcontractor, will HCC consider their certifications toward the SBDP goal?

Answer

No, for purposes of the allocation of available points under the RFP, HCC’s Small Business Development Program will only consider Certified Small Businesses towards the goal.

15. Please confirm – the construction manager can determine their staffing needs on the project(s) being proposed upon. Correct? (Just because the proposal form and the Allowable General Conditions in Exhibit C list several onsite staff positions, the CM at their discretion may not utilize all these personnel on every project. Is this a correct interpretation?)

Answer

No.

16. Tab 7 deals with small business practices. If we have a minority JV partnership in place that we want to submit for the CMAR, does that count any towards the 35% SB goal? If the minority partnership is financially and staffing responsible for a percentage of the work (i.e. 40%) how would that be counted or viewed by HCC?

Answer

If a certified small business is a part of a Joint Venture, HCC will count toward applicable small business goals a portion of the total dollar value of the construction manager fees and self-performed work with an SBDP-eligible joint venture equal to the percentage of the ownership of the small business partner in the joint venture, or the participation of the small business partner in the Contract. Minority certifications alone, without small business certifications do not count towards the goal.

17. If the Construction Manager is a registered SBE firm, would it:
- Automatically receive the full 10 points for purposes of the evaluation criteria? If not, why?
 - Be considered as having achieved at the conclusion of the project 100% SBE participation goal?
 - Obviate the need to seek opportunities with SBE subcontractors?

Answer

No, the goal of the SBDP is to promote subcontracting among certified SBE firms. HCC seeks to promote the maximum use of certified SBE firms and requires that any subcontracting be in accordance with the Laws of the State of Texas regarding the Construction Manager at Risk method of Procurement. That said, if a prime vendor is a certified small business, HCC will count towards the applicable small business goal the total dollar value of the construction manager fees and self-performed work.

18. On page 18, the RFP states “Provide references for any three of the projects or contracts for Construction Manager-at-Risk Services listed in Tab 3...” However, Tab 3 does not ask for any such project list. Can you please clarify?

Answer

Please refer to Tab 2 – Firm’s Demonstrated Qualifications and Project Experience.

Questions received during the pre-proposal meeting

19. If one is submitted for multiple projects, do you want to see a list of different (relative) projects completed? Will that be part of the 50 pages? Will multiple references for multiple projects count against the page limit?

Answer

Proposers may respond with 3-5 projects per project type (i.e. Healthcare, Workforce, Parking Garage, General Classroom) that are relevant and similar to the work being proposed with the requisite corresponding references required in Tab 3. Information provided shall count towards the 50 page limit.

20. If one submits for multiple projects, are you requesting the qualifications of the proposed team for each project? If you submit for multiple projects with the intent of only getting one project, can you submit single project team?

Answer

No, HCC expects that Proposers will respond with dedicated staff for each project role that is assigned to a single project. For purposes of the proposal response, all positions shall be considered dedicated, onsite, full-time staff for each project role. It is at the discretion of the Proposer to respond with the team that may be deemed most qualified, if responding to multiple projects with the intent of being awarded one project.

21. Related to Item #3, Project C, should this be cast in place or pre-cast?

Answer

This has not yet been determined.

22. Can you go through the methodology for scoring the pricing proposal? Do you sum each item within the price proposal to obtain the total price? Will you be considering the value of the project in the price consideration? What is the formula?

Answer

In accordance with the published evaluation criteria, the Sealed Price Proposal is worth 25 points; for purposes of scoring, any proposed price discounts will not be factored in the initial evaluation of the Sealed Price Proposal. All pricing components will be considered in relation to the value of the project.

23. Regarding the “proposer checklist”, should this document be part of the proposal submission?

Answer

Yes, the Proposer’s Checklist should be on/at the top of the proposal packet.

24. Related to the small business commitment, how is HCC going to “put meat into it”? Will you tracking references related to small business commitment support?

Answer

The evaluation of the Small Business Practices shall be completed in accordance with the requirements of the RFP and published evaluation criteria.

25. On Tab 8, business relationship strengths, related to the discount, Financial/Non-financial Benefits, how does HCC plan to do “apples to apples” comparison? How will this piece be evaluated?

Answer

The third paragraph in Tab 8 – Business Relationship Strength, has been moved to Exhibit 2 – Sealed Price Proposal, part IV.

26. Are joint ventures either encouraged or discouraged by HCC?

Answer

HCC recommends that Proposers respond to the requirements of the RFP as the legal entity they deem most qualified as best value.

27. If a firm does a joint venture with a certified small business, are there any points for this?

Answer

If a certified small business is a part of a Joint Venture, HCC will count toward applicable small business goals a portion of the total dollar value of the construction manager fees and self-performed work with an SBDP-eligible joint venture equal to the percentage of the ownership of the small business partner in the joint venture, or the participation of the small business partner in the Contract. Minority certifications alone, without small business certifications do not count towards the goal.

28. Will you be reading the fees and general conditions allowed at the proposal submission?

Answer

The Pre –Construction Services Proposed Total Fee (\$), CM at Risk – Proposed CMR Fee (%), and Proposed General Conditions (%), shall be read aloud following the solicitation due date.

29. If a respondent is unsuccessful in winning an award, will HCC provide a debriefing?

Answer

Yes, at the appropriate time, following the execution of any resulting contracts.

30. Can you describe/name those involved in the qualitative evaluation process?

Answer

The Evaluation Committee shall be comprised of qualified representatives from pertinent areas who shall independently evaluate proposals in accordance with the published evaluation criteria.

31. Will any of the HCC consultants be a part of the evaluation process?

Answer

Only HCC employees will be scoring proposals.

32. Within the RFP, you ask for past performance references within the past 5 years, this could take 20 pages or more, can you limit the number of references to five or so?

Answer

Proposers may respond with 3-5 projects per project type (i.e. Healthcare, Workforce, Parking Garage, and General Classroom) that are relevant and similar to the work being proposed. Information provided shall count towards the 50 page limit.

33. Regarding the list of work provided to HCC within the past five years how is this going to be evaluated?

Answer

The evaluation of the Firm's Demonstrated Qualifications and Project Experience shall be completed in accordance with the requirements of the RFP and published evaluation criteria.

34. Is there a penalty for not having performed work for HCC previously?

Answer

No.

Questions received prior to the submittal deadline

35. RFP p. 13 states “that proposals be submitted in a binder”. Is this a 3-ring binder or spiral type binding?

Answer

Yes, please use a 3-ring binder.

36. RFP p. 13 – Item 3 re: page limit states that the Safety Plan & Hurricane Plan do not count towards the 50 page limit. Does that include the ‘Safety Orientation Program’ requested on page? 18 as part of Tab 6 – Safety Plan “The respondent should indicate whether or not they have a written Safety Plan and a Hurricane Preparedness Plan, and whether or not they have a safety orientation program for new employees, if so provide.” Also, does HCC want our entire written Safety Plan printed out in a separate binder (our safety manual is quite large) or will an electronic copy of our Safety Plan be sufficient?

Answer

Proposers are asked to submit one complete copy (of all items requested in the RFP) in print and one complete copy in electronic form as noted in the RFP.

37. Will the Table of Contents count towards the 50 page limit?

Answer

No.

38. Please clarify where the Attachment No. 6 – Proposal Checklist should be placed in the Proposal.

Answer

Yes, the Proposer’s Checklist should be on/at the top of the proposal packet.

39. It notes to include a copy of our Safety Plan. Our Safety Plan is 698 pages, and we were wondering if it would be acceptable to include it as a separate electronic file on our electronic copy and not to include it with our hard copy submission?

Answer

Proposers are asked to submit one complete copy (of all items requested in the RFP) in print and one complete copy in electronic form as noted in the RFP.

40. For the completed project examples, should we list a maximum of five total for the whole RFP or should we list five examples for each HCC project we are submitting on?

Answer

Proposers may respond with 3-5 projects per project type (i.e. Healthcare, Workforce, Parking Garage, and General Classroom) that are relevant and similar to the work being proposed. Information provided shall count towards the 50 page limit.

41. If we should list five examples for each HCC project, would those project example pages be included in the 50-page maximum?

Answer

Yes.

42. In tab 5 (section 1.6.d) are you looking for the names of students who interned with us or contacts from universities where we recruit?

Answer

Please include the contact information for the organization where the interns were recruited, Proposers are advised to not provide any student names.

43. Under tab 2 it says we can submit 3-5 projects for past experience. If we are going for multiple projects that are different types, can we submit more than five projects?

Answer

Proposers may respond with 3-5 projects per project type (i.e. Healthcare, Workforce, Parking Garage, and General Classroom) that are relevant and similar to the work being proposed. Information provided shall count towards the 50 page limit.

44. Agreement, Article 13-Direct Construction Cost, 13.1 General Conditions and General Requirement Costs, 13.1.7 lists permit costs, as does 13.2 Cost of Work, 13.2 8. Are permit costs to be a General Condition item or considered Cost of Work?

Answer

All permit cost shall be billed as Cost of Work. The form of agreement has been revised accordingly.

45. Agreement, Article 13-Direct Construction Cost, 13.1 General Conditions and General Requirement Costs, 13.1.10 please advise for each of the proposed projects, what extent (quantity) there may need to be street barricades provided. Without access to proposed project site layout this cannot be determined at this time.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

46. Agreement, Article 13-Direct Construction Cost, 13.1 General Conditions and General Requirement Costs, 13.1.10 please advise for each of the proposed projects what basis of quantity should be included for temporary construction fencing.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

47. Agreement, Article 13-Direct Construction Cost, 13.1 General Conditions and General Requirement Costs, 13.1.10 please advise for each of the proposed projects on existing campus' what quantity or extent will pedestrian protection and/or covered walkways be required. Without project specifics and the relationship of the new construction to existing facilities, this requirement cannot be determined at this time.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

48. Agreement, Article 13-Direct Construction Cost, 13.1 General Conditions and General Requirement Costs, 13.1.10 please advise for each of the proposed projects a basis of quantity for erosion control measures, inclusive of filter fencing, inlet protection and other site specific measures. Without project specifics, this information is undeterminable at this time.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

49. Agreement, Article 13-Direct Construction Cost, 13.1 General Conditions and General Requirement Costs, 13.1.10 please provide information for each of the proposed projects in order to determine the extent or need of access roads for the project(s).

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

50. Agreement, Article 13-Direct Construction Cost, 13.1 General Conditions and General Requirement Costs, 13.1.10 please advise which of the proposed projects will have multi-storied structures, and the number of floors being proposed on same.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

51. Agreement, Article 13-Direct Construction Cost, 13.2 Cost of the Work, 13.2.2 – please describe what is to be included (or intended) by “site debris removal and disposal”.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

52. Section 013220-Photographic Documentation – Please advise on the quantity of photographs and the frequency of this documentation required? Are aerial photographs required? If so, please provide quantity and frequency.

Answer

Yes, monthly aerial photographs shall be required.

53. Section 013520-LEED Requirements – Are any of the proposed projects being designed for LEED certification? If so, which projects and what level of certification are being attained for each?

Answer

Projects are being designed up to LEED Silver standards; no LEED certification documentation will be required or sought.

54. Section 013523 – Project Safety Requirements, 2. Contractor’s Project Safety Coordinator – is the Project Safety Coordinator required to be full time and on-site?

Answer

Yes.

55. Project Utilities – Section 015000-Construction Facilities and Temporary Controls, 3. Temporary Utilities and Services – which campuses will have campus utilities (water, electricity, processed water for heating and cooling) available for the project’s proposed for which the contractor will need to connect to for service?

Answer

All temporary utilities shall be included in the proposed General Conditions costs.

56. Project Utilities – Section 015000-Construction Facilities and Temporary Controls, 3. Temporary Utilities and Services - Please provide the utility rates for these services at these campuses for which the Contractor will have to pay costs? (According to 3.2.2 the Owner will pay for power used. Thus, what about any other services? Please provide rates.)

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

57. Project Utilities – Section 015000-Construction Facilities and Temporary Controls, 3. Temporary Utilities and Services – For proposed projects that are renovation, or have work occurring in existing facilities, how is the Contractor to account for costs used in the construction of the work? Or, is the Owner paying for these costs?

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

58. Section 015240-Construction Waste management, 6. Recycling Demolition and Construction Waste, General – can construction waste be co-mingled on-site and then

separated offsite with documentation provided of available recycled materials, in lieu of providing separate containers on-site for recycled waste?

Answer

Yes.

59. RFP-IV Instructions to Proposers, D. Proposer Response, 1.5 Tab 4 – Please describe how question 3 of this tab, differs from question 1 of this same tab, and information provided in question 2 of this tab. This question appears to be redundant?

Answer

Proposers are asked to respond to all requirements noted in the RFP.

60. For all of Tab 5, could you be more specific regarding what you would like to see? Given the page limit, we want to concisely provide what you are requesting.

Answer

Please respond to the entire section as instructed providing as much detail as deemed necessary to demonstrate your successful past performance.

61. Sealed Price Proposal Form, Part I – Bonds and Insurance

Exhibit C indicates other project insurance as required by contract should be included in the Bonds and Insurance cost. The contract indicates that Excess Umbrella insurance is required. On what line of the Proposal Form should the cost for Excess Umbrella insurance be included? Should it be added to the cost for General Liability and included on that line, or will the proposal form be revised to provide a location for that cost?

Answer

Please note the revised Sealed Price Proposal form which includes a line for Excess Umbrella coverage.

62. Sealed Price Proposal Form, Part II – Monthly Labor Costs

Project Manager is listed as “full time- On site”. This RFP includes projects that vary widely in scope and value. Is a full time, on site project manager required for all projects, regardless of size and scope, or is a part time project manager acceptable on smaller projects? If so, is there a defined project size upon which a part time project manager is acceptable, or is that decision left to the discretion of the contractor?

Answer

No, HCC expects that Proposers will respond with dedicated staff for each project role that is assigned to a single project. For purposes of the proposal response, all positions shall be considered dedicated, onsite, full-time staff for each project role.

63. Sealed Price Proposal Form, Part II – Monthly Labor Costs

Project / Field Engineer are listed as “full time – on site”. If the project is not large enough to require a Project Engineer, can this simply be responded to as “not required”, or will a Project Engineer be required regardless of project size/scope?

Answer

No, HCC expects that Proposers will respond with dedicated staff for each project role that is assigned to a single project. For purposes of the proposal response, all positions shall be considered dedicated, onsite, full-time staff for each project role.

64. Sealed Price Proposal Form, Part II – Monthly Labor Costs

Project Safety Manager is listed as “full time-on site”. Section 013523 of the Project Specifications defines the size of project upon which a safety coordinator is required as any project greater than \$3,000,000; however, it does not specify if that individual should be full time, on site as the proposal form indicates. Is a full time, on site safety coordinator required on all projects, regardless of size/scope, or is a part time safety coordinator acceptable on smaller projects?

Answer

No, HCC expects that Proposers will respond with dedicated staff for each project role that is assigned to a single project. For purposes of the proposal response, all positions shall be considered dedicated, onsite, full-time staff for each project role.

65. Sealed Price Proposal Form, Part II – Monthly Labor Costs

Project Executive/Director is listed on the proposal form as full time – on site. Is this a requirement for all projects, regardless of size/scope, or is a part time Project Executive acceptable on smaller projects?

Answer

No, HCC expects that Proposers will respond with dedicated staff for each project role that is assigned to a single project. For purposes of the proposal response, all positions shall be considered dedicated, onsite, full-time staff for each project role.

66. Exhibit C, Temporary Project Utilities

Project Electricity – Section 15000 of the Project Specifications, part 3.2 states that the schedule of costs and services is different on different campuses and the contractor should communicate with the Owner to determine the status. Please indicate whether power is to be obtained from the College or independently from a local provider. If from the College, and the contractor is to pay for it, please provide rates.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

67. Exhibit C, Temporary Project Utilities

Project Electricity – Section 15000 of the Project Specifications, part 3.2.2. states that if power is available from the campus power systems, the Owner will pay for permanent

power. Is power available from the campus power system and will the Owner pay for permanent power? If power is available from the college, but the contractor has to pay for it, please provide rates.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

68. Exhibit C, Temporary Project Utilities

Project Electricity – On projects included in this RFP that are renovation or build out of finish spaces wherein the remainder of the building will remain occupied, will the contractor be expected to pay for utilities, or will the Owner pay for utilities on those projects? If the contractor is to pay, what basis should be used to develop costs to be included in the fees being submitted in response to this RFP?

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

69. Exhibit C, Temporary Project Utilities

Project Electricity – Is there a thermal corridor in existence on the campuses from which chilled/hot water will be obtained for building heating/cooling? If so, will the contractor have to pay for usage? If so, what are the rates?

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

70. Exhibit C, Temporary Project Utilities

Project Water – Part 3.2.1 of the Project Specifications indicates that the contractor should arrange with the Owner's Utility Department for connection to water. If so, will the contractor still pay the cost of water or will the owner? If the contractor is to pay, what are the rates for water usage?

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

71. Exhibit C, Temporary Project Utilities

Fencing – What basis shall be used to calculate the temporary fencing costs and/or covered walkways required for each project? Can site plans or quantities be provided to facilitate development of those costs?

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

72. Exhibit C, Temporary Project Utilities

Site Erosion Control (BMP) and Project Entrance(s)- What basis shall be used to calculate the costs for installation, inspection and maintenance of silt fencing, inlet protection and other SWPPP controls on each project? Can quantities or site plans that include site utilities be provided for pricing development?

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

73. Field Offices & Office Supplies

Reproduction Services – Is this term defined to include only such copying and printing as is required for project management, or is this term intended to include printing of all project plans and specifications needed for the project? Part 25.6 of the Project Specifications states that the architect will coordinate the printing of the initial issuance of construction documents, that the Owner will pay for one set and that the construction manager shall utilize all construction documents returned to the architect by the subcontractors. Please clarify – what party is to pay for the printing of all those initial sets of plans and specifications?

Answer

As noted, one hard copy set will be provided. Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

74. Field Offices & Office Supplies

Remote Parking Expenses – Are there some projects included in this RFP which will not have parking available on site for construction use? If so, please identify which projects will require the contractor to provide remote parking.

Answer

If remote (off-street) parking is required for a particular project, it will be allowed as a Cost of Work within the GMP subject to the prior written approval of HCC.

75. Part I of the Sealed Price Proposal Form (page 30 of 45) request a proposed total cost for Workers' Compensation and Employer's Liability. Please clarify exactly what you are asking for since it appears that burden is to be included with our staff rates provided as part of the proposal.

Answer

The noted costs should not be double counted; however HCC is seeking a separate breakdown of the Workers' Compensation premiums cost in Part I for auditing purposes.

76. Is the parking garage on Project C – SW West Loop precast or cast-in-place concrete?

Answer

This has not yet been determined.

77. Section 013523 requires a construction safety specialist for jobs larger than \$3 million. Is this a full time position? Is this to be included in our General Conditions costs (it is not listed in the Monthly Labor Costs section of the sealed proposal form (page 31 of 45)?

Answer

Please note that the Project Safety Manager is listed in Part II – Monthly Labor Cost. HCC expects that Proposers will respond with dedicated staff for each project role that is assigned to a single project. For purposes of the proposal response, all positions shall be considered dedicated, onsite, full-time staff for each project role.

78. Are we to include all 7 staff members shown in the Monthly Labor Costs section in our GCs or only the quantity of staff we believe is needed and the for the duration we believe is needed for the project(s).

Answer

Yes.

79. Please confirm that we are to determine the total cost for our Monthly Labor Costs and include that number in our General Conditions. In other words staff monthly rate for each position needed x number of months needed all combined to get the total staff cost for the entire project duration.

Answer

Yes.

80. Please confirm that the totals of Part I – Bonds and Insurance, Part II – Monthly Labor Costs and Part III – General Requirements are to be utilized to determine the General Conditions percentage on the Sealed Proposal Form.

Answer

Yes.

81. The items listed in Exhibit C are not consistent with the items listed in Parts I, II and III of the sealed price proposal form. Please verify which list you would like us to follow when completing the overall General Conditions for the project.

Answer

Please see the Sealed Price Proposal – Part III, which includes a non-exclusive list; also refer to Exhibit C. All items in Parts I, II, III and Exhibits C should be in the General Conditions costs.

82. Will there be any costs/charges (purchase software, monthly charges, hardware costs, etc.) for us to utilize the e-Builder system?

Answer

There will be no cost for the E-Builder software/license; however, Proposers are responsible for their own hardware.

83. Verify when Builder's Risk Insurance can be stopped, at substantial completion or final completion.

Answer

Builder's Risk Insurance at substantial completion, once the Certificate of Substantial Completion has been executed by all parties.

84. Please provide site plans noting where erosion control, project entrances, fencing, covered walkways, barricades, street closures, are to be required or verify if these items should be considered "cost of work" once the site plans are developed at a later date.

Answer

Proposers are responsible for making all necessary assumptions; please note that the General Conditions costs shall be a not-to-exceed amount.

85. On page 16, within the Tab 3 requirements, the RFP states that "if the Proposer is submitting multiple Sealed Price Proposal Forms with the goal of being awarded multiple projects, Proposer must submit information and resumes for each proposed project team that would be dedicated to each project, and may not propose the same personnel for multiple projects."

We would like to propose multiple teams for your consideration, but not a unique team for each project. We would specifically state which projects the stated teams are being proposed on. This provides HCC the ability to award multiple projects to a firm with realistic and deliverable project teams that are well suited for specific projects. Once a project award is made, that obviously would eliminate from consideration any additional projects that particular team was proposed on.

If this approach is acceptable, would it be possible to provide different project experience sheets that are in alignment with each of the teams being proposed (i.e. projects they have completed that best describes their specific experience) and would it be possible to exclude project sheets (as resumes are currently excluded) from the 50 page count since there could be a need to show more than the 5 total projects currently allowed?

Answer

HCC is seeking separate full time staff, dedicated to each project (no sharing of resources). A separate/complete team should be proposed for each project, and Proposer must identify in its response which project a particular team would be assigned to. Resumes are not counted towards the 50 page limit.

86. On page 21, the evaluation criteria table shows that the sealed price counts for 25 of the 100 total possible points. Can you please provide the specific methodology or formula of how the pricing information provided on the price proposal form is evaluated and translated into scoring points?

Answer

In accordance with the published evaluation criteria, the Sealed Price Proposal is worth 25 points; for purposes of scoring, any proposed price discounts, will not be factored in the initial evaluation of the Sealed Price Proposal. All pricing components will be considered in relation to the value of the project.

87. On page 19, within Tab 8 requirements, it requests a possible discount for multiple project awards. This information is related to pricing but is being requested to be included in the qualifications package. Should it instead be included in the sealed price proposal? Also, if a firm offers a discount for multiple project awards, how will the discount be considered in the evaluation criteria?

Answer

The third paragraph in Tab 8 – Business Relationship Strength, has been moved to Exhibit 2 – Sealed Price Proposal, part IV.

88. Section 1.3/Tab 2 – RFP requests 3 to 5 projects that are most relevant to type of services requested by HCC. If we are submitting for multiple projects, each of which have different requirements, should we submit 3 to 5 projects most relevant to each project for which we are applying or a total of 3-5 projects, regardless of how many projects we are pursuing?

Answer

Proposers may respond with 3-5 projects per project type (i.e. Healthcare, Workforce, Parking Garage, and General Classroom) that are relevant and similar to the work being proposed. Information provided shall count towards the 50 page limit.

89. Section 1.4/Tab 3 – Please clarify whose resumes are to be included in Tab 3 – This section references 3 different places for resumes and team member names. Are all three references below referring to the same group of personnel? Are “support members” referenced in 4th paragraph the same as “key personnel” referred to in 3rd paragraph?

1st paragraph – “Provide the names, functions and vita of individuals within your organization who will be assigned to HCC projects.

3rd paragraph Item F – Provide brief resumes for each key personnel. . . .

4th paragraph – Provide detailed resumes for each of the support members of the team who will be responsible for the execution of the services at HCC.

Answer

HCC is seeking separate full time staff, dedicated to each project (no sharing of resources). It is at the discretion of the Proposer to respond with the team that may be

deemed most qualified, if responding to multiple projects with the intent of being awarded one project.

90. Section 1.6/Tab 5 – Could you please specify a specific number of references? To list “all customers for whom we have performed similar work in last 3-5 years, in all categories listed, would be a very lengthy list.

Answer

Proposers may respond with 3-5 projects per project type (i.e. Healthcare, Workforce, Parking Garage, and General Classroom) that are relevant and similar to the work being proposed. Information provided shall count towards the 50 page limit.

91. Section 1.8/Tab 7 – Reference list of “all” customers that included a small business or similar program. Again, this list could be quite lengthy. Could you please specify a specific number of references?

Answer

It is at the discretion of the Proposer to respond with the number of relevant small business references that may be deemed most qualified in being able to evaluate these criteria.

92. Section 1.9/Tab 8 – Third paragraph regarding fee or cost discounts for being awarded multiple projects, how will evaluation committee perform an apples-to-apples comparison of the fee incentives offered, given that each firm will be submitting their incentives on a different list of projects? The incentive programs could vary wildly the roles and responsibilities of the Program Manager.

Answer

The third paragraph in Tab 8 – Business Relationship Strength, has been moved to Exhibit 2 – Sealed Price Proposal, part IV.

93. General Question – Where in the Statement of Qualifications do we indicate which projects we are applying for? I see a place to provide the project name on the sealed proposal form, but since it is a separate document in a sealed envelope; do you want to see the name of the project/projects on the qualifications statement as well?

Answer

Please see the revised Checklist, which includes an area for the Proposes to identify the projects for which they are responding.

94. Would you please provide the roles and responsibilities of the Program Manager and the Project Manager to help us understand the Contract Administration of the Projects?

Answer

Please see the Project Organization Chart noted in the Scope of Services.

95. What forms will HCC require for progress payments?

Answer

HCC will require AIA Document G702 Application and Certificate for Payment, AIA Document G703 Continuation Sheet, and the HCC Subcontractor / Sub-consultant (including Small Business Enterprises) Utilization Report.

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EXHIBIT 2

AMENDED

SEALED PRICE PROPOSAL FORM

Proposer must complete a separate Sealed Proposal Form for **each** project (noted in the Scope of Services) for which Proposer wishes to be considered.

Proposer estimates the following general conditions, fixed unit pricing and percentage of cost for the CMR services for:

Project Name:	
Project Number:	
Estimated Construction Budget:	
Estimated Construction duration (months):	

Proposer Name

Preconstruction Services Fee	Proposed Total Fee
The Pre-construction fee shall be based on a lump sum amount paid by the Owner paid out incrementally during the pre-construction phase.	\$ total

CM At-Risk Fee	Proposed CMR Fee
CM-at-Risk Fee shall be the percentage paid to the Construction Manager-at-Risk based on the Guaranteed Maximum Price, excluding the CM-at-Risk Fee itself.	%

General Conditions	Proposed General Conditions
General Conditions shall be a not to exceed percentage of the Cost of the Work (not to be calculated on the General Conditions/General Requirements) and shall cover all General Conditions and General Requirements items listed in Exhibit C to the Agreement between Owner and Construction Manager-at-Risk	%

General Conditions Breakdown must be provided on Next Page.

BREAKDOWN OF GENERAL CONDITIONS/GENERAL REQUIREMENTS

Part I. – BONDS AND INSURANCE

Items	Proposed Total Cost
Bonds	
Performance and Payment Bond for CMR as Principal (based on Project Budget)	\$ total
Not to Exceed percentage for Subguard, Subcontractor Default Insurance and/or Second-Tier Bond Premiums/Costs (these costs must be disclosed in order to be an allowable cost in the GMP)	% (per enrolled subcontract)
Insurance	
Comprehensive General Liability, including: - \$1,000,000 Each occurrence - \$2,000,000 General Aggregate - \$2,000,000 Products / Completed Operations Aggregate - \$1,000,000.00 Bodily Injury and Property Damage (each) - \$1,000,000.00 Personal and Advertising Injury	\$ total
Automobile Liability (any, hired and non-owned autos), including: - \$1,000,000 Combined Single Limit	\$ total
Workers' Compensation and Employer's Liability – Statutory Limits	\$ total
Builder's All Risk, including: - Flood coverage - 2% Deductible Amount (maximum deductible of \$500,000)	\$ total
Umbrella or Excess Liability Insurance (per Exhibit 1 to the RFP)	\$ total

Part II. - MONTHLY LABOR COSTS

Items	Proposed Monthly Cost
Project Manager - Full time – On Site (labor burden included)	\$ per month
Superintendent - Full time – On Site (labor burden included)	\$ per month
Project/Field Engineer - Full time – On Site (labor burden included)	\$ per month
Project Safety Manager – Full time - On Site (labor burden included)	\$ per month
Assistant Superintendent - Full time - On Site (labor burden included)	\$ per month
Project Executive/Director - Full time - On Site (labor burden included)	\$ per month
Project Support Staff - Full time - On Site (labor burden included)	\$ per month

Part III. – General Requirements

<p>General Requirements - The following are typical General Requirements but not necessarily limited to: Project Electricity, Temporary Project Utilities, Monthly Telephone/Internet Services, Temporary Water Distribution and Meters, Temporary Electrical Distribution and Meters, Field Offices and Office Supplies, Partnering Costs, Job Photography/Videos/DVD, Project Specific Signage, Postage/Shipping, Project As-Builts (Record) Drawings, Project Milestone Events, Move-In/Out and Office Set-up, Employee Identification System (Badging), Small Tools, Project Water, Temporary Toilet Facilities, Temporary Fire Protection, Telephone/Internet System Installation, First Aid Supplies, Reproduction Services, Monthly Office Supplies, Remote Parking Expenses, Project Reference Manuals, Drinking Water and Accessories, Safety Manual/Safety Plan, Safety Training and Safety Materials, Safety Protection Equipment, Office Clean-up/Janitorial Services, Mobilization and Demobilization. <u>Refer to Exhibit C to Agreement between Owner and Construction Manager-at-Risk</u></p>	
	Proposed Total Cost
Not to Exceed Amount for all General Requirements for the Cost of the Work	\$ total

Balance of page intentionally left blank.

Part IV. – PROPOSALS FOR MULTIPLE PROJECTS:

- A. Proposers shall submit a separate Sealed Proposal form for each project for which Proposer wishes to be considered.

Check here if Proposer has submitted Sealed Proposal forms for projects other than the project listed on this form.

If Proposer has submitted Sealed Proposal forms for more than one project, please check the following applicable category:

_____ Proposer intends to compete for multiple projects with the goal of being awarded the project, if any, for which Proposer represents the best value to HCC.

_____ Proposer intends to compete for multiple projects with the goal of being awarded multiple projects. Proposers selecting this option are advised that HCC reserves the right, in its sole discretion, to decide whether a Proposer who competes for multiple projects has demonstrated that – if awarded multiple projects – the Proposer has the financial capability, available bonding capacity, available personnel, total insurance coverage and qualifications to adequately deliver multiple projects within the time and budget limitations of the CIP Bond Program, such that the award of multiple projects to a single Proposer would be in the overall best interest of HCC and its CIP Bond Program. Proposers selecting this option, if not eligible for multiple projects, will still be considered for the project, if any, for which Proposer represents the best value to HCC

- B. Proposers competing for multiple projects with the goal of being awarded multiple projects shall disclose, in this section, any fee or cost discounts or other financial or non-financial benefits offered if Proposer were to be awarded multiple projects. HCC reserves the right to consider such discounts or benefits in its final determination of best value. Describe here.

Authorized Signature:	
Name:	
Title:	
Name of Contracting Firm:	
Street Address:	
City, State Zip Code	
Telephone Number:	
Fax Number:	
Email Address:	
Date:	

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ATTACHMENT NO. 6

AMENDED

PROPOSAL CHECKLIST

Project Title: Bond Construction Manager at Risk Services
Project No.: RFP 14-04

	1. One (1) complete original printed signed and notarized (where applicable) proposal in accordance with Section I.5 and Section IV
	2. One (1) complete electronic copy of original proposal in accordance with Section I.5 and Section IV
	2.1. Cover
	2.2. Tab 1 – Firm's Profile and Overview
	2.3. Tab 2 – Firm's Demonstrated Qualifications and Project Experience
	2.4. Tab 3 – Demonstrated Qualifications of Personnel and Team
	2.5. Tab 4 – Construction Management Experience
	2.6. Tab 5 – Past Performance References
	2.7. Tab 6 – Safety Plan
	2.8. Tab 7 – Small Business Practices
	2.9. Tab 8 – Business Relationship Strength
	2.10. Tab 9 – Firm's Financial Status
	2.11. Attachment No 1 – Proposal/Contract Award Form (signed and notarized)
	2.12. Attachment No 2 – Determination of Good Faith Effort Form (signed)
	2.13. Attachment No 3 – Proposer's Certifications (signed and notarized)
	2.14. Attachment No 4 – Conflict of Interest Questionnaire (signed)
	2.15. Attachment No 5 – Financial Interests and Potential Conflicts of Interests (signed and notarized)
	2.16. Sealed Price Proposal Form – <u>separate and sealed</u> in accordance with Exhibit 2 for each of the projects as noted in Section II.B – Scope of Services (signed)
	2.17. Indicate the number of Sealed Price Proposal Form(s) submitted as part of your response to this RFP, by checking the box next to the projects listed below

Proposer has submitted Sealed Price Proposals for the following projects, and **only** if competing for multiple projects with the goal of being awarded multiple projects, has identified a separate dedicated, full time, on-site project team for each project checked below (See Section II (B) for a list of Project Descriptions):

<input type="checkbox"/> Project A: NW Alief Campus		<input type="checkbox"/> Project H: SE Felix Fraga Campus
<input type="checkbox"/> Project B: NW Eldridge (Westside) Campus		<input type="checkbox"/> Project I: NE Northline Campus
<input type="checkbox"/> Project C: SW West Loop Project		<input type="checkbox"/> Project J: NE North Forest (Workforce/Early College)
<input type="checkbox"/> Project D : SW Brays Oaks Campus		<input type="checkbox"/> Project K: NE Acres Homes Campus
<input type="checkbox"/> Project E : SW Stafford Campus		<input type="checkbox"/> Project L: Central College Main Campus
<input type="checkbox"/> Project F: SW Missouri City		<input type="checkbox"/> Project M: Central South Campus
<input type="checkbox"/> Project G: SE Eastside (Southeast) Campus		<input type="checkbox"/> Project N: Coleman Campus

If Proposer has submitted Sealed Proposal forms for more than one project, please check the following applicable category:

_____ Proposer intends to compete for multiple projects with the goal of being awarded the project, if any, for which Proposer represents the best value to HCC.

_____ Proposer intends to compete for multiple projects with the goal of being awarded multiple projects. Proposers selecting this option are advised that HCC reserves the right, in its sole discretion, to decide whether a Proposer who competes for multiple projects has demonstrated that – if awarded multiple projects – the Proposer has the financial capability, available bonding capacity, available personnel, total insurance coverage and qualifications to adequately deliver multiple projects within the time and budget limitations of the CIP Bond Program, such that the award of multiple projects to a single Proposer would be in the overall best interest of HCC and its CIP Bond Program. Proposers selecting this option, if not eligible for multiple projects, will still be considered for the project, if any, for which Proposer represents the best value to HCC

NOTE: This Checklist is intended to serve as an aide and general reminder of the requirements of this RFP for the benefit of the Proposer. It is the complete responsibility of the Proposer to review this RFP, be familiar with the requirements of the RFP and include all required response sections, supporting attachments, forms and other information in support of your proposal in accordance with this RFP in its entirety.

Company Name

Date

Signature of Proposer

Title

**Summary of Revisions to Contract Documents
In Amendment #2 to RFP #_____**
(Issued November 27, 2013)

CMR CONTRACT SECTIONS:

- 6.1: BIM costs to be included in Preconstruction Services Phase Fee only for certain projects identified by Owner in the RFP
- 13.1.7 Deleted: Building Permit and Inspection Fees will be a Cost of the Work rather than General Conditions
- 13.1.11 BIM costs will be allowed as General Conditions cost only for certain projects identified by Owner in the RFP
- 13.4 Reference to Section 7.7 Revised to read Section 7.6

CMR CONTRACT EXHIBITS:

Exhibit A - General Conditions

Table of Contents: Page number references corrected

- 6.1.1 Only one (1) hard copy of a complete set of final drawings and specifications will be provided to CMR; electronic copy available on E-Builder.
- 11.8.2 Clarifications to limitations on markup for change order pricing in 11.8.2.1 and 11.8.2.1.1
- 11.9 Clarifications to limitations on markup for changes in the work funded from Owner's Construction Contingency
- 11.10 Clarifications to limitations on markups for changes in the work funded from Owner's Project Allowances

Exhibit C – Allowable General Conditions

Clarification that BIM costs will be allowed as General Conditions cost only for certain projects identified by Owner in the RFP.

TABLE OF CONTENTS

ARTICLE

- 1 SCOPE OF WORK
- 2 CONTRACT DOCUMENTS
- 3 DEFINITIONS
- 4 CONSTRUCTION MANAGER'S GENERAL RESPONSIBLY
- 5 PRE-CONSTRUCTION PHASE SERVICES
 - 5.1 General Coordination
 - 5.2 Constructability Program
 - 5.3 Scheduling
 - 5.4 Budget and Cost Consultation
 - 5.5 Coordination of Design and Construction Contract Documents
 - 5.6 Construction Planning and Bid Package Strategy
 - 5.7 Obtaining Bids/Proposals for the Work
 - 5.8 Safety
- 6 PRE-CONSTRUCTION PHASE FEE
- 7 GUARANTEED MAXIMUM PRICE PROPOSAL
- 8 CONSTRUCTION PHASE SERVICES
- 9 OWNER'S RESPONSIBILITIES
- 10 OWNERSHIP AND USE OF DOCUMENTS
- 11 TIME
- 12 PAYMENTS
 - 12.1 General Requirements
 - 12.2 Pre-Construction Phase Payments
 - 12.3 Construction Phase Payments
- 13 DIRECT CONSTRUCTION COST
 - 13.1 General Conditions Costs
 - 13.2 Cost of the Work
- 14 CONSTRUCTION PHASE FEE
- 15 CONTRACT SAVINGS, ALLOWANCES, REBATES & REFUNDS
- 16 PRE-EXISTING CONDITIONS & DESIGN ERRORS AND OMISSIONS
- 17 BONDS AND INSURANCE

ARTICLE

- 18 DISPUTE RESOLUTION
- 19 PROJECT TERMINATION & SUSPENSION
- 20 INDEMNITY
- 21 SPECIAL WARRANTIES
- 22 CERTIFICATION OF NO ASBESTOS CONTAINING MATERIALS OR WORK
- 23 MISCELLANEOUS PROVISIONS
- 24 COMPENSATION
 - 24.1 Owner's Construction Budget
 - 24.2 Pre-Construction Phase Fee
 - 24.3 Construction Phase Fee
 - 24.4 Limitation on General Condition Costs
- 25 OTHER TERMS AND CONDITIONS
 - 25.1 Time of Completion
 - 25.2 Liquidated Damages
 - 25.3 Estimated Construction Cost Reports
 - 25.4 Notices
 - 25.5 Party Representatives
 - 25.6 Construction Document Sets
 - 25.7 List of Exhibits

Exhibit A	Uniform General Conditions
Exhibit B	Owner's Construction Project Division 1 Specifications
Exhibit C	Allowable General Conditions Line Items
Exhibit D	Guaranteed Maximum Price Proposal Form
Exhibit E	Payment and Performance Bond Forms
Exhibit F	Prevailing Wage Rate Schedule
Exhibit G	Constructability Implementation Program for Pre-Construction Services
Exhibit H	Schedule of Required Insurance Coverages
Exhibit I	Policy on Utilization of SB Program

ARTICLE 1 SCOPE OF WORK

The Construction Manager has overall responsibility for and shall provide complete Pre-Construction Phase and Construction Phase Services and furnish all materials, equipment, tools and labor as necessary or reasonably inferable to complete the Work, or any phase of the Work, in accordance with the Owner's requirements and the terms of the Contract Documents.

ARTICLE 2 CONTRACT DOCUMENTS

2.1 The Contract Documents consist of:

- a. This Agreement and all exhibits and attachments listed, contained or referenced in this Agreement;
- b. The Uniform General Conditions for Building Construction Contracts for Houston Community College System ("Uniform General Conditions" or "UGC");
- c. Owner's Construction Project Division 1 Front End Specifications;
- d. All Addenda issued prior to the Effective Date of this Agreement;
- e. The Guaranteed Maximum Price Proposal when accepted by the Owner and executed by the parties;
- f. All Change Orders issued after the Effective Date of this Agreement;
- g. The Drawings, Specifications, details and other documents developed by Project Architect to describe the Project and accepted by Owner;
- h. The Drawings and Specifications developed or prepared by Owner's other consultants, if any, and accepted by the Owner; and
- i. The SB Subcontracting plan submitted by the Construction Manager in response to the Request for Proposals issued by the Owner for this Project, and as supplemented following the award of subcontracts during the buyout phase.

2.2 The Contract Documents form the entire and integrated Contract between Owner and Construction Manager and supersede all prior negotiations, representations or agreements, written or oral.

2.3 The term “Construction Manager” shall be interchangeable with the terms “Contractor” and “General Contractor” or other similar terms as appropriate in the Contract Documents.

ARTICLE 3 DEFINITIONS

The terms, words and phrases used in the Contract Documents shall have the meanings given in the Uniform General Conditions and as follows.

3.1 **“Construction Documents”** means, collectively, the UGCs, Owner’s Construction Project Division 1 Specifications, the Drawings, Specifications, details, Change Orders and other documents prepared by the Project Architect, its consultants and by the Owner’s other consultants that describe the scope and quality of the Project and the materials, supplies, equipment, systems and other elements that are required for construction of the Project that are accepted by the Owner.

3.2 **“Construction Phase Services”** means the coordination, implementation and execution of the Work required by the Contract Documents.

3.3 **“Contract Sum”** means the total amount of all compensation payable to the Construction Manager for the Project and shall not exceed the sum total amount of the Pre-Construction Phase Fee plus the Guaranteed Maximum Price Proposal accepted by the parties, subject to adjustment for Additional Services or Change Orders. Any costs that exceed the Contract Sum shall be borne solely by Construction Manager without reimbursement by Owner.

3.4 **“Direct Construction Cost”** means the sum of the amounts that the Construction Manager actually and necessarily incurs for General Conditions Costs and General Requirements, Insurance, Bonds and other Costs of the Work during the Construction Phase as allowed by this Agreement. Direct Construction Cost does not include Pre-Construction Phase Fees or Construction Phase Fees.

3.5 **“Estimated Construction Cost” (ECC)** means the amount calculated by the Construction Manager for the total cost of all elements of the Work based on the Contract Documents available at the time(s) that the ECC is prepared. The ECC shall be based on current market rates with

reasonable allowance for overhead, profit and price escalation and shall include and consider, without limitation, all alternates, allowances and contingencies, designed and specified by the Project Architect and the cost of labor and materials necessary for installation of Owner furnished equipment. The ECC shall not include Construction Manager's Pre-Construction Phase Fee, Project Architect Fees, cost of the land, rights-of-way, or any other costs that are the direct responsibility of the Owner.

3.7 "**Guaranteed Maximum Price**" or "GMP" means the amount proposed by the Construction Manager and accepted by the Owner as the maximum cost to the Owner for construction of the Work in accordance with the Contract Documents. The GMP includes Construction Manager's Construction Phase Fee, the General Conditions Costs, the Cost of the Work, Owner's Project Allowances and Owner's Construction Contingency.

3.8 "**General Conditions Costs**" means General Requirements and other costs incurred and minor work performed by the Construction Manager without the need for competitive bids/proposals as allowed under Texas Government Code Section 2267.255, as amended. General Conditions are limited to the items identified in the attached Exhibit "C".

3.9 "**Monthly Salary Rate**" means the amount agreed to by the Owner that can be used on Applications for Payment throughout the Construction Phase to account for the services of Construction Manager's salaried personnel assigned to the Project. A Monthly Salary Rate must be established for each salaried person and must be approved in writing by the Owner in advance of any Application for Payment for that person. The Monthly Salary Rate is for convenience only and any payments made for Construction Manager's personnel are subject to audit to determine the actual cost of the wages and allowable employer contributions incurred by the Construction Manager for services performed for the Project.

3.10 "**Owner's Construction Project Division 1 Specifications**" means the construction and contract administration requirements and standards detailed in the Owner's Specifications exhibit attached to this Agreement as Exhibit B.

3.11 "**Pre-Construction Phase Services**" means the participation, documentation and execution of the Construction Manager's Pre-Construction Phase deliverables as required by the Contract Documents.

3.12 “**Preliminary Project Cost**” (PPC) means the total estimated cost of the entire Project, including design, construction, and other associated costs and services that is established by the Owner prior to the commencement of design.

3.13 “**Project Architect**” means the professional architect or engineer employed by the Owner as architect or engineer of record for the Project and its consultants.

3.14 “**Project Team**” means the Owner, Construction Manager, Program Manager, Project Manager, Project Architect and its consultants, any separate contractors employed by Owner, and other consultants employed for the purpose of programming, design, and construction of the Project. The members of the Project Team will be designated by Owner and may be modified from time to time by Owner.

3.15 “**Subcontractor**” means a person or entity that has an agreement with the Construction Manager to perform any portion of the Work. The term Subcontractor does not include the Project Architect or any person or entity hired directly by the Owner.

3.16 “**Total Project Cost**” (TPC) means the total budget established for the Project by the Board of Regents or the Chancellor of Houston Community College System at the end of the design development phase (subject to subsequent modification by Owner). The TPC includes, but is not limited to, Construction Manager’s Pre-Construction Fee, Guaranteed Maximum Price Proposal(s), Project Architect and other professional service fees, and other miscellaneous Project costs.

3.17 “**Work**” means the provision of all services, labor, materials, supplies, and equipment that are required of the Construction Manager to complete the Project in strict accordance with the requirements of the Contract and the Construction Documents. Work includes, but is not limited to, the Construction Phase Services, additional work required by Change Orders, and any other work reasonably inferable from the Construction Documents. The term “reasonably inferable” takes into consideration the understanding of the parties that some details necessary for completion of the Work may not be shown on the Drawings or included in the Specifications, but they are a requirement of the Work if they are a usual and customary

component of the Work or otherwise necessary for complete installation and operation of the Work.

3.18 “**Worker Wage Rate**” means a worker, laborer, or mechanic employed on a public work, exclusive of maintenance work, by or on behalf of Houston Community College. Such workers shall be paid not less than the general prevailing rate of per diem wages set forth in the Prevailing Wage Rate schedule adopted by HCC and attached to the Contract as Exhibit F, and as required by *Texas Gov’t Code Chapter 2258*. A worker is employed on a public work if the worker is employed by a contractor or subcontractor in the execution of a contract for public work with HCC. *Gov’t Code 2258.001, 2258.021*. HCC shall pay the federal rate if the contract is awarded from federal moneys and is a requirement under the federal contract.

ARTICLE 4 CONSTRUCTION MANAGER’S GENERAL RESPONSIBILITIES

4.1 Construction Manager shall perform all services specifically allocated to it by the Contract Documents as well as those services reasonably inferable from the Construction Documents as necessary for completion of the Work and the Project. Construction Manager agrees to perform these services using its best efforts, skills, judgments and abilities.

4.2 Construction Manager shall cooperate with the Project Architect and endeavor to further the interests of the Owner and the Project. Construction Manager shall furnish Pre-Construction Phase Services and Construction Phase Services and complete the Project in an expeditious and economical manner consistent with the interests of the Owner and in accordance with the Project Schedule.

4.3 Construction Manager shall designate a representative authorized to act on the Construction Manager’s behalf with respect to the Project.

4.4 Construction Manager shall comply with the Owner’s procedures for communication and coordination among the Project Team, Subcontractors, separate contractors, and others with respect to all aspects of the construction of the Project, and implement such procedures.

4.5 Construction Manager shall establish and maintain a numbering and tracking system for all Project records, including changes, requests for information, submittals, and supplementary instructions and shall provide updated records at each Owner's meeting and when requested.

4.6 Fast Track/Multiple Completion Times. If the Owner elects to "fast-track" or develop the Project in multiple stages, Construction Manager shall organize and perform its services as appropriate to each stage. Each stage of the Project may have a unique schedule for completion and a specific construction budget, at Owner's discretion.

4.7 Attend and participate in Owner's "Small Business Participation Goal" Program for all phases of the Project.

4.8 Construction Manager shall identify to the Owner the employees and other personnel that it will assign to the Project and provide the Monthly Salary Rate for each of them. Construction Manager shall also identify any consultants that will be performing services for the Project. **After execution of this Agreement by the Owner, Construction Manager shall not remove or replace the persons or entities assigned to the Project, including subcontractors, except with the Owner's written consent,** which consent shall not be unreasonably withheld. Construction Manager shall not assign to the Project or contract with any person or entity to which Owner has a reasonable objection. Construction Manager shall promptly update the list of persons and consultants if they change during the course of the Project.

4.9 The Owner's Policy on the Utilization of Small Businesses ("Policy") is described in the attached Exhibit I. Construction Manager, as a provision of the Agreement, must comply with the requirements of the Policy and adhere to the SB Subcontracting Plans submitted for Construction Phase Services. No changes to the SB Subcontracting Plans can be made by the Construction Manager without the written approval of Owner in accordance with the Policy.

ARTICLE 5 PRE-CONSTRUCTION PHASE SERVICES

The Pre-Construction Phase shall be deemed to commence upon the date specified in a Notice to Proceed with Pre-Construction Phase Services issued by Owner and shall continue through completion of the Construction

Documents and procurement of all major Subcontractor agreements. Construction Manager is not entitled to reimbursement for any costs incurred for Pre-Construction Phase Services performed before issuance of the Notice to Proceed with Pre-Construction Phase Services. Pre-Construction Phase Services may overlap Construction Phase Services. The Construction Manager shall perform the following Pre-Construction Phase Services.

5.1 General Coordination

5.1.1 The Construction Manager's Pre-Construction Phase Services team shall attend Project Team meetings with the Owner, the Project Manager, the Owner's representatives, and the Project Architect at regularly scheduled intervals throughout the Pre-Construction Phase. Frequent Project Team meetings are anticipated prior to the Owner's acceptance of the GMP and during completion of the Construction Documents.

5.1.2 Provide a preliminary evaluation of the Owner's Design Criteria and the Owner's Construction Budget, each in terms of the other.

5.1.3 Review and understand the standards and requirements in Owner's Specifications and perform all services in accordance with those standards and requirements.

5.1.4 Visit the site and inspect the existing facilities, systems and conditions to insure an accurate understanding of the existing conditions as required.

5.1.5 Participate as a member of the Project Team in the development of the Project Facility Program if such program has not been developed prior to the Effective Date of this Agreement.

5.1.6 Provide recommendations and information to the Project Team on: site usage and site improvements; building systems, equipment and construction feasibility; selection and availability of materials and labor; time requirements for installation and construction; assignment of responsibilities for safety precautions and programs; temporary Project facilities; equipment, materials and services for common use of the Construction Manager and Owner's separate contractors, if

any; cost factors, including costs of alternative materials or designs, preliminary budgets, and possible cost savings; recognizing and tracking the resolution of conflicts in the proposed Drawings and Specifications; methods of delivery of materials, systems, and equipment; and any other matters necessary to accomplish the Project in accordance with the Project Schedule and Owner's Construction Budget.

5.1.7 Assist the Owner in selecting and directing the services of surveyors, soils engineers, existing facility surveys, testing and balancing, environmental surveys or other special consultants hired by the Owner to develop additional information for the design or construction of the Project.

5.1.8 At Owner's request, attend public meetings and hearings concerning the development and schedule of the Project.

5.2 Constructability Program

5.2.1 Implement and conduct a constructability program to identify and document Project cost and schedule savings opportunities, in accordance with the requirements set forth in Exhibit G. The constructability program shall follow accepted industry practices and be in accordance with the requirements of the attached exhibit. Whenever the term "value engineering" is used in conjunction with this Agreement or the Project, it has its commonly accepted meaning within the construction industry and does not imply the practice of professional engineering without a license. If any value engineering activities constitute the professional practice of engineering, then such activities shall be performed by an engineer licensed in Texas.

5.2.2 Prepare a "Constructability Report" that identifies items that, in the Construction Manager's opinion, may negatively impact construction of the Project. The Constructability Report shall address the overall coordination of Project Drawings, Specifications, and details and identify discrepancies that may generate Change Orders or claims once Project construction commences. The Constructability Report shall be updated at least monthly during the Pre-Construction Phase.

5.2.3 Provide and implement a system for tracking questions, resolutions, decisions, directions and other information matters that arise during the development of the Drawings and Specifications for the Project. The decision tracking system shall be in a format approved by the Owner and updated at least monthly during the Pre-Construction Phase.

5.3 Scheduling

5.3.1 Develop a critical path method schedule (“CPM Schedule”) for Project Team review and the Owner's approval, that coordinates and integrates activities on the Project, including the Construction Manager's services, the Project Architect's design services, the work of other consultants and suppliers, and the Owner's activities with the anticipated construction schedules for other contractors. The CPM Schedule must identify all major milestones through Project Final Completion. The CPM Schedule shall be created and maintained in accordance with the Owner's Specifications using the Owner specified format and software.

5.3.2 The Construction Manager shall update the CPM Schedule throughout the Pre-Construction and Construction Phases as described in the Owner's Specifications.

5.3.3 The CPM Schedule shall include other detailed schedule activities as directed by the Owner including, but not limited to, Owner-managed work under separate contracts such as equipment, furniture and furnishings, telephones, project security, property protection, life-safety systems, integration with central campus monitoring systems, information and instructional technology data-transmission systems, and computer technology systems.

5.4 Budget and Cost Consultation

5.4.1 The Construction Manager is responsible for preparing and updating all procurement and construction cost estimates and distributing them to the Project Team throughout the duration of the Project.

5.4.2 Provide Estimated Construction Cost (ECC) reports at the required stages of completion of the schematic design, design development, and construction documents phases of the Project as required in Article 25. The Estimated Construction Cost reports for the design development and construction documents phases shall be detailed estimates derived from cost quantity surveys based on unit prices for labor, materials, overhead and profit, organized in Construction Specifications MASTER Format 2011 for each portion of the Work.

5.4.3 Provide continuous cost consultation services throughout the duration of the Project, including identification and tracking of decisions that affect the scope or quality of the Project and providing ongoing updates of their cost and budget impact. Advise the Project Team immediately if the Construction Manager has reason to believe that the most current ECC will exceed the Owner's Construction Budget or not meet Schedule requirements and recommend reasonable strategies for bringing the Project in line with the Owner's Construction budget and the Schedule.

5.4.4 Construction Manager shall promptly identify all variances between estimated costs and actual costs during the Construction Phase, and shall promptly report such variances to the Project Team along with recommendations for action, but in any event no more than two (2) business days after acquiring such information.

5.4.5 Should any ECC exceed or fall significantly below the Owner's Construction Budget, the Owner and Construction Manager shall negotiate changes to the Project requirements or the Owner's Construction Budget as required.

5.5 Coordination of Design and Construction Contract Documents

5.5.1 Review all Drawings, Specifications, and other Construction Documents as they are developed by the Project Architect during the schematic design, design development, and construction documents design phases of the Project.

5.5.2 Consult with Owner and Project Architect on the selection of materials, equipment, component systems, and types of construction

used on the Project. Advise Owner on site use, construction feasibility, availability of labor and materials, procurement time requirements, and construction coordination.

5.5.3 Advise Owner of any error, inconsistency or omission discovered in the Drawings, Specifications, and other Construction Documents.

5.5.4 Advise Owner on reasonable adjustments in the Project scope, quality or other options for keeping the Project cost within the Owner's Construction Budget.

5.5.5 Review the Construction Documents for compliance with all applicable laws, rules and regulations and with Houston Community College System requirements.

5.6 Construction Planning and Bid Package Strategy

5.6.1 Identify equipment or material requiring extended delivery times and advise Owner on expedited procurement of those items. Advise Owner and Project Architect on the preparation of performance specifications and requests for technical proposals for the procurement and installation of systems and components and for the procurement of long lead items. If requested by Owner, and subject to Owner's prior approval, issue requests for technical proposals to qualified sources and receive proposals and assist in their evaluation.

5.6.2 Make recommendations to the Project Team regarding organization of the Construction Documents to facilitate the bidding and awarding of construction subcontracts in a manner that promotes the interests of the Project and the Owner. These recommendations may include, but are not limited to, phased or staged construction or multiple separate contracts. The recommendations shall take into consideration such factors as time of performance, type and scope of work, availability of labor and materials, overlapping trade jurisdictions, provisions for temporary facilities, comparisons of factory and on-site production costs, shipping costs, code restrictions, the Owner's goals for SB contractor participation, and other constraints.

5.6.3 Review the Construction Documents with the Project Team to eliminate areas of conflict and overlap in the work to be performed by the various Subcontractors or Owner's separate contractors.

5.6.4 Develop a bid/proposal package strategy in coordination with the Project Architect that addresses the entire scope of Work for each phase and stage of the Project. In developing the bid/proposal package strategy, the Construction Manager shall identify all bid/proposal packages on which the Construction Manager intends to submit a self-performance bid/proposal. The bid/proposal package strategy shall be reviewed with and approved by the Owner, and revised, as needed, throughout the subcontractor procurement phase of the Project so as to best promote the interests of the Project and the Owner.

5.6.5 Assist the Owner, the Project Architect, Owner's other consultants, and the Owner's separate contractors in obtaining all applicable risk management, code, and regulatory agency reviews and approvals for the Project including, without limitation, the Texas Higher Education Coordinating Board, the Texas Department of Licensing and Regulation, the State Fire Marshal, the local fire department, and the Owner's insurance provider.

5.6.6 Refine, implement and monitor required SB Subcontracting Plans to promote equal employment opportunity in the provision of goods and services to the Owner for the Project.

5.6.7 Advise Owner of any tests to be performed, and assist Owner in selecting testing laboratories and consultants, without assuming direct responsibility for the work of such laboratories and consultants.

5.6.8 Construction Manager shall review the Construction Documents to ensure that they contain adequate provision for all temporary facilities necessary for performance of the Work, and provisions for all of the job site facilities necessary to manage, inspect, and supervise construction of the Work.

5.6.9 Provide an analysis of the types and quantities of labor required for the Project and review the appropriate categories of labor required

for critical phases or Stages. Make recommendations that minimize adverse effects of labor shortages.

5.6.10 Furniture, Fixtures and Equipment. Consult with and make recommendations to the Owner on the acquisition schedule for fixtures, furniture and equipment, and coordinate with the Owner's furniture, fixture, and equipment Consultant as may be required to meet the Schedule.

5.7 Obtaining Bids/Proposals for the Work

5.7.1 In accordance with Texas Government Code Section 2267.255 as amended, Construction Manager shall publicly advertise and solicit competitive lump sum bids/proposals from trade contractors or subcontractors for the performance of all major elements of the work other than the minor work that may be included in General Conditions or General Requirements. Criteria for determining the bid/proposal that provides the best value to the Owner shall be established by the Project Team and included in the request for bids/proposals. The Construction Manager shall notify the Owner in advance in writing of the date it will receive the bids/proposals.

5.7.2 Schedule and conduct pre-bid conferences with interested bidders/proposers, Subcontractors, material suppliers, and equipment suppliers, and record minutes of the conferences.

5.7.3 Construction Manager and Owner shall review all trade contractor or Subcontractor bids/proposals in a manner that does not disclose the contents of any bid/proposal to persons outside of the Project Team during the selection process. Based on the selection criteria included in the request for proposals, Construction Manager shall recommend to the Owner the bid/proposal that provides the best value for the Project. Upon Owner's concurrence in the recommendation, Construction Manager may negotiate the terms of the subcontract with the apparent best value bidder/proposer.

5.7.4 All subcontracts must be on a lump sum basis unless other payment terms are approved in writing and in advance by the Chief Administration Officer, Office of Administrative Services. Upon Owner's concurrence in the final terms of the subcontract,

Construction Manager shall enter into a written subcontract for the subcontract work and provide a copy to the Owner. All bids/proposals shall be publicly available after award of the subcontract or within seven (7) days after the date of final selection, whichever is later.

5.7.5 If Construction Manager reviews, evaluates, and recommends to Owner a bid/proposal from a trade contractor or subcontractor, but Owner requires another bid/proposal to be accepted, Owner shall compensate Construction Manager by a change in price, time, or Guaranteed Maximum Price for any additional cost and risk that Construction Manager incurs because of Owner's requirement that the other bid/proposal be accepted.

5.7.6 Construction Manager may seek to self-perform portions of the Work identified for self-performance in the bid/proposal strategy. The Construction Manager must submit a bid/proposal for the self-performance work in the same manner as all other trade contractors or Subcontractors, and at least two other interested trade contractors must compete for the Construction Manager's proposal to be considered. The Construction Manager's payment for any awarded self-performed work shall be on a cost plus fee basis (such fee not to exceed 7.5%), and payment to the Construction Manager for self-performed work will not exceed the agreed upon subcontract Guaranteed Maximum Price for such work. No self-performed work will be allowed to be performed on a lump sum basis. The Owner will determine whether the Construction Manager's bid/proposal provides the best value for Owner, which determination is final. Construction Manager must perform approved self-performance work in accordance with the same terms and conditions as its other Subcontractors. For payment purposes, the Construction Manager shall account for self-performance work in the same manner as it does all other subcontract costs, and all savings under any such subcontracts for self-performed work shall belong to the Owner. For purposes of defining "self-performed work" subject to this contract provision, any division of Construction Manager, or any separate Construction Manager or subcontractor that is partially owned or wholly owned by the Construction Manager or any of its employees or employee's relatives will be considered a related entity and will be subject to this provision regarding "self-performed work."

5.7.7 Construction Manager shall identify every Subcontractor it intends to use on the Project, including Subcontractors used for self-performed work, to the Owner in writing at least ten (10) days before entering into any subcontract. Construction Manager shall not use any Subcontractor to which Owner has a reasonable objection. Construction Manager shall not be required to subcontract with any Subcontractor to which it has reasonable objection. Following Owner acceptance of a Subcontractor, that Subcontractor shall not be changed without Owner's written consent, which shall not be unreasonably withheld.

5.7.8 If a selected trade contractor or subcontractor fails to execute a subcontract after being selected in accordance with this section or defaults in the performance of its work, the Construction Manager may, in consultation with the Owner and without further advertising, fulfill the subcontract requirements itself or select a replacement trade contractor or subcontractor to do so.

5.8 Safety

5.8.1 In accordance with Owner's Uniform General Conditions, Construction Manager is responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The safety program shall comply with all applicable requirements of the Occupational Safety and Health Act of 1970 and all other applicable federal, state and local laws and regulations and with the requirements of an Owner controlled insurance program, if any.

5.8.2 Construction Manager shall provide recommendations and information to Owner and Project Architect regarding the assignment of responsibilities for safety precautions and programs, temporary Project facilities, and equipment, materials, and services for common use of the Subcontractors. Construction Manager shall verify that appropriate safety provisions are included in the Construction Documents. The existence or creation of any Owner controlled insurance program in connection with the Work shall not lessen or reduce the Construction Manager's safety responsibilities.

ARTICLE 6

PRE-CONSTRUCTION PHASE FEE

6.1 The Pre-Construction Phase Fee is the total compensation payable to the Construction Manager for the performance of Pre-Construction phase Services, except for Additional Pre-Construction Phase Services approved in advance and in writing by the Owner. The Pre-Construction Phase Fee shall be a lump sum amount based on the Owner's Construction Budget established in this Agreement, and shall include all Pre-construction Phase costs for Building Information Modeling only if the Owner has designated the Project as a BIM project in the Request for Proposals for the Construction Manager.

6.2 Except as specifically allowed in paragraph 6.4, the Construction Manager shall not be entitled to any increase in the Pre-Construction Phase Fee and shall not be entitled to reimbursement for any costs, expenses, liabilities or other obligations arising from the performance of Pre-Construction Phase Services, including preparation of the GMP Proposal and Construction Phase bid documents.

6.3 If the scope of the Pre-Construction Phase Services is changed materially, the Pre-Construction Phase Fee shall be equitably adjusted. If the Owner's Construction Budget is changed materially before acceptance of the GMP Proposal, the Pre-Construction Phase Fee shall be equitably adjusted as agreed upon by Construction Manager and Owner. There shall be no adjustments in the Pre-Construction Phase Fee following acceptance of the GMP Proposal.

6.4 For Additional Pre-Construction Phase Services that are approved in advance and in writing by the Owner, Construction Manager shall be entitled to additional compensation computed as a:

6.5.1 A pre-established lump sum amount; or

6.5.2 The hourly cost of Construction Manager's employee's or consultants who actually perform the Additional Services based on the employee's Worker Wage Rate or prorated Monthly Salary Rate plus the actual cost of allowable expenses incurred in the performance of the Additional Services plus an overhead and profit markup of ten percent (10%) of the total cost; or

6.5.3 As otherwise agreed to by the parties in advance of performing the Additional Pre-Construction Phase Services.

ARTICLE 7 GUARANTEED MAXIMUM PRICE PROPOSAL

7.1 When the Parties agree that the design of the Project is sufficiently developed and documented to allow detailed pricing of its construction, Construction Manager shall prepare and submit a Guaranteed Maximum Price (“GMP”) Proposal to Owner. The GMP Proposal must be prepared in accordance with the guidelines and delivered in the format specified by Owner in the attached Exhibit D. Owner, at its sole option and discretion, may specify different requirements for the GMP Proposal. Construction Manager shall not withdraw its Guaranteed Maximum Price Proposal for ninety (90) days following submission to the Owner.

7.2 In developing the GMP Proposal, the Construction Manager shall coordinate efforts with the Project Architect to identify qualifications, clarifications, assumptions, exclusions, value engineering and any other factors relevant to establishment of a GMP. The Construction Manager shall review development of the GMP Proposal with the Owner on an ongoing basis to address clarifications of scope and pricing, distribution of contingencies, schedule, assumptions, exclusions, and other matters relevant to the establishment of a GMP.

7.3 The GMP Proposal must include a written description of how it was derived that specifically identifies the clarifications and assumptions made by the Construction Manager in the GMP and the monetary amounts attributable to them. The GMP Proposal shall include, without limitation, a breakdown of Construction Manager’s estimated General Conditions Costs and estimated Costs of the Work organized by trade; contingency amounts; the Construction Phase Fee; and the proposed Contract Time, including dates for Notice to Proceed, Substantial Completion and Final Completion.

7.4 The Guaranteed Maximum Price Proposal shall allow for reasonably expected changes and refinements in the Drawings and Specifications through completion of the Construction Documents, except for material changes in scope.

7.5 Basis of Guaranteed Maximum Price. The Construction Manager shall include with the Guaranteed Maximum Price proposal all requirements set forth in Attachment 1 to Exhibit D.

