APPENDIX 6C
MODULE 6 – 90% CONSTRUCTION DOCUMENTS REVIEW COMMENTS

District: Town/City of XXX
School: XXX
Owner's Project Manager: Name
Designer Firm: Name
Submittal Received Date: Month XX, Year
Review Date: Month XX, Year *(Date Sent to Consultant for Review – Date Ready for MP Review)*
Reviewed by: First initial & last name *(Consultant, MSBA Architectural Reviewer(s), MSBA CP PM, MSBA Sr PM and Peer Reviewers)*

MSBA REVIEW COMMENTS

The following comments[1] on the 90% construction documents submittal are issued pursuant to a review of the project submittal document for the [new construction] [addition/renovation] of the proposed project and presented as a 90% construction documents submission in accordance with the MSBA Module 6 Guidelines.

6C.1 Summary Comments

- Basic Project Information
  - List enrollment
  - PFA GSF
  - project type
  - delivery method
- Comments here:
  - Bullet points here
- Additional comments here:
  - Bullet points here
  - Repeat any items from review that require special note or response with sooner time than standard comments

[1] The written comments provided by the MSBA are solely for purposes of determining whether the submittal documents, analysis process, proposed planning concept and any other design documents submitted for MSBA review appear consistent with the MSBA's guidelines and requirements, and are not for the purpose of determining whether the proposed design and its process may meet any legal requirements imposed by federal, state or local law, including, but not limited to, zoning ordinances and by-laws, environmental regulations, building codes, sanitary codes, safety codes and public procurement laws or for the purpose of determining whether the proposed design and process meet any applicable professional standard of care or any other standard of care. Project designers are obligated to implement detailed planning and technical review procedures to effect coordination of design criteria, buildability, and technical adequacy of project concepts. Each city, town and regional school district shall be solely responsible for ensuring that its project development concepts comply with all applicable provisions of federal, state, and local law. The MSBA recommends that each city, town and regional school district have its legal counsel review its development process and subsequent bid documents to ensure that it is in compliance with all provisions of federal, state and local law, prior to bidding. The MSBA shall not be responsible for any legal fees or costs of any kind that may be incurred by a city, town or regional school district in relation to MSBA requirements or the preparation and review of the project's planning process or plans and specifications.

6C.2 OPM Deliverables: *Unless specifically stated otherwise, the OPM deliverables are included in the submission with no response from MSBA required*

6C.2.1 Submittal Review & Coordination

- Review designer submissions; make recommendations to Owner. Address each of the following items individually, and describe how each was evaluated.
  - Approve submission
  - Approve partially; reject remainder
  - Reject the submission
  - Provide additional supporting information
- Coordinate design; include written recommendations to the Owner
  - Technical accuracy, coordination & clarity
  - Efficiency & cost effectiveness
  - Operability
  - Constructability
  - Phasing
  - Bid-ability
  - Site access during construction
- Coordinate the commissioning consultant's review
  - Include Cx review & District response
  - Incorporate Cx recommendations
- Coordinate the District response to MSBA comments of previous submittal
  - Include MSBA review & District response
  - Comments addressed / comment resolution outstanding

6C.2.2 Project Schedule: All schedules should be presented in calendar days.

Update project schedule: As a minimum, the schedule update should provide the same level of detail as was included in Exhibit C of the Project Funding Agreement, expanded and updated to include milestones for Design Development, Bidding, Construction, and Closeout. The updated schedule should include proposed critical path and construction milestone information. In addition to the construction milestones, the schedule must also include the following information as listed in MSBA Module 7, Schedule Activities:

- Punch list start and end dates
- Date of Project Registration with the US Green Building Council ("USGBC") or Collaboration for High Performance Schools ("CHPS")
- Provisional/Design package submittal date to USGBC or CHPS
- Submittal date of 50% DCAMM Notification and 100% DCAMM Notification
- General Contractor/Construction Manager request for final payment
- Commissioning Consultant inspection (substantial completion plus approximately 10 months)
- Submittal date of Final Commissioning Report to MSBA

