SMMA

Project Management

June 21, 2019

Brian Lynch
Project Coordinator
Massachusetts School Building Authority
40 Broad Street, Fifth Floor
Boston, Massachusetts 02109

Re: Fuller Middle School **Framingham, Massachusetts**

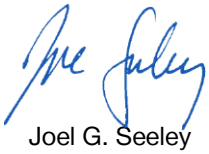
District's Response to the Design Development Review Comments *SMMA No. 17050*

Dear Brian:

Please find the District's Response to the MSBA's Design Development Review Comments, dated June 7, 2019.

Very truly yours,

SMMA



Joel G. Seeley
Principal

cc: School Building Committee, Jonathan Levi, JLA (MF)

enclosures: District's Response to the Design Development Review Comments

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City of Framingham
Fuller Middle School
Design Development
MSBA Review Comment Responses
6/21/19

APPENDIX 6A
MODULE 6 – DESIGN DEVELOPMENT REVIEW COMMENTS

District: City of Framingham
School: Fuller Middle School
Owner's Project Manager: SMMA
Designer Firm: Jonathan Levi Architects
Submittal Received Date: May 17, 2019
Review Date: May 20 – June 7, 2019
Reviewed by: Gienapp Architects, Karl Brown, Kevin Sullivan, Rich Hudson

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MSBA REVIEW COMMENTS

6A.1 Summary Comments

- *The "Updated Project Budget" provided in the submission uses the PFA estimates rather than the updated reconciled cost estimate; therefore, it does not update the total Project Budget. In response to this review, the OPM should provide an updated Total Project Budget using the current reconciled cost estimate that address the comments in this review. Refer to the comment below in the Scope and Budget section regarding updating the budget.*

  Response: The updated Total Project Budget attached.

- *The construction budget is $77,935,429, and the submission reports the project is currently within the PFA construction budget. . All three estimates: the Designer (Miyakoda), OPM (A.M. Fogarty), and the CMR were originally over budget by at least $4.7M. The submission indicates that all three parties assembled and reconciled their estimates. All three reconciled estimates are now showing the project on budget. In response to this review, the OPM should describe how the estimates were reconciled and the project was brought within budget, and provide an updated cost estimate reconciliation that address the comments in this review. Also provide an updated MSBA standard Cost Estimate Comparison Form from the MSBA website.*

  Response: Three independent Design Development Construction Estimates, prepared by Miyakoda Consulting, A.M. Fogarty, and Consigli Construction Co., Inc., were reconciled with each other through

an intensive series of review meetings with the entire design team, the OPM and the estimators. Each estimate was reviewed against the project scope and Design Development pricing documents. During the process, design elements that were included in the Design Development pricing set that were discretionary and not required to support the educational program or building performance were reviewed and refined. An example of such refinement was to utilize standard HVAC ductwork in lieu of the ring ductwork indicated, which accounted for nearly half the draft estimates overage. The Consigli Final Design Development estimate is the reconciled estimate and the MSBA standard Cost Estimate Comparison Form was included in the Design Development submission.

- *The Project Schedule indicates that Bid Package No. 3 (the main portion of the project) will have the "Notice in the Central Register" (line 146) on November 6, 2019, but the "Trade Contractor Bid Package" (line 147) does not start until November 15, 2019 (10 days later). The "Trade Contractor Bid Package" aligns with the completion of the CDs (both November 15, 2019). It is unclear why the schedule is showing this 10-day difference and what is its purpose. With the response to these comments, indicate if this is intentional, and if so, provide an explanation for why.*

  Response: The purpose of advertising the bid in the Central Register prior to the release of the bid documents is to allow the Trade Contractors to anticipate and plan for the bidding period.

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

6A.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; implied, confirm as part of the response to these review comments.*

    Response: Section 6A.2.1.1 was inadvertently not included in the Design Development Submission printing. Section 6A.2.1.1 is attached.