7.6 As the Drawings and Specifications may not be finished at the time the Guaranteed Maximum Price proposal is prepared, the Construction Manager shall provide amounts for the Owner's Project Allowances in the Guaranteed Maximum Price. Allowances shall be limited to use for items which require further development of the Drawings and Specifications by the Architect that is consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include such things as changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Contingency Expenditure Authorization (CEA) or Change Order.

7.7 The Guaranteed Maximum Price proposal approved by the Owner may include an Owner's Construction Contingency to cover the cost of unforeseen conditions that that develop during the Construction Phase which the Construction Manager could not have anticipated or discovered through the exercise of reasonable care during Pre-Construction Phase. Expenditures from the Owner's Construction Contingency must be approved in writing by the Owner by CEA.

7.8 In submitting the GMP Proposal, the Construction Manager represents that it will provide every item, system or element of Work that is identified, shown or specified in the GMP Proposal or the supporting documents, along with all necessary or ancillary materials and equipment for their complete operating installation, unless specifically excepted by the Owner. Upon Owner's acceptance of the GMP Proposal, the Construction Manager shall not be entitled to any increase in the Guaranteed Maximum Price due to the continued refinement of the Construction Documents or the absence or addition of any detail or specification that may be required in order to complete the construction of the Project as described in and reasonably inferable from the GMP Proposal or the supporting documents used to establish the GMP.

7.9 The GMP Proposal shall adopt and incorporate all of the terms and conditions of this Agreement and all attachments to this Agreement. Any proposed deviation from the terms and conditions of this Agreement must be clearly and conspicuously identified to the Owner in writing and specifically

accepted by the Owner. In the event of a conflict between any term of the GMP Proposal that was not clearly and conspicuously identified and approved by the Owner and the terms of this Agreement and its attachments, the terms of the Agreement and its attachments shall control.

7.10 Prior to the Owner's acceptance of the Construction Manager's Guaranteed Maximum Price proposal and issuance of a Notice to Proceed, the Construction Manager shall not incur any cost to be reimbursed as part of the Cost of the Work, except as the Owner may specifically authorize in writing.

7.11 Owner may accept or reject the Guaranteed Maximum Price Proposal or attempt to negotiate its terms with Construction Manager. Upon acceptance by the Owner of the GMP Proposal in writing, both parties shall execute the GMP Proposal and the terms of the GMP Proposal, including the Guaranteed Maximum Price and the supporting documents, shall become part of the Contract between the Owner and the Construction Manager. If the Owner rejects the GMP Proposal or the parties are unable or unwilling to agree on a GMP, the Owner may terminate this Agreement, without further financial obligation to Construction Manager, except for payment for Pre-Construction Services performed up to the effective date of termination.

7.12 Following Owner acceptance of the GMP Proposal, Construction Manager shall continue to monitor the development of the Construction Documents so that, when complete, the Construction Documents adequately incorporate and resolve all qualifications, assumptions, clarifications, exclusions and value engineering issues identified in the GMP Proposal. During the Construction Documents stage, the Construction Manager and the Project Architect shall jointly deliver a monthly status report to the Owner describing the progress on the incorporation of all qualifications, assumptions, clarifications, exclusions, value engineering issues and all other matters relevant to the establishment of the GMP into the Construction Documents.

7.13 The Construction Manager shall document the actual Cost of the Work following the award of all subcontracts, including proposals Work to be self-performed by Construction Manager, as compared to the Guaranteed Maximum Price proposal and shall report and update this information to the Owner monthly.

ARTICLE 8

CONSTRUCTION PHASE SERVICES

The Construction Phase shall be deemed to commence upon the date specified in a Notice to Proceed issued by Owner after approval of the Guaranteed Maximum Price Proposal and shall continue until Final Completion of all Work. Pre-Construction Phase Services may overlap Construction Phase Services. Construction Manager shall not incur any Subcontractor costs for construction of the Work prior to issuance by Owner of written authorization to commence such Work. The Construction Manager shall perform the following Construction Phase Services.

8.1 Construct the Work in strict accordance with the Construction Documents and as required by the Uniform General Conditions and Owner's Construction Project Division 1 Specifications within the time required by the Project Schedule approved by Owner.

8.2 Organize and maintain a competent, full-time staff at the Project site with clearly defined lines of authority and communication as necessary to coordinate construction activities, monitor and direct progress of the Work, and further the goals of the Project Team.

8.3 Designate in writing a representative who is responsible for the day-to-day management of the Construction Phase Services. The designated representative shall be the Owner's primary contact during the Construction Phase and shall be available as required for the benefit of the Project and the Owner. The designated representative shall be authorized to act on behalf of and bind the Construction Manager in all matters related to Construction Phase Services including, but not limited to, execution of Change Orders and Applications for Payment.

8.4 Attend Owner's regularly scheduled Project progress meetings and fully advise the Project Team of the Project status including schedule, costs, quality and changes.

8.5 In addition to attending Owner's regularly scheduled Project progress meetings, Construction Manager shall schedule, direct and attend interim progress meetings with other members of the Project Team as required to maintain Project progress. Construction Manager shall record and

distribute the minutes of each meeting to each Project Team member. The minutes shall identify critical activities that require action and the dates by which each activity must be completed.

8.6 Coordinate delivery and installation of Owner-procured material and equipment.

8.7 In accordance with Owner's Standard Uniform General Conditions, provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, transportation, and all other facilities and services necessary for the proper execution and completion of the Work in strict accordance with the requirements of the Construction Documents.

8.8 Obtain building permits and special permits for permanent improvements as required by law or the Construction Documents. Assist Owner or Project Architect in obtaining all approvals required from authorities having jurisdiction over the Project.

8.9 Coordinate, monitor and inspect the work of Subcontractors to ensure conformance with the Construction Documents.

8.10 Be responsible for all construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work. The Construction Manager shall keep the Owner informed of the progress and quality of the Work.

8.11 Construction Manager shall promptly correct any defective Work at Construction Manager's sole expense, unless the Owner specifically agrees to accept the Work.

8.12 Warrant that the materials and equipment provided for the Project will be of good quality and new unless otherwise required or permitted by the Construction Documents; that the construction will be free from faults and defects; and that the construction will conform with the requirements of the Construction Documents. The Construction Manager shall be responsible for correcting Work that does not comply with the Construction Documents at its sole expense without cost to the Owner.

8.13 In accordance with the Uniform General Conditions regarding Record Documents and the Owner's Project Closeout Specification, the

Construction Manager shall maintain and deliver the required documents that describe changes or deviations from the Construction Documents that occurred during construction and that reflect the actual "As Built" conditions of the completed Work.

ARTICLE 9 OWNER'S RESPONSIBILITIES

9.1 The Owner will designate a Project Architect and Project Manager for the Project.

9.2 The Owner will provide the Preliminary Project Cost and general schedule for the Project. The PPC will include the Owner's Construction Budget, contingencies for changes in the Work during construction, and other costs that are the responsibility of the Owner. The general schedule will set forth the Owner's plan for milestone dates and completion of the Project.

9.3 The Owner will identify a person as its Owner Designated Representative ("ODR") who is authorized to act in the Owner's behalf with respect to the Project. The Owner's Designated Representative shall examine the documents submitted by the Construction Manager and shall render decisions on behalf of the Owner.

9.4 The Owner will identify a person as its Owner Designated Representative authorized to administer this Agreement on behalf of the Owner, including final determination of fees and costs earned by the Construction Manager and equitable backcharges against the Construction Manager.

9.5 The Owner, at Owner's cost, will secure the services of surveyors, soils engineers, existing facility surveys, testing and inspections, environmental surveys or other special consultants to develop such additional information as may be necessary for the design or construction of the Project.

9.6 The Owner shall arrange and pay for materials, structural, mechanical, chemical and other laboratory tests as required by the Construction Documents.

9.7 The Owner shall furnish all legal, accounting, auditing and insurance counseling services for itself as may be necessary for the Project.

9.8 The Owner shall furnish required information and services and shall render approvals and decisions as expeditiously as is consistent with reasonable skill and care and the orderly progress of the Construction Manager's services and of the Work.

9.9 The Owner may designate one or more construction inspectors who shall be given access to the Work as requested or needed. The provision of inspection services by Owner shall not reduce or lessen Construction Manager's responsibility for the Work. Construction Manager is fully and solely responsible for constructing the Project in strict accordance with the Construction Documents.

9.10 Owner shall have the right to reject any defective Work on the Project. Should Construction Manager refuse or neglect to correct any such Work within a reasonable time after notice, Owner may have the Work corrected and recover all expenses incurred from Construction Manager on demand.

9.11 Owner shall furnish to the Construction Manager the number of Construction Document sets as required by this Agreement.

ARTICLE 10 OWNERSHIP AND USE OF DOCUMENTS

10.1 Drawings, specifications and other documents prepared by the Project Architect, its consultants, or other consultants retained by the Owner for the Project that describe the Work to be executed by the Construction Manager (the "Construction Documents") are instruments of service and shall remain the property of their authors whether the Project for which they are made is executed or not. The Construction Manager shall be permitted to retain one record set of the Construction Documents. All other copies of the Construction Documents shall be returned to their respective authors or suitably accounted for. The Construction Manager and its Subcontractors are authorized to reproduce and use portions of the Construction Documents as necessary and appropriate for the execution of the Work. The Construction Manager and its Subcontractors shall not use the Construction Documents on any other projects.

10.2 Submission or distribution of the Construction Documents to meet official regulatory requirements or for other purposes in connection with the Project shall not diminish the Project Architect's or other author's rights.

ARTICLE 11 TIME

11.1 TIME LIMITS STATED IN THE CONTRACT DOCUMENTS ARE OF THE ESSENCE OF THIS AGREEMENT.

11.2 Unless otherwise approved, the Owner and the Construction Manager shall perform their respective obligations under the Contract as expeditiously as is consistent with reasonable skill and care and the orderly progress of the Work.

11.3 Prior to commencement of the Construction Phase Services and concurrently with submission of the Guaranteed Maximum Price Proposal, the Construction Manager shall submit an up-to-date CPM Schedule for the performance of Construction Phase Services as specified. The CPM Schedule shall include reasonable periods of time for the Owner's and Project Architect's review and approval of shop drawings and submissions and for the approval of other authorities having jurisdiction over the Project.

ARTICLE 12 PAYMENTS

12.1 General Requirements

12.1.1 Once each month, the Owner shall make a progress payment to the Construction Manager on the basis of a duly certified and approved estimate of the Work performed during the preceding month under this Contract. To insure the proper performance of the Contract, the Owner will retain five percent (5%) of the amount of each estimate of the completed Work. All materials and Work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Construction Manager from the sole responsibility for the care and protection of materials and Work upon which payment have been made, or the restoration of any damaged Work, or as a waiver

of the right of the Owner to require the fulfillment of all the terms of the Contract. Payments to the Construction Manager

12.1.2 The Owner may, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Construction Manager and action taken thereon by the Owner on account of portions of the Work done by such Subcontractor.

12.1.3 The Owner shall have no obligation to pay any money to a Subcontractor, Supplier or Subsubcontractor or withhold money for the benefit of any Subcontractor, Supplier or Subsubcontractor.

12.1.4 Unless the Construction Manager provides the Owner with a payment bond in the full penal sum of the Guaranteed Maximum Price or such larger amount required by applicable law, payments received by the Construction Manager for Work properly performed by Subcontractors and suppliers shall be held by the Construction Manager for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Construction Manager for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Construction Manager, shall create any fiduciary liability or tort liability on the part of the Construction Manager for breach of trust or shall entitle any person or entity to an award of punitive damages against the Construction Manager for breach of the requirements of this provision.

12.1.5 With each Application for Payment, the Construction Manager shall submit CERTIFIED payrolls, and invoices from subcontractors and suppliers from every tier for the cost of the Work. The Construction Manager, subcontractor or subsubcontractor will provide Unconditional Partial release on previously paid applications, and Conditional release on each current application, and any other evidence required by the Owner and Architect, including monthly reports required for the HCC Small Business Development Plan as required by the Contract Documents.

12.1.6 Each schedule of values submitted with an Application for Payment shall include the originally established value for each work classification line item or subcontract and shall identify any revisions to the costs or cost estimates for each work classification or subcontract. The format and tracking method of the original schedule of values and of all updates shall be subject to approval by the Owner. At all times, the estimated cost of performing the uncompleted and unpaid portion of the Work, including Construction Manager's Construction Phase Fee, shall not exceed the unpaid balance of the Guaranteed Maximum Price, less retainage on Work previously completed.

12.1.7 Retainage as specified in the Uniform General Conditions will be withheld from the Cost of the Work line item amounts approved in an Application for Payment, but shall not be withheld from General Conditions or the Construction Manager's Construction Phase Fee. Retainage will not be withheld from payments for Pre-Construction Phase Services.

12.1.8 Owner is a political subdivision of the State of Texas and materials and services utilized in the construction of the Project may be exempted from state and local taxes. Construction Manager is responsible for taking full advantage of all tax exemptions applicable to the Project. Owner will deduct from the Applications for Payment and from the Request for Final Payment any taxes paid for materials or services that were entitled to tax exemption.

12.1.10 This Agreement is subject to the assessment of liquidated damages against Construction Manager, as set forth in the Contract Documents. Amounts assessed as liquidated damages, and other amounts to which Owner is entitled by way of setoff or recovery, may be deducted from any moneys due Construction Manager.

12.1.11 Owner shall have the right to withhold from payments due Construction Manager such sums as are necessary to protect Owner against any loss or damage which may result from negligence by Construction Manager or any Subcontractor or failure of Construction Manager or any Subcontractor to perform their obligations under this Agreement.

12.1.12 Notwithstanding any other contractual provision to the contrary, Owner shall not be obligated to make any payment, to Construction Manager under any of the following circumstances:

12.1.12.1 Construction Manager persistently fails to perform the Work in accordance with the Contract Documents or is otherwise in material breach or default under this Agreement;

12.1.12.2 The payment request includes services that are not performed in accordance with the Construction Documents; provided, however, Owner shall pay for those services performed in accordance with the Construction Documents;

12.1.12.3 The payment request has insufficient documentation to support the amount of payment requested for Project costs; provided, however, Owner shall pay for allowable Project costs for which there is sufficient documentation;

12.1.12.4 Construction Manager is in violation of the Prevailing Wage requirements or has failed to make payments promptly to Subcontractors or other third parties used in connection with any services or materials for which Owner has made payment to Construction Manager;

12.1.12.5 If Owner, in its good faith judgment, determines that the unpaid balance of the GMP is not sufficient to complete the Work in accordance with the Construction Documents;

12.1.12.6 Construction Manager has persistently failed to complete the Work in accordance with the CPM Schedule requirements or if Owner, in its good faith judgment, determines that the remaining Work will not be completed within the contract time;

12.1.12.7 Construction Manager is insolvent, makes a general assignment for the benefit of its creditors or otherwise seeks protection under the laws and regulations of the bankruptcy courts; or

12.1.12.8 Construction Manager fails to obtain, maintain or renew insurance coverage as required by the Agreement.

12.1.13 No partial payment made by the Owner shall constitute, or be construed to constitute, final acceptance or approval of the work to which the partial payment relates or of the documentation provided in support of the partial payment. No partial payment made by the Owner shall constitute, or be construed to constitute, a release of Construction Manager from any of its obligations or liabilities with respect to the Work.

12.1.14 During the Project and for three (3) years following final payment, Owner shall have the right to verify and audit the details of Construction Manager's billings, certificates, accountings, cost data, and statements, either before or after payment, by (1) inspecting the books and records of Construction Manager during normal business hours; (2) examining any reports with respect to this Project; (3) interviewing Construction Manager's employees; (4) visiting the Project site; and (5) any other reasonable action. Construction Manager's records shall be kept on the basis of generally accepted accounting principles in accordance with cost accounting standards issued by the Federal Office of Management and Budget Cost Accounting Standards Board and organized by each Application for Payment period.

12.2 Pre-Construction Phase Payments

12.2.1 Payments for Pre-Construction Phase Services shall be made monthly based on the percentage completion of the Construction Manager's required services for each stage of development of the Construction Documents and the procurement of Subcontractor bids/proposals in accordance with the following schedule:

Schematic Design Stage	15%
Design Development Stage	20%
GMP Development Stage	20%
Construction Documents Stage	40%
Subcontractor Bid/Proposal Stage	5%

12.2.2 All payment requests for Pre-Construction Phase Services shall be submitted on an Application for Payment and Schedule of Values approved by the Owner.

12.3 Construction Phase Payments

12.3.1 Payments for Construction Phase Services shall be made as provided for in the Uniform General and Conditions and the Owner's Specifications. All payment requests shall be submitted on an Application for Payment with a schedule of values approved by the Owner and includes all required attachments. Payment for approved Change Orders shall be made as part of the Construction Manager's Application for Payment. Failure to submit the required documentation with each Application for Payment Application will cause rejection of the application by the Owner and its return to the Construction Manager.

12.3.2 The Construction Manager's Construction Phase Fee shall be shown as a separate line item on the Schedule of Values. Payment of the Construction Manager's Construction Phase Fee shall be made with each Application for Payment in the same proportion as the percentage completion of the Cost of the Work of the Project.

12.3.3 For General Conditions Costs, Construction Manager's Application for Payment shall include copies of all receipts, invoices with check vouchers or other evidence of payment, payrolls, and any and all other evidence which Owner or its designated representatives shall deem necessary to support the amount requested. This information is subject to audit and payment for these costs is dependent on Owner's receipt of accurate and complete records of all transactions. Owner may reduce the amount requested for General Conditions in any Application for Payment if the Owner, in its good faith judgment, determines that the unpaid balance of the General Conditions line item in the schedule of values is not sufficient to fund the necessary General Conditions costs for the remainder of the Project.

12.3.4 Pay requests for Subcontractor work included in an Application for Payment shall not exceed the percentage of Work

allocated to that Subcontractor for each respective schedule of values work classification which has been actually completed and shall not exceed the total value of the subcontract amount.

12.3.5 Construction Manager's Request for Final Payment shall not be made until all Work is completed and all requirements of the Contract Documents have been satisfied including, without limitation: delivery to Owner of a conditional release by the Construction Manager of all liens and claims arising out of the Work; written consent of surety to release of final payment; and an affidavit that, to the best of Construction Manager information, knowledge and belief, the release includes and covers all materials and services over which Construction Manager has control and for which a lien could be filed and that all known debts and claims arising from the Project have been satisfied.

12.3.6 Owner shall have no obligation to make Final Payment until a complete and final accounting of the Direct Construction Cost has been submitted by Construction Manager and has been audited and verified by Owner or Owner's representatives. If the audit discloses overcharges by the Construction Manager that are (i) proven; and (ii) in excess of one half percent (0.5%) of the Direct Construction Costs, then the reasonable actual cost of the Owner's audit shall be reimbursed to Owner by the Construction Manager within thirty (30) days of submission. All overcharges must be settled or reimbursed to Owner before the Construction Manager is entitled to Final Payment.

12.3.7 Nothing contained herein shall require the Owner to pay the Construction Manager an aggregate amount for Construction Phase Services that exceeds the Guaranteed Maximum Price or to make any payment if, in the Owner's belief, the cost to complete the Work would exceed the Guaranteed Maximum Price less previous payments to Construction Manager. The total amount of all Construction Phase payments to the Construction Manager shall not exceed the actual verified Direct Construction Cost for the Project plus the Construction Manager's Construction Phase Fee.

12.3.8 The acceptance by Construction Manager or Construction Manager's successors of Final Payment under this Agreement shall constitute a full and complete release of Owner from any and all

claims, demands, and causes of action whatsoever that Construction Manager, its Subcontractors, suppliers and consultants or any of their successors or assigns have or may have against Owner arising from the Project or any provision(s) of this Agreement except for those previously made in writing and identified by Construction Manager as unsettled at the time of the Request for Final Payment.

ARTICLE 13 DIRECT CONSTRUCTION COST

Direct Construction Cost means the sum of the amounts that the Construction Manager actually and necessarily incurs constructing the Work in strict compliance with the Construction Documents. Direct Construction Cost includes only the cost categories set forth in this Article and does not include the Pre-Construction Phase Fees or the Construction Phase Fees unless specifically noted.

References in the Uniform General Conditions to adjustments in “cost” or “costs” mean the Direct Construction Cost.

13.1 General Conditions Costs

Construction Manager is entitled to receive payment for the actual cost the of allowable General Conditions items (as permitted by Exhibit C) incurred after receipt of a Notice to Proceed with Construction from the Owner through Substantial Completion of the Project plus thirty (30) calendar days. Items not specifically included below or in Exhibit C are specifically excluded, and will not be allowed as General Conditions costs, unless specifically approved in advance and in writing by the Owner. Construction Manager is not entitled to reimbursement for General Conditions Costs incurred before receipt of the Notice to Proceed. General Conditions costs incurred after Substantial Completion must be approved in advance by the Owner. The General Conditions costs shall be paid in accordance with Article 24.4.1 of this Agreement, and may include the actual costs of the following:

13.1.1 Personnel Costs: The actual Worker Wage Rate for Construction Manager’s hourly employees and the Monthly Salary Rate of Construction Manager’s salaried personnel who are identified

to the Owner in advance and in writing but only for time actually stationed at the Project site with the Owner's prior consent. The Project Manager's Monthly Salary Rate may be included in the General Conditions Costs only when the Project Manager is directly managing the Project. All personnel costs are subject to audit to determine the actual cost of the wages, salaries, and allowable employer contributions incurred by the Construction Manager for services performed at the Project. No bonuses of any kind or nature shall be permitted as a reimbursable General Conditions cost or Cost of the Work.

13.1.2 Non-supervisory Personnel Costs. The actual Worker Wage Rate for Construction Manager's non-supervisory hourly employees employed on the job.

13.1.3 Costs of long-distance telephone calls, telegrams, postage, package delivery and courier service, hardwired telephone service, and reasonable expenses of Construction Manager's jobsite office if incurred at the Project site and directly and solely in support of the Work.

13.1.4 Costs of materials, supplies, temporary facilities, equipment, and hand tools (except those customarily owned by construction workers), supplied to the Project site by Construction Manager, if such items are fully consumed in the construction of the Work. Cost for used items shall be based on fair market value and may include transportation, installation, and minor maintenance costs, and removal costs. If an item is not fully consumed in the construction of the Work, its cost shall be based on actual cost of the item less its fair market salvage value.

13.1.5 Rental charges for temporary facilities, equipment, and hand tools (except those customarily owned by construction workers), supplied to the Project site by Construction Manager. Rental rates may include transportation, installation, and minor maintenance costs, and removal costs. For tools, machinery or construction equipment rented directly from the Construction Manager, the rental rate, including freight and delivery costs and all operating expenses except labor, shall be approved in advance by the Owner and shall be in accordance with the "Rental Rate Blue Book for Construction

Mobilization Costs” published by Primedia, latest edition, but no higher than the prevailing competitive rates for rental of similar equipment in the Project vicinity.

13.1.6 The aggregate rental cost of any item charged to Owner shall not exceed ninety percent (90%) of the purchase price and maintenance cost of the item. If the anticipated aggregate rental cost for an item of equipment exceeds ninety percent (90%) of the purchase and maintenance price, Construction Manager shall purchase the equipment and turn it over to Owner upon final completion of the Work or, at Owner’s option, credit the Owner with the fair market resale value of the item.

13.1.7 [Intentionally Deleted]

13.1.8 Premiums for insurance and bonds furnished directly by the Construction Manager to the Owner, only to the extent directly attributable to this Project. Premiums for subcontractor bonds, subcontractor default insurance or Subguard is not permitted as a Direct Construction Cost unless approved in writing in advance by Owner and only the extent disclosed and included by Construction Manager in the Construction Manager’s sealed proposal for the Project.

13.1.9 Governmental sales and use taxes directly attributable to the General Conditions Items that are not subject to exemption, but only to the proportional extent such non-consumable items are utilized on this Project. Payment for the full amount of sales tax on non-exempt items shall not be permitted, but shall be prorated based on the amount of the depreciation of such item during such item’s use on the Project. Taxes paid on materials or services that were entitled to tax exemption will not be reimbursed by Owner.

13.1.10 Costs for general clean-up, building cleaning, dumpsters, final cleaning, street cleaning, street rental, barricades, temporary construction fencing, pedestrian protection, covered walkways, SWPPP, erosion control (BMP), access roads and construction entrances, security system/watchman, protection, safety administration, and safety material and equipment, hoisting, rental

equipment, repairs, maintenance and fuel, and other items permitted in Exhibit C.

13.1.11 Building Information Modeling Costs for the Construction Phase of the Project, if directed by the Owner to include such costs in the Construction Manager's Proposal.

13.2 Cost of the Work

Construction Manager is entitled to receive payment for the actual cost of the allowable Cost of the Work items incurred after receipt of Owner's written authorization to commence the Construction Phase Work through Final Completion of the Project. Construction Manager is not entitled to reimbursement for Cost of the Work costs incurred before receipt of Owner's written authorization. Any items not included below are specifically excluded, and may not be included as a Cost of the Work, unless agreed to in advance and in writing by the Owner. Cost of the Work includes the following, but specifically excludes any costs already included in the General Conditions costs:

13.2.1 Costs of materials and equipment purchased directly by the Construction Manager and incorporated into or consumed in the performance of the Work, including transportation charges such materials and equipment, and a reasonable and customary allowance for waste and spoilage. Payment for stored materials is subject to the Uniform General Conditions.

13.2.2 Costs of site debris removal and disposal in accordance with all applicable laws and regulations, but not including dumpsters, which shall be included in the General Conditions costs.

13.2.3 Payments made to Subcontractors and their vendors or suppliers by Construction Manager for the subcontract work in accordance with the Construction Documents and the requirements of the subcontracts with the Subcontractors, vendors or suppliers.

13.2.4 Payments earned by Construction Manager for self-performed subcontract work, other than General Conditions work, in accordance with the Construction Documents and the terms of this Agreement and approved by the Owner.

13.2.5 Intellectual property royalties and licenses for items specifically required by the Construction Documents which are, or will be, incorporated into the Work.

13.2.6 Costs for Construction Manager's and its consultants' services to provide Safety coordination and inspections, CPM scheduling, IMPPAC and project expediting, SB Program development and management, quality control, peer reviews, permit expediting, if not otherwise included in the General Conditions, but only if approved in advance and in writing by the Owner.

13.2.7 Costs for surveys, layout, field engineering, building control, and Alta surveys.

13.2.8 Costs for building permits, occupancy permits, and AHJ's inspections fees.

13.2.9 Cost for samples and mock-ups.

13.3 Approved Expenditures from Owner's Construction Contingency

An Owner's Construction Contingency, to be developed, used and managed in accordance with Section 7.7 of this Agreement and the Uniform General Conditions, may be used to cover changes in the Cost of the Work.

13.4 Approved Expenditures from Owner's Project Allowances

Owner's Project Allowances, to be developed, used and managed in accordance with Section 7.6 of this Agreement and the Uniform General Conditions, may be used to cover changes in the Cost of the Work.

ARTICLE 14 CONSTRUCTION PHASE FEE

The Construction Manager's Construction Phase Fee is the maximum amount payable to the Construction Manager for any cost or profit expectation incurred in the performance of the Work that is not specifically

identified as being eligible for reimbursement by the Owner elsewhere in the Agreement. References in the Uniform General Conditions to Construction Manager's "overhead" and "profit" mean the Construction Manager's Construction Phase Fee. The Construction Phase Services Fee shall be calculated on Direct Construction Cost only. The Construction Phase Fee includes, but is not limited to, the following items.

14.1 All profit, profit expectations and costs associated with profit sharing plans such as personnel bonuses, incentives, and rewards; company stock options; or any other like expenses of the Construction Manager

14.2 Salaries of Construction Manager's officers, project manager(s), estimators, schedulers and all other employees not performing services directly related to the Project.

14.3 Any and all overhead, labor or general expenses of any kind unless included in General Conditions or General Requirements.

14.4 Any financial costs incurred by the Construction Manager including the cost of capital or interest on capital, regardless of whether it is related to the Project, and costs associated with construction warranty reserves.

14.5 Any legal, accounting, professional or other similar costs incurred by the Construction Manager unrelated to the Project.

14.6 Any Federal and/or State income and franchise taxes paid by Construction Manager. Any fines, penalties, sanctions or other levies assessed by any governmental body against Construction Manager unrelated to the Project.

14.7 Any cost arising out of a breach of this Contract or the fault, failure or negligence of Construction Manager, its Subcontractors, or any person or entity for whom they may be liable. These costs include, without limitation: costs to remedy defective, rejected, or nonconforming work, materials or equipment; costs due to failure to coordinate the Work or meet CPM Schedule milestones; warranty reserve funds, costs arising from Construction Manager's contractual indemnification obligations; and liquidated or actual damages imposed by Owner for failure to complete the Work within the Contract Time.

14.8 The cost of any and all insurance deductibles payable by the Construction Manager (as set forth in Exhibit H), and costs due to the failure of Construction Manager or any Subcontractor to procure and maintain insurance as and to the extent required by the Contract Documents.

14.9 Any subcontractor bonding, subcontractor default insurance or Subguard not approved in advance in writing by the Owner as an allowable General Conditions cost and disclosed by Construction Manager in the Construction Manager's sealed proposal for the Project.

14.10 Any and all costs that would cause the Guaranteed Maximum Price, minus the amounts allocated in the GMP for Owner's Construction Contingency and Owner's Project Allowances, to be exceeded.

ARTICLE 15 CONTRACT SAVINGS, ALLOWANCES, REBATES & REFUNDS

15.1 If the allowable, final, verified, audited amount of the costs of the Cost of the Work, General Conditions, Owner's Construction Contingency, and Owner's Project Allowances are less than the amount established for each of those line items in originally approved Guaranteed Maximum Price Proposal, the entire difference shall be credited to the Owner as savings and the final contract amount shall be adjusted accordingly, including Construction Manager's associated Construction Phase Fees. When the Construction Manager has awarded all subcontracts following the subcontractor procurement/buyout phase, the Owner may recognize any savings achieved to that point by issuing a deductive change order for the entire saved amount at that time.

15.2 Items to be provided for through Owner's Project Allowances shall be clearly identified in the Construction Documents and the Guaranteed Maximum Price proposal. The Cost of the Work included in the Allowances shall be determined in accordance with the Uniform General Conditions. Any claim by the Construction Manager for an adjustment to an Allowance amount included in the Guaranteed Maximum Price based on the cost of Allowance work shall be made within a reasonable time after the issuance of the Construction Documents for the Allowance items. The Construction Manager shall not be entitled to any increase in its Construction Phase Fee

for increases to Allowance amounts that were initially based on estimates provided by the Construction Manager.

15.3 The Owner shall be entitled to deduct amounts for the following items from any Application for Payment or from the Request for Final Payment submitted by the Construction Manager:

15.3.1 The fair market value of all tools, surplus materials, construction equipment, and temporary structures that were charged to the Work (other than rental items) but were not consumed during construction or retained by the Owner. Upon completion of the Work or when no longer required, Construction Manager shall either credit the Owner for the fair market value (as approved by the Owner) for all surplus tools, construction equipment and materials retained by the Construction Manager or, at Owner's option, use commercially reasonable efforts to sell the surplus tools, construction equipment and materials for the highest available price and credit the proceeds to the Owner's account.

15.3.2 Discounts earned by the Construction Manager through advance or prompt payments funded by the Owner. The Construction Manager shall obtain all possible trade and time discounts on bills for material furnished, and shall pay bills within the highest discount periods. The Construction Manager shall purchase materials for the Project in quantities that provide the most advantageous prices to the Owner.

15.3.3 Rebates, discounts, or commissions obtained by the Construction Manager from material suppliers or Subcontractors, together with all other refunds, returns, or credits received for materials, bond premiums, insurance and sales taxes.

15.3.4 Deposits made by Owner and forfeited due to the fault of the Construction Manager.

15.3.5 Balances remaining on any Owner's Project Allowances, the Owner's Construction Contingency, or any other identified contract savings, including a credit for any corresponding Construction Phase Fee that CM calculated on such funds in the approved GMP Proposal.

15.4 Owner shall be entitled to recognize and recover 100% of any savings identified and agreed to by Construction Manager, after the project is 85% complete, by cost review or audit at any time before or after Final Payment.

ARTICLE 16 PRE-EXISTING CONDITIONS & DESIGN ERRORS AND OMISSIONS

16.1 The Construction Manager acknowledges that it has been provided unrestricted access to the existing improvements and conditions on the Project site and that it has thoroughly investigated those conditions. Construction Manager's investigation was instrumental in preparing its Guaranteed Maximum Price Proposal for the Work. Construction Manager shall not make or be entitled to any claim for any adjustment to the Contract Time or the Contract Sum for Pre-Construction Phase Services or for Construction Phase Services arising from Project conditions that Construction Manager discovered or, in the exercise of reasonable care, should have discovered in Construction Manager's investigation.

16.2 The Construction Manager acknowledges that as part of its Pre-Construction Phase Services it shall participate in the development and review of the Construction Documents. Construction Manager's participation in the design development process will be instrumental in preparing its Guaranteed Maximum Price Proposal for the Work. Before submitting its Guaranteed Maximum Price Proposal, the Construction Manager shall review the drawings, specifications and other Construction Documents and notify the Owner of any errors, omissions or discrepancies in the documents of which it is aware. Construction Manager shall not make or be entitled to any claim for any adjustment to the Contract Time or the Contract Sum, Change Orders or Contingency Expenditure Authorizations for errors or omissions in the Construction Documents that Construction Manager discovered or, in the exercise of reasonable care, should have discovered in Construction Manager's Pre-Construction Phase design review process that Construction Manager did not bring to the attention of the Owner and the Project Architect in a timely manner.

ARTICLE 17 BONDS AND INSURANCE

17.1 Upon acceptance by the Owner of a Guaranteed Maximum Price Proposal, Construction Manager shall provide performance and payment bonds in accordance with the forms attached hereto as Exhibit E and in accordance with the requirements set forth in the Uniform General Conditions. The penal sum of the payment and performance bonds shall be equal to the Guaranteed Maximum Price. If construction is phased or staged with different Guaranteed Maximum Prices established at different times, the penal sum of the bonds shall be increased at the start of each stage or phase based on the cumulative total value of all Guaranteed Maximum Prices in effect.

17.2 The Construction Manager will be required to provide the insurance coverages set forth in Exhibit H, and as required by the Uniform General Conditions.

17.3 The Construction Manager shall not commence work under the Agreement until it has obtained all required insurance and until evidence of the required insurance has been reviewed and approved by the Owner. Owner's review of the insurance shall not relieve nor decrease the liability of the Construction Manager.

17.4 Construction Manager shall include required insurance information in trade packages and indicate on bid/proposal forms the insurance that bidders/proposers are to include in their base proposals.

17.5 The Construction Manager shall not cause or allow any of its required insurance to be canceled or permit any insurance to lapse during the term of the Agreement or as required in the Agreement. If the Construction Manager fails to obtain, maintain or renew any insurance required by the Agreement, the Owner may obtain insurance coverage directly and recover the cost of that insurance from the Construction Manager.

17.6 The Owner reserves the right to review the insurance requirements set forth in this Article during the effective period of the Agreement and to make reasonable adjustments to the insurance coverages and their limits when deemed necessary and prudent by the Owner based upon changes in statutory law, court decisions, or the claims history of the industry as well as the Construction Manager.

17.7 The Owner shall be entitled, upon request, and without expense, to receive complete copies of the policies with all endorsements and may make any reasonable requests for deletion, or revision or modification of particular policy terms, conditions, limitations, or exclusions, except where policy provisions are established by law or regulation binding upon the Parties or the underwriter of any of such policies. The cost of builder's risk deductibles shall be paid by the owner. Damages caused by the Construction Manager's negligence and not covered by insurance shall be paid by the Construction Manager.

17.8 The cost of premiums for any additional insurance coverage desired by the Construction Manager in excess of that required by this Agreement, the Uniform General Conditions, or the Contract Documents shall be borne solely by the Construction Manager out of its fees, and not included in the GMP Proposal as a Direct Construction Cost.

ARTICLE 18 DISPUTE RESOLUTION

All disputes against the Owner that arise from this Agreement or the Project shall be resolved in accordance with the procedures and limitations of Texas Government Code Chapter 2260 and the Uniform General Conditions. The Owner designates the Chief Administration Officer as its officer for examining, negotiating and resolving claims and counterclaims under Chapter 2260.

ARTICLE 19 PROJECT TERMINATION AND SUSPENSION

19.1 This Agreement may be terminated during the Pre-Construction Phase by either party upon fifteen (15) days written notice should the other party fail substantially to perform in accordance with its terms through no fault of the party initiating the termination and breach is not cured or an acceptable plan to cure the breach is not established within the fifteen (15) day period.

19.2 This Agreement may be terminated by the Owner during the Pre-Construction Phase upon at least three (3) days written notice to the Construction Manager in the event that the Project is to be temporarily or permanently abandoned.

19.3 This Agreement may be terminated by the Owner at the GMP Proposal stage upon at least three (3) days written notice to the Construction Manager in the event that the parties are unable or unwilling to agree on a GMP Proposal.

19.4 In the event of termination that is not the fault of the Construction Manager, the Construction Manager shall be entitled to compensation for all services performed to the termination date provided, however, Construction Manager has delivered to Owner such statements, accounts, reports and other materials as required together with all reports, documents and other materials prepared by Construction Manager prior to termination. Upon such payment, Owner shall have no further obligation to the Construction Manager.

19.5 Termination of this Agreement shall not relieve Construction Manager or any of its employees, subcontractors, or consultants of liability for violations of this Agreement or for any act or omission, or negligence, of Construction Manager related to the Project. In the event of a termination, Construction Manager hereby consents to employment by Owner of a substitute Construction Manager to complete the services under this Agreement.

19.6 In the event of termination, Owner shall have the right to use any documents or other materials prepared for the Project and the ideas and designs they contain for the completion of the services described by this Agreement, for completion of the Project, or for any other purpose.

19.7 If the Project is suspended or abandoned in whole or in part for more than ninety (90) consecutive days during the Pre-Construction Phase, the Construction Manager shall be compensated for all services performed prior to receipt of written notice from the Owner of such suspension or abandonment. If the Project is resumed after being suspended for more than ninety (90) consecutive days, the Construction Manager's compensation for Pre-Construction Services shall be equitably adjusted if, in the Owner's reasonable opinion, such adjustment is warranted.

ARTICLE 20 INDEMNITY

20.1 SEE THE UNIFORM GENERAL AND SUPPLEMENTAL CONDITIONS FOR CONSTRUCTION MANAGER'S GENERAL INDEMNIFICATION OBLIGATIONS.

20.2 CONSTRUCTION MANAGER SHALL PROTECT AND INDEMNIFY THE OWNER FROM AND AGAINST ALL CLAIMS, DAMAGES, JUDGMENTS AND LOSSES ARISING FROM INFRINGEMENT OR ALLEGED INFRINGEMENT OF ANY UNITED STATES PATENT, OR COPYRIGHT THAT ARISE OUT OF ANY OF THE WORK PERFORMED BY THE CONSTRUCTION MANAGER OR THE USE BY CONSTRUCTION MANAGER, OR BY OWNER AT THE DIRECTION OF CONSTRUCTION MANAGER, OF ANY ARTICLE OR MATERIAL. UPON BECOMING AWARE OF A SUIT OR THREAT OF SUIT FOR PATENT OR COPYRIGHT INFRINGEMENT, OWNER SHALL PROMPTLY NOTIFY CONSTRUCTION MANAGER AND CONSTRUCTION MANAGER SHALL BE GIVEN FULL OPPORTUNITY TO NEGOTIATE A SETTLEMENT. CONSTRUCTION MANAGER DOES NOT WARRANT AGAINST INFRINGEMENT BY REASON OF OWNER'S OR PROJECT ARCHITECT'S DESIGN OF ARTICLES OR THEIR USE IN COMBINATION WITH OTHER MATERIALS OR IN THE OPERATION OF ANY PROCESS. IN THE EVENT OF LITIGATION, OWNER AGREES TO COOPERATE REASONABLY WITH CONSTRUCTION MANAGER AND PARTIES SHALL BE ENTITLED, IN CONNECTION WITH ANY SUCH LITIGATION, TO BE REPRESENTED BY COUNSEL AT THEIR OWN EXPENSE.

20.3 The indemnities contained herein shall survive the termination of this Agreement for any reason whatsoever.

ARTICLE 21 SPECIAL WARRANTIES

21.1 Notwithstanding anything to the contrary contained in this Agreement, Owner and Construction Manager agree and acknowledge that Owner is entering into this Agreement in reliance on Construction Manager's represented expertise and ability to provide construction management services. Construction Manager agrees to use its best efforts, skill, judgment, and abilities to perform its obligations and to further the interests of Owner in accordance with Owner's requirements and procedures.

21.2 The Construction Manager represents, and agrees that it will perform its services in accordance with the usual and customary standards of Construction Manager's profession or business and in compliance with all applicable national, federal, state, municipal, laws, regulations, codes, ordinances, orders and with those of any other body having jurisdiction over the Project. Construction Manager agrees to bear the full cost of correcting Construction Manager's negligent or improper work and services, those of

its consultants, and any harm caused by the negligent or improper work or services.

21.3 The Construction Manager's duties shall not be diminished by any approval by Owner nor shall the Construction Manager be released from any liability by any approval by Owner, it being understood that the Owner is ultimately relying upon the Construction Manager's skill and knowledge in performing the services required hereunder.

21.4 The Construction Manager represents and agrees that all persons connected with the Construction Manager directly in charge of its services are duly registered and/or licensed under the laws, rules and regulations of any authority having jurisdiction over the Project if registration is required.

21.5 The Construction Manager represents and agrees to advise Owner of anything of any nature in any drawings, specifications, plans, sketches, instructions, information, requirements, procedures, and other data supplied to the Construction Manager (by the Owner or any other party) that is, in its opinion, unsuitable, improper, or inaccurate for the purposes for which the document or data is furnished.

21.6 The Construction Manager represents and agrees to perform its services under this Agreement in an expeditious and economical manner consistent with good business practices and the interests of Owner.

21.7 Construction Manager represents and agrees that there are no obligations, commitments, or impediments of any kind that will limit or prevent performance of its obligations under this Agreement.

21.8 Construction Manager represents and agrees that the individual executing this Agreement on behalf of Construction Manager has been duly authorized to act for and to bind Construction Manager to its terms.

21.9 Except for the obligation of Owner to pay Construction Manager certain fees, costs, and expenses pursuant to the terms of this Agreement, Owner shall have no liability to Construction Manager or to anyone claiming through or under Construction Manager by reason of the execution or performance of this Agreement. Notwithstanding any obligation or liability of Owner to Construction Manager, no present or future partner or affiliate of Owner or any agent, officer, director, employee, or regent of Owner, Houston

Community College System, or of the components comprising Houston Community College System, or anyone claiming under Owner has or shall have any personal liability to Construction Manager or to anyone claiming through or under Construction Manager by reason of the execution or performance of this Agreement.

ARTICLE 22 CERTIFICATION OF NO ASBESTOS CONTAINING MATERIALS OR WORK

22.1 The Construction Manager shall provide a certification statement, included with each materials submittal, stating that no asbestos containing materials or work is included within the scope of the proposed submittal.

22.2 The Construction Manager shall ensure that Texas Department of Health licensed individuals, consultants or companies are used for any required asbestos work including asbestos inspection, asbestos abatement plans/specifications, asbestos abatement, asbestos project management and third-party asbestos monitoring.

22.3 The Construction Manager shall provide at Substantial Completion, a notarized affidavit to the Owner and the Architect stating that no asbestos containing materials or work was provided, installed, furnished or added to the Project.

22.4 The Construction Manager shall take whatever measures he deems necessary to insure that all employees, suppliers, fabricators, materialmen, subcontractors, or their assigns, comply with this requirement.

22.5 All materials used on this Project shall be certified as non Asbestos Containing Building Materials (ACBM). The Construction Manager shall insure compliance with the following acts from all of his subcontractors and assigns:

22.5.1 Asbestos Hazard Emergency Response Act (AHERA—40 CFR 763-99 (7));

22.5.2 National Emission Standards for Hazardous Air Pollutants (NESHAP—EPA 40 CFR 61, National Emission Standard for Asbestos;

22.5.3 Texas Asbestos Health Protection Rules (TAHRP—Tex. Admin. Code Title 25, Part 1, Ch. 295C, Asbestos Health Protection

22.6 Every subcontractor shall provide a notarized statement that no ACBM has been used, provided, or left on this Project.

22.7 The Construction Manager shall provide, in hard copy and electronic form, all necessary material safety data sheets (MSDS) of all products used in the construction of the Project to the Texas Department of Health licensed inspector or Project Architect or Engineer who will compile the information from the MSDS and, finding no asbestos in any of the product, make a certification statement.

22.8 At Final Completion the Construction Manager shall provide a notarized certification statement per TAC Title 25 Part 1, Ch. 295.34, par. c.1 that no ACBM was used during construction of the Project.

ARTICLE 23 MISCELLANEOUS PROVISIONS

23.1 Assignment. This Agreement is a personal service contract for the services of Construction Manager, and Construction Manager's interest in this Agreement, duties hereunder and/or fees due hereunder may not be assigned or delegated to a third party.

23.2 Records of expenses pertaining to Additional Services and services performed on the basis of a Worker Wage Rate or Monthly Salary Rate shall be kept on the basis of generally accepted accounting principles and in accordance with cost accounting standards promulgated by the Federal Office of Management and Budget Cost Accounting Standards Board and shall be available for audit by the Owner or the Owner's authorized representative on reasonable notice.

23.3 *Texas Family Code* Child Support Certification. Pursuant to Section 231.006, *Texas Family Code*, Construction Manager certifies that it is not ineligible to receive the award of or payments under this Agreement and acknowledges that this Agreement may be terminated and payment may be withheld if this certification is inaccurate.

23.4 Eligibility Certification. Pursuant to Section 2155.004, *Texas Government Code*, Construction Manager certifies that the individual or business entity named in this Agreement is not ineligible to receive the award of or payments under this Agreement and acknowledges that this Agreement may be terminated and payment withheld if this certification is inaccurate.

23.5 Franchise Tax Certification. A corporate or limited liability company Construction Manager certifies that it is not currently delinquent in the payment of any Franchise Taxes due under Chapter 171 of the *Texas Tax Code*, or that the corporation or limited liability company is exempt from the payment of such taxes, or that the corporation or limited liability company is an out-of-state corporation or limited liability company that is not subject to the Texas Franchise Tax, whichever is applicable.

23.6 Payment of Debt or Delinquency to the State. Pursuant to Sections 2107.008 and 2252.903, *Texas Government Code*, Construction Manager agrees that any payments owing to Construction Manager under this Agreement may be applied directly toward any debt or delinquency that Construction Manager owes the State of Texas or any agency of the State of Texas regardless of when it arises, until such debt or delinquency is paid in full.

23.7 Entire Agreement; Modifications. This Agreement supersedes all prior agreements, written or oral, between Construction Manager and Owner and shall constitute the entire Agreement and understanding between the parties with respect to the Project. This Agreement and each of its provisions shall be binding upon the parties and may not be waived, modified, amended or altered except by a writing signed by Construction Manager and Owner.

23.8 Captions. The captions of paragraphs in this Agreement are for convenience only and shall not be considered or referred to in resolving questions of interpretation or construction.

23.9 Governing Law and Venue. This Agreement and all of the rights and obligations of the parties and all of the terms and conditions shall be construed, interpreted and applied in accordance with and governed by and enforced under the laws of the State of Texas without reference to its conflicts of law provisions. The Houston, Harris County shall be the sole

place of venue for any legal action arising from or related to this Agreement or the Project in which the Owner is a party.

23.10 Waivers. No delay or omission by either party in exercising any right or power arising from non-compliance or failure of performance by the other party with any of the provisions of this Agreement shall impair or constitute a waiver of any such right or power. A waiver by either party of any covenant or condition of this Agreement shall not be construed as a waiver of any subsequent breach of that or of any other covenant or condition of the Agreement.

23.11 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the parties and their respective permitted assigns and successors.

23.12 Appointment. Owner hereby expressly reserves the right from time to time to designate by notice to Construction Manager a representative(s) to act partially or wholly for Owner in connection with the performance of Owner's obligations. Construction Manager shall act only upon instructions from the designated representative(s) unless otherwise specifically notified to the contrary.

23.13 Records. Records of Construction Manager's costs, reimbursable expenses pertaining to the Project and payments shall be available to Owner or its authorized representative during business hours and shall be retained for four (4) years after final Payment or abandonment of the Project, unless Owner otherwise instructs Construction Manager in writing.

23.14 Notices. All notices, consents, approvals, demands, requests or other communications relied on by the parties shall be in writing. Written notice shall be deemed to have been given when delivered in person to the designated representative of the Construction Manager or Owner for whom it is intended; or sent by U. S. Mail to the last known business address of the designated representative; or transmitted by fax machine to the last known business fax number of the designated representative. Mail notices are deemed effective upon receipt or on the third business day after the date of mailing, whichever is sooner. Fax notices are deemed effective the next business day after faxing.

23.15 Severability. Should any term or provision of this Agreement be held invalid or unenforceable in any respect, the remaining terms and provisions shall not be affected and this Agreement shall be construed as if the invalid or unenforceable term or provision had never been included.

23.16 Illegal Dumping. The Construction Manager shall ensure that it and all of its Subcontractors and assigns prevent illegal dumping of litter in accordance with Title 5, *Texas Health and Safety Code*, Chapter 365.

ARTICLE 24 COMPENSATION

24.1 Owner's Construction Budget

The Owner's Construction Budget for the Project at the time this Agreement is executed is:

[INSERT HERE]

24.2 Pre-Construction Phase Fee

24.2.1 For Pre-Construction Phase Services, Owner shall pay Construction Manager a Pre-Construction Phase Fee in the total stipulated amount of

_____ Dollars and _____ cents (\$ _____)

24.3 Construction Phase Fee

24.3.1 For Construction Phase Services, Owner shall pay Construction Manager a stipulated Construction Phase Fee equal to **INSERT HERE**] percent (%) of the Owner's Construction Budget for the Project.

24.3.2 Based on the Owner's Construction Budget established at the time of this Agreement, the Construction Phase Fee would be the total stipulated amount of:

24.3.3 If the Owner agrees to an increase in the Guaranteed Maximum Price during the Construction Phase, the Construction Phase Fee shall be equitably adjusted by applying the percentage established in paragraph 24.3.1 to the amount of the increase in the GMP.

24.3.4 The percentage rate established in paragraph 24.3.1 of this Agreement for calculation of the Construction Phase Fee cannot be increased except with the express written approval of the Chief Administrative Officer, Office of Administrative Services.

24.4 Limitation on General Condition Costs

24.4.1 The maximum allowable amount of General Conditions Costs payable to the Construction Manager during the Construction Phase of the Project shall not exceed **[INSERT HERE]** percent (%) of the Guaranteed Maximum Price for the Project.

24.4.2 Based on the Owner's Construction Budget established at the time of this Agreement, the maximum allowable amount of General Conditions Costs would be the total amount of: **[INSERT HERE]**

24.4.3 If the Owner agrees to an increase in the Guaranteed Maximum Price during the Construction Phase the maximum allowable amount of General Conditions Costs shall be equitably adjusted by applying the percentage established in paragraph 24.4.1 to the amount of the increase in the GMP.

24.4.4 The percentage rate established in paragraph 24.4.1 of this Agreement for calculation of the maximum allowable amount of General Conditions Costs cannot be increased except with the express written approval of the Chief Administration Officer, Office of Administrative Services.

ARTICLE 25 OTHER TERMS AND CONDITIONS

25.1 Time of Completion

25.1.1 The anticipated date for achieving Substantial Completion of the Project at the time this Agreement was executed is:

The Construction Phase shall be deemed to commence on the date specified in a Notice to Proceed issued by Owner after approval of the Guaranteed Maximum Price Proposal.

25.1.2 The Construction Manager shall achieve Substantial Completion of the Work and Final Completion of the Work on or before the substantial completion deadline agreed to in the Guaranteed Maximum Price Proposal, subject to time extensions granted by Change Order.

25.1.3 **THE TIMES SET FORTH FOR COMPLETION OF THE WORK IN THE NOTICE TO PROCEED WITH CONSTRUCTION AND THE GUARANTEED MAXIMUM PRICE PROPOSAL ARE AN ESSENTIAL ELEMENT OF THE AGREEMENT.** The Owner may elect, at its option, to stage or “fast-track” portions of the work. The Owner shall issue a separate Notice to Proceed or Change Order for each such stage and each such stage shall have a separate substantial completion date and a separate liquidated damages amount.

25.2 Liquidated Damages

25.2.1 For each consecutive calendar day after the Substantial Completion Date that the Work is not substantially completed, the Owner may deduct the amount of:

One Thousand Dollars (\$1,000.000) per day.

from any money due or that becomes due the Construction Manager, not as a penalty but as liquidated damages representing the parties' estimate at the time of contract execution of the damages that the Owner will sustain for late completion.

25.2.2 The parties stipulate and agree that calculating Owner's actual damages for late completion of the Project would be impractical,

25.5.1 The Owner's Designated Representative authorized to act in the Owner's behalf with respect to the Project is:

3100 Main Street
Houston, TX 77002
Fax No. (713) 718-51689

25.5.2 The Construction Manager's designated representative authorized to act on the Construction Manager's behalf and bind the Construction Manager with respect to the Project is:

25.5.3 The parties may make reasonable changes in their designated representatives upon advance written notice to the other party and in accordance with Paragraph 4.8.

25.6 Construction Document Sets

The Project Architect shall coordinate the printing, binding and distribution of the initial issuance of all construction documents to all Subcontractor proposers requesting documents in order to provide proposals to the Construction Manager. One (1) set will be furnished at the expense of the Owner. The Construction Manager shall utilize all construction documents returned to the Project Architect from the Subcontractor proposers.

25.7 List of Exhibits

The following exhibits are fully incorporated into this Agreement by reference:

Exhibit A	Uniform General Conditions
Exhibit B	Owner's Construction Project Division 1 Specifications
Exhibit C	Allowable General Conditions Line Items
Exhibit D	Guaranteed Maximum Price Proposal Form
Exhibit E	Payment and Performance Bond Forms
Exhibit F	Prevailing Wage Rate Schedule
Exhibit G	Constructability Implementation Program for Pre-Construction Services
Exhibit H	Schedule of Required Insurance Coverages
Exhibit I	Policy on Utilization of SB Program

BY SIGNING BELOW, the Parties have executed and bound themselves to this Agreement as of the day and year first above written.

ATTEST:
(Seal)

[CONSTRUCTION MANAGER]

By: _____
(original signature)

(name and title typed)

By: _____

Date: _____

CONTENT APPROVED:

Office of Administrative Services
Houston Community College System

HOUSTON COMMUNITY COLLEGE
SYSTEM
(Owner)

By: _____
(original signature)
Winston Dahse
Chief Administrative Officer
Office of Administrative
Services

By: _____
(original signature)
Rene S. Byas
Acting Chancellor
Date: _____

**EXHIBITS TO
AGREEMENT BETWEEN OWNER
AND CONSTRUCTION MANAGER-AT-RISK**

TABLE OF CONTENTS

EXHIBIT	TITLE	PAGES
Exhibit A	Uniform General Conditions	A-1 to A-45
Exhibit B	Owner's Construction Project Division 1 Specifications	B-1 to B-65
Exhibit C	Allowable General Conditions Line Items	C-1
Exhibit D	Guaranteed Maximum Price Proposal Form	D-1 to D-7
Exhibit E	Payment and Performance Bond Forms	E-1 to E-5
Exhibit F	Prevailing Wage Rate Schedule	F-1 to F-18
Exhibit G	Constructability Implementation Program for Pre-Construction Services	G-1 to G-2
Exhibit H	Schedule of Required Insurance Coverages	H-1 to H-3
Exhibit I	Policy on Utilization of SB Program	I-1 to I-3

EXHIBIT A

Uniform General Conditions for Houston Community College Building Construction Contracts

Article 1. Definitions	2
Article 2. Laws Governing Construction	4
Article 3. General Responsibilities of Owner & CM at Risk	6
Article 4. Small Business Subcontracting Plan	10
Article 5. Bonds & Insurance	11
Article 6. Contract Documents	17
Article 7. Construction Safety	19
Article 8. Quality Control	20
Article 9. Project Scheduling Requirements	24
Article 10. Payments	28
Article 11. Changes	32
Article 12. Project Completion and Acceptance	37
Article 13. Warranty and Guarantee	39
Article 14. Suspension and Termination	42
Article 15. Dispute Resolution	44
Article 16. Miscellaneous	45

Uniform General Conditions for Houston Community College Building Construction Contracts

Article 1. Definitions

Unless the context clearly requires another meaning, the following terms have the meaning assigned herein.

1.1 **Architect/Engineer (A/E)** means a person registered as an architect pursuant to Tex. Occ. Code Ann., Chapter 1051, as a landscape architect pursuant to Tex. Occ. Code Ann., Chapter 1052, a person licensed as a professional engineer pursuant Tex. Occ. Code Ann., Chapter 1001 and/or a firm employed by Owner or Design-Build CM-at-Risk to provide professional architectural or engineering services and to exercise overall responsibility for the design of a Project or a significant portion thereof, and to perform the contract administration responsibilities set forth in the Contract.

1.2 **Change Order** means a written modification of the Contract between the Owner and CM-at-Risk, signed by the Owner, the CM-at-Risk and the Architect/Engineer.

1.3 **Change Order Proposal** means a CM-at-Risk -generated document in response to a Change Order Request (COR).

1.4 **Change Order Request (COR)** means a document which informs the CM-at-Risk of a proposed change in the Work, and appropriately describes or otherwise documents such change.

1.5 **Close-out Documents** means the product brochures, product/equipment maintenance and operations instructions, manuals, and other documents/warranties, as-built record documents, affidavit of payment, release of lien and claim, and as may be further defined, identified, and required by the Contract Documents.

1.6 **Contingency Expenditure Authorization (CEA)** means a written document executed by Owner authorizing the expenditure of Owner's Construction Contingency to fund minor changes in the work and unforeseen conditions. Requests for expenditures from the Owner's Construction Contingency shall be submitted as a **Contingency Expenditure Proposal (CEP)**.

1.7 **Contract** means the entire agreement between the Owner and the CM-at-Risk, including all of the Contract Documents.

1.8 **Contract Date** is the date when the CM-at-Risk between the Owner and the CM-at-Risk becomes effective.

1.9 **Contract Documents** means those documents identified as a component of the agreement (contract) between the Owner and the CM-at-Risk. These may include, but are not limited to, Drawings, Specifications, General, Supplementary and Special Conditions, all pre-bid and/or pre-proposal addenda.

1.10 **CM-at-Risk** means the individual, corporation, company, partnership, firm or other entity contracted to perform the Work, regardless of the type of construction contract used, so that the term as used herein includes a Construction Manager-at-Risk or a Design-Build firm as well as a General or Prime CM-at-Risk. The Contract Documents refer to CM-at-Risk as if singular in number.

1.11 **Contract Sum** means the total compensation payable to the CM-at-Risk for completion of the Work in accordance with the terms of the Contract.

- 1.12 **Contract Time** means the period between the Start Date identified in the Notice to Proceed and the Substantial Completion date identified in the Notice to Proceed or as subsequently amended by Change Order.
- 1.13 **Date of Commencement** means the date designated in the Notice to Proceed for the CM-at-Risk to commence the Work.
- 1.14 **Day** means a calendar day, unless otherwise specifically stipulated.
- 1.15 **Drawings** mean that product of the Architect/Engineer which graphically depicts the Work.
- 1.16 **Final Completion** means the date determined and certified by the Architect/Engineer and Owner on which the Work is fully and satisfactorily complete in accordance with the Contract.
- 1.17 **Owner** means Houston Community College, the State of Texas and any Agency of the State of Texas, acting through the responsible entity of Houston Community College identified in the Contract as the Owner.
- 1.18 **Owner's Construction Contingency** means a contingency fund created by Owner as part of the Contract Sum to cover the cost of unforeseen conditions that that develop during the Construction Phase which the Construction Manager could not have anticipated or discovered through the exercise of reasonable care during Pre-Construction Phase.
- 1.19 **Owner's Designated Representative (ODR)** means the individual assigned by the Owner to act on its behalf, and to undertake certain activities as specifically outlined in the Contract. The ODR is the only party authorized to direct changes to the scope, cost, or time of the Contract.
- 1.20 **Owner's Project Allowance** means amounts designated by the Owner to use for items which require further development of the Drawings and Specifications by the Architect following adoption of the Guaranteed Maximum Price. Requests for expenditures from the Owner's Project Allowances must be submitted as an Allowance Expenditure Proposal (**AEP**).
- 1.21 **Project** means all activities necessary for realization of the Work. This includes design, contract award(s), execution of the Work itself, and fulfillment of all contractual and warranty obligations.
- 1.22 **Sample** means representative physical examples of materials, equipment or workmanship, used to confirm compliance with requirements and/or to establish standards for use in execution of the Work.
- 1.23 **Schedule of Values** means the detailed breakdown of the cost of the materials, labor and equipment necessary to accomplish the Work as described in the Contract Documents, submitted by CM-at-Risk for approval by Owner and Architect/Engineer.
- 1.24 **Shop Drawings** means the drawings, diagrams, illustrations, schedules, performance charts, brochures and other data prepared by the CM-at-Risk or its agents, which detail a portion of the Work.
- 1.25 **Site** means the geographical area of the location of the Work.
- 1.26 **Special Conditions** means the documents containing terms and conditions, which may be unique to the Project. Special Conditions are a part of the Contract Documents and have precedence over the Uniform General Conditions.
- 1.27 **Specifications** mean the written product of the Architect/Engineer that establishes the quality and/or performance of products utilized in the Work and processes to be used, including testing and verification for producing the Work.

1.28 **Subcontractor** means a business entity that enters into an agreement with the CM-at-Risk to perform part of the Work or to provide services, materials or equipment for use in the Work.

1.29 **Substantial Completion** means the date determined and certified by the CM-at-Risk, Architect/Engineer and Owner when the Work or a designated portion thereof is sufficiently complete, in accordance with the Contract, so as to be operational and fit for the use intended.

1.30 **Supplementary General Conditions** mean procedures and requirements that modify the Uniform General Conditions. Supplementary General Conditions, when used, have precedence over the Uniform General Conditions.

1.31 **Unit Price Work** means Work or a portion of the Work paid for based on incremental units of measurement.

1.32 **Unilateral Change Order (ULCO)** means a Change Order issued by the Owner without the agreement of the CM-at-Risk.

1.33 **Work** means the administration, procurement, materials, equipment, construction and all services necessary for the CM-at-Risk, and/or its agents, to fulfill the CM-at-Risk's obligations under the Contract.

Article 2. Laws Governing Construction

2.1 **Environmental Regulations.** The CM-at-Risk shall conduct activities in compliance with applicable laws and regulations and other requirements of the Contract relating to the environment, and its protection at all times. Unless otherwise specifically determined, the Owner is responsible for obtaining and maintaining permits related to stormwater run-off. The CM-at-Risk shall conduct operations consistent with stormwater run-off permit conditions. CM-at-Risk is responsible for all items it brings to site, including hazardous materials, and all such items brought to the site by its Subcontractors and suppliers, or by other entities subject to direction of the CM-at-Risk. The CM-at-Risk shall not incorporate hazardous materials into the Work without prior approval of Owner, and shall provide an affidavit attesting to such in association with request for Substantial Completion inspection.

2.2 **Wage Rates.** The CM-at-Risk shall not pay less than the wage scale of the various classes of labor as shown on the "Prevailing Wage Schedule" provided by the Owner. The specified wage rates are minimum rates only. The Owner is not bound to pay any claims for additional compensation made by any CM-at-Risk because the CM-at-Risk pays wages in excess of the applicable minimum rate contained in the Contract. The "Prevailing Wage Schedule" is not a representation that qualified labor adequate to perform the Work is available locally at the prevailing wage rates.

2.2.1 **Notification to Workers.** The CM-at-Risk shall notify each worker, in writing, of the following as they commence work on the contract: the worker's job classification, the established minimum wage rate requirement for that classification, as well as the worker's actual wage. The notice must be delivered to and signed in acknowledgement of receipt by the employee and must list both the wages and fringe benefits to be paid or furnished for each classification in which the worker is assigned duties. When requested by the Owner, the CM-at-Risk shall furnish evidence of compliance with the Texas Prevailing Wage Law.

2.2.1.1 Submit a copy of each worker wage-rate notification to the ODR with the application for progress payment for the period during which the worker was engaged in activities on behalf of the Project.

2.2.1.2 The "**Prevailing Wage Schedule**" is determined by the Owner in compliance with Tex. Gov't Code, Chapter 2258. Should the CM-at-Risk at any time become aware that a particular skill or trade not reflected on the Owner's Prevailing Wage Schedule will be or is being employed in the Work, whether by the CM-at-Risk or by a Subcontractor, the CM-at-Risk shall promptly inform the ODR of the proposed wage to be paid for the

skill along with a justification for same. The CM-at-Risk is responsible for determining the most appropriate wage for a particular skill in relation to similar skills or trades identified on the Prevailing Wage Schedule. In no case shall any worker be paid less than the wage indicated for Laborers.

2.2.1.3 **Penalty for Violation.** The CM-at-Risk and any Subcontractor will pay to the Owner a penalty of sixty dollars (\$60) for each worker employed for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the Prevailing Wage Schedule. Nothing herein shall prevent the CM-at-Risk or Subcontractor from seeking reimbursement for such amounts under the terms of its subcontracts or sub-subcontracts.

2.2.1.4 **Complaints of Violations.**

2.2.1.4.1 **Owner's Determination of Good Cause.** Upon receipt of information concerning a violation of Tex. Gov't Code, Chapter 2258, the Owner will, within 31 days, make an initial determination as to whether good cause exists that a violation occurred. The Owner will send documentation of the initial determination to the CM-at-Risk against whom the violation was alleged, and to the worker involved. Upon making a good-cause finding, the Owner will retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the Prevailing Wage Schedule and any supplements thereto, together with the applicable penalties, such amounts being subtracted from successive progress payments pending a final decision on the violation.

2.2.1.4.2 If the CM-at-Risk and claimant worker reach an agreement concerning the claim, the CM-at-Risk shall promptly notify the Owner in a written document countersigned by the worker.

2.2.1.4.3 **Arbitration Required.** If the violation is not resolved within 14 days following initial determination by the Owner, the CM-at-Risk and the claimant worker must participate in binding arbitration in accordance with the Texas General Arbitration Act, Tex. Civil Prac. & Rem. Code Chapter 171. For a period not to exceed 10 days, after which, if no agreement reached, a district court may be petitioned by any of the parties to the arbitration to appoint an arbitrator whose decision will be binding on all parties.

