



# Massachusetts School Building Authority

**Deborah B. Goldberg**  
*Chairman, State Treasurer*

**James A. MacDonald**  
*Chief Executive Officer*

**John K. McCarthy**  
*Executive Director / Deputy CEO*

September 3, 2019

The Honorable Dr. Yvonne M. Spicer, Mayor  
City of Framingham  
150 Concord Street, Room 121  
Framingham, MA 01702

Re: City of Framingham, Fuller Middle School

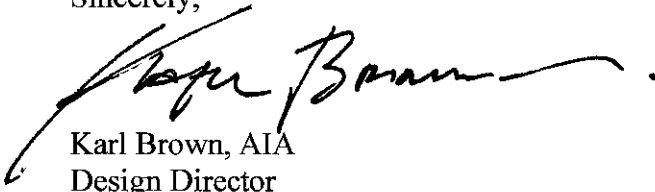
Dear Mayor Spicer:

The Massachusetts School Building Authority (the "MSBA") is forwarding review comments of the 60% Construction Documents submission for the Fuller Middle School Project in the City of Framingham, received by the MSBA on August 9, 2019.

Responses to the attached comments shall be forwarded to Brian Lynch (Brian.Lynch@MassSchoolBuildings.org) through the Owner's Project Manager. Please review and return responses within 14 days of receipt of this letter.

If you have any questions or comments, please do not hesitate to contact Kevin Sullivan (Kevin.Sullivan@MassSchoolBuildings.org).

Sincerely,



Karl Brown, AIA  
Design Director

Attachment: 60% Construction Documents Review Comments

Cc: Legislative Delegation  
Dennis L. Giombetti, Chair, Framingham City Council  
Jennifer A. Pratt, Assistant Chief Financial Officer, City of Framingham  
Adam Freudberg, Chair, Framingham School Committee  
Dr. Robert A. Tremblay, Superintendent, Framingham Public Schools  
Joseph Corazzini, Assistant Superintendent for Equity, Diversity, and Community Development, Framingham Public Schools

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Framingham 60% Construction Documents Review Comments

Nancy Piasecki, Executive Director for the Office of the Superintendent, Framingham Public Schools

Matthew Torti, Director of Buildings and Grounds, Framingham Public Schools

Carol Brodeur, Executive Assistant, Office of Building and Grounds, Framingham Public Schools

Joel G. Seeley, Owner's Project Manager, Symmes Maini & McKee Associates, Inc.

Jonathan Levi, Jonathan Levi Architects, LLC

File: 10.2 Letters (Region 4)

## **APPENDIX 6B**

### **MODULE 6 – 60% CONSTRUCTION DOCUMENTS REVIEW COMMENTS**

**District:** City of Framingham

**School:** Fuller Middle School

**Owner’s Project Manager:** Symmes Maini Mckee Associates

**Designer Firm:** Jonathan Levi Architects

**Submittal Received Date:** August 9, 2019

**Review Date:** August 13-29, 2019

**Reviewed by:** Gienapp Architects, K. Brown, K. Sullivan, R. Hudson

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#### **MSBA REVIEW COMMENTS**

The following comments<sup>1</sup> on the 60% construction documents submittal are issued pursuant to a review of the project submittal document for the new construction of the proposed project and presented as a 60% construction documents submission in accordance with the MSBA Module 6 Guidelines.

#### **6B.1 Summary Comments**

- Basic Project Information:
  - *630 students*
  - *137,100 GSF*
  - *New construction*
  - *Construction Manager at Risk: Consigli Construction*
- Comments here:
  - *The Total Project Budget per the PFA is \$98,276,878, and the information provided confirms it is still on budget.*
  - *The construction cost estimates are \$77,752,185 (CMR’s estimate by Consigli Construction Co.), \$77,544,171 (Designer’s estimate by A.M. Fogarty) and \$77,247,346 (OPM’s estimate by Miyakoda Consulting).*
  - *The construction budget per the PFA is \$77,935,429, and the information provided confirms that the reconciled construction cost of \$77,752,185 is still within budget.*

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<sup>1</sup> 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.

- *While some items of work (i.e. joints in the floor tile) are well beyond 60% CD development, other core building issues (i.e. wall sections, details) appear to be behind. With the response to these comments, indicate if this is intentional, and if so, provide an explanation for why.*

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

### **6B.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.*
- 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.

