**APPENDIX 6A**

**MODULE 6 – DESIGN DEVELOPMENT REVIEW COMMENTS**

**District:** *Town/City of X/Regional District*

**School:** *Name*

**Owner’s Project Manager:** *Name*

**Designer Firm:** *Name*

**Submittal Received Date**: *Month Day, Year*

**Review Dates**:*Month Day, Year* *(Date sent to consultant for review – date of Design Director’s final review)*

**Reviewed by**: *First initial & last name* *(All reviewers)*­­­­­­­­­­

**MSBA REVIEW COMMENTS**

The following comments[[1]](#footnote-2) on the Design Development submittal are issued pursuant to a project submittal review document for the proposed project and presented as a Design Development submission in accordance with the MSBA Module 6 Guidelines.

If the District has not yet executed a Project Funding Agreement (a “PFA”), be advised that the District is proceeding at its own risk. Without a PFA, the MSBA will not be able to reimburse the District for otherwise eligible costs that it may incur in this project phase or any later phases. Further, until the District obtains full ownership, control, and exclusive use of the Project site so that it has an unrestricted right to construct the Project as described in the Project, Scope and Budget Agreement, the MSBA will be unable to execute a PFA with the District. Regardless, the MSBA will provide the District with its review comments on the submittal. Neither the MSBA’s receipt of the submittal nor the MSBA’s transmittal of review comments to the District, however, shall be construed as an approval or endorsement of the District’s decision to proceed into this phase without a PFA. The MSBA’s comments solely reflect the MSBA’s review of the documents submitted by the District and nothing more. The same shall apply to any additional documents submitted to the MSBA and to any comments provided by the MSBA without a PFA.

The MSBA will not provide submittal review comments for a project that has bid or is scheduled to issue bid documents for the majority of filed sub-bid as well as non-filed scope within two weeks of District receipt of MSBA review comments. In addition, the MSBA will not provide review comments for any portions of a project already bid as part of an “early bid package”. Note that the MSBA requires the design team to include all early bid packages (if any) in each submittal, showing a complete project, to allow for MSBA coordination review for remaining portions of work that have not bid. If the scope of early bid packages is well advanced of the scheduled DD/CD review process, MSBA reserves the right to refrain from providing review comments, or to limit review comments to portions of the submittal that address conformance to the Project Scope and Budget Agreement.

The items listed below are to be included in each project submittal by the design team (OPM and Designer) to the extent that each item applies to the project, or the design team should include an explanation why an item doesn’t apply. The project submittal may be rejected by MSBA if all items below are not fully addressed by the project team. Unless specifically stated otherwise in the review comments below, the OPM and Designer deliverables are included in the submission with no further comment from MSBA required.

**6A.1 Summary Comments**

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|  | | Comments | |
|  | Basic Project Information |  |
|  | * Provide a general introduction that presents a brief overview of the project details, describes the current status of the project, description and status of any early bid packages, any ongoing issues or new developments, any changes to the project since the previous submittal, how the district and design team are addressing these developments, and how these issues may affect the projects schedule, budget or conformance to the Project Scope and Budget Agreement. |  |
|  | * Enrollment - describe each of the following: * grade configuration * design enrollment * number of PK students (note “N/A” if not applicable) |  |
|  | * GSF area- describe the following: * GSF approved in the PFA * GSF as currently proposed |  |
|  | * Project Type (all new, add/reno, reno) |  |
|  | * Delivery method (DBB, CMR). If CMR, describe contract status |  |
|  | * Provide any information regarding updates to the District’s current project budget and anticipated construction cost, including any additional funding appropriations. |  |