2.2.1.4.4 **Arbitration Award.** If an arbitrator assesses an award against the CM-at-Risk, the CM-at-Risk shall promptly furnish a copy of said award to the Owner. The Owner may use any amounts retained under Article 2.2.1.4.1 to pay the worker the amount as designated in the arbitration award. If the retained funds are insufficient to pay the worker in accordance with the arbitration award, the worker has a right of action against the CM-at-Risk, and/or the surety to receive the amount owed, plus attorneys' fees and court costs. The Owner has no duty to release any funds to either the claimant or the CM-at-Risk until it has received the notices of agreement or the arbitration award.

2.2.1.4.5 **No Extension of Time.** If the Owner's determination proves valid that good cause existed to believe a violation had occurred, the CM-at-Risk is not entitled to an extension of time for any delay arising directly or indirectly from of the arbitration procedures set forth herein.

2.3 **Venue for Suits.** The venue for any suit arising from this contract will be in a court of competent jurisdiction in Houston, Harris County, Texas, or as may otherwise designated in the Supplementary General Conditions.

2.4 **Licensing of Trades.** The CM-at-Risk shall comply with all applicable provisions of state law related to license requirements for skilled tradesmen, CM-at-Risks, suppliers and or laborers, as necessary to accomplish the Work. In the event the CM-at-Risk, or one of its Subcontractors, loses its license during the term of performance of the Contract, the CM-at-Risk shall promptly hire or contract with a licensed provider of the service at no additional cost to the Owner.

2.5 **Royalties, Patents & Copyrights.** The CM-at-Risk shall pay all royalties and license fees, defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof.

2.6 **State Sales and Use Taxes.** The Owner qualifies for exemption from certain State and Local Sales and Use Taxes pursuant to the provisions of Tex. Tax Code, Chapter 151. The CM-at-Risk must, to the fullest extent possible, claim exemption from payment of applicable State taxes by complying with such procedures as prescribed by the State Comptroller of Public Accounts. ***Owner is not required to reimburse CM-at-Risk for taxes paid on items that qualify for tax exemption.***

Article 3. General Responsibilities of Owner & CM-at-Risk

3.1 **Owner's General Responsibilities.** The Owner is the entity identified as such in the Contract and referred to throughout the Contract Documents as if singular in number.

3.1.1 **Preconstruction Conference.** Prior to, or concurrent with, the issuance of Notice to Proceed with Construction, a conference will be convened for attendance by the Owner, CM-at-Risk, Architect/Engineer (AE) and appropriate Subcontractors. The purpose of the conference is to establish a working understanding among the parties as to the Work, the operational conditions at the Project Site, and general administration of the Project. Topics include communications, schedules, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, maintaining required records and all other matters of importance to the administration of the Project and effective communications between the Project team members.

3.1.2 **Owner's Designated Representative.** Prior to the start of construction, Owner will identify the Owner's Designated Representative (ODR), who has the express authority to act and bind the Owner to the extent and for the purposes described in the Contract, including responsibilities for general administration of the Contract.

3.1.2.1 Unless otherwise specifically defined elsewhere in the Contract Documents, the ODR is the single point of contact between the Owner and CM-at-Risk. Notice to the ODR, unless otherwise noted, constitutes notice to the Owner under the Contract.

3.1.2.2 All directives on behalf of the Owner will be conveyed to the CM-at-Risk by the ODR in writing.

3.1.3 **Owner Supplied Materials and Information.**

3.1.3.1 The Owner will furnish to the CM-at-Risk those surveys describing the physical characteristics, legal description, limitations of the site, site utility locations, and other information used in the preparation of the Contract Documents.

3.1.3.2 The Owner will provide information, equipment, or services under the Owner's control to the CM-at-Risk with reasonable promptness.

3.1.4 **Availability of Lands.** The Owner will furnish, as indicated in the Contract, all required rights to use the lands upon which the Work occurs. This includes rights-of-way and easements for access and such other lands that are designated for use by the CM-at-Risk. The CM-at-Risk shall comply with all Owner identified encumbrances or restrictions specifically related to use of

lands so furnished. The Owner will obtain and pay for easements for permanent structures or permanent changes in existing facilities, unless otherwise required in the Contract Documents.

3.1.5 Limitation on Owner's Duties.

3.1.5.1 The Owner will not supervise, direct, control or have authority over or be responsible for CM-at-Risk's means, methods, technologies, sequences or procedures of construction or the safety precautions and programs incident thereto. The Owner is not responsible for any failure of CM-at-Risk to comply with laws and regulations applicable to the Work. The Owner is not responsible for the failure of CM-at-Risk to perform or furnish the Work in accordance with the Contract Documents. Owner is not responsible for the acts or omissions of CM-at-Risk, or any of its Subcontractor, suppliers or of any other person or organization performing or furnishing any of the Work on behalf of the CM-at-Risk.

3.1.5.2 The Owner will not take any action in contravention of a design decision made by the AE in preparation of the Contract Documents, when such actions are in conflict with statutes under which the AE is licensed for the protection of the public health and safety.

3.2 Role of Architect/Engineer. Unless specified otherwise in the Contract between the Owner and the CM-at-Risk, the AE shall provide general administration services for the Owner during the construction phase of the Project. Written correspondence, requests for information, and shop drawings/submittals shall be directed to the AE for action. The AE has the authority to act on behalf of the Owner to the extent provided in the Contract Documents, unless otherwise modified by written instrument, which will be furnished to the CM-at-Risk by the ODR, upon request.

3.2.1 Site Visits.

3.2.1.1 The AE will make visits to the site at intervals as provided in the AE's contract agreement with the Owner, to observe the progress and the quality of the various aspects of CM-at-Risk's executed Work and report findings to the Owner.

3.2.1.2 The AE has the authority to interpret Contract Documents and inspect the Work for compliance and conformance with the Contract. Except as referenced in Article 3.1.5.2, the Owner retains the sole authority to accept or reject Work and issue direction for correction, removal, or replacement of Work.

3.2.2 Clarifications and Interpretations. It may be determined that clarifications or interpretations of the Contract Documents are necessary. Upon direction by the ODR such clarifications or interpretations will be provided by the AE consistent with the intent of the Contract Documents. The AE will issue these clarifications with reasonable promptness to the CM-at-Risk as Architect's Supplemental Instruction (ASI) or similar instrument. If the CM-at-Risk believes that such clarification or interpretation justifies an adjustment in the Contract Sum or the Contract Time, the CM-at-Risk shall so notify the Owner in accordance with the provisions of Article 11.

3.2.3 Limitations on Architect/Engineer Authority. The AE is not responsible for:

3.2.3.1 The CM-at-Risk's means, methods, techniques, sequences, procedures, safety, or programs incident to the Project nor will the AE supervise, direct, control or have authority over the same.

3.2.3.2 The failure of CM-at-Risk to comply with laws and regulations applicable to the furnishing or performing the Work.

3.2.3.3 The CM-at-Risk's failure to perform or furnish the Work in accordance with the Contract Documents.

3.2.3.4 Acts or omissions of the CM-at-Risk, or of any other person or organization performing or furnishing any of the Work.

3.3 **CM-at-Risk's General Responsibilities.** The CM-at-Risk is solely responsible for implementing the Work in full compliance with all applicable laws and the Contract Documents and shall supervise and direct the Work using the best skill and attention to assure that each element of the Work conforms to the Contract requirements. The CM-at-Risk is solely responsible for all construction means, methods, techniques, safety, sequences, coordination and procedures. ***The CM-at-Risk is responsible for visiting the site and being familiar with local conditions such as the location, accessibility, and general character of the site and/or building.***

3.3.1 **Project Administration.** The CM-at-Risk shall provide Project administration for all Subcontractors, vendors, suppliers, and others involved in implementing the Work and shall coordinate administration efforts with those of the AE and ODR in accordance with these General Conditions and provisions of Division 1 Specifications, and as outlined in the Pre-construction Conference.

3.3.1.1 ***The CM-at-Risk shall furnish to the ODR one copy of the current edition of Means Facility Cost Data at no additional cost. This document shall be in either hard copy format or electronic CD, at option of the ODR.***

3.3.1.2 ***The CM-at-Risk shall furnish to the ODR one copy of the current edition of the "Rental Rate Blue Book for Construction Mobilization Costs" at no additional cost. This document shall be in either hard copy format or electronic CD, at option of the ODR.***

3.3.2 **CM-at-Risk's Superintendent.** CM-at-Risk shall employ a competent resident superintendent who will be present at the Project Site during the progress of the Work. The superintendent is subject to the approval of the ODR. CM-at-Risk may not change approved superintendents during the course of the Project without the written approval of the ODR unless the superintendent leaves the employ of the CM-at-Risk.

3.3.3 **Labor.** CM-at-Risk shall provide competent, suitably qualified personnel to survey, layout, and construct the Work as required by the Contract Documents. Maintain good discipline and order at the Site at all times.

3.3.4 **Services, Materials, and Equipment.** Unless otherwise specified, CM-at-Risk shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities, incidentals, and services necessary for the construction, performance, testing, start-up, inspection and completion of the Work.

3.3.5 **Non-Compliant Work.** Should the AE and/or the ODR identify Work as non-compliant with the Contract Documents, the ODR will communicate the finding to the CM-at-Risk and the CM-at-Risk will correct such Work at its expense. The approval of Work by either the AE or ODR does not relieve the CM-at-Risk from the obligation to comply with all requirements of the Contract Documents.

3.3.6 **Subcontractors.** CM-at-Risk shall not employ any Subcontractor, supplier or other person or organization, whether initially or as a substitute, against whom the Owner may have reasonable objection. The Owner will communicate such objections in writing. The CM-at-Risk is not required to employ any Subcontractor, supplier or other person or organization to furnish any of the work to whom the CM-at-Risk has reasonable objection. The CM-at-Risk will not substitute Subcontractors without the acceptance of the Owner.

3.3.6.1 All Subcontracts and supply contracts shall be consistent with and bound to the terms and conditions of the Contract Documents including provisions of the Contract between the CM-at-Risk and the Owner.

3.3.6.2 The CM-at-Risk shall be solely responsible for scheduling and coordinating the Work of Subcontractors, suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with the CM-at-Risk. The CM-at-Risk shall require all Subcontractors, suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with Owner only through the CM-at-Risk. The CM-at-Risk shall furnish to the Owner a copy of each first-tier subcontract promptly after its execution. The CM-at-Risk agrees that the Owner has no obligation to review or approve the content of such contracts and that providing the Owner such copies in no way relieves the CM-at-Risk of any of the terms and conditions of the Contract, including, without limitation, any provisions of the Contract which require the Subcontractor to be bound to the CM-at-Risk in the same manner in which the CM-at-Risk is bound to the Owner.

3.3.7 **Continuing the Work.** The CM-at-Risk shall carry on the Work and adhere to the progress schedule during all disputes, disagreements or alternative resolution processes with the Owner. The CM-at-Risk shall not delay or postpone any Work because of the pending resolution of any disputes, disagreements or processes, except as the Owner and the CM-at-Risk may agree in writing.

3.3.8 **Cleaning.** At all times, the CM-at-Risk shall keep the Site and the Work clean and free from accumulation of waste materials or rubbish caused by the construction activities under the Contract. The CM-at-Risk shall ensure that the entire Project is thoroughly cleaned prior to requesting Substantial Completion Inspection and, again, upon completion of the Project prior to the final inspection.

3.3.9 **Acts and Omissions of CM-at-Risk, its Subcontractors and Employees.** The CM-at-Risk is responsible for acts and omissions of his employees and all its Subcontractors, their agents and employees. The Owner may, in writing, require the CM-at-Risk to remove from the Project any of CM-at-Risk's or its Subcontractors employees that the ODR finds to be careless, incompetent, or otherwise objectionable.

3.3.10 **Indemnification of Owner.** The CM-at-Risk covenants and agrees to FULLY INDEMNIFY and HOLD HARMLESS, the Owner and the elected officials, employees, officers, directors, volunteers, and representatives of the Owner, individually or collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability and suits of any kind and nature, including but not limited to, personal or bodily injury, death and property damage, made upon the Owner directly or indirectly arising out of, resulting from or related to CM-at-Risk's activities under this Contract, including any acts or omissions of CM-at-Risk, any agent, officer, director, representative, employee, consultant or the Subcontractor of CM-at-Risk, and their respective officers, agents, employees, directors and representatives while in the exercise of performance of the rights or duties under this Contract. The indemnity provided for in this paragraph does not apply to any liability resulting from the negligence of the Owner, officers or employees, or assigned CM-at-Risks in instances where such negligence causes personal injury, death or property damage. IN THE EVENT CM-AT-RISK AND OWNER ARE FOUND JOINTLY LIABLE BY A COURT OF COMPETENT JURISDICTION, LIABILITY WILL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO THE STATE UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW.

3.3.10.1 The provisions of this Indemnification are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

3.3.10.2 The CM-at-Risk shall promptly advise the Owner in writing of any claim or demand against the Owner or the CM-at-Risk known to the CM-at-Risk related to or arising out of the CM-at-Risk's activities under this Contract.

3.3.11 **Ancillary Areas.** The CM-at-Risk shall operate and maintain operations and associated storage areas at the site of the Work in accordance with the following:

3.3.11.1 Confine all CM-at-Risk operations, including storage of materials and employee parking upon the Site of Work, to areas designated by the Owner.

3.3.11.2 The CM-at-Risk may erect, at its own expense, temporary buildings that will remain its property. Remove such buildings and associated utility service lines upon completion of the Work, unless the CM-at-Risk requests and the Owner provides written consent that it may abandon such buildings and utilities in place.

3.3.11.3 Use only established roadways or construct and use such temporary roadways as may be authorized by the Owner. Do not allow load limits of vehicles to exceed the limits prescribed by appropriate regulations or law. Provide protection to road surfaces, curbs, sidewalks, trees, shrubbery, sprinklers, drainage structures and other like existing improvements to prevent damage and repair any damage thereto at the expense of the CM-at-Risk.

3.3.11.4 The Owner may restrict the CM-at-Risk's entry to the site to specifically assigned entrances and routes.

3.3.12 **Separate Contracts.** Additional CM-at-Risk responsibilities when the Owner awards separate Contracts:

3.3.12.1 The Owner reserves the right to award other contracts in connection with other portions of the Project under these or similar contract conditions.

3.3.12.2 The Owner reserves the right to perform operations related to the Project with the Owner's own forces.

3.3.12.3 If Owner awards a separate contract, the conditions described herein continue to apply except as may be amended by Change Order.

3.3.12.4 ***The CM-at-Risk shall cooperate with other Owner's separate CM-at-Risks employed on the Project, including providing access to Site and Project information as requested.***

Article 4. Small Business (SB) Development Plan

4.1 **General Description.** The purpose of the Small Business (SB) Development Program is to promote equal business opportunities for economically disadvantaged businesses to contract with the HCC in accordance with the goals specified in HCC Small Business Requirements.

4.2 **Compliance with Approved SB Subcontracting Plan.** CM-at-Risk, having been awarded this Contract in part by complying with the SB Development Program policies, hereby covenants to continue to comply with the SB Program as follows:

4.2.1 Prior to substituting a SB Subcontracting Plan the CM-at-Risk will promptly notify the Owner in the event a change is required for any reason; the Owner must approve and accept the substituted SB Subcontracting Plan.

4.2.2 Conduct the good faith effort activities required and provide the Owner with necessary documentation to justify approval of a change to the approved SB Subcontracting Plan.

4.2.3 Cooperate in the execution of a Change Order or such other approval of the change in the SB Subcontracting Plans as the CM-at-Risk and Owner may agree to.

4.2.4 Maintain and make available to Owner upon request business records documenting compliance with the accepted SB Subcontracting Plan.

4.2.5 Submit to Owner a compliance report, in the frequency and format required by the Owner that demonstrates CM-at-Risk's performance of the SB Subcontracting Plan.

Article 5. Bonds & Insurance

5.1 **Construction Bonds.** The CM-at-Risk is required to tender to Owner, prior to commencing the Work, public works performance and payment bonds, as required by Texas Government Code Chapter 2253.

5.1.1 A **Performance Bond** is required if the Contract Sum is in excess of \$100,000. The Performance Bond is solely for the protection of the Owner. The Performance Bond is to be for the Contract Sum to guarantee the faithful performance of the Work in accordance with the Contract Documents. The form of the bond shall be the form of bond approved by the Attorney General of Texas. The Performance Bond shall be effective through the CM-at-Risk's warranty period.

5.1.2 A **Payment Bond** is required if the Contract Sum is in excess of \$25,000. The payment bond is to be for the Contract Sum and is payable to the Owner solely for the protection and use of payment bond beneficiaries who have a direct contractual relationship with the CM-at-Risk or a Subcontractor. The form of the bond shall be the bond approved by the Attorney General of Texas.

5.1.3 **Bond Requirements.** Each bond shall be executed by a corporate surety or sureties authorized to do business in the State of Texas and acceptable to the Owner, on the Owner's form, and in compliance with the relevant provisions of the Texas Insurance Code. If any bond is for more than 10 percent of the surety's capital and surplus, the Owner may require certification that the company has reinsured the excess portion with one or more reinsurers authorized to do business in the State. A reinsurer may not reinsure for more than 10 percent of its capital and surplus. If a surety upon a bond loses its authority to do business in the State, the CM-at-Risk shall, within thirty (30) days after such loss, furnish a replacement bond at no added cost to the Owner.

5.1.4 **Power of Attorney.** Each bond shall be accompanied by a valid Power-of-Attorney (issued by the surety company and attached, signed and sealed with the corporate embossed seal, to the bond) authorizing the attorney in fact who signs the bond to commit the company to the terms of the bond, and stating any limit in the amount for which the attorney can issue a single bond.

5.1.5 **Bond Indemnification.** The process of requiring and accepting bonds and making claims thereunder shall be conducted in compliance with Texas Government Code Chapter 2253. IF FOR ANY REASON A STATUTORY PAYMENT OR PERFORMANCE BOND IS NOT HONORED BY THE SURETY, THE CM-AT-RISK SHALL FULLY INDEMNIFY AND HOLD THE

OWNER HARMLESS OF AND FROM ANY COSTS, LOSSES, OBLIGATIONS OR LIABILITIES IT INCURS AS A RESULT.

5.1.6 **Furnishing Bond Information.** Owner shall furnish certified copies of the payment bond and the related Contract to any qualified person seeking copies who complies with Texas Government Code §2253.026.

5.1.7 **Claims on Payment Bonds.** Claims on payment bonds must be sent directly to the CM-at-Risk and his surety in accordance with Texas Government Code § 2253.041. All Payment Bond claimants are cautioned that no lien exists on the funds unpaid to the CM-at-Risk on such Contract, and that reliance on notices sent to the Owner may result in loss of their rights against the CM-at-Risk and/or his surety. The Owner is not responsible in any manner to a claimant for collection of unpaid bills, and accepts no such responsibility because of any representation by any agent or employee.

5.1.8 **Payment Claims when Payment Bond not Required.** The rights of Subcontractors regarding payment are governed by Texas Property Code §§ 53.231 – 53.239 when the value of the Contract between the Owner and the CM-at-Risk is less than \$25,000.00. These provisions set out the requirements for filing a valid lien on funds unpaid to the CM-at-Risk as of the time of filing the claim, actions necessary to release the lien and satisfaction of such claim.

5.1.9 **Sureties** shall be listed on the US Department of the Treasury's Listing Approved Sureties stating companies holding Certificates of Authority as A- acceptable sureties on Federal Bonds and acceptable reinsuring companies (Department Circular 570).

5.2 **Insurance Requirements.** The CM-at-Risk shall carry insurance in the types and amounts indicated in this Article for the duration of the Contract. The required insurance shall include coverage for Owner's property in the care, custody and control of CM-at-Risk prior to construction, during construction and during the warranty period. The insurance shall be evidenced by delivery to the Owner of certificates of insurance executed by the insurer or its authorized agent stating coverages, limits, expiration dates and compliance with all applicable required provisions. Upon request, the Owner, and/or its agents, shall be entitled to receive without expense, copies of the policies and all endorsements. The CM-at-Risk shall update all expired policies prior to submission for monthly payment. Failure to update policies shall be reason for withholding of payment until renewal is provided to the Owner.

5.2.1 The CM-at-Risk shall provide and maintain the insurance coverage with the minimum amounts described below until the end of the warranty period unless otherwise stated in Supplementary General Conditions. Failure to maintain insurance coverage, as required, is grounds for Suspension of Work for Cause pursuant to Article 14. The CM-at-Risk will be notified of the date on which the Builder's Risk insurance policy may be terminated through Substantial Completion Notices, Acceptance Notices and/or other means as deemed appropriate by the Owner.

5.2.2 Coverage shall be written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and rated A-X or better by A.M. Best Company or otherwise acceptable to Owner.

5.2.2.1 Insurance coverage required includes:

5.2.2.1.1 Workers' Compensation. Insurance with limits as required by the Texas Workers' Compensation Act, with the policy endorsed to provide a waiver of subrogation as to the Owner, Employer's Liability insurance of not less than:

\$100,000 each accident
\$100,000 disease each employee
\$500,000 disease policy limit

5.2.2.1.2 Commercial General Liability Insurance. Including Independent CM-at-Risk's liability, Products and Completed Operations and Contractual Liability, covering, but not limited to, the liability assumed under the indemnification provisions of this contract, fully insuring CM-at-Risk's (or Subcontractors) liability for bodily injury and property damage with a combined bodily injury (including death) and property damage minimum limit of:

\$1,000,000 Occurrence
\$2,000,000 Aggregate
\$2,000,000 Completed Operations
\$1,000,000 Personal Injury
\$ 500,000 Fire Damage
\$ 5,000 Medical Payments

Coverage shall be on an "occurrence" basis.

The policy shall include coverage extended to apply to completed operations and explosion, collapse, underground hazards. The policy shall include endorsement CG2503 Amendment-Aggregate Limits of Insurance (Per Project) or its equivalent.

5.2.2.1.3 Asbestos Abatement Liability Insurance, including coverage for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos containing materials. *This requirement applies if the Work or the Project includes asbestos containing materials.

The Combined single limit for bodily injury and property damage will be a minimum of \$1,000,000 per occurrence.

*Specific Requirement for Claims-Made Form: Required period of coverage will be determined by the following formula: Continuous coverage for life of the contract, plus one (1) year (to provide coverage for the warranty period), and an extended discovery period for a minimum of five (5) years which shall begin at the end of the warranty period.

If this contract is for asbestos abatement only, the All-Risk Builder's Risk or All-Risk Installation Floater (e) is not required.

5.2.2.1.4 Comprehensive Automobile Liability Insurance, covering owned, hired, and non-owned vehicles, with a combined bodily injury (including death) and property damage minimum limit of \$1,000,000 per occurrence. No aggregate shall be permitted for this type of coverage.

Such insurance is to include coverage for loading and unloading hazards.

5.2.2.1.5 All Risk Builder's Risk Insurance (or All Risk Installation Floater for instances in which the Project involves solely the installation of equipment). Coverage shall be All-Risk, including, but not limited to, Fire, Extended Coverage, Vandalism and Malicious Mischief, Flood, Earthquake, Theft and damage resulting from faulty workmanship, design or materials. If Builder's Risk, limit shall be equal to 100 percent of the contract. If Installation Floater, limit shall be equal to 100 percent of the contract cost. The policy shall be written jointly in the names of the Owner, the Program Manager, Project Manager, Project Architect, the CM-at-Risk, Subcontractors and, Sub-Subcontractors,

which shall be named as additional insureds. The policy shall have endorsements as follows:

5.2.2.1.5.1 This insurance shall be specific as to coverage and not contributing insurance with any permanent insurance maintained on the property.

5.2.2.1.5.2 This insurance shall not contain an occupancy clause suspending or reducing coverage should the Owner occupy, or begin beneficial occupancy before the Owner has accepted final completion.

5.2.2.1.5.3 Loss, if any, shall be adjusted with and made payable to the Owner as Trustee for the insureds as their interests may appear; the right of subrogation under the Builder's Risk policy shall be waived as to the Owner. The Owner shall be named as Loss Payee. For renovation projects or projects that involve portions of work contained within an existing structure, refer to Special Conditions for possible additional Builder's Risk insurance requirements.

5.2.2.1.6 "Umbrella" Liability Insurance. The CM-at-Risk shall obtain, pay for and maintain umbrella liability insurance during the Contract term, insuring the CM-at-Risk (or Subcontractor) as follows:

\$2,000,000 for all projects estimated to cost up to \$25,000,000.

\$5,000,000 for all projects estimated to cost over \$25,000,000.

The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted.

If this contract is for asbestos abatement only, the "Umbrella" Excess Liability is not required

5.2.3 Policies must include the following clauses, as applicable:

5.2.3.1 This insurance shall not be canceled, materially changed, or non-renewed until after sixty (60) days prior written notice has been given to the Owner.

5.2.3.2 It is agreed that the CM-at-Risk's insurance shall be deemed primary with respect to any insurance or self insurance carried by the Owner for liability arising out of operations under the Contract with the Owner.

5.2.3.3 The Owner, its officials, directors, employees, representatives, and volunteers are added as additional insureds as respects operations and activities of, or on behalf of the named insured performed under contract with the Owner. The additional insured status must cover completed operations as well. This is not applicable to the workers' compensation policy.

5.2.3.4 The workers' compensation and employers' liability policy will provide a waiver of subrogation in favor of the Owner.

5.2.4 Without limiting any of the other obligations or liabilities of the CM-at-Risk, the CM-at-Risk shall require each Subcontractor performing work under the Contract, at the Subcontractor's own expense, to maintain during the term of the Contract, the same stipulated minimum insurance including the required provisions and additional policy conditions as shown above. As an alternative, the CM-at-Risk may include its Subcontractors as additional insured on its own

coverage as prescribed under these requirements. The CM-at-Risk's certificate of insurance shall note in such event that the Subcontractors are included as additional insured's and that CM-at-Risk agrees to provide Workers' Compensation for the Subcontractors and their employees. The CM-at-Risk shall obtain and monitor the certificates of insurance from each Subcontractor in order to assure compliance with the insurance requirements. The CM-at-Risk must retain the certificates of insurance for the duration of the Contract plus 5 years and shall have the responsibility of enforcing these insurance requirements among its Subcontractors. The Owner shall be entitled, upon request and without expense, to receive copies of these certificates.

5.2.5 Workers' Compensation Insurance Coverage must meet the statutory requirements of the Texas Labor Code §401.011(44) and specific to construction Projects for public entities as required by Texas Labor Code §406.096.

A. Definitions:

Certificate of coverage ("certificate"). A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a Project, for the duration of the Project.

Duration of the Project - includes the time from the beginning of the work on the Project until the CM-at-Risk's/person's work on the Project has been completed and accepted by the governmental entity.

Persons providing services on the Project ("Subcontractor" in §406.096) - includes all persons or entities performing all or part of the services the CM-at-Risk has undertaken to perform on the Project, regardless of whether that person contracted directly with the CM-at-Risk and regardless of whether that person has employees. This includes, without limitation, independent CM-at-Risks, Subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

B. The ***CM-at-Risk*** shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the CM-at-Risk providing services on the Project, for the duration of the Project.

C. The ***CM-at-Risk*** must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

D. If the coverage period shown on the CM-at-Risk's current certificate of coverage ends during the duration of the Project, the CM-at-Risk must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

E. The ***CM-at-Risk*** shall obtain from each person providing services on a Project, and provide to the governmental entity:

(1) a certificate of coverage, prior to that person beginning work on the Project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the Project; and

(2) no later than seven days after receipt by the CM-at-Risk, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project.

F. The **CM-at-Risk** shall retain all required certificates of coverage for the duration of the Project and for one year thereafter.

G. The **CM-at-Risk** shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the CM-at-Risk knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.

H. The **CM-at-Risk** shall post on each Project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

I. The **CM-at-Risk** shall contractually require each person with whom it contracts to provide services on a Project, to:

(1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the Project, for the duration of the Project;

(2) provide to the CM-at-Risk, prior to that person beginning work on the Project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;

(3) provide the CM-at-Risk, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

(4) obtain from each other person with whom it contracts, and provide to the CM-at-Risk:

(a) a certificate of coverage, prior to the other person beginning work on the Project; and

(b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

(5) retain all required certificates of coverage on file for the duration of the Project and for one year thereafter;

(6) notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and

(7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.

J. By signing this contract or providing or causing to be provided a certificate of coverage, the CM-at-Risk is representing to the governmental entity that all employees of the CM-at-Risk who will provide services on the Project will be covered by workers' compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the CM-at-Risk to administrative penalties, criminal penalties, civil penalties, or other civil actions.

K. The CM-at-Risk's failure to comply with any of these provisions is a breach of contract by the CM-at-Risk which entitles the governmental entity to declare the contract void if the CM-at-Risk does not remedy the breach within ten days after receipt of notice of breach from the governmental entity.

Article 6. Contract Documents

6.1 Drawings and Specifications.

6.1.1 Copies Furnished. The CM-at-Risk will be furnished, free of charge, one hard copy of a complete set of the Drawings and Specifications. All documents will be available electronically on E-Builder. Additional complete sets of Drawings and Specifications, if requested, will be furnished at reproduction cost to the one requesting such additional sets.

6.1.2 Ownership of Drawings and Specifications. All Drawings, Specifications and copies thereof furnished by the AE are to remain AE's property. These documents are not to be used by CM-at-Risk on any other Project, and with the exception of one Contract set for each party to the Contract, are to be returned to the Architect/Engineer, upon request, following completion of the Work.

6.1.3 Interrelation of Documents. The Contract Documents as referenced in the Agreement between the Owner and the CM-at-Risk are complimentary, and what is required by one shall be as binding as if required by all.

6.1.4 Resolution of Conflicts in Documents. Where conflicts may exist between and/or within the Contract Documents, the higher quality, greater quantity, more restrictive, and/or more expensive requirement shall be **required**. The CM-at-Risk shall notify the AE and the ODR **of any conflict before** executing the work in question.

6.1.5 CM-at-Risk's Duty to Review Contract Documents. In order to facilitate its responsibilities for completion of the Work in accordance with and as reasonably inferable from the Contract Documents, prior to pricing or commencing the Work, the CM-at-Risk shall examine and compare the Contract Documents, information furnished by the Owner, relevant field measurements made by the CM-at-Risk and any visible or reasonably anticipated conditions at the site affecting the Work. This duty extends throughout the construction phase prior to commencing each particular work activity and/or installation.

6.1.6 Discrepancies and Omissions in Drawings and Specifications

6.1.6.1 *The Owner does not warrant or make any representations as to the accuracy or completeness of the information furnished to the CM-at-Risk by the Owner.* The CM-at-Risk shall promptly report to the ODR and to the AE the discovery of

any apparent error, omission or inconsistency in the Contract Documents prior to execution of the Work.

6.1.6.2 It is recognized that the CM-at-Risk is not acting in the capacity of a licensed design professional, unless it is performing as a Design Build firm.

6.1.6.3 It is further recognized that the CM-at-Risk's examination of contract documents is to facilitate construction and does not create an affirmative responsibility to detect errors, omissions or inconsistencies or to ascertain compliance with applicable laws, building codes or regulations, unless it is performing as a Design-Build firm or a Construction Manager-at-Risk.

6.1.6.4 When performing as a Design-Build firm, the CM-at-Risk has sole responsibility for discrepancies, errors, and omissions in the drawings and specifications.

6.1.6.5 When performing as a Construction Manager-at-Risk, the CM-at-Risk has a shared responsibility for discovery and resolution of discrepancies, errors, and omissions in the Contract Documents. In such case, the CM-at-Risk's responsibility pertains to review, coordination, and recommendation of resolution strategies within budget constraints, but does not establish a liability for design.

6.1.6.6 The CM-at-Risk has no liability for errors, omissions, or inconsistencies unless the CM-at-Risk knowingly failed to report a recognized problem to the Owner or the Work is executed under a Design-Build or CM-at-Risk contract as outlined above. Should the CM-at-Risk fail to perform the examination and reporting obligations of these provisions, the CM-at-Risk is responsible for avoidable costs, direct, and/or consequential damages.

6.2 **Requirements for Record Documents.** The CM-at-Risk shall maintain at the Site one copy of all Drawings, Specifications, addenda, approved Submittals, Contract modifications, and all Project correspondence. The CM-at-Risk shall keep current and maintain Drawings and Specifications in good order with postings and markings to record actual conditions of Work and show and reference all changes made during construction. The CM-at-Risk shall provide Owner and AE access to these documents.

6.2.1 The CM-at-Risk shall maintain this record set of Drawings and Specifications which reflect the "As Constructed" conditions and representations of the Work performed, whether it be directed by addendum, Change Order or otherwise. The CM-at-Risk shall make available all records prescribed herein for reference and examination by the Owner and its representatives and agents.

6.2.2 The CM-at-Risk shall update the "As-Constructed" Drawings and Specifications monthly prior to submission of periodic partial pay estimates. CM-at-Risk's failure to maintain such records constitutes cause for denial of a progress payment otherwise due.

6.2.3 Prior to requesting Substantial Completion Inspection by the ODR and AE, the CM-at-Risk shall furnish a complete set of the marked up "As-Constructed" set maintained at the site and one photocopy of same. Concurrently with furnishing these record drawings, the CM-at-Risk shall furnish a preliminary copy of each operating and maintenance manual (O&M) required by the Contract Documents, for review by the AE and the ODR.

6.2.4 Once determined acceptable, the CM-at-Risk shall provide one set of prints of professionally drafted "As-Constructed" drawings, along with an electronic copy on CD, "As-Constructed" specifications in bound volume(s) along with an electronic copy on CD, two sets of operating and maintenance manuals, two sets of approved submittals, and other record

documents as required elsewhere in the Contract Documents. ***All electronic copies shall be provided in a format acceptable to the ODR.***

Article 7. Construction Safety

7.1 **General.** It is the duty and responsibility of the CM-at-Risk and all of its Subcontractors to be familiar with, enforce and comply with all requirements of Public Law 91-596, 29 U.S.C. §§651 et. seq., the Occupational Safety and Health Act of 1970, (OSHA) and all amendments thereto. The CM-at-Risk shall prepare a Safety Plan specific to the Project and submit it to the ODR and AE prior to commencing Work. In addition, the CM-at-Risk and all of its Subcontractors shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property to protect them from damage, injury or loss and erect and maintain all necessary safeguards for such safety and protection.

7.2 **Notices.** The CM-at-Risk shall provide notices as follows:

7.2.1 Notify owners of adjacent property including those that own or operate utility services and/or underground facilities, and utility owners, when prosecution of the Work may affect them or their facilities, and cooperate with them in the protection, removal, relocation and replacement, and access to their facilities and/or utilities.

7.2.2 Coordinate the exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the site in connection with laws and regulations. Maintain a complete file of MSDS for all materials in use on site throughout the construction phase and make such file available to the Owner and its agents as requested.

7.3 **Emergencies.** In any emergency affecting the safety of persons or property, the CM-at-Risk shall act to minimize, mitigate, and prevent threatened damage, injury or loss.

7.3.1 Have authorized agents of CM-at-Risk respond immediately upon call at any time of day or night when circumstances warrant the presence of CM-at-Risk to protect the Work or adjacent property from damage or to take such action pertaining to the Work as may be necessary to provide for the safety of the public.

7.3.2 Give the ODR and AE prompt notice of all such events.

7.3.3 If CM-at-Risk believes that any changes in the Work or variations from Contract Documents have been caused by its emergency response, promptly notify the Owner within 72 hours of the emergency response event.

7.3.4 Should CM-at-Risk fail to respond, Owner is authorized to direct other forces to take action as necessary and Owner may deduct any cost of remedial action from funds otherwise due the CM-at-Risk.

7.4 **Injuries.** In the event of an incident or accident involving outside medical care for an individual on or near the Work, CM-at-Risk shall notify the ODR and other parties as may be directed within twenty-four (24) hours of the event.

7.4.1 Record the location of the event and the circumstances surrounding it, by using photography or other means, and gather witness statements and other documentation which describes the event.

7.4.2 Supply the ODR and AE with an incident report no later than 36 hours after the occurrence of the event. In the event of a catastrophic incident (one fatality or three workers hospitalized), barricade and leave intact the scene of the incident until all investigations are complete.

7.5 **Environmental Safety.** Upon encountering any previously unknown potentially hazardous material, or other materials potentially contaminated by hazardous material, CM-at-Risk shall immediately stop work activities impacted by the discovery, secure the affected area, and notify the ODR immediately.

7.5.1 Bind all Subcontractors to the same duty.

7.5.2 Upon receiving such notice, the ODR will promptly engage qualified experts to make such investigations and conduct such tests as may be reasonably necessary to determine the existence or extent of any environmental hazard. Upon completion of this investigation, the ODR will issue a written report to the CM-at-Risk identifying the material(s) found and indicate any necessary steps to be taken to treat, handle, transport or dispose of the material.

7.5.3 The Owner may hire third-party CM-at-Risks to perform any or all such steps.

7.5.4 Should compliance with the ODR's instructions result in an increase in the CM-at-Risk's cost of performance, or delay the Work, the Owner will make an equitable adjustment to the Contract price and/or the time of completion, and modify the Contract in writing accordingly.

7.6 **Trenching Plan.** When the Project requires excavation which either exceeds a depth of four feet, or results in any worker's upper body being positioned below grade level, the CM-at-Risk is required to submit a trenching plan to the ODR prior to commencing trenching operations. The plan is required to be prepared and sealed by a professional engineer registered in the State of Texas, and employed by the CM-at-Risk. Said engineer cannot be anyone who is otherwise either directly or indirectly engaged on this Project.

Article 8 Quality Control

8.1 **Materials & Workmanship.** The CM-at-Risk shall execute Work in a good and workmanlike manner in accordance with the Contract Documents. The CM-at-Risk shall develop and provide a Quality Control Plan specific to this Project and acceptable to the Owner. Where Contract Documents do not specify quality standards, complete and construct all Work in compliance with generally accepted construction industry standards. Unless otherwise specified, incorporate all new materials and equipment into the Work under the Contract.

8.2 Testing.

8.2.1 **CM-at-Risk Testing.** The CM-at-Risk is responsible for coordinating and paying for all routine and special tests required to confirm compliance with quality and performance requirements of the Contract Documents. This "quality control" testing shall include any particular testing required by the Specifications and the following general tests.

8.2.1.1 Any test of basic material or fabricated equipment included as part of a submittal for a required item in order to establish compliance with the Contract Documents.

8.2.1.2 Any test of basic material or fabricated equipment offered as a substitute for a specified item on which a test may be required in order to establish compliance with the Contract Documents.

8.2.1.3 Routine, preliminary, start-up, pre-functional and operational testing of building equipment and as necessary to confirm operational compliance with requirements of the Contract Documents.

8.2.1.4 All subsequent tests on original or replaced materials conducted as a result of prior testing failure.

8.2.2 **Owner Testing.** The Owner reserves the right to subject materials incorporated into the Project to routine tests as may be specified or as deemed necessary by the ODR or the AE to ensure compliance with the quality and/or performance requirements of the Contract Documents and/or with laws, ordinances, rules, regulations and/or orders of any public authority having jurisdiction. The results of such "quality assurance" testing will be provided to the CM-at-Risk and, to the extent provided, the CM-at-Risk may rely on findings.

8.2.3 All testing shall be performed in accordance with standard test procedures by an accredited laboratory, or special consultant as appropriate, acceptable to the Owner. Results of all tests shall be provided promptly to the ODR, Architect/Engineer and the CM-at-Risk.

8.2.4 **Non-Compliance (Test Results).** Should any of the tests indicate that a material and/or does not comply with the contract requirements, the burden of proof remains with the CM-at-Risk, subject to:

8.2.4.1 CM-at-Risk selection and submission of the laboratory for Owner acceptance.

8.2.4.2 Acceptance by the Owner of the quality and nature of tests.

8.2.4.3 All tests taken in the presence of the Architect/Engineer and/or ODR, or their representatives.

8.2.4.4 If tests confirm that the materials comply with Contract Documents, the Owner will pay the cost of the test.

8.2.4.5 If tests reveal noncompliance, the CM-at-Risk will pay those laboratory fees and costs of that particular test and all future tests, of that failing Work, necessary to eventually confirm compliance with Contract Documents.

8.2.4.6 Proof of noncompliance with the Contract Documents will make the CM-at-Risk liable for any corrective action which the ODR determines appropriate, including complete removal and replacement of noncompliant work or material.

8.2.5 **Notice of Testing.** The CM-at-Risk shall give the ODR and the AE timely notice of its readiness and the date arranged so the ODR and AE may observe such inspection, testing or approval.

8.2.6 **Test Samples.** The CM-at-Risk is responsible for providing samples of sufficient size for test purposes and for coordinating such tests with their Work Progress Schedule to avoid delay.

8.2.7 **Covering Up Work** - If the CM-at-Risk covers up any Work without providing the Owner an opportunity to inspect, the CM-at-Risk shall, if requested by ODR, uncover and recover the work at CM-at-Risk's expense.

8.3 **Submittals**

8.3.1 **CM-at-Risk's Submittals.** Submit with reasonable promptness consistent with the Project Schedule and in orderly sequence all Shop Drawings, Samples, or other information required by the Contract Documents, or subsequently required by Change Order. Prior to submitting, the CM-at-Risk shall review each submittal for compliance with Contract Documents and certify by approval stamp affixed to each copy. Submittal data presented without the CM-at-Risk's certification will be returned without review or comment, and any delay resulting from such certification is the CM-at-Risk's responsibility.

8.3.1.1 Within twenty-one (21) calendar days of the effective date of the Notice To Proceed with construction, submit to the ODR, and the AE, a submittal schedule/register, organized by specification section, listing all items to be furnished for review and approval by the Architect/Engineer and Owner. The list shall include shop drawings, manufacturer's literature, certificates of compliance, materials samples, materials colors, guarantees, and all other items identified throughout the specifications.

8.3.1.2 Indicate the type of item, contract requirements reference, and CM-at-Risk's scheduled dates for submitting the item along with the requested dates for approval answers from the Architect/Engineer and Owner. The submittal register shall indicate the Projected dates for procurement of all included items and shall be updated at least monthly with actual approval and procurement dates. Show and allow a maximum of seven (7) calendar days' duration after receipt by the Architect/Engineer and ODR for review and approval of each submittal. If re-submittal is required, allow a maximum of an additional seven (7) calendar days for review. Submit the updated submittal register with each request for progress payment. The Owner may establish routine review procedures and schedules for submittals at the preconstruction conference and/or elsewhere in the Contract Documents. ***Failure to update and provide the submittal schedule/register as required shall constitute cause for Owner to withhold payment otherwise due.***

8.3.1.3 Coordinate the submittal register with the Work Progress Schedule. Do not schedule Work requiring a submittal to begin prior to scheduling review and approval of the related submittal. Revise and/or update both schedules monthly to ensure consistency and current Project data. Provide to the ODR the updated submittal register and schedule with each application for progress payment. Refer to requirements for the Work Progress Schedule for inclusion of procurement activities therein. Regardless, the submittal register shall identify dates submitted and returned and shall be used to confirm status and disposition of particular items submitted, including approval or other action taken and other information not conveniently tracked through the Work Progress Schedule.

8.3.1.4 By submitting Shop Drawings, Samples or other required information, the CM-at-Risk represents and certifies that they have determined and verified all applicable field measurements, field construction criteria, materials, catalog numbers and similar data; and has checked and coordinated each Shop Drawing and Sample with the requirements of the Work and the Contract Documents.

8.3.2 **Review of Submittals.** AE and ODR review is only for conformance with the design concept and the information provided in the Contract Documents. Responses to submittals will be in writing. The approval of a separate item does not indicate approval of an assembly in which the item functions. The approval of a submittal does not relieve the CM-at-Risk of responsibility for any deviation from the requirements of the Contract unless the CM-at-Risk informs the AE and ODR of such deviation in a clear, conspicuous, and written manner on the submittal transmittal and at the time of submission, and obtains the Owner's written specific approval of the particular deviation.

8.3.3 **Correction and Resubmission.** Make any corrections required to a submittal and resubmit the required number of corrected copies promptly so as to avoid delay, until submittal approval. Direct attention in writing to the AE and the ODR, when applicable, to any new revisions other than the corrections requested on previous submissions.

8.3.4 **Limits on Shop Drawing Approvals.** The CM-at-Risk shall not commence any Work requiring a submittal until approval of the submittal. Construct all such work in accordance with approved submittals. Approval of Shop Drawings and Samples is not authorization to CM-at-Risk to perform extra work or changed work unless authorized through a Change Order. The AE's and ODR's approval, if any, does not relieve CM-at-Risk from responsibility for defects in the Work resulting from errors or omissions of any kind on the submittal, regardless of any approval action.

8.3.5 **No Substitutions Without Approval.** The ODR and the AE may receive and consider the CM-at-Risk's request for substitution when the CM-at-Risk agrees to reimburse the Owner for review costs and if the request satisfies in 8.3.5.1, 8.3.5.2, and 8.3.5.3 in combination with one or more of the items in 8.3.5.4 through 8.3.5.11 of the following conditions, as determined by the Owner. If the CM-at-Risk does not satisfy these conditions, the ODR and AE will return the request without action except to record noncompliance with these requirements. The Owner will not consider the request if the CM-at-Risk cannot provide the product or method because of failure to pursue the Work promptly or coordinate activities properly.

8.3.5.1 The Contract Documents do not require extensive revisions.

8.3.5.2 Proposed changes are in keeping with the general intent of the Contract Documents and the design intent of the AE and do not result in an increase in cost to the Owner.

8.3.5.3 The request is timely, fully documented, and properly submitted.

8.3.5.4 The CM-at-Risk cannot provide the specified product, assembly or method of construction within the Contract Time.

8.3.5.5 The request directly relates to an "or-equal" clause or similar language in the Contract Documents.

8.3.5.6 The request directly relates to a "product design standard" or "performance standard" clause in the Contract Documents.

8.3.5.7 The requested substitution offers the Owner a substantial advantage in cost, time, energy conservation or other considerations, after deducting additional responsibilities the Owner must assume.

8.3.5.8 The specified product or method of construction cannot receive necessary approval by an authority having jurisdiction, and the ODR can approve the requested substitution.

8.3.5.9 The CM-at-Risk cannot provide the specified product, assembly or method of construction in a manner that is compatible with other materials and where the CM-at-Risk certifies that the substitution will overcome the incompatibility.

8.3.6 **Unauthorized Substitutions at CM-at-Risk's Risk.** The CM-at-Risk is financially responsible for any additional costs or delays resulting from using materials, equipment or fixtures

other than those specified. The CM-at-Risk shall reimburse the Owner for any increased design or contract administration costs resulting from such unauthorized substitutions.

8.4 **Field Mock-up**

8.4.1 Mockups shall be constructed prior to commencement of a specified scope of work to confirm acceptable workmanship.

8.4.1.1 As a minimum, field mock-ups shall be constructed for roofing, exterior veneer/ finishes, glazing, and any other Work requiring a mock-up as identified throughout the Contract Documents. Mockups for not part of the Project scope shall not be required.

8.4.1.2 Mock-ups may be incorporated into the Work if allowed by the Contract Documents and if acceptable to the ODR. If mock-ups are freestanding, they shall remain in place until otherwise directed by the Owner.

8.4.1.3 The CM-at-Risk shall include field mock-ups in their Work Progress Schedule and shall notify the ODR and Architect/Engineer of readiness for review sufficiently in advance to coordinate review without delay.

8.5 **Inspection During Construction**

8.5.1 The CM-at-Risk shall provide sufficient, safe, and proper facilities, including equipment as necessary for safe access, at all reasonable times for observation and/or inspection of the Work by the Owner and its agents.

8.5.2 The CM-at-Risk shall not cover up any work with finishing materials or other building components prior to providing the Owner and its agents an opportunity to perform an inspection of the Work.

8.5.2.1 Should corrections of the Work be required for approval, do not cover up corrected Work until the Owner indicates approval.

8.5.2.2 Provide notification of at least five (5) working days or otherwise as mutually agreed, to the ODR of the anticipated need for a cover up inspection. Should the ODR fail to make the necessary inspection within the agreed period, the CM-at-Risk may proceed with cover up Work, but is not relieved of responsibility for Work to comply with requirements of the Contract Documents.

Article 9. Project Scheduling Requirements

9.1 **Contract Time.** TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT. The Contract Time is the time between the dates indicated in the Notice to Proceed for Commencement of the Work and for achieving Substantial Completion and Final Completion. The Contract Time can be modified only by Change Order. Failure to achieve Substantial Completion within the Contract Time, Final Completion within thirty (30) days following Substantial Completion or as otherwise agreed to in writing will cause damage to the Owner and may subject the CM-at-Risk to Liquidated Damages as provided in the Contract Documents.

9.2 **Notice to Proceed.** The Owner will issue a Notice to Proceed which shall state the dates for beginning Work and for achieving Substantial Completion and Final Completion of the Work.

9.3 **Work Progress Schedule.** Refer to Special Conditions and Division 1 General Administration Specifications for additional schedule requirements. ***This Article pertains to construction phase***

schedules. Additional requirements for design phase scheduling for CM-at-Risk and Design Build contracts are outlined in Division 1 Project Planning and Scheduling Specification. Unless indicated otherwise in those documents, CM-at-Risk shall submit their initial Work Progress Schedule for the Work in relation to the entire Project not later than twenty-one (21) days after the effective date of the Notice to Proceed to the ODR and the AE. Unless otherwise indicated in the Contract Documents, the Work Progress Schedule shall be computerized Critical Path Method (CPM) with full reporting capability. This initial schedule shall indicate the dates for starting and completing the various aspects required to complete the Work, including mobilization, procurement, installation, testing, inspection, and acceptance of all the Work of the Contract. When acceptable to the Owner, the initially accepted schedule shall be the Baseline Schedule for comparison to actual conditions throughout the contract duration.

9.3.1 **Schedule Requirements.** The CM-at-Risk shall submit electronic and paper copy of the initial Work Progress Schedule reflecting accurate and reliable representations of the planned progress of the Work, the Work to date if any, and of the CM-at-Risk's actual plans for its completion. The CM-at-Risk shall organize and provide adequate detail so the Schedule is capable of measuring and forecasting the effect of delaying events on completed and uncompleted activities.

9.3.1.1 The CM-at-Risk shall re-submit initial Schedule as required to address review comments from AE and ODR until such Schedule is accepted as the Baseline Schedule.

9.3.1.2 Submittal of a schedule, schedule revision or schedule update constitutes the CM-at-Risk's representation to the Owner of the accurate depiction of all progress to date and that the CM-at-Risk will follow the schedule as submitted in performing the Work.

9.3.2 **Schedule Updates.** The CM-at-Risk shall update the Work Progress Schedule and the Submittal Schedule monthly, as a minimum, to reflect progress to date and current plans for completing the Work, and submit paper and electronic copy of the update to the AE and ODR as directed. The Owner has no duty to make progress payments unless accompanied by the updated Work Progress Schedule. The CM-at-Risk shall show the anticipated date of completion reflecting all extensions of time granted through Change Order as of the date of the update. The CM-at-Risk may revise the Progress Schedule logic only with the Owner's concurrence when in the CM-at-Risk's judgment it becomes necessary for the management of the Work. The CM-at-Risk shall identify all proposed changes to schedule logic to Owner and to the AE via an Executive Summary accompanying the updated schedule for review prior to implementation of revisions.

9.3.3 **The Work Progress Schedule** is for the CM-at-Risk's use in managing the Work and submittal of the Schedule, and successive updates or revisions, is for the information of the Owner and to demonstrate that the CM-at-Risk has complied with requirements for planning the Work. The Owner's acceptance of a schedule, schedule update or revision constitutes the Owner's agreement to coordinate its own activities with the CM-at-Risk's activities as shown on the schedule.

9.3.3.1 Acceptance of the Work Progress Schedule, or update and/or revision thereto does not indicate any approval of the CM-at-Risk's proposed sequences and duration.

9.3.3.2 Acceptance of a Work Progress Schedule update or revision indicating early or late completion does not constitute the Owner's consent, alter the terms of the Contract, or waive either the CM-at-Risk's responsibility for timely completion or the Owner's right to damages for the CM-at-Risk's failure to do so.

9.3.3.3 The CM-at-Risk's scheduled dates for completion of any activity or the entire Work do not constitute a change in terms of the contract. Change Orders are the only method of modifying the completion Date(s) and Contract time.

9.4 **Ownership of Float.** Unless indicated otherwise in the Contract Documents, the CM-at-Risk shall develop the schedule and their execution plan to provide a minimum of 10 percent total float at the Project level at acceptance of the Baseline Schedule. Float time contained in the Work Progress Schedule is not for the exclusive benefit of the CM-at-Risk or the Owner, but belongs to the Project and may be consumed by either party as needed on a first-used basis.

9.5 **Completion of Work.** The CM-at-Risk is accountable for completing the Work in the time stated in the Contract, or as otherwise amended by Change Order.

9.5.1 If, in the judgment of the Owner, the work is behind schedule and the rate of placement of work is inadequate to regain scheduled progress to insure timely completion of the entire work or a separable portion thereof, the CM-at-Risk, when so informed by the Owner, shall immediately take action to increase the rate of work placement by:

9.5.1.1 An increase in working forces.

9.5.1.2 An increase in equipment or tools.

9.5.1.3 An increase in hours of work or number of shifts.

9.5.1.4 Expedite delivery of materials.

9.5.1.5 Other action proposed if acceptable to Owner.

9.5.2 Within ten (10) calendar days after such notice from the ODR, the CM-at-Risk shall notify the ODR in writing of the specific measures taken and/or planned to increase the rate of progress. Include an estimate as to the date of scheduled progress recovery and an updated Work Progress Schedule illustrating the CM-at-Risk's plan for achieving timely completion of the Project. Should the ODR deem the plan of action inadequate, take additional steps or make adjustments as necessary to its plan of action until it meets with the ODR's approval.

9.6 **Modification of the Contract Time**

9.6.1 Delays and extension of time as hereinafter described are valid only if executed in accordance with provisions set forth in Article 11.

9.6.2 When a delay defined herein as excusable prevents the CM-at-Risk from completing the Work within the Contract Time, the CM-at-Risk is entitled to an extension of time. The Owner will make an equitable adjustment and extend the number of calendar days lost because of excusable delay, as measured by the CM-at-Risk's progress schedule. All extensions of time will be granted in calendar days. In no event, however, will an extension of time be granted for delays that merely extend the duration of non-critical activities, or which only consume float without delaying the Project completion date.

9.6.2.1 A "**Weather Day**" is a day on which the CM-at-Risk's current schedule indicates Work is to be done, and on which inclement weather and related site conditions prevent the CM-at-Risk from performing seven continuous hours of Work between the hours of 7:00 a.m. and 6:00 p.m. Weather days are excusable delays. When weather conditions at the site prevent work from proceeding, immediately notify the ODR for confirmation of the conditions. At the end of each calendar month, submit to the ODR and AE a list of Weather Days occurring in that month along with documentation of the impact on critical activities. Based on confirmation by the ODR, any time extension granted will be issued

by Change Order. If the CM-at-Risk and Owner cannot agree on the time extension, the Owner may issue a ULCO for fair and reasonable time extension.

9.6.2.2 **Excusable Delay.** The CM-at-Risk is entitled to an equitable adjustment of time, issued via change order, for delays caused by the following:

9.6.2.2.1 Errors, omissions and imperfections in design which the AE corrects by means of changes in the drawings and specifications.

9.6.2.2.2 Unanticipated physical conditions at the Site which the AE corrects by means of changes to the drawings and specifications or for which the ODR directs changes in the Work identified in the Contract Documents.

9.6.2.2.3 Changes in the Work that effect activities identified in the CM-at-Risk's schedule as "critical" to completion of the entire Work, if such changes are ordered by the ODR or the AE.

9.6.2.2.4 Suspension of Work for unexpected natural events (sometimes called "acts of God"), civil unrest, strikes or other events which are not within the reasonable control of the CM-at-Risk.

9.6.2.2.5 Suspension of Work for convenience of the ODR, which prevents CM-at-Risk from completing the Work within the Contract Time.

9.6.3 The CM-at-Risk's relief in the event of such delays is the time impact to the critical path as determined by analysis of the CM-at-Risk's schedule. In the event that the CM-at-Risk incurs additional direct costs because of the delay, they are to be determined pursuant to the provisions of Article 11.

9.7 **No Damages for Delay.** The CM-at-Risk has no claim for monetary damages for delay or hindrances to the work from any cause, including without limitation any act or omission of the Owner.

9.8 **Concurrent Delay.** When the completion of the Work is simultaneously delayed by an excusable delay and a delay arising from a cause not designated as excusable, the CM-at-Risk may not be entitled to a time extension for the period of concurrent delay.

9.9 **Other Time Extension Requests.** Time extensions requested in association with changes to the Work directed or requested by the Owner shall be included with the CM-at-Risk's proposed costs for such change. Time extensions requested for inclement weather are covered by paragraph 9.6.2.1 above. If the CM-at-Risk believes that the completion of the Work is delayed by a circumstance other than for changes directed to the Work or weather, they shall give the ODR written notice, stating the nature of the delay and the activities potentially affected, within five (5) calendar days after the onset of the event or circumstance giving rise to the excusable delay. Provide sufficient written evidence to document the delay. In the case of a continuing cause of delay, only one ***notice of delay*** is necessary. State claims for extensions of time in numbers of whole or half calendar days.

9.9.1 Within ten (10) calendar days after the cessation of the delay, the CM-at-Risk shall formalize its request for extension of time in writing to include a full analysis of the schedule impact of the delay and substantiation of the excusable nature of the delay. All Changes to the Contract Time or made as a result of such claims is by Change Order, as set forth in Article 11.

9.9.2 No extension of time releases the CM-at-Risk or the Surety furnishing a performance or payment bond from any obligations under the contract or such a bond. Those obligations remain in full force until the discharge of the Contract.

9.9.3 **Contents of Time Extension Requests.** Provide with each Time Extension Request a quantitative demonstration of the impact of the delay on Project completion time, based on the Work Progress Schedule. Include with Time Extension Requests a reasonably detailed narrative setting forth:

9.9.3.1 The nature of the delay and its cause; the basis of the CM-at-Risk's claim of entitlement to a time extension.

9.9.3.2 Documentation of the actual impacts of the claimed delay on the critical path indicated in the CM-at-Risk's Work Progress Schedule, and any concurrent delays.

9.9.3.3 Description and documentation of steps taken by the CM-at-Risk to mitigate the effect of the claimed delay, including, when appropriate, the modification of the Work Progress Schedule.

9.9.4 **Owner's Response.** The Owner will respond to the Time Extension Request by providing to the CM-at-Risk written notice of the number of days granted, if any, and giving its reason if this number differs from the number of days requested by the CM-at-Risk.

9.9.4.1 The Owner will not grant time extensions for delays that do not affect the Contract Completion Date.

9.9.4.2 The Owner will respond to each properly submitted Time Extension Request within fifteen (15) calendar days following receipt. If the Owner cannot reasonably make a determination about the CM-at-Risk's entitlement to a time extension within that time, the Owner will notify the CM-at-Risk in writing. Unless otherwise agreed by the CM-at-Risk, the Owner has no more than fifteen (15) additional calendar days to prepare a final response. If the Owner fails to respond within forty-five (45) calendar days from the date the Time Extension Request is received, the CM-at-Risk is entitled to a time extension in the amount requested.

9.10 **Failure to Complete Work Within the Contract Time. TIME IS OF THE ESSENCE OF THIS CONTRACT.** The CM-at-Risk's failure to Substantially Complete the Work within the Contract Time or to achieve final completion as required will cause damage to the Owner. These damages may be liquidated by agreement of the CM-at-Risk and the Owner, as set forth in the Contract Documents.

9.11 **Liquidated Damages.** The Owner may collect Liquidated Damages due from the CM-at-Risk directly or indirectly by reducing the contract sum in the amount of Liquidated Damages stated in the Contract Documents.

Article 10. Payments

10.1 **Schedule of Values.** The CM-at-Risk shall submit to the ODR and the AE for acceptance a Schedule of Values, or Work Breakdown, accurately itemizing material and labor for the various classifications of the Work based on the organization of the specification sections and using the same activity names and terms as the Work Progress Schedule. The accepted Schedule of Values will be the basis for the progress payments under the Contract.

10.1.1 No progress payments will be made prior to receipt and acceptance of the Schedule of Values, provided in such detail as required by the ODR, and submitted not less than twenty-one calendar (21) days prior to the first request for payment. The Schedule of Values shall follow the order of trade divisions of the specifications and include costs for general conditions, fees, expenditures from Owner's Construction Contingency, and expenditures from Owner's Project Allowances, if applicable, so that the sum of the items will equal the contract price. As appropriate, assign each item labor and/or material values, the subtotal thereof equaling the value of the work in place when complete.

10.1.2 The CM-at-Risk shall retain a copy of all worksheets used in preparation of its bid or proposal, supported by a notarized statement that the worksheets are true and complete copies of the documents used to prepare the bid or proposal. Make the worksheets available to the ODR at the time of Contract execution. Thereafter grant the Owner during normal business hours access to said notarized copy of worksheets at any time during the period commencing upon execution of the Contract and ending one year after final payment.

10.2 **Progress Payments.** The CM-at-Risk will receive periodic progress payments for Work performed, materials in place, suitably stored on site, or as otherwise agreed to by the Owner and the CM-at-Risk. Payment is not due until receipt by the ODR or his designee of a correct and complete Pay Application in electronic and/or hard copy format as set forth in Supplementary General Conditions, Special Conditions or Division 1 Specifications, and certified by the AE. Progress payments are made provisionally and do not constitute acceptance of work not in accordance with the Contract Documents. The Owner will not process progress payment applications for Change Order work until all parties execute the Change Order.

10.2.1 **Preliminary Pay Worksheet** once each month that a progress payment is to be requested, the CM-at-Risk shall submit to the Architect/Engineer and the ODR a complete, clean copy of a preliminary pay worksheet or Preliminary Pay Application, to include the following:

10.2.1.1 The CM-at-Risk's estimate of the amount of Work performed, labor furnished and materials incorporated into the Work, using the established Schedule of Values.

10.2.1.2 An updated Work Progress Schedule including the Executive Summary and all required schedule reports.

10.2.1.3 Small Business Subcontracting Plan reports

10.2.1.4 Such additional documentation as Owner may require as set forth in the Supplementary General Conditions or elsewhere in the Contract Documents.

10.2.2 **CM-at-Risk's Application for Progress Payment.** As soon as practicable, but in no event later than seven days after receipt of the Preliminary Pay Worksheet, the AE and ODR will meet with the CM-at-Risk to review the Preliminary Pay Worksheet and to observe the condition of the Work. Based on this review, the ODR and the AE may require modifications to the Preliminary Pay Worksheet prior to the submittal of an application for progress payment, and will promptly notify the CM-at-Risk of revisions necessary for approval. As soon as practicable, the CM-at-Risk shall submit its Invoice on the appropriate and completed form, reflecting the required modifications to the Schedule of Values required by the AE and/or ODR. Attach all additional documentation required by the ODR and/or AE, as well as an affidavit affirming that all payrolls, bills for labor, materials, equipment, subcontracted work and other indebtedness connected with the CM-at-Risk's invoice are paid or will be paid within the time specified in Texas Government Code Chapter 2251. No invoice is complete unless it fully reflects all required modifications, and attaches all required documentation including the CM-at-Risk's affidavit.

10.2.3 **Certification by Architect/Engineer.** Within five days or earlier following the AE's receipt of the CM-at-Risk's formal invoice, the AE will review the application for progress payment for completeness, and forward to the ODR. The AE will certify that the application is complete and payable, or that it is incomplete, stating in particular what is missing. If the Invoice is incomplete, the CM-at-Risk shall make the required corrections and resubmit the Invoice for processing.

10.3 **Owner's Duty to Pay.** The Owner has no duty to pay the CM-at-Risk except on receipt by the ODR of; 1) a complete Invoice certified by the AE and 2) the CM-at-Risk's updated Work Progress Schedule, and 3) confirmation that the CM-at-Risk's as-built documentation at the site is kept current.

10.3.1 Payment for stored materials and/or equipment confirmed by the Owner and AE to be on-site or otherwise properly stored may be limited to 85 percent of the invoice price or 85 percent of the scheduled value for the materials or equipment, whichever is less.

10.3.2 **Retainage.** The Owner will withhold from each progress payment, as retainage, five percent (5%) of the total earned amount, the amount authorized by law, or as otherwise set forth in the Supplementary General Conditions. Retainage is managed in conformance with Texas Government Code Chapter 2252, Government Code, subchapter B.

10.3.2.1 The CM-at-Risk shall provide written consent of its Surety for any request for reduction or release of retainage.

10.3.2.2 The Project must be Substantially Complete before the Owner will consider a retainage reduction or release.

10.3.3 **Price Reduction to Cover Loss.** The Owner may reduce any Periodic Invoice, or application for Progress Payment, prior to payment to the extent necessary to protect the Owner from loss on account of actions of the CM-at-Risk including, but not limited to:

10.3.3.1 Defective or incomplete Work not remedied.

10.3.3.2 Damage to Work of a separate CM-at-Risk.

10.3.3.3 Failure to maintain scheduled progress or reasonable evidence that the Work will not be completed within the Contract Time.

10.3.3.4 Persistent failure to carry out the Work in accordance with the Contract Documents.

10.3.3.5 Reasonable evidence that the Work cannot be completed for the unpaid portion of the contract sum.

10.3.3.6 Assessment of fines for violations of Prevailing Wage Rate law; or

10.3.3.7 Failure to include the appropriate amount of retainage for that periodic progress payment.

10.3.4 Title to all material and Work covered by progress payments transfers to the Owner upon payment.

10.3.4.1 Transfer of title to Owner does not relieve the CM-at-Risk of the sole responsibility for the care and protection of materials and Work upon which payments

have been made until final acceptance of the entire Work, or the restoration of any damaged Work, or waive the right of the Owner to require the fulfillment of all the terms of the Contract.

10.4 **Progress payments to the CM-at-Risk** do not release the CM-at-Risk or its surety from any obligations under this Contract.

10.4.1 Upon the Owner's request, the CM-at-Risk shall furnish proof of the status of Subcontractor's accounts in a form acceptable to the Owner.

10.4.2 Pay estimate certificates must be signed by a corporate officer or a representative duly authorized by the CM-at-Risk.

10.4.3 Provide copies of bills of lading, invoices, delivery receipts or other evidence of the location and value of such materials in requesting payment for materials.

10.4.4 For purposes of Tex. Gov't Code § 2251.021 (a) (2), the date the performance of service is complete is the date when the Owner's representative approves the application for payment.