**6B.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: *The items listed below are not addressed or included in main project schedule, but they are listed in a separate sheet. These items should be added to the main project schedule for clarity (provide a revised project schedule in the response to this review).*
  - 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. *The submission indicates this as not applicable.*
  - MA DPH - Massachusetts Department of Public Health. *The submission indicates this as not applicable.*
  - 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. *The submission indicates this as not applicable.*
- Indicate all required state reviews or permits on the milestone schedule including actual or planned dates of approval which are required in order to maintain the planned bidding and construction schedule and milestones indicated therein. For required state reviews or permit approvals which have not been obtained on schedule, provide a separate (sub network) schedule depicting recovery actions to obtain required approvals in order to maintain the bidding and construction schedule.

- A letter on District letterhead confirming that the Project has undergone review and obtained all necessary state reviews and 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 state reviews and approvals: *The submission does not contain a letter from the School District confirming the Project's status overall. Confirm this will be provided in the next submission.*
  - Identify any state reviews or permits for which approval has not been obtained as of the 60% Construction Documents submission date, and include in the District letter a status update including actions taken to date and actions planned to obtain the required approval(s) in order to comply with Project Funding Agreement (the "PFA") Section 4.12. and maintain the projected schedule milestones listed in OPM Deliverables.
  - Section 4.12 of the PFA, executed between the District and the MSBA, requires that each project successfully undergo review and obtain all necessary approvals "prior to the solicitation of construction bids, by any departments or agencies of the Commonwealth required by law to review such projects..." As part of the response to these 60% CD submission review comments, MSBA requires documentation that the District is in compliance with this requirement of the PFA.
- 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).
- Indicate the date for submission to MSBA of the 60% and proposed dates for 90% Construction Documents submittals. 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.

### **6B.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.

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

#### **6B.3.1 General Requirements**

- Submit updated work plan.
- Updated and expanded Basis of Design narrative description for all disciplines.
- Updated building code analysis.
- Provide a 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. *The submission provides a list and the minutes of the Town Meeting wherein the items were approved; however, it does not appear to be an official certified copy of the vote. This should be reviewed and provided with the next submission.*
- 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. *Included, the range of color choices and materials have been approved by the School Building Committee. However, the finalization of color values by the Committee is set to be concluded during construction. Confirm that any future color and/or materials selection will not affect the materials and colors included in the cost estimates.*

- Updated structural narrative including methods of lateral bracing and how requirements of earthquake code will be met.
- Updated structural calculations and required floor loads.
- 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. Actions are to be advanced well prior to the 90% CD submission to engage the peer reviewer, and that scheduling be 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 comments and response action reporting in the final construction documents and avoid delays. Confirm this process has been initiated.
- Updated energy calculations. *Not included, please include in next submission.*
- Updated Life Cycle cost analysis for energy and water consuming devices. *The Life Cycle Cost Analysis is included for water consuming devices, but not for energy consuming devices. Please include in next submission.*
- Updated heat gain and loss calculations for Heating, Ventilating and Air Conditioning systems. *The submission indicates these calculations are included with the Basis-of-Design Narrative; however, they do not appear to be included. This should be reviewed and provided in the next submission.*
- Updated calculations showing total electrical load. *Calculations are included for generator sizing, but it does not appear to be complete. For example, it contains line items for life safety lighting and shelter lighting, but not other lighting. Confirm this will be reviewed and complete updated calculations provided in the next submission.*
- Updated security and visual access requirements:
  - Confirmation that the persons responsible for implementation of the District's emergency procedures, and responding emergency medical, fire protection, and police agency representatives have been consulted in the planning process and any associated requirements have been included in the project. *No reference is made to emergency medical responders being consulted. Please clarify in next submission.*
  - Identification of any other security related items particular to the District and/or the proposed project.
  - Verification that the following safety and security related issues have been reviewed and are in accordance with the District's procedures as noted above:
    - Main entrance design – describe District protocol for visitor entry and check-in related to the current design for visitors to remain in the vestibule versus a side sub-vestibule.
    - Classroom lockset hardware - confirm hardware functions are compatible with the District's protocols related to lockdown.
    - Classroom / Instructional spaces visibility - confirm that the inclusion of sidelights at entrance locations is compatible with



the District’s current standards related to visibility from corridors and whether any related vision control option measures are to be incorporated.

- Alternative entry locations - confirm project includes site and building signage, as may be required by District’s emergency procedures, to identify locations where first responders may more directly reach a person needing medical attention; Knox Boxes; and provisions for building plans to be delivered to local fire and response agencies.
- 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.