- Coordinate design; include written recommendations to the Owner. *The submission does not include a comment regarding coordinating the design and providing written recommendations to the Owner by the OPM for any of the following. With the response to these comments, indicate if the following have been reviewed.*
  - Technical accuracy, coordination & clarity. *Not included.*

- Efficiency & cost effectiveness. *Not included.*
- Operability. *Not included.*
- Constructability. *Not included.*
- Phasing. *Not included.*
- Bid-ability. *Not included.*
- Site access during construction. *Not included.*

  Response: Section 6A.2.1.1 was inadvertently not included in the Design Development Submission printing. Section 6A.2.1.1 is attached.

- Coordinate the commissioning consultant's review.
  - Include Cx review & District response. *The commissioning consultant's review is included; however, there are no responses by the District. As part of the response to these review comments, please comment and describe when each of the Cx review comments will be coordinated with the contract documents..*

    Response: The response to the Cx comments is attached.

  - Incorporate Cx recommendations. *See comment above.*

    Response: The Cx recommendations will be incorporated into the 60% Construction Documents submission.

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

- Submittal date to MSBA of final reimbursement request. *Included; however, it is set for a date prior to the completion of the commissioning consultant's final evaluation. This should be reviewed and revised in the next submission.*

  Response: Will be revised in the next submission.

    - Executive Office of Energy and Environmental Affairs / EEA: *The Project Schedule does not comment on these approvals. However, later in the Project Binder, the submission indicates these as not applicable. Clarify as part of the response to these review comments.*
      - MEPA - MA Environmental Policy Act by Energy & Environmental Affairs:
        - ENF - Environmental Notification Form. *See comment above.*

          Response: An ENF is not required.
        - EIR - Environmental Impact Report. *See comment above.*

          Response: An EIR is not required.
      - Article 97 Land Disposition Policy approval by Energy & Environmental Affairs. *See comment above.*

Response: An Article 97 approval is not applicable to this project.

- MA DEP - Massachusetts Department of Environmental Protection. *The Project Schedule does not comment on this approval. However, later in the Project Binder, the submission indicates it as not applicable. Clarify as part of the response to these review comments.*

  Response: MA DEP approval is not required.
- MA DOT - Massachusetts Department of Transportation. *The Project Schedule does not comment on this approval. However, later in the Project Binder, the submission indicates it as not applicable. Clarify as part of the response to these review comments.*

  Response: MA DOT approval is not required.
- MA DPH - Massachusetts Department of Public Health. *The Project Schedule does not comment on this approval. However, later in the Project Binder, the submission indicates it as not applicable. Clarify as part of the response to these review comments.*

  Response: MA DPH approval is not required.
- EPA –NPDES National Pollutant Discharge Elimination System Notice of Intent approval by the US Environmental Protection Agency. *The Project Schedule does not comment on this approval. However, later in the Project Binder, the submission indicates it as not applicable. Clarify as part of the response to these review comments.*

  Response: The Construction Manager will be responsible to obtain NPDES approval.
- MAAB - Accessibility variances by MA Architectural Access Board. *The Project Schedule does not comment on this approval. However, later in the Project Binder, the submission indicates it as not applicable. Clarify as part of the response to these review comments.*

  Response: There are no MAAB variances required.

6A.2.3 Scope and Budget

- Develop 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. *An estimate for the OPM, by A.M. Fogarty, is included in the submission; however,*

it appears to have been escalated twice. On the summary sheet, there is a note after "Total Direct Cost" that indicates it has been "estimated to the mid-point of construction". Following this there is another escalation line which is less clear to what point it is escalated. This second line appears to be applied to the direct cost plus contingency but does not include general conditions, general requirements, or any of the other general costs that are incurred by a project. Therefore, it is unclear why there are two escalations and why they are applied in the way they are applied. With the response to these comments, provide an explanation for their purpose. Additionally, the original OPM's estimate is short and may be difficult to compare with the more detailed Designer's estimate. Consider expanding this estimate to make comparison clearer in the next submission.

Response: Escalation to the mid-point of construction is included in the cost estimate within the rates. Escalation on the summary is to the start of construction.

Note that the OPM is responsible to reconcile the Designer's and CMR's independent cost estimates, resulting in one reconciled cost estimate amount which is then used for the updated Total Project Budget. Currently, the OPM has only provided the CMR's estimate as the "reconciled" amount. As part of the response to these review comments, confirm this will be done in the 60% and 90% CD submissions.