10.5 **Off-Site Storage**. With prior approval by the Owner and in the event CM-at-Risk elects to store materials at an off-site location, abide by the following conditions, unless otherwise agreed to in writing by the Owner.

10.5.1 Store materials in a Bonded Commercial Warehouse.

10.5.2 Provide separate Insurance Coverage adequate not only to cover materials while in storage, but also in transit from the off-site storage areas to the Project site. Copies of duly authenticated Certificates of Insurance, made out to insure the State Agency which is signatory to the contract, must be filed with the Owner's representative.

10.5.3 Inspection by Owner's representative is allowed at any time. The Owner's Inspectors must be satisfied with the security, control, maintenance, and preservation measures.

10.5.4 Materials for this Project are physically separated and marked for the Project in a sectioned-off area. Only materials which have been approved through the submittal process are to be considered for payment.

10.5.5 Owner reserves the right to reject materials at any time prior to final acceptance of the complete Contract if they do not meet Contract requirements regardless of any previous progress payment made.

10.5.6 With each monthly payment estimate, submit a report to the ODR, AE, and Inspector listing the quantities of materials already paid for and still stored in the off-site location.

10.5.7 Make warehouse records, receipts and invoices available to Owner's representatives, upon request, to verify the quantities and their disposition.

10.5.8 In the event of Contract termination or default by CM-at-Risk, the items in storage off-site, upon which payment has been made, will be promptly turned over to Owner or Owner's agents at a location near the jobsite as directed by the ODR. The full provisions of Performance and Payment Bonds on this Project cover the materials off-site in every respect as though they were stored on the Project Site.

Article 11. Changes

11.1 **Change Orders.** A Change Order issued after execution of the Contract is a written order to the CM-at-Risk, signed by the ODR, the CM-at-Risk, and the Architect/Engineer, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time can only be changed by Change Order. A Change Order signed by the CM-at-Risk indicates his agreement with it, including the adjustment in the Contract Sum and/or the Contract Time. The ODR may issue written authorization for the CM-at-Risk to proceed with work of a change order in advance of final execution by all parties. ***In the absence of an agreement with the CM-at-Risk on a Change Order, the Owner may issue a Construction Change Directive that will have the full force and effect of a contract modification. The issuance of a Construction Change Directive does not prejudice the CM-at-Risk's rights to make claims or to appeal disputed matters under terms of the Contract.***

11.1.1 The Owner, without invalidating the Contract, ***and without approval of the CM-at-Risk's Surety***, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, and the Contract Sum and the Contract Time will be adjusted accordingly. All such changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents. If such changes cause an increase or decrease in the CM-at-Risk's cost of, or time required for, performance of the Contract, an equitable adjustment shall be made and confirmed in writing in a Change Order.

11.1.2 The parties acknowledge that the specifications and drawings may not be complete or free from errors, omissions or imperfections and that they may require changes or additions in order for the work to be completed to the satisfaction of Owner. Therefore, and notwithstanding any other provisions in this Contract, the parties agree that any errors, omissions or imperfections in the specifications and drawings, or any changes in or additions to them or to the work ordered by Owner and any resulting delays in the work or increases in CM-at-Risk's costs and expenses, shall not constitute or give rise to any claim, demand or cause of action of any nature whatsoever in favor of CM-at-Risk, whether for breach of contract, *quantum meruit*, or otherwise; provided, however, that Owner shall be liable to CM-at-Risk for the sum stated to be due CM-at-Risk in any Change Order approved and signed by both parties. The parties agree that the Change Order sum, together with any extension of time contained in the Change Order, shall constitute full compensation to CM-at-Risk for all costs, expenses and damages to CM-at-Risk, whether direct, consequential or otherwise that are incident to, arise out of, or result directly or indirectly from or indirectly from the work performed by CM-at-Risk under such Change Order.

11.1.3 Procedures for administration of Change Orders shall be established by the Owner and stated in Supplementary General Conditions, Special Conditions, or elsewhere in the Contract Documents.

11.1.4 Except as provided above, no order, oral statement, or direction of the Owner or his duly appointed representative shall be treated as a change under this article or entitle the CM-at-Risk to an adjustment.

11.1.5 The CM-at-Risk agrees that the Owner or any of its duly authorized representatives shall have access and the right to examine any directly pertinent books, documents, papers, and records of the CM-at-Risk. Further, the CM-at-Risk agrees to include in all its subcontracts a provision giving the Owner or any of its duly authorized representatives access to and the right to examine any directly pertinent books, documents, papers and records of any Subcontractor relating to any claim arising from this Contract, whether or not the Subcontractor is a party to the claim. The right of access and examination described herein shall continue for the duration of any claims brought under the Disputes article of the Contract, litigation, or the settlement of claims arising out of the performance of this Contract until final disposition of such claims, appeals or litigation.

11.2 **Unit Prices.** The Contract Documents may require the CM-at-Risk to provide certain work or materials on the basis of unit prices. If the quantity originally contemplated in determining any unit price is **materially** changed such that application of the agreed unit price to the actual quantity of work required will cause substantial inequity to the Owner or the CM-at-Risk, the applicable unit price shall be equitably adjusted as provided in the Special Conditions or as agreed to by the parties and incorporated into Change Order.

11.3 **Claims for Additional Costs**

11.3.1 The CM-at-Risk shall provide written notice to the Owner and the Architect/Engineer within ninety (90) days of the occurrence of any event or the discovery of any condition that the CM-at-Risk claims will cause an increase in the Contract Sum or Contract Time that is not related to a requested change. The CM-at-Risk shall not proceed with any work for which it will assert a claim for additional cost or time before providing the written notices, except for emergency situations governed by Article 7.3. Failure to provide the required notices is sufficient grounds for rejecting any claim for an increase in the Contract Sum or the Contract Time arising from the event or the condition. Any adjustment in the Contract Sum or Contract Time for any additional Work shall be authorized by Change Order.

11.3.2 The notice provisions of Article 11.3.1 apply to, but are not limited to, any claims for additional cost or time brought by the CM-at-Risk as a result of: 1) any written interpretation of the Contract Documents, 2) any order by the Owner to stop the Work pursuant to Article 14 where the CM-at-Risk was not at fault, or 3) any written order for a minor change in the Work issued pursuant to Article 11.4.

11.3.3 Should the CM-at-Risk or his Subcontractor fail to call attention of the AE to obvious discrepancies or omissions in the Bid/Proposal Documents during the pre-bid/pre-proposal period, but claim additional costs for corrective work after contract award, the Owner may assume intent to circumvent competitive bidding for necessary corrective work. In such case, the Owner may choose to let a separate contract for the corrective work, or issue a Unilateral Change Order to require performance by the CM-at-Risk. Claims for time extensions or for extra cost resulting from delayed notice of contract document discrepancies or omissions will not be considered by the Owner.

11.4 **Minor Changes.** The AE, with concurrence of the ODR, will have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time. Such changes shall be effected by written order which the CM-at-Risk shall carry out promptly and record on as-built record documents.

11.5 **Concealed Site Conditions.** If, in the performance of the Contract, subsurface, latent or concealed conditions at the site are found to be materially different from the information included in the bid/proposal documents, or if unknown conditions of an unusual nature are disclosed differing materially from the conditions usually inherent in work of the character shown and specified, the ODR and the Architect/Engineer shall be notified in writing of such conditions before they are disturbed. Upon such notice, or upon its own observation of such conditions, the Architect/Engineer, with the approval of the ODR, will promptly make such changes in the Drawings and Specifications as they deem necessary to conform to the different conditions, and any increase or decrease in the cost of the Work, or in the time within which the Work is to be completed, resulting from such changes will be adjusted by Change Order, subject to the prior approval of the ODR.

11.6 **Extension of Time.** All Changes to the Contract Time shall be made as a consequence of requests as required under Article 9.6, and as documented by Change Order as provided under Article 11.1.

11.7 **Administration of Change Order Requests.** All changes in the Contract shall be administered in accordance with procedures approved by the Owner, and when required make use of such electronic information management as the owner may employ.

11.7.1 Routine changes in the Construction Contract shall be formally initiated by the Architect/Engineer by means of a Change Order Request form detailing requirements of the proposed change for pricing by the CM-at-Risk. This action may be preceded by communications between the CM-at-Risk, AE and ODR concerning the need and nature of the change, but such communications shall not constitute a basis for beginning the proposed Work by the CM-at-Risk. Except for emergency conditions described below, approval of the CM-at-Risk's cost proposal by the Architect/Engineer and ODR will be required for authorization to proceed with the Work being changed. The Owner will not be responsible for the cost of work changed without prior approval and the CM-at-Risk may be required to remove work so installed.

11.7.2 Any unexpected circumstance which necessitates an immediate change in order to avoid a delay in progress of the Work may be expedited by verbal communication and authorization between the CM-at-Risk and Owner, with written confirmation following within twenty-four (24) hours. A limited scope not-to-exceed estimate of cost and time will be requested prior to authorizing Work to proceed. Should the estimate be impractical for any reason, the ODR may authorize the use of detailed cost records of such work to establish and confirm the actual costs and time for documentation in a formal Change Order.

11.7.3 Emergency changes to save life or property may be initiated by the CM-at-Risk alone (see Article 7.3) with the claimed cost and/or time of such work to be fully documented as to necessity and detail of the reported costs and/or time.

11.7.4 *The method of incorporating approved changes into the parameters of the accepted Schedule of Values must be coordinated and administered in a manner acceptable to the ODR.*

11.8 **Pricing Change Order Work**

11.8.1 All proposed costs for changes in the work must be supported by itemized accounting of material, equipment and associated itemized installation costs in sufficient detail, following the outline and organization of the established Schedule of Values, to permit analysis by the AE and ODR using current estimating guides and/or practices. All changes in the work are subject to audit by Owner or its representatives at any time in accordance with the Contract Documents, and sums due to the CM-at-Risk for changes in the work may be adjusted lower as a result of such audit.

11.8.1.1 Photocopies of Subcontractor and vendor proposals shall be furnished unless specifically waived by the ODR.

11.8.1.2 CM-at-Risk shall provide written response to change request within twenty-one (21) calendar days of receipt.

11.8.1.3 *If the parties cannot agree on an equitable adjustment for labor hours attributable to a change, they shall use the Means Facility Cost Data as a guide for labor hours as a basis of negotiation.*

11.8.1.4 *If the parties cannot agree on an equitable adjustment for equipment rental charges attributable to a change, they shall use the Rental Rate Blue Book for Construction Mobilization as a basis of negotiation.*

11.8.2 The amounts that the CM-at-Risk and/or its Subcontractors add to a Change Order for profit and overhead will also be considered by the Owner before approval is given. The amounts established hereinafter are the maximums that are acceptable to the Owner.

11.8.2.1 For work performed by its forces, the CM-at-Risk will be allowed their actual costs for materials, the total amount of actual wages paid for labor, the total actual cost paid for state and federal payroll taxes and for Worker's Compensation. Any additional insurance or bond premium costs shall only be allowed if the change results in a verifiable increase in the premiums that must be paid by the CM-at-Risk. To the total of the above costs, the CM-at-Risk will be allowed to add a percentage as noted below to cover overhead and profit combined. Overhead shall be considered to include insurance other than mentioned above, field and office supervisors and assistants, including safety and scheduling personnel, use of small tools, incidental job burdens and general Home Office expenses, all other general conditions/general requirements costs, and no separate allowance will be made therefor. Allowable percentages for overhead and profit on changes will not exceed 15 percent if the total cost of self-performed work is less than or equal to \$10,000, will not exceed 10 percent if the total cost of self-performed work is between \$10,000 and \$20,000, and will not exceed 7.5 percent if the total cost of self-performed work is over \$20,000, for any specific change priced. There shall be no Construction Phase Fee markup allowed for any work self-performed by the CM-at-Risk.

11.8.2.1.1 On contracts based on a Guaranteed Maximum Price (GMP), the CM-at-Risk or Design Build Firm shall NOT be entitled to a percentage mark-up on any change order work unless the Change Order increases the Guaranteed Maximum Price. CM-at-Risk or Design Build firms will therefore not be permitted any markups for overhead and profit (including General Conditions or CM Construction Phase Fee), on self-performed work funded from Owner's Construction Contingency or Owner's Project Allowances.

11.8.2.2 For subcontracted Work each affected Subcontractor shall figure its costs, overhead and profit, subject to the same calculation and markup limitations described for CM-at-Risk self performed work in 11.8.2.1, above. All Subcontractor costs shall be combined, and to that total Subcontractor cost the CM-at-Risk's markup is limited to the Construction Manager's Construction Phase Fee.

11.8.2.3 On changes involving both additions and deletions, markups will be allowed only on the net addition, and in accordance with the markup and calculation provisions above. The Owner does not accept and will not pay for additional contract cost identified as indirect, consequential, or as damages caused by delay.

11.9 **Owner's Construction Contingency**

11.9.1 Owner's Construction Contingency is a contingency fund created by Owner as part of the Contract Sum to cover the cost of unforeseen conditions that that develop during the Construction Phase which the Construction Manager could not have anticipated or discovered through the exercise of reasonable care during Pre-Construction Phase. Expenditures from the Owner's Construction Contingency must be approved in writing by the Owner by CEA.

11.9.2 The Owner's Construction Contingency may **not** be used for Contractor rework, cost increases caused by lack of coordination or communication with the Project Architect or trade Subcontractors, changes in conditions or the correction of errors or omissions in the Construction

Documents that the Construction Manager could have discovered through reasonable care and study during the Pre-Construction Services phase of the Project.

11.9.3 Proposals for expenditures from the Owner's Construction Contingency must be requested by a Contingency Expenditure Proposal (CEP) and the CEP must conform to the same documentation requirements as are required for Change Order Proposals in Section 11.8.1.

11.9.4 For changes funded from Owner's Construction Contingency, the CM-at-Risk shall not be entitled to any markup for overhead or profit (including General Conditions or CM Construction Phase Fee), regardless of whether the work is self-performed or performed by subcontractors. For work performed by subcontractors and funded from the Owner's Construction Contingency, the subcontractors will be allowed their actual costs for materials, the total amount of actual wages paid for labor, the total actual cost paid for state and federal payroll taxes and for Worker's Compensation. To the total of the above costs, the subcontractor will be allowed to add a percentage as noted below to cover overhead and profit combined. Overhead shall be considered to include insurance, field and office supervisors and assistants, including safety and scheduling personnel, use of small tools, incidental job burdens and general Home Office expenses, all other general conditions/general requirements costs, and no separate allowance will be made therefor. Allowable percentages for overhead and profit on changes will not exceed 15 percent if the total cost of the work is less than or equal to \$10,000, will not exceed 10 percent if the total cost of the work is between \$10,000 and \$20,000, and will not exceed 7.5 percent if the total cost of the work is over \$20,000, for any specific change priced.

11.9.5 The determination of whether changes in the work are funded from the Owner's Construction Contingency by a CEA or by Change Order will be at the Owner's sole discretion.

11.9.6 The balance of any remaining Owner's Construction Contingency funds belong to the Owner and shall be credited to the Owner at the end of the Project by deductive Change Order, including a credit for any corresponding CM Fee and General Conditions costs calculated on such unused funds.

11.10 Owner's Project Allowances

11.10.1 As the Drawings and Specifications may not be finished at the time the Guaranteed Maximum Price proposal is prepared, the Construction Manager shall provide amounts for the Owner's Project Allowances in the Guaranteed Maximum Price. Allowances shall be limited to use for items which require further development of the Drawings and Specifications by the Architect that is consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include such things as changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Contingency Expenditure Authorization (CEA) or Change Order.

11.10.2 Proposals for expenditures from the Owner's Project Allowances must be requested by an Allowance Expenditure Proposal (AEP) and the AEP must conform to the same documentation requirements as are required for Change Order Proposals in Section 11.8.1.

11.10.3 For changes funded from Owner's Project Allowances, the CM-at-Risk shall not be entitled to any markup for overhead or profit (including General Conditions or CM Construction Phase Fee), regardless of whether the work is self-performed or performed by subcontractors. For work performed by subcontractors and funded from the Owner's Project Allowances, the subcontractors will be allowed their actual costs for materials, the total amount of actual wages paid for labor, the total actual cost paid for state and federal payroll taxes and for Worker's Compensation. To the total of the above costs, the subcontractor will be allowed to add a percentage as noted below to cover overhead and profit combined. Overhead shall be considered to include insurance, field and office supervisors and assistants, including safety and scheduling personnel, use of small tools, incidental job burdens and general Home Office expenses, all other general conditions/general requirements

costs, and no separate allowance will be made therefor. Allowable percentages for overhead and profit on changes will not exceed 15 percent if the total cost of the work is less than or equal to \$10,000, will not exceed 10 percent if the total cost of the work is between \$10,000 and \$20,000, and will not exceed 7.5 percent if the total cost of the work is over \$20,000, for any specific change priced.

11.10.4 The balance of any remaining Owner's Project Allowances funds belong to the Owner and shall be credited to the Owner at the end of the Project by deductive Change Order, including a credit for any corresponding CM Fee and General Conditions costs calculated on such unused funds.

Article 12. Project Completion and Acceptance

12.1 Closing Inspections

12.1.1 **Substantial Completion Inspection.** When the CM-at-Risk considers the entire Work or part thereof Substantially Complete, it shall notify the ODR in writing that the Work will be ready for Substantial Completion Inspection on a specific date. The CM-at-Risk shall include with this notice the CM-at-Risk's Punchlist to indicate that it has previously inspected all the Work associated with the request for inspection, has corrected items where possible, and includes all items scheduled for completion or correction prior to final inspection. The failure to include any items on this list does not alter the responsibility of the CM-at-Risk to complete all Work in accordance with the Contract Documents. If any of the items on this list prevents the building from the use to which it is intended, the CM-at-Risk shall not request a Substantial Completion Inspection. The Owner and its representatives will review the list of items and schedule the requested inspection, or inform the CM-at-Risk in writing that such an inspection is premature because the Work is not sufficiently advanced or conditions are not as represented on the CM-at-Risk's list.

12.1.1.1 Prior to the Substantial Completion Inspection, the CM-at-Risk shall furnish a copy of its marked-up As-Built Drawings and a preliminary copy of each instructional manual, maintenance and operating manual, parts catalog, wiring diagrams, spare parts, specified written warranties and like publications or parts for all installed equipment and like items. Delivery of these items is a prerequisite for requesting the Substantial Completion Inspection.

12.1.1.2 On the date requested by CM-at-Risk, or as mutually agreed upon, the AE, ODR, the CM-at-Risk and other Owner representatives as determined by the Owner, will jointly attend the Substantial Completion Inspection, which shall be conducted by the ODR or their delegate. If the ODR ***concurs with the AE and CM-at-Risk in a determination*** that the Work is Substantially Complete, the ODR will issue a Certificate of Substantial Completion to be signed by the AE, Owner and CM-at-Risk, establishing the date of Substantial Completion ***and identifying responsibilities for security, maintenance, and insurance.*** AE will provide with this certificate a list of punchlist items (the Pre-Final Punchlist) for completion prior to final inspection. This list may include items in addition to those on the CM-at-Risk's punchlist, which the inspection team deems necessary to correct or complete prior to Final Inspection. If the Owner occupies the facility upon determination of Substantial Completion, the CM-at-Risk shall complete all corrective Work at the convenience of the Owner, without disruption to Owner's use of the facility for its intended purposes.

12.1.2 **Final Inspection.** The CM-at-Risk shall complete the list of items identified on the Pre-Final Punchlist prior to requesting a Final Inspection. Unless otherwise specified, or otherwise agreed in writing by the parties as documented on the Certificate of Substantial Completion, the CM-at-Risk shall complete and/or correct all Work within thirty (30) days of the Substantial Completion date. Upon completion of the Pre-Final Punchlist work, the CM-at-Risk shall give

written notice to the ODR and AE that the Work will be ready for Final Inspection on a specific date. The CM-at-Risk shall accompany this notice with a copy of the updated Pre-Final Punchlist indicating resolution of all items. On the date specified or as soon thereafter as is practicable, the ODR, AE and the CM-at-Risk will inspect the Work. The AE will submit to the CM-at-Risk a Final Punchlist of open items that the inspection team requires corrected or completed before final acceptance of the Work.

12.1.2.1 Correct or complete all items on the Final Punchlist before requesting Final Payment. Unless otherwise agreed to in writing by the parties, complete this work within seven (7) days of receiving the Final Punchlist. Upon completion of the Final Punchlist, notify the AE and ODR in writing stating the disposition of each Final Punchlist item. The AE, Owner and CM-at-Risk shall promptly inspect the completed items. When the Final Punchlist is complete, and the Contract is fully satisfied according to the Contract Documents the ODR will issue a certificate establishing the date of Final Completion. Completion of all Work is a condition precedent to the CM-at-Risk's right to receive Final Payment.

12.1.3 **Annotation.** Any Certificate issued under this Article may be annotated to indicate that it is not applicable to specified portions of the Work, or that it is subject to any limitation as determined by the Owner.

12.1.4 **Purpose of Inspection.** Inspection is for determining the completion of the Work, and does not relieve the CM-at-Risk of its overall responsibility for completing the Work in a good and workmanlike manner, in compliance with the Contract. Work accepted with incomplete punchlist items or failure of the Owner or other parties to identify Work that does not comply with the Contract Documents or is defective in operation or workmanship does not constitute a waiver of the Owner's rights under the Contract or relieve the CM-at-Risk of its responsibility for performance or warranties.

12.1.5 **Additional Inspections**

12.1.5.1 If the Owner's inspection team determines that the Work is not Substantially Complete at the Substantial Completion Inspection, the ODR or AE will give the CM-at-Risk written notice listing cause(s) of the rejection. The **CM-at-Risk** will set a time for completion of incomplete or defective work **as acceptable to the ODR**. Complete or correct all work so designated prior to requesting a second Substantial Completion Inspection.

12.1.5.2 If the Owner's inspection team determines that the Work is not complete at the Final Inspection, the ODR or the AE will give the CM-at-Risk written notice listing the cause(s) of the rejection. The **CM-at-Risk** will set a time for completion of incomplete or defective work **as acceptable to the ODR**. The CM-at-Risk shall complete or correct all Work so designated prior to again requesting a Final Inspection.

12.1.5.3 The Contract contemplates three (3) comprehensive inspections: the Substantial Completion Inspection, the Final Completion Inspection, and the Inspection of Completed Final Punchlist Items. The cost to the Owner of additional inspections resulting from the Work not being ready for one or more of these inspections is the responsibility of the CM-at-Risk. The Owner may issue a Unilateral Change Order deducting these costs from Final Payment. Upon the CM-at-Risk's written request, the Owner will furnish documentation of any costs so deducted. Work added to the Contract by Change Order after Substantial Completion Inspection is not corrective work for purposes of determining timely completion, or assessing the cost of additional inspections.

12.1.6 **Phased Completion.** The Contract may provide, or Project conditions may warrant, as determined by the ODR, that designated elements or parts of the Work be completed in phases. Where phased completion is required or specifically agreed to by the parties, the provisions of the Contract related to Closing Inspections, Occupancy and Acceptance apply independently to each designated element or part of the Work. For all other purposes, unless otherwise agreed by the parties in writing, Substantial Completion of the Work as a whole is the date on which the last element or part of the Work completed receives a Substantially Completion certificate. Final Completion of the Work as a whole is the date on which the last element or part of the Work completed receives a Final Completion certificate **or notice**.

12.2 **Owner's Right of Occupancy.** The Owner may occupy or use all or any portion of the Work following Substantial Completion, or at any earlier stage of completion. Should the Owner wish to use or occupy the Work, or part thereof, prior to Substantial Completion, the ODR will notify the CM-at-Risk in writing **and identify responsibilities for security, maintenance, and insurance**. Work performed on the premises by third parties on the Owner's behalf does not constitute occupation or use of the Work by the Owner for purposes of this Article. All Work performed by the CM-at-Risk after occupancy, whether in part or in whole, shall be at the convenience of the Owner so as to not disrupt Owner's use of, or access to occupied areas of the Project.

12.3 **Acceptance & Payment**

12.3.1 **Request for Final Payment.** Following the certified completion of all Work, including all punch list items, cleanup, and the delivery of record documents, the CM-at-Risk shall submit a certified Application for Final Payment that includes all sums held as retainage and forward to the AE and the ODR for review and approval.

12.3.2 **Final Payment Documentation.** Prior to or with the Application for Final Payment, CM-at-Risk shall submit final copies of all close-out documents, maintenance and operating instructions, guarantees and warranties, certificates, record documents and all other items required by the Contract. The CM-at-Risk shall submit Consent of Surety to Final Payment and an affidavit that all payrolls, bills for materials and equipment, subcontracted work and other indebtedness connected with the Work, except as specifically noted, are paid, will be paid, or otherwise satisfied within the period of time required by Texas Government Code Chapter 2251. The CM-at-Risk shall furnish documentation establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of claims and liens arising out of the Contract.

12.3.3 **Architect/Engineer Approval.** The AE will review a submitted Application for Final Payment promptly but in no event later than ten (10) days after its receipt. Prior to the expiration of this deadline, the AE will either 1) return the Application for Final Payment to CM-at-Risk with corrections for action and resubmission or 2) accept it, note their approval and send to Owner.

12.3.4 **Offsets and Deductions.** The Owner may deduct from the Final Payment all sums due from the CM-at-Risk. If the Certificate of Final Completion notes any Work remaining, incomplete, or defects not remedied, the Owner may deduct the cost of remedying such deficiencies from the Final Payment. On such deductions, the Owner will identify each deduction, the amount, and the explanation of the deduction on or by the 21st day after Owner's receipt of an approved Application for Final Payment. Such offsets and deductions shall be incorporated via a final Change Order, including Unilateral Change Order as may be applicable.

12.3.5 **Final Payment Due.** Final Payment is due and payable by the Owner, subject to all allowable offsets and deductions, on the 31st day following the Owner's approval of the Application for Payment. If the CM-at-Risk disputes any amount deducted by the Owner, the CM-at-Risk shall give notice of the dispute on or before the thirtieth (30th) day following receipt of Final Payment. Failure to do so will bar any subsequent claim for payment of amounts deducted.

12.3.6 **Effect of Final Payment.** Final Payment constitutes a waiver of all claims by the Owner, relating to the condition of the Work except those arising from:

12.3.6.1 Faulty or defective Work appearing after Substantial Completion (latent defects); and/or

12.3.6.2 Failure of the Work to comply with the requirements of the Contract Documents; and/or

12.3.6.3 Terms of any warranties required by the Contract, or implied by law; and/or

12.3.6.4 Claims arising from personal injury or property damage to third parties.

12.3.7 **Waiver of Claims. Submission of an Application for Final Payment by the CM-at-Risk** constitutes a waiver of all claims and liens by the CM-at-Risk except those specifically identified in writing and submitted to the ODR prior to the application for Final Payment.

12.3.8 **Effect on Warranty.** Regardless of approval and issuance of Final Payment, the Contract is not deemed fully performed by the CM-at-Risk and closed until the expiration of all warranty periods.

Article 13. Warranty & Guarantee

13.1 **CM-at-Risk's General Warranty and Guarantee.** CM-at-Risk warrants to the Owner that all Work is executed in accordance with the Contract, complete in all parts and in accordance with approved practices and customs, and of the best finish and workmanship. The CM-at-Risk further warrants that unless otherwise specified, all materials and equipment incorporated in the Work under the Contract are new. The Owner may, at its option, agree in writing to waive any failure of the Work to conform to the Contract, and to accept a reduction in the Contract Price for the cost of repair or diminution in value of the Work by reason of such defect. Absent such a written agreement, the CM-at-Risk's obligation to perform and complete the Work in accordance with the Contract Documents is absolute and is not waived by any inspection or observation by the Owner, Architect/Engineer or others, by making any progress payment or final payment, by the use or occupancy of the Work or any portion thereof by the Owner, at any time, or by any repair or correction of such defect made by the Owner.

13.2 **Warranty Correction Period.** Except as may be otherwise specified or agreed, the CM-at-Risk shall repair all defects in materials, equipment, or workmanship appearing within one year from the date of Substantial Completion of the Work. ***If less than all of the Work is accepted as substantially complete (Partial Substantial Completion), the warranty period for the Work accepted begins on the date of Partial Substantial Completion, or as otherwise stipulated on the Certificate of Partial Substantial Completion for the Work.***

13.3 **Limits on Warranty.** CM-at-Risk's warranty and guarantee hereunder excludes defects or damage caused by:

13.3.1 Modification or improper maintenance or operation by persons other than CM-at-Risk, Subcontractors, or any other individual or entity for whom CM-at-Risk is not responsible, unless Owner is compelled to undertake maintenance or operation due to the neglect of the CM-at-Risk.

13.3.2 Normal wear and tear under normal usage after acceptance of the Work by the Owner.

13.4 **Events Not Affecting Warranty.** CM-at-Risk's obligation to perform and complete the Work in a good and workmanlike manner in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CM-at-Risk's obligation to perform the Work in accordance with the Contract Documents:

13.4.1 Observations by Owner and/or AE.

13.4.2 Recommendation to pay any progress or final payment by AE.

13.4.3 The issuance of a certificate of Substantial Completion or any payment by Owner to CM-at-Risk under the Contract Documents.

13.4.4 Use or occupancy of the Work or any part thereof by Owner.

13.4.5 Any acceptance by Owner or any failure to do so.

13.4.6 Any review of a Shop Drawing or sample submittal; or

13.4.7 Any inspection, test or approval by others.

13.5 **Separate Warranties.** If a particular piece of equipment or component of the Work for which the contract requires a separate warranty is placed in continuous service before Substantial Completion, the Warranty Period for that equipment or component will not begin until Substantial Completion, regardless of any warranty agreements in place between suppliers and/or Subcontractors and the CM-at-Risk. The ODR will certify the date of service commencement in the Substantial Completion Certificate.

13.5.1 In addition to the CM-at-Risk's warranty and duty to repair, the CM-at-Risk expressly assumes all warranty obligations required under the Contract for specific building components and equipment.

13.5.2 The CM-at-Risk may satisfy any such obligation by obtaining and assigning to the Owner a complying warranty from a manufacturer, supplier, or Subcontractor. Where an assigned warranty is tendered and accepted by the Owner which does not fully comply with the requirements of the Contract, the CM-at-Risk remains liable to the Owner on all elements of the required warranty not provided by the assigned warranty.

13.6 **Correction of Defects.** Upon receipt of written notice from the Owner, or any agent of the Owner designated as responsible for management of the Warranty Period, of the discovery of a defect, the CM-at-Risk shall promptly remedy the defect(s), and provide written notice to the Owner and designated agent indicating action taken. In case of emergency where delay would cause serious risk of loss or damage to the Owner, or if the CM-at-Risk fails to remedy within 30 days, or within another period agreed to in writing, the Owner may correct the defect and be reimbursed the cost of remedying the defect from the CM-at-Risk or its Surety.

13.7 **Certification of No Asbestos Containing Materials or Work.** The CM-at-Risk shall ensure compliance with the Asbestos Hazard Emergency Response Act (AHERA– 40 CFR 763-99 (7)) from all Subcontractors and materials suppliers, and shall provide a notarized certification to the Owner that all equipment and materials used in fulfillment of their contract responsibilities are non Asbestos Containing building Materials (ACBM). This certification must be provided no later than the CM-at-Risk's application for Final Payment.

Article 14. Suspension and Termination

14.1 **Suspension of Work for Cause.** The Owner may, at any time without prior notice, suspend all or any part of the Work if the Owner determines it is necessary to do so to prevent or correct any condition of the Work which constitutes an immediate safety hazard or which may reasonably be expected to impair the integrity, usefulness or longevity of the Work when completed.

14.1.1 The Owner will give the CM-at-Risk a written notice of suspension for cause, setting forth the reason for the suspension and identifying the Work suspended. Upon receipt of the notice, the CM-at-Risk shall immediately cease all activities related to the identified Work. As soon as practicable following the issuance of a suspension notice, the Owner will conduct an investigation into the circumstances giving rise to the suspension, and issue a written determination of the findings.

14.1.2 If the cause of the suspension is due to actions or omissions within the control of the CM-at-Risk, the CM-at-Risk will not be entitled to an extension of time for delay resulting from the suspension. If the cause of the suspension is something not within the control of the CM-at-Risk and the suspension will prevent the CM-at-Risk from completing the Work within the Contract Time, the suspension is an Excusable Delay and a reasonable Time Extension will be granted through a Change Order.

14.1.3 Suspension of work under this provision will be no longer than is reasonably necessary to remedy the conditions giving rise to the suspension.

14.2 **Suspension of Work for Owner's Convenience.** Upon seven (7) calendar days' written notice to the CM-at-Risk, the Owner may at any time without breach of the Contract suspend all or any portion of the Work for its own convenience. Upon resumption of the Work, if the suspension prevents the CM-at-Risk from completing the Work within the Contract Time, it is an Excusable Delay. A notice of suspension for convenience may be modified by the Owner at any time on seven (7) calendar Days written notice to the CM-at-Risk. If the Owner suspends the Work for its convenience for more than 60 consecutive calendar Days, the CM-at-Risk may elect to terminate the Contract pursuant to the provisions of the contract.

14.3 **Termination by Owner for Cause**

14.3.1 ***Upon thirty (30) days' written notice to the CM-at-Risk and its Surety,*** the Owner may, without prejudice to any right or remedy, terminate the employment of the CM-at-Risk and take possession of the site and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CM-at-Risk, under any of the following circumstances:

14.3.1.1 Persistent or repeated failure or refusal, except during complete or partial suspensions of work authorized under the Contract, to supply enough properly skilled workmen or proper materials; and/or

14.3.1.2 Persistent disregard of laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, including the ODR; and/or

14.3.1.3 Persistent failure to prosecute the work in accordance with the Contract, and to insure its completion within the time, or any approved extension thereof, specified in this Contract; and/or

14.3.1.4 Failure to remedy defective work condemned or rejected by the ODR; and/or

14.3.1.5 Failure to pay Subcontractors, laborers, and material suppliers; and/or

14.3.1.6 Persistent endangerment to the safety of labor or of the Work; and/or

14.3.1.7 Failure to supply or maintain statutory bonds or to maintain required insurance, pursuant to the contract; and/or

14.3.1.8 Any material breach of the Contract; and/or

14.3.1.9 The CM-at-Risk's insolvency, bankruptcy, or demonstrated financial inability to perform the work.

14.3.2 Failure by the Owner to exercise the right to terminate in any instance is not a waiver of the right to do so in any other instance.

14.3.3 Upon receipt of a termination notice, the CM-at-Risk or its Surety has thirty (30) days to cure the reasons for the termination or demonstrate to the satisfaction of the Owner that it is prepared to remedy to the condition(s) upon which the notice of termination was based. If the Owner is satisfied that the CM-at-Risk or its Surety can remedy the reasons for the termination and complete the Work as required, the notice of termination shall be rescinded in writing by the Owner and the Work shall continue without an extension of time.

14.3.4 If at the conclusion of the thirty (30) day cure period the CM-at-Risk or its Surety is unable to demonstrate to the satisfaction of the Owner its ability to remedy the reasons for termination, the Owner may **immediately terminate the employment of the CM-at-Risk**, make alternative arrangements for completion of the Work and deduct the cost of completion from the unpaid Contract Sum.

14.3.4.1 Recoverable costs include additional Owner expenses for items such as AE services, other consultants, and contract administration.

14.3.5 The Owner will make no further payment to the CM-at-Risk or its Surety until all costs of completing the Work are paid. If the unpaid balance of the Contract Sum exceeds the costs of administering and finishing the Work, the CM-at-Risk will receive the excess funds. If costs of completing the Work exceed the unpaid balance of the Contract Sum, the CM-at-Risk or its Surety will pay the difference to the Owner.

14.3.5.1 This obligation for payment survives the termination of the Contract.

14.3.6 The Owner reserves the right, in a termination for cause, to take assignment of all contracts between the CM-at-Risk and its Subcontractors, vendors and suppliers. The ODR will promptly notify the CM-at-Risk of the contracts the Owner elects to assume. Upon receipt of such notice, the CM-at-Risk shall promptly take all steps necessary to effect such assignment.

14.4 **Termination for Convenience of Owner**. Upon written notice to the CM-at-Risk and the AE, the Owner may, without breach, terminate the Contract for any reason.

14.4.1 The notice will specify the effective date of contract termination. The notice may also contain instructions necessary for the protection, storage or decommissioning of incomplete work or for safety.

14.4.2 Upon receipt of the notice of termination, the CM-at-Risk shall immediately proceed with the following obligations:

14.4.2.1 Stop all Work.

14.4.2.2 Place no further subcontracts or orders for materials or services.

14.4.2.3 Terminate all subcontracts.

14.4.2.4 Cancel all materials and equipment orders as applicable.

14.4.2.5 Take appropriate action to protect and preserve all property related to this Contract which is in the possession of the CM-at-Risk.

14.4.3 When the Contract is terminated for the Owner's convenience, the CM-at-Risk may recover from the Owner payment for all Work executed ***before the notice of termination along with the actual and reasonable cost of any additional work required to secure the Project, the Site and property related to the Contract following the notice of termination. The CM-at-Risk will not be entitled to recover any other costs or damages arising from the termination for convenience of the Owner including, but not limited to, claims for lost profits, overhead and profit on Work not performed, or lost business opportunities.***

14.5 **Termination By CM-at-Risk.** If the Work is stopped for a period of ninety (90) Days under an order of any court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of the CM-at-Risk or a Subcontractor or their agents or employees or any other persons performing any of the Work under a contract with the CM-at-Risk, then the CM-at-Risk may, upon thirty (30) additional days' written notice to the ODR, terminate the Contract and recover from the Owner payment for all Work executed ***before the work stoppage and the actual and reasonable cost of securing the Project and property related to the Contract during the work stoppage. The CM-at-Risk will not be entitled to recover any other costs or damages arising from the work stoppage including, but not limited to, claims for lost profits, overhead and profit on Work not performed or lost business opportunities.*** If the cause of the work stoppage is removed prior to the end of the thirty (30) day notice period, the CM-at-Risk may not terminate the Contract.

14.6 **Settlement on Termination.** Within one hundred eighty (180) days of the effective date of Contract termination for any reason, the CM-at-Risk shall submit a final termination settlement proposal to the Owner based upon recoverable costs as provided under the Contract. If the CM-at-Risk fails to submit a settlement proposal within the time allowed, the Owner may ***unilaterally*** determine the amount due to the CM-at-Risk because of the termination.

Article 15. Dispute Resolution

15.1 **Unresolved CM-at-Risk Disputes.** The dispute resolution process provided for in Texas Government Code Chapter 2260, shall be used by the Owner and the CM-at-Risk to attempt to resolve any claim for breach of contract made by the CM-at-Risk, that is not resolved under procedures described throughout the Uniform General Conditions, Supplemental Conditions, or Special Conditions of the Contract.

15.2 **Alternative Dispute Resolution Process.** The Owner may establish a dispute resolution process to be utilized in advance of that outlined in Texas Government Code Chapter 2260.

15.3 Before submitting any matter not resolved in the ordinary course of business to the dispute resolution process provided for in Texas Government Code Chapter 2260, the CM-at-Risk shall make a written request to the Owner's designated official in charge of construction contract administration for a determination of the matter in dispute. The written request shall clearly state the disputed issue and include or incorporate by specific reference all information or documents that the CM-at-Risk wants the official to consider in reaching his/her determination. The official shall issue a written notice of decision

on the request. Within 30 days of the notice of decision, the CM-at-Risk may submit a request for reconsideration to the official that particularly states the factual and legal basis for the CM-at-Risk's objections to the official's decision. The official will review his/her decision and consider the basis for reconsideration asserted in the request. The official will issue a written notice of decision following reconsideration which shall be final and conclusive on all matters except for claims of breach of contract which are then subject to the dispute resolution process provide by Chapter 2260.

15.4 ***Nothing herein shall hinder, prevent or be construed as a waiver of Owner's right to seek redress on any disputed matter in a court of competent jurisdiction.***

15.5 ***Nothing herein shall waive or be construed as a waiver of the Owner's sovereign immunity.***

Article 16. Miscellaneous

16.1 **Supplemental and Special Conditions.** When the Work contemplated by the Owner is of such a character that the foregoing Uniform General Conditions of the Contract cannot adequately cover necessary and additional contractual relationships, the Contract may include Supplemental and Special Conditions as described below:

16.1.1 Supplemental Conditions may describe the standard procedures and requirements of contract administration followed by a contracting agency of the State. Supplemental Conditions may expand upon matters covered by the Uniform General Conditions, where necessary, provided the expansion does not weaken the character or intent of the Uniform General Conditions. Supplemental Conditions are of such a character that it is to be anticipated that a contracting agency of the State will normally use the same, or similar, conditions to supplement each of its several Projects.

16.1.2 Special Conditions shall relate to a particular Project and be peculiar to that Project but shall not weaken the character or intent of the Uniform General Conditions.

16.2 **Federally Funded Projects.** On federally funded Projects, the Owner may waive, suspend or modify any Article in these Uniform General Conditions which conflicts with any federal statute, rule, regulation or procedure, where such waiver, suspension or modification is essential to receipt by the Owner of such federal funds for the Project. In the case of any Project wholly financed by federal funds, any standards required by the enabling federal statute, or any federal rules, regulations or procedures adopted pursuant thereto, shall be controlling.

16.3 **Internet-based Project Management.** The Owner will administer its design and construction management through the e-Builder Internet-based management. In such cases, the CM-at-Risk shall conduct communication through this media and perform all Project related functions utilizing this database. This includes correspondence, submittals, requests for information, vouchers or payment requests and processing, amendments, Change Orders and other administrative activities.

16.3.1 **Accessibility And Administration.**

16.3.1.1 Refer to Specification Section 01 36 00 in the Owner's Construction Project Division 1 Specifications for the Project Manager Software Requirements for the Project.

16.3.1.2 The Owner shall administer the software.

16.3.2 **Training.** When used, the Owner shall provide training to the Project team members.

EXHIBIT B

HOUSTON COMMUNITY COLLEGE

CONSTRUCTION PROJECT
DIVISION 1 SPECIFICATIONS

Houston Community College

Construction Project Division 1 Specifications

Table of Contents

Section #	Description	Page #
010000	Miscellaneous Requirements	1
	1. Summary	
	2. Removal of Debris	
	3. Drawings & Specifications	
	4. Interpretation of Documents	
	5. Materials and Work	
	6. Intent of Documents	
	7. Existing Underground Utilities	
	8. Pumping, Shoring, Etc.	
	9. Hazardous Materials	
	10. Substantial Completion	
	11. Coordination	
	12. Observation of Work	
	13. Cooperation with Building Officials	
	14. Notification	
	15. Ongoing Operations/Construction Personnel	
	16. Field Measurements	
	17. Substitutions	
012000	Project Meetings	7
	1. Pre-Construction Conferences	
	2. Pre-Installation Conferences	
	3. Progress Meetings	
	4. Close-out Meetings	
013100	Project Administration	8
	1. Subcontracts	
	2. Flow of Communications	
	3. Project Changes	
	4. Liquidated Damages	
	5. Site Use Issues	
	6. Shop Drawings and Submittals	
	7. Substitutions of Materials, Labor and Equipment	
	8. Allowances	
	9. Alternates	
	10. Unit Prices	
	11. Applications for Payment	

Section #	Description	Page #
<i>(Continued)</i>		
013100	Project Administration	8
	12. Procurement of Subcontracts (Construction Manager at Risk and Design-Build Contracts Only)	
	13. Contractor Daily Reports	
	14. As-Built Drawings and Record Documents	
	15. Utility Outages	
	16. Coordination of Space	
	17. Repair of Damage	
	18. Deliveries	
	19. Protection of Utilities, Etc.	
013200	Project Planning and Scheduling	19
	1. Definitions	
	2. Purpose	
	3. Contractor Responsibilities	
	4. Schedule Development Requirements	
	5. Planning and Scheduling Workshop	
	6. Construction Phase Baseline Schedule Submittal	
	7. Updating the Project Schedule	
	8. Excusable Delays and Time Extensions	
013220	Photographic Documentation	22
	1. Photographic Media	
	2. Construction Photographs	
	3. Construction Videos	
013520	LEED Requirements	22
	1. Definitions	
	2. Submittals	
	3. Quality Assurance	
013523	Project Safety Requirements	23
	1. Purpose	
	2. Contractor's Project Safety Coordinator	
	3. Subcontractors' Project Safety Representative	
	4. Project Safety Program	
	5. Personal Protective Equipment	
	6. Medical Equipment	
	7. Certifications	
	8. Project Safety Signs and Posters	

Section #	Description	Page #
013523	Project Safety Requirements	23
	9. Project Safety Training and Meetings	
	10. Safety Inspections	
	11. Records and Reports	
	12. Construction Operations	
	12.1. Cranes	
	12.2. Demolition	
	12.3. Electrical Power	
	12.4. Excavations	
	12.5. Fall Protection and Prevention	
	12.6. Fire Protection	
	12.7. Housekeeping	
	12.8. Ladders	
	12.9. Medical Assistance and Screening	
	12.10. Petroleum Fuel Operated Equipment	
	12.11. Public Protection	
	12.12. Project Service Water	
	12.13. Welding and Burning	
013600	Project Software	28
	1. GENERAL	
	1.1 Related Documents	
	1.2 Summary	
	2. PRODUCTS	
	2.1 License	
	3. EXECUTION (Not Applicable)	
014200	Reference Standards	32
	1. Governing Regulations/Authorities	
	2. Standards	
	3. Schedule of Standards	
014300	Quality Assurance	50
	1. General Requirements	
	2. Below Grade Inspections	
	3. Concrete Inspections	
	4. Wall Closure/Above-Ceiling Inspections	
	5. Substantial Completion Inspection	
	6. Final Inspection & Acceptance	
	7. One-year Warranty Inspection	
	8. Execution	
	8.1. Pier Drilling Operations	
	8.2. Reinforcing Steel Mechanical Splices	
	8.3. Reinforcing Steel and Embedded Metal Assemblies	

Section #	Description	Page #
8.4.	Concrete Inspection & Testing	
8.5.	Post-tensioning of Concrete	
8.6.	Masonry	
8.7.	Structural Steel	
8.8.	Expansion Bolt Installation	
8.9.	Metal Floor Deck	
8.10.	Metal Roof Deck	
014339	Site Mock-ups	54
1.	General	
014500	Quality Control	55
1.	General Requirements for Contractor's Laboratory Services	
014518	Field Engineering	55
1.	Quality Assurance	
2.	Examination	
3.	Performance	
015000	Construction Facilities and Temporary Controls	55
1.	General Requirements	
2.	Yard Repairs	
3.	Temporary Utilities and Services	
4.	Construction Aids	
5.	Barriers and Enclosures	
6.	Security	
7.	Temporary Controls	
7.1.	SWPPP	
7.2.	Temporary Storage Tanks	
7.3.	Inspections and Record Keeping	
7.4.	Maintenance	
8.	Parking	
9.	Field Offices and Sheds	
10.	Temporary Toilets	
015010	Project Signage	60
1.	Installation of Temporary Project Signage	
2.	Signage Dimensions and Materials	
015240	Construction Waste Management	61
1.	Definitions	
2.	Performance Goals	
3.	Quality Assurance	

Section #	Description	Page #
	4. Waste Management Plan	
	5. Salvaging Demolition Waste	
	6. Recycling Demolition and Construction Waste, General	
017000	Contract Close-out	62
	1. General Record Documents	
	2. Required Documents	
	3. Requirements for Substantial Completion	
	4. Requirements for Final Acceptance	
	5. Operating and Maintenance Manuals	
	6. Record Product Submittals	
	7. Record Sample Submittals	
	8. Commissioning and Close-out Manual	
019100	General Commissioning Requirements	64
	1. Scope of Work Included	
	2. Commissioning Plan	
	3. Equipment Documentation Requirements	
	4. Test Equipment	
	5. Pre-commissioning Meeting	
	6. Pre-installation Meeting	
	7. Contractor's Verification of Installation	
	8. Contractor's Operational Testing	
	9. Integrated System Demonstration	
	10. Owner Training	

Section 010000 Miscellaneous Requirements

1. Summary

These Miscellaneous Requirements are issued as supplements to the Uniform General Conditions for Construction Contracts (UGCs) and any Special Conditions that form a part of the Contract for Construction between the Owner and the General Contractor (or Construction Manager, or Design-Build Contractor). The term “Contractor”, as used herein, is meant to refer to a General Contractor, or a Design-Build Contractor, or a Construction Manager. Should any provision of these Division 1 Specifications conflict with the Contract, the UGCs or the Special Conditions, the latter shall govern.

2. Removal of Debris (see Section 015240)

The Contractor shall remove and legally dispose of all demolition debris and all unused construction materials off-site. Unless specifically noted otherwise, all excess earth and rock excavation materials shall be removed and disposed of offsite. Such demolition debris, unused construction materials and excess excavated earth and rock shall be handled, transported and legally disposed of at the Contractor’s expense.

3. Drawings and Specifications (also see UGC Article 6)

- 3.1 The Drawings and Specifications are intended to describe and provide for a finished and complete piece of Work that meets the requirements of all the applicable governing laws, ordinances, rules, and regulations of the locality. It is mandatory that all work must meet these requirements.
 - 3.1.1 No extra compensation will be allowed for the Contractor’s rework due to its failure to conform to any such requirements unless the original installation was directed by written order issued by the A/E or the Owner.
 - 3.1.2 Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be like effect as if shown or mentioned in both. If the Contractor believes that some information is missing then that information should be requested of the Owner or A/E in writing. Should the Drawings disagree among themselves, or with the Specifications, the better quality and/or greater quantity of work and/or materials shall be included with the Contractor’s project proposed pricing. In the case where the Specifications do not fully agree with the material schedules, the material schedules shall govern.
 - 3.1.3 The general character of the detail work is shown on Drawings, but minor modifications may be made by A/E in full size Drawings, shop drawings, or models. Contractor shall not attempt to execute any part of the Work requiring such drawings until he has received approved copies of same.
 - 3.1.4 Where the word “similar or typical” occurs on Drawings, they shall be understood in their general sense and not as meaning identical. All details shall be worked out in relation to their location and their connection to other parts of the Work. If the Contractor finds this to be beyond its capability, interpretations and directions should be requested of the A/E.

- 3.1.5 Small scale and large scale drawings are intended to be mutually compatible and explanatory. In case of variances, the following order of preferences is established to define the intent of the work.
- 3.1.6 Explanatory notes on Drawings;
 - 3.1.6.1 Recorded dimensions;
 - 3.1.6.2 Large scales details;
 - 3.1.6.3 Small scale details;
 - 3.1.6.4 Scaled measurements
- 3.2 The “Scope of Work” description placed in the front portion of each section of the Specifications is intended to designate the scope and locations of all items of Work included in that section, either generally or specifically. It is not, however, intended to limit the scope of the work where plans, schedules, or notes indicate a larger scope.

4. Interpretations of Documents (see UGC 3.2.2)

Whether bidding or building the Project, if there is any doubt as to the meaning of any part of the Construction Documents, the Contractor shall submit a written request to the Owner seeking an interpretation. If the question has to do with technical requirements, the Contractor should provide the A/E with a copy of the request as the Owner will typically ask the A/E for the technical interpretation. If such a request is made during bidding, it should be made at least ten days before bid opening. Interpretations shall then be issued by written response only and during bidding only by issuing an “Addendum” to the bid documents. When in doubt during construction, the Contractor should proceed only with a written interpretation by the Owner, or in its absence, proceed only after notifying the Owner in writing about the interpretation that is being used. Failure of the Contractor to request an interpretation shall not relieve the Contractor from responsibility to complete the Work to the Owner’s satisfaction. If the Contractor does not agree that an interpretation received is satisfactory and without cost or time implications, the Owner should be notified immediately in writing of that fact.

5. Materials and Work (see UGC 8.1)

- 5.1 Unless otherwise specified, all materials shall be new and free of asbestos, noxious or toxic fumes, urea-formaldehyde and lead (lead in potable water system) and both workmanship and materials shall be of the best quality. If requested by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of his materials and workmanship. Any work installed that does not meet the requirements of the Construction Documents shall be removed and replaced with conforming Work. **(UGC 3.3.5)**
- 5.2 The Contractor and subcontractors shall be responsible for the proper care and protection of all materials and equipment furnished both during and after installation. Such materials and equipment may be staged inside the construction fence, or areas designated by the Owner, but only consistent with a Staging Plan acceptable to the Owner. All materials affected by the weather shall be covered and protected to keep them free from damage while being transported to the site. When stored on site, they shall be placed in watertight storage shed/compartments or otherwise protected from the weather. Any material damaged by water or other causes shall be removed from the site and replaced with new material.

- 5.3 When necessary to avoid delay or to protect work or equipment, provide suitable watertight coverings over windows, doors, skylights, hatchways, and such other openings admitting rain, including the Owner's materials within the building area when working on a combined effort.
- 5.4 The Contractor and subcontractors shall protect and be responsible for their Work and any damage to their Work from the date of delivery or installation until Substantial Completion when the Owner will take possession and assume responsibility. They shall make good, without cost to the Owner, any damage or loss that may occur to their Work during this period.
- 5.5 When any room in one of Owner's buildings has been provided for use as a shop, storeroom, etc., the Contractor shall restore the room to equal, or better, condition by providing repairs, patching, cleaning, and painting at its sole expense.
- 5.6 During the execution of the Work the open ends of all piping, conduit and mechanical ducts and openings in equipment shall be sealed in such a way as to prevent the entrance of foreign matter. All heating, ventilating, plumbing and electrical equipment shall be covered and protected. All plumbing fixtures shall be protected and boarded over to prevent their usage by any person. All drains shall be covered until they are placed into service.
- 5.7 The Contractor shall provide all scaffolding and ladders necessary for performing the Work. All scaffolding shall be so constructed, anchored and braced to comply in all respects with OSHA guidelines to afford safety and protection to both workers and their Work, the inspectors and the Work of other contractors.
- 5.8 Except as otherwise specified, the Contractor shall furnish at its own cost and risk all tools, apparatus, hoists or cranes, derricks, etc. needed for the Work.
- 5.9 Temporary equipment shall be installed in such a manner that finished Work will not be damaged by smoke, falling mortar, concrete or other causes. The location and arrangement of temporary equipment shall be subject to the approval of the Owner.
- 5.10 All temporary shoring required for the installation of Work shall be provided by the Contractor who will take all responsibility.
- 5.11 The Contractor and its subcontractors shall provide on the premises, at locations approved by the Owner, suitable watertight storage sheds for the storage of tools and equipment. Such sheds shall be at least 6 inches off the ground on heavy joists. The Contractor shall maintain such sheds in good condition and remove them when directed by the Owner.
- 5.12 **Also see Sections 013100, 013523 and 015000 for related requirements.**

6. Intent of the Documents (see UGC 11.1.2)

- 6.1 It is the intention of the Construction Documents to describe and require the complete installation of the various systems and the Contractor is to furnish all items necessary to make the various systems complete, although each and every item required may not be specifically mentioned in the Construction Documents.
- 6.2 It is not the intent of the Construction Documents to limit materials, equipment or fixtures to the product of any particular manufacturer. Where definite materials, equipment or fixtures have been specified by name, manufacturer or catalog number, it has been done to set a quality standard, applicability, physical conformity and other characteristics. It is not the Owner's intent to discriminate against or prevent any dealer,

jobber or manufacturer from furnishing materials, equipment or fixtures that meet or exceed the characteristics of the specified items. However, substitutions of materials shall not be made without a specific written request by the Contractor having been approved by the Owner in writing. **(See paragraph 18 of this Section).**

- 6.3 Any discrepancies in the Specifications must be reported to the Owner for clarification, correction and interpretation from the A/E before the work is executed.

7. Existing Underground Utilities

If existing underground lines occur in the site where the work is to be accomplished, such lines will be located and staked by the Contractor for the benefit of the Owner and the Contractor prior to start of the work. Contractor shall maintain these markings throughout the duration of the construction project. Prior to any excavation, the Contractor shall review with the Owner the locations of all underground utilities and receive the Owner's written permission to proceed.

8. Pumping, Shoring, Etc.

- 8.1. Pumping: When necessary to avoid delay or to protect the Work or the premises, provide suitable pumping equipment and keep excavations, pits and other areas involved free of water that may leak, seep, or rain in. Do not allow water to flow into excavations. Do not allow water to flow off site in quantities or at rates that exceed the quantities or rates that existed prior to the start of construction
- 8.2. Shoring: The Contractor shall provide and be responsible for all temporary shoring required for execution and protection of the work. After all construction is secure and stable, and when authorized by the Structural Engineer or Civil Engineer, the Contractor shall remove all shoring.

9. Hazardous Materials

- 9.1 If during the course of his work, the Contractor observes the existence of asbestos, or asbestos bearing materials, the Contractor shall immediately terminate further operations and notify Owner of the condition. The Owner will, after consultations, determine a further course of action. **(UGC 7.5)**
- 9.2 Contractor shall furnish Manufacturer's Safety Data Sheets (MSDS) on all materials and products installed by the Contractor and subcontractors on this project to indicate no asbestos-containing materials have been installed.

10. Substantial Completion (see UGC 1.26 and 12.1.1)

"Substantial Completion" constitutes a stage of project completion that will allow Owner beneficial occupancy for the purpose of safely installing furnishings, maintaining normal security over them, and use of the facility for its intended purpose. Substantial Completion shall not be considered as Final Completion as there may be minor correction items outstanding and there are additional completion items required to achieve Final Completion. Upon acceptance that an entire Project, or a portion of a Project, as Substantially Complete the Owner will take possession from the Contractor and assume operations, maintenance and insurance liability responsibilities for that portion of the Project.

11. Coordination (see UGC 3.3.6.2 and 4.4 of the CM@R contract)

The Contractor and subcontractors on the project shall coordinate their work with each other, advising on work schedules, equipment locations, etc. It shall be the responsibility of Contractor to assure this coordination and to schedule and supervise the work of all subcontractors performing work under this contract. Contractor shall be responsible for the proper fit of the various parts of the Work and for the coordination of operations of all trades, the subcontractors and the material suppliers engaged upon or in connection with the Work as well as those of his own employees. Contractor shall accommodate and coordinate with other independent contractors and Owner personnel on site during construction to allow them necessary access to perform their work.

12. Observation of Work (see UGC 8.5.1)

The Owner's representatives, as well as the A/E, shall have access to the work at all times wherever it is in preparation or progress. The Contractor shall provide proper and safe facilities for such access and for observation.

13. Cooperation with Building Officials

Contractor, Subcontractor and all related suppliers, vendors and employees will cooperate with applicable utility and government officials and inspectors at all times. If such official or inspector deems special inspections necessary, provide assistance and facilities that will expedite such inspection or observation.

14. Notification

The Contractor shall notify the Owner at least 48 hours in advance (Monday thru Friday) of concrete pours, roofing installation, start of each new section of classification of work, concealment of plumbing, heating, air conditioning, or electrical work.

15. Ongoing Operations/Construction Personnel

- 15.1 The facilities of the campus will only be available during the scheduled construction time-period as specified by the Owner, and if not specified, then from 8:00 a.m. until 6:00 p.m., Monday through Friday. Work during other times, including weekends, shall only be allowed with prior request and written authorization from the Owner. In addition, the Contractor shall accommodate and coordinate its construction work force and activities to allow the Owner's forces and Owner's separate contractors (i.e. telephone, data, IT, computer, and furniture installation) to enter the jobsite to perform their work.
- 15.2 This project is surrounded by continuously functioning campus facilities, including student housing, academic and research efforts. The Contractor shall make every effort to avoid disruptions to ongoing campus activities and to maintain a safe environment for students, faculty, and staff in the areas adjacent to the Project.
- 15.3 Adjacent facilities will continue to be used for their intended purpose while this Project is underway and the following requirements shall apply:
 - 15.3.1 Contractor, Subcontractors, Owner and A/E shall meet regularly to coordinate and schedule any construction activities affecting ongoing operations including, but not limited to: testing days, student/staff holidays, special events, etc.

- 15.3.2 The Owner may have other contractors, or its own employees, performing work on the campus and in the vicinity of the Contractor's Work. The Contractor shall not commit any act, or allow any act, that will interfere with the performance of work by these other work forces. The Contractor shall cooperate with all performing parties so that the Owner can realize the best possible outcome of all projects involved and requiring coordination.
 - 15.3.3 Student, faculty and general public safety is of utmost importance. Fire and life safety exiting from buildings must be maintained at all times and closely monitored. Review and receive approval for changes in existing conditions with the local fire marshal for each phase of construction. Provide temporary signage as required by the fire marshal and/or the Owner.
 - 15.3.4 Firearms, drugs, intoxicating beverages, X-rated materials, etc. are banned from the Owner's property.
 - 15.3.5 Smoking is not allowed inside any campus building or anywhere on the campus except in designated areas. Smoking will not be allowed in any enclosed area of the building(s) of this project. Enclosed, as used here, refers to erection of exterior walls and overhead structure for any portion of the project; it does not mean to limit the term to only "dried in" situations. Use of or possession of illegal drugs or alcohol on the project site or anywhere on campus is prohibited.
 - 15.3.6 Construction personnel are not to communicate or interact with students and faculty on site. Only the Project Superintendent, Project Manager and/or their appointed representatives may communicate with the faculty and administrative staff on an as needed basis.
- 15.4 Campus utilities must not be interrupted except when scheduled and approved in advance through Owner-designated campus channels. The Contractor or his personnel shall NOT open or close any valves of the central campus utility systems. Valve operation is to be done by University utilities personnel only. The Contractor shall not activate or deactivate any campus utility system or component of any system, without express written direction from the Owner.
- 15.5 Chemical cleaning of new utility additions shall be done by circulating a good non-phosphate cleaner through as much of the new system as possible. Prior to dumping the cleaning agent, the Contractor shall notify the local City/County industrial water treatment department to sample the effluent. If the City/County officials approve of dumping to drain, then the Contractor will dump into the sanitary sewer. The Contractor shall refill the new system with water and again have the City/County water treatment officials sample the effluent prior to dumping. If at any stage the City/County water treatment officials refuse to accept the effluent, then the Contractor must make special arrangements for legal disposal at its expense and provide the Owner with copies of the resulting shipping and disposal manifests.

16. Field Measurements (see 014518 – Field Engineering)

- 16.1 The Contractor will employ an experienced, competent staff to establish or survey the building lines, elevations, and field dimensions. Each subcontractor shall verify all existing grades, lines, levels and dimensions affected by their work.
- 16.2 Before ordering any materials or doing any work, each subcontractor shall verify all measurements and shall be responsible for their correctness. Any difference between the actual dimensions and conditions on the site and those indicated on the drawings shall be submitted to the Owner for instructions and consideration before proceeding with the work.

17. Substitutions (see UGC 8.3.5 and 8.3.6)

The Contractor may submit and Owner and A/E will consider substitutions that have not been submitted and approved prior to receipt of proposals. Contractor shall submit a written substitution request on an Owner approved form and the substitution shall be fully identified for product or method being replaced by substitution, including related specification section and drawing number(s) and fully documented to show compliance with the requirements of the Construction Documents. Include product data/drawings, description of methods, samples where applicable and Contractor's detailed comparison of significant qualities between the specified item and the proposed substitution. The Contractor shall include a statement of effect on construction time, coordination and other affected work, cost information or proposal and a written guarantee indicating the proposed substitution will result in overall work equal to or better than work originally indicated. Contractor shall allow sufficient time for review and approval of such proposed substitutions.

Section 012000 Project Meetings

1. Pre-Construction Conferences (see UGC 3.1.1 and CM@R Contract 5.1)

- 1.1 Prior to commencing construction, the Contractor shall schedule a meeting to review all aspects of the Construction Project. The time of the Pre-Construction Conference and the attendees shall be determined through discussions between the Owner, Project Manager and Contractor prior to scheduling.
- 1.2 The following is a tentative agenda for the Pre-Construction Conference:
 - Critical work sequencing;
 - Designation of responsible personnel;
 - Procedures for processing submittals, substitutions, applications for payment, proposal requests, change letters and Contract Close-out procedures;
 - Parking and access to the site;
 - Office, storage areas and temporary facilities;
 - Utility information;
 - Testing procedures;
 - Procedures for maintaining record documents.
- 1.3 Minutes of the Pre-Construction Conference will be kept and distributed to all attendees and to all team members not present at the meeting. All final decisions recorded in the minutes shall become binding on the parties.

2. Pre-Installation Conferences

Conduct a Pre-installation Conference at the site before each construction activity that requires extensive coordination and for those activities where a preinstallation meeting is specifically required by the specification section.

3. Progress Meetings (see UGC 8.5 and 8.6)

- 3.1 The Contractor shall schedule progress meetings at regular intervals to discuss and monitor the construction project. The Contractor shall determine the meeting times and required attendees.
- 3.2 Minutes of the Progress Meeting shall be kept and distributed to all attendees and to all team members not present at the meeting.

4. Close-out Meetings

- 4.1 When the Contractor determines that a Project, including all punch list items, has been substantially completed and an acceptance date established, a formal project close-out meeting will be scheduled and attended by the parties designated by the Owner and A/E.
- 4.2 At the close-out meeting, upon documentation of exceptions and assignment of completion responsibilities, the close-out documents required by the Construction Documents will be released to the Owner.
- 4.3 Minutes of the Project Close-out meeting will be kept by the A/E and any exceptions identified will be recorded. Specific completion dates for the exceptions will be established and tracked by the Owner to ensure expeditious completion. Copies of the minutes will be distributed to all attendees.

Section 013100 Project Administration

1. Subcontracts (see UGC 3.3.6)

- 1.1 Contractor agrees to bind every subcontractor, and every subcontractor agrees to be bound by the terms and conditions of the Owner's contract.
- 1.2 The Contractor is required to submit a list of all first tier subcontractors to the Owner as subcontracts are executed.

2. Flow of Communications (see UGC 3.2, 3.3.1 and 3.3.6)

- 2.1 The Owner's Designated Representative (ODR) is the Owner's primary representative for the Project who will be designated to the Contractor in writing. The ODR is the only party authorized to issue written/or oral instructions directly to the Contractor that involve changes to the contract scope, cost or time of the Work. If any other party directs the Contractor to make changes to the Work that will involve scope, cost or time the Contractor should notify the ODR immediately in writing. (see UGC 1.17)
- 2.2 The Owner will also designate Project Manager. The ODSR will have the authority, delegated by the ODR, to make decisions on behalf of the Owner concerning coordination with the Owner of Work on the site including: traffic controls, site safety, scheduling of utility outages, and all matters within the contract that do not involve changes to the scope, cost and/or time for completion. The Project Manager, will coordinate and conduct quality inspections of the construction work as it is installed or performed, authorize payments (except first and final) and conduct final acceptance

inspections. The Project Manager will be the Contractor's primary point of contact on the site.