* + Project Budget Compliance:
    - The Project Funding Agreement (“PFA”) has total project budget of $XXX,XXX,XXX. The submittal notes that the current total project budget is $XXX,XXX,XXX, and is within budget / exceeds the PFA budget by $X,XXX,XXX.
    - The PFA has an estimated construction cost of $XXX,XXX,XXX. The submittal notes that the OPM’s current reconciled estimated construction cost is $XXX,XXX,XXX, and is within budget / exceeds the PFA budget by $X,XXX,XXX.
    - The (OPM/CMR)’s current construction cost estimate is $XXX,XXX,XXX by (firm name). The Designer’s current construction cost estimate is $XXX,XXX,XXX by (firm name).
  + General comments:
    - *XX*

**6A.2 OPM Deliverables:**

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| 6A.2.1 OPM Submittal Review & Coordination | | Comments | |
|  | OPM’s separate signed cover letter verifying each of the following: 1) the OPM has reviewed and coordinated the materials, 2) the submittal is complete and conforms to MSBA requirements, 3) the proposed project as documented within each submittal is within the District’s budget, and 4) the District has approved the materials for submission to the MSBA. |  |
|  | Coordinate design; include written recommendations to the Owner. Address each of the following items individually, and describe how the OPM evaluated each item. |  |
| * Technical accuracy, coordination, & clarity |  |
| * Efficiency & cost effectiveness |  |
| * Operability |  |
| * Constructability |  |
| * Phasing |  |
| * Bid ability |  |
| * Site access during construction |  |
|  | Coordinate Commissioning consultant’s review. |  |
| * Describe the commissioning consultant’s review status. |  |
| * Include a copy of the commissioning consultant’s review & project team’s response to each item. |  |
| * Describe the consideration and incorporation of commissioning consultant’s recommendations into the current submittal. |  |
|  | Coordinate the District response to the MSBA comments of previous submittals. |  |
| * Include a copy of the previous MSBA Schematic Design submittal review & District response, including any supplemental submittals and reviews. |  |
| * Provide documentation of comments addressed and comment resolution outstanding. |  |
|  | OPM provide confirmation that the District has submitted a completed Designer Evaluation Form to the Division of Capital Asset Management and Maintenance (DCAMM), using the DCAMM/DSB Autocene platform, upon completion of the Schematic Design phase (refer to [MSBA Project Advisory #79](https://www.massschoolbuildings.org/building/advisories/Project_Advisory_79) for information regarding DCAMM/DSB Designer evaluations). |  |

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| 6A.2.2 Project Schedule | | Comments |
|  | The OPM is responsible for submitting a project schedule that conforms to the following requirements, whether the schedule is produced by the OPM or the CMR (if applicable). *A schedule that is limited to construction tasks is not acceptable and will be rejected*. All schedules should be presented in calendar days. |  |
|  | Update project schedule: At 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 |  |
| * Project Registration date with the US Green Building Council (“USGBC”) or Collaboration for High Performance Schools (“CHPS”) |  |
| * Provisional/Design package submittal date to USGBC or CHPS |  |
| * MSBA 50% DCAMM Notification submittal date and MSBA 100% DCAMM Standard Contractor Evaluation Form notification date |  |
| * Designer Evaluation Form submissions to DCAMM: 1). upon completion of Schematic Design, 2). completion of 100% construction documents, and 3). final GC/CM payment. |  |
| * General Contractor/Construction Manager request for final payment |  |
| * Commissioning Consultant inspection (substantial completion plus approximately 10 months) |  |
| * Final Commissioning report to MSBA submittal date |  |
| * Final Construction package to USGBC/CHPS including the Final Commissioning Report submittal date |  |
| * Anticipated final Green School Program Certification letter from USGBC/CHPS issuance date |  |
| * Commissioning Certificate of Completion submittal date to MSBA |  |
| * Final reimbursement request submittal date to MSBA |  |
|  | Include application submission and approval dates in the project schedule for the following approvals, *coordinated with the Designer’s submittal information.* 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 items listed below might not be applicable to this project) Indicate “Non-Applicable” on the project schedule 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 (typically relating to CH74 Medical / Dental functions) |  |
| * 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 |  |
|  | Indicate all required state reviews or permits on the milestone schedule including actual or planned approval dates which are required in order to maintain the planned bidding and construction schedule and milestones indicated therein. For required state reviews or permits which have not been obtained on schedule, provide a separate (subnetwork) schedule depicting recovery actions to obtain required approvals in order to maintain the bidding and construction schedule. |  |
|  | The schedule is to be updated and submitted to the MSBA with each OPM monthly report and as often as it 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 shall reflect any variances in the updated schedule relative to the baseline project schedule include with the Project Scope and Budget Agreement. |  |
|  | Indicate the Design Development submission date to the MSBA and proposed 60% and 90% Construction Documents submittals submission dates. The schedule is to incorporate 21 calendar day required duration for the MSBA review of each submission, and a minimum 14 calendar days for the project team incorporation of the MSBA review comments as well as all others into the project documents prior to the next submission or finalizing project documents to make available to bidders. 35 calendar days between each MSBA design submission (DD, 60%, 90%) is the minimum acceptable duration; if the project team believes additional time is required for any or all the submissions the durations for these activities are to be increased accordingly. |  |