**6B.3.2 Space Summary**

- Updated space summary and signed certification that reflects the current design. *Based on the space summary provided, the MSBA notes the following:*

<u>Spaces</u>	<u>PFA Space Summary</u>	<u>DD Space Summary</u>	<u>60% CD Space Summary</u>	<u>90% CD Space Summary</u>	<u>Difference to PFA</u>	<u>Comments</u>
Core Academic Spaces	36,000	35,600	35,530		(470)	This category has decreased by 70 nsf since the last submittal.
Special Education	9,150	9,075	9,150		-	This category has increased by 75 nsf since the last submittal and is now in compliance with the original DESE approval dated September 27, 2018.
Art and Music	3,675	3,640	3,640		(35)	This category remains unchanged since the last submittal.
Vocations & Technology	3,170	3,185	3,150		(20)	This category has decreased by 35 nsf since the last submittal.

Health and Physical Education	9,985	9,795	9,765		(220)	This category has decreased by 30 nsf since the last submittal.
Media Center	6,280	6,250	6,250		(30)	This category remains unchanged since the last submittal.
Dining and Food Service	8,960	8,690	8,840		(120)	This category has increased by 150 nsf since the last submittal.
Medical	610	620	620		10	This category remains unchanged since the last submittal.
Administration and Guidance	5,250	5,245	5,235		(15)	This category has decreased by 10 nsf since the last submittal.
Custodial and Maintenance	2,140	2,630	2,555		415	This category has decreased by 75 nsf since the last submittal.
Other	6,700	6,755	6,630		(70)	This category has decreased by 125 nsf since the last submittal.
<b>Total Building Net</b>	<b>91,920</b>	<b>91,485</b>	<b>91,365</b>	-	(555)	<b>This category has decreased by 120 nsf since the last submittal.</b>
<b>Non Programmed</b>						
Other Occupied Rooms						
Unoccupied MEP/FP	1,685	1,415	1,400			
Unoccupied Closets, Supply Rooms & Storage	235	280	350			
Toilet Rooms	3,560	3,325	2,970			
Circulation	34,175	25,970	26,350			
Remaining	5,215	14,285	14,665			
<b>Total Gross</b>	<b>136,790</b>	<b>136,760</b>	<b>137,100</b>		<b>310</b>	
<b>Grossing Factor</b>	<b>1.49</b>	<b>1.49</b>	<b>1.50</b>		<b>0</b>	

- 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.

- *The MSBA will continue to monitor these ineligible square footage amounts through Module 6, and to continue to consider them ineligible at PFA Bid. Please note the following:*
  - *The Medical category did not exceed guidelines at the time of PFA (610 nsf); however as outlined above, as part of the 60% submission the category has increased by 10 nsf, therefore 10 nsf would now be considered ineligible for reimbursement.*
  - *Custodial and Maintenance exceeded guidelines by 35 nsf at PFA, and 35 nsf was considered ineligible. This category has increased by 415 nsf in the 60% submission. This additional area will be considered ineligible.*
  - *Please note that an additional elevator was added to the building following Schematic Design. As a result, the gross square footage has increased by 310 sf and the grossing factor has increased from 1.49 to 1.50. Any additional gross square footage added to the original PFA approved gross square footage will be deemed ineligible by the MSBA at the PFA Bid Amendment.*
- 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. *The submission indicates that the proposed SPED spaces have been brought back into the configuration approved by DESE following the PS&B submittal. As part of the response to these review comments, confirm no further changes to SPED spaces will be considered.*

- 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; *Not applicable.*
- Regarding DESE pre-approved Chapter 74 Program spaces; *Not applicable.*

### **6B.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. For each agency approval required for this project, indicate the date when approval was received. All required approvals should have an associated approval date indicated as part of the 90% CD submission and prior to advertising for bids.
  - 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. *The submission indicates that approval is currently pending. In the response to this review, indicate the date when approval is anticipated. As noted above, all required approvals should have an associated approval date indicated as part of the 90% CD submission and prior to advertising for bids. Provide a status update including actions taken to date and actions planned to obtain the required state reviews and permit approval(s) in order to comply with PFA Section 4.12 and maintain the projected schedule milestones listed in OPM Deliverables.*
  - MA DOT - Massachusetts Department of Transportation. *The submission indicates this as not applicable.*
  - MA DPH - Massachusetts Department of Public Health. *The submission indicates this as not applicable.*

- 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. *The submission indicates this as not applicable.*
- 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.
- For any required state reviews or permits for which approval has not been obtained as of the 60% Construction Documents submission date, provide a status update including actions taken to date and actions planned to obtain the required state reviews and permit approval(s) in order to comply with PFA Section 4.12 and maintain the projected schedule milestones listed in OPM Deliverables.
- 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.