- 2.3 The Architect/Engineer (A/E) is responsible to the Owner for the technical aspects of the Design, including the review of Contractor Submittals and for interpretation of the technical requirements of the Construction Documents. The Owner's written instructions to the Contractor on these matters will generally be issued through the A/E.
 - 2.3.1 The A/E may issue clarifications and other information not affecting the contract scope, cost or time by means of an A/E's Supplemental Instructions (ASI), or similar clarification form, that will be sequentially numbered. Both the A/E and Contractor will maintain separate ASI registers. **(See UGC 3.2.2).**
 - 2.3.2 If Contractor believes such a clarification will create a change in the contract scope, cost or time for performance, a written notification of such must be provided to the ODR before performing the Work involved. The Contractor should proceed with such Work only after being directed to do so in writing by the ODR.
- 2.4 Any oral direction to the Contractor by the ODR, ODSR or the A/E should be confirmed in writing prior to the Contractor proceeding with the direction.
- 2.5 All Project correspondence shall include the Project Number and Name in the title or reference.
- 2.6 All correspondence originated by the Contractor should include simultaneous copies to the ODSR and the A/E. Such correspondence that involves changes, or proposed changes, to the scope, cost or time for the Work, or any dispute or potential dispute, should also include copies to the ODR.
- 2.7 All subcontractor correspondence to either the Owner or the A/E shall be routed through the Contractor.
- 2.8 All subcontractor Requests for Information (RFIs) shall be submitted by and under cover of the Contractor, who is to carefully review and ensure the completeness and appropriateness of the question prior to submission. The Contractor should sequentially number each RFI and submit them directly to the A/E, with copies to the ODSR. The Contractor and A/E will maintain separate RFI logs.
- 2.9 The preparation and handling of Pay Applications, Request for Information, Change Proposals, Submittals, etc. are to be processed as discussed in the Pre-Construction Conference meeting.

3. Project Changes (see UGC 9.1, 9.3.3.3, 9.6.2.2 and Article 11)

- 3.1 All changes to the Contract involving scope, cost, or time will be issued on either a written Contingency Expenditure Authorization (CEA) or the standard Houston Community College (HCC) Change Order form. The determination of whether changes in the Work are funded from the Owner's Construction Contingency or by Change Order is at the Owner's sole discretion. Such CEAs or Change Orders are valid only if signed by either the Chancellor of HCC or by the Executive Director for Construction Administration. A single CEA or Change Order may include several different change issues and they will not be required to be related to each other.
- 3.2 Prior to issuing a CEA or Change Order, the Owner must have received from the Contractor a Change Order Proposal that is complete in its description of the changes in scope and its detailed presentation of cost and time implications of the proposed change.

If the Owner and Contractor do not agree on the implications of a proposed change, they will meet and discuss and resolve their differences prior to proceeding with the changes to the Work.

- 3.2.1 The Contractor shall summarize all costs for each change at each level of subcontractor and supplier by preparing a "Cost Analysis", and shall provide each subcontractor's cost summary as backup. Additional support documentation from both the Contractor and its subcontractors is encouraged.
 - 3.2.2 Where the Contractor believes it is entitled to a time extension, it shall so state as part of its response to the Change Proposal, including a justification for such request. Time extensions will be granted only if a Change Order Proposal affects the activities on the Critical Path of the Owner approved Project Schedule (i.e., when the work impacts the "Contract Substantial Completion Date").
 - 3.2.3 If the Owner and Contractor cannot mutually agreed upon a fair and reasonable cost and time settlement, the Owner may: 1) Reject the quotation and void the Change Order Proposal, 2) Issue instruction to the Contractor to proceed on a time and material basis for a price to be determined later not to exceed a fixed maximum dollar and time, or 3) Issue a Construction Change Directive.
 - 3.2.4 The Owner may issue Field Orders directly to the Contractor for minor changes to the contract, which can be negotiated in the field. Pricing backup shall be the same as a Change Order Proposal and is to be outlined as noted above. Once the Owner and the Contractor have signed the Field Order, the work is authorized and the Field Order will be included in the next CEA or Change Order.
- 3.3 Any funds remaining in the Owner's Construction Contingency at the completion of the Project belong to the Owner and shall be credited to the Owner by deductive Change Order.

4. Liquidated Damages (see UGC 9.11, 12.1.4 and 25.2)

If assessed, liquidated damages will be withheld from progress payments beginning with the first payment after the Contract substantial completion deadline and until all work of the contract is complete. The amount assessed shall be deducted from the contract price through a written Change Order.

5. Site Use Issues

- 5.1 The Contractor is responsible for the actions of its entire work force, including Subcontractor and Supplier employees, whenever they are on the campus. Harassment of any kind toward any person will not be tolerated. Offending workers will be removed from the project immediately and permanently. Harassment includes any action such as jeering, whistling, calling-out, staring, snickering, making rude or questionable comments, or similar behavior. Any offending worker or employee will be removed.
- 5.2 The Contractor shall provide and submit a program plan for worker orientation, identification and control of access to the site and for managing personnel records, including payroll records. All workers on the project shall participate in this program before beginning work of the project. This plan shall include, as a minimum:
 - 5.2.1 Employee identification badges with a photo of the employee, the employer and employees' name. Badges shall be provided for all employees and produced by a system on site. This identification shall be worn at all times while on the project

site. Lack of an ID badge shall be grounds for removal from the project until the badge is produced.

- 5.2.2 Identification badges for workers, busing of workers from remote parking lots, frequent written and verbal reminders to the work force of appropriate behavior and avoidance of campus facilities and publication of acceptable access and egress routes from the work site are all minimum requirements of the plan.

6. Shop Drawings and Submittals (see UGC 8.3 and CM@R contract 4.5)

- 6.1 Refer to the UGC for requirements not identified in this section.
- 6.2 The Contractor shall assign an identifying number to each submittal following a format to be established at the Pre-Construction Conference. The same number with a numerical or alphabetical suffix will be used to identify re-submittals.
- 6.3 The burden of timeliness to complete the submittal process is on the Contractor. The Contractor shall allow sufficient time within the construction schedule for the A/E and Owner to review and approve all submittals, including time for all re-submittals on any unaccepted/rejected submittal.
- 6.4 Any deviation from the Construction Documents shall be conspicuously noted on the submittal and the transmittal cover sheet. Failure to so note deviations will void any action taken on the submittal.
- 6.5 All manufacturers' data contained within the submittal shall have all inapplicable features crossed out or deleted in a manner that will clearly indicate exactly what is to be furnished.
- 6.6 Equipment of larger sizes than shown, even though of a specified manufacturer, will not be acceptable unless it can be demonstrated that ample space exists for proper installation, operations and maintenance.
- 6.7 The Owner will not be responsible for payment of any item that has not been submitted and approved through the established submittal process. **(UGC 10.5.1.4)**
- 6.8 The exact number of submittal copies required for distribution will be determined at the Pre-Construction Conference. The Contractor shall anticipate providing a minimum of four (4) copies of each submittal in addition to those needed by the Contractor and its subcontractors. Two (2) of the approved copies will be returned to the Contractor and one (1) shall be set aside for subsequent turn over to Owner at Project Closeout.

7. Substitution of Materials, Labor and Equipment (see UGC 8.3.5 and 010000 paragraph 17)

- 7.1 Refer to the UGC for requirements not identified in this section.
- 7.2 The specified products referenced in the Construction Documents establish minimum qualities for which substitutions shall at least equal to be considered acceptable. The burden of proof of equality rests with the Contractor. The Owner retains sole authority for acceptance of substitutions.
- 7.3 All substitutions shall be submitted with ninety (90) days of the Notice to Proceed for Construction and be clearly marked as such on the transmittal cover sheet for the submittal.
- 7.4 The Contractor shall allow a minimum of four (4) weeks for review of each substitution by the A/E and/or Owner in addition to the requirements identified in Section 7.3 above.

- 7.5 When requested by the A/E, the Contractor shall provide a sample of the proposed substitution item. In some cases, samples of both the specified item and the proposed item shall be required for comparison purposes.
- 7.6 Acceptance of materials and equipment will be based on the supplier/manufacturer's published data and will be tentative subject to submission of complete shop drawings and/or specifications indicating compliance with the Construction Documents. Acceptance of materials and/or equipment under this provision shall not be construed as authorizing any deviation from the Construction Documents, unless specifically directed in writing from the A/E.
- 7.7 Any and all additional costs or time resulting from the acceptance or rejection of any substitution shall be the sole responsibility of the Contractor. These include costs that are not presented at the time of the substitution request and those costs that become known after the approval of the substitution. This includes direct as well as indirect costs.
- 7.8 If a substitution is accepted, and the substitute proves defective, or otherwise unsatisfactory as determined by the Owner for the service intended within the warranty period, the substitute shall be replaced with the material or equipment specified in the Construction Documents, or as approved by the Owner, at no additional cost to the Owner.

8. Allowances

- 8.1 Allowances shall include:
 - Cost of materials to Contractor.
 - Delivery to project site; handling, storage and installation at project site.
 - Protection, security, including insurance.
- 8.2 At contract closeout, monies remaining in any allowance line item will be credited to the Owner by Change Order.

9. Alternates

- 9.1 Alternates will be exercised and added to the proposed contract sum at the option of the Owner.
- 9.2 For any or all additive alternates selected or otherwise approved for addition to the contract sum by the Owner, the Contractor shall coordinate all related work and modify the surrounding work as required to complete the work, including changes under each alternate, only if acceptance is designated in the contract.

10. Unit Prices (see UGC 11.2 and paragraph 5.4.2 of CM@R contract)

The Contractor shall provide unit prices for specific portions of the work identified by the Owner during the pre-bid process. Unit pricing shall include all costs of materials, including, but not limited to shipping, and their related labor cost, including, but not limited to all appropriate burdens and markups.

11. Applications for Payment (see UGC Article 10 and 12.3 as well as Article 12 of the CM@R contract)

- 11.1 Such requests shall be presented on (AIA) style G702 & G703 Pay Application forms. The G702 & G703 forms which may be supplemented with columnar continuation sheets shall separately identify each update to the original contract or GMP amounts.
- 11.2 The Contractor's project accounting records shall be kept on the basis of generally accepted accounting principles in accordance with cost accounting standards issued by the Federal Office of Management and Budget Cost Accounting Standards Board and organized by each pay request period.
- 11.3 Prior to the submission of the initial Application for Payment the Contractor shall submit the following documents to the A/E, Project Manager and Owner for review:
 - 11.3.1 Contract Price of GMP Schedule of Values: A single document itemizing the breakdown of the Contract Price/GMP, including general conditions, contingencies and allowances shall be submitted using HCC standard Schedule of Values format. The Contractor shall submit a draft breakdown and such submittal shall be a condition precedent to the processing of the first pay application. The Contractor shall submit subsequent draft copies of the Schedule of Values no later than five (5) working days prior to formal submission of each monthly pay request.
 - 11.3.1.1 The breakdown shall follow the trade divisions of the specifications.
 - 11.3.1.2 No adjustment to the original detailed breakdown of the contract line item shall be made once accepted by the Owner and A/E, unless such adjustment is directed by the Owner in writing.
 - 11.3.1.3 Construction Manager at Risk or Design-Builders will be allowed to reallocate among General Conditions line items after consultation with, and written agreement from the Owner. In the event the contractual limits on General Condition's costs are exceeded, the overruns shall be subtracted from the Fee.
 - 11.3.2 The Contractor shall not use subcontractor invoices/pay applications in lieu of a single Schedule of Values from the Contractor.
 - 11.3.3 The breakdown shall anticipate future CEAs and Change Orders and make provisions for incorporating all changes into the breakdown listing. If issued, CEAs and Change Orders shall be identified separately and shall itemize the GMP, CEAs, Change Orders, Change Proposals and/or Field Orders, which are incorporated into each CEA or Change Order for payment on a line-item basis. Contracts with Guaranteed Maximum Price proposals shall repeat the process outlined in this section every time a subcontract is added to the monthly Schedule of Values for payment.
 - 11.3.4 Submission and approval of Construction Staging Plans, Parking Plans, Quality Control Plans and Trenching Plans are a prerequisite for starting Work at the site and for receiving the first monthly partial payment.
- 11.4 At a minimum, the Contractor shall provide attachments to each month's payment request as follows:
 - 11.4.1 One copy of the monthly Small Business Progress Assessment reports.
 - 11.4.2 One copy of the updated Submittal Schedule.
 - 11.4.3 One copy of all invoices required by the contract.

- 11.4.4 One copy of the certified wage rate notification form for each member of the workforce not previously submitted.
- 11.4.5 One copy of the updated RFI and ASI logs.
- 11.4.6 One copy of the updated Work Progress Schedule as specified herein.
- 11.5 All regular monthly applications for payment shall be submitted to the Owner, Project Manager and A/E for review and approval in draft form no less than five working days prior to the formal submission. The Contractor shall be prepared to review the draft copy at the project site, or at such other location as may be agreed to by the parties. Failure to comply with the requirements outlined in this section shall relieve the Owner from its obligation to make payments on any/all line items until the Contractor meets all requirements.
 - 11.5.1 Payments cannot exceed the contract, work in-place, or subcontract amounts as noted on the Schedule of Values line items.
 - 11.5.2 All as-built drawings shall be up to date and available for review by the A/E and Owner.
 - 11.5.3 When requesting payment for materials stored off site, all such materials shall be specifically identified, including supporting documentation, photos and insurance. The Contractor should be available to escort the Owner to visit and personally verify the stored materials in a physically separated and secure area.
- 11.6 Request for payments in association with release of, or reduction in retainage, or completion of work have additional requirements outlined in the UGC.

12. Procurement of Subcontracts (Applies to Construction Manager at Risk and Design-Build Contracts Only) – (see 5.6 & 5.7 of the CM@R contract)

- 12.1 The Construction Manager at Risk (CM) or Design/Build Contract (DB) shall provide a written Bid/Proposal Package Strategy (B/PPS) for procuring subcontracts including self-performance work (other than General Conditions), prior to the approval of the Guaranteed Maximum Price, but no later than twenty calendar days prior to the first advertisement for subcontractor proposals. The B/PPS shall be a written plan submitted to, and reviewed and approved by the Owner.
 - 12.1.1 The plan shall identify bid packages that are most advantageous to the Project and align with the CM/DB's HCC SB Good Faith Effort by providing at least three qualified respondents for each package (including CM/DB). Each bid package shall include the UGC, Owner's Division 1 Specifications, Drawings and Specifications and any other HCC requirements included in the CM/DB Contract pertaining to the scope of work covered in the packages.
 - 12.1.2 The B/PPS shall include the following for each bid package contemplated:
 - Anticipated scope of work to be procured;
 - A current Work Progress Schedule;
 - Anticipated selection criteria and questions;
 - Self-perform work proposals to be submitted by the CM/DB;
 - Proposed advertising dates;
 - Proposed pre-proposal meeting(s) dates;
 - Proposed receipt, review and award dates;
 - Anticipated notice to proceed dates.

- 12.2 The CM/DB shall update the B/PPS monthly at a minimum, as conditions change, or as proposed dates are revised.
- 12.3 Per the Texas Government Code Sections 2267.255: “A Construction Manager at-Risk shall publicly advertise for bids or proposals and receive bids or proposals from trade contractors or subcontractors for the performance of all major elements of the work other than the minor work that may be included in the general conditions.” The CM may seek to perform portions of the work itself by submitting bids or proposals in the same manner as **and prior to** all other trade or subcontractors, and if the Owner determines that the CM’s bid or proposal provides the best value to the Owner.
- 12.4 The goal of the Project Team shall be to have all work procured through advertised competitive proposals, however, if a “minor procurement” condition arises during the process, the following procurement guidelines may be used by the CM/DB, with Owner approval, for procurement of work: Less than \$5,000.00 No requirements; Between \$5,000.01 to \$50,000.00 Obtain two solicitations Greater than \$50,000.00 Advertised competitive proposals as required by Texas Government Code Section 2267.255 If the CM does not receive at least two competitive proposals on procurements over \$50,000.00, or the Owner does not receive at least three competitive proposals on packages for which the CM seeks to self-perform, the Owner may require that the CM re-package the scope and reissue the proposal without additional cost to the Owner, or delay to the project “Substantial Completion” date. This solicitation requirement does not pertain to Change Orders to existing subcontracts.
- 12.5 Work shall be divided into reasonable lots; however, material and labor acquired through purchase order/vendor type contracts are subject to the entire project (i.e. Concrete material shall be procured as a unit price time an estimated total project quantity provided by the CM/DB to equal a total construction cost). Work shall not be incrementally divided for the purpose of circumventing the procurement guidelines of 12.4 above.
- 12.6 The CM/DB may establish selection criteria for each phase of work for review and approval by the Project Team. Criteria shall be qualifications based and consistent with the information needed by the CM/DB to make a proper evaluation and selection. The CM/DB shall establish a selection matrix including cost, criteria, weighting and ranking procedures for evaluation and work with the Project Team to tailor the selection criteria to be project and scope specific to ensure the questions are proper and relevant to the goals of the project.
- 12.6.1 The CM/DB shall establish clear criteria and questions so that those reading the Request for Proposals will understand how they will be evaluated.
- 12.6.2 If criteria are not included in the advertisement for proposals, the proposal shall be considered a lump sum bid, and the CM/DB shall award the work to the lowest qualified, responsive bidder.
- 12.6.3 After selection criteria have been established, the CM/DB shall publicly advertise the work in general circulations and trade associations as required by law. This advertisement shall included, at a minimum, the following:
- HCC Project Number and Project Name;
 - Institution/Campus name;
 - CM/DB name and address;
 - CM/DB contract name and phone number;
 - Location for viewing of plans and specifications;

- Date, time and location of Pre-proposal meeting(s);
 - Date, time deadlines(s), and location for receiving proposals;
 - Instruction to respondents for submitting proposals;
 - Selection criteria, questions and submittal requirements.
- 12.7 At the time and location identified in the advertisement, the CM/DB shall hold a Pre-proposal meeting(s) for all potential subcontractors with the Project Team and Owner present. The CM/DB shall review the following at a minimum:
- The general scope of the project and specific scope of work included in this package;
 - Instructions to respondents for submitting proposals;
 - Selection criteria and questions;
 - Small Business Program Requirements;
 - Project safety requirements;
 - Project schedule requirements;
 - Payment procedures and requirements, including retainage;
 - Commissioning and Close-out requirements.
- 12.8 If the CM/DB identifies any self-performance in the B/PPS (work to be performed by its own employees), the CM/DB shall submit a proposal to the Owner at least 24 hours before the advertised time and location in a manner so as not to compromise the competitive process.
- 12.9 The CM/DB shall accept all proposals at the advertised location until the advertised deadline. Upon receipt, the Owner shall be allowed to review the proposal and confirm the time and date received. Any proposals received after the deadline shall not be considered by the CM/DB, and shall be returned to the respondent unopened. Fax proposals shall not be accepted unless the ODR, prior to the initial advertisement for proposals, approves a detailed plan by the CM/DB for proper care and custody.
- 12.10 After compiling, reviewing and verifying the costs and scope associated with all proposals, the CM/DB shall provide a “bid tabulation” matrix and a proposed Schedule of Values for review by the project team.
- 12.10.1 The bid tabulation matrix shall compare all equivalent scope proposals to the CM/DB’s estimate.
- 12.10.2 Each matrix shall indicate the CM/DB estimate(s) for each scope of work and identify the respective cost savings/over-runs.
- 12.10.3 The CM/DB may use values/quantities from its own estimate to provide full scope comparisons between each respondent, however, these “plug” numbers shall be clearly identified in the matrix to the Project Team and be used only to compare various proposals.
- 12.10.4 The proposed updated Schedule of Values shall summarize all executed and recommended “best value” subcontracts to provide a current status of the Guaranteed Maximum Price Proposal.
- 12.10.5 Once the proposals are compiled into a bid tabulation matrix and the proposed Schedule of Values has been updated, the CM/DB shall request a meeting with the Project Team to review the proposals.
- 12.11 The CM/DB shall lead the proposal review meeting and identify any exclusions or conditions, identify any non-qualifying respondents and any other problems that may have occurred during the process.

- 12.11.1 The CM/DB shall confirm that the respondents are qualified, meet the established selection criteria, and identify the amount of the proposals.
- 12.11.2 The CM/DB shall identify the “best values” and the current status of the buyout savings to the project team. If the “best value” causes the CM/DB to exceed the Cost of Work line item, including contingencies in the GMP the CM/DB shall acknowledge that the overage will be deducted from the CM/DB’s Construction Phase Fee.
- 12.12 Once the “best value” respondent has been identified by the CM/DB, without exception by the Owner, the CM/DB shall finalize negotiations with the selected “best value” respondent. If the CM/DB is unsuccessful in its negotiations with the selected respondent, the CM/DB shall notify the ODR that it intends to begin negotiations with the second “best value” and report the cost implications to the Schedule of Values. Once negotiations are successfully completed the CM/DB shall notify the Owner in writing that it intends to write a subcontract to the selected “best value” respondent and identify the bid package number, value of the contract, along with any changes from the bid day value, changes in scope, report the current status of the GMP identifying the current savings/overages and provided a copy of the executed subcontract or purchase order prior to any request for payment by the CM/DB for applicable work.
- 12.13 The Owner reserves the right to object to the “best value” identified by the CM/DB and may conduct an evaluation of the selection process. If after evaluation the Owner disagrees with the CM/DB “best value” recommendation, the Owner may instruct the CM/DB to re-bid the scope of work or use the Owner’s “best value” selection. If the value of the Owner’s selection causes an increase in the Guaranteed Maximum Price, the increase will be the responsibility of the Owner.
- 12.14 The process identified in this section shall be repeated for each bid package until the project is entirely awarded to trade contractors or subcontractors, self-performed by the CM or self-performed by Owner and removed from the CM’s scope by deductive Change Order.

13. Contractor Daily Reports

The Contractor shall provide the Owner and Project Manager with a report detailing its daily activities on the Project in a format acceptable to the Owner. All tests performed by the Contractor are to be attached to these daily reports. All work reports required of subcontractors shall be attached to the Contractor’s daily report. As a minimum, the report shall include the following information as it relates to the day’s activities on site: subcontractors on site, equipment on site, areas of work, type of work performed, materials received, tests performed, any injuries or accidents, any oral instructions received from the Owner, Project Manager or A/E, any material damage, any change in supervisory personnel and anything that might impact the projects quality or schedule. These reports shall be submitted to the Owner and Project Manager on a daily basis. Not receiving these reports in a timely manner may be grounds for the Owner withholding payments until they are submitted.

14. As-Built Drawings and Record Drawings (see UGC 10.3 and 11.4 as well as paragraph 25.7 of the CM@R contract)

- 14.1 One copy of all record documents shall be kept up to date and available at the Project Site. "As-Built" drawings, specifications, detail manuals, and submittals shall be continuously annotated by the Contractor to reflect actual record field conditions, addenda, issuance of all Change Orders and clarifications, and actual dimensional records for underground and all other services. One copy of all approved submittals and material selections shall also be kept available.
- 14.2 Maintenance of current documentation by the Contractor is required in order to process pay applications. The Owner, Project Manager and A/E will review the status of such documentation monthly, at a minimum. Also refer to the Commissioning Procedures and Project Close-out Procedures for detailed instructions on As-Built drawings and specifications.

15. Utility Outages

- 15.1 The Contractor shall notify the Owner, in writing, of any planned utility outages ten business days in advance of the anticipated outage date. The notice shall identify the utility(s) to be shutdown, the anticipated duration of the outage and the subcontractor responsible for initiating and terminating the outage. The Owner has final authority to approve or disapprove of the requested outage date and time.
- 15.2 A standard form for processing a request for utility shutdown or any other disruption shall be provided by the Owner at the Pre-Construction Conference. The Contractor shall utilize this form, with attachments as necessary, in requesting an outage.

16. Coordination of Space (see UGC section 3.3 and 3.3.6.2 in particular. Also see paragraph 4.4 of the CM@R contract)

- 16.1 The Contractor and subcontractors should coordinate the use of Project space and sequence of installation of mechanical, electrical, plumbing, HVAC and Communications work which is indicated diagrammatically on the drawings. The Contractor and subcontractors should follow routing shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space. The Contractor and subcontractors should utilize space efficiently to maximize accessibility for other and future installations, maintenance and repairs. Making adjustments due to field conditions is considered a part of the work.
- 16.2 Within finished areas all pipes, ducts and wiring should be concealed, unless otherwise directed in the plans and specifications. The Contractor and subcontractors should coordinate locations of fixtures and outlets with finish elements.
- 16.3 The Contractor and subcontractors should verify that mechanical and electrical controls, valves, cut-offs, cleanouts, switches and other items are located in such a manner as to make them readily accessible to the user.
- 16.4 In no case shall locations of equipment be established by scaling the drawings. In the event exact dimensions are not provided with the drawings either supplemental instructions should be obtained from the A/E, or approval of placement from the Owner, should be obtained prior to final placement.
- 16.5 All work should be arranged in a neat and orderly manner while maximizing clearances.
- 16.6 All operating system components which will be approved through the submittal process should be reviewed prior to submittal to confirm there is physically adequate space to accommodate the device.

17. Repair of Damage (see UGC 3.3.11.3)

The Contractor shall be responsible for any loss or damage caused by Contractor, his workers or his subcontractors, to the Work, materials stored on site, to tools and equipment, to adjacent property and to persons. The Contractor shall make good any loss, damage or injury at Contractor's own expense and take particular care to protect adjacent buildings, utilities, landscape and lawn sprinkler systems.

18. Deliveries

- 18.1 The Owner will not accept delivery of products and materials bound for the Contractor. The Owner will not be responsible for material losses, or make arrangements to have someone present for acceptance of deliveries.
- 18.2 The name and address of Owner shall not be used for delivery of materials and equipment.
- 18.3 The Contractor should make arrangements for deliveries in accordance with construction schedules and in ample time to facilitate inspection prior to installation without causing delay to the project.

19. Protection of Utilities, Etc. (see UGC 3.3.11.3)

The Contractor and all subcontractors and vendors should take precaution to protect and leave intact the streets, site and work previously accomplished, including buildings, streets, utility poles, fire hydrants, utility lines, catch basins and storm drainage systems.

Section 013200 Project Planning and Scheduling

(see UGC Article 9 and Section 5.3 of the CM@R contract)

1. Definitions:

- 1.1 Project Schedule (a.k.a. Work Progress Schedule) – the schedule developed, monitored Construction phases of the project.
- 1.2 Project Team – refers to the Owner, Program Manager, Project Manager, Architect/Engineer (A/E), Design Consultants, Users, Contractor and Subcontractors that are contracted and/or specifically assigned to the Project.
- 1.3 Work Day – refers to a day in which work is planned, excluding weekends and legally recognized state holidays.
- 1.4 Critical Path – is the sequence of activities that determines the longest duration for the project when the Total Float is equal to, or less than zero.
- 1.5 Total Float – the number of days an activity on the longest path can be delayed without delaying the Substantial Completion Date. Total float should not be shown as a single activity, but rather the relationship between the early and late finish dates or early and late start dates of each activity.

2. Purpose

- 2.1 Time is an essential part of this contract. Therefore, the timely and successful completion of the Work requires careful planning and scheduling of all activities inherent in the completion of the project.
- 2.2 The Contractor shall participate with the Owner, Program Manager, Project Manager and A/E in a project planning workshop promptly upon execution of the contract unless specified differently in the Construction Documents. The Schedule shall be coordinated

with the Contract Price Breakdown, or Schedule of Values, and shall include all significant procurement actions (including long lead time delivery items and related approval activities), all work placement activities (including start and completion dates), identification of the timing of overhead inspections, system startup and commissioning activities, pre-final and final inspections, and punch list corrections as a minimum.

- 2.3 Acceptance of the Project Schedule; or any subsequent update thereof, by the Owner is for format and extent of detail of the Project Schedule only. Such “acceptance” does not indicate approval of the Contractor’s means or methods, or of any change to the contract terms including without limitation any required contract milestones.
- 2.4 The Project Schedule shall be developed with a certain amount of float time. This float, which shall be no less than ten percent of the total duration of the project, shall be presented in a format which facilitates reporting of progress and trends and can be used to identify risk and opportunities, project upcoming activities and forecast project milestones.
- 2.5 The Owner must be able to reasonably rely on the Contractor’s Project Schedule in order to make accurate commitments to the Project Team, campus administration and other parties as necessary.

3. Contractor Responsibilities

- 3.1 The Contractor is responsible for planning, managing, coordinating and scheduling all activities from a Notice to Proceed to Final Completion of the project within the time allotted by the contract.
- 3.2 The Contractor is responsible for keeping the Owner and Project Team fully informed of schedule status and upcoming activities throughout the project.
- 3.3 The Contractor’s Pre-Construction and Construction project management personnel shall actively participate in the planning and development of the Project Schedule and shall be prepared to review such development and progress with the Owner, A/E and any other members of the Project Team so the planned sequences and procedures are clearly understood by all parties.
- 3.4 The Contractor is to plan for appropriate activity durations to allow for thorough review, procurement, submittal, installation, inspection, testing and commissioning of all work in order to confirm compliance with the project plans and specifications.

4. Schedule Development Requirements

- 4.1 Appropriate logic relationships must be in place and complete, while the Project Schedule shall be free of any mandatory and/or late finish constraints, except for the Substantial Completion Date.
- 4.2 The estimated activity duration of an activity shall be expressed in workdays only.
- 4.3 During Pre-Construction Services, the Project Team will establish the maximum duration for every activity included in the schedule.
- 4.4 The Project Schedule should be coordinated with the Contractor’s Submittal Schedule and Schedule of Values.

5. Planning and Scheduling Workshop

- 5.1 Within fifteen calendar days after the Notice of Proceed is issued the Contractor will conduct a Planning and Scheduling Workshop with the Contractor’s Project Manager, Superintendent, the Owner, A/E, Project Manager, User Representative and any available subcontractors prior to submitting the initial Project Schedule to the Owner.

- 5.2 Two separate Planning and Scheduling Workshops should be held with the aforementioned parties prior to the Contractor submitting the baseline Preconstruction Project Schedule.
- 5.3 The baseline schedule shall be submitted within 10 workdays after the Planning and Scheduling Workshops are complete.

6. Construction Phase Baseline Schedule Submittal

- 6.1 The Baseline Project Schedule shall be submitted to the Owner with the required Total Float and a current data date (within five days of the date of submission). The Baseline Schedule will be updated within ten days of the date when each subcontractor is procured and brought on to the project.
- 6.2 Once the full scope of the Project has been approved (i.e. the last stage GMP Change Order has been executed), the Project Manager shall coordinate with the Owner to reset the Baseline Project Schedule.
- 6.3 The Owner reserves the right to withhold any and all payments related to the Project Schedule and/or General Conditions if a Baseline Project Schedule is not submitted, or is not acceptable to the Owner.
- 6.4 The Project Schedule shall be presented in a graphic time-scaled view including all activities, early start and finish dates, estimated durations and total float, sorted by early start.

7. Updating the Project Schedule

- 7.1 Once the Baseline Project Schedule has been accepted, the Project Manager shall update the Project Schedule on at least a monthly basis and submit the updated Project Schedule with the draft application for payment.
- 7.2 Project Schedule updates shall be based on actual work progress, current logic and remaining durations.
- 7.3 Total Float is intended to be used proportionally with the duration of the project; therefore, there should be no remaining Total Float at the actual Substantial Completion Date.

8. Excusable Delays and Time Extensions

- 8.1 Excusable delays shall be administered per the UGC.
- 8.2 If an excusable delay extends the Contract Substantial Completion Date, the ODR may extend the contract time by the number of excusable calendar days lost on the Project Schedule, or take other actions as appropriate under the terms of the contract.
 - 8.2.1 Any Change Order Proposal that the Contractor claims, or will claim, justifies an extension of contract time must contain the information necessary to justify the time extension.
 - 8.2.2 Change Order Proposals that do not affect the Critical Path for the Project and delay the Substantial Completion Date, or does not include a request for additional time prior to approval by the ODR, shall not be due a time extension.
- 8.3 Once the ODR accepts a time extension, and authorizes the Contractor to proceed with the contract change, the proposed revision shall be incorporated in the Project Schedule.

Section 013220 Photographic Documentation

1. Photographic Media

- 1.1 Digital Images: Provide images in uncompressed TIFF format produced with a minimum 4.0 mega pixels and image resolution of not less than 1024 by 768 pixels.
- 1.2 Videotape Format: Provide high-quality ½” VHS color videotape in full size cassettes, 90 minutes long.
- 2. Construction Photographs**
 - 2.1 Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the work. Photos with blurry or out-of-focus areas will not be accepted.
 - 2.2 Maintain key plan with each set of construction photos that identifies each photo location.
 - 2.3 Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 2.4 Date and Time: Include date and time filename for each image.
 - 2.5 Preconstruction Photos: Before commencement of work on the project take digital photos of the project site and surrounding properties, including existing items to remain during construction, for different vantage points.
 - 2.6 Take photos to show existing conditions adjacent to the project site.
- 3. Construction Videos - Preconstruction Videotapes:** Before starting construction on the project site prepare a video recording of the site and surrounding properties from different vantage points. Show existing conditions of the site and adjacent buildings. Show protection efforts by Contractor including, but not limited to, tree protection and storm water controls.

Section 013520 LEED Requirements (If LEED PROJECT)

1. Definitions - LEED – Leadership in Energy and Environmental Design.

2. Submittals

The Contractor shall provide preliminary submittals of its LEED Action Plan, indicating how the Owner’s requirements will be met, within thirty days after the Start date established by the Notice to Proceed. Submit additional LEED submittals required by other specification sections.

3. Quality Assurance

LEED Coordinator: Engage an experienced LEED-Accredited Professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

Section 013523 Project Safety Requirements (see UGC Article 7 and Section 5.8 of the CM@R contract)

1. Purpose

- 1.1 The Contractor shall bear overall responsibility for all aspects of safety at the project.
- 1.2 The Contractor shall, at all times, provide adequate resources, equipment, training and documentation to:
 - 1.2.1 Assure compliance with all applicable regulatory and contract requirements.
 - 1.2.2 Assure a safe work environment at the Project.
 - 1.2.3 Instill a culture for safe behavior in all supervisors and workers.

- 1.2.4 Ensure a universal understanding that safety and health issues take precedence over all other considerations at the Project.
 - 1.3 The Contractor and every subcontractor shall comply with the requirements of this section and all Federal, State, and local statutes, standards, and regulations. In any circumstance where this Section differs from, or is in conflict with any statutory requirement, the more stringent shall apply.
 - 1.4 The Owner reserves the right to have any manager, supervisor or worker removed from the project for disregarding the Project's safety requirements.
 - 1.5 The Owner reserves the right to deduct from the contract any safety related expenses that the Owner incurs as a result of the Contractor's, or any subcontractor's, failure to comply with the requirements of this section.
 - 1.6 The Owner will deny requests for time extensions and/or monetary considerations whenever the Owner intercedes on behalf of safety compliance as a result of Contractor failure to act as required by the contract.
- 2. Contractor's Project Safety Coordinator (PSC)**
- 2.1 The Contractor shall provide a Project Safety Coordinator, who shall be responsible for safety training, inspections, investigations, record keeping, reporting, incident response, and claims management, and shall serve as the technical advisor to the Contractor's Project staff for all safety issues.
 - 2.2 If the contract value is less than \$3,000,000 the Contractor's project superintendent may perform these duties. If the contract value exceeds \$3,000,000 the Contractor shall furnish a construction safety specialist.
- 3. Subcontractors' Project Safety Representative (PSR)**
- Every subcontractor shall identify one employee to be its Project Safety Representative who will be on-site during all the subcontractor's activities and will participate in all training activities, audits, etc. related to the safety program.
- 3.1 The PSR shall attend all safety meetings while the company is actively performing work at the project and shall be responsible for reporting all incidents to the PSC.
 - 3.2 The PSR shall transport or accompany any injured co-worker that requires medical attention at facilities outside the project.
 - 3.3 The PSR shall be responsible for either conducting or making arrangements for all training, equipment and materials that workers need to perform their duties in the safest possible manner.
- 4. Project Safety Program**
- 4.1 The Contractor shall develop a written, site specific, safety program. It shall be printed in English and an initial draft shall be submitted to the Owner for review and comment as a prerequisite to issuance of the Notice to Proceed with construction services'
 - 4.2 The Contractor shall incorporate Owner comments into a final draft which shall be resubmitted to the Owner for concurrence.
- 5. Personal Protective Equipment (PPE)**
- 5.1 PPE shall be required for all workers in construction areas. The followings items shall be furnished, inspected, and maintained by the employer. The Contractor shall maintain an adequate inventory to furnish these items for five Owner representatives who may visit the project from time to time:
 - 5.1.2 Hard Hats (safety helmets): shall be ANSI stamped (Z89.1-1997, Type I, Class E, G and C and be worn at all times while in the construction areas.

- 5.1.3 Eye protection (safety glasses): shall be ANSI stamped Z87. If a worker wears prescription glasses (plastic lenses only) that are marked Z87, the employer shall furnish goggles or safety glasses that are designed to fit over another pair of glasses and be worn at all times while in the construction areas.
- 5.1.4 Vests shall be at a minimum a Class II reflective traffic vests and be worn at all times while in the construction areas.
- 5.1.5 Hand protection, Hearing Protection, Respiratory Protection, Fall Arrest Equipment, Other PPE: shall all be furnished as required to comply with OSHA Standards.

6. Medical Equipment - The Contractor shall maintain at least one first aid kit on the project site at all times per ANSI Z308.1.

7. Certifications

Supervisors, Competent Persons, Equipment and Crane Operators, and Emergency Responders shall all be identified in lists submitted by employers to the PSC prior to commencement of work. In addition to lists, the employers shall include copies of all available training certificates or formal documentation to support the declared positions. For all operations that require a “competent person” (per OSHA definition), the PSC shall maintain a project file containing the transmittals from each employer naming each person declared to be competent for each operation. For operations requiring independent certification, a copy of the certificates shall be attached.

8. Project Safety Signs and Posters

- 8.1 The Contractor shall post safety regulation signs at every point of entry to the project in English and Spanish. The content of the sign should at a minimum indicate that visitors are required to check in at the project office, persons entering the construction area must be appropriately attired, no weapons, tobacco, alcohol, controlled substances and related paraphernalia may be brought onto the premises, a posted speed limit will be identified and copies of the MSDS sheets are available at the project office.
- 8.2 The Contractor shall post emergency contacts and notification, including phone numbers, notification of insurance carrier for Worker’s Compensation Coverage and any and all other required State and Federal postings.

9. Project Safety Training and Meetings

- 9.1 Within fifteen days of the issuance of the Notice to Proceed the Contractor shall hold the initial safety meeting and all Project Team members are strongly encouraged to participate.
- 9.2 The PSC shall present orientation training to every person who is to be allowed into the construction area without an escort. A translator shall be present when there are workers in attendance who do not speak English.
- 9.3 The PSC shall maintain a site safety orientation log signed by all persons receiving safety training.
- 9.4 Project safety meetings will be held on a weekly basis and will be chaired by the PSC and attended by all companies’ PSRs who are currently on site. The topics of discussion should focus on safety and loss control issues.
- 9.5 “Tool Box Talks” shall be conducted on a weekly basis by each PSR and will cover safety issues related to upcoming work, current site conditions and review of any recent incidents.

9.6 Special task training should occur when new equipment or non-routine activities are scheduled.

10. Safety Inspections

- 10.1 Daily – The PSC shall observe work operations in all areas of the project and note any violations in the daily progress reports.
- 10.2 Weekly – A comprehensive safety inspection shall be conducted by the PSC and each PSR for their respective work areas. A written record of the observations and recommended corrections should be made and placed in the project files.
- 10.3 Quarterly – The PSC shall facilitate an inspection which shall include, but not be limited to the following: fall arrest equipment, fire extinguishers, rigging, ladders, hand tools, power tools, cords, welding leads, hoses, alarms, respirators, ground fault circuit interrupters, first aid stations, eye wash stations, and emergency rescue equipment.
- 10.4 Semi-annually – The PSC shall facilitate an inspection of all hoists, cranes, mobile equipment, motorized lift platforms, stages, generators and compressors to assure proper operational condition.
- 10.5 The PSC shall notify the Owner within one hour of the arrival at the project site by any representative of a regulatory agency and provide the Owner with a copy of any published findings or citations issued to any employer and shall ensure that statutory posting requirements are met.

11. Records and Reports - The PSC shall prepare a written report for each incident that involves any injury that may not be resolved by first aid response and/or each incident that involves damage to property or equipment. The report should contain a list of factual details that created the incident, the responsive actions that occurred during and immediately following the incident and recommendations for modifications to prevent repetition of the incident. A copy of the report should be submitted to the Owner within 24 hours of the incident.

12. Construction Operations

12.1 Cranes

- 12.1.1 Tower cranes and related power supply equipment shall be surrounded by at least an eight foot high, 5/8" plywood enclosure with lock controlled entrance.
- 12.1.2 Operators of cranes, derricks and/or hoisting equipment shall possess certification from a nationally accredited training organization.
- 12.2 Demolition - Safe egress paths and barrier isolation of impacted areas shall be monitored and maintained to prevent entry by other trades and members of the public. This includes removal of materials and trash from elevated locations.

12.3 Electrical Power

- 12.3.1 Ground fault circuit interruption (GFCI) shall be the primary protection from exposure to electrical current for all workers on the project. Only exit lighting and medium-high (greater than 240) voltage service will not be GFCI protected.
- 12.3.2 All strings of temporary lights shall be fully lamped and guarded regardless of height, and shall be continuously maintained. Adequate levels of illumination for the work operations must be maintained at all times.
- 12.3.3 All receptacles and switches shall have trim plates installed before they are energized.
- 12.3.4 All power distribution panels shall have full covers installed before primary power is brought into the panel.

12.4 Excavations

12.4.1 Prior to starting, each excavation shall be reviewed with the Owner to obtain any historical knowledge about existing utilities in the area. Where applicable, "utility locates" will be called for seventy two hours in advance of commencement of the excavation. Potholing and/or hand excavation shall be required within two horizontal feet of located centerlines and in areas where knowledge is lacking.

12.4.2 When a trench excavations cannot be backfilled in the same day as it is created, a highly visible barricade shall be erected no less than six feet from all approachable edges. All portable means of access shall be removed at the end of each workday.

12.4.3 Earth ramps that are to be used for walking access shall not exceed twenty percent in grade slope. Steeper slopes shall be gated and used for equipment only.

12.5 Fall Protection and Prevention

12.5.1 Any walking/working surface shall be defined to have a fall exposure that has one or more sides, ends or edges without a guardrail system attached or a solid continuous wall of at least forty-two inches in height above the walking/working surface, and within twelve horizontal inches from the edge. The Contractor shall require engineered or conventional fall protection measures for each and every fall exposure that involves vertical distances equal to or greater than six feet. The recognized exemptions/exceptions are as follows:

- Portable step ladders
- Extension and straight ladders
- Erection and dismantling of scaffolding
- Limited exposure for engaging and disengaging a hook
- Vertical fall exposure protected by a warning line and six foot setback

12.5.2 Provide covers over holes which are secured and clearly marked as covers.

12.5.3 Job built ramps and bridges must be covered with non-skid materials.

12.5.4 Materials, scraps, waste and tools shall never be allowed to freefall from a height greater than twenty feet, unless it is contained within a chute or controlled by a hoist.

12.6 Fire Protection

12.6.1 The Contractor shall review fire prevention needs and procedures with the Owner and shall post appropriate information and warnings.

12.6.2 The Contractor shall maintain unobstructed access to fire extinguishers, temporary fire protection facilities, stairways and other access routes.

12.6.3 The Contractor shall provide supervision of welding operations, combustion type temporary heating units and similar sources of ignition.

12.6.4 All floors that have combustible materials present shall be accessible from ground level by a usable stair system. For structures greater than three stories in height shall have a fire sprinkler stand pipe installed and it shall be charged to within two stories (or thirty vertical feet) of all floors containing combustible materials. A Siamese connection shall be installed at every second level to provide access for fire hoses.

12.6.5 All fire extinguishers that are not task-specific shall be adequate in number and description to comply with OSHA declared limits for egress points, floor area and travel distances. They shall be situated in highly visible locations.

- 12.6.6 All fire extinguisher that are task specific shall be inspected and furnished in advance by the employer that will be conducting the work that requires such fire fighting provisions. Such extinguishers shall be located with twenty-five feet from the perimeter of the task operation.
- 12.7 Housekeeping - The Contractor shall ensure that all subcontractors effectively clean the project site continuously throughout each workday. Effective cleanup shall address all of the following housekeeping issues:
 - 12.7.1 All construction waste, trash, and debris shall be placed in designated receptacles. No glass bottles will be permitted on the project site.
 - 12.7.2 Stack all whole and scrap materials in locations that do not obstruct a clear pathway nor create a risk of toppling causing injury or damage to the work.
 - 12.7.3 Place all hoses, cords, cables and wires in locations that prevent them from being damaged by tires, sharp edges, or pinch points and from creating trip or hook hazards.
 - 12.7.4 Secure and effectively cover all materials on roofs and elevated levels to prevent displacement by wind.
 - 12.7.5 All materials and equipment shall be protected from the elements while staged on the project site.
 - 12.7.6 All signs, barricades, fire extinguishers, guardrails, gates, etc. are to be restored to their proper locations in sound condition after they have been moved for work purposes.
 - 12.7.7 Properly store and secure all flammable and combustible liquids and gases.
 - 12.7.8 Collect and place all cut-off or waste pieces of rolling stock into waste and scrape containers as they are created.
 - 12.7.9 Live rounds ejected from powder-actuated tools shall be immediately placed in designated containers and periodically returned to the tool dealer or law enforcement agency for proper disposal.
 - 12.7.10 All puncture and impalement exposures shall be covered or eliminated as soon as they are created.
- 12.8 Ladders
 - 12.8.1 Portable aluminum ladders are prohibited.
 - 12.8.2 Extension, straight and job built ladders shall be secured from movement at the top and bottom.
 - 12.8.3 Manufactured portable ladders shall display ANSI heavy duty rating (Class 1-A) and be inspected daily.
- 12.9 Medical Assistance and Screening
 - 12.9.1 The PSC shall maintain a First Aid Log for all treatment administered on the project.
 - 12.9.2 Drug and alcohol screening shall be mandatory for every supervisor and/or worker who sustains or contributes to the cause of any injury (beyond first aid) or property damage incident.
 - 12.9.3 Minimum requirements for chemical screening shall at least match the threshold limits for a NIDA 5-panel protocol and for alcohol screening shall at least match the Texas DOT vehicle operator's limit for blood alcohol content.
 - 12.9.4 Any supervisor or worker who tests positive shall be ejected and excluded from return to work at the project. Successful completion of an acceptable

rehabilitation program may be considered by the Owner for restoring a person's ability to return to the project. The final decision rest solely with the Owner.

12.10 Petroleum Fuel Operated Equipment

12.10.1 Where possible, equipment operator cabs shall be locked during non-working hours. Only equipment operators and direct supervisors shall have access to keys.

12.10.2 Any combustion engine equipment with less than ninety-eight percent clean air exhaust shall not be operated in enclosed spaces unless the exhaust is piped to outside air, and fresh air is brought into the space to replace the amount being consumed. This includes generators/welders and compressors as well as mobile equipment.

12.10.3 For hose and termination fittings on air compressors, whip checks shall be used at all connection points. Emergency shut off valves shall be installed on every discharge fitting of all air compressors.

12.11 Public Protection - The public boundary perimeter shall be secured from public intrusion. Attractive nuisance items such as tower cranes, tall ladders, fire escapes, large excavations, etc. shall require additional and separate security measures.

12.12 Project Service Water

12.12.1 Potable water: comply with city health requirements.

12.12.2 Non-potable water: Water storage containers, hose bibs and faucet shall be posted in English and Spanish "Danger – Do Not Drink"

12.13 Welding and Burning

12.13.1 Oxygen and fuel gas cylinders shall not be stored together, including on bottle carts. At the end of any workday bottles must be moved to OSHA prescribed storage arrangements.

12.13.2 Anti-flashback arrestors shall be installed at the pressure regulator gauges of all Oxy-Acetylene cutting rigs.

12.13.3 Welding operations shall not be allowed to present an opportunity for flash burn exposures to the eyes of any workers in the vicinity. All welding operations shall provide appropriate screening measures, erected in advance to contain the high energy light.

Section 0136001 Project Management Software

GENERAL

1. RELATED DOCUMENTS

- A. Attention is directed to the Contract and General Conditions and all Sections within Division 1 – General Requirements, which are hereby made a part of this Section.
- B. Refer to specification Section 01 33 00 – Submittals for additional information.

2. SUMMARY

- A. Project Management Communications: The Contractor shall use the Internet web based project management communications tool, e-Builder[®] ASP software and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.

1. Project management communications is available through e-Builder[®] as provided by "e-Builder[®]" in the form and manner required by HCC.
 2. The project communications database is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of each project participant. The sharing of user accounts is prohibited
- B. Training: e-Builder[®] will provide a group training sessions scheduled by HCC, the cost of which is included in the initial users' fee. Users are required to attend the scheduled training sessions they are assigned to. Requests for specific scheduled classes will be on a first come first served basis for available spaces. Companies may also obtain group training from E-Builder at their own expense, please contact e-Builder[®] for availability and cost.
- C. Support: e-Builder[®] will provide on-going support through on-line help files.
- D. Project Archive: The archive shall be available to each team member at a nominal cost. The archive set will contain only documents that the firm has security access to during construction. All legal rights in any discovery process are retained. Archive material shall be ordered from e-Builder[®].
- E. Copyrights and Ownership: Nothing in this specification or the subsequent communications supersedes the parties' obligations and rights for copyright or document ownership as established by the Contract Documents. The use of CAD files, processes or design information distributed in this system is intended only for the project specified herein.
- F. Purpose: The intent of using e-Builder[®] is to improve project work efforts by promoting timely initial communications and responses. Secondly, to reduce the number of paper documents while providing improved record keeping by creation of electronic document files
- G. Authorized Users: Access to the web site will be by individuals who are licensed users.
1. Individuals may use the User Application included in these specifications or may request the User Application.
 2. Submit completed user application forms with check made payable to "e-Builder, Inc."
 3. Authorized users will be contacted directly by the web site provider, e-Builder[®], who will assign the temporary user password.
 4. Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.
- H. Administrative Users: Administrative users have access and control of user licenses and all posted items. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!** Improper or abusive language toward any party or repeated posting of items intended to deceive or disrupt the work of the project will not be tolerated and will result in deletion of the offensive items and revocation of user license at the sole discretion of the Administrative User(s).
- I. Communications: The use of fax, email and courier communication for this project is discouraged in favor of using e-Builder[®] to send messages. Communication functions are as follows:
1. Document Integrity and Revisions:

- a. Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.
 - b. The system shall make it easy to identify revised or superseded documents and their predecessors.
 - c. Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.
2. Document Security:
 - a. The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties' communication except for Administrative Users. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!**
3. Document Integration:
 - a. Documents of various types shall be logically related to one another and discoverable. For example, requests for information, daily field reports, supplemental sketches and photographs shall be capable of reference as related records.
4. Reporting:
 - a. The system shall be capable of generating reports for work in progress, and logs for each document type. Summary reports generated by the system shall be available for team members.
5. Notifications and Distribution:
 - a. Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.
6. Required Document Types:
 - a. RFI, Request for Information.
 - b. Submittals, including record numbering by drawing and specification section.
 - c. Transmittals, including record of documents and materials delivered in hard copy.
 - d. Meeting Minutes.
 - e. Application for Payments (Draft or Pencil).
 - f. Review Comments.
 - g. Daily Field Reports.
 - h. Construction Photographs.
 - i. Drawings.
 - j. Supplemental Sketches.
 - k. Schedules.
 - l. Specifications.

- J. Record Keeping: Except for paper documents, which require original signatures and large format documents (greater than 8½ x 11 inches), all other 8½ x 11 inches documents shall be submitted by transmission in electronic form to the e-Builder® web site by licensed users.
- a. The Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier shall respond to documents received in electronic form on the web site, and consider them as if received in paper document form.
 - b. The Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier reserves the right to and shall reply or respond by transmissions in electronic form on the web site to documents actually received in paper document form.
 - c. The Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier reserves the right to and shall copy any paper document into electronic form and make same available on the web site.
 - d. The following are some but not all of the paper documents which require original signature:
 - 1) Contract
 - 2) Change Orders
 - 3) Application & Certificates for Payment
 - 4) Construction Change Directives (CCD)
 - 5) Forms and reports in Division 0
- K. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier required to have a user license(s) shall be responsible for the following:
1. Providing suitable computer systems for each licensed user at the users normal work location¹ with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.
 2. Each of the above referenced computer systems shall have the following minimum system² and software requirements:
 - a. Desktop configuration (Laptop configurations are similar and should be equal to or exceed desktop system.)
 - 1) PC system 500 MHz Intel Pentium III or equivalent AMD processor
 - 2) 128 MB Ram
 - 3) Display capable of SVGA (1024 x 768 pixels) 256 colors display
 - 4) 101 key Keyboard

¹ The normal work location is the place where the user is assigned for more than one-half of his time working on this project.

² The minimum system herein will not be sufficient for many tasks and may not be able to process all documents and files stored in the E-Builder® Documents area.

- 5) Mouse or other pointing device
- b. Operating system and software shall be properly licensed.
 - 1) Internet Explorer or other browser (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.
 - 2) Adobe Acrobat Reader (current version is a free distribution for download).
 - 3) Or, users intending to scan and upload to the documents area of e-Builder® should have Adobe Acrobat (current version must be purchased).
 - 4) Users should have the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

PART 2 - PRODUCTS

2.1 LICENSE

- A. Houston Community College will issue license as needed.

PART 3 -

PART 4 - EXECUTION (Not Applicable.)

Section 014200 Reference Standards

1. **Governing Regulations/Authorities** - The Architect/Engineer (A/E) has contacted the appropriate authorities having jurisdiction for the listed regulations and codes to obtain information for preparation of the Construction Documents. The Contractor may contact the authorities having jurisdiction directly for information and decisions having bearing on the work. **Refer to the coversheet of the plans issued for construction to identify the appropriate authorities having jurisdiction.**
2. **Standards**
 - 2.1 Reference to standards, codes, Specifications, recommendations and regulations refer to the latest edition or printing prior to the date of issue of the Construction Documents.
 - 2.2 Applicable portions of standards listed that are not in conflict with the Construction Documents are hereby made a part of the Specifications
 - 2.3 Modifications or exceptions to Standards shall be considered as amendments and unmodified portions shall remain in full effect. In cases of discrepancies between standards, the more stringent requirements shall govern.
 - 2.4 Copies of Standards: Each entity engaged in construction of the Project is required to be familiar with industry standards applicable to its respective construction activity. Copies of applicable standards are not bound with the Construction Documents. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.

3. Schedule of Standards

AA Aluminum Association
1525 Wilson Blvd. Suite 600
Arlington, VA 22209
703.358.2960
Fax 703.358.2961

www.aluminum.org

AABC Associated Air Balance Council
1518 K St. NW
Washington, DC 20005
202.737.0202
www.aabchq.com

AAMA American Architectural Manufacturers Assoc.
1827 Walden Office Square, Suite 550
Schaumburg, IL 60173-4268
847.303.5664
Fax 847.303.5774
www.aamanet.org

AAN American Association of Nurserymen
1250 Eye St., NW, Suite 500
Washington, DC 20005
202.789.2900

ANLA American Nursery and Landscape Association
1000 Vermont Ave., NW, Suite 300
Washington, DC 20005-4914
202.789.2900
www.anla.org

AASHTO American Association of State Highway and Transportation
Officials
444 North Capitol St., Suite 225
Washington, DC 20001
202.624.5800
www.transporation.org

ACI American Concrete Institute
38800 Country Club Dr.
Farmington Hills, MI 48331
248.848.3700
Fax 248.848.3701
www.aci-int.org

ACIL American Council on Independent Laboratories
1629 K St. NW
Washington, DC 20006
202.887.5872
www.acil.org

ACPA American Concrete Pipe Association

1303 West Walnut Hill Lane, Suite 305
Irving, TX 75038-3008
972.506.7216
Fax 972.506.7682
www.concrete-pipe.org

ADC Air Diffusion Council
1901 N. Roselle Rd., Suite 800
Schaumburg, IL 60195
847.706.6750
Fax 847.706.6751
www.flexibleduct.org

AF&PA American Forest & Paper Products
(Formerly National Forest Products Assoc. (NFPA))
1111 Nineteenth St., NW, Suite 800
Washington, DC 20036
800.878.8878
Fax 202.463.2700
www.afandpa.org

AI Asphalt Institute
2696 Research Park Dr.
Lexington, KY 40512-4052
606.288.4960
<http://www.washpaltinstitute.org>

AIA American Institute of Architects
1735 New York Ave. NW
Washington, DC 20006
202.626.7300
www.aia.org

AIHA American Industrial Hygiene Assoc.
P 2700 Prosperity Ave., Suite 250
Fairfax, VA 22031
703.849-888
www.aiha.org

AISC American Institute of Steel Construction
One East Wacker Dr., Suite 3100
Chicago, IL 60601-2001
312.670.2400
www.aisc.org

AISI American Iron and Steel Institute
1140 Connecticut Ave., NW, Suite 705
Washington, DC 20036
202.452.7100
www.steel.org

AITC American Institute of Timber Construction
7012 S. Revere Parkway, Suite 140
Centennial, CO 80112
303.792.9559
303.792.0669
www.aitc-glulam.org

ALI Associated Laboratories, Inc.
500 S. Vermont St.
Palatine, IL 60067
800.685.0026
www.associatedlabs.org

ALSC American Lumber Standards Committee
P.O. Box 210
Germantown, MD 20875
301.972.1700
www.alsc.org

AMCA Air Movement and Control Assoc.
30 W. University Dr.
Arlington Heights, IL 60004-1893
847.394.0150
www.amca.org

ANSI American National Standards Institute
1819 L St., NW, 6th Fl.
Washington, DC 20036
202.293.8020
Fax 202.293.9287
www.ansi.org

APA American Plywood Assoc.
7011 S. 19th
Tacoma, WA 98466
253.565.6600
Fax 253.565.7265
www.apawood.org

ARI Air Conditioning and Refrigeration Institute
4100 North Fairfax Dr., Suite 200
Arlington, VA 22203
703.524.8800
Fax 703.528.3816
www.ari.org

ARMA Asphalt Roofing Manufacturers Assoc.
Public Information Dept.
1156 15th St., NW, Suite 900
Washington, DC 20005
202.207.0917
Fax 202.223.9741
www.asphaltroofing.org

ASA Acoustical Society of America
2 Huntington Quadrangle, Suite 1N01
Melville, NY 11747-44502
516.576.2360
Fax 516.576.2377
Page 37 of 69
Date 3/02/09
www.asaa.aip.org

ASC Adhesive and Sealant Council
7979 Old Georgetown Rd. Suite 500
Bethesda, MA 20814
301.986.9700
Fax 301.986.9795
www.ascouncil.org

ASHRAE American Society of Heating, Refrigerating and Air-Conditioning
Engineers
1791 Tullie Circle, NE
Atlanta, GA 30329
404.636.8400
Fax 404.321.5478
www.ashrae.org

ASME American Society of Mechanical Engineers
Three Park Ave.
New York, NY 10016-5990
800.843.2763
www.asme.org

ASPE American Society of Plumbing Engineers
8614 Catalpa Ave., Suite 1007

Chicago, IL 60656-1116
773.693.2773
Fax 773.695.9007
www.aspe.org

ASSE American Society of Sanitary Engineers
901 Canterbury, Suite A
Westlake, OH 44145
440.835.3040
Fax 440.835.3488
www.asse-plumbing.org

ASTM American Society for Testing and Materials
100 Barr Harbor Dr.
West Conshohocken, PA 19428-2959
610.832.9500
Fax 610.832.9555

AWCMA American Window Covering Manufacturers Assoc.
355 Lexington, AVE, 17th Fl.
New York, NY 10017
212.297.2122
Fax 212.370.9047
www.wcmanet.org

AWI Architectural Woodwork Institute
46179 Westlake Dr., Suite 120
Potomac Falls, VA 20165
571.323.3636
Fax 571.323.3630
www.awinet.org

AWPA American Wood-Preservers' Assoc.
P.O. Box 361784
Birmingham, AL 35236-1784
205.733.4077
www.awpa.com

AWPB American Wood Preservers Bureau
4 D. Washington, St
Newnan, GA 30263
404.254.9877

AWS American Welding Society
50 N.W. LeJeune Rd.

Miami, FL 33126
800.443.9353
Fax 305.443.9353
www.aws.org

BHMA Builder's Hardware Manufacturers Assoc.
355 Lexington Ave., 15th Fl.
New York, NY 10017
212.297.2122
Fax 212.370.9047
www.buildershardware.com

BIA The Brick Industry Association
1850 Centennial Park Dr., Suite 301
Reston, VA 20191
703.620.0010
Fax 703.620.3928
www.bia.org

BIFMA Business and Institutional Furniture Manufacturers Assoc.
2680 Horizon, Dr., SE, Suite A-1
Grand Rapids, MI 49546-7500
616.285.3963
Fax 616.285.3765
www.bifma.org

CFFA Chemical Fabrics & Film Assoc., Inc.
c/o Thomas Assoc., Inc
1300 Sumner Ave.
Cleveland, OH 44115-2851
216.241.7333
www.chemicalfabricsandfilm.com

CISCA Ceiling and Interior Systems Construction Assoc.
5700 Old Orchard Rd., 1st Fl.
Skokie, IL 60077
708.965.2776
www.cisca.org

CISPI Cast Iron Soil Pipe Institute
5959 Shallowford Rd., Suite 419
Chattanooga, TN 37421
615.892.0137
Fax 615.892.0817
www.cispi.org

CRI Carpet and Rug Institute
P.O. Box 2048
Dalton, GA 30722
706.278.8835
Fax 706.278.8835 www.carpet-rug.org

CRSI Concrete Reinforcing Steel Institute
933 North Plum Grove Rd.
Schaumburg, IL 60173-4758
847.517.1200
Fax 847.517.1206
www.crsi.org

CTIOA Ceramic Tile Institute of America
12064 Jefferson, Blvd.
Culver City, CA 90230-6219
310.574.7800
Fax 310.821.4655
www.ctioa.org

DHI Door and Hardware Institute
14150 Newbrook Dr., Suite 200
Page 40 of 69
Date 3/02/09
Chantilly, VA 20151
703.222.2010
Fax 703.222.2410
www.dhi.org

ETL ETL Testing Laboratories, Inc.
P.O. Box 2040
Route 11, Industrial Park
Cortland, NY 13045
607.753.6711
www.etl.com

ECDS Energy Conservation Design Standards for New State Buildings
State Energy Conservation Office
Texas Facilities Commission
P.O. Box 13047
Austin, TX 78711-3047

FGMA Flat Glass Marketing Assoc.
(The Flat Glass Marketing Assoc. included Glass Tempering
Association, and members of the Laminators Safety Glass

Association consolidated to form the Glass Assoc. of North America)
2495 SW Wanamaker Dr., Suite A
Topeka, KS 66614
785.271.0208
Fax 785.271.0166
www.glasswebsite.com

FM Factory Mutual Research Organization
500 River Ridge
P.O. Box 9102
Norwood, MA 02062
617.762.4300

GA Gypsum Association
810 First St., NE #510
Washington, DC 20002
202.289.5440
Fax 202.289.3707
www.gypsum.org

HMA Hardwood Manufacturers Assoc.
400 Penn Center Blvd., Suite 350
Pittsburg, PA 15235
412.829.0770
Fax 412.829.0844
www.hmamembers.org

HPMA Hardwood Plywood Manufacturers Assoc.
1825 Michael Farraday Dr.
Reston, VA 20190
703.435.2900
Fax 703.435.2537
www.hpva.org

IBC International Building Code
International Code Council
500 New Jersey Ave., NW 6th Fl.
Washington, DC 20001-2070

IBD Institute of Business Designers
341 Merchandise Mart
Chicago, IL 60654
312.647.1950

ICC International Code Council

500 New Jersey Ave., NW, 6th Floor
Washington, DC 20001
888.422.7233
Fax 202.783.2348
www.iccsafe.org

IECC International Energy Conservation Coder
www.iccsafe.com

IEEE Institute of Electrical and Electronic Engineers
3 Park Ave., 17th Fl.
New York, NY 10016-5997
212.419.7900
Fax 212.752.4929
www.ieee.org

IESNA Illuminating Engineering Society of North American
120 Wall Street, Fl. 17
New York, NY 10005
212.248.5000
Fax 212.248.5017
www.iesna.org

IFC International File Code
www.iccsafe.org

IGCC Insulating Glass Certification Council
c/o ETL Testing Laboratories, Inc.
P.O. Box 9
Henderson Harbor, NY 13651
315.646.2234
Fax 315.646.2297
www.igcc.org

ILI Indiana Limestone Institute of American
400 Stone City Bank Bldg.
Bedford, IN 47421
812.275.4426
Fax 812.279.8682
www.iliai.com

IPC International Plumbing Code
www.iccsafe.org

ISA Instrument Society of America
67 Alexander Dr.