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| 6A.2.3 Project Scope and Budget | | Comments |
|  | Develop project scope and budget, cost estimates and reconciliation: |  |
| * OPM construction cost estimate using the Uniformat II Classification to Level 3, Showing unit rates and quantities; with escalation projected to the mid-point of construction; AND |  |
|  | * OPM construction cost estimate using CSI MasterFormat 6-digit format to Level 3 and MGL c.149 s 44F (filed sub-bid) format showing unit rates and quantities; with escalation projected to the mid-point of construction. |  |
|  | * OPM reconciliation of the OPM/CMR and Designer construction cost estimates including a description of the method to derive this reconciliation. Refer to this link for an example of the [Cost Estimate Reconciliation Form](https://www.massschoolbuildings.org/sites/default/files/edit-contentfiles/Building_With_Us/Detailed_Design/Cost%20Estimate%20Reconciliation%20Form.xlsx). |  |
|  | * Updated Cost Estimate Comparison Form. Refer to this link for an example of the [Cost Estimate Comparison Form](http://www.massschoolbuildings.org/sites/default/files/edit-contentfile/Build%20With%20Us/Project%20Advisories/Cost%20Estimate%20Comparison%20Spreadsheet%207_15_10.xls). |  |
|  | CMR (if applicable) |  |
| * If the Owner has not yet contracted with a Construction Manager (CM), the OPM must develop a construction cost estimate as described above 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 Designer’s and CM’s construction cost estimates reconciliation as described above. |  |
|  | Updated project budget in the MSBA 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. |  |
|  | Describe any early bid packages anticipated scope and schedule. Include any early bid packages (if applicable). *The submittal must include all early bid packages, showing a complete project, to allow for MSBA coordination review.* Provide bid tables for a completed sub-bid package. |  |
|  | Value Engineering Recommendations (if any) |  |
| * Provide the list of potential and accepted Value Engineering recommendations, and associated costs of each item. |  |
| * Value Engineering Summary Tracking Sheet completed for this submittal indicating compliance with the PFA budget, and considerations or implementation of Value Engineering (if any). Refer to this link for the [Value Engineering Summary Tracking Sheet.](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.massschoolbuildings.org%2Fsites%2Fdefault%2Ffiles%2Fedit-contentfiles%2FBuild%2520With%2520Us%2FProject%2520Advisories%2FDistrict_Project_Name_Value_Engineering_Summary_Tracking%2520Sheet.xlsx&wdOrigin=BROWSELINK) *Note that all project submittals must include a completed and current Value Engineering Summary Tracking Sheet regardless of the status of the project’s budget.* |  |
| * Provide a copy of the Committee vote for any accepted Value Engineering recommendations. |  |