#### **6B.3.4 Cost Estimate**

- Provide a construction cost estimate based on the 60% 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 60% Construction Documents.
- Provide a summary sheet including the following:
  - Date that the estimate was prepared (value date).
  - Anticipated bid date. *Not included and should be included in the next submission.*
  - Project and contract number. *The project name is included in the summary, but the contract number is not. This should be included in the next submission.*
  - 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. *Not included and should be included in the next submission.*
- Costs of Item 1 and Item 2 work, as distinguished in the General Contractor's bid forms, individually totaled. *Not included and should be included in the next submission.*

#### **6B.3.5 Drawings** (developed to 60% 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). *Neither the drawing list, symbols, nor abbreviations are included on the cover sheet; however, it appears this information is included elsewhere in the set. Please confirm as part of the response to these review comments.*
- Site drawings showing the following: *The submission did not include site drawings, which may be part of an early bid package. Therefore, compliance for the following items could not be confirmed. Consider providing these in the next submission for clarity.*
  - Layout and location of all proposed work with details.
  - Existing and proposed contours including floor elevations at all entrances/exits 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.
- Demolition drawings and temporary work required. *There are no demolition drawings included in the submission. This was noted in the previous review, and the District indicated they would be included. This should be reviewed and as part of the response to these review comments confirm this will be provided in the next submission.*
- Architectural drawings showing the following:
  - 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 and coordinated with exterior grade elevations at all interior/exterior transitions. *The floor elevations are not included. Please include them in the next submission. Window designations are not included on the floor plan, but appear to be included on the elevations; confirm as part of the response to these review comments.*
  - Large scale floor plans where required.
  - Roof plans including equipment.
  - Key plans / overall plans where required.
  - Building Sections updated and coordinated with plans and elevations.

- Building elevations. All building elevations, including hidden elevations, fully developed, 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.
- Exterior details, for roofing, flashing and other details showing all major conditions.
- Door, window, entrance, curtain wall and storefront, schedules, and details.
- Vertical circulation plans, sections and details including ramps, stairs, lifts and elevators.
- Guardrails and handrails including details.
- Interior elevations of all significant and typical spaces.
- Interior details including casework, paneling surfacing and acoustical treatment.
- Reflected ceiling plans coordinated with fire protection, mechanical and electrical drawings.
- Ceiling details.
- Schedules (clearly define new or existing):
  - Doors.
  - Equipment, e.g. for services.
  - Partitions.
  - Finishes.
- Structural drawings showing the following: *Structural drawings are not included in the submission, and based on the schedule, may have been included in an early bid package. Therefore, compliance with the following could not be confirmed. Consider providing these drawings in the next submission for clarity.*
  - 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, coordinated with the architectural drawings.
  - 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.
- 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.
- 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. Actions are to be advanced well prior to the 90% CD submission to engage the peer reviewer, and that scheduling be 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 comments and response action reporting in the final construction documents and avoid delays. *As part of the response to these review comments, confirm compliance with this requirement.*
- 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 pump where required, accessories, and piping.
  - All piping, equipment, fixtures, valves and devices. *Most of the piping is not included in the Fire Protection plans. Confirm that all piping will be included in the next submission.*
  - Design criteria shall be provided on the drawings in accordance with NFPA requirements.
- 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.
  - 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.
- 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. *The legend is not included on the first sheet of the mechanical drawings; however, they are included on a later sheet. Consider including them on the first sheet for clarity.*
  - Large scale plans of all mechanical & electrical spaces showing equipment to scale. *The large-scale plan of the electrical room is not included. Confirm it will be included in the next submission.*
  - 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. *The riser diagram for the duct system is not included. Confirm it will be included in the next submission.*
  - All directions of flow and pitch on piping, and direction of flow and volumes for duct systems shall be indicated.
  - All equipment shall have sufficient servicing and/or replacement space indicated on drawings. *Service and replacement spaces are not indicated in the plans. Please include them in the next submission.*
  - All equipment, accessories, valves and dampers identified as to type and size.
  - 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. *Not applicable.*
  - All fire and smoke dampers, access panels and doors. *Access panels are not included. Please include them in the next submission.*
  - 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. *The service space for the mechanical equipment is not indicated on the plan. Confirm these spaces will be identified in the next submission.*

- 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.
  - 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. 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. *The mounting heights for fixtures and a riser diagram for the lighting are not included. Please include them in the next submission.*
  - 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/or 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 system.