- Submittal date of Final Construction package including but not limited to Final Commissioning Report to USGBC or CHPS
- Anticipated issuance date of final Green School Program Certification letter from USGBC or CHPS
- Submittal date to MSBA of Commissioning Certificate of Completion
- Submittal date to MSBA of final reimbursement request
- Indicate submission dates for the following approvals. In addition, provide dates for any other state or federal approval not listed below (the following list is not a comprehensive itemization of required state approvals; other requirements may apply, and some of the items listed below may not be applicable to this project). Indicate "Not Applicable" where appropriate:
    - DESE - Special Education approval by Department of Elementary and Secondary Education
    - MHC – Project Notification Form and approvals by MA Historical Commission
    - OIG - Construction Manager at Risk approval by the Office of Inspector General
    - Executive Office of Energy and Environmental Affairs / EEA:
        - MEPA - MA Environmental Policy Act by Energy & Environmental Affairs:
            - ENF - Environmental Notification Form
            - EIR - Environmental Impact Report
        - Article 97 Land Disposition Policy approval by Energy & Environmental Affairs
    - MA DEP - Massachusetts Department of Environmental Protection
    - MA DOT - Massachusetts Department of Transportation
    - MA DPH - Massachusetts Department of Public Health
    - EPA –NPDES National Pollutant Discharge Elimination System Notice of Intent approval by the US Environmental Protection Agency
    - MAAB - Accessibility variances by MA Architectural Access Board
- Any state reviews or approvals which remain incomplete at the time of the 90% CD submission render the submission out of compliance with Section 4.12 of the PFA, and may result in suspension of reimbursement requests to the District until such time as all required state reviews or approvals are obtained
- If there are outstanding reviews or approvals, provide revisions to the construction bid schedule
- The schedule is to be updated and submitted to MSBA as often as is required to reflect any changes, including any changes to milestone dates, but must be submitted with each design submittal (DD, 60% CD, 90% CD)

- The schedule is to incorporate 21 calendar day required duration for MSBA review of each submission, and a minimum of 14 calendar days for project team incorporation of MSBA review comments as well as all others into the project documents prior to the due date of the next submission or finalizing project documents for bidding. 35 calendar days for each submission is the minimum acceptable duration; if the project team believes additional time is required for any or all of the submissions the durations for these activities are to be increased accordingly

6C.2.3 Scope and Budget

- Update project scope and budget:
  - Reconciled construction cost estimate including Designer/OPM comparison chart:
    - Prepare independent construction cost estimates pursuant to Section 8.1.2.2 of the Contract for Project Management Services, with escalation to the mid-point of construction, for comparison with the Designer's cost estimate, based upon design development progress documents
  - CMR (if applicable)
    - If Owner has not yet contracted with a Construction Manager (CM), the OPM must develop a construction cost estimate for comparison with the Designer's cost estimate
    - If the Owner has given the CM a Notice to Proceed, the OPM must review cost estimates provided by the Designer and CM and provide a detailed line by line reconciliation of the Designer's and CM's construction cost estimates
  - Updated project budget in the total project budget format, based on the reconciled construction cost estimate. If the reconciled estimate is not used for the updated project budget, provide an explanation.
  - Value Engineering recommendations
    - For any Value Engineering recommendations which have been accepted, provide a copy of the Committee vote
- Provide a letter confirming that prequalification requirements for the General Contractor and subcontractors have been completed

6C.3 Designer Deliverables: *Unless specifically stated otherwise, the Designer deliverables are included in the submission with no response from MSBA required*

6C.3.1 General Requirements

- Submit updated work plan
- Updated and expanded Basis of Design narrative description for all disciplines
- Updated building code analysis
- Provide an final list identifying all proposed proprietary items (if any) with an affidavit which shall indicate that an elected body of the district (school committee, city or town council, or selectmen, -but not ad-hoc building

committee) has been presented with proposals for proprietary requirements approval action, has had an opportunity to investigate, or to require staff or consultant investigation upon each item so proposed, and has majority voted in an open public session that it is in the public interest to do so. Provide MSBA with a certified copy of the vote of the elected body