Response: The Consigli Final Design Development estimate is the reconciled estimate.

- 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. *An updated project budget is included, but it is not on the MSBA Project Budget Template. Provide an updated project budget on the MSBA template form in the response to this review.*

  Response: The Consigli Final Design Development estimate is the reconciled estimate and has been included in the updated Project Budget attached.

  Additionally, the updated project budget is based on the PFA construction estimate and not on the reconciled estimate. In the response to this review, the updated project budget should use the reconciled estimate.

  Response: The Consigli Final Design Development estimate is the reconciled estimate and has been included in the updated Project Budget attached.

- Value Engineering recommendations.
  - For any Value Engineering recommendations which have been accepted, provide a copy of the Committee vote. *A copy of the Committee vote on the value engineering recommendations is not included in the submission. This should be provided with the next submission.*

    Response: Will be included in the next submission.

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

6A.3.1 General Requirements

- Submit updated work plan. *Included; however, it appears it is out of order. 90% and 100% CDs appear before the Design Development Documents. This should be reviewed, corrected, and coordinated in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.
- Provide a list identifying all proposed proprietary items (if any)with an affidavit which shall indicate an elected body of the district (school committee, city or town council, or selectmen, - but not an 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 is in the public interest to do so. Provide MSBA with a certified copy of the vote of the elected body. *The submission lists several items and states "[t]hese will need to be voted on and approved by the SBC", but there is no indication when this might occur. With the responses to these comments, indicate when this vote is anticipated. This anticipated vote date should also be added to the Project Schedule.*

  Response: On 6/5/19, the Framingham School Committee voted unanimously to approve the proprietary items noted in the attached 6/3/19 memorandum issued by SMMA.
- Security and visual access requirements:
  - 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. *The submission is very limited when noting alternative entry location information. It appears this was discussed with City Representatives, but there is no information as to whether it includes site and building signage, how responders reach a person in need, or how plans will get to the response agencies. In the next submission, provide additional information.*

Response: Acknowledged and agreed. To be included in the next submission.

- Quality Control documents demonstrating: *The submission comments on the Designer's quality control methodology; however, several of the categories below are not specifically mentioned. With the response to these comments, confirm items noted below as "Not included" have been reviewed for quality control purposes.*
  - Ceiling clearances.
  - Mechanical room and shaft sizes.
  - Coordinate specifications and drawings. *Not included.*
  - Filed sub-bid work. *Not included.*
  - Scheduling. *Not included.*
  - Equipment and power.
  - Existing and new construction. *Not included.*
  - Phasing. *Not included.*

  Response: Confirmed. Items noted above as not included, have been reviewed for quality control purposes. With the engagement of Consigli Construction Company as CMR, an additional level of quality control has been initiated through ongoing design and constructability coordination meetings.

6A.3.2 Space Summary

The updated space summary includes yellow highlights and orange highlights. The latter are explained as changes above 5% of the NSF. The former is not explained, and they do not appear to be noting changes. With the response to these comments, indicate what yellow highlighting indicates.

Response: Yellow highlighting indicates a change from the standard MSBA template. Please see attached updated Space Summary Template.

- 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. *Explanations of deviations are included and mostly focus on further development of the design. However, some deviations are not explained. For example, the explanation for Art and Music is that it reduced by 35 SF due to "building design effort" then it explains how one room was split in two and two others split into three with no explanation as to why. Prior to MSBA accepting this variation to the project, the Designer must describe in detail the reason for this change.*

    Response: At the request of the District, for additional safety, the "Art Workroom w/ storage and kiln" was divided so that the kiln would be isolated in its own room, divided from the workroom by fire rated walls.

The District also requested, for improved flexibility, that the two "Music Practice / Ensemble" rooms at 200 sf each be divided into 3, so that 3 groups of students could practice simultaneously. The existing Fuller School currently has 3 small music practice rooms, and this modification to the space summary would allow the District the freedom to utilize this attribute of their music program. The District also noted that at 200 sf each, the rooms were larger than required for the purpose.