**6A.3 Designer Deliverables**

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| 6A.3.1 General Requirements | | Comments |
|  | Submit an updated work plan. |  |
|  | Basis of Design narrative description for each of the following disciplines: |  |
| * Architecture |  |
| * Structural: narrative must include lateral bracing methods and how earthquake code requirements will be met |  |
| * Civil |  |
| * MEP + FP |  |
| * Data/Comms./Security |  |
|  | Building Code Analysis |  |
|  | Provide a description of all local “Green Communities” designations for this project (if any) and describe compliance measures to conform to related building or site requirements including the Stretch Code,  Municipal Opt-in Specialized “Net Zero Energy” Code, and any other locally required ordinances related to sustainability, based on local approvals required at the scheduled project permit date. |  |
|  | Provide an updated LEED/NE-CHPS scorecard indicating current attempted credits, and a statement from the designer describing any changes in the project scope and/or LEED/NE-CHPS scorecard as compared to the sustainability goals identified in the Project Scope and Budget Agreement. |  |
|  | Confirm project registration with CHPS/USGBC. |  |
|  | Provide a list of proprietary items under consideration. |  |
|  | Describe proposed exterior and interior materials and finishes. Confirm that material, finish and color selections have been reviewed by the District for approval. |  |
|  | Structural calculations |  |
|  | Evidence that an independent structural design review is initiated or being arranged (an MSBA requirement for all projects with new construction over 10,000 sf). MSBA requires a structural engineering peer review submission as part of the Final (100%) Construction Documents submission, to include documentation of any issues identified by the Peer Reviewer and resolution. 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 completion of the 90% Construction Documents submittal, *or earlier as may be required for early (structural) bid packages,* in order to incorporate comments and response action reporting in the final construction documents and avoid delays. Confirm this process has been initiated. |  |
|  | Energy model calculations |  |
|  | Life Cycle cost analysis for energy and water consuming devices |  |
|  | Heat gain and loss calculations for Heating, Ventilating and Air Conditioning systems |  |
|  | Calculations showing total electrical load |  |
|  | Security and Visual access requirements: |  |
| * Confirmation that the persons responsible for District’s emergency procedures implementation, 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 this project. |  |
| * Identify 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; Fire Alarm Control Panels, and provisions for building plans to be delivered to local fire and response agencies. |  |
|  | Facility and Maintenance requirements: |  |
| * Confirmation that the district personnel responsible for maintenance have been consulted in the planning process and any associated requirements have been considered for this project. Describe maintenance related items particular to the District and/or the proposed project. |  |
| * Confirmation that the district personnel responsible for maintenance have been consulted regarding any changes in the proposed design resulting from Value Engineering (if any). |  |
| * Verification that at a minimum the following issues have been reviewed: |  |
| * Training hours and scheduling |  |
| * HVAC systems |  |
| * Building Management Systems |  |
| * Lighting fixtures and controls |  |
| * Cleaning procedures and materials |  |
| * Access to all roof surfaces |  |
| * Mechanical room access |  |
|  | Quality Control narratives, supporting plans and documents demonstrating each of the following *(a general / summary comment is not acceptable, the narrative must address each of the following):* |  |
| * Ceiling clearances |  |
| * Mechanical room and shaft sizes |  |
| * Coordinate specifications and drawings |  |
| * Filed sub-bid work |  |
| * Scheduling |  |
| * Equipment and power |  |
| * Existing and new construction |  |
| * Phasing |  |