- Updated interior color theory statement describing proposed paint and material selections and colors for typical and special spaces, why they have been selected and how these selections relate to exterior materials and colors. Confirm that color and material selections have been presented to and approved by the District
- Updated independent structural design review in compliance with the current edition of The Massachusetts State Building Code (an MSBA requirement for all projects with new construction over 10,000 sf). MSBA requires submission of a structural engineering peer review as part of the Final (100%) Construction Documents submission, to include documentation of resolution of any issues identified by the Peer Reviewer. Confirm that scheduling was arranged to allow final structural design drawings and calculations to be submitted to the peer reviewer at the time of completion of the 90% Construction Documents submittal, in order to incorporate structural peer review comments and response action reporting in the final construction documents in order to avoid delays.
- Updated quality Control documents demonstrating:
  - Ceiling clearances
  - Mechanical room and shaft sizes
  - Coordinate specifications and drawings
  - Filed sub-bid work
  - Scheduling
  - Equipment and power
  - Existing and new construction
  - Phasing

6C.3.2 Space Summary

- Updated space summary and signed certification that reflects the current design

MSBA REVIEWER WILL INSERT SPACE SUMMARY CHART HERE

- Comparison of the current design with the final educational program, and confirmation that there are no variations. If there are variations, the written summary must address the following:
  - Explanation of deviations within the space summary from the Project Funding Agreement
    - [MSBA accepts this variation to the approved project with no further action required]

- [Prior to MSBA accepting this variation to the project, the design team must describe in detail the reason for the change]

- The MSBA considers that deviations include changes in the size of a specific space, the total nsf of a program area (e.g. general classrooms, voc tech, dining etc.), the location of a space, the surrounding adjacencies of a space and or the intended purpose of the room
- The submittal must clearly call out deviations to location and surrounding adjacencies through the use of redlines or "clouding"
- The explanation should clearly identify the basis of the change identifying both architectural and/or programmatic reasons
- If the basis of the change is programmatic, the submittal should include a red-lined version of the educational plan included in the Project Funding Agreement
- Regarding DESE approved SPED spaces:
  - If the District wishes to submit a change to its DESE approved submittal, it must a) confirm that all changes to SPED spaces are final; b) provide a new submittal utilizing the format of the original submittal requirements and clearly noting any changes through use of clouded floor plans and red-lined narratives and tables; and c) indicate how the project schedule can accommodate a potential resubmittal and approval by DESE. Please provide a separate package for changes to DESE approved SPED spaces.
  - If the District chooses not to change from the DESE approved submittal it should confirm that the spaces are the same or explain when and how the spaces will be returned to the approved size, configuration and location
- Regarding DESE approved Public Day Education spaces;
  - If the District wishes to submit a change to its DESE approved submittal, it must a) confirm that all changes to Public Day Education spaces are final; b) provide a new submittal utilizing the format of the original submittal requirements and clearly noting any changes through use of clouded floor plans and red-lined narratives and tables; and c) indicate how the project schedule can accommodate a potential resubmittal and approval by DESE. Please provide a separate package for changes to Public Day Education Spaces.
  - If the District chooses not to change from the DESE approved submittal it should confirm that the spaces are the same or explain when and how the spaces will be returned to the approved size, configuration and location
- Regarding DESE pre-approved Chapter 74 Program spaces;
  - If the District wishes to submit a change to its DESE approved submittal, it must a) confirm that all changes to Chapter 74 Program spaces are final; b) provide a new submittal utilizing the format of the original submittal requirements and clearly noting any changes through use of clouded floor plans and

red-lined narratives and tables; and c) indicate how the project schedule can accommodate a potential resubmittal and approval by DESE. Please provide a separate package for changes to the Chapter 74 Programming.