Research Triangle Park, NC 27709
919.549.8411
Fax 919.549.8288
www.isa.org

LIA Lead Industries Assoc., Inc.
Sparta, New Jersey
www.leadinfo.com

LPI Lightning Protection Institute
25475 Magnolia Dr.
P.O. Box 99
Maryville MO 64468
800.488.6864
www.lightning.org

MBMA Metal Building Manufacturers Assoc.
1300 Sumner Ave.
Cleveland OH 44115-2851
216.241.7333
Fax 216.241.0105
www.mbma.com

MCAA Mechanical Contractors Assoc. of America
1385 Piccard Dr.
Rockville, MD 20850
301.869.5800
Fax 301.990.9690
www.mcaa.org

MFMA Maple Flooring Manufacturers Assoc.
60 Revere Dr., Suite 500
Northbrook, IL 60062
888.480.9138
Fax 847.480.9282
www.maplefloor.org

MIA Marble Institute of America
28901 Clemens Rd., Suite 100
Cleveland, OH 44145
440.250.9222
Fax 440.250.9223
www.marble-institute.com

ML/SFA Metal Lath/Steel Framing Assoc.
(A Division of the National Association of Architectural Metal)

Manufacturers)
800 Roosevelt Rd., Bldg. C, Suite 312
Glen Ellyn, IL 60137
630.942.6591
Fax 630.7903095
www.naamm.org

NAAMM National Association of Architectural Metal Manufacturers
800 Roosevelt Rd., Bldg. C, Suite 312
Glen Ellyn, IL 60137
630.942.6591
Fax 630.7903095
www.naamm.org

NAIMA North American Insulation Manufacturers Assoc,
44 Canal Center Plaza, Suite 310
Alexandria, VA 22314
703.684.0084
Fax 703.684.0427
www.naima.org

NAPA National Asphalt Pavement Association
NAPA Building
5100 Forbes Blvd.
Lanham, MD 20706
888.468.6499
www.hotmix.org

NCMA National Concrete Masonry Assoc.
13750 Sunrise Valley Dr.
Herndon, VA 20171-4662
703.713.1900
Fax 703.713.1910
www.ncma.org

NEC National Electrical Code (NFPA)

NECA National Electrical Contractors Assoc.
3 Bethesda Metro Center, Suite 1100
Bethesda, MD 20814
301.657.3110
Fax 301.215.4500
www.necanet.org

NEII National Elevator Industry, Inc.
1677 County Route 64

P.O. Box 838
Salem, NY 127865-0838
518.854.3100
Fax 518.854.3257
www.neii.org

NEMA National Electrical Manufacturers Assoc.
1300 North 17th St., Suite 1752
Rosslyn, VA 22209
703.841.3200
Fax 703.841.5900
www.nema.org

NFPA National Fire Protection Assoc.
1 Batterymarch Park
Quincy, MA 02169-7471
617.770.3000
Fax 617.770.0700
www.nfpa.org

NHLA National Hardwood Lumber Assoc.
6830 Raleigh-LaGrange Rd.
Memphis, TN 38184-0518
901.377.1818
www.natlhardwood.org

NLGA National Lumber Grades Authority
#302 960 Quayside Dr.
New Westminster, BC V3M 6G2 Canada
604.524.2393
Fax 604.524.2893
www.nlga.org

NPA National Particleboard Assoc.
18928 Premiere Court
Gaithersburg, MD 20879-1569
301.670.0604
Fax 301.840.1252
www.pbmdf.org

NPCA National Paint and Coatings Assoc.
1500 Rhode Island Ave., NW
Washington, DC 20005
202.462.6272
Fax 202.462.8549

www.paint.org

NRCA National Roofing Contractors Assoc.
10255 W. Higgins Rd., Suite 600
Rosemont, IL 60018-5607
708.299.9070
Fax 847.299.1183

NTMA National Terrazzo and Mosaic Assoc.
201 North Maple, Suite 208
Purcellville, VA 20132
540.751.0930
Fax 540.751.0935

www.ntma.com

NWWDA National Wood Window and Door Assoc.
1400 E. Touhy Ave.
Des Plaines, IL 60018
800.223.2301
Fax 708.299.1286

PCA Portland Cement Assoc.
5420 Old Orchard Rd.
Skokie, IL 60077
847.966.6200
Fax 847.966.8389
www.cement.org

PCI Precast/Prestressed Concrete Institute
209 W. Jackson Blvd. #500
Chicago, IL 60606
312.786.0300
Fax 312.786.0353
www.pci.org

RFCI Resilient Floor Covering Institute
401 E. Jefferson St., Suite 102
Rockville, MD 20850
301.340.8580
Fax 301.340.7283
www.rfci.com

RMA Rubber Manufacturers Assoc.
1400 K St., NW, Suite 900
Washington DC 20005
202.682.4800
www.rma.org

SDI Steel Deck Institute
P.O. Box 25
Fox River Grove, IL 60021
847.458.4647
Fax 847.458.4648

SECO State Energy Conservation Office
LBJ State Office Bldg.
111 E. 17th St., Rm 1114
Austin, TX 78701
512.463.1931
Fax 512.475.2569
www.seco.cpa.stat.tx.us

SGCC Safety Glazing Certification Council
P.O. Box 730
Sackets Harbor, NY 13685
315.646.2234
Fax 315.646.2297
www.sgcc.org

SIGMA Sealed Insulating Glass Manufacturers Assoc.
401 N. Michigan
Chicago, IL 60611
312.644.8610
www.sigmaonline.org

SJI Steel Joist Institute
3127 Mr. Joe White Ave.
Myrtle Beach, SC 29577-6760
843.626.1995
Fax 843.626.5565
www.steeljoist.org

SMACNA Sheet Metal and Air Conditioning Contractors National Assoc.
4201 Lafayette Center Dr.
Chantilly, VA 20151-1209
703.803.2980
703.803.3732
www.smacna.org

SPIB Southern Pine Inspection Bureau
P.O. Box 10915
Pensacola, FL 32524-0915
850.434.2611
Fax 850.433.5594

www.spib.org

SPRI Single Ply Roofing Institute
77 Rumford Ave., Suite 3B
Waltham, MA 02453
781.647.7026
Fax 781.647.7222
www.spri.org

TCA Tile Council of America
100 Clemson Research Blvd.
Anderson, SC 29625
864.646.8453
Fax 864.646.2821
www.tileusa.com

TIMA Thermal Insulation Manufacturers Assoc.
29 Bank St.
Stanford, CT 06901
203.324.7533

(Standards now issued by NAIMA, www.naima.org)
UFAC Upholstered Furniture Action Council
Box 2436
High Point, NC 27261
919.885.5065
www.ufac.org

UL Underwriters Laboratories, Inc.
333 Pfingsten Rd.
Northbrook, IL 60062-2096
847.272.8800
Fax 847.272.8129
www.ul.com

WSFI Wood and Synthetic Flooring Institute
4415 W. Harrison St., Suite 242-C
Hillside, IL 60162
708.449.2933

WWPA Western Wood Products Assoc.
522 SW Fifth Ave., Suite 500
Portland, OR 97204-2122
503.224.3930
Fax 503.224.3934
www.wwpa.org

W.W.P.A. Woven Wire Products Assoc.
2515 N. Nordica Ave.
Chicago, IL 60635
312.637.1359
www.wovenwire.org

Government Agencies

CPSC Consumer Products Safety Commission
4330 E. West Highway
Bethesda, MD 20814
301.504.7923
Fax 301.504.0124
www.cpsc.gov

CS Commercial Standard
(U.S. Department of Commerce)
1401 Constitution Ave., NW
Washington, DC 20230
Page 49 of 69
Date 3/02/09
202.482.2000
www.commerce.gov

DOC U.S. Department of Commerce
1401 Constitution Ave., NW
Washington, DC 20230
202.482.2000
www.commerce.gov

EPA Environmental Protection Agency
1445 Ross Ave., Suite 1200
Dallas, TX 75202
214.665.6444
www.epa.gov

FS Federal Specifications (from GSA Specifications Unit WFSIS)
7th and D St., SW
Washington DC 20407
202.708.9205
www.apps.fss.gsa.gov/pub/fedspecs

GSA General Services Administration
1800 F. St., SW
Washington DC, 20405
202.708.9205
www.gsa.gov

GSC Texas Building and Procurement Commission
1711 San Jacinto
Austin, TX 78701
512.463.6363
www.tbpc.state.tx.us

NIST National Institute of Standards and Technology
100 Bureau Dr., Stop 1070
Gaithersbury, MD 20899-1077
301.975.6478
Fax 301.975.8295
www.nist.gov

OSHA Occupational Safety and Health Administration
Federal Office Building
1205 Texas Ave., Rm 806
Lubbock, TX 79401
806.472.7681
Fax 806.472.7686
www.osha.gov

PS Product Standard of NBS
(U.S. Department of Commerce)
Washington, DC 20230
202.482.2000
www.thenbs.com

USDA U.S. Department of Agriculture
1400 Independence Ave., SW
Washington, DC 20250
202.447.2791
www.usda.gov

Section 014300 Quality Assurance

1. General Requirements

- 1.1 The Contractor is responsible for controlling the quality of the Work of its forces and its subcontractors and all of the Work of the Project in general and as set forth in the Construction Documents. The Contractor shall provide qualified personnel, approved by the Owner, to perform daily supervision, reviews and inspections of subcontractor work to insure quality, accuracy, completeness and compliance.
- 1.2 The Owner will employ a testing laboratory and/or geotechnical engineering service to perform quality assurance test and to transmit copies of test reports to the Contractor. Sampling and testing that the Owner may require is specified in this section and in the various technical sections requiring quality assurance testing. The Contractor shall

- cooperate with the Owner's testing personnel, provide access to the work, to manufacturer's and fabricator's operations, furnish incidental labor and facilities and samples for test and inspection as specified.
- 1.2.1 Employment of the testing laboratory to perform quality assurance tests is for the benefit of Owner in confirming that performance and quality of the work is in conformance with the Construction Documents.
 - 1.2.2 Employment of the testing laboratory by Owner in no way relieves Contractor's obligation to perform the work in accordance with the Construction Documents and Owner's testing laboratory shall not be the same as Contractor's testing laboratory.
 - 1.2.3 The testing firm shall make all inspections and perform all tests in accordance with the rules and regulations of the building code, local authorities, the specifications of the ASTM and these Construction Documents.
 - 1.2.4 Any costs incurred by the Owner due to re-testing of materials or re-inspection of work due to non-compliance with the Construction Documents by the contractor shall be at the expense of the Contractor and shall be deducted from the next pay request accordingly.
- 1.3 Limits of testing laboratory authority: Laboratory is not authorized to:
- 1.3.1 Approve or reject any portion of the work.
 - 1.3.2 Perform any duties of the Contractor and subcontractors.
 - 1.3.3 Revoke, alter, relax, expand, or release any requirement of the Construction Documents or to approve or accept any portion of the Work, except where such approval is specifically called for in the specifications.
 - 1.3.4 Work will be checked as it progresses, but failure to detect any defective work or materials shall not, in any way, prevent later rejection when such defect(s) are discovered.
- 1.4 When requested by the Owner, the Contractor will demonstrate a material's compliance with the specifications in one of the following ways:
- Manufacturer's Certificate of Compliance
 - Mill Certificate
 - Testing Laboratory Certifications
 - Report of actual test results from Owner's designated laboratory, or a laboratory satisfactory to the Owner. Materials so tested shall be provided by the Contractor and selected by the Owner, or in the presence of the Owner, and the method of testing shall comply with the professional societies' standard specifications.
- 1.5 The Owner may require Special Inspections, Testing or Approval of certain materials or Work in addition to those clearly specified in the Construction Documents. Upon notification by the Owner of such requirements, the Contractor shall promptly arrange for such Special Inspections, Testing and Approval procedures. The costs associated with these efforts shall be borne by the Owner, except that if such materials or Work fail the initial Owner-paid inspections, tests and approvals, then subsequent tests required to prove the materials or Work suitable for inclusion in the Project Work shall be borne by the Contractor.
- 1.6 If the Contractor covers any of the Work that is required to be inspected, tested or approved by the Construction Documents, then that Work shall be uncovered, inspected, tested or approved and then recovered at the Contractor's sole expense.

- 1.7 The Contractor shall have the right to have tests performed on any material at any time for its own information and job control so long as the Owner is not charged for these tests or forced to rely on these tests when appraising quality of the materials. The tests specified in the Construction Documents for a specific material shall take precedence over any testing initiated by and paid for by the Contractor.
2. **Below Grade Inspections** - Before covering or backfilling of any improvement below grade, cover up inspections will be conducted to see that all items meet the plans and specifications. Only after all the deficiencies have been corrected will the Contractor be allowed to install any backfill.
3. **Concrete Inspections** - Before the placing of any cast-in-place concrete structure, an inspection will be conducted to see that all items meet the intent of the Construction Documents. Only after all deficiencies have been corrected will the Contractor be allowed to proceed.
4. **Wall Closure/Above-Ceiling Inspections** - Before the installation of any ceiling or the closing of walls chases, an inspection will be conducted to see that all items fully meet the contract document requirements before being covered. Only after all the deficiencies have been corrected will the Contractor be allowed to install the ceiling or close-up the wall. As a minimum, the following should be in place before an above-ceiling inspection is scheduled:
- All light fixtures installed and working;
 - All plumbing installed and insulation complete;
 - All rigid and flexible ducts installed;
 - All required valve identification tags installed;
 - All air devices installed and connected;
 - All control wiring and devices installed and connected;
 - The ceiling support structure installed.
5. **Substantial Completion Inspection (see UGC 12.1.1)**
When the Contractor feels that the work is complete and ready for the Owner's intended use, it will notify the A/E and Owner at least seven days prior to the date the Contractor is ready for a Substantial Completion Inspection. The A/E and appropriate members of the design team along with the Owner will perform a detailed inspection of the all work and furnish the Contractor with a list of incomplete or unsatisfactory items. When the Contractor has completed all the work related to these items the Pre-Final Inspection will be complete.
6. **Final Inspection & Acceptance (see UGC 12.1.2 & 12.3)**
Upon verification by the A/E and Owner that the deficiencies found during the Pre-Final Inspection have been corrected, and the work is ready for Final Inspection and Acceptance, the A/E and Owner will schedule a Final Inspection. When the work is found to be acceptable under the Construction Documents without exception and the contract is fully performed, then a Final Acceptance Notice will be issued by the A/E.
7. **One-year Warranty Inspection**
Within thirty-days prior to the expiration of the one year anniversary of the Substantial Completion date the Owner shall prepare a list of deficiencies related solely to the workmanship and material warranties provided by the Contractor through the Construction Documents. The Contractor shall make the necessary repairs and

replacements and notify the Owner that all work is complete and Owner shall review and approve the work and provide written acceptance.

8. Execution

8.1 Pier Drilling Operations

8.1.1 A representative of the soils testing laboratory shall make continuous inspections to determine that proper bearing stratum is obtained and utilized for bearing and that shafts are properly clean and dry before pouring concrete.

8.1.2 Soils testing laboratory shall furnish complete pier log showing the diameter, top and bottom elevations of each pier, casing required or not required, bell size, actual penetration into bearing stratum, elevation of top of bearing stratum, and volume of concrete used.

8.2 Reinforcing Steel Mechanical Splices

8.2.1 Visually inspect and report on the completed condition of each mechanical splice of reinforcing steel.

8.2.2 Each mechanical splice shall be visually inspected to ensure compliance with building code and the manufacturer's published criteria for acceptable completed splices.

8.2.3 Special emphasis shall be placed on inspection of the end preparation of each bar to be spliced.

8.2.4 Submit copies of manufacturer's published criteria for acceptable completed splices prior to observing mechanical splices.

8.2.5 Reports on each splice shall indicate location, size of bars and acceptability or rejection of splice. Reasoning for rejection shall be provided in the report.

8.3 Reinforcing Steel and Embedded Metal Assemblies - Inspect all concrete reinforcing steel for compliance with Construction Documents and approved shop drawings prior to placing concrete. All instances of noncompliance shall be immediately brought to the attention of the Contractor for correction and then, if not corrected, reported to the A/E.

Observe and report on the following:

- Number and size of bars;
- Bending and lengths of bars;
- Splicing;
- Clearance to forms including chair heights;
- Clearance between bars or spacing;
- Rust, form oil and other contaminants;
- Grade of steel;
- Securing, tying and chairing of bars;
- Excessive congestion of reinforcing steel;
- Installation of anchor bolts and placement of concrete around such bolts;
- Fabrication of embedded metal assemblies, including visual inspection of all welds;
- Visually inspect studs and deformed bar anchors on embedded assemblies for compliance with the Construction Documents.

8.4 Concrete Inspection & Testing

8.4.1 Receive, evaluate and certify all proposed concrete mix designs submitted by the Contractor which comply with the Construction Documents. Mix designs not complying shall be returned by the laboratory as unacceptable.

- 8.4.2 Secure composite samples of concrete at the jobsite and perform the appropriate tests as specified in the Construction Documents. Test results will be provided to the appropriate design team members, the Contractor and the Owner.
- 8.4.3 Inspect the application of curing compounds and monitor all curing conditions to assure compliance with the Construction Documents.
- 8.5 Post-tensioning of Concrete
 - 8.5.1 Verify certification of calibration of jacking equipment used in the post-tensioning operations.
 - 8.5.2 Observe and report on placement and anchorage of tendons immediately prior to placement of concrete.
 - 8.5.3 Provide a registered professional engineer experienced in posttension operations to observe and report on the placement, posttensioning and elongation measurement of each tendon.
 - 8.5.4 Observe and report on grouting of tendons noted to be bonded.
- 8.6 Masonry
 - 8.6.1 Provide a qualified inspector to inspect all structural masonry work on a periodic basis.
 - 8.6.2 Inspect the following:
 - Preparation of masonry prisms for testing;
 - Placement of reinforcing;
 - Grout spaces;
 - Mortar mix operations;
 - Bedding of mortar for each type of unit and placing of units;
 - Grouting operations;
 - Condition of units before laying for excessive absorption.
 - 8.6.3 Provide a report of each inspection.
- 8.7 Structural Steel
 - 8.7.1 Inspect all structural steel during and after erection for conformance with the Construction Documents and shop drawings. Any cases of insufficient bracing or guying, or other unsafe conditions shall be immediately called to the attention of the Contractor and reported to the A/E and Owner.
 - 8.7.2 Inspect the following:
 - Proper erection of all pieces;
 - Proper installation of all bolts;
 - Plumbness of structure and proper bracing;
 - Proper field painting;
 - Visual examination of all field welding;
 - Inspect all shop fabricated members, upon arrival at the jobsite;
 - Inspection of shop and field welding shall be in accordance with the AWS Structural Welding Code – Steel, latest edition;
 - Inspection of bolted construction shall be in accordance with AISC specifications for structural steel buildings;
 - Review all shop and field welder certifications;
 - Perform magnetic particle testing in accordance with ASTM E709 and at the discretion of the testing agency for all questionable welds;

- Ultrasonic test 100% of all complete penetration welds in accordance with AWS Structural Welding Code – Steel, latest edition, by ASNT Level II technicians;
 - Inspection of stud field welding shall be in accordance with AWS structural welding code latest edition.
- 8.8 Expansion Bolt Installations
 - 8.8.1 Inspect the drilling of holes and installation of expansion bolts for compliance with the Construction Documents and shop drawings.
 - 8.8.2 Verify the installation torque of the expansion bolts for compliance with the manufacturer’s installation instructions.
- 8.9 Metal Floor Deck - Field inspection shall consist of the following:
 - Check types, gauges and finishes for conformance with Construction Documents and shop drawings;
 - Exam for proper erection of all metal deck, fastenings, reinforcing of holes, deck reinforcing, miscellaneous deck supports, hanger tabs, shear studs, deck closures, painting and other coatings.
- 8.10 Metal Roof Deck - Field inspection shall consist of the following:
 - Check types, gauges and finishes for conformance with Construction Documents and shop drawings;
 - Exam for proper erection of all metal deck, fastenings, reinforcing of holes, deck reinforcing, miscellaneous deck supports, hanger tabs, shear studs, deck closures, painting and other coatings.

Section 014339 Site Mock-ups (see UGC 8.4)

1. General

- 1.1 The Contractor shall direct all the appropriate subcontractors in the construction of all site mock-ups for review by the Owner, Project Manager and Architect/Engineer (A/E) as required by the Construction Documents.
- 1.2 The mock-up(s) when approved by the A/E, Project Manager and Owner shall become the site reference for quality of the incorporated features of materials and workmanship.
- 1.3 The mock-up shall not be part of the work and shall remain in place until Substantial Completion, or otherwise directed by the Owner.

Section 014500 Quality Control (see 014000)

1. General Requirements

- 1.1 Quality control shall be the sole responsibility of the Contractor, unless specifically noted otherwise. The Contractor shall be responsible for all testing, coordination, start-up, operational checkout and commissioning of all items of work included in the project. All costs for these services shall be included in the Contractor’s cost of work and general conditions.
- 1.2 Specific quality control requirements for individual construction activities are specified in sections that govern those activities.
- 1.3 The Contractor employed testing agency shall comply with the requirements of ASTM C - 1021, 1077, 1093, E - 329, 543 and 548.

- 1.4 The Contractor shall develop design mixes for products to be used and have the appropriate test performed by the Contractor's employed testing agency at its own expense.

Section 014518 Field Engineering

1. **Quality Assurance - Surveyor Qualifications:** Engage a land surveyor, registered in the State of Texas, to perform required land surveying services.
2. **Examination -** Verify layout information shown on the construction documents, in relation to the property survey and existing benchmarks and building locations and finish floor elevations before proceeding to lay out the work. Protect existing benchmarks and control points. Preserve permanent reference points during construction.
 - 2.1 Do not change or relocate benchmarks or control points without prior written approval from the Owner.
 - 2.2 Establish and maintain a minimum of two permanent benchmarks on the site.
3. **Performance**
 - 3.1 Work from lines and levels established by the Construction Documents. Calculate and measure required dimensions with indicated and recognized tolerances. Do not scale drawings to determine dimensions.
 - 3.2 Record deviations from required lines and levels and advise A/E immediately when deviations exceed indicated or recognized tolerances.
 - 3.3 Furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines services, or other appurtenances located in or affect by construction.
 - 3.4 The as-built documents shall include a final Title I property survey.

Section 015000 Construction Facilities and Temporary Controls

(see UGC 3.3.4, 8.1 & 13.1; also see 5.6.8, 5.8.2 13.13 & 13.1.4 of the CM@R contract)

1. General Requirements

- 1.1 Contractor shall provide all construction facilities and temporary controls specified in this section and as necessary for the proper and expeditious prosecution of the work. The Contractor will be provided with a description of the Project Site and the Limits of Construction either by the Construction Documents, or by the Owner. At any time such a description has not been provided, the Contractor should request it of the Owner in writing.
- 1.2 The Contractor shall erect a wire mesh fence around the Project Site. The Contractor and all its personnel, assigns, material suppliers and subcontractors shall confine and limit their work to the Project Site and shall confine their construction activities to within the Limits of Construction. All areas beyond these defined areas are patrolled either by the Campus Police or by the Police Department of the City. All public and University laws, ordinances, rules and regulations shall be obeyed. No tools, construction vehicles or construction materials shall be permitted to be outside the Project Site. Loitering of construction-related personnel in areas outside the Project Site is strongly discouraged and it will be discontinued if it becomes persistent, or otherwise a nuisance to the ordinary and normal functioning of the campus. **(UGC 3.3.11)**

- 1.3 All campus roads, drives, fire lanes and sidewalks/pedestrian routes (other than those specifically given over to the Contractor for its use) must be kept open and clean at all times. The Contractor shall make advanced preparations for, and obtain security clearance for, all significant materials and equipment movements that will disrupt traffic and pedestrian flows. The Contractor shall provide all traffic controls, warning signs, barricades and flag persons needed to minimize disruptions during such approved movements. When such movements cause damage or leave debris, the Contractor shall immediately repair and clean up afterwards. **(UGC 3.3.11.3)**
- 1.4 Contractor shall pay all charges for all connections to and distribution from existing services and sources of supply.
- 1.5 Requirements of service and utility companies relating to the work shall be ascertained by Contractor, and the Contractor shall comply with all requirements, including those relating to continued protection and maintenance until completion of the work.
- 1.6 Materials and construction for construction facilities and temporary controls may be new or used, must be in adequate capacity, must not create unsafe conditions and shall not be unsightly.
- 1.7 Contractor shall relocate temporary services and facilities at its own expense, as required by progress of construction. **(See UGC 7.2.1)**
- 1.8 Contractor shall remove all temporary services and facilities when their use is no longer required or at completion of the project. **(See UGC 3.3.11)**
- 1.9 Contractor shall clean and repair damage caused by temporary services and facilities to new condition for new work and to a condition as good as or better than existing prior to start of work for existing construction projects. **(See UGC 3.3.11.3)**

2. Yard Repairs

Where compaction of the soil has occurred in turf or other plant material areas within the limits of construction, the areas shall be rejuvenated by deep cultivation of the compacted soil. After completion of construction, the Contractor shall scarify the construction site within the limits of construction to a minimum depth of eight inches, except within thirty feet of trees where it shall be a six inch depth. The Contractor will either place sod or hydro mulch on the rejuvenated areas, as may be mutually agreed to between the Owner and the Contractor, depending on the season and availability of irrigation.

3. Temporary Utilities and Services

- 3.1 The Contractor shall provide for all necessary and appropriate temporary utilities and services for execution and protection of the work.
- 3.2 Schedule of Costs and Fees for Utility Services are different on different campuses. The Contractor must review the Construction Documents carefully and communicate with the Owner to determine the status on each Project.
 - 3.2.1 **Temporary Water** – The Contractor shall provide and install temporary lines for all water required for the Work and will arrange with the Owner’s Utility Department for connection to the campus system and for services.
 - 3.2.2 **Temporary Electrical** – The Contractor shall arrange with the local Utility Company for temporary power and for metering. When using this temporary power, the Contractor shall be responsible for all related costs, including energy costs and fuel costs. If such power is available from the campus power systems, then the Contractor will make the same arrangements, but the Owner will pay for the power used unless the Contractor wastes energy and is not consuming it in a

reasonable and prudent manner. The Contractor shall not energize the permanent power on the Project it is constructing until the Owner specifically approves.

- 3.2.3 **Temporary Heating, Cooling and Ventilation** – If temporary heating/cooling/ventilation is required for the protection of the Work or the work forces, the Contractor shall provide, at its cost, Owner-approved apparatus.
- 3.2.4 **Temporary Lighting** – The Contractor shall provide adequate temporary lighting to facilitate quality workmanship and appropriate inspection of the Work. Temporary lighting provided by the Contractor also must be adequate for site security, inspections of excavations, night work if pursued and for personal and general safety of operations. Provide the following minimum standards:
 - 3.2.4.1 Provide and maintain lighting for construction operations to achieve a minimum lighting level of two watts per square foot.
 - 3.2.4.2 Provide and maintain one watt per square foot lighting for exterior staging and storage areas after dark for security purposes.
 - 3.2.4.3 Provide and maintain one-quarter watt per square foot lighting to interior work areas after dark for security purposes.
 - 3.2.4.4 Permanent building lighting may be utilized during construction.
- 3.2.5 **Temporary Services Provided by Owner** – When approved by the Owner, the Contractor may request that Project mechanical and electrical systems be put into service prior to Substantial Completion, even if only to facilitate Contractor operations. However, the Contractor shall NOT open or close any valve connecting to the campus systems without specific Owner approval. During operation of the equipment prior to Substantial Completion the Contractor shall keep the equipment in good operating condition, properly and legally flushed with chemical treatment systems, properly started and stopped, properly maintained, including regular replacement and/or cleaning of filters. Without exception the filters will be newly replaced just prior to turning the equipment over to the Owner for operation. The actual warranty periods will not start until the equipment is officially turned over to the Owner at Substantial Completion.
- 3.2.6 **Temporary Facilities/Equipment Removal** – Prior to turning the Project over to the Owner for operation and maintenance, the Contractor shall completely remove all temporary facilities and equipment from the Project Site and shall repair or replace any material, equipment, finished surfaces or landscaping that has been damaged by its activities on the site.

4. Construction Aids

- 4.1 **Material and Personnel Hoists:** The Contractor shall provide material and personnel hoist as required for normal use by all trades without charge. All necessary guards, signals and safety devices required for safe operation of these hoists shall be provided and properly maintained at all times.
- 4.2 **Stairs:** Provide temporary protective treads, handrails and wall coverings at stairways.

5. Barriers and Enclosures

- 5.1 Contractor shall construct temporary barricades, warning signs, hazard and warning lights, walks, passage-ways and similar temporary barriers and enclosures that are necessary to protect persons and property from hazards or damage due to construction operations, and required by the Owner, city, state or federal laws, ordinances or codes.

- 5.2 Contractor shall furnish and install construction fences and gates within the limits of construction, prior to beginning any other work on the project.
- 5.3 Contractor shall furnish and install movable fences as may be necessary and appropriate to facilitate execution of the work.
- 5.4 The Contractor shall be responsible for the protection of existing building surfaces (both interior and exterior), utilities, exterior structures, pavements, sidewalks, landscape, vegetation and irrigation systems. Any damage to existing areas will be repaired by the Contractor at its expense and to the satisfaction of the Owner. Such needed repairs that are not timely undertaken or completed by the Contractor may, at the Owner's sole discretion, be repaired by the Owner and the related expenses deducted from the Contract Amount by change order.
- 5.5 All existing trees, shrubs or endangered plants within the Project Site or near access ways to the Project Site, shall be protected by the Contractor as indicated on the Drawings and maintained in sound condition unless ordered by the Owner to remove them. Contractor shall furnish and install barricades, fences and guards as necessary to prevent damage to existing trees, shrubs or endangered plants indicated to remain after construction is completed. Contractor shall not remove, cut or trim any tree, shrub or endangered plant before first notifying the Owner and receiving prior approval for the action. The Contractor will be responsible for repair or replacement in kind of damaged vegetation including watering and maintenance until fully restored.
- 5.6 All fencing, gates, barricades and guards shall be maintained to be straight, level and having a neat and uniform appearance while in place. Upon removal all holes and damage caused by the placement and use of the fences shall be repaired to its original condition.
- 5.7 Contractor shall provide temporary roofing and weather tight insulated closures for openings in exterior surfaces as required to maintain specified working conditions and moisture content of all project materials.

6. Security

- 6.1 The Contractor shall provide security and facilities to protect the Work, materials and equipment from unauthorized entry, vandalism, or theft until Substantial Completion has been achieved. If deemed necessary the Contractor may, at its own expense, employ unarmed security personnel. The Contractor must first notify the Owner and provide particulars about the security firm and its personnel prior to its employment.
- 6.2 The Campus Police will not provide security for the Project Site or the areas that are given over to the Contractor's control.

7. Temporary Controls

- 7.1 Cleaning during construction: Contractor at all time shall keep the premises free from accumulation of waste materials and rubbish caused by operations for the work. Provide a collection can at each area used for eating. Pick up garbage daily. Keep project site free of garbage, trash, vermin and rodent infestation. Require each subcontractor to collect and deposit waste and rubbish caused by subcontractor operations at designated locations. Clean interior areas prior to start of finish work and maintain areas free of dust and other contaminants during finishing operations. Protect installed equipment and seal installed ductwork and piping to prevent intrusion of dust. When the Work is within or adjacent to existing spaces that continue to be occupied, protect finishes, seal off occupied spaces and open ductwork and piping. The Contractor shall provide personnel for janitorial work

to clean up (both on the Project Site and in adjacent spaces) any dust or debris that results from its operations. (see UGC 3.3.8)

- 7.2 Noise control: In and around occupied areas, minimize use of noise producing equipment and sequence the Work to minimize its affect of occupants. Work with noise producing equipment adjacent to occupied spaces will be coordinated with the Owner. Curtail such use to accommodate specific meetings or activities when requested by the Owner.
- 7.3 Water control: Provide methods to control surface water to prevent damage to the project and adjoining properties. Control fill, grade and ditch to direct surface drainage away from excavations, pits, tunnels and other construction areas. Direct runoff to proper runoff paths.
- 7.4 Storm Water Pollution Prevention Plan (SWPPP): Contractor shall be responsible for securing the appropriate SWPPP permit and paying all related fees, penalties, fines, etc., related thereto, from Texas Commission on Environmental Quality (TCEQ). The Contractor shall implement the SWPPP plan and insure that all devices and structures are properly maintained through the course of the project. Upon completion of the project the Contractor shall provide TCEQ with a Notice of Termination within thirty days of final stabilization achievement. Refer to SWPPP for additional requirements and to ensure compliance with its requirements.
- 7.5 Pollution controls: Provide methods, means and facilities required to prevent contamination of soil, water, or atmosphere by discharge of noxious or hazardous substances from construction operations. The Contractor shall notify the Owner immediately of all pollutant spills. The Contractor shall be solely responsible for cleaning up and properly disposing of, in accordance with applicable laws and regulations, all spilled pollutants brought to the Site as a part of the Work including oil, paint, fuels, antifreeze, solvents, etc. The Contractor must keep accurate records of these clean up and disposal actions.
- 7.6 Protection of installed work: (see UGC 10.3.4.1)
 - 7.6.1 Protect installed work and provide special protection where specified in individual specification sections.
 - 7.6.2 Provide temporary and removable protection of installed products and control activity in the immediate area to prevent damage.
 - 7.6.3 Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
 - 7.6.4 Protect finished floors, stairs and other surfaces from dirt traffic, wear, damage, or movement of heavy objects.
 - 7.6.5 Prohibit traffic or storage upon waterproofed or roofed surfaces, or in the alternative obtain the manufacturer's recommendations for protection.
 - 7.6.6 Prohibit traffic from landscaped areas.

8. Parking: (see UGC 3.3.11.1)

- 8.1. Parking for workmen employed on the site shall be provided within the Limits of Construction or on such remote site as may be designated by the Owner from time to time. Any costs involved in Contractor parking shall be borne by the Contractor. The Contractor's forces shall not park on campus in areas outside the Project Site.
- 8.2. In some, but not all circumstances, Owner may provide remote parking spaces near the campus. In these cases the parking may be available for Contractor use at no cost, but permits issued by the campus police will be necessary to use this parking. In providing

remote parking the Owner will not take on any responsibility for the vehicles, or contents of the vehicles, when they are parked in the remote locations provided.

- 8.3. The contractor shall provide adequate reserved parking for the Owner's and the A/E's Project Team members who regularly visit the Project Site.
- 8.4. The Contractor shall be responsible for restoration of all pavement, curbs, signage, sidewalks, etc., damaged by the construction operations and/or the workmen.

9. Field Offices and Sheds

- 9.1. The office shall be weather tight, with lighting, electrical outlets, highspeed internet connection, telephone, heating, cooling and ventilation and equipped with sturdy furniture, a drawing table and plan racks.
- 9.2. Provide adequate space for projects meetings.

10. Temporary Toilets (see UGC 3.3.4)

- 10.1 Provide, maintain and pay for required temporary sanitary facilities and enclosures. Provide at time of project mobilization and do not remove until Substantial Completion. Locate these facilities away from public view as much as practical.
- 10.2 Clean and empty these facilities at least weekly unless it is needed more often to keep them sanitary. Post notices, remove deposited debris and take all steps necessary to keep the facilities clean and sanitary.
- 10.3 Do not use the Owner's toilet facilities, unless specifically approved by the Owner.

Section 015010 Project Signage

1. Installation of Temporary Project Signage

- 1.1 When permitted by the Owner, an exterior construction project sign shall be installed immediately after contract award. The sign will make specific reference to the Houston Community College Campus Location.
- 1.2 Prior to any construction or installation of the sign, submit to the Owner for approval a quarter scale drawing, complete with all graphics and lettering.
- 1.3 The Contractor shall ensure the exterior construction project signage is properly set-back from all street intersections and pedestrian walkways such that it does not conflict with or impede fields of view necessary to vehicular and pedestrian traffic circulation.
- 1.4 The Contractor may install one sign bearing the company name, logo, project address and point of contact.
- 1.5 The sign shall remain the property of the Contractor and shall be removed from the Project Site and legally disposed of at the completion of the Work.

- 2. Signage Dimensions and Materials** - The exterior construction project sign shall be constructed of a single four foot by eight foot sheet of three-quarter inch thick marine plywood placed on two four inch by four inch treated posts. The Architect/Engineer (A/E) shall provide the Contractor with the lettering, font background and rendering of the project, which will be installed by a professional sign company. All related costs shall be included in the General Conditions costs of Construction Manager at Risk and Design-Build contracts.

Section 015240 Construction Waste Management

1. Definitions

- 1.1 Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- 1.2 Disposal: Removal off-site of demolition and construction waste and deposited in landfill or incinerator acceptable to authorities having jurisdiction.
- 1.3 Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- 1.4 Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- 1.5 Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the work.
- 2. Performance Goals** - The Contractor shall develop a waste management plan that will result in end of project rates for salvage/recycling as directed by the Owner during the Pre-construction conference.
- 3. Quality Assurance** - The Contractor shall continuously monitor the disposal, recycling, salvage and reuse of materials generated by the Project to confirm compliance with the waste management plan and provide a report to the project team at each progress meeting.
- 4. Waste Management Plan** - The Contractor shall develop a plan consisting of waste identification, waste reduction work plan and cost/revenue analysis. The plan should include separate sections for demolition and construction waste.
- 5. Salvaging Demolition Waste**
 - 5.1 Salvage of items for sale or donation by the Contractor or subcontractors is not permitted.
 - 5.2 Salvaged items for Owner's use:
 - 5.2.1 Clean salvaged items;
 - 5.2.2 Pack or crate items and properly identify contents on the container;
 - 5.2.3 Store items in a secure area until delivery to Owner;
 - 5.2.4 Transport items to Owner's designated storage area.
- 6. Recycling Demolition and Construction Waste, General** - Separate recyclable waste by type at project site to maximum extent practical.
 - 6.1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from the project site.
 - 6.2. Remove recyclable waste off Owner's property and transport to recycling receiver or processor within a reasonable time after an appropriate amount has been accumulated.

Section 017000 Contract Close-out

1. General (see UGC Article 12)

- 1.1 Project closeout is hereby defined to include requirements near the end of the contract time, in preparation for Substantial Completion acceptance, occupancy by Owner, release of retainage, final acceptance, final payment and similar actions evidencing completion of the work.
- 1.2 Time of closeout is directly related to completion and acceptance and may either be a single time period for the entire project, or a series of times for individual portions or phases of the project that have been certified as substantially complete at different times.
- 1.3 If the project is to be accepted in phases, whether by originally specified project scope or by subsequent agreement between the parties, then the project closeout requirements shall

pertain to each separately accepted portion or phase of the project. All required documentation for the portion of the project to be occupied early shall be furnished by the Contractor to the Owner on, or before, the date of early occupancy by the Owner. Such early occupancy of any portion of the Work will not waive the Contractor's obligations to complete the remaining Work within the Contract Time specified in the contract.

2. Record Documents (see UGC 6.2)

2.1 Record documents for project closeout shall include, but not necessarily limited to the following, which are required for substantial completion:

- As-built record drawings;
- As-built record specifications;
- Operating & maintenance manuals;
- Record approved submittals and samples;
- Certificate of no asbestos products incorporated in project;
- Completed punch lists.

3. Required Documents

3.1 Required documents for final payment to be released included final versions of all of the above and the following:

- Final release of claims and liens; (**see 12.3.5 through 12.3.8 of the CM@R contract**)
- Affidavit of payment of debts and claims;
- Consent(s) of surety;
- Certificate of Substantial Completion;
- City of Houston Certificate of Compliance (Occupancy) for Project;
- Final Change Order (if applicable);
- Final Application for Payment;
- Contractor's Letter for Confirmation of General Guarantee;
- Subcontractor and Material Suppliers' Release and Guarantee, notarized;
- Transmittal Listing Keys turn over to HCC Director of Operation and Maintenance;
- Completed SWPPP documents and Notice of Termination;
- Completed commissioning and closeout manuals.

4. Requirements for Substantial Completion (see UGC 12.1.1)

4.1 Prior to requesting Architect/Engineer (A/E) and Owner to schedule a Substantial Completion, or Pre-Final inspection, the Contractor shall complete the following and list known exceptions in the request:

- 4.1.1 Contractor's payment request should reflect a minimum of 95% completion for all applicable work.
- 4.1.2 Provide A/E, Project Manager and Owner with a complete copy of the Contractor's most current punch list.
- 4.1.3 Submit to the A/E for review a full set of as-built record drawings and specifications.
- 4.1.4 Submit to the A/E, Project Manager and Owner for review preliminary copies of the operating and maintenance manuals.
- 4.1.5 Submit release enabling Owner's full and unrestricted use of the work and access to service and utilities, including operating certificates and similar releases.

4.1.6 Contractor shall make provisions for final changeover of locks with the Owner's personnel.

4.1.7 Complete initial clean up requirements as described in the specifications.

4.2 The Contractor shall ensure that the work is ready for inspection and/or reinspection. If the work is found not to be as stated in the Contractor's punch list or the items have not been substantially corrected/completed; the inspection will be terminated.

5. Requirements for Final Acceptance (see UGC 12.1.2)

Prior to requesting Project Manager to schedule final inspection for the project, the Contractor shall complete the following:

5.1 Prepare draft payment request showing 100% completion for each line item on the schedule of values, including all appropriate releases and supporting documentation.

5.2 Submit a copy of the pre-final punch list which includes evidence that each item has been completed or otherwise resolved.

5.3 Submit final meter readings for utilities as of the time when the Owner took possession.

5.4 Transmit completed commissioning and close-out manuals to the Owner.

5.5 Complete final cleaning and touch-up.

5.6 Submit final payment request.

5.7 Submit evidence of final and continuing insurance coverage complying with applicable insurance requirements.

6. Operating and Maintenance Manuals (see UGC 6.2.3 & 6.2.4)

6.1 Contractor shall organize operating and maintenance manual information into suitable sets of manageable size, and bind into individual binders properly tabbed and indexed. Two complete copies of each bound operating and maintenance manual shall be provided to the Owner and one complete copy for the A/E.

6.2 The requirements of this section are separate, distinct and in addition to product submittal requirements that may be established by this and other sections of the specifications.

6.3. Material and equipment data required by this section is intended to include all data necessary for the proper installation, removal, normal operation, emergency operation, startup, shutdown, maintenance, cleaning, adjustment, calibration, lubrication, assembly, disassembly, repair, inspection, trouble shooting and service of the equipment or materials.

7. Record Product Submittals

During progress of the work, maintain approved copies of each product data submittal and shop drawings, and mark-up significant variations in the actual work in comparison with submitted information. A separate binder with one copy of all MSDS sheets for any and all products incorporated into the project shall be maintained during the course of the project, this binder shall be included in the record submittal documents.

8. Record Sample Submittals

Immediately prior to the date(s) of Substantial Completion, arrange for A/E, Project Manager and Owner to meet with Contractor at the project site to determine which (if any) of the submitted samples or mock-ups maintained by Contractor during progress of the work are to be transmitted to Owner for record purposes.

9. Commissioning and Close-out Manual

The Contractor shall incorporate all commissioning and closeout documentation and/or verification not included in the operating and maintenance manuals, into a manual for transmittal to the Owner

Section 019100 General Commissioning Requirements

1. Scope of Work Included

- 1.1 It is of primary concern that all operable systems installed in the project perform in accordance with the Construction Documents and the specified Owner's operational needs. This is particularly critical for systems affecting life safety, building controls, plumbing, HVAC, lighting and power delivery systems. The process of assuring such performance is achieved is commonly referred to as "Commissioning".
- 1.2 This section establishes minimum general and administrative requirements pertaining to start-up and commissioning of equipment, devices, and building systems. Additional technical and operational requirements for particular systems and components are established in the various technical sections of the specifications. The Contractor is solely responsible for the Commissioning process.

2. Commissioning Plan

- 2.1 The Contractor shall thoroughly review the Program Manager's commissioning plan to identify the following:
 - 2.1.1 Project commissioning team members;
 - 2.1.2 Commissioning activities;
 - Pre-functional tests;
 - Start-up tests;
 - Functional tests;
 - System integration testing.
 - 2.1.3 The Contractor shall review the results of each phase of the commissioning plan and coordinate with the Architect/Engineer (A/E) and Owner to remedy any failures to achieve the specified performance levels.
- 2.2 The Contractor shall incorporate the commissioning plan into the project baseline schedule to reflect dates and durations of all commissioning activities.

3. Equipment Documentation Requirements

The Contractor shall develop a complete equipment matrix/list of all equipment, devices and systems which will be presented to the project commissioning team at the Pre-commissioning conference. The following information should be included on the matrix/list:

- Brief equipment identification text;
- Equipment or device i.d. number;
- Start-up inspection required;
- Associated building system;
- Governing specification section;
- Appropriate submittal reference number(s);
- Installation location (room number or column coordinates).

4. Test Equipment

- 4.1 The Contractor and subcontractors shall provide all specialized tools, test equipment and instruments required to execute start-up, checkout and functional performance testing of equipment under their contracts.
- 4.2 Test equipment shall be of sufficient quality and accuracy to test and/or measure system performance within tolerances specified. A testing laboratory shall have calibrated the

test equipment within the previous twelve months. Calibration shall be NIST traceable and in accordance with the manufacturer's recommendations.

5. Pre-commissioning Meeting

- 5.1 The Contractor shall attend the Pre-commissioning meeting and review all aspects of the commissioning plan. All documentation will be discussed and test procedures will be reviewed for approval by the Owner.
- 5.2 The Contractor shall establish target dates for each of the commissioning activities and these will be discussed at all future project progress meetings.

6. Pre-installation Meeting - The Contractor shall schedule a pre-installation meeting for the work of each major building system. This meeting shall be scheduled following approval of system submittals and prior to commencement of system installation work.

7. Contractor's Verification of Installation

The Contractor shall perform a review of all tests to confirm completion and compliance with the specified performance specifications. The Contractor shall verify:

- Each component device has been properly installed;
- All shop drawings and product data submittals have been approved;
- All valve charts, wiring diagrams, control schematics, electrical panel directories, etc. have been submitted, approved and properly installed;
- All tabulated data has been submitted for each system and/or device as required by the specifications;
- All test reports and/or certifications required have been submitted and accepted;
- Any and all deficiencies have been corrected and re-tested to conformance with the specifications.

8. Contractor's Operational Testing

- 8.1 The Contractor shall operate, or cause to be operated each system, device or equipment item, both intermittently and continuously, for the appropriate duration as set forth in the specifications and/or in accordance with the manufacturer's recommendations. These operations will be documented as a functional test.
- 8.2 Each component device and each building system shall be exercised to the full extent of its capability, from minimum to maximum, and under automatic control, where it is applicable, as well as checking manual operation.

9. Integrated System Demonstration

- 9.1 After successful completion and subsequent documentation of all system operations, the Contractor shall schedule a meeting with the project commissioning team to review the demonstration of all integrated systems within the facility.
- 9.2 The demonstration(s) shall included not only normal operating conditions over the entire operating range, but also failure modes such as major component failure and loss of power.

10. Owner Training

- 10.1 Training shall consist of classroom type sessions followed by on-site demonstrations of system operations.
- 10.2 The Contractor shall provide a minimum of eight hours of video recording of the training, with audio. The Owner will designate which portions of the training will be recorded. The video shall be produced in a professional manner.

EXHIBIT C

ALLOWABLE GENERAL CONDITION LINE ITEMS FOR GMP PROPOSAL

On-Site Project Management Staff

Safety Coordinator/Assistant(s)
Project Executive
Office Engineer(s)
Project Expeditor(s)
Assistant Superintendent(s)

CPM Scheduler
Superintendent(s)
Project Manager(s)
Project Support Staff

Bonds and Insurance

Builder's Risk Insurance
General Liability Insurance

Payment and Performance Bonds for CMR. Second Tier Bonds, Subcontractor Default Insurance or Subguard may not be included unless approved in writing in advance by Owner and disclosed to Owner in CMR's Proposal to Owner.

Other Project Insurance as Required by Contract

Building Information Modeling Costs for the Construction Phase of the Project (only for certain projects designated for BIM by HCC in the RFP)

Temporary Project Utilities

Dumpsters
Project Electricity
Monthly Telephone/ Internet Services
Street Rental and Barricades
Fencing and Covered Walkways
Temporary Water Distribution and Meters
Temporary Electrical Distribution and Meters
Site Erosion Control (BMP) and Project Entrance(s)

Project Water
Temporary Toilets
Temporary Fire Protection
Telephone/ Internet System Installation

Field Offices & Office Supplies

Partnering Costs
Job Photos/Videos
Project Specific Signage
Postage/Special Shipping
Project/As-Built (Record) Drawings
Project Milestone Event(s)
Move-in/Out and Office Setup
Employee Identification System
Small Tools and Storage Trailers
Monthly Officer Trailer Rental Costs
Mobilization and Demobilization (Equipment Only)

First Aid Supplies
Reproduction Services
Monthly Office Supplies
Remote Parking Expenses
Project Reference Manuals
Security System/Watchman
Safety Material and Equipment
Drinking Water and Accessories
Office Clean-Up/Janitorial Services

EXHIBIT D

GUARANTEED MAXIMUM PRICE PROPOSAL

(To be submitted with the GMP Proposal for the project covered by the Contract)

The CM hereby submits to Houston Community College for the _____ Project, pursuant to the provisions of the Contract between the CM and Houston Community College dated _____20__ (the Contract), a Guaranteed Maximum Price (GMP) for the _____ Project, Project number _____ (as defined in this Contract), based on the Contract Documents (as defined by this Contract), as follows:

- 1. A not-to exceed amount for the Cost of the Work pursuant to the Contract: \$ _____
- 2. A not-to exceed amount for the General Conditions pursuant to the Contract: \$ _____
- 3. A not-to exceed amount for the Owner's Construction Contingency pursuant to the Contract: \$ _____
- 4. Owner's Project Allowances: \$ _____
- 5. A lump sum amount for the Construction Phase Fee pursuant to the Contract: \$ _____
- 6. TOTAL OF GMP LINE ITEMS 1 THROUGH 5: \$ _____

This figure shall be the Guaranteed Maximum Price (GMP), which we Hereby guarantee to the Owner.

The deadline for Substantial Completion of the Project is set as:

_____ **[insert exact date or number of Calendar Days].**

GUARANTEED MAXIMUM PRICE PROPOSAL SIGNATURE PAGE

(Continuation of Exhibit D)

Corporations/LLC's: Attest:

Corporate Secretary

Other business forms: Witness:

By: _____

Name: _____

Title: _____

Date of Signature: _____

SEAL:

CONTENT APPROVED:

ACCEPTED AND AGREED:

Houston Community College

By: _____

By: _____

Name: Reynaldo J. Pradia

Name: _____

Title: Executive Director of Construction &
Program Management

Title: _____

Date: _____

ATTACHMENT 1 TO EXHIBIT "D"

GUIDELINES FOR THE PREPARATION OF THE GUARANTEED MAXIMUM PRICE PROPOSAL

1. CONTRACT REQUIREMENTS:

Refer to Article 7 of the Contract. The provisions of the GMP are defined here and other related requirements are included throughout the Contract. In the event of irreconcilable conflict between the GMP Proposal and the Contract, the interpretation that provides for the higher quality of material and/or workmanship shall prevail.

The GMP Proposal shall adopt and incorporate all of the terms and conditions of the Contract. Any exceptions to or modifications of such terms and conditions proposed shall not be effective unless they are expressly stated and conspicuously identified in the GMP Proposal and are specifically accepted and approved by the Owner. In general, proposed revisions or modifications to the language, terms or conditions of the Contract will not be accepted.

2. PRE SUBMITTAL REQUIREMENTS:

- A. Scope Definition: Prior to GMP submittal, the Construction Manager shall thoroughly review the GMP Construction Document package with the Owner and determine if the scope is sufficiently defined and identify those areas requiring additional scope definition. As a minimum the following should be defined: Program building size, site limits and access, utility systems (existing and new), complete building systems descriptions, materials outline by division, MEP systems descriptions including materials, MEP system options shall be defined and accepted.
- B. Schedule: The anticipated Notice to Proceed and Substantial Completion dates for Construction shall be coordinated and approved by the Owner.
- C. Value Engineering: Proposed value engineering items included in the GMP shall be updated from previously submitted value engineering and should reflect the "final acceptance" of VE items, which are part of the scope of work. The VE schedule shall identify current acceptance and the date of acceptance in an adjacent column. VE items must be resolved and accepted by the Owner prior to GMP submittal.
- D. Pre-submittal Conference: The Contractor shall schedule a conference with the Owner's Designated Representative (ODR) no later than six (6) weeks prior to submitting the initial draft of the GMP to the Owner. Issues regarding the required materials to be included in the GMP should be reviewed so that there is a clear understanding of the format and contents of each division of work to be submitted. The Contractor shall obtain a copy of the "Standard Schedule of Values Format" from the ODR. Additionally, a review of acceptable "General Condition" items, as defined in the Contract, is required.

3. CONSOLIDATION OF REVIEW COMMENTS:

The Owner's Design Consultant, the Program Manager, Project Manager, and the ODR shall provide review comments. The Contractor shall consolidate all responses to those groups into TAB 10 of the document. Each owner comment shall have a corresponding answer directly below the original comment. A reply to each owner comment is required even if only a clarification is required. Each reply shall state where in the GMP Proposal the corresponding information may be located.

4. GENERAL REQUIREMENTS;

The GMP Proposal shall be submitted at the phase specified by the Owner. The GMP Proposal shall be submitted in the format described below. Proposals substantially deviating from the prescribed format will be returned to the Contractor for re-submittal. Proposals not in compliance with the format, which result in substantial delay, will be the responsibility of the CM and may not extend the required Substantial Completion date.

5. MULTIPLE GMP'S:

In order to expedite the Project Schedule, the Owner and CM may execute multiple GMP Proposals (stages), which shall be incorporated into the Contract through a change order to the previous approved GMP Proposal(s), identified in Article 7. The requirements for this method shall be identical to the requirements for the first GMP submittal/approval process.

6. GMP PROPOSAL PACKAGE

CM shall prepare and submit **one (1) copy of the GMP Proposal** in a bound in 3-ring notebook or spiral notebook (**8 1/2" x 11" paper only**) and entitled "Guaranteed Maximum Price Proposal". Below it the following items shall be shown:

- _ Submittal number (i.e. Submittal #1)
- _ Date of Submittal
- _ Project Name
- _ Campus/Institution Name
- _ Project Number

Since several submittal revisions may be submitted, always state which submittal number is currently being submitted.

All pages within each tab shall be numbered.

**The proposal shall be organized in the order described below:
TABLE OF CONTENTS**

- List all the following items. Provide a brief summary of the major components within each Tab.

TAB 1 – Guaranteed Maximum Price Proposal (Exhibit D)

- Refer to the GMP Proposal document attached to this Exhibit. Type in the cost amounts and sign, attest, date and seal the form.
- In addition to the bound notebooks, provide two (2) loose original executed copies. (Do not bind into spiral notebooks.)
- Do not alter any language from the original document without prior approval from the ODR.
- Do not electronically alter the document.
- Each line item cost must exactly match the corresponding cost summary shown on the TAB 6 GMP Proposal Cost Breakdown.
- Provide a Corporate Resolution or Articles of Organization, stating individual's authorization to execute contracts on behalf of the corporation, for any individual signing the GMP, who is not the President or CEO of the firm.

TAB 2 - Executive Project Summary

- State any amended services or scope changes included in the Proposal.
- Provide a brief project summary defining the scope of work associated with the construction phase of work included in this GMP Proposal.
- Include the description of building type, size, character and general materials.
- Summarize any relationship with existing structures, unusual site conditions, utility issues, or conditions effected by other governmental agencies (i.e. right-of-way issues)
- State the anticipated Notice to Proceed date and Substantial Completion date.

TAB 3 - Project Team

- List the various teams and the team members, in graphic and written form, for including names, titles, job responsibilities, and contact information.
- Identify all Design Consultants.

TAB 4 - List of Documents

- Drawings Index – Drawings shall be organized by listing each sheet number, sheet title and current revision date.
- Specification Index:
- Provide a detailed listing of each specification section required by the Owner as identified in the Contract (see the Exhibit for "Owner's Specifications")
- Provide a detailed listing of all other spec sections describing the project.
- Specifications shall be organized by CSI Division format listing each specification section number, title and current revision date.

TAB 5 - Qualifications and Value Engineering

- Qualifications – A summary of all qualifications and assumptions organized by drawing sheet number or by specification sections to match those in TAB 4.
- Exclusions – A summary of exclusions organized by drawing sheet number or by specification section.
- Substitutions – A summary of substitutions to materials or systems described by drawing sheet number or by the specifications listed in TAB 4. Organize by specification section.
- Value Engineering Recommendations - List all items proposed to date and for each item identify if the item is accepted by the Owner and included in the GMP. State the date of acceptance. In addition identify those VE items not currently accepted. State if the price is good for a limited time period.

TAB 6 - GMP Proposal Cost Breakdown

- Provide an Estimated Construction Cost breakdown on the standard Schedule of Values Format for Cost of the Work based on anticipated subcontracts organized by CSI Division format, General Conditions per exhibit, Owner's Construction Contingency, Construction Phase Fee, and any Owner's Project Allowances (An electronic copy is available upon request).
- The CM shall provide a breakdown for all Allowable General Condition Line Items by unit cost and duration.
- The CM shall include an updated schedule of CM's Personnel and Monthly Salary Rates identifying any new staff or rate modifications. **Bold any revisions.**

TAB 7 - Master Project Schedule (Summary Level)

- The Summary Level schedule shall be submitted electronically on eBuilder and as a Gantt Chart Report within the GMP Proposal showing the Activity ID, Activity Description, Original Duration, Early Start, Early Finish, Total Float, Late Start and Late Finish column titles.
- Summary Schedule Requirements
- The schedule shall comply with the requirements of Owner's Specification Section 01150 and shall form the basis for the "Detail" schedule, which shall be submitted within sixty (60) days following Notice to Proceed for Construction Services.
- The schedule shall be a computer generated CPM schedule developed in a software format compatible with E-Builder.
- The schedule shall be presented in "bar chart" form and contain detailed activities for all events and milestones included in Pre-construction Services
- The schedule shall include detailed, logic driven activities for all Construction Service activities scheduled to commence during the first ninety (90) days following the Notice to Proceed for Construction. The remaining construction activities (those commencing after the first 90 days) may be summarized by trades and may have longer durations than the "detailed" activities mentioned above.
- Total Float

- The total float indicated on the Master Project Schedule shall be no less than 10% of the total Construction Phase duration (NTP to Substantial Completion). i.e. – All paths in the schedule must lead to a milestone activity for Substantial Completion, which shall be logic driven and indicate completion within approximately 90% of the time allowed by contract for the Owner established Substantial Completion Date.

TAB 8 - Bid/Proposal Package Strategy

- The Contractor shall provide a written Bid/Proposal Package Strategy for procuring subcontracts including self-performance work (other than General Conditions) as described in Owner's Specification Section 01210. All subcontractor proposal packages, including self-performance work are subject to approval by the Owner.

TAB 9 – Small Business Plan

- Complete the attachments required by exhibit of the Contract.
- A completed Subcontracting Plan shall be delivered to Owner at the time of award of all subcontracts. Once subcontracts are executed, subcontracting plan documents must submitted to the Owner.

TAB 10 - Responses to Review Comments

- For resubmitted GMP Proposals, include all review comments provided by the Owner regarding the GMP or GMP re-submittal.
- For each submittal the Contractor shall provide a written response below each original comment, stating the appropriate response to the issue and include that documentation in this section. **A re-submittal may not be forwarded to Owner without responses to the previous review comments and included under this TAB 10.**
- **Any proposed deviations from the provisions or processes described in the Contract, contained in this Proposal, shall be approved in writing by the ODR and included herein**

EXHIBIT E

PAYMENT AND PERFORMANCE BOND FORMS

Bonds shall be furnished by the CM on the attached forms and executed **after** the execution of the GMP Proposal.

(See Attached)

PAYMENT BOND

Project No: _____

STATE OF TEXAS

COUNTY OF HARRIS

KNOW ALL PERSONS BY THESE PRESENTS: That _____
_____ (Contractor), of the City of _____, County of _____, and
State of _____, as Principal, and _____
_____, authorized under the Laws of the State of Texas to act as
surety on bonds for principals, are held and firmly bound unto **Houston Community College
System** (Owner), in the penal sum of _____
_____ Dollars (**\$** _____) for the payment whereof, the said Principal
and Surety bind themselves, and their respective officers, directors, shareholders, partners,
heirs, administrators, executors, successors and assigns, jointly and severally, by these
presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the __
_____ day of _____, 20__, for construction of:

which contract is hereby referred to and made a part hereof as fully and to the same extent as if
copied at length herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION IS SUCH, that if the said
Principal shall pay all claimants supplying Public Work Labor and Public Work Material (as
defined by Section 2253.001 of the Texas Government Code) to him or a subcontractor in the
prosecution of the work provided for in said contract, then, this obligation shall be void;
otherwise to remain in full force and effect;

PROVIDED, HOWEVER, That this bond is executed pursuant to the provisions of Chapter 2253
of the Texas Government Code as amended and all liabilities on this bond shall be determined
in accordance with the provisions of said Statute to the same extent as if it were copied at
length herein.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or
addition to the terms of the contract, or to work performed thereunder, or the plans,
specifications, or drawings, accompanying the same, shall in anyway affect its obligation on this
bond, and it does hereby waive notice of any such change, extension of time, alteration or
addition to the terms of the contract, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument
_____ day of _____, 20__.

Principal

Surety

BY: _____

BY: _____

TITLE: _____

TITLE: _____

ADDRESS:

PHYSICAL ADDRESS:

MAILING ADDRESS:

TELEPHONE: _____

LOCAL RECORDING AGENT

PERSONAL IDENTIFICATION NUMBER:

The name and address of the Resident Agent of Surety is:

PERFORMANCE BOND

Project No. _____

THE STATE OF TEXAS §
 § KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF HARRIS §

THAT WE, _____, as Principal, hereinafter called "Contractor" and the other subscriber hereto _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to The Houston Community College, "Owner," in the sum of _____ (\$ _____) for the payment of which sum, well and truly to be made to Owner and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing _____ with _____ Owner _____ for _____

_____ all of such work to be done as set out in full in said Contract Documents therein referred to and adopted by the Owner, all of which are made a part of this instrument as fully and completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall faithfully and strictly perform Contract in all its terms, provisions, and stipulations in accordance with its true meaning and effect, and in accordance with the Contract Documents referred to therein and shall comply strictly with each and every provision of Contract and with his bond, then this obligation shall become null and void and shall have no further force and effect; otherwise the same is to remain in full force and effect.

Should the Contractor fail to faithfully and strictly perform the Contact in all its terms, the Surety shall be liable for all damages, losses, expenses and liabilities that the Owner may suffer in consequence thereof, as more fully set forth herein. It is further understood and agreed that the Surety does hereby relieve Owner or its representatives from the exercise of any diligence whatever in securing compliance on the part of the Contractor with the terms of the Contract, including the making of payments thereunder, excepting only Owner's failure to make such payments in accordance with the terms and conditions of the Contract, and, having fully considered its Principal's competence to perform the Contract in the underwriting of this Performance Bond, the Surety hereby waives any notice of delay by the Contractor in the performance of the Contract. The Surety understands and agrees that the provision in the Contract that Owner shall retain

certain amounts due the Contractor until the expiration of thirty days from the acceptance of the Work is intended for the Owner's benefit, and Owner shall have the right to pay or withhold such retained amounts or any other amount owing under the Contract without changing or affecting the liability of the Surety hereon in any degree.

It is further expressly agreed by Surety that Owner or its representatives are at liberty at any time, without notice to the Surety, to make any change in the Contract Documents and in the Work to be done thereunder, as provided in the Contract, and in the terms and conditions thereof, or to make any change in, addition to, or deduction from the work to be done thereunder; and that such changes, if made, shall not in any way vitiate the obligation in this bond and undertaking or release the Surety therefrom.

This bond and all obligations created hereunder shall be performable in Harris County, Texas. This bond is given in compliance with the provisions of Chapter 2253 of the Texas Government Code, as amended, which is incorporated herein by this reference. However, all of the express provisions hereof shall be applicable whether or not within the scope of said statute.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

(Name of Contractor)

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

(Name of Surety)

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

EXHIBIT F
PREAVAILING WAGE RATE SCHEDULE
(See Attached)

Document 00821

**WAGE SCALE AND PAYROLL REQUIREMENTS
FOR BUILDING CONSTRUCTION**

Wage Scale Requirements

- 1.01 Contractor and its Subcontractors must pay the general prevailing wage rates for building construction for each craft or type of worker or mechanic employed in the execution of any building construction or repair under the Contract in accordance with Chapter 2258 of the Texas Government Code and City of Houston, Texas Ordinance Nos. 85-2070, 2000-1114, 2001-152, 2006-91 and 2006-168, and 2009-247 all as amended from time to time. City Council has determined the prevailing wage rate in the locality in which the work is being performed, which is set forth in Exhibit "A".
- 1.02 This prevailing wage rate does not prohibit the payment of more than the rates stated.
- 1.03 In bidding, Contractor warrants and represents that it has carefully examined the classifications for each craft or type of worker needed to execute the Contract and determined that such classifications in Exhibit "A" include all necessary categories to perform the work under the Contract.
- 1.04 The wage scale for building construction is to be applied to work on a building including an area within 5 feet of the exterior wall.
- 1.05 If Contractor believes that an additional classification for a particular craft or type of worker is necessary to perform work under the Contract, it must submit with its bid a request to the Contract Compliance Division of the Mayor's Office of Business Opportunity ("OBO") to use an additional labor classification not listed in Exhibit "A" and specify the proposed new classification. OBO shall determine whether a proposed classification is already covered in Exhibit "A", and, if it is, specify which classification is appropriate. OBO's decision is conclusive. If OBO decides that a new classification is necessary, it will determine the appropriate prevailing wage rate for any resurveyed, amended, new, or additional craft or type of worker not covered by Exhibit "A". Such determination must be decided in accordance with procedures established by OBO, and in compliance with Chapter 2258 of the Texas Government Code and City of Houston, Texas Ordinance Nos. 85-2070, 2000-1114, 2001-152, 2006-91, 2006-168, and 2009-247 subject to City Council approval.
- 1.06 Contractor must not use any labor classification not covered by Exhibit "A" until such classification is established and approved for use by OBO.
- 1.07 A Contractor or Subcontractor who violates Chapter 2258 of the Texas Government Code must pay to the City, \$60 per each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates set forth in Exhibit "A".

00821-1
02-01-2013

- 1.08 The City may withhold money required to be withheld under Chapter 2258 of the Texas Government Code from the final payment to Contractor or earlier payments if City Council makes a determination that there is good cause to believe that Contractor has not complied with these provisions and Chapter 2258 of the Government Code, in which case the City may withhold the money at any time subsequent to the finding by City Council.
- 1.09 Contractor and Subcontractors must keep records specifying:
- (1) the name and classification of each worker employed under the Contract; and
 - (2) the actual per diem wages paid to each worker, and the applicable hourly rate.
- The records must be open at all reasonable hours for inspection by the officers and agents of the City.
- 1.10 The hourly cost of salary for non-exempt workers for labor in excess of 40 hours per worker per week, shall be calculated at 1.5 times the worker's base pay, plus 1.0 times fringe benefits, for the applicable craft and level.

Certified Payroll Requirements

- 2.01 Employees are paid weekly and payrolls are submitted weekly using the City of Houston's electronic payroll submission module, unless the prime Contractor has been instructed to do otherwise by the Office of Business Opportunity. When no work is done after a Contractor has started work, the Contractor is required to submit weekly compliance statement with no work performed. The payrolls must reflect the exact work and classification of the workers, the exact amount that they were paid. Workers must be paid the contracted amount (prevailing wage rates.) The Contractor will be penalized \$60.00 a day for each employee who is underpaid per Texas Government Code 2258-023 for all contracts except Federally Funded Contract.
- 2.02 Payrolls submitted manually must be signed by an authorized person. Only ORIGINAL signatures are acceptable - no copied signatures. Payrolls must clearly indicate whether the worker worked inside or outside the building area.
- 2.03 Payrolls must be numbered and clearly marked: the first payroll as No. 1; etc. Payroll for the final week worked on the job should be marked "FINAL".
- 2.04 Payrolls must have "Week Ending" dates.
- 2.05 Payrolls must have employees' names, addresses, last four digits of the social security numbers, and job classifications. The job classifications must be the same as the classifications on the prevailing wage rate schedule.