- *Additionally, Dining and Food Service was reduced by 270 SF, bringing the category below guidelines. Prior to accepting this variation to the project, the Designer must describe in detail the reason for this change and also confirm that this change is acceptable to the District.*

  Response: This discrepancy was primarily due to an inadvertent misallocation of custodial storage in the "Chair / Table / Equipment Storage" room. This room, as shown in the submitted DD floor plan, has a net floor area of 420 sf, rather than 270 sf. Please see attached updated Space Summary Template.

  In addition, based on the conclusions drawn in 2 kitchen meetings during DD, the kitchen reduced in size by 95 sf. The layout as described in drawing FS100 in the DD was reviewed with Framingham's food service director on April 18, 2019, and it was agreed that the layout, including the size of walk in cooler, freezer, and dry storage work well with District objectives.

- *Also, within the Administration and Guidance category one teacher work room has been eliminated without further explanation. Prior to MSBA accepting this variation to the project, the Designer must describe in detail the reason for this change. This should be addressed with the response to these comments.*

  Response: The number of teacher work rooms will remain at 3 as shown in the DD space summary template, with each primarily associated with one of the 3 cohorts. At the request of the District, the 3 workrooms have been reduced in size to allow the addition of a new flexible Office / Conference Room, which can be used for shared collaboration space, which the previous more open design was less suited to.

- *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 DD submission the category has increased by 10 nsf, therefore 10 nsf would now be considered ineligible for reimbursement.*
  Response: Understood. The current configuration was developed in coordination with the medical staff at the beginning of DD. JLA will explore the potential to increase efficiency in the next submission.

- *Custodial and Maintenance exceeded guidelines by 35 nsf at PFA, and 35 nsf was considered ineligibile. This category has increased by 490 nsf in the DD submission. This additional area will be considered ineligible.*
  Response: As noted above, an inadvertent misallocation of custodial storage in the "Chair / Table / Equipment Storage" room reduces this figure by 150 sf, and therefore adds 340 rather than 490 sf of ineligible sf in this category. Please see attached updated Space Summary Template.

- *The Other category exceeded guidelines by 6,700 nsf at PFA, and 6,700 nsf was considered ineligibile. This category has increased by 55 nsf in the DD submission. This additional area will be considered ineligible.*
  Response: Understood. The current configuration was developed in coordination with the performing arts staff at the beginning of DD. JLA will explore the potential to increase efficiency in the next submission.

- The submittal must clearly call out deviations to location and surrounding adjacencies through the use of redlines or "clouding." *Included on the provided space summary, but not on plans. This should be provided with the response to these comments.*
  Response: Please see attached clouded plans.
- The explanation should clearly identify the basis of the change identifying both architectural and/or programmatic reasons. *Not included, see comment above.*
  Response: Please see comment responses above.
- 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. *Not included, see comment above.*
  Response: The basis for changes do not reflect a change to the educational plan.
- Regarding DESE approved SPED spaces; *The submission notes minor changes in classroom and teacher planning size due to further development of the design. As part of the response to these review*

comments, indicate if all SPED space changes are final. Once finalized, a SPED resubmittal will be required to be submitted to MSBA which will be forwarded to DESE for their review.

Response: SPED spaces will be adjusted to comply with DESE approved documents in the next submission and shall be final.

- 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. *See comment above.*

  Response: SPED spaces will be adjusted to comply with DESE approved documents in the next submission. No resubmission to DESE is anticipated to be required.

- 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. *See comment above.*

  Response: The very minor changes in classroom and teacher planning size can be altered by adjusting wall locations by a few inches.

6A.3.3 Project Approvals

- Provide a certification that all applicable utility officials have been contacted by the designer regarding each basic design, and utility connections. *Certification that many of the utility companies have been contacted is included in the submission, but it does not appear to include water or sewer utilities. With the response to these comments, indicate if these utilities have been contacted.*

  Response: Water and Sewer utilities (Framingham DPW) have been contacted as part of the successful Planning Board Approval. See attached letter from Framingham DPW dated 4/30/19.

6A.3.5 Drawings (developed to Design Development 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). *The list of drawings, the symbols, and abbreviations are not on the cover sheet. Consider adding to the next submission for clarity.*

  Response: Acknowledged and agreed. To be included in the next submission.