- If the District chooses not to change from the DESE approved submittal it should confirm that the spaces are the same or explain when and how the spaces will be returned to the approved size, configuration and location

6C.3.3 Project Approvals

- Describe the status of the following approvals. In addition, provide the status of any other state or federal approval not listed below (the following list is not a comprehensive itemization of required state approvals; other requirements may apply, and some of the items listed below may not be applicable to this project). Provide a copy of the appropriate application forms and/or approval letters where applicable. Indicate "Not Applicable" where appropriate:
  - DESE - Special Education approval by Department of Elementary and Secondary Education
  - MHC – Project Notification Form and approvals by MA Historical Commission
  - OIG - Construction Manager at Risk approval by the Office of Inspector General
  - Executive Office of Energy and Environmental Affairs / EEA:
    - MEPA - MA Environmental Policy Act by Energy & Environmental Affairs:
      - ENF - Environmental Notification Form
      - EIR - Environmental Impact Report
    - Article 97 Land Disposition Policy approval by Energy & Environmental Affairs
  - MA DEP - Massachusetts Department of Environmental Protection
  - MA DOT - Massachusetts Department of Transportation
  - MA DPH - Massachusetts Department of Public Health
  - EPA –NPDES National Pollutant Discharge Elimination System Notice of Intent approval by the US Environmental Protection Agency
  - MAAB - Accessibility variances by MA Architectural Access Board
- Confirmation that the Project has undergone review and obtained all necessary approvals by any departments or agencies of the Commonwealth required by law to review the Project, including but not limited to the approvals listed above. Attach such letter of documentation evidencing such reviews and approvals
- In accordance with Section 4.12 of the Project Funding Agreement (the "PFA"), the District must obtain such reviews or approvals prior to the solicitation of construction bids. Any state reviews or approvals which remain incomplete at the time of the 90% CD submission render the submission out

of compliance with Section 4.12 of the PFA, and may result in suspension of reimbursement requests to the District until such time as all required state reviews or approvals are obtained.

- List and target dates for all local zoning approvals, testing and permits
- Provide a certification that all applicable utility officials have been contacted by the designer regarding each basic design, and utility connections

6C.3.4 Cost Estimate

- Provide a final construction cost estimate, based on the 90% Construction Documents, including cost estimates for general conditions, overhead and profit, insurance, bonds, and all other items; and allowances expressed as percentage rates for construction contingencies and escalation to the mid-point of the construction period; and other mutually agreed upon contingencies. Prepare the construction cost estimate in the CSI MasterSpec format to Level 3 and M.G.L. c.149, §44F (filed sub-bid) format including a single line outline specification description for each item with the detailed unit rate or item cost buildup provided as a backup in each case
- The date of the estimate should be no earlier than the date of 90% Construction Documents
- Provide a summary sheets including the following:
  - date that the estimate was prepared (value date)
  - anticipated bid date
  - project and contract number
  - title and location of the project
  - name of the Designer
  - name of the Estimator
  - site cost (including all utilities)
  - building cost (including fixed equipment)
  - estimated construction cost of each Phase of the work, totaled
  - costs of Item 1 and Item 2 work, as distinguished in the General Contractor's bid forms, individually totaled

6C.3.5 Drawings (developed to 90% CD progress level)

- Cover sheet showing a list of all drawings, symbols, abbreviations, notes, locations map (the project title should be visible when the drawings are rolled)
- Site drawings showing the following:
  - Layout and location of all proposed work with details
  - Existing and proposed contours including floor elevations showing drainage away from the building
  - Bench marks and boring locations
  - Landscaping and planting
  - All utility service lines, systems and structures for electricity, gas, oil, water, steam, telephone, CATV, fire alarm, sanitary and storm drainage.