00821-2
02-01-2013

- 2.06 A payroll deduction authorization form must be submitted for each employee for any deductions other than Federal and FICA taxes and court ordered child support.
- 2.07 Employees must be paid overtime (time and a half) for all hours worked over 40 hours a week on both federally and City-funded contracts.
- 2.08 The Contractor has the responsibility to comply with all Internal Revenue Service rules and regulations. Contractors who submit certified payrolls with owner operators (truckers) must submit a signed tax liability statement from each worker acknowledging the worker's responsibility for payment of Federal Income Tax and FICA.
- 2.09 Companies that have computerized payroll systems must copy the back of the certified payroll, Form WH347, and submit it with the authorized official's original signature.
- 2.10 If the Contractor wants to use the apprentice wage rates for an employee, the apprenticeship certificates must be submitted to the Office of Business Opportunity in advance of the employee working on the project and appearing on the payroll.
- 2.11 A poster of the Prevailing Wage Rate Schedule should be clearly displayed on each job site, or in case of annual service agreements, in the Contractor's office.
- 2.12 The Contractor shall submit the "Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "B") to the Monitoring Authority listed in Document 00495 prior to final execution of the contract.
- 2.13 During the course of the work, Subcontractors shall submit the "Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "C") to the Monitoring Authority listed in Document 00495.
- 2.14 Upon completion of the Project, as part of the contract-awarding department's total clearance process, the Office of Business Opportunity's Contract Compliance Section must review whether the Wage Rate and Payroll Requirements were met and report the results to the department.

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EXHIBIT "A"

CITY OF HOUSTON, TEXAS
LABOR CLASSIFICATIONS AND PREVAILING WAGE RATES
FOR
BUILDING CONSTRUCTION
2013

Worker Classification	Ratio	Base Rate	Fringe Benefit	Wage Total
Asbestos Worker/Insulator *	Ratio 1/1 - Apprentice	\$20.27	\$8.92	\$29.19
Asbestos Abatement Worker (ceilings, walls ,floors only)	Ratio 1/1 - Apprentice	\$14.00	\$0.00	\$14.00
Boilermaker *	Ratio 5/1 - Apprentice	\$23.06	\$20.28	\$43.34
Brick Layer * (see Mason Tender Brick)	Ratio 1/3 - Apprentice	\$18.00	\$0.00	\$18.00
Carpenter * (including acoustical ceiling work)	Ratio 2/1 - Apprentice	\$21.00	\$6.43	\$27.43
Cement Mason/Concrete Finisher *	Ratio 1/3 - Apprentice	\$12.83	\$0.00	\$12.83
Drywall Finisher/Taper *	Ratio 1/3 - Helper \$8.54	\$12.13	\$1.01	\$13.14
Drywall Hanger, * incl. metal studs installation	Ratio 1/3 - Helper \$9.46	\$12.96	\$1.59	\$14.55
Electrician *	Ratio 3/2 - Apprentice	\$27.65	\$7.70	\$35.35
Elevator Mechanic *	Ratio 1/1 - Apprentice	\$37.35	\$23.53	\$60.88
Formbuilder/Formsetter *	Ratio 1/3 - Helper \$7.67	\$11.82	\$0.00	\$11.82
Glazier *	Ratio 1/3 - Helper \$11.51	\$14.92	\$2.78	\$17.70
Insulator * (Batt and Foam)	Ratio 1/3 - Helper \$6.50	\$10.00	\$0.00	\$10.00
Ironworker *(Reinforcing)	Ratio 1/3 - Helper \$7.83	\$12.06	\$0.00	\$12.06
Ironworker *(Structural)	Ratio 1/3 - Helper \$10.19	\$15.68	\$0.00	\$15.68
Lather *	Ratio 1/3 - Helper \$13.38	\$16.90	\$3.61	\$20.51
Painter * (Brush, Roller, and Spray)	Ratio 1/3 - Helper \$7.42	\$11.17	\$0.00	\$11.17
Pipe Fitter *(HVAC Pipe only)	Ratio 1/1 - Apprentice	\$29.63	\$10.16	\$39.79
Pipe Fitter *(Excluding HVAC)	Ratio 1/3 - Apprentice \$12.40	\$19.20	\$8.23	\$27.43
Plasterer *	Ratio 1/3 - Apprentice	\$19.42	\$1.00	\$20.42
Plumber *	Ratio 3/2 - Apprentice	\$30.29	\$9.50	\$39.79
Roofer *	Ratio 1/3 - Helper \$7.85	\$11.51	\$0.57	\$12.08
Sheet Metal Worker *(incl. HVAC duct and system install.)	Ratio 2/1 - Apprentice	\$25.37	\$7.99	\$33.36
Sprinkler Fitter *(Fire sprinklers)	Ratio 1/1 - Apprentice	\$25.84	\$16.47	\$42.31
Tile Finisher *	Ratio 1/3 - Helper \$8.08	\$12.00	\$0.43	\$12.43
Tile Setter *	Ratio 1/3 - Helper \$10.91	\$15.70	\$1.09	\$16.79
Truck Driver		\$10.78	\$1.57	\$12.35
Laborers:				
Common Laborer		\$9.29	\$0.00	\$9.29
Mason Tender (Brick)		\$10.13	\$0.00	\$10.13
Mason Tender (Cement)		\$9.86	\$0.00	\$9.86
Pipe Layer		\$12.35	\$0.00	\$12.35
Plaster Tender (Plasterer's helper)		\$12.90	\$2.51	\$15.41
Power Equipment Operator:				
Asphalt Paver		\$13.50	\$0.25	\$13.75

00821-4
02-01-2013

CITY OF HOUSTON
STANDARD DOCUMENT

**WAGE SCALE
FOR BUILDING CONSTRUCTION**

Backhoe – Power Equipment Operator		\$12.54	\$0.00	\$12.54
Crane – Power Equipment Operator		\$17.95	\$3.56	\$21.51
Forklift – Power Equipment Operator		\$15.46	\$5.15	\$20.61
Slab and Wall Saw – Power Equipment Operator		\$15.54	\$3.83	\$19.37
Welders - Receive rate prescribed for craft performing operation in which welding is incidental				
* When Apprentices are shown, Helpers cannot be utilized				

00821-5
02-01-2013

**Building Construction Prevailing Wages
Classification Definitions**

Asbestos Worker/Insulator * - Ratio 1/1 Apprentice

(Including application of all insulating materials, protective coverings, coatings and finishing to all type of mechanical systems). Applies insulating material to exposed surfaces of structures, such as air ducts, hot and cold pipes, storage tanks, and cold storage rooms: Reads blueprints and selects required insulation material (in sheet, tubular, or roll form), such as fiberglass, foam rubber, styrofoam, cork, or urethane, based on material's heat retaining or excluding characteristics. Brushes adhesives on or attaches metal adhesive-backed pins to flat surfaces as necessary to facilitate application of insulation material. Measures and cuts insulation material to specified size and shape for covering flat or round surfaces, using tape measure, knife, or scissors. Fits, wraps, or attaches required insulation material around or to structure, following blueprint specifications. Covers or seals insulation with preformed plastic covers, canvas strips, sealant, or tape to secure insulation to structure, according to type of insulation used and structure covered, using staple gun, trowel, paintbrush, or caulking gun.

Asbestos Abatement Worker * (Ceilings, Floors, & Walls only)

Ratio 1/3 Apprentice

Removes asbestos from ceilings, walls, beams, boilers, and other structures, following hazardous waste handling guidelines: Assembles scaffolding and seals off work area, using plastic sheeting and duct tape. Positions mobile decontamination unit or portable showers at entrance of work area. Builds connecting walkway between mobile unit or portable showers and work area, using hand tools, lumber, nails, plastic sheeting, and duct tape. Positions portable air evacuation and filtration system inside work area. Sprays chemical solution over asbestos covered surfaces, using tank with attached hose and nozzle, to soften asbestos. Cuts and scrapes asbestos from surfaces, using knife and scraper. Shovels asbestos into plastic disposal bags and seals bags, using duct tape. Cleans work area of loose asbestos, using vacuum, broom, and dustpan. Places asbestos in disposal bags and seals bags, using duct tape. Dismantles scaffolding and temporary walkway, using hand tools, and places plastic sheeting and disposal bags into transport bags. Seals bags, using duct tape, and loads bags into truck.

Boilermaker * - Ratio 5/1 Apprentice

Assembles, analyzes defects in, and repairs boilers, pressure vessels, tanks, and vats in field, following blueprints and using hand tools and portable power tools and equipment: Locates and marks reference points for columns or plates on foundation, using master straightedge, squares, transit, and measuring tape, and applying knowledge of geometry. Attaches rigging or signals crane operator to lift parts to specified position. Aligns structures or plate sections to assemble boiler frame, tanks, or vats, using plumb bobs, levels, wedges, dogs, or turnbuckles. Hammers, flame cuts, files, or grinds irregular edges of sections or structural parts to facilitate fitting edges together. Bolts or arc-welds structures and sections together. Positions drums and headers into supports and bolts or welds supports to frame. Aligns water tubes and connects and expands ends to drums and headers, using tube expander. Bells, beads with power hammer, or welds tube ends to ensure leak proof joints. Bolts or welds casing sections, uptakes, stacks, baffles, and such fabricated parts as chutes, air heaters, fan stands, feeding tube, catwalks, ladders, coal hoppers, and safety hatch to frame, using wrench. Installs manholes, hand holes, valves, gauges, and feed water connection in

00821-6
02-01-2013

drums to complete assembly of water tube boilers. Assists in testing assembled vessels by pumping water or gas under specified pressure into vessel and observing instruments for evidence of leakage. Repairs boilers or tanks in field by unbolting or flame cutting defective sections or tubes, straightening plates, using torch or jacks, installing new tubes, fitting and welding new sections and replacing worn lugs on bolts. May rivet and caulk sections of vessels, using pneumatic riveting and caulking hammers.

Bricklayer * (See Mason Tender) - Ratio 1/3 Apprentice

Lays building materials, such as brick, structural tile, and concrete cinder, glass, gypsum, and terra cotta block (except stone) to construct or repair walls, partitions, arches, sewers, and other structures: Measures distance from reference points and marks guidelines on working surface to lay out work. Spreads soft bed (layer) of mortar that serves as base and binder for block, using trowel. Applies mortar to end of block and positions block in mortar bed. Taps block with trowel to level, align, and embed in mortar, allowing specified thickness of joint. Removes excess mortar from face of block, using trowel. Finishes mortar between brick with pointing tool or trowel. Breaks bricks to fit spaces too small for whole brick, using edge of trowel or brick hammer. Determines vertical and horizontal alignment of courses, using plumb bob, gauge line (tightly stretched cord), and level. Fastens brick or terra cotta veneer to face of structures, with tie wires embedded in mortar between bricks, or in anchor holes in veneer brick. May weld metal parts to steel structural members. May apply plaster to walls and ceiling, using trowel, to complete repair work.

Carpenter * (Including Acoustical Ceiling Work) - Ratio 2/1 Apprentice

Constructs, erects, installs, and repairs structures and fixtures of wood, plywood, and wallboard, using carpenter's hand tools and power tools, and conforming to local building codes: Studies blueprints, sketches, or building plans for information pertaining to type of material required, such as lumber or fiberboard, and dimensions of structure or fixture to be fabricated. Selects specified type of lumber or other materials. Prepares layout, using rule, framing square, and calipers. Marks cutting and assembly lines on materials, using pencil, chalk, and marking gauge. Shapes materials to prescribed measurements, using saws, chisels, and planes. Assembles cut and shaped materials and fastens them together with nails, dowel pins, or glue. Verifies trueness of structure with plumb bob and carpenter's level. Erects framework for structures and lays subflooring. Builds stairs and lays out and installs partitions and cabinetwork. Covers sub floor with building paper to keep out moisture and lays hardwood, parquet, and wood-strip-block floors by nailing floors to sub floor or cementing them to mastic or asphalt base. Applies shock-absorbing, sound-deadening, and decorative paneling to ceilings and walls. Fits and installs prefabricated window frames, doors, doorframes, weather stripping, interior and exterior trim, and finish hardware, such as locks, letter drops, and kick plates. Constructs forms and chutes for pouring concrete. Erects scaffolding and ladders for assembling structures above ground level. May weld metal parts to steel structural members.

Cement Mason/Concrete Finisher *(See Concrete Mason/Concrete Finisher) - Ratio 1/3 Apprentice

Finisher; concrete floater Smoothes and finishes surfaces of poured concrete floors, walls, sidewalks, or curbs to specified textures, using hand tools or power tools, including floats, trowels, and screeds: Signals concrete deliverer to position truck to facilitate pouring concrete. Moves discharge chute of truck to direct concrete into forms. Spreads concrete into inaccessible sections of forms, using rake or shovel. Levels concrete to specified depth and workable consistency, using hand held screed and floats to bring water to surface and produce soft topping. Smoothes, and shapes surfaces of freshly poured concrete, using straightedge and float or power screed. Finishes concrete surfaces, using power trowel, or wets and rubs concrete with abrasive stone to impart finish. Removes rough or defective spots from concrete surfaces, using power grinder or chisel and hammer, and patches holes with fresh concrete or epoxy compound. Molds expansion joints and edges, using edging tools, jointers, and straightedge. May sprinkle colored stone chips, powdered steel, or coloring powder on concrete to produce prescribed finish. May produce rough concrete surface, using broom. May mix cement, using hoe or concrete-mixing machine. May direct sub grade work, mixing of concrete, and setting of forms.

00821-7
02-01-2013

Drywall Finisher/Taper - Ratio 1/3 Helpers

Wallboard and plasterboard; sheetrock taper; taper and bedder; taper and floater Seals joints between plasterboard or other wallboards to prepare wall surface for painting or papering; Mixes sealing compound by hand or with portable electric mixer, and spreads compound over joints between boards, using trowel, broad knife, or spatula. Presses paper tape over joint to embed tape into compound and seal joint, or tapes joint, using mechanical applicator that spreads compound and embeds tape in one operation. Spreads and smoothes cementing material over tape, using trowel or floating machine to blend joint with wall surface. Sands rough spots after cement has dried. Fills cracks and holes in walls and ceiling with sealing compound. Installs metal molding at corners in lieu of sealant and tape. Usually works as member of crew. May apply texturing compound and primer to walls and ceiling preparatory to final finishing, using brushes, roller, or spray gun. May countersink nails or screws below surface of wall prior to applying sealing compound, using hammer or screwdriver.

Drywall Hanger (Includes Installing Metal Studs) - Ratio 1/3 Helpers

Dry-wall installer; gypsum dry-wall systems installer Plans gypsum drywall installations, erects metal framing and furring channels for fastening drywall, and installs drywall to cover walls, ceilings, soffits, shafts, and movable partitions in residential, commercial, and industrial buildings: Reads blueprints and other specifications to determine method of installation, work procedures, and material, tool, and work aid requirements. Lays out reference lines and points for use in computing location and position of metal framing and furring channels and marks position for erecting metalwork, using chalk line. Measures, marks, and cuts metal runners, studs, and furring channels to specified size, using tape measure, straightedge and hand and portable power cutting tools. Secures metal framing to walls and furring channels to ceilings, using hand and portable power tools. Measures and marks cutting lines on drywall, using square, tape measure, and marking devices. Scribes cutting lines on drywall, using straightedge and utility knife and breaks board along cut lines. Fits and fastens board into specified position on wall, using screws, hand tools, portable power tools, or adhesive. Cuts openings into board for electrical outlets, vents, or fixtures, using keyhole saw or other cutting tools. Measures, cuts, assembles, and installs metal framing and decorative trim for windows, doorways, and vents. Fits, aligns, and hangs doors and installs hardware, such as locks and kick plates

Electrician * (Including Pulling Wire and Low Voltage Wiring and Installation of Fire Alarms, Security Systems, Telephones, and Computers.) - Ratio 3/2 Apprentice

Plans layout, installs, and repairs wiring, electrical fixtures, apparatus, and control equipment: Plans new or modified installations to minimize waste of materials, provide access for future maintenance, and avoid unsightly, hazardous, and unreliable wiring, consistent with specifications and local electrical codes. Prepares sketches showing location of wiring and equipment, or follows diagrams or blueprints, ensuring that concealed wiring is installed before completion of future walls, ceilings, and flooring. Measures, cuts, bends, threads, assembles, and installs electrical conduit, using tools, such as hacksaw, pipe threader, and conduit bender. Pulls wiring through conduit. Splices wires by stripping insulation from terminal leads, using knife or pliers, twisting or soldering wires together, and applying tape or terminal caps. Connects wiring to lighting fixtures and power equipment, using hand tools. Installs control and distribution apparatus, such as switches, relays, and circuit-breaker panels, fastening in place with screws or bolts, using hand tools and power tools. Connects power cables to equipment, such as electric range or motor, and installs grounding leads. Tests continuity of circuit to ensure electrical compatibility and safety of components, using testing instruments, such as ohmmeter, battery and buzzer, and oscilloscope. Observes functioning of installed equipment or system to detect hazards and need for adjustments, relocation, or replacement.

00821-8
02-01-2013

Elevator Mechanic * - Ratio 1/1 Apprentice

FOOTNOTES: a. - Employer contributes 8% of basic hourly rate for over 5 years' service and 6% of basic hourly rate for 6 months to 5 years' service as Vacation Pay Credit. Paid Holidays: New Year's Day; Memorial Day; Independence Day Labor Day; Thanksgiving Day; Friday after Thanksgiving Day; Christmas Day

Erector; elevator installer; elevator mechanic Assembles and installs electric and hydraulic freight and passenger elevators, escalators, and dumbwaiters, determining layout and electrical connections from blueprints. Studies blueprints and lays out location of framework, counterbalance rails, motor pump, cylinder, and plunger foundations. Drills holes in concrete or structural steel members with portable electric drill. Secures anchor bolts or welds brackets to support rails and framework, and verifies alignment with plumb bob and level. Cuts prefabricated sections of framework, rails, and other elevator components to specified dimensions, using acetylene torch, power saw, and disk grinder. Installs cables, counterweights, pumps, motor foundations, escalator drives, guide rails, elevator cars, and control panels, using hand tools. Connects electrical wiring to control panels and electric motors. Installs safety and control devices. Positions electric motor and equipment on top of elevator shaft, using hoists and cable slings.

Formbuilder/Formsetter - Ratio 1/3 Helpers

Constructs built-in-place or prefabricated wooden forms, according to specifications, for molding concrete structures. Studies blueprints and diagrams to determine type and dimension of forms to be constructed. Saws lumber to blueprint dimensions, using handsaw or power saw, and nails lumber together to make form panels. Erects built-in-place forms or assembles and installs prefabricated forms on construction site according to blueprint specifications, using hand tools, plumb rule, and level. Inserts spreaders and tie rods between opposite faces of form to maintain specified dimensions. Anchors and braces forms to fixed objects, using nails, bolts, anchor rods, steel cables, planks, and timbers.

Glazier - Ratio 1/3 Helpers

Installs glass in windows, skylights, store fronts, and display cases, or on surfaces, such as building fronts, interior walls, ceilings, and tabletops. Marks outline or pattern on glass, and cuts glass, using glasscutter. Breaks off excess glass by hand or with notched tool. Fastens glass panes into wood sash with glaziers points, and spreads and smoothes putty around edge of panes with knife to seal joints. Installs mirrors or structural glass on building fronts, walls, ceilings, or tables, using mastic, screws, or decorative molding. Bolts metal hinges, handles, locks, and other hardware to prefabricated glass doors. Sets glass doors into frame and fits hinges. May install metal window and doorframes into which glass panels are to be fitted. May press plastic adhesive film to glass or spray glass with tinting solution to prevent light glare. May install stained glass windows.

Insulator (Batt and Foam) - Ratio 1/3 Helpers

Applies batt and form insulation to walls, ceilings and other surfaces according to manufacturers specifications and blue print instructions. May use sealants such as cement plaster or asphalt compound to seal insulation; may spread concrete over floor slabs to form wearing floor; brushes adhesives, cuts insulating materials to specified shape to cover surfaces; uses tape or other sealants to adhere insulation to surfaces. May use staple gun, towel, paintbrushes and caulking guns.

Ironworker (Reinforcing) - Ratio 1/3 Helpers

Positions and secures steel bars in concrete forms to reinforce concrete; places rods in forms, spacing and fastening together with wire and pliers. Cuts bars using hacksaw, bar cutters or acetylene torch. Bends steel rods with hand tools or rod bending machine; reinforces concrete with wire mesh; welds reinforcing bars together.

00821-9
02-01-2013

Ironworker (Structural) - Ratio 1/3 Helpers

Erector; ironworker; steel erector; structural-iron erector; structural-iron worker; structural steel erector Performs any combination of following duties to raise, place, and unite girders, columns, and other structural-steel members to form completed structures or structure frameworks, working as member of crew: Sets up hoisting equipment for raising and placing structural-steel members. Fastens steel members to cable of hoist, using chain, cable, or rope. Signals worker operating hoisting equipment to lift and place steel member. Guides member, using tab line (rope) or rides on member in order to guide it into position. Pulls, pushes, or pries steel members into approximate position while member is supported by hoisting device. Forces members into final position, using turnbuckles, crowbars, jacks, and hand tools. Aligns rivet holes in member with corresponding holes in previously placed member by driving drift pins or handle of wrench through holes. Verifies vertical and horizontal alignment of members, using plumb bob and level.

Lather - Ratio 1/3 Helpers

Fastens wooden, metal, or rockboard lath to walls, ceilings, and partitions of buildings to provide supporting base for plaster, fireproofing, or acoustical material, using hand tools and portable power tools: Erects horizontal metal framework to which laths are fastened, using nails, bolts, and studgun. Drills holes in floor and ceiling, using portable electric tool, and drives ends of wooden or metal studs into holes to provide anchor for furring or rockboard lath. Wires horizontal strips to furring to stiffen framework. Cuts lath to fit openings and projections, using hand tools or portable power tools. Wires, nails, clips, or staples lath to framework, ceiling joists, and flat concrete surfaces. Bends metal lath to fit corners, or attaches preformed corner reinforcements. Wires plasterer's channels to overhead structural framework to provide support for plaster or acoustical ceiling tile.

Painter (Brush, Roller, and Spray) - Ratio 1/3 Helpers

Applies coats of paint, varnish, stain, enamel, or lacquer to decorate and protect interior or exterior surfaces, trimmings, and fixtures of buildings and other structures: Reads work order or receives instructions from supervisor or homeowner regarding painting. Smooths surfaces, using sandpaper, brushes, or steel wool, and removes old paint from surfaces, using paint remover, scraper, wire brush, or blowtorch to prepare surfaces for painting. Fills nail holes, cracks, and joints with caulk, putty, plaster, or other filler, using caulking gun and putty knife. Selects premixed paints, or mixes required portions of pigment, oil, and thinning and drying substances to prepare paint that matches specified colors. Removes fixtures, such as pictures and electric switchcovers, from walls prior to painting, using screwdriver. Spreads dropcloths over floors and room furnishings, and covers surfaces, such as baseboards, doorframes, and windows with masking tape and paper to protect surfaces during painting. Paints surfaces, using brushes, spray gun, or paint rollers. Simulates wood grain, marble, brick, or tile effects. Applies paint with cloth, brush, sponge, or fingers to create special effects. Erects scaffolding or sets up ladders to perform tasks above ground level.

Pipe fitter * (HVAC Pipe Only) - Ratio 1/3 Apprentice

Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps, and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following

00821-10
02-01-2013

specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks. May weld pipe supports to structural steel members. May observe production machines in assigned area of manufacturing facility to detect machinery malfunctions. May operate machinery to verify repair. May modify programs of automated machinery, such as robots and conveyors, to change motion and speed of machine, using teach pendant, control panel, or keyboard and display screen of robot controller and programmable controller. May be designated Steam Fitter (construction) when installing piping systems that must withstand high pressure.

Pipe Fitter * (Excluding HVAC) – Ratio 1/1 See Journeyman / Apprentice schedule
Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe-threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps, and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks.

Plasterer * See Plaster Tender - Ratio 1/3 Apprentice
Applies coats of plaster to interior walls, ceilings, and partitions of buildings, to produce finished surface, according to blueprints, architect's drawings, or oral instructions, using hand tools and portable power tools: Directs workers to mix plaster to desired consistency and to erect scaffolds. Spreads plaster over lath or masonry base, using trowel, and smooths plaster with darby and float to attain uniform thickness. Applies scratch, brown, or finish coats of plaster to wood, metal, or board lath successively. Roughens undercoat with scratcher (wire or metal scraper) to provide bond for succeeding coats of plaster.

Plumber * (Excluding HVAC Pipe) - Ratio 3/2 Apprentice
Assembles, installs, and repairs pipes, fittings, and fixtures of heating, water, and drainage systems, according to specifications and plumbing codes: Studies building plans and working drawings to determine work aids required and sequence of installations. Inspects structure to ascertain obstructions to be avoided to prevent weakening of structure resulting from installation of pipe. Locates and marks position of pipe and pipe connections and passage holes for pipes in walls and floors, using ruler, spirit level, and plumb bob. Cuts openings in walls and floors to accommodate pipe and pipe fittings, using hand tools and power tools. Cuts and threads pipe, using pipe cutters, cutting torch, and pipe-threading machine. Bends pipe to required angle by use of pipe-bending machine or by placing pipe over block and bending it by hand. Assembles and installs valves, pipe fittings, and pipes composed of metals, such as iron, steel, brass, and lead, and nonmetals, such as glass, vitrified clay, and plastic, using hand tools and power tools. Joins pipes by use of screws, bolts, fittings, solder, plastic solvent, and caulks joints. Fills pipe system with water or air and reads pressure gauges to determine whether system is leaking. Installs and repairs plumbing fixtures, such as sinks, commodes, bathtubs, water heaters, hot water tanks, garbage disposal units, dishwashers,

00821-11
02-01-2013

and water softeners. Repairs and maintains plumbing by replacing washers in leaky faucets, mending burst pipes, and opening clogged drains.

Roofer - Ratio 1/3 Helpers

Covers roofs with roofing materials other than sheet metal, such as composition shingles or sheets, wood shingles, or asphalt and gravel, to waterproof roofs: Cuts roofing paper to size, using knife, and nails or staples it to roof in overlapping strips to form base for roofing materials. Installs gutters and down spouts. Aligns roofing material with edge of roof, and overlaps successive layers, gauging distance of overlap with chalkline, gauge on shingling hatchet, or by lines on shingles. Fastens composition shingles or sheets to roof with asphalt, cement, or nails. Punches holes in slate, tile, terra cotta, or wooden shingles, using punch and hammer. Cuts strips of flashing and fits them into angles formed by walls, vents, and intersecting roof surfaces. When applying asphalt or tar and gravel to roof, mops or pours hot asphalt or tar onto roof base. Applies alternate layers of hot asphalt or tar and roofing paper until roof covering is as specified. Applies gravel or pebbles over top layer, using rake or stiff bristled broom.

Sheet metal worker * Ratio 2/1 Apprentice (Including Setting HVAC System)(Excluding HVAC Duct) Ratio 3/1 Apprentice

Fabricates, assembles, installs and repairs sheet metal products, including sheet metal roof (also see Roofer). Operates soldering and welding equipment to join together sheet metal parts. Seals seams and joints with sealant. Installs roof sheets, trims, flashing, gutters down spouts and other related items. Performs other related duties.

Sprinkler Fitter (Fire) * - Ratio 1/1 Apprentice

Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe-threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps, and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks. May weld pipe supports to structural steel members. May observe production machines in assigned area of manufacturing facility to detect machinery malfunctions. May operate machinery to verify repair. May modify programs of automated machinery, such as robots and conveyors, to change motion and speed of machine, using teach pendant, control panel, or keyboard and display screen of robot controller and programmable controller.

Tile Finisher - Ratio 1/3 Helpers

Supplies and mixes construction materials for TILE SETTER (construction) 861.381-054, applies grout, and cleans installed tile: Moves tiles, tile setting tools, and work devices from storage area to installation site manually or using wheelbarrow. Mixes mortar and grout according to standard formulas and request from TILE SETTER (construction), using bucket, water hose, spatula, and portable mixer. Supplies TILE SETTER (construction) with mortar, using wheelbarrow and shovel. Applies grout between joints of installed tile, using grouting trowel. Removes excess grout from tile

00821-12
02-01-2013

joints with wet sponge and scrapes corners and crevices with trowel. Wipes surface of tile after grout has set to remove grout residue and polish tile, using nonabrasive materials. Cleans installation site, mixing and storage areas, and installation machines, tools, and equipment, using water and various cleaning tools. Stores tile setting materials, machines, tools, and equipment. May apply caulk, sealers, acid, steam, or related agents to caulk, seal, or clean installed tile, using various application devices and equipment. May modify mixing, grouting, grinding, and cleaning procedures according to type of installation or material used. May assist TILE SETTER (construction) to position and secure metal lath, wire mesh, or felt paper prior to installation of tile. May cut marked tiles to size, using power saw or tile cutter.

Tile Setter - Ratio 1/3 Helpers

Applies tile to walls, floors, ceilings, and promenade roof decks, following design specifications: Examines blueprints, measures and marks surfaces to be covered, and lays out work. Measures and cuts metal lath to size for walls and ceilings with tin snips. Tacks lath to wall and ceiling surfaces with staple gun or hammer. Spreads plaster base over lath with trowel and levels plaster to specified thickness, using screed. Spreads concrete on sub floor, with trowel and levels it with screed. Spreads mastic or other adhesive base on roof deck, using serrated spreader to form base for promenade tile. Cuts and shapes tile with tile cutters and biters. Positions tile and taps it with trowel handle to affix tile to plaster or adhesive base.

Truck Driver

Drives truck with capacity of more than 3 tons, to transport materials to and from specified destinations: Drives truck to destination, applying knowledge of commercial driving regulations and area roads. Prepares receipts for load picked up. Collects payment for goods delivered and for delivery charges. May maintain truck log, according to state and federal regulations. May maintain telephone or radio contact with supervisor to receive delivery instructions. May load and unload truck. May inspect truck equipment and supplies, such as tires, lights, brakes, gas, oil, and water. May perform emergency roadside repairs, such as changing tires, installing light bulbs, tire chains, and spark plugs. May position blocks and tie rope around items to secure cargo during transit.

Laborers

Common Laborer

Performs any combination of the following tasks in erecting, repairing and wrecking buildings; dig, spread and level dirt and gravel; lift carry and hold building materials, tools and supplies; clean tools, equipment, materials and work areas; mix, pour and spread concrete, asphalt, gravel and other materials; join, wrap and seal sections of pipe; routine non-machine tasks such as removing forms from set concrete, filling expansion joints with asphalt, and placing culverts in trench. May also signal construction equipment operators; measure distances from grade stakes, drive stakes and stretch lines; bolt, nail align and block up under forms; mix and finish poured concrete, erect scaffolding; spread paint or coating to seal surfaces; caulking compounds to seal surfaces; remove projections from concrete, and mount pipe hangers.

Mason Tender Brick (Bricklayer's Helper)

Mason Tender Cement (Concrete Mason's / Concrete Finisher's Helper)

Pipe layer

Lay pipe for storm or sanitation sewers, drains, and water mains. Perform any combination of the following tasks: grade trenches or culverts, position pipe, or seal joints.

Plaster Tender (Plaster's Helper)

Tends machine that pumps plaster or stucco through spraygun for application to ceilings, walls, and partitions of buildings: Starts and stops machine on signals from PLASTERER (construction). Fills

00821-13
02-01-2013

hopper of machine with plaster. Turns valves to regulate pump and compressor. Assists in erecting scaffolds.

Power Equipment Operator:

Asphalt Paver (operator)

Operator; bituminous-paving-machine operator; blacktop-paver operator; blacktop spreader; mechanical-spreader operator; paving-machine operator, asphalt or bituminous Operates machine that spreads and levels hot-mix bituminous paving material on sub grade of highways and streets: Bolts extensions to screed to adjust width, using wrenches. Lights burners to heat screed. Starts engine and controls paving machine to push dump truck and maintain constant flow of asphalt into hopper. Observes distribution of paving material along screed and controls direction of screed to eliminate voids at curbs and joints. Turns valves to regulate temperature of asphalt flowing from hopper when asphalt begins to harden on screed.

Backhoe (operator)

Operates power-driven machine, equipped with movable shovel, to excavate or move coal, dirt, rock, sand, and other materials: Receives written or oral instructions from supervisor regarding material to move or excavate. Pushes levers and depresses pedals to move machine, to lower and push shovel into stockpiled material, to lower and dig shovel into surface of ground, and to lift, swing, and dump contents of shovel into truck, car, or onto conveyor, hopper, or stockpile. Observes markings on ground, hand signals, or grade stakes to remove material, when operating machine at excavation site.

Crane (operator)

Operates electric-, diesel-, gasoline-, or steam-powered guy-derrick or stiff-leg derrick (mast supported by fixed legs or tripod), to move products, equipment, or materials to and from quarries, storage areas, and processes, or to load and unload trucks or railroad cars: Pushes and pulls levers and depresses pedals to raise, lower, and rotate boom and to raise and lower load line in response to signals.

Forklift (operator)

Drives gasoline-, liquefied gas-, or electric-powered industrial truck equipped with lifting devices, such as forklift, boom, scoop, lift beam and swivel-hook, fork-grapple, clamps, elevating platform, or trailer hitch, to push, pull, lift, stack, tier, or move products, equipment, or materials in warehouse, storage yard, or factory: Moves levers and presses pedals to drive truck and control movement of lifting apparatus. Positions forks, lifting platform, or other lifting device under, over, or around loaded pallets, skids, boxes, products, or materials or hooks tow trucks to trailer hitch, and transports load to designated area. Unloads and stacks material by raising and lowering lifting device.

Slab & Wall Saw (operator)

Apprentices

Apprentices may be used in any of the crafts listed above where noted, if they are currently certified in a program recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor, providing the proper ratio between journeyman and apprentice is observed. Apprentice certification certificates must be supplied with the first weekly payroll upon which the apprentice's name appears.

Helper (65% of the journeyman classification)

(Must not exceed 3 helpers to 1 journeyman)

A Helper is a semi-skilled worker (rather than a skilled journeyman) who works under the direction of and assists a journeyman. Under the journeyman's direction and supervision, the helper performs a variety of duties to assist the journeyman such as preparing, carrying, and furnishing equipment,

00821-14
02-01-2013

supplies and maintaining them in order; cleaning and preparing work areas; lifting, positioning, and holding materials or tools; and other related semi-skilled tasks as directed by the journeyman. A helper may use the tools of the trade at and under the direction of the journeyman. The particular duties performed by a helper vary according to area practice. The journeyman must work in close proximity to the location of the helpers work area. The helpers wage rate shall be calculated at no less than 65% of the prevailing wage for that journeyman's classification.

Helper who assists more than one journeyman craft should be listed with the notation indicating each journeyman craft classification they assist.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Pipe fitters * Apprentice Schedule (Excluding HVAC Pipe)

Journeyman	Indentured Apprentice	Apprentice Applicant	Total
1	1	0	1 to 1
3	2	1	3 to 3
5	3	2	5 to 5
8	4	3	8 to 7
12	5	4	12 to 9
16	6	5	16 to 11
20	7	6	20 to 13
25	8	7	25 to 15
30	9	8	30 to 17
40	10	9	40 to 19
50	11	10	50 to 21

NOTE: Continue after 50 Journeyman — ONE (1) Indentured Apprentice and one (1) Apprentice Applicant for every ten (10) Journeyman

*** When Apprentices are shown, Helpers cannot be utilized**

If there are questions as to the classification of a worker, contact the Contract Compliance Officer in writing with a description of the work the worker will be performing. After review the Contract Compliance Officer will respond in writing with the classification and wage rate to be paid the worker in question.

00821-15
02-01-2013

EXHIBIT "B"

**CERTIFICATE FROM CONTRACTOR APPOINTING OFFICER OR EMPLOYEE
TO SUPERVISE PAYMENT OF EMPLOYEES**

Project Name _____

Project WBS#: _____ Date _____

(I) (We) hereby certify that (I am) (we are) the prime Contractor for _____

(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20__;
that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

(Identifying Signature of Appointee) Phone: _____

Attest: _____
(Name of Firm or Corporation)

By: _____
(Signature)

By: _____
(Signature)

(Title)

(Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

00821-16
02-01-2013

EXHIBIT "C"

CERTIFICATE FROM SUBCONTRACTOR APPOINTING OFFICER OR EMPLOYEE
TO SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

Project WBS#: _____ Date _____

(I) (We) hereby certify that (I am) (we are) the prime Contractor for _____

(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20____; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

(Identifying Signature of Appointee) Phone: _____

Attest: _____
(Name of Firm or Corporation)

By: _____ By: _____
(Signature) (Signature)

(Title) (Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

END OF DOCUMENT

00821-17
02-01-2013

EXHIBIT G

CONSTRUCTABILITY IMPLEMENTATION PROGRAM FOR PRECONSTRUCTION SERVICES PHASE

Program Objectives:

- Implement a rigorous constructability program
- Identify and document project cost and schedule savings (targeted cost savings: 5% of construction costs)

Proposed Steps:

- **Constructability Implementation Meeting**
 - identification of all project team personnel and all project stakeholders
 - clarification of project goals, objectives, and progress to date
 - team briefing on objectives, methods, and concepts of constructability
 - familiarization with implementation program
 - preliminary identification of constructability priorities and special challenges or concerns
- **Constructability Review of Schematic Design (SD) Documents; Comments Submitted to CM Team**
 - establishment of project constructability procedures, including procedures for documenting savings
- **Meeting to Review Schematic Design Constructability Comments**
 - assessment of applicability of 17 CII constructability concepts
 - prioritization and time-phasing of constructability concepts
 - detailed discussions of front-end, high-priority concepts (identify concerns, identify information needs, start to brainstorm alternative approaches, conduct preliminary evaluation of approaches, identify needs for further analysis, chart path forward, documentation of savings)
- **Design Development Constructability Review Comments to Project Team**
 - follow-up discussions on front-end, high-priority concepts
 - detailed discussions of front-end, high-priority concepts (identify concerns, identify information needs, start to brainstorm alternative approaches, conduct preliminary evaluation of approaches, identify needs for further analysis, chart path forward, documentation of savings)
- **Constructability Review Meeting**
 - review plans & specifications developed to date, identifying sub-optimal or potentially problematic design elements
 - recommend alternative design suggestions for consideration and document potential savings
 - conduct Value Engineering investigations into selected high-cost design elements; consider life-cycle cost effects

- **30% CD Constructability Review Comments to Project Team**
 - review plans & specifications developed to date, identifying sub-optimal or potentially problematic design elements
 - recommend alternative design suggestions for consideration and document potential savings
 - conduct Value Engineering investigations into selected high-cost design elements

- **50% CD Constructability Review Comments to Project Team**
 - review plans & specifications developed to date, identifying sub-optimal or potentially problematic design elements
 - recommend alternative design suggestions for consideration and document potential savings
 - conduct Value Engineering investigations into selected high-cost design elements

- **95% CD Constructability Review Comments to Project Team**

- **Constructability Discussions with Project Team**

- **Document On-site Constructability Lessons Learned**

- **Close-out Project Constructability Documentation**

EXHIBIT H

HCC CONSTRUCTION CONTRACT INSURANCE REQUIREMENTS

It is suggested that this Exhibit be provided to the Contractor's insurance provider.

Contractor shall not commence work until all required insurance coverages have been obtained and such insurance has been reviewed and accepted by HCC. Certificates of Insurance on the current ACORD form shall be issued to the HCC showing all required insurance coverages.

Insurance Required

Limit Required

<p>Automobile Liability insurance covering Any Auto</p>	<p>\$1,000,000 Combined Single Limit</p>
<p>Comprehensive (Commercial) General Liability insurance including Products, Completed Operations, Independent Contractors, Broad Form Property Damage, Pollution and Blanket Contractual Liability coverages. XCU exclusions to be removed when underground work is performed.</p>	<p>\$1,000,000 Occurrence \$2,000,000 Aggregate \$2,000,000 Completed Operations \$1,000,000 Personal Injury \$ 500,000 Fire Damage \$ 5,000 Medical Payments</p> <p>Per Project Aggregate</p> <p>Evidence of coverage must be shown on certificates of insurance.</p>
<p>Workers Compensation insurance with limits to comply with the requirements of the Texas Workers' Compensation Act</p> <p>Employers Liability insurance</p>	<p>Statutory Limits</p> <p>\$1,000,000</p>

<p>Umbrella or Excess Liability insurance (excess of primary General Liability, Automobile Liability and WC Coverage B)</p>	<p>\$2,000,000 for all projects estimated to cost up to \$25,000,000. \$5,000,000 for all projects estimated to cost over \$25,000,000.</p>
<p>All Risk Builders Risk Property Insurance. All Property insurance shall include coverage against the perils of Flood and Earthquake.</p>	<p>Contract Limit or Replacement Cost Value of Scope of Work which ever is greater</p> <p>Permission to Occupy granted</p> <p>Deductible: 2% of contract up to \$500,000 maximum, unless otherwise approved by HCC.</p>

Insurance Conditions

All insurance coverages shall be issued on an Occurrence basis by companies acceptable to HCC and licensed to do business in the State of Texas by the Texas Department of Insurance. Such companies shall have a Best's Key rating of at least "A- X".

All certificates must include:

1. The project location or description and the RFP number and Owner's name.
2. A 60 day notice of cancellation of any non-renewal, cancellation or material change to any of the policies
3. "Additional Insured" endorsements on all policies naming HCC, Jacobs Project Management Co., the Project Manager assigned to the Project and the Architect assigned to the Project.
4. All policies must contain a "Waiver of Subrogation" clause/endorsement in favor of HCC, Jacobs Project Management Co., the Project Manager assigned to the Project and the Architect assigned to the Project.
5. In addition to certificates of insurance, copies of policy endorsements must be provided (a) listing the required Additional Insureds named above, and (b) showing Waivers of Subrogation as required above on forms CG2010, CG2037, CG2404, CA0070, CA0032, WC0003 or their equivalents.

All insurance, except for Builder's Risk must be maintained for three years following

substantial completion with Certificates of Insurance provided. Builder's Risk insurance policies must be maintained up to through the date of written and certified substantial completion of all work of the Project.

Contractor shall be responsible for payment of all deductibles for insurance policies provided by Contractor, except that any deductibles required to be paid under a Builder's Risk policy shall be reimbursed by HCC to the extent the loss does not result from the acts or omissions of the Contractor or subcontractors; HCC must approve the deductibles selected prior to commencement of the work, and Builder's Risk deductibles may not be changed during the project without HCC's express written consent.

If any policy has aggregate limits, a statement of claims against the aggregate limits is required.

HCC reserves the right to review the insurance requirements during the effective period of any contract to make reasonable adjustments to insurance coverages and limits when deemed reasonably prudent by HCC based upon changes in statutory laws, court decisions or potential increase in exposure to loss.

EXHIBIT I

POLICY ON UTILIZATION OF SMALL BUSINESS PROGRAM

The Houston Community College System's Small Business Development Program ("SBDP" or the "Program") was created to provide business opportunities for local small businesses to participate in contracting and procurement at Houston Community College (HCC). By formalizing existing practices and implementing new procedures, the SBDP allows HCC to produce more effective small business participation and create opportunities relating to HCC contracting and procurement.

It is anticipated that through the growth of the SBDP, HCC will positively contribute in capacity building, increasing competition among small businesses and creating opportunity which will ensure best value to HCC.

Shown below are the key features of the Program.

1. The SBDP is a goal-oriented program, requiring Contractors who receive Contracts from HCC to use Good Faith Efforts to utilize certified small businesses. The Program applies to all Contracts over \$50,000, except Contracts for sole-source items, federally funded Contracts, Contracts with other governmental entities, and those Contracts that are otherwise prohibited by applicable law or expressly exempted by HCC. The SBDP is a race and gender-neutral program, however HCC actively encourages the participation of minority and women-owned small businesses in the SBDP.
2. The SBDP shall also apply to purchases less than \$50,000 whereby HCC will maximize the use of certified small businesses by seeking quotes from certified firms to compete as prime vendors.
3. The HCC Board of Trustees will establish an annual goal for small business participation at HCC. The initial overall annual goal of the SBDP will be set at thirty-five (35%) percent of the dollar amount of all SBDP-Eligible Procurement Contracts. However, individual Contract goals will vary based on subcontracting opportunities, availability of small businesses, and price competitiveness. The annual goal may change from year to year based on all relevant factors considered by the HCC Board of Trustees.
4. To participate, small businesses must be certified by an agency or organization whose certification is recognized by HCC. Certification is based on the firm's gross revenues or number of employees averaged over the past three years, inclusive of any affiliates as defined by 13 C.F.R. § 121.103, does not exceed the size standards as defined pursuant to Section 3 of the Small Business Act and 13 C.F.R. § 121.201.

5. The SBDP has clear guidelines for counting small business participation. Safeguards are applied to prevent abuse.
6. An approved application from a small business to participate in the SBDP is valid for a one-year period. Recertification is required after each year with evidence of continuing eligibility.
7. SBDP-Certified Small Businesses may be graduated from participation in SBDP based on growth or change in status.

The Small Business Development Program provides benefits to the small business including:

8. Providing assistance to small businesses and Contractors by providing information and support.
9. Reducing the size of Contracts, when feasible, to allow small businesses a better opportunity to compete.
10. Assisting small businesses in obtaining insurance and surety bonds.
11. Requiring prospective Proposers to provide written assurance of small business participation in their proposals.
12. Providing workshops and training sessions on issues frequently encountered by small businesses during the proposal process and generally while performing work at HCC.
13. Maintaining an updated small business directory source list(s) to help identify qualified and available small businesses; providing information on the HCC website about opportunities to do business with HCC.
14. Providing information on the HCC website about the SBDP Procedures.

The SBDP incorporates several procedures to help implement the Program. These are designed to maximize the Program's success. These procedures include:

15. The SBDP requires Good Faith Efforts by Contractors to use small businesses in Contract performance. The SBDP has procedures in place to determine whether Contractors are meeting this requirement of Good Faith Efforts. Contractors are required to document efforts to obtain small business participation. A Contract award may be denied or an existing Contract may be terminated for the Contractor's failure to use Good Faith Efforts. HCC recognizes that availability, subcontracting capabilities, and price competitiveness are relevant factors in determining whether a Contractor has used Good Faith Efforts to subcontract with small businesses.

16. HCC maintains a policy of non-discrimination and harassment in its operations. The SBDP is implemented in a nondiscriminatory manner. Contractors and small businesses are prohibited from discriminating in the operations of the Program based on age, color, ethnic background, disability, family status, gender, national origin, race, religion, sex, sexual orientation, or veteran status. Any such discrimination by Contractors or small businesses in selecting or utilizing small businesses on the basis of age, color, ethnic background, disability, family status, gender, national origin, race, religion, sex, sexual orientation, or veteran status may subject the Contractor or small business to disqualification from future Contracts with HCC.
17. HCC requires integrity in the operations of Contractors, Subcontractors, and small businesses participating in the SBDP. HCC SBDP Procedures Manual requires Good-Faith Efforts, proper contract performance, prompt payment, and cooperation by all participants. Pass-Thru Businesses are not permitted. Contractors, Subcontractors and small businesses that violate HCC's requirement of operational integrity of the Program will be subject to sanctions.
18. HCC utilizes various purchasing methods to acquire goods and services, including but not limited to Purchase Orders, Competitive Sealed Proposals, Requests for Proposals, Design-Build Contracts, Competitive Bidding, Catalog Purchases, Construction Manager Contracts, and Job Order Contracts. HCC determines which purchasing method to use based on the best value to HCC. Regardless of the purchase method utilized, all eligible procurements (unless otherwise exempt) shall have a SBDP goal.
19. HCC monitors the progress of the SBDP, reviewing participation reports, community input, recommendations, and operational efficiency. Quarterly reports are made to the HCC Board of Trustees addressing the number of Contracts awarded to small businesses, general categories of Contracts, and dollar value of Contracts.

Nothing in the SBDP should be construed to give a Proposer a property interest in a proposal or Contract prior to the HCC Board of Trustees' award of the Contract and compliance with all statutory and other legal requirements.

Capitalized terms used in this Procedures Manual shall have the meanings set forth in the sections titled "Definitions."

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Commissioning
Services

Commissioning
Plan

25-Nov-2013

**Houston Community
College**

Table of Contents

- PART 1 – OVERVIEW.....3**
 - 1.1 Description of Work.....3
 - 1.2 Related Documents.....3

- PART 2 – COMMISSIONED SYSTEMS.....4**
 - 1.3.A Building Envelope Systems.....4
 - 1.3.B Mechanical Systems.....4
 - 1.3.C Electrical Systems.....5
 - 1.3.D Building Automation System.....5

- PART 3 – ABBREVIATIONS AND DEFINITIONS.....5**

- PART 4 – COMMISSIONING TEAM.....7**

- PART 5 – ROLES AND RESPONSIBILITIES.....9**
 - 3.1.A Construction Phase.....9
 - 3.1.B Testing and Training Phase.....13
 - 3.1.C Occupancy Phase.....15

- PART 6 – PREFUNCTIONAL AND FUNCTIONAL PERFORMANCE TESTING REQUIREMENTS....17**
 - 3.6 Quality Assurance Testing.....17
 - 3.7 Substantial System Readiness.....17
 - 3.8 Operation and Maintenance Data.....19
 - 3.9 Phased Commissioning/Testing.....19
 - 3.10 Functional Performance and Integrated Systems Testing.....19
 - 3.11 Corrective Issues Report.....21
 - 3.12 Owner Training.....21
 - 3.13 Deferred and/or Seasonal Training.....22

- PART 7 – SAMPLE COMMISSIONING DOCUMENTS.....23**
 - Example 1 Pre-Functional Checklist.....24
 - Example 2 Site Observation Report.....29
 - Example 3 Functional Performance Test Procedure.....32
 - Example 4 Corrective Issues Report.....49

PART 1 - OVERVIEW

1.1 DESCRIPTION OF WORK

- A. The purpose of the Commissioning Process is to provide the Owner/Operator of the facility with independent verification that the systems to be commissioned have been installed according to the contract documents and operate within the performance guideline set in the Owner's Project Requirements, the Basis of Design, the construction drawings and these specifications. The Commissioning Authority will provide the Owner with independent, unbiased, objective view of the system's installation, operation and performance. The commissioning process does not alleviate or reduce the responsibility of the design professionals or installing contractors to provide a complete and finished product, installed and fully functional in accordance with the contract documents.
- B. Commissioning is intended to enhance the quality of system start-up and aid in the orderly transfer of systems for use by the Owner. Quality commissioning requires participation by all parties involved with the design and construction process, including the owner, architect and engineer, general and sub-contractors, and owner's facilities department. The Commissioning Authority will lead the commissioning team planning and coordinating all commissioning activities in conjunction with the design professionals, project manager, general contractors, manufacturers and equipment vendors. In addition, training of the Owner's Operations Personnel will be verified and final project O&M Documents will be reviewed for completeness.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Owners Project Requirements.
- C. Basis of Design
- D. Contractor and Vendor field start-up reports.
- E. Contractor QA/QC Testing reports.
- F. Close-out documentation including O&M Manuals.
- G. Related Sections:
 - 1. Section 013100 "Project Administration"
 - 2. Section 013200 "Project Planning and Scheduling"
 - 3. Section 014200 "Reference Standards"
 - 4. Section 019100 "Contract Close-out Requirements"
 - 5. Division 22 - "Plumbing"

6. Division 23 - "Heating Ventilating and Air Conditioning"
7. Division 25 - "Integrated Automation"
8. Division 26 - "Electrical"
9. Division 28 - "Electronic Safety and Security"

PART 2 – COMMISSIONED SYSTEMS

1.3 SYSTEMS TO BE COMMISSIONED

A. Building Envelope (as applicable):

1. IR Scanning of Building Envelope and Finished Roof (witness & review of contractor testing)

B. Mechanical Systems (as applicable):

1. Air Handling Units
2. Centrifugal, Reciprocating, & Screw Water Chillers
3. Cooling Towers
4. Computer Room AC's
5. Unitary Split System Air Conditioners
6. Blower Coil Units
7. Humidifiers
8. Relief Air Fans
9. Laboratory Fume Hoods
10. Water Tube Boilers
11. General Exhaust Fans
12. Wall Mounted Propeller Fans
13. Air Terminal Units: VAV terminal boxes [50% Testing Sampling]
14. Lab Heat Rejection Recirculation System
15. Furnace Heat Recovery System

16. Heating Hot Water System
 17. Chilled Water System
 18. HVAC Water Treatment
- C. Electrical Systems (as applicable):
1. Emergency Lighting
 2. Lighting Control System [50% Testing Sampling]
- D. Building Automation System (as applicable):
- A. Building Automation System Graphics
 - B. Verification of Controllability
 - C. Verification of Functionality

PART 3 - ABBREVIATIONS AND DEFINITIONS

1.4 DEFINITIONS

1. Basis of Design Document:
 1. 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. This document includes both narrative descriptions and lists of individual items that support the design process.
- B. Commissioning Authority:
 1. An entity identified by the Owner who plans, schedules and coordinates the Commissioning Team to implement the Commissioning Process. This is often abbreviated as Cx Authority or CxA.
- C. Commissioning Plan:
 1. A document prepared and updated by the Commissioning Authority that outlines the organization, schedule, allocation of resources, and documentation requirements of the Commissioning Process. The Commissioning Plan is binding on the contractors. The specifications of this section will take precedence over the Commissioning Plan.
- D. Commissioning Process:
 1. A quality-focused process for enhancing the delivery of a project. The Process focuses on verifying and documenting that the facility and all of its systems and

assemblies are planned, designed, installed, tested, operated, and maintained to meet the Owner's Project Requirements.

2. Commissioning is typically abbreviated by "Cx". Commissioning and Cx have the exact same meaning and will be used interchangeably throughout the Contract Documents.
- E. Commissioning Team:
1. The individuals who, through coordinated actions, are responsible for implementing the Commissioning Process.
- F. Contractor QA/QC Test Reports:
1. Reports generated by the Contractors in accordance with the Project Specifications and provided to the Cx Authority as a part of the Pre-Functional Checklists. Example tests include but not limited to: duct pressure tests, piping hydrostatic tests, cable insulation tests, hi-pot testing.
- G. Corrective Issue Report:
1. A report generated by the Cx Authority during Functional Performance Testing documenting issues found during the testing procedures that require follow-up corrective action.
- H. Data logging:
1. Monitoring flows, currents, status, pressures, etc. of equipment using stand-alone data loggers separate from the control system.
- I. Deferred or Seasonal Testing:
1. Functional performance and integrated systems testing that is performed later, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design or other site conditions that disallow the testing from being performed during the Testing & Training phase.
- J. Deficiency:
1. A condition in the installation or function of a component, piece of requirement or system that is not in compliance with the Contract Documents (that is , does not perform properly or is not complying with the design intent/basis of design).
- K. Final Cx Report:
1. The Final Commissioning Report includes information from the entire Commissioning Process as defined throughout the Commissioning Plan and will include Training documentation and completed Functional Performance Test documentation and the resolved Corrective Issues Report. This report will be provided to the Owner at the completion of the project.
- L. Functional Performance and Integrated Systems Testing:

1. Testing of the dynamic functional and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional Performance and Integrated Systems Testing is the dynamic testing of systems (rather than just components) under full operation. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied modes, varying outside ambient conditions, power failure, etc. The systems are run through all control systems sequences of operation and components are verified to be responding as the sequences state.
2. The Commissioning Authority develops the Functional Performance and Integrated Systems Test procedures in a sequential written form, coordinates, witnesses and documents the actual testing, which is performed by the installing contractor or vendor.
3. Functional Performance and Integrated Systems Testing will be conducted after completion of the Pre-Functional Checklists and factory/manufacturer start-up procedures.

Owner's Project Requirements:

1. A written document that details the functional requirements of the project and the expectations of how the facility will be used and operated. This includes project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.

M. Phased Commissioning:

1. Commissioning that is completed in phases (by floors, for example) due to the size of the facility, phased occupancy or other scheduling issues.

N. Pre-Functional Checklist:

1. Documents prepared by the Cx Authority and issued to the Contractor early in the Construction Phase. The purpose of the Checklists are to verify that appropriate components are on site, correctly installed, started, operational, and ready for functional performance and integrated systems testing. Pre-functional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation.
2. Pre-functional checklists augment and are combined with the manufacturer's start-up checklists but are not a substitute.

Q. Sampling:

1. Functional performance and/or integrated systems testing only a fraction of the total number of identical or near identical pieces of equipment or systems.

PART 4 – COMMISSIONING TEAM

1.5 COMMISSIONING TEAM

- A. The Commissioning Team shall consist of a minimum of one (1) Representative for each of the following parties involved in the design, construction and operation of this facility:
 - 1. Owner.
 - 2. CMAR (Construction Manager at Risk)
 - 3. Design Team – Architect, Engineers and Designers.
 - 4. PM (Program/Project Manager)
 - 5. Facility O&M Personnel
 - 6. Construction Manager.
 - 7. Sub-Contractors.
 - 8. Commissioning Authority.
- B. Each Commissioning Team Representative shall have at least five (5) years experience in construction administration along with a thorough understanding of construction project documentation procedures.
- C. Each Commissioning Team Representative shall be familiar with ASHRAE Guideline 0-2005: The Commissioning Process.

2.1 FUNCTIONAL PERFORMANCE TESTING EQUIPMENT AND INSTRUMENTS

- A. The Construction Manager and/or Subcontractors shall provide all tools, instruments, laptop computers, tablets/PDAs, software programs and services required to perform system Functional Performance and Integrated Systems Testing procedures. This includes providing the connection to systems to be tested, operation of the test equipment and instrumentation and generating test results as required.
- B. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system and equipment performance within the tolerances specified in the Contract Documents and the Functional Performance and Integrated Systems Test procedures. If not otherwise noted, the following minimum requirements shall apply:
 - 1. Temperature sensors and digital thermometers shall have an accuracy of 0.5°F and a resolution of $\pm 0.1^\circ\text{F}$.
 - 2. Pressure sensors shall have an accuracy of $\pm 2.0\%$ of the value range being measured (not full range of meter).
- C. All testing equipment shall have calibration certificates readily available for review and documentation and shall have been calibrated within the previous 12 months.

2.2 SUBMITTALS AND OPERATIONS & MAINTENANCE MANUALS

- A. Contractor shall provide all submittals relating to systems to be commissioned identified in Part 1 above to Design Team and Cx Authority in electronic format. Information should be provided in PDF format or formats compatible with Microsoft Office applications for PCs. Refer to submittal requirements established in Division 01 for additional requirements.
- B. Contractor shall provide all Operation & Maintenance Manual material identified in Section 019100 and related Sections to Owner, Design Team and Cx Authority in electronic format. Information should be provided in PDF format or formats compatible with Microsoft Office applications for PCs.
- C. Installation and checkout materials that are shipped attached to or inside equipment and the actual field checkout sheet forms used by the factory or field technicians shall be submitted to the Commissioning Authority. All documentation requested by the Commissioning Authority will be included by the Contractors in their O&M manuals.

PART 5 – ROLES AND RESPONSIBILITIES

3.1 ROLES AND RESPONSIBILITIES

A. Construction Phase

- 1. HCC Facilities Planning and Development (Provided for information only):
 - a. Participate in the Construction Phase Cx Kick-off Meeting.
 - b. Review and approve Construction Phase Commissioning documentation including the updated Owner's Project Requirements, updated Commissioning Plan, updated Basis of Design, and Systems Manual.
 - c. Review and approve the O&M manuals concurrent with review by the Design Team and the Commissioning Authority.
 - d. Witness, to the greatest extent desired, the Cx testing of building envelope assemblies.
 - e. Approve Functional Performance and Integrated Systems Test Documents.
 - f. Approve construction schedule updates.
 - g. Review and provide comments on the Measurement and Verification Plan Updates and metering installation.
 - h. Participate in the BAS controls coordination meetings.
 - i. Participate in the development of training plans and agendas.
 - j. Review and provide comments on the Cx Corrective Issues Report.
 - k. Approve submittals and record drawings as outlined in specifications.
 - l. Review and provide comments on the 10th Month Mechanical.
 - m. Host and participate in the 10th month warranty review meeting.

- n. Review and approve the Final Commissioning Report.
2. HCC O&M Personnel (Provided for information only):
- a. Periodically visit the construction site to become familiar with the components as they are installed and prior to being concealed.
 - b. Witness, to the greatest extent desired, equipment cleaning, testing and start-up procedures.
 - c. Witness, to the greatest extent desired, pre-wall and ceiling close-up inspections.
 - d. Communicate with the Construction Manager and Commissioning Authority any concerns regarding system installation.
 - e. Review the equipment training plans with the Commissioning Authority with respect to appropriateness to the potential trainees.
 - f. Review and approve the O&M manuals concurrent with review by the Design Team and the Commissioning Authority.
 - g. Review and comment on any revisions to the Basis of Design by the Design Team.
3. Program Management (Provide for information only):
- a. Participate in the Construction Phase Cx Kick-off Meeting.
 - b. Update and maintain the Owner's Project Requirements Document.
 - c. Review and approve the updated Basis of Design Document.
 - d. Review and approve the updated Commissioning Plan.
 - e. Approve ASIs, RFIs and change orders.
 - f. Approve completed Pre-Functional Checklists.
 - g. Review and Provide comments on submittals.
 - h. Review and Provide comments on O&M packages.
 - i. Participate in Construction Phase commissioning meetings.
 - j. Witness and approve Cx testing of building envelope assemblies.
 - k. Approve Functional Performance and Integrated Systems Test Documents.
 - l. Approve construction schedule updates.
 - m. Review and provide comments on the Measurement and Verification Plan Updates and metering installation.
 - n. Review and provide comments on the BAS controls coordination meetings.
 - o. Review and provide comments on the developed training plans and agendas.
 - p. Review and provide comments on the Cx Corrective Issues Report.
 - q. Approve submittals and record drawings as outlined in specifications.

4. Design Team (Provided for information only):
 - a. Participate in the Construction Phase Cx Kick-off Meeting.
 - b. Specify and verify that the operation and maintenance of the systems and assemblies has been adequately detailed in the Construction Documents.
 - c. Review and incorporate, as appropriate, the Commissioning Authority's comments from submittal reviews.
 - d. Review and provide comments on the updated Owner's Project Requirements and Commissioning Plan documents.
 - e. Update the Basis of Design Document as necessary.
 - f. Review and provide comments on the Pre-Functional Checklist forms developed by the Cx Authority.
 - g. Participate in Commissioning Meetings.
 - h. Review Cx Authority's Site Observation Reports.
 - i. Witness and approve Cx testing of building envelope assemblies.
 - j. Provide the Commissioning Authority with copies of all answered RFIs, Change Orders, ASIs and Meeting Minutes.
 - k. Collaborate with the Commissioning Authority to develop the final detailed Functional Performance and Integrated Systems Test Procedures for systems to be commissioned based on the equipment/system shop drawings and submittals.
 - l. Review and provide comments on construction schedule updates.
 - m. Update the Measurement and Verification plan as necessary and review metering installation.
 - n. Participate in BAS controls coordination review meetings.
 - o. Participate in developing training plans and agendas.

5. Jacobs Commissioning Authority (Provided for information only):
 - a. Conduct a Commissioning Team kick-off meeting. The intent of the meeting will be to present the Commissioning specification requirements, test procedures, and scheduling.
 - b. Update the Commissioning Plan document as necessary.
 - c. Prepare typical Pre-Functional Checklists for duplication and use by the contractors.
 - d. Conduct and document Commissioning meetings.
 - e. Assist the Construction Manager, subcontractors, and Owner's Project Manager in incorporating Commissioning activities into the master project schedule.
 - f. Review and comment on any changes to the Basis of Design document prepared by the Design Team.
 - g. Review and provide comments on the Measurement and Verification Plan and metering design provided by the Design Team.

- h. Review equipment shop drawings and coordination drawings applicable to systems to be commissioned concurrent with the Design Team's review for compliance with the Contract Documents, the Owner's Project Requirements, and the Basis of Design. Submit review comments to the Design Team for inclusion with their review comments.
 - i. Review O&M manuals applicable to systems to be commissioned concurrent with the Design Team's review. Submit review comments to the Design Team.
 - j. Review additional Construction Phase documentation, ASIs, RFIs, Change Orders, Meeting Minutes, and other correspondence required to place and perform commissioning tasks.
 - k. Perform site visits, in conjunction with Commissioning meetings, to observe component and system installations. Attend selected planning and job site meetings to obtain information on construction progress.
 - l. Participate in BAS controls coordination reviews and meetings.
 - m. Prepare final Functional Performance and Integrated Systems Test Procedures reflective of the approved equipment/system shop drawings and the final Basis of Design. These will be distributed to the Owner, Design Team, and Construction Manager for distribution to all affected contractors for their review.
 - n. Prepare the Systems Manual including system descriptions, single line diagrams, sequences of operations overview, control diagrams, recommendations for maintenance requirements and re-testing and calibration recommendations.
 - o. Randomly sample the completion of the Pre-Functional Checklists.
 - p. Review and provide comments on construction schedule updates.
 - q. Witness and document building envelope Cx Testing of assemblies.
6. CMAR
- a. Review Construction Phase Commissioning documentation including but not limited to Cx site observation reports, Pre-Functional Checklists, and submittal reviews.
 - b. Participate in Commissioning meetings.
 - c. Copy all meeting minutes to the Commissioning Authority for informational purposes.
 - d. Provide the Commissioning Authority with a copy of all shop drawings and submittals associated with the systems being commissioned. These shall be distributed concurrent with the distribution to the Design Team.
 - e. Incorporate Commissioning activities into the master project schedule. This scheduling shall involve the Commissioning Authority and installation contractors. Provide the Commissioning Authority with schedule updates at least monthly.
 - f. Consolidate and manage the system/equipment O&M manual preparation process by the installation contractors. Submit the systems/equipment O&M manuals to the Commissioning Authority for review and inclusion in the Cx close-out documentation prior to submission of completed Pre-Functional Checklists.