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| 6A.3.2 Space Summary | | Comments |
| **MSBA WILL INSERT SPACE SUMMARY TABLE HERE** | | |
|  | Updated space summary and signed certification that reflects the current design |  |
|  | Provide confirmation that the spaces conform to the MSBA minimum and maximum size range requirements described in the space summary including:   * Classrooms & number of sinks * Science Labs * STE rooms (if applicable) * SPED spaces * Gymnasium * Auditorium (if applicable) |  |
|  | Provide confirmation that the grossing factor in the submitted space summary does not exceed 1.50 |  |
|  | 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 will either: * MSBA accepts this variation to the approved project with no further action. * Prior to the MSBA accepting this variation to the project, the Designer must describe in detail the reason for the change. |  |
| * The MSBA considers that deviations included changes in the size of a specific space, program area total nsf, space location, surrounding adjacencies of a space and/or the intended room purpose: * The submittal must clearly call out deviations to location and surrounding adjacencies using 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: |  |
| * Include a copy of the most recent letter from DESE approving the current proposed SPED spaces |  |
| * Confirm that the DESE approved SPED spaces have not deviated, using the definition above; or, * If the District wishes to submit a change to its DESE approved submittal, it must 1) confirm that all changes to SPED spaces are final; 2) provide a new SPED submittal to the MSBA in the original submittal format (described in Module 4 Schematic Design Section 4.1.1 and Mod 4 Appendix 4B) clearly noting any changes with clouded floor plans and red-lined narratives and tables; and 3) indicate how the project schedule can accommodate a potential DESE resubmittal and approval. 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 explain when and how the spaces will be returned to the approved size, configuration and location. |  |
|  | Regarding DESE Approved Public Day Education spaces (Indicate “Not Applicable” if the project does not include DESE approved Public Day Education spaces): |  |
| * If applicable, confirm that the DESE approved Public Day Education spaces have not deviated, using the definition above; or, * If the District wishes to submit a change to its DESE approved submittal, it must 1) confirm that all changes to Public Day Education spaces are final; 2) provide a new submittal in the original submittal format, noting any changes with clouded floor plans and red-lined narratives and tables; and 3) indicate how the project schedule can accommodate a potential DESE resubmittal and approval.  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 approved Chapter 74 Program spaces (Indicate “Not Applicable” if the project does not include DESE approved Chapter 74 spaces): |  |
| * If applicable, confirm that the proposed Chapter 74 spaces conform to the current DESE Chapter 74 manual for Vocational Technical Education Programs. |  |
| * Include a copy of the most recent letter from DESE approving the current proposed Chapter 74 Program spaces. |  |
| * If applicable, confirm that the DESE approved Chapter 74 Program spaces have not deviated, using the definition above, or; * If the District wishes to submit a change to its DESE approved submittal, it must 1) confirm that all changes to Chapter 74 Program spaces are final; 2) provide a new submittal in the original submittal format, noting any changes with clouded floor plans and red-lined narratives and tables; and 3) indicate how the project schedule can accommodate a potential DESE resubmittal and approval.  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 explain when and how the spaces will be returned to the approved size, configuration and location. |  |

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| 6A.3.3 Project Approvals | | Comments |
|  | 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 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 and describe why each item is not applicable. 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 in the 90% CD submission and prior to advertising for bids. Confirm that the required approvals are coordinated with the OPM’s project schedule. |  |
|  | * 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 (typically relating to CH74 Medical / Dental functions) |  |
| * EPA –NPDES National Pollutant Discharge Elimination System Notice of Intent approval by the US Environmental Protection Agency (or indicate as “by GC/CMR”) |  |
| * MAAB - Accessibility variances by MA Architectural Access Board |  |
|  | Confirmation that the Project has undergone review and obtained all necessary approvals by any departments or Commonwealth agencies required by law to review the Project, including but not limited to the approvals listed above. Attached such documentation letters evidencing such reviews and approvals. In accordance with the Project Funding Agreement (“PFA”) Section 4.12, the District must obtain such reviews or approvals prior to construction bids solicitation. |  |
|  | For any required state reviews or permits for which approval has not been obtained as of the Design Development 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 the PFA Section 4.12 and maintain the projected schedule milestones listed in the OPM Deliverables. |  |
|  | List all 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 utility connection. |  |

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| 6A.3.4 Cost Estimates | | Comments |
|  | Designer’s construction cost estimate using the Uniformat II Classification to Level 3, Showing unit rates and quantities; with escalation projected to the mid-point of construction AND; |  |
|  | Designer’s construction cost estimate using CSI MasterFormat 6-digit format to Level 3 and MGL c.149 s 44F (filed sub-bid) format showing unit rates and quantities; with escalation projected to the mid-point of construction. |  |