  - Contract limit line and storage area for construction materials
  - Site survey which includes, but is not limited to, all existing foundations, obstructions and other physical characteristics of the site
  - Coordinate light pole bases, concrete pads & landscape enclosure walls with other disciplines
  - Verify accessibility compliance at paved areas and building approaches
  - Coordinate landscape patching with civil utility & plumbing work
  - Exterior benches, flag poles, signage
- Demolition drawings and temporary work required
- Architectural drawings showing the following:
  - Phasing, temporary trailers, storage & fences, gates & parking
  - Floor plans of each floor, with dimensions, column locations, floor elevations, door and window designations, partition types, built in furniture and equipment, keyed to other architectural drawings
  - Large scale floor plans where required
  - Knox box & fire alarm control panel locations
  - Roof plans including equipment, coordinated with MEP/FP drawings
  - Roof ladders, hatches, pads, PV support, lightning protection
  - Coordinate downspout leader locations with civil & plumbing drawings
  - Key plans / overall plans where required
  - Project sign (verify content)
  - Building Sections
  - Building elevations. All building elevations, including hidden elevations, fully developed including MEP/FP and security systems, showing context and relation to exterior sloping grade around the building
  - Wall sections indicating dimensions, flashing, anchorage, reinforcing, coursing, cladding, and all other conditions at wall, roof, foundation, interior floors
  - Coordinated wall sections with grade elevations
  - Exterior details, for roofing, flashing and other details showing all conditions
  - Interior and exterior expansion joints, control joints, construction joints, and waterstops, detailed and coordinated with structural drawings
  - Doors, windows, entrances, and storefront; schedules and details
  - Vertical circulation plans, sections and details including ramps, stairs, lifts and elevators
  - Elevator venting, hoist beam, thresholds, ladder, sump, wall penetrations, waterproofing
  - Guardrails and handrails including details
  - Interior elevations of all significant and typical spaces
  - Interior details including casework, paneling surfacing and acoustical treatment
  - Flooring & wall material patterns
  - Interior glazing elevations and details

  - Reflected ceiling plans coordinated with fire protection, mechanical and electrical drawings
  - Ceiling details
  - Access panels, where required for access, shall be indicated on the drawings and coordinated with the MEP/FP requirements
  - Schedules (clearly define new or existing):
    - Doors
    - Equipment, e.g. for services
    - Partitions
    - Finishes
- Structural drawings showing the following:
  - Legend and/or graphical symbols on the first sheet of the structural drawings
  - Foundation plans with bottom grades showing layout of all footings, walls, slabs on grade including reinforcing, grade beams, and columns; include design soil bearing pressures and live loads for each area
  - Floor and roof plans of structural systems including framing, grades of finished floors and depressed areas, with locations and dimensions for all openings
  - Complete foundation wall elevation and typical sections, with reinforcing indicating location, dimensions and grades for all footings, steps and wall openings
  - Complete details and section with dimensions for all construction including expansion and construction joints, reinforcing and other embedded items. Coordinate construction and expansion joint details with specified materials including caulking and sealant.
  - Schedules (with dimensions) for all lintels, beams, joists, and columns. Coordinate dimensions of all elements listed in the schedules with dimensions depicted on the plans.
  - All structural supports required for mechanical equipment
  - General notes including the following information: class and 28 day strength of concrete for each portion, structural steel and concrete reinforcing design stresses for each type of structural member, concrete cover for each type of structural member, shrinkage and temperature steel requirements, reinforcing laps for main reinforcing and temperature steel; bend point, cutoff, and hook locations for all members, minimum beam and lintel bearing
- Fire protection drawings showing the following:
  - Legend and/or graphical symbols on the first sheet of the fire protection drawings
  - Standpipe systems, sprinkler systems, suppression systems, fire pumps, accessories, and piping
  - All piping, equipment, fixtures, valves and devices shall be located and sized
  - Design criteria shall be provided on the drawings in accordance with NFPA requirements

  - All required access panel locations and sizes coordinated with the architectural drawings
- Plumbing drawings showing the following:
  - Legend and/or graphical symbols on the first sheet of the plumbing drawings
  - All work done by the plumbing subcontractor, which includes all water, gas, air, vacuum, medical gases, sanitary and storm wastes, and accessories
  - Accessibility requirements for PK- grade 3 fixtures (where required)
  - Trapping and venting of all plumbing fixtures including floor drains. Provide location dimensions for floor drains in coordination with the structural plans.
  - Water and gas supply sources, storm and sanitary discharge mains
  - All piping sizes shall be indicated on drawings and riser diagrams. Indicate all directions of flow and pitch on piping
  - All accessories, valves, fixtures including all drinking fountains and grease traps for kitchen waste
  - All piping and connections required for other trades (e.g., kitchen equipment, HVAC make-up water, etc.)
  - Acid waste (where required), vents and neutralization systems for laboratories
  - Plumbing riser diagrams
  - Domestic water booster pumps, boiler feed water, meter location, hose bibs
  - Domestic hot water: storage tanks, piping material, hanger details
  - All required access panel locations and sizes coordinated with the architectural drawings
  - Backflow preventers and cleanouts
- Heating, ventilating and air conditioning drawings showing the following:
  - Legend and/or graphical symbols on the first sheet of the mechanical drawings
  - Large scale plans of all mechanical & electrical spaces showing equipment to scale
  - All piping and ductwork systems shall be located and sized. All ductwork shall be shown double line and drawn to scale
  - All systems shall be sized at all reductions and riser diagrams of piping and duct systems shall be indicated
  - All directions of flow and pitch on piping, and direction of flow, volumes for duct systems shall be indicated
  - All equipment shall have sufficient servicing and/or replacement space indicated on drawings
  - All equipment, accessories, valves and dampers
  - All required access panel locations and sizes coordinated with the architectural drawings