- g. Keep the Commissioning Authority updated of any construction changes to the systems being commissioned including copies of all relevant Requests for Information and Change Orders.
- h. Submit QA/QC testing and start-up report documentation for review by the Owner, Design Team and Commissioning Authority.
- i. Verify completion of the Pre-Functional Checklists by the appropriate subcontractor as the work is accomplished. Submit completed Pre-Functional Checklists to the Commissioning Authority prior to certifying systems are ready for Functional Performance Testing.
- j. Notify the Commissioning Authority when systems and assemblies are ready for functional performance testing through the completion of the Pre-Functional Checklists.
- k. Manage the training plan submittal process by the installation contractors. Submit training plans to the Commissioning Authority for review.
- l. Implement the Measurement and Verification Plan and Metering per design.

7. Sub-contractors

- a. Include Commissioning Process requirements and activities in each purchase order or subcontract written.
- b. Participate in Commissioning meetings.
- c. Complete the Pre-Functional Checklists as the work is accomplished and submit to the Construction Manager prior to the start of the Functional Performance Testing.
- d. Collaborate with the Commissioning Authority to develop the final detailed Functional Performance Test Procedures for systems to be commissioned.

B. Testing and Training Phase

1. HCC Facilities Planning and Development (Provided for information only):

- a. Witness, to the greatest extent desired, the Cx Functional Performance and Integrated Systems Tests.
- b. Review and provide comments on the Cx Corrective Issues Report.
- c. Support the implementation of the training program for operating personnel.

2. HCC O&M Personnel (Provided for information only):

- a. Witness, to the greatest extent desired, the Functional Performance Tests executed by the contractors and overseen by the Commissioning Authority.
- b. Review and comment on the Corrective Issues Report as developed by the Commissioning Authority.
- c. Participate in the scheduling of equipment and systems training sessions.
- d. Participate in O&M system training sessions.

- e. Review and comment on any revisions to the Basis of Design by the Design Team.
3. Program Management (Provide for information only):
- a. Approve the final contractor QA/QC tests and final test and balance report.
 - b. Approve the Functional Performance and Integrated Systems Testing Schedule.
 - c. Witness, to the greatest extent desired, the Cx Functional Performance and Integrated Systems Tests.
 - d. Review and provide comments on the Cx Corrective Issues Report.
 - e. Support the implementation of the training program for operating personnel.
4. Design Team (Provided for information only):
- a. Participate in the initial Facility O&M Personnel and occupant training session by presenting the project Basis of Design.
 - b. Participate in other training as detailed in the training program.
 - c. Review systems/equipment cleaning, QA/QC testing, and start-up reports submitted by the contractors.
 - d. Review and comment on the thermographic imaging report of the building envelope and roof.
 - e. Review and comment on the Commissioning Authority's Corrective Issues Reports.
5. Jacobs Commissioning Authority (Provided for information only):
- a. Review QA/QC testing and start-up reports submitted by the contractor.
 - b. Work with the contractor in resolving any issues identified during QA/QC or Functional Performance Testing.
 - c. Conduct and document thermographic imaging tests of the building envelope assemblies and roof.
 - d. Witness system and assembly Functional Performance and Integrated Systems Testing. List any deficiencies on systems in the Corrective Issues Report and provide to the Owner, Design Team, and contractors for review and corrections. Include completed Functional Performance Test Procedures within the Final Commissioning Report.
 - e. Review proposed contractor-provided training program to verify that the Owner's Project Requirements are achieved.
 - f. Audit the contractor-provided training sessions to verify that the Owner's Project Requirements are achieved.
6. CMAR

- a. Coordinate all subcontractor participation and provide any required equipment necessary for Functional Performance Testing. Equipment required for testing shall have valid calibration certificates.
- b. Remedy deficiencies identified by the Commissioning Authority during Functional Performance Testing and noted within the Corrective Issues Report.

7. Sub-contractors

- a. Demonstrate the performance of assemblies and/or operation of systems to the Commissioning Authority as required in order to achieve the requirements of the Functional Performance Test Procedures.
- b. Correct all deficiencies identified by the Commissioning Team and noted within the Corrective Issues Report.
- c. Implement the training program as detailed in the Contract Documents and documented in the Training Forms provided by the Commissioning Authority.

C. Occupancy Phase

1. HCC Facilities Planning and Development (Provided for information only):

- a. Review and provide comments on the 10th Month Mechanical Report.
- b. Host and participate in the 10th month warranty review meeting.
- c. Review and approve the Final Commissioning Report.

2. HCC O&M Personnel (Provided for information only):

- a. Maintain records of issues or concerns associated with the systems during normal operation for review at 10th month warranty meeting.
- b. Attend 10th month warranty review meeting.
- c. Participate in the deferred/seasonal Functional Performance Testing to the greatest extent possible.
- d. Maintain “as commissioned” operation of the building systems.

3. Program Management (Provide for information only):

- a. Participate in the 10th month warranty review meeting.
- b. Review and approve the Final Commissioning Report.

4. Design Team (Provided for information only):

- a. Attend 10th month warranty review meeting.

5. Jacobs Commissioning Authority (Provided for information only):

- a. Assemble the final Commissioning documentation, including the Commissioning Report and the Systems Manual. Submit this documentation to the Owner for review and acceptance.
- b. Conduct and document 10th month thermographic imaging tests of building mechanical equipment.
- c. Attend and lead the 10th month warranty review meeting.

6. CMAR

- a. Review and comment on the Final Commissioning Report.
- b. Attend 10th month warranty review meeting.

7. Sub-contractors

- a. Attend 10th month warranty review meeting.

3.1 PROJECT SCHEDULE

- A. The Cx Authority will review the Contractor's master project schedule and will provide to the Construction Manager a detailed schedule of Commissioning activities to be performed on the project. The Construction Manager is required to incorporate these Commissioning activities into the Master Project Schedule. The Commissioning Authority will review and update Cx activities along with the Construction Manager's Master Schedule update.

3.3 SUBMITTALS/SHOP DRAWINGS

- A. The Commissioning Authority will review Product Submittals and Shop Drawings relating to systems to be commissioned within the same review period as the Design Team. The Commissioning Authority will review the Submittals and Shop Drawings for Cx Process-related information and conformance to the Owner's Project Requirements and the Basis of Design. The Cx review comments will be issued directly to the Design Team for incorporation with their comments. Refer to Section 013300 for procedures as required.
- B. Contractor shall provide one (1) copy of each submittal directly to the Commissioning Authority concurrently when submitting to the Design Team.

3.4 REQUEST FOR INFORMATION

- A. The Commissioning Authority will review each RFI relating to system to be commissioned for Commissioning-related information and issue comments directly to the Design Team as applicable.
- B. The Design Team will include the Commissioning Authority in the distribution of answered and updates or additions to the construction documents including all RFIs, ASIs and Change Orders.

3.5 COMMISSIONING COORDINATION MEETINGS

- A. The Commissioning Authorities will conduct periodic Cx Coordination Meetings throughout the construction phase of the project. Commissioning Team Members are required to attend these meetings.
- B. The purpose of conducting Commissioning Coordination Meetings separate from the regular project progress meetings is to focus on the Commissioning Process activities status, schedule and issues.
- C. Commissioning Authority will lead meetings, record meeting minutes and distribute minutes to all attendees with copies to appropriate entities.
- D. Commissioning Coordination Meetings to be held at the Contractor's Field Office. These meetings will usually be held in conjunction with regularly-scheduled construction progress or OAC meetings.

PART 6 – PREFUNCTIONAL AND FUNCTIONAL PERFORMANCE TESTING REQUIREMENTS

3.6 QUALITY ASSURANCE TESTING

- A. Contractor Field Testing:
 - 1. The Commissioning Authority will receive one (1) copy of ALL systems cleaning, QA/QC testing and start-up reports from the Contractor and assemble for record into the Final Commissioning Report.
- B. Independent Testing:
 - 1. The Commissioning Authority will receive one (1) copy of ALL independent systems cleaning, QA/QC testing and start-up reports from the Contractor and assemble for record into the Final Commissioning Report.

3.7 SUBSTANTIATING SYSTEM READINESS

- A. The Commissioning Authority will prepare and issue to the Contractor an example Pre-Functional Checklist form for each type of system or major piece of equipment to be commissioned. The Contractor is responsible for duplication of Pre-Functional Checklists for all systems and equipment. Pre-Functional Checklists are important to ensure that they equipment and systems are installed and operational. It ensures that Functional Performance and Integrated Systems Testing may proceed without unnecessary delays. Each piece of equipment will receive full Pre-Functional Checkout by the contractors. No sampling strategies are used. The Pre-Functional Checklists for a given system must be successfully completed prior to formal Functional Performance and Integrated Systems Testing of the system. Refer to sample Pre-Functional Checklist at the end of this Section.

- B. The Commissioning Authority will monitor and track the completion of the Pre-Functional Checklist forms.
- C. The Contractor shall complete the Pre-Functional Checklists, provided by the Commissioning Authority, as follows:
 - 1. Pre-Functional Checklists should be maintained in a binder(s) or electronically at the Construction Manager's project site office and are subject to review for comparison between the completion level of the Checklists and the status of the work during site observation visits by the Commissioning Authority.
 - 2. Complete Section 1 "Equipment Delivery" of the Pre-Functional Checklist after equipment delivery to the site.
 - 3. Complete Section 2 "Equipment Installation" of the Pre-Functional Checklist after the equipment installation is complete.
 - 4. Complete Section 3 "Equipment Start-up" of the Pre-Functional Checklist after the equipment has been successfully started. The contractor is to forward copies of all manufacturer's start-up forms and reports to the Commissioning Authority.
 - 5. Complete Section 4 "BAS/Power Monitoring/Lighting Control Integration" of the Pre-Functional Checklist after the equipment and systems control configuration and integration process has been completed.
 - 6. Complete Section 5 "Notification for Testing" of the Pre-Functional Checklist after the equipment is fully operational and ready for Functional Performance and Integrated Systems Testing
 - 7. Completed and signed Pre-Functional Checklists are a pre-requisite for commencing Functional Performance and Integrated Systems Testing.
 - 8. Only individuals that have direct knowledge and witnessed that a line item task on the Pre-Functional Checklist was actually performed shall initial or check off that item.
- D. The Contractor shall clearly list any outstanding items from the Pre-Functional Checklists and/or manufacturer start-up reports and checklists that were not completed successfully in the Comments section of the applicable Pre-Functional Checklist. The Commissioning Authority will review any items/issues listed and will address them through discussion with the design team and Construction Manager prior to proceeding with functional performance and integrated systems testing.
- E. The Contractor shall develop detailed start-up plans for all equipment. These plans shall be reviewed by the Design Team and the Commissioning Authority for completeness and verification that the manufacturer-recommended procedures have been completed.
 - 1. The contractor responsible for the installation and start-up of the equipment is responsible for developing the start-up plan by combining the Pre-Functional Checklist with the manufacturer's detailed start-up and checkout procedures and any required quality assurance testing.

2. The contractor shall maintain an updated and annotated copy of the start-up plan that shall be accessible for review by the Design Team and the Commissioning Authority at periodic intervals.
3. The completed start-up procedures shall be provided along with the completed Pre-Functional Checklists to the Commissioning Authority prior to the Contractor's certification that the systems are ready for Functional Performance and Integrated Systems Testing.

3.8 OPERATION AND MAINTENANCE DATA

- A. The Commissioning Process has special requirements on compiling and submitting Operation and Maintenance Data. O&M Data is required to be submitted to the Commissioning Authority immediately after receipt of the approved submittal from the Design Team. Refer to Section 019100 for specific requirements for O&M manual contents.
- B. The Commissioning Authority will compile the information into the project Systems Manual which will be used during Training Sessions.

3.9 PHASED COMMISSIONING/TESTING

- A. The project may require start-up and initial checkout to be executed in phases. This phasing will be planned and scheduled in a coordination meeting with the Commissioning Authority and the Construction Team and documented within the Commissioning schedule and the Commissioning portion of the master project schedule.

3.10 FUNCTIONAL PERFORMANCE AND INTEGRATED SYSTEMS TESTING

- A. The Commissioning Authority will develop, coordinate and witness the Functional Performance and Integrated Systems Test Procedures to be used on the systems being commissioned. The objective of Functional Performance and Integrated Systems Testing is to demonstrate that each system is operating according to the documented basis of design and Contract Documents. Functional Performance and Integrated Systems Testing facilitates bringing the systems from a state of substantial completion to full dynamic operation. Additionally, during the testing process, areas of deficient performance are identified and corrected, improving the operation and functionality of the system.
- B. The Test Procedures will be developed by the Commissioning Authority to reflect operation through all modes (seasonal, occupied, unoccupied, part- and full-load, etc) where there is a specified systems response. Verifying each sequence within the sequence of operations is required. Each contractor associated with any particular system to be commissioned is responsible for providing requested information to the Commissioning Authority to assist in development of the Test Procedures. The Test Procedures will be submitted to the remainder of the Commissioning Team in advance of scheduled Functional Performance and Integrated Systems Testing to give all members of the Commissioning Team time to review the Procedures and make comments or suggest revisions. Each Contractor is responsible for reviewing the Test Procedures prior to conducting the testing. Refer to sample Functional Performance

Test Procedure at the end of this Section.

- C. The Contractor is required to provide all testing instruments and all skilled labor required to conduct the Functional Performance and Integrated Systems Test Procedures. The Commissioning Authority will attend all Functional Performance and Integrated Systems Testing and record all results of the Testing on the Functional Performance and Integrated Systems Test Procedure.
- D. Each function and test of the Functional Performance and Integrated Systems Testing shall be performed under conditions that simulate actual conditions as close as is practically possible. The contractor executing the test shall provide all necessary materials, systems modifications, etc. to produce the necessary flows, pressures, temperatures, etc. required to execute the test according to the specified conditions. At completion of the test, the contractor shall return all affected building equipment and systems from these temporary modifications to their pre-test condition.
- E. Sampling:
 - 1. Multiple identical pieces of non-life safety or otherwise non-critical equipment may be functionally tested using a sampling strategy. Significant application differences and significant sequence of operation differences in otherwise identical equipment invalidates their common identity. A small size or capacity difference alone does not constitute a difference. The specific sampling rates associated with each system or type of equipment will be identified within the Commissioning Plan.
 - 2. A sampling strategy will be used as “XX% Sampling – YY% Failure Rate” defined as:
 - XX = the percent of the group of identical equipment to be included in each sample.
 - YY = the percent of the sample that, if failing, will require another sample to be tested.

As an example, a 20% Sampling – 10% Failure Rate will be represented as:

 - a. Randomly test at least 20% of each group of identical equipment. This 20% constitutes the “first sample”.
 - b. If 10% of the units in the first sample fail the functional performance tests, test another 20% of the group (second sample).
 - c. If 10% of the units in the second sample fail, test all remaining units in the whole group.
 - d. If at any point, frequent failures are occurring and testing is becoming more troubleshooting than verification, the Commissioning Authority may stop the testing and require the responsible contractor to perform and document a checkout of the remaining units prior to continuing with Functional Performance and Integrated Systems Testing of the remaining units.
 - e. Costs associated with testing systems beyond the initial sample rate for all parties including the Commissioning Authority are the responsibility of the Construction Team.
- F. Pre-requisite documents to be submitted to the Commissioning Authority prior to Functional Performance Testing:

1. Updated/Completed Pre-Functional Checklists.
2. Test and Balance Report (preliminary).
3. Contractors' QA/QC Testing Reports.
4. Contractors' Start-Up Reports.
5. O&M Manuals.
6. Trend data from Building Automation Systems points (as identified).

3.11 CORRECTIVE ISSUE REPORT

- A. The Commissioning Authority will document deficiencies discovered during Functional Performance and Integrated Systems Testing of systems in a Corrective Issue Report. The Commissioning Authority will then forward this form to the Construction Manager for action in correcting the deficiency.
- B. When the deficiency has been corrected, the Construction Manager shall note action taken and return the Corrective Issue Report to the Commissioning Authority. Any issues with open resolutions that are not agreed upon between the Contractors and the Commissioning Authority shall be reviewed and commented on by the Design Team for resolution and ultimately accepted by the Owner's project manager. Reference sample Corrective Issue Report at the end of this Section.
- C. Items on the Corrective Issues Report must be completed as a pre-requisite for Substantial Completion.
- D. The costs for any re-testing related to deficiencies discovered during Functional Performance and Integrated Systems Testing shall be the responsibility of the Construction Team.

3.12 OWNER TRAINING

- A. All training sessions shall be coordinated through the Commissioning Authority. The Commissioning Authority will prepare a Training Form for each Training Session required by the Contract Documents and issue to the Construction Manager. The Training Forms shall be used to schedule, perform and document the required training sessions. Refer to sample form at the end of this Section.
- B. Training instructors shall be a Manufacturer's Representative or Applications Engineer fully qualified in the operation, troubleshooting and maintenance procedures for the equipment or systems being covered. Sales Representatives or others possessing only general knowledge of the equipment or the systems will not be acceptable.
- C. The Construction Manager shall submit a separate Training Form for each training session required by the Contract Documents to the Commissioning Authority. This form shall be submitted a minimum of fourteen (14) calendar days in advance of the proposed training session.

- D. The Construction Manager shall complete the first section of the form including the proposed training session date, name of instructor(s), and proposed length (time) of the session(s). Also, attach an agenda indicating the format of the training session and listing any handouts that will be provided.
- E. The Commissioning Authority will review the proposed training information with the Owner. If the submitted information is complete and the proposed dates meet the Owner's Operations Personnel schedule, the Commissioning Authority will respond to the Construction Manager to proceed with scheduling the subject training session.
- F. During the training session, the Construction Manager shall have each attendee sign in the third section of the Training Form. Attach additional pages if necessary. The Construction Manager shall then forward the Training Form to the Commissioning Authority.
- G. Upon receipt of the Training Form, the Commissioning Authority will have each attendee complete the Evaluation Form to gain feedback on the value of the session.
 - 1. If the session meets the objectives and intent of the Contract Documents, the Commissioning Authority will approve the training form and return to the Contractor for Project Records.
 - 2. If negative feedback is received, the Evaluation Forms will be reviewed with the Commissioning Team and if necessary, re-scheduling of the training may be required.
- H. Operations & Maintenance Manuals shall be submitted and approved by the Design Team and Commissioning Authority BEFORE any training sessions will be scheduled. Any deficiencies identified in the review by the Commissioning Authority will be submitted and coordinated with the Design Team review. The O&M information will be reviewed and used as reference during training instructions.

3.13 DEFERRED AND/OR SEASONAL TESTING

- A. Unforeseen Deferred Testing – If any check or test cannot be completed due to the building structure, phasing, required occupancy condition, or other deficiency, execution of the checklists and functional performance and/or integrated systems testing may be delayed upon approval from the Owner's project manager. These tests will be conducted in the same manner as seasonal testing as soon as possible.
- B. Seasonal Testing – During the Occupancy Phase, seasonal functional performance and/or integrated systems testing (tests delayed until ambient or occupancy conditions are closer to the system's design) shall be completed as part of this contract. The Commissioning Authority shall coordinate this activity in conjunction with the Owner's O&M staff and the Construction Manager. Tests will be executed, documented and deficiencies corrected in the same manner as noted for the tests conducted during the Testing and Training Phase. Any final adjustments to the O&M manuals and as-built documents due to this testing are the responsibility of the Contractors.

PART 7 – SAMPLE COMMISSIONING DOCUMENTS

3.14 COMMISSIONING FORMS

- A. The following forms are provided for use during the Commissioning Process and will be provided as required by the Commissioning Authority. Examples of several forms are included at the end of this section:
1. Pre-Functional Checklist (Example 1)
 2. Site Observations Report (Example 2)
 3. Functional Performance and Integrated Systems Test Procedure (Example 3)
 4. Corrective Issue Report (Example 4)
 5. Training Form (Example 5)

Example 1: Pre-Functional Checklist

PROJECT: Houston Community College

PROJECT NUMBER: F9W94802

REPORT ID: PFC-237313- AHU G-CP-4A

EQUIPMENT DESCRIPTION: Variable Volume Air Handling Unit

LOCATION: Mechanical Mezzanine

This Pre-Functional Checklist is used during the Commissioning Process to ensure the correct equipment is installed and properly started in preparation for Functional Performance Testing of related building systems. This Checklist does not take the place of the manufacturer's recommended checkout and startup procedures.

This Checklist is divided into 5 Sections and is to be completed by the Contractor in 5 separate phases. As each Section is completed, the Contractor shall update the binder of Checklists that resides at the site. Upon completion of the Checklist, the Contractor shall forward the completed Checklist to the Commissioning Authority at this address:

Jacobs
5983 Rogerdale Road
Houston, Tx. 77072
Attn: Joe Commissioner
Phone: 555-555-5555
Fax: 555-555-5556
E-mail: joe.commissioner@jacobs.com

When completing each Section, be sure to check and initial EACH line item as being completed. Immediately notify the Commissioning Authority should any item be checked incomplete or there be any question regarding the level of completeness. Each Section's items must ALL be checked complete and initialed before the form is sent to the Commissioning Authority.

AHU G-CP-4A – Pre-Functional Checklist Log					
Equipment ID.	Area Served	Section 1	Section 2	Section 3	Section 4
		Equipment Installed	Start-Up Complete	BAS Control	Ready to Test
AHU G-CP-4A	EOC				

AHU G-CP-4A – Design Information		
PARAMETERS:	Design	Actual
Equipment ID	AHU G-CP-4A	
Location	Mechanical Mezz	
Manufacturer		
Model Number		
Serial Number		
Fan Data		
Airflow	3515	
ESP	1.5	
HP	5.0	
Volts/Phases	460/3	
Outside Air	1000	
Cooling Data		
Total MBH	179.9	
Sensible MBH	120.7	
Cooling Fluid	410A	
Filter Data		
Shared with unit CP-4		

SECTION 1 – EQUIPMENT DELIVERY:

The Contractor shall complete Section 1 when the equipment is delivered to the site. The purpose is to record the actual design parameters listed below along with the checklist items as indicated. Should there be any discrepancy between the Actual and the Submitted information, or any item be checked incomplete, the Contractor shall immediately notify the Commissioning Authority.

SECTION 2 – EQUIPMENT INSTALLATION:

The Contractor shall complete Section 2 when the installation of the equipment is being performed. The purpose of this Section is to insure the equipment is installed to the Project Design and the Manufacturer's recommendations. Immediately notify the Commissioning Authority should any item be checked incomplete.

SECTION 3 – EQUIPMENT START-UP:

The Contractor shall complete Section 3 during the Start-up procedures for the equipment. The purpose of this Section is to document that proper start-up and check-out procedures were completed and documented.

SECTION 4 – BAS CONTROL & INTEGRATION:

The Contractor shall complete Section 4 during the BAS configuration and integration process for the system. The purpose of this Section is to document the full control and monitoring capabilities of the BAS system including alarms, trends and full range of the sequence of operations.

SECTION 5 – COMPLETION & NOTIFICATION FOR TESTING:

The Contractor shall complete Section 5 to confirm that this piece of equipment is properly installed, has been properly started up, is operational, and ready for functional performance testing.

Equipment ID: **AHU G-CP-4A****CHECKLIST ITEMS:**

Sect.	ID	Initial	Complete	Description
Equipment Delivery	1.1		Y / N	All related submittal approved by A/E.
	1.2		Y / N	Equipment thoroughly inspected for physical damage.
	1.3		Y / N	All associated equipment and documentation included. (Performance Data, Fan Curves, Filter Schedule, Trap Height Schedule, Coil Valve Schedule, Sound Data, etc.)
	1.4		Y / N	Unit delivered with fan motors, sheaves, and belts assembled and mounted.
	1.5		Y / N	Store units in a clean, dry location protected from weather and construction traffic prior to installation.
	1.6		Y / N	BAS sensors are factory mounted.
	1.7		Y / N	Damper actuators are factory mounted.
	1.8		Y / N	Piping and duct connections sealed and protected.
Equipment Installation	2.1		Y / N	Proper maintenance access provided to all components requiring future maintenance access.
	2.2		Y / N	All shipping materials and supports removed.
	2.3		Y / N	AHU is in proper location and ducted.
	2.4		Y / N	Verify the unit is secure on mountings and supporting devices.
	2.5		Y / N	Ductwork is properly installed.
	2.6		Y / N	All access panel and doors are gasketed to prevent air leakage.
	2.7		Y / N	Condensate drain pans and trap installed per manufacturers specifications.
	2.8		Y / N	All piping and duct insulation installed.
	2.9		Y / N	Required length of straight duct provided at inlet and outlet.
	2.10		Y / N	Piping accessories installed per drawing details.
	2.11		Y / N	Fan has free rotation.
	2.12		Y / N	Verify bearings are greased properly.
	2.13		Y / N	Verify that all setscrews and fasteners on the fan assemblies are still tight.
	2.14		Y / N	Verify fan spring adjustment and that the fan assembly is level.
	2.15		Y / N	ID label permanently attached.
	2.16		Y / N	Protective guards installed.
	2.17		Y / N	Access doors installed, all hinges are functioning.
	2.18		Y / N	Duct smoke detectors and fire/smoke dampers installed in ductwork.
	2.19		Y / N	Filters installed and clean.
	2.20		Y / N	All electrical connections have been torqued to proper specifications.
	2.21		Y / N	All emergency electrical connections have been connected and labeled.

Equipment Start-up	3.1		Y / N	All dust and construction debris removed from all sections and connected ductwork has been cleaned.
	3.2		Y / N	Dampers operates full stroke without binding.
	3.3		Y / N	All quality assurance testing completed and reports submitted.
	3.4		Y / N	Fan rotation is correct.
	3.5		Y / N	Power supply energized and properly identified.
	3.6		Y / N	Chilled Water is available.
	3.7		Y / N	Heating Water is available.
	3.8		Y / N	Valves operates full stroke without binding.
	3.9		Y / N	Permanent labels attached.
	3.10		Y / N	VFD start-up is complete and all electronic setpoints are verified and recorded.
	3.11		Y / N	Manufacturers Rep on site for start-up.
BAS Control & Integration	4.1		Y / N	Sequence of operations including all interlocks, safeties and alarms are functional per Basis of Design and Construction Documents.
	4.2		Y / N	Point-to-point verifications have been completed.
	4.3		Y / N	Sensors are calibrated within specified tolerances.
	4.4		Y / N	Graphics are completed and submitted to Owner for approval.
	4.5		Y / N	Trend data of control variables show stable operation.
Completion	5.1		Y / N	New filters are installed.
	5.2		Y / N	Test and balance activities are complete.
	5.3		Y / N	O&M and warranty data provided to Cx Authority.
	5.4		Y / N	Specified extra materials turned over to Owner.
	5.5		Y / N	System is operational and ready for functional testing.

COMMENTS:

Example 2: Site Observation Report

Project: Houston Community College

Project No.: F9W94802

Present: Joe Commissioner (Jacobs)

Location: Houston, Tx

Weather: Sunny / 70°F+

Date: XX/XX/XXXX

The purpose of this visit was to:

- Review the construction progress of the facility.
- Observe site for commissioning related issues.
- Attend regularly scheduled construction meeting.

Observations:

- 1) Recommend covering ductwork to protect from dust and construction debris prior to installation and ensure future indoor air quality.



- 2) Recommend covering inlets and outlets of FPVAV boxes to prevent dust from getting on the coils or in flow crosses and ensure future indoor air quality.



- 3) Recommend keeping control panel covers closed when work is not in progress to reduce potential impact due to construction dust and debris.



Action Items

ITEM	ACTION	RESPONSIBLE INDIVIDUAL/S
1.	REVIEW AND RESPOND TO SITE VISIT REPORT	CMAR
2.	UPDATE CIR TO REFLECT ITEMS OPENED AS A RESULT OF THIS CX SITE VISIT	JACOBS CX
4		
5		

If you have any questions or comment, please don't hesitate to contact me.

Reported By: Joe Commissioner, CxA

Example 3: Functional Performance Test Procedure

Functional Performance Test Procedure

PROJECT: Houston Community College

PROJECT NUMBER: F9W94802

REPORT ID: FFTP-AHU-XX

SYSTEM DESCRIPTION: VAV Air Handling System

Date of Test:

Design Criteria:

VAV Air Handling Unit (AHU)

Area Served: FM Expansion Area

Total Air: 10,000 CFM

Maximum Outside Air: 6,820 CFM

Minimum Outside Air: 1,875 CFM

External Static Pressure: 4.9 in. W.G.

Fan Motor HP: 15.0

Volt/Phase: 460/3

Cooling

Total Capacity: 769.7 MBH

Sensible Capacity: 422.8 MBH

EAT: 92.1°F DB / 75.6°F WB

LAT: 53.0°F DB / 52.9°F WB

Water Flow: 96.3 GPM

W.P.D.: 20 ft H₂O

EWT: 44°F

LWT: 60°F

Filters

Pre-Filters: 30% efficient/Merv 7 Flat Filters

Final Filters: 85% efficient/Merv 13 Cartridge Filters

Clean Filter PD: 0.32 / 0.54

Related Documents:

Specification Sections:

- 230513 – Common Motor Requirements for HVAC Equipment
- 230553 – Identification for HVAC Piping and Equipment
- 230593 – Testing, Adjusting and Balancing for HVAC
- 230800 – Commissioning of HVAC
- 230900 – Instrumentation and Controls for HVAC
- 233600 – Air Terminal Units
- 238216 – Air Coils

Drawings:

- MH-102 – Mechanical New Area B
- M-401 – Mechanical Enlarged Plans and Sections
- M-601 – Schedules
- M-703 – Controls
- Entech Drawing TC.400 – Air Handling Unit AHU D-1-3 Flow Diagram

Submittal Data:

- 230900 – Controls for HVAC
- 237313 – Air Handling Units

Test Equipment Required:

- | | | |
|--------------------------|----------------------------|-------------------------|
| 2-Way Radios | Digital Temperature Sensor | Digital Humidity Sensor |
| Infrared Temperature Gun | Duct Airflow Instruments | Laptop Computer |
| Digital VOM | EMCS Software | |

SEQUENCE OF OPERATIONS

- A. Unit consists of a supply fan with VFD, chilled water coil, and electric preheat coil.
- B. The BMS controller will start and stop the supply fan through the VFD. On a start command, the supply fan will start at minimum flow.
- C. The BMS controller will monitor the supply fan discharge static pressure and modulate the supply fan VFD to maintain the static pressure setpoint (adjustable) as sensed by the duct static pressure sensor.
- D. The BMS will monitor the position of each new or existing, reused terminal box air valve. As one (1) or more boxes modulate to minimum setpoint for fifteen (15) minutes the supply air pressure setpoint will be reset down. As one or more terminal boxes open to 100% the supply pressure will be reset up.
- E. The BMS controller will monitor the supply air temperature and modulate the chilled water and/or steps of electric heating to maintain supply air temperature setpoint (adjustable) according to occupied and unoccupied mode setpoints (adjustable).
- F. A static pressure switch with manual reset mounted on the discharge side of the fan will de-energize the supply fan and initiate a system stop command on sensing its high static pressure setpoint. An alarm will be processed via BMS.
- G. On a stop command, the VFD will reduce to minimum flow and de-energize. The chilled water coil control valve will close, and the outside air damper will close.
- H. Zone temperature drifts below the unoccupied mode setpoint or above the night setup setpoint will command the unit on. The appropriate heating or cooling coil will modulate or energize to maintain the maximum/minimum supply air setpoint.
- I. Outside Air and Return Air Dampers:
 - 1) Occupied Mode – The outside air damper shall be modulated to maintain the required minimum outside air based on information from the flow station.
 - 2) Unoccupied Mode – The dampers shall return to normal position as shown.

J. Unoccupied Mode – Night Setback/Setup

- 1) Anytime the zone temperature falls below the night setback temperature setpoint 55 deg F. (Operator Adjustable) The BAS will enable the associated fan powered box. The BAS will disable the associated fan powered box when the zone temperature rises five (5) degrees F. (Operator Adjustable) above the night setback temperature setpoint.
- 2) Anytime the zone temperature rises above the night setup temperature setpoint 85 deg F. (Operator Adjustable) the BAS will enable the AHU. The BAS will disable the AHU upon the zone temperature falling five (5) deg F. (Operator Adjustable) below the night setup temperature setpoint.

K. Demand Ventilation

- 1) The BMS will monitor all carbon dioxide sensors every fifteen (15) minutes (adjustable) recording levels (PPM) and trending.
- 2) All carbon dioxide sensors will be polled per air system. The BMS will control the associated outside air damper to the highest reported level above the (global point) outdoor condition utilizing partial integral differential algorithm to maintain 500 PPM (adjustable) above outdoor levels.

Functional Performance Test Prerequisites

Prerequisite	Yes	No	Comments
1. Contractor QA/QC Testing Reports completed & submitted to CxA.			
2. Preliminary Test & Balance report submitted to CxA for review.			
3. O&M Manuals submitted to CxA for review.			
4. Pre-FPT trend logs submitted to CxA for review. Refer to test below for specific trend logs to be submitted.			
5. Instrument Sensor Calibration Certificate submitted to CxA			

System & Alarm Setpoints

System Setpoints	Setpoint Design Value	Current Status/Value
DISCHARGE AIR TEMPERATURE	55.0°F	
STATIC PRESSURE MAX	2.0 IN W.C.	
STATIC PRESSURE MIN	1.0 IN W.C.	
HIGH STATIC SAFETY SHUTDOWN	3 IN W.C.	
FREEZESTAT ACTIVATION	38.0°F	
CO2 CONCENTRATION	500 PPM > OA	
CO2 Max SP	?	
NIGHT SETUP SETPOINT	55°F	
NIGHT SETBACK SETPOINT	85°F	
TERMINAL BOX MAX	100%	
TERMINAL BOX MIN	BOX MIN	

NOTES:

VFD Parameters	Set
Restart After Power Failure	Yes/No
# of Restart Attempts After power Failure	__ Attempts
Brownout Ride-Through Time	__ sec.
Ramp Up Time	__ sec.
Ramp Down Time	__ sec.
DC Breaking at Startup	Yes/No
Programmed Skip Frequencies	Hz.
Bypass Mode	

NOTES:

Functional Test Procedures:

Pass Y/N	No	TEST PROCEDURE	EXPECTED RESULTS
General System Readiness			
	1.	Verify system has been operating at stable, normal conditions with no active alarms. All test pre-requisites have been satisfied. Field Notes:	1. There are no Alarms indicated at the operator workstation and the AHU is operating normally. <input type="checkbox"/> 2. System is running in stable condition. <input type="checkbox"/>
	2.	At the operator work station review the Event and Alarm logs for any previous and recorded problems with the AHU. Field Notes:	1. The Event and Alarm log is clear of any issues on the relevant systems. <input type="checkbox"/> 2. Events and Alarms are recorded. <input type="checkbox"/>
	3.	Verify adequate access is provided to all components that require periodic maintenance. Field Notes:	1. Adequate access is verified. <input type="checkbox"/>
	4.	Provide trends for each point listed below. Trend data is required for a minimum of 3 consecutive business days sampled at five minute intervals. 1. Discharge Air Temperature 2. Static Pressure 3. Return Air Temperature 4. Mixed Air Temperature 5. Zone CO2 6. CHW Valve Position 7. Minimum Outside Air Damper Position 8. Balance of Outside Air Damper Position Field Notes:	

Sensor Verification

5.	<p>Verify the temperature value shown at the EMCS workstation for the supply air temperature is within 1.0°F of the temperature shown on the calibrated test instrument. Verify sensor is accessible for future maintenance. Confirm sensor calibration.</p>	<p>1. Sensor is the correct type and in the correct location. <input type="checkbox"/></p> <p>2. Sensor is in the correct location. <input type="checkbox"/></p> <p>3. Sensor is accessible. <input type="checkbox"/></p> <p>4. Readings are within acceptable range. <input type="checkbox"/></p>
	<p>Field Notes: Sensor (BAS): _____°F Instrument: _____°F</p>	
6.	<p>Verify the temperature value shown at the EMCS workstation for the return air temperature is within 1.0°F of the temperature shown on the calibrated test instrument. Verify sensor is accessible for future maintenance. Confirm sensor calibration.</p>	<p>1. Sensor is in the correct location. <input type="checkbox"/></p> <p>2. Sensor is accessible. <input type="checkbox"/></p> <p>3. Readings are within acceptable range. <input type="checkbox"/></p>
	<p>Field Notes: Sensor (BAS): _____°F Instrument: _____°F</p>	
7.	<p>Verify the temperature value shown at the EMCS workstation for the mixed air temperature is within 1.0°F of the temperature shown on the calibrated test instrument. Verify sensor is accessible for future maintenance. Confirm sensor calibration.</p>	<p>1. Sensor is in the correct location. <input type="checkbox"/></p> <p>2. Sensor is accessible. <input type="checkbox"/></p> <p>3. Readings are within acceptable range. <input type="checkbox"/></p>
	<p>Field Notes: Sensor (BAS): _____°F Instrument: _____°F</p>	
8.	<p>Verify the temperature value shown at the EMCS workstation for the heater discharge air temperature is within 1.0°F of the temperature shown on the calibrated test instrument. Verify sensor is accessible for future maintenance. Confirm sensor calibration.</p>	<p>1. Sensor is in the correct location. <input type="checkbox"/></p> <p>2. Sensor is accessible. <input type="checkbox"/></p> <p>3. Readings are within acceptable range. <input type="checkbox"/></p>
	<p>Field Notes: Sensor (BAS): _____°F Instrument: _____°F</p>	

	9.	Verify the pressure value shown at the EMCS workstation for the supply air duct static pressure is within .20 In W.C. of the pressure shown on the calibrated test instrument. Verify sensors are accessible for future maintenance. Confirm sensor calibration.	<ol style="list-style-type: none"> Sensor is in the correct location. <input type="checkbox"/> Sensor is accessible. <input type="checkbox"/> Readings are within acceptable range. <input type="checkbox"/>
		Field Notes: Sensor 1 (EMCS): _____ In W.C. Instrument: _____ In W.C.	
	10.	Verify calibration of the minimum outside air flow station within 100 CFM of the flow shown on the calibrated test instrument. Verify sensors are accessible for future maintenance. Confirm sensor calibration.	<ol style="list-style-type: none"> Sensor is in the correct location. <input type="checkbox"/> Sensor is accessible. <input type="checkbox"/> Readings are within acceptable range. <input type="checkbox"/>
		Field Notes: Flow Meter (EMCS): _____ CFM Instrument: _____ CFM	
	11.	Verify calibration of the balance of outside air flow station within 100 CFM of the flow shown on the calibrated test instrument. Verify sensors are accessible for future maintenance. Confirm sensor calibration.	<ol style="list-style-type: none"> Sensor is in the correct location. <input type="checkbox"/> Sensor is accessible. <input type="checkbox"/> Readings are within acceptable range. <input type="checkbox"/>
		Field Notes: Flow Meter (EMCS): _____ CFM Instrument: _____ CFM	
Device Verification			
	12.	Verify full stroke of Outside Air Damper, Balance of Outside Air Damper and Return Air Damper by commanding them open then closed.	<ol style="list-style-type: none"> Return Air Damper opens on command. <input type="checkbox"/> OA Damper opens on command. <input type="checkbox"/> Return Air Damper closes on command. <input type="checkbox"/> OA Damper closes on command. <input type="checkbox"/>
		Field Notes:	
	13.	Verify full stroke of the Chilled Water Control Valve for AHU D-1-3 by commanding the CHW valve 100% open then 0% open.	<ol style="list-style-type: none"> Chilled water control valve opens on command. <input type="checkbox"/> Discharge air temperature drops. <input type="checkbox"/> Chilled water control valve closes on command. <input type="checkbox"/> Discharge air temperature approaches mixed air temperature value. <input type="checkbox"/>
		Field Notes:	

14.	Verify speed reading at VFD for AHU D-1-3 matches the speed reading at the BAS workstation within 1%. Verify HOA operations	1. VFD speed at drive and at BAS is synchronized. <input type="checkbox"/> 2. HOA switch controls VFD correctly. <input type="checkbox"/> 3. BAS displays HOA status correctly. <input type="checkbox"/>
Field Notes: Reading at Drive: _____ Hz Reading at Drive: _____ Hz		
Alarms and Safeties		
15.	Verify the fan failure alarm reports to the BAS system. With the fan commanded on at the BAS, turn the fan off at the disconnect or VFD.	1. Fan failure alarm is received at BAS. <input type="checkbox"/> 2. Supply fan turns off. <input type="checkbox"/> 3. CHW and Electric Preheat close/de-energize. <input type="checkbox"/> 4. OA Damper closes. <input type="checkbox"/> 5. Balance of Outside Air Damper closes. <input type="checkbox"/> 6. Return Air Damper Closes. <input type="checkbox"/>
Field Notes:		
16.	Verify the low temperature cutout switch shuts down the unit.	1. Low temperature alarm is received at BAS. <input type="checkbox"/> 2. Supply fan turns off. <input type="checkbox"/> 3. CHW and Electric Preheat close/de-energize. <input type="checkbox"/> 4. OA Damper closes. <input type="checkbox"/> 5. Balance of Outside Air Damper closes. <input type="checkbox"/> 6. Return Air Damper Closes. <input type="checkbox"/>
Field Notes:		
17.	Verify the high pressure cutout switch shuts down the unit. (manual reset required)	1. High discharge pressure cut-off alarm is received at BAS. <input type="checkbox"/> 2. Supply fan turns off. <input type="checkbox"/> 3. CHW and Electric Preheat close/de-energize. <input type="checkbox"/> 4. OA Damper closes. <input type="checkbox"/> 5. Balance of Outside Air Damper closes. <input type="checkbox"/> 6. Return Air Damper Closes. <input type="checkbox"/>
Field Notes:		
18.	Verify dirty filter alarm is operational. Reset the dirty filter alarm setpoint to be lower than the current dirty filter alarm setpoint.	1. Dirty filter alarm is received at BAS. <input type="checkbox"/>

		Field Notes: 1. Dirty Filter Alarm Setpoint: _____ in/H ₂ O DP	
	19.	Verify water detector alarm is operational. Manually activate the water detector alarm.	1. Water Detector alarm is received at BAS. <input type="checkbox"/>
		Field Notes:	
	20.	Verify Duct Smoke Detector shutdown for the supply duct smoke detector. Activate duct smoke detector.	1. Duct smoke detector alarm is received at BAS. <input type="checkbox"/> 2. AHU shuts down according to sequence. <input type="checkbox"/>
		Field Notes:	
	21.	Verify Duct Smoke Detector shutdown for the return duct smoke detector. Activate duct smoke detector.	1. Duct smoke detector alarm is received at BAS. <input type="checkbox"/> 2. AHU shuts down according to sequence. <input type="checkbox"/>
		Field Notes:	
Normal Occupied Mode Discharge Air Temperature Control			
	22.	From operator work station record the current mode of the AHU operation, setpoints and temperature readings.	1. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/> 2. The AHU is in the Occupied Time of Day mode and operating normally. <input type="checkbox"/> 3. AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> 4. Outside Air Damper modulate to control outside air flow to setpoint. <input type="checkbox"/>
		Field Notes: 1. AHU mode: Occupied – Unoccupied / Cooling – Heating – Deadband 2. Supply Static Pressure Setpoint: _____ in/H ₂ O 3. Supply Static Pressure: _____ in/H ₂ O 4. Supply Air Temperature Setpoint: _____ °F 5. Supply Air Temperature: _____ °F 6. Outside Air Flow: _____ CFM 7. Chilled Water Valve Position: _____ % 8. Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 9. Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF	

23.	<p>Adjust the discharge air temperature setpoint 3°F lower than the current discharge air temperature. Allow the system to achieve equilibrium.</p>	<ol style="list-style-type: none"> 1. The AHU is in occupied mode. <input type="checkbox"/> 2. The CWV modulates open to maintain new discharge air temperature setpoint. <input type="checkbox"/> 3. The electric reheat is off. <input type="checkbox"/> 4. AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> 5. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
<p>Field Notes:</p> <ol style="list-style-type: none"> 1. AHU mode: Cooling – Heating – Deadband 2. Supply Air Temperature Setpoint: _____°F 3. Supply Air Temperature: _____°F 4. Chilled Water Valve Position: _____% 5. Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 6. Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 		
24.	<p>Adjust the discharge air temperature setpoint to match the current discharge air temperature. Allow the system to achieve equilibrium.</p>	<ol style="list-style-type: none"> 1. The AHU is in occupied mode. <input type="checkbox"/> 2. The CWV begins to close to maintain new discharge air temperature setpoint. <input type="checkbox"/> 3. The electric reheat remains off. <input type="checkbox"/> 4. AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> 5. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
<p>Field Notes:</p> <ol style="list-style-type: none"> 1. AHU mode: Cooling – Heating – Deadband 2. Supply Air Temperature Setpoint: _____°F 3. Supply Air Temperature: _____°F 4. Chilled Water Valve Position: _____% 5. Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 6. Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 		
25.	<p>Adjust the discharge air temperature setpoint 3°F higher than the current discharge air temperature. Allow the system to achieve equilibrium.</p>	<ol style="list-style-type: none"> 1. The AHU is in occupied mode. <input type="checkbox"/> 2. The CWV closes to maintain new discharge air temperature setpoint. <input type="checkbox"/> 3. The electric reheat stages on. <input type="checkbox"/> 4. AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> 5. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
<p>Field Notes:</p> <ol style="list-style-type: none"> 1. AHU mode: Cooling – Heating – Deadband 2. Supply Air Temperature Setpoint: _____°F 3. Supply Air Temperature: _____°F 4. Chilled Water Valve Position: _____% 5. Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 6. Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 		

26.	Adjust the discharge air temperature setpoint higher than the current discharge air temperature as needed to enable all three stages of electric preheat.	<ol style="list-style-type: none"> 1. The AHU is in occupied mode. <input type="checkbox"/> 2. The CWV remains closed. <input type="checkbox"/> 3. The electric reheat stages on. <input type="checkbox"/> 4. AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> 5. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
	Field Notes: <ol style="list-style-type: none"> 1. AHU mode: Cooling – Heating – Deadband 2. Supply Air Temperature Setpoint: _____ °F 3. Supply Air Temperature: _____ °F 4. Chilled Water Valve Position: _____ % 5. Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 6. Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 	
27.	Release all override commands and temporary setpoints and adjust all set points to the normal values. Leave the AHU in the current Normal mode of operation when test procedures are completed.	<ol style="list-style-type: none"> 1. The CWV and electric preheat modulate/energize to meet the supply air temperature setpoint. <input type="checkbox"/> 2. The control is stable and maintains within 1.0°F degree of set point. <input type="checkbox"/> 3. The AHU status is indicated correctly at the BAS operator work station. <input type="checkbox"/>
	Field Notes:	
Normal Outside Air Flow Control		
28.	From the operator work station change the outside airflow setpoint to be 200 CFM greater than the current outside air flow as reported by the airflow monitoring station.	<ol style="list-style-type: none"> 1. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/> 2. The AHU is in the Occupied Time of Day mode and operating normally. <input type="checkbox"/> 3. The minimum outside air damper remains fully open. <input type="checkbox"/> 4. The balance of outside air damper modulated to maintain the new outside air flow setpoint.
	Field Notes: <ol style="list-style-type: none"> 1. Original Outside Air Flow Setpoint: _____ CFM 2. Modified Outside Air Flow Setpoint: _____ CFM 3. Outside Air Flow: _____ CFM 	
29.	From the operator work station change the outside airflow back to its original setpoint.	<ol style="list-style-type: none"> 1. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/> 2. The minimum outside air damper remains fully open. <input type="checkbox"/> 3. The balance of outside air damper cuts back to maintain the new outside air flow setpoint.

		Field Notes: 1. Original Outside Air Flow Setpoint: _____ CFM 2. Modified Outside Air Flow Setpoint: _____ CFM 3. Outside Air Flow: _____ CFM
Normal Discharge Static Pressure Control		
30.	From the operator work station record the current mode of the AHU operation, setpoints and temperature readings.	1. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/> 2. The AHU is in the Occupied Time of Day mode and operating normally. <input type="checkbox"/> 3. AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/>
	Field Notes: 1. Supply Static Pressure Setpoint: _____ in/H ₂ O 2. Supply Static Pressure: _____ in/H ₂ O 3. VFD Speed: _____ Hz	
31.	From the operator work station adjust the primary air damper position for one of the FPVAVs served by AHU G-CP-5 to 100% open. (reset 15 min. timer if possible)	1. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/> 2. Static pressure resets upward toward high limit. <input type="checkbox"/> 3. AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> 4. VFD ramps to meet new static pressure setpoint. <input type="checkbox"/>
	Field Notes: 1. New Supply Static Pressure Setpoint: _____ in/H ₂ O 2. Supply Static Pressure: _____ in/H ₂ O 3. VFD Speed: _____ Hz 4. New Timer Duration: _____ min.	
32.	From the operator work station adjust the primary air damper position for one of the FPVAVs served by AHU G-CP-5 to minimum position. (reset 15 min. timer if possible)	1. The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/> 2. Static pressure resets downward toward low limit. <input type="checkbox"/> 3. AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> 4. VFD slows to meet new static pressure setpoint. <input type="checkbox"/>
	Field Notes: 1. New Supply Static Pressure Setpoint: _____ in/H ₂ O 2. Supply Static Pressure: _____ in/H ₂ O 3. VFD Speed: _____ Hz 4. New Timer Duration: _____ min.	

Normal Unoccupied Mode Zone Temperature Control

33.	From operator work station adjust the TOD schedule to place the AHU into the unoccupied mode in approximately five minutes.	<ol style="list-style-type: none"> The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/> The AHU is in the Unoccupied Time of Day mode and operating normally. <input type="checkbox"/> AHU is maintaining unoccupied setpoints. <input type="checkbox"/>
	Field Notes: <ol style="list-style-type: none"> AHU Status: Enabled / Disabled Setup Temperature Setpoint: _____ °F Setback Temperature Setpoint: _____ °F Supply Air Temperature: _____ °F Chilled Water Valve Position: _____ % Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 	
34.	Adjust a zone temperature 5°F below the night setback setpoint.	<ol style="list-style-type: none"> The AHU is enabled. <input type="checkbox"/> The CWV modulates to maintain discharge air temperature setpoint. <input type="checkbox"/> The electric reheat modulates to maintain discharge air temperature setpoint. <input type="checkbox"/> AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> The AHU continues to run until the setback zone temperature is exceeded by 5°F. <input type="checkbox"/> The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
	Field Notes: <ol style="list-style-type: none"> AHU Status: Enabled / Disabled Chilled Water Valve Position: _____ % Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 	
35.	Adjust a zone temperature 5°F above the night setback setpoint.	<ol style="list-style-type: none"> The AHU is disabled. <input type="checkbox"/> The CWV modulates closed. <input type="checkbox"/> The electric reheat is de-energized. <input type="checkbox"/> OA damper closes. <input type="checkbox"/> The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
	Field Notes: <ol style="list-style-type: none"> AHU Status: Enabled / Disabled Chilled Water Valve Position: _____ % Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 	

36.	Adjust a zone temperature 5°F above the night setup setpoint.	<ol style="list-style-type: none"> The AHU is enabled. <input type="checkbox"/> The CWV modulates to maintain discharge air temperature setpoint. <input type="checkbox"/> The electric reheat modulates to maintain discharge air temperature setpoint. <input type="checkbox"/> AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> The AHU continues to run until the zone temperature is 5°F below the setup setpoint. <input type="checkbox"/> The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
Field Notes: <ol style="list-style-type: none"> AHU Status: Enabled / Disabled Chilled Water Valve Position: _____% Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 		
37.	Adjust a zone temperature 5°F below the night setup setpoint.	<ol style="list-style-type: none"> The AHU is disabled. <input type="checkbox"/> The CWV modulates closed. <input type="checkbox"/> The electric reheat is de-energized. <input type="checkbox"/> OA damper closes. <input type="checkbox"/> The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
Field Notes: <ol style="list-style-type: none"> AHU Status: Enabled / Disabled Chilled Water Valve Position: _____% Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 		
38.	Return night setup/setback setpoints and time of day schedule to their original settings.	<ol style="list-style-type: none"> The AHU is correct mode based on time of day schedule. <input type="checkbox"/> The CWV maintains discharge air temperature setpoint. <input type="checkbox"/> The electric reheat stages to maintain discharge air temperature setpoint.. <input type="checkbox"/> AHU is maintaining the static pressure and discharge air temperature setpoints. <input type="checkbox"/> The AHU status is correctly displayed at the BAS operator work station. <input type="checkbox"/>
Field Notes: <ol style="list-style-type: none"> AHU mode: Occupied – Unoccupied / Cooling – Heating Chilled Water Valve Position: _____% Electric Reheat (D-1-3A for Minimum Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF Electric Reheat (D-1-3B for Balance of Outside Air) Stage: Stage1 / Stage2 / Stage3 / OFF 		

Normal Occupied Mode - CO2 Demand Ventilation Control

39.	At the BAS user interface record the current setpoint for CO2 demand control ventilation. Modify the setpoint so that its value is 100 PPM below the actual zone CO2 readings reported to the BAS.	<ol style="list-style-type: none"> 1. The balance of outside air damper begins to open to maintain CO2 setpoint in space. <input type="checkbox"/> 2. The return air damper inversely tracks the outside air damper. <input type="checkbox"/>
	Field Notes: Demand Ventilation CO2 Level Setpoint: _____ PPM CO2 Sensor Polling Incremnets: _____ min Zone CO2 Measurement: _____ PPM New Ventilation CO2 Level Sepoint: _____ PPM	
40.	Return the demand ventilation CO2 level setpoint to its original value.	<ol style="list-style-type: none"> 1. The outside air damper modulates to maintain minimum outdoor air CFM. <input type="checkbox"/> 2. The return air damper inversely tracks the supply air damper. <input type="checkbox"/>
	Field Notes: Demand Ventilation CO2 Level Setpoint: _____ PPM	
41.	Disconnect/override signal from CO2 sensor to be out of range or to an invalid value. Record results below.	Unknown
	Field Notes: Demand Ventilation CO2 Level Setpoint: _____ PPM New Ventilation CO2 Level Sepoint: _____ PPM	
<h3>Return to Normal</h3>		
42.	Verify that all overrides are released and setpoints are returned to the pre-test values.	<ol style="list-style-type: none"> 1. The AHU continues to operate according to sequence. <input type="checkbox"/>
	Field Notes:	

End of Test

Date:

Summary of Results:

-
-

Lessons Learned:

-
-

Corrective Issues:

-
-

Acceptance of Test:

- This test cannot be accepted at this time due to the Corrective Issues noted above.

- This test is accepted by the Commissioning Authority identified below. Any Corrective Issues noted above do not adversely impact the overall performance of the system.

Witnessed: *Witnessed*

Date: *Date*

Commissioning Authority Representative

Example 4: Corrective Issues Report

Status Legend: O = Open R = Requires CxA Review/Retest C = Closed

Commissioning Agent (CxA)							Responsible Party			CxA	
Item #	Discipline	Origin / Test ID	Equip ID	Date Initiated	Initiated By	Issue Description	Firm / Party	Date	Response - Action Taken	Status	Date Closed
1	Electrical	FPT-263213_Generator	Generator	1/28/13	JC	Level indicator at Main Fuel Storage Tank does not appear to be accurate. Level at main fuel system controller in CUP indicates a differential (Main Tank = ~2740, Fuel System Controller = ~2713 gallons)	CMAR/ Elec. Contractor			O	
2	Electrical	FPT-263213_Generator	Generator	1/28/13	JC	Remote shutdown needs permanent label	CMAR/ Elec. Contractor			O	
3	Electrical	FPT-263213_Generator	Generator	1/28/13	JC	Sealtite, inside generator enclosure, that feeds fuel level alarm; is damaged and needs to be repaired.	CMAR/ Elec. Contractor			O	
4	Electrical	General	SWBD's	2/4/13	JC	ARC Flash Category is left blank on label where ARC flash exceeds Cat. 4. To prevent inadvertent injury, recommend an additional warning label be added.	CMAR/ Elec. Contractor			O	
5	Electrical	General	SWBD's	2/6/13	JC	Power monitoring interface with BAS not functional	CMAR/ Elec. Contractor			O	
6	Electrical	General	SWBD's	2/6/13	JC	Color code of labeling for different emergency sources (Life Safety, Critical, Equipment) is inconsistent and confusing. Cx recommends that white on red labels; which matches emergency outlet colors, be used for all emergency power and label designation be used to differentiate between sources. Clarification and confirmation needs to be provided and labeling corrected throughout.	Design Team			O	
7	Electrical	FPT-262413-GDSB1	SWBD_GDSB1	2/4/13	JC	Found breaker settings for Mains ATS-S, ATS-EZ & ATS-EY were set incorrectly.	CMAR/ Elec. Contractor	2/7/13	Prism corrected to match Coordination Study & Cx witnessed.	C	2/7/13
8	Electrical	FPT-262413-EMSBCP1	EMSBCP1	2/4/13	JC	Breaker labels are presently white on black. Need to confirm correct color for emergency equipment electrical distribution and re-label all breakers and switchboard	CMAR/ Elec. Contractor			O	
10	Electrical	FPT-262413-MSBCP1/2	SWBD_MSBCP1/2	2/5/13	JC	Ground bar connections in MSBCP2 had no signs of being torqued.	CMAR/ Elec. Contractor	2/7/13	Prism torqued and marked with torque seal as Cx witnessed, at time of test	C	2/7/13

COMMISSIONING

01 91 13 - 49

**OPERATIONS AND MAINTENANCE TRAINING
Contractor Training Requirements and Form**

Training Plan M-01	Air Handling Units	Specifications 237313/ 017900
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Contractor Training Requirements:

Contractors are required to provide training on equipment and systems as identified in the contract documents. The contractor is to provide to the Owner and the Commissioning Authority (CxA) the following documentation:

- ◆ ***Instructor Qualifications / Resume***
- ◆ ***Training Agenda / Outline***
- ◆ ***Copies of all handouts / documents that will be provided during the instruction***

The Contractor is to complete the Contractor Training Plan Submittal Form, as a checklist to ensure the above items are provided, to the Commissioning Authority for review and comment by both the Owners Representative and the Commissioning Authority.

The Contractor's Instructor is responsible, during the delivery of the training, to ensure that all attendees sign into the training on the Class Attendance Roster. Once completed, the sign in sheet will be forwarded to the Cx Authority (CxA) and owner for their records.

Contractor Training Plan Submittal Form:

<p>Training Plan (Contractor Provides) Includes:</p> <p><input type="checkbox"/> Instructor Qualifications/Resume'</p> <p><input type="checkbox"/> Agenda / Training Outline</p> <p><input type="checkbox"/> Handouts / Documents</p>	Training Conducted by:
	Instructor Name:
	Title:
	Phone: FAX:
	Email:
<p>Equipment Included in Training:</p> <p>AHU 1-1, AHU 1-2, AHU 1-3, AHU 1-4, AHU 2-1, AHU 2-2, AHU 2-3, AHU 2-4, AHU 3-1, AHU 3-2, AHU 4-1, AHU 4-2, AHU 5-1, AHU 5-2, AHU B-1, AHU B-2, AHU B-3, AHU B-5, AHU P-1, AHU P-2, MAU-1, MAU-2 and MAU-3OAHU-1, OAHU-2</p>	

TOPIC	LOCATION	TIME	PRESENTER
I. Overall Design Intent Air Handling Systems (VAV and Outside Air Units)	Classroom		
II Break	Classroom		
III VAV Air Handling Units and OAHU/Heat Recovery	Field		

Suggested Topics:

- A. Review General Unit Operation / Components / Performance including fans, motors, coils, filters, dampers, airflow stations, VFD's, heat recovery coils, humidifiers, and other components operation with load and methods of control.
- B. Describe supply and return fans and required monitoring, maintenance and service including replacement of belts and sheaves, motors, and regular monthly maintenance.
- C. Review all coil installations and ongoing cleaning and maintenance.
- D. Review all Electrical Components including wiring diagrams, all safety interlocks, VFD's wiring, performance and regular monitoring and maintenance.
- E. Describe unit Operator Interface and Controls, Control Points, Interface with main Operator Work Station. Describe use of the Operator Interface Panel. Describe use of VFD operator interface panels.
- F. Describe functionality of AHU 1-1 and how it interfaces with makeup air and exhaust air systems serving the kitchen.
- G. Review procedures for filter replacement.
- H. Review all Alarms and Troubleshooting of alarms
 - a. Types of Alarms and Meaning of alarm and actions required by maintenance depending upon the alarm.
 - b. Responses to different types of alarms.
- I. Review operation and maintenance of AHU humidifiers (AHU 2-1, AHU 2-2, AHU 2-3, AHU 2-4, 3-2 & B-2 only).
- J. Review operation and maintenance of AHU Exhaust Heat Recovery wheels (2-1 and 2-2 only).
- K. Review operation and maintenance of AHU UV Emitters (AHU 2-1 & 2-2 only).
- L. Review operation and maintenance of Return Air Fans (AHU 1-2, AHU 1-3, AHU 1-4, AHU 2-1, AHU 2-2, AHU 2-3, AHU 2-4, AHU 3-1, AHU 3-2, AHU 4-1, AHU 4-2, AHU 5-1 & AHU 5-2 only).
- M. Review operation and maintenance of damper actuators, control valve actuators, dampers and control valves.
- N. Review location of O&M manuals and resources.
- O. Review Daily, Monthly, and Annual Maintenance.
- P. Videotape all training sessions and provide Owner with two copies of tape for future training and employee refresh training.
- Q. Six copies of the approved Owner's manual to be provided.

PROJECT: Houston Community College**PROJECT NUMBER: F9W94802****REPORT ID: TRNG _____**

Training Session: _____

Session Date: _____

Name (optional): _____

This form is to be completed by each person that attended this Training Session.

After completing this Form please return to:

		<u>1 = Not At All</u> <u>5 = Very Well</u>
1.	How well were the objectives of this Training Session met?	1 2 3 4 5 N/A
2.	How well do you understand how each AHU is intended to operate include heat recovery, static control and temperature control?	1 2 3 4 5 N/A
3.	How well do you understand how and when to change filters?	1 2 3 4 5 N/A
4.	How well do you understand how and when to grease components such as the fan motors and all bearings?	1 2 3 4 5 N/A
5.	How well do you understand how and when to change out the fan belts?	1 2 3 4 5 N/A
6.	How well do you understand how and when to clean the coils?	1 2 3 4 5 N/A
7.	How well do you understand how to reset hard wired safties such as High Static Cutout, Low Static Cutout, High/Low Pressure switches and Freeze switch?	1 2 3 4 5 N/A
8.	How well do you understand how to change out end devices such as temperature sensors/switches, pressure sensors/switches, humidity sensors, damper actuators and valve actuators?	1 2 3 4 5 N/A
9.	How well do you understand how to change out BAS control boards if needed?	1 2 3 4 5 N/A
10.	How well do you understand how to maintain and troubleshoot the UV Emitters?	1 2 3 4 5 N/A
11.	How well do you understand how to maintain and troubleshoot the humidifiers?	1 2 3 4 5 N/A
12.	How well do you understand how to maintain, program and troubleshoot the VFD'?	1 2 3 4 5 N/A
13.	Do you feel that additional training is required for any of the subjects listed above? If so, please indicate the training you feel is necessary in the comment box below.	Yes / No

Provide any additional comments:

END OF SECTION

**Houston Community College
Subcontractor / Sub-consultant (including Small Business Enterprises) Utilization Report**

1. Project Name	2. Project Number	3. Application Number	4. Application Date	5. Reporting Period From: _____ To: _____	6. Minority Goal	7. Scheduled Completion
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This report is required by Houston Community College (HCC) – Failure to comply may result in HCC commencing proceedings to impose sanctions on the contractor/consultant. In addition to pursuing other legal remedies, sanctions may include the withholding of payments for work committed to Small Business Enterprises (SBE) participants and a negative recommendation on future bids by the contractor/consultant for Houston Community College.

Note: SBE reporting for this pay period not applicable.

8. Prime Contractors Name					9. ()	10. ()		
11. Contractor's Street Address / Suite #			City	State	Zip	12. Project Manager	13. MGR's Phone # ()	14. MGR's Fax ()
15. Current Contract Amount	16. Total Draw This Month	17. % SBE Billed to Date		18. Total Draw on Project to Date	19. % Complete			

20. Federal ID Number	21. Subcontractor / Sub-Consultant	22. SBE Status	23. Work Description	24. Amount for Project	25. Amount of Current Draw	26. Total Billed to Date	27. Actual Start Date	28. Scheduled Completion Date

Commencing contract award, partial release of lien is expected from each SBE subcontractor / Sub-consultant and shall accompany any application and certification for payment. Prompt payment to CONTRACTOR/CONSULTANT is dependent on appropriate documentation. The signature below of corporate officer attests to the accuracy of the information.

Company Seal

Signature of Company Officer

Date

Title

Telephone Number

STATE OF TEXAS, WITNESS WHEREOF, I have hereunto set me hand and official seal this _____ Day of _____, 2012.

Notary Public, State of Texas

My Commission Expires _____

INSTRUCTIONS

- | | | | |
|----------|--|-----|--|
| 1. | Name of Project | 21. | Business name of Subcontractor / Sub-consultant |
| 2. | Project Number – (If applicable) | 22. | Subcontractor’s / sub-consultant’s SBE Certification Designation |
| 3. | Application Number – from AIA document G702 or from Project Manager | 23. | Brief description of work each sub will perform. (Roofing, HVAC, trash removal, consulting, etc) |
| 4. | Application date is same date as on draw application | 24. | List project value total contracted with each subcontractor / sub-consultant |
| 5. | Reporting Period – from AIA document G702
“From: To:” | 25. | This month’s draw amount for each subcontractor/ sub-consultant. |
| 6. | SBE Goal As Set By HCC for this project as applicable. | 26. | To date total billed to each subcontractor / sub-consultant. The total amount summation must equal the % value listed in box number 17 |
| 7. | Scheduled Completion date for your project per the approved contract or approved change order | 27. | Start date for each subcontractor / sub-consultant contract |
| 8. – 10. | Business name of prime contractor – phone & fax | 28. | Scheduled completion date for each subcontractor / sub-consultant contract |
| 11. | Prime contractor mailing address | | |
| 12.-14. | Project Managers Name - phone & fax | | |
| 15. | Amount of contract including original contract amount, change orders and approved alternatives | | |
| 16. | The total of this draw or invoice as authorized on the AIA document G702 | | |
| 17. | Percentage of project completed (% of Amount in Box 15) to this date by SBE Consultant/Sub-contractor. | | |
| 18. | The total amount invoiced on this project to date | | |
| 19. | Total percentage of project completed to date | | |
| 20. | Federal Identification Number | | |

NOTE:

- 1. This form must be submitted with every pay application**
- 2. You must submit the partial release of liens with the pay application.**
- 3. You must have a copy of the minority certification for every certified SBE subcontractor/ sub-consultant on the job**
- 4. If no SBE for reporting period is required, check the box indicating: “Note: SBE reporting for this pay period not applicable.”**
- 5. This form must be notarized for each pay application or invoice submitted. The pay application can not be processed without this required certification**