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| 6A.3.5 Drawings (developed to Design Development progress level) | | Comments |
|  | Half-size drawings only. Confirm that text, symbols, shading and all drawings content are legible. |  |
|  | If applicable, include early bid package contract documents. *The submittal must include all early bid packages, showing a complete project, to allow for MSBA coordination review.* |  |
|  | Cover Sheet showing a drawings list (the project title should be visible when the drawings are rolled) |  |
|  | Sheets containing all symbols, abbreviations and notes applicable to each discipline |  |
|  | Site and Utility drawings should show the following: |  |
| * Proposed work layout |  |
| * Existing and proposed contours |  |
| * Building locations fixed and referenced from main survey baseline |  |
| * Floor elevations at each entrance/exit and key exterior grades at perimeter showing drainage away from the building |  |
| * Site Benchmarks |  |
| * Boring locations |  |
| * Retaining walls |  |
| * All utilities existing and proposed, indicating location, elevation, composition and size e.g., gas and electric utility providers |  |
| * Roads, laid out parking areas, walks, recreation areas, terraces and other site improvements |  |
| * Plant materials with preliminary schedule |  |
|  | Architectural drawings showing the following: |  |
| * Demolition drawings |  |
| * Mobilization and enabling works |  |
| * Floor Plans (minimum 1/8” = 1’-0” before reduction) |  |
| * Internal partitions; appropriate thickness and dimensions to fix basic organizations; indicate fire rated partitions and smoke partitions |  |
| * Key plans/overall plans where required |  |
| * Building perimeter with exterior wall thicknesses and overall dimensions |  |
| * Structural grid |  |
| * Building core; elevators, stairs, shafts, public toilets, with dimensions |  |
| * Door swings |  |
| * Finish floor elevations coordinated with exterior grade elevations at all interior to exterior transitions |  |
| * Built-in furniture |  |
| * Kitchen equipment |  |
|  | Large scale plans showing key areas e.g. lobby, special spaces. Indicate floor surface materials (minimum 1/4” = 1’-0” before reduction) |  |
|  | Roof plans showing the following: |  |
| * Proposed systems type |  |
| * Pitch and drainage pattern |  |
| * Roof drains, gutters and scuppers |  |
| * Skylights, penthouses, major equipment, chimneys |  |
| * Roof access and ladders |  |
| * Walk pads |  |
| * Rooftop Solar Readiness area, PV support and interconnection pathways |  |
| * 7 | Building sections updated and coordinated with plans and elevations. Indicate floor to ceiling heights and floor-to-floor heights. Label all spaces. |  |
| * 9 | Building elevations showing the following: |  |
| * Full height elevations including roof structures, e.g., mechanical equipment, chimneys, and penthouses |  |
| * Floor elevations, floor-to-floor height, and overall height related to benchmarks on site plans |  |
| * Windows, storefront, and curtain wall systems |  |
| * All columns located on a centerline and coordinated with the structural drawings |  |
| * Materials indicating major control and expansion joints, and divisions of materials where required |  |
| * Exterior grades and topographical features in context |  |
| * 10 | Full height wall sections for main elevations and at special conditions. Show foundation and perimeter treatment, wall construction including insulation and supporting structure, fenestration and mechanical penetrations, and floor construction |  |
| * 11 | Interior elevations: Show at all spaces, e.g. library, lobby, and all typical spaces, e.g. classroom |  |
| * 12 | Reflected ceiling plans: Show prototypical structural, fire protection, mechanical and electrical information for classrooms and major spaces, including lighting layouts with ceiling height and material changes. |  |
| * 13 | Schedules: |  |
| * Finishes |  |
| * Doors |  |
| * Windows |  |
| * Partitions |  |
| * 14 | Structural concepts including: |  |
| * Framing plans; typical floor framing, roof framing, special framing, show framing at major openings and member sizes |  |
| * Floor and roof framing design loads |  |
| * Foundation plan showing sizes and typical component locations |  |
| * All columns and beams are identified (with typical sizes shown) on column and beam schedules or on drawings |  |
| * Preliminary details including floor and roof deck |  |
| * Details and locations for special and/or incidental structure features; e.g. tunnels, connecting bridges and unique architectural features |  |
| * Connection to existing buildings at foundation and at key points at existing structure if applicable |  |
| * All construction joint and expansion joints locations coordinated with structural drawings |  |
| * 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 |  |
|  | Fire Protection floor plans indicating wet or dry type systems, hose racks or cabinets and fire department tie-ins, including: |  |
| * Typical sprinkler head layout |  |
| * Sprinkler piping mains and size |  |
| * Sprinkler service location |  |
| * Fire pump where required |  |
| * 16 | Plumbing and sanitary systems: |  |
| * Floor plans indicating plumbing fixtures and special features rough-in locations, piping systems and principal items equipment approximate locations and sizes |  |
| * 17 | Heating, Ventilating and Air Conditioning Systems: |  |
| * Piping systems locations and approximate sizes, air handling systems and principal equipment items such as compressors or cooling towers |  |
| * Mechanical rooms and fan rooms space requirements and locations. Indicate shaft requirements |  |
| * Adequate ceiling heights exists at worst-case duct intersection |  |
| * Ceiling diffusers/registers generally consistent with architectural reflected ceiling plan |  |
| * 18 | Electrical Systems: |  |
| * All services including those for special purposes shall be located and indicated |  |
| * Light fixtures on electrical drawings generally consistent with architectural reflected ceiling plans |  |
| * Switchgear and emergency generator |  |
| * Electrical equipment locations are coordinated with site paving and grading |  |
| * All motorized equipment is generally consistent with electrical drawings |  |
| * All power equipment has electrical connections |  |
| * Fire alarm system drawings showing all initiation and signaling devices, control panels, annunciator panels, etc. |  |
| * Security and system drawings |  |
| * Communications drawings showing chases, major equipment locations and any special distribution requirements |  |