- Cooling system pumps, chillers, cooling towers, air handling units, ductwork system and dampers, fan details, temperature control system, air and hydronic balancing equipment, and schedules shall be indicated
- Cooling tower (where required) shall be indicated on the drawings showing site location, elevations and floor plan of equipment layout and typical flow diagram as related to the total HVAC system
- All fire and smoke dampers
- Mechanical room designs:
    - Vent pipes for safety valves, relief valves, back pressure valves and tanks shall be extended above flat roofs in accordance with all governing authorities
    - In all designs for boiler and refrigeration plants, include a complete floor plan indicating location of all major mechanical equipment and sufficient service space
    - In designs of new and/or replacement boiler and refrigeration plants, provide a flow diagram detailing steam or hot water distribution systems, return systems, including all existing equipment and their function, as well as any proposed expansions with all necessary instrumentation and controls

- Electrical Drawings showing the following:
    - Legend and/or graphical symbols on the first sheet of the electrical drawings
    - General arrangement: Outline layout of each floor, floor and ceiling heights and elevations, and type construction, including concrete pads shall be indicated. Indicate interface with other systems. Identify any work by general contractor or other trades
    - Interior lighting system: Light fixture schedules, circuiting location and mounting heights of all fixtures, receptacle and switch outlets, sizes and types of all lamps, conduits, all other accessories and riser diagrams shall be indicated on drawings. Indicate details and method of supporting electrical fixtures and conduits. Designer shall specify that all electrical lighting fixtures be supported from the building structure, and shall be independent of ducts, pipes, ceilings and their supporting members. Comply with seismic design criteria
    - Power system: Locations, types and method of control for all motors, heaters, appliances, controllers, starters, branch circuits, feeder conductors and conduits. Indicate riser diagrams. Show details and indicate method of supporting electrical conduit. For larger projects, thermostats and control wiring are normally covered under the HVAC sub-contract, assure coordination
    - Fire Alarm, Data, Communications, CATV/CCTV Systems: Locations and types of all devices, outlets and equipment, service connections, wiring diagrams, all other essential details
    - Services: Location and details of all services, whether overhead or underground, feeder sizes, plans and elevations of switchgear and transformers, metering and service switchboard arrangements, wiring and ground fault diagram and bus ducts

- General and sub-stations: Location, size, method of connection and protection of all generators, transformers, exciters, motor generators, switch gear, and associated equipment, current characteristics and equipment capacities. Indicate equipment connections by means of one line and/on wiring diagrams and schedule all major items of equipment and all instruments
- Underground work: The size and locations of manholes and types of cables, number, size, and location of ducts, locations, sizes and types of cable supports, fireproofing, duct line profile, and one line diagram of connections
- Pole line work: Location, length, treatment and class of poles, guying, cross arms, insulators, circuiting, transformers, protective and switching devices, lightning arresters, special structures, diagrams, current characteristics and grounding
- Exterior lighting: Location, size, and type of transformers, luminary, poles, light standards, cables, ducts, and manholes, details of control equipment and connection diagrams
- Emergency system (where provided) details including transfer switch, type of fuel
- One line diagram indicating load KVA, and available short circuit amperes at each transformer, switchboard, distribution panel board, branch circuit panel board, and at major pieces of equipment
- Riser diagrams for all systems

6C.3.6 Project Manual (developed to 90% CD progress level)