#### **6B.3.6 Project Manual** (developed to 60% 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. *It does not appear that the list of relevant drawings is included in all the filed sub-bid sections. For example, they are missing from Section 07 00 01 and Section 08 00 08. This should be included prior to the next submission.*
- Staging, scaffolding cutting and patching, refuse collection and disposal, demolition work and cleaning task, allocation policy and proposed language shall be carefully assigned to avoid duplication or omission. *It does not appear this is fully coordinated. For example, Section 26 00 10 Electrical states that all staging and scaffolding over eight feet shall be furnished, installed and maintained by the General Contractor and all staging up to eight feet provided by the non-trade and trade contractor. This language is not coordinated with Section 01 50 00 Temporary Facilities. This should be reviewed and coordinated in the next submission.*
- 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.

- All "Work by Others" specification references are coordinated.
- 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. *The term "the Contractor" is used throughout the Project Manual. For clarity, this term should be replaced with the term "General Contractor" prior to the next submission.*
- Alternates, if approved in writing by the owner, shall be properly described and cross-referenced in the project manual and drawings. *Alternate 1 is defined in the Project Manual; however, it is not clearly shown in the drawings. This should be coordinated and shown on the drawings prior to the next submission.*
- 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. *Section 01 22 00 Unit Prices refers to Document 00 54 22 – Bid Attachment Unit Prices Schedule. This schedule is not included in the submission. This should be review and provided in the next submission.*
- 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. *The words "will" and "shall" are used interchangeably throughout the Project Manual. This should be reviewed and coordinated prior to the next submission.*
- Use the same term throughout for the same subject and the term shall be the same as that used on the drawings. *Many of the section drawings and details are not fully developed and are missing notes, as is typical at 60% CDs; therefore, similar term usage could not be fully confirmed. This should be reviewed and provided in the next submission.*
- Do not use the term "etc." *There are several instances throughout the Project Manual that use the word "etc." This should be reviewed and revised prior to the next submission.*
- Avoid such terms as "to the satisfaction of the designer", "as directed by the designer", "as approved" and "as required." *"As approved by Architect", "to the satisfaction of the Designer/Architect", "as directed by Architect" and "as required" is used throughout the project manual. This should be reviewed and revised in the next submission.*
- 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.

*Numbers are written in both words and figures. This should be reviewed and revised in the next submission.*

- Specify materials mined or manufactured in Massachusetts first and the United States of America second whenever possible.

### **6B.3.7 Project Coordination**

- Verify all details are accurately cross-referenced to the correct plan sheet. *Details are not cross referenced to the plans. This should be reviewed and coordinated in the next submission.*
- Verify that the structural, mechanical, or other disciplines, do not conflict with architectural plans or specifications.
- Structural dimensions match architectural drawings. *No structural drawings were included in the set for review; therefore, coordination could not be reviewed. See other note regarding structural drawings in section 6B.3.5 of this review.*
- Column orientation matches architectural drawings. *The columns are not included in the fire protection, plumbing and mechanical plans. Please include them in the next submission.*
- Column grid lines match architectural drawings. *The columns grid lines are not included in the fire protection, plumbing and mechanical plans. Please include them in the next submission.*
- Column and bearing wall locations match architectural drawings. *No structural drawings were included in the set for review; therefore, coordination could not be reviewed. See other note regarding structural drawings in section 6B.3.5 of this review.*
- Column locations coordinated with all other disciplines. *The columns are not included in the fire protection, plumbing and mechanical plans. Please include them in the next submission.*
- Seismic detailing coordinates with architectural drawings. *No structural drawings were included in the set for review; therefore, coordination could not be reviewed. See other note regarding structural drawings in section 6B.3.5 of this review.*
- Beams and columns protruding horizontally and vertically into stairwells, and other interior spaces. *No structural drawings were included in the set for review; therefore, coordination could not be reviewed. See other note regarding structural drawings in section 6B.3.5 of this review.*
- The finish grade elevations coordinated between all disciplines. *The finish floor elevations are not included in the architectural plans and there are no site drawings in the set. Please coordinate in the next submission.*
- 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. *There are no partition types included with ceramic tile or backer board. Please coordinate in the next submission.*

- Civil earthwork grading and excavation plans are coordinated with architectural and landscape plans. *The civil plans are not included in the set; therefore, coordination could not be confirmed. Consider providing civil drawings in the next submission.*
- All room numbers are coordinated between all disciplines. *The room numbers are missing from the fire protection and plumbing plans, and they are illegible on the mechanical and electrical plans. Please include them in the next submission.*
- Equipment plan coordinates with architectural plans.
- All kitchen equipment connected to utility.