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| 6A.3.6 Project Manual (developed to Design Development progress level) | | Comments |
|  | If applicable, include early bid package contract documents. *The submittal must include all early bid packages, showing a complete project, to allow for MSBA coordination review.* |  |
|  | Updated Outline Specifications in the Uniformat Preliminary Project Description / Short-Form format *(with the exception of any early bid packages, do not submit full-length 3-part format specifications in the Design Development submittal).* |  |
|  | Geotechnical report including test boring holes locations and dates, soil investigation results including water levels, allowable solid bearing pressure, foundation type and footing and slabs bottom grades. |  |
|  | Site work: clearing, drives, walks, parking areas, fences, excavation, backfill, planting, footings on earth, rock, piles, caissons, proposed bearing pressures, boring logs |  |
|  | Foundation walls; concrete types, reinforcing, waterproofing type and extent |  |
|  | Footing drains; type, drainage disposal |  |
|  | Exterior Walls: superstructure, type, materials, brick type, alternate cladding, back-up materials, damp proofing material and extent, special features |  |
|  | Roof types, vapor barrier, insulation, flashings, all materials |  |
|  | Flashings; general types, all materials, weights, where each type is to be used |  |
|  | Sheet metal; gutters, leaders, other uses, except flashing |  |
|  | Windows; general types, materials, sub-frames, finish, glazing, screens |  |
|  | Doors, exterior and interior; types and thicknesses and fire rating identified if applicable |  |
|  | Steps, exterior; including platforms and landings' materials |  |
|  | Stairs, interior; including platforms, landings, walls, materials and finishes |  |
|  | Framing; wood, concrete or metal systems in accordance with general design |  |
|  | Partitions; materials, thicknesses, finishes |  |
|  | Cabinet and casework; types and materials |  |
|  | Food Service Equipment; provided equipment list |  |
|  | Furring; lathing, plastering, materials and locations |  |
|  | Insulation thermal; types, thicknesses, application methods and locations |  |
|  | Acoustical treatments; types, thicknesses, application methods and locations |  |
|  | Interior finishes; materials for floors, walls, bases, wainscots, trim, ceilings, ceiling heights |  |
|  | Fire protection; standpipe systems, sprinkler systems, fire pumps and accessories |  |
|  | Water supply; source; main connection location will be made; type of pipe for service main; load requirements; load factors and pressures |  |
|  | Sanitary sewers; sewage disposal system, pipe and other materials. |  |
|  | Storm sewers; storm drainage disposal system (institution or local facility), pipe and other materials |  |
|  | Gas main; material, size, location. Interface with utility company. |  |
|  | Plumbing; systems such as wastes, vents, hot water, cold water, gas, air, oxygen, vacuum, main supply source, materials for each, water heaters, pumps, thermal insulation fixture quality, all special features |  |
|  | Heating, ventilating and air conditioning; heating type and refrigeration plants, boilers and cooling equipment types and capacities, fuel, burner type, fuel storage, heaters, feed water pumps and heaters, thermal insulation, heating medium type, supply and return piping, radiation, unit heaters, radiant heating, principal air conditioning equipment types, special features, supply, return and exhaust ductwork |  |
|  | Electrical work; service connection, location, institution or public utility, overhead or underground, transformers including type and location, conduit and wiring types, fixtures types, main switchboard location, radio, fire alarm, telephone, public address, emergency lighting and wiring, emergency or other generators, special features, including Master TV, information retrieval and/or data processing system |  |
|  | Elevators, dumbwaiters and platform lifts; capacities, speed, travel in feet, landings, operation, controls, platform sizes, machine type and location, car and entrance finishes, signals |  |
|  | Other built-in equipment, types and materials |  |
|  | All “Work by others” specifications coordinated |  |
|  | Special features |  |