- The format for the technical specifications shall be CSI Master format (current version) with separate sections for each of class of work required by M.G.L. c. 149 §44F
- For each item of material or equipment, the specifications shall provide for a minimum of three named brands of material or equipment and the words “or equal” or a description of material or equipment which can be met by a minimum of three manufacturers or producers, and the words “or equal”. Proprietary products shall not be specified except as provided by M.G.L. c. 30, § 39M; however, when they are specified, proprietary specifications are subject to the “or equal” provisions of c. 30, § 39M
- Do not specify that a product or system shall require prequalification for use prior to bidding
- Include a copy of the geotechnical report, including locations and dates of test boring holes and results of soil investigation, including water levels, allowable solid bearing pressure and bottom grades of footing and slabs
- List all required filed sub-bids specification sections
- Each filed sub-bid section shall detail all labor and materials required by the particular sub-trade and list, by number, those drawings (and only those drawings) indicating work of that sub-trade. In addition, list drawings indicating work of a particular trade that appears on drawings that are not customarily included in the work of the trade, when applicable

- Staging, scaffolding, coring, drilling, cutting, patching, refuse collection and disposal, demolition work and cleaning task, allocation policy and proposed language shall be carefully assigned to avoid duplication or omission, and coordinated with all filed sub-bid sections
- Describe the extent of the work, the materials and workmanship, and include the work under the proper section. If any portion of the work included in a section of the specifications is to be performed by a trade covered by another section, there shall be clear and distinct cross-referencing between the sections. Merely to state “by others” is not acceptable
- Specify work in appropriate sections according to local trade jurisdiction.
- In sections for which filed sub-bids are required, refrain from using such terms as “the contractor,” the “heating contractor,” or “the plumbing contractor,” but where necessary for clarity refer to the “HVAC subcontractor,” the “general contractor” and so on
- Alternates, if approved in writing by the owner, shall be properly described and cross-referenced in the project manual and drawings. An alternate proposal sheet shall be prepared by the Designer for insertion into the contract form
- Allowances are prohibited pursuant to M.G.L. c. 149, § 44G (A)
- Unit price items, if permitted or ordered by the Owner, shall be properly described in the Specifications
- Indicate goals for compliance with USGBC LEED-s or NE-CHPS standards
- Do not use general clauses intended to be all-inclusive in lieu of complete descriptions
- Do not duplicate standard requirements that are contained in the contract form
- Use consistency throughout. The word “will” shall be used to designate what the owner, authority, owner’s project manager, or the designer can be expected to do, and the word “shall” shall be used to designate what is mandatory for the contractor or subcontractors to do
- Use the same term throughout for the same subject and the term shall be the same as that used on the drawings
- Do not use the term “etc.”
- Avoid such terms as “to the satisfaction of the designer”, “as directed by the designer”, “as approved” and “as required”
- Avoid the use of symbols
- Do not give numbers both in words and figures. Numbers less than 10 shall be written in words, 10 and higher numbers shall be written in figures. In expressing dimensions, figures such as 2 in., 16 in., 7 ft., 6 in., shall be used
- Specify materials mined or manufactured in Massachusetts first and the United States of America second whenever possible

6C.3.7 Project Coordination

- Verify all details are accurately cross-referenced to the correct plan sheet
- Verify that the structural, mechanical, or other disciplines, do not conflict with architectural plans or specifications.
- Structural dimensions match architectural drawings
- Column orientation matches architectural drawings.
- Column grid lines match architectural drawings.
- Column and bearing wall locations match architectural drawings
- Column locations coordinated with all other disciplines
- Seismic detailing coordinates with architectural drawings
- Beams and columns protruding horizontally and vertically into stairwells, and other interior spaces.
- The finish grade elevations coordinated between all disciplines.
- Mechanical equipment power requirements and physical locations, including special information as to who mounts, connects, tests, etc.
- Verification of potential spatial conflicts in mechanical equipment.
- Room wall/floor/ceiling construction coordinated with the finish schedule
- Civil earthwork grading and excavation plans are coordinated with architectural and landscape plans
- All room numbers are coordinated between all disciplines
- Equipment plan coordinates with architectural plans
- All kitchen equipment connected to utility systems