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| 6A.3.7 Project Coordination | | Comments |
|  | Verify the submittal is coordinated with any early-bid packages, if applicable. |  |
|  | All room names and numbers are coordinated between all disciplines. |  |
|  | The structural, mechanical, or other disciplines, do not conflict with architectural plans or specifications. |  |
|  | The finish grade elevations coordinated between all disciplines. |  |
|  | Structural dimensions match Architectural drawings. |  |
|  | Column grid lines and column orientation match Architectural drawings. |  |
|  | Column locations and bearing walls coordinated with all other disciplines. |  |
|  | Seismic detailing coordinated with Architectural drawings. |  |
|  | Beams and columns are not protruding horizontally and vertically into stairwells, and other interior spaces. |  |
|  | Verify modular dimensions at vertical masonry construction. |  |
|  | Verify that architectural wall/partition type smoke and fire rating requirements are coordinated with the building code analysis floor plan information. |  |
|  | Room wall/floor/ceiling construction coordinated with architectural finishes. |  |
|  | Mechanical equipment power requirements and physical locations, including special information as to who mounts, connects, tests, etc. |  |
|  | Verify potential spatial conflicts in mechanical equipment. |  |
|  | Indicate adequate access to all roof surfaces, with roof protection to all equipment that requires maintenance. |  |
|  | Equipment plan coordinates with architectural plans. |  |
|  | All kitchen equipment with utility systems indicated. |  |
|  | The Designer confirms that the project continues to comply with the MSBA [High School Science Lab Guidelines](https://www.massschoolbuildings.org/programs/science_lab/guidelines) and/or [Recommendations of Best Practices for K-12 STEM Learning Spaces](https://www.massschoolbuildings.org/sites/default/files/edit-contentfiles/Building_With_Us/Ed_Facilities_Planning/FINAL%20STEM%20Spaces%20Report%20Foster%2012-2018.pdf) |  |

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 design criteria coordination, 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 federal, state, and local law provisions. 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. [↑](#footnote-ref-2)