- Site and utility drawings showing the following:
  - Building locations fixed and referenced from main survey baseline, if available. *The building location is not fixed to the survey. Please include in the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.
- Architectural drawings showing the following:
  - Demolition drawings and temporary work required. *Demolition drawings are not included. Please include them in the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.
  - Building perimeter with exterior wall thicknesses and overall dimensions. *Overall dimensions are not included. Provide overall dimensions and angles to ensure accurate layout the building in the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.
  - Internal partitions; appropriate thicknesses and dimensions to fix basic organizations; indicate fire rated partitions and smoke partitions. *Dimensions are not included to locate basic organizations. Please include dimensions in the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.
  - Finish floor elevations coordinated with exterior grade elevations at all interior exterior transitions. *The finish floor elevations are not coordinated with the exterior grades at the interior exterior transitions. Please include in the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.
  - Modular 4", 8", or 1' unit modular dimensions on Masonry. *Since there are no dimensions, it cannot be determined whether the overall dimensions are based on modular dimensions. Please include dimensions in the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.
- Building elevations showing the following:
  - Floor elevations, floor-to-floor height, and overall height related to benchmarks on site plans. *The overall heights related to grades are not included. Please include them in the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.
  - Materials indicating major control and expansion joints, and divisions of materials where required. *Expansion joints not included, and should be added in the next submission.*

Response: Acknowledged and agreed. To be included in the next submission.

- Louver locations coordinated between building elevations, floor plans, mechanical equipment, project manual etc. *There are no louvers, including in the interior boiler room. Verify that makeup air for boilers and water heaters is provided in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.

- 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. *The wall sections are only minimally developed. Please develop the wall sections and detail references for the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.

- 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. *The ceiling heights, fire protection, and mechanical information are not included in the reflected ceiling plans. Please include this information in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.

- Structural Concepts:
  - All columns and beams are identified and listed in the column and beam schedule. *A beam schedule is not included. Consider including one in the next submission for clarity.*

    Response: Acknowledged and agreed. To be included in the next submission.

  - Details for special and/or incidental structural features; e.g. tunnels, connecting bridges and unique architectural features. *Special details for the canopy and the bridge have not been included. Please include them for the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.

  - All construction joint and expansion joint locations coordinated with structural drawings. *An expansion joint detail has not been included. If applicable, please include one in the next submission.*

    Response: Acknowledged and agreed. To be verified and included in the next submission if applicable.

- Fire protection; floor plans indicating wet or dry type systems, hose racks, or cabinets and fire department tie-ins. Indicate a fire pump where required. Show typical sprinkler head layout. *The sprinkler head layouts are not included. Please include them in the next submission.*

Response: Acknowledged and agreed. To be included in the next submission.

- Heating, Ventilating and Air Conditioning Systems:
  - Adequate ceiling heights exists at worst-case duct intersection. *Based on the information shown in the submission, verifying adequate space for overlapping ducts could not be performed. There are no ceiling heights on the reflected ceiling plans or the interior elevations. The building sections are cut at locations where the ceilings are tight to the underside of the floor above. The documents should be developed further in the next submission including this information so this can be determined and confirmed.*

    Response: Acknowledged and agreed. To be included in the next submission.
  - Ceiling diffusers/registers match mechanical drawings, including all soffit and vent locations.
- Electrical Systems:
  - All power equipment has electrical connections. *The boilers, pumps and water heaters are not shown connected on the plans. Please show this in the next submission.*

    Response: Acknowledged and agreed. To be included in the next submission.

6A.3.5.1 Project Coordination

- Structural dimensions match Architectural drawings. *There are no dimensions on either the structural or architectural drawings. Please provide information necessary to confirm coordination of this in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.
- Column locations coordinated with all other disciplines. *The columns do not appear clearly on any of the other disciplines. Please include the column locations in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.
- Seismic detailing coordinates with Architectural drawings. *The seismic detailing does not appear to be coordinated with the Architectural drawings. The following are a few examples; this list is not all inclusive. All locations should be reviewed and corrected in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.
  - *On sheet S201, Elevation 4, there is a conflict with a door on the third floor.*
  - *In Elevation 7, the framing cannot be located. Column line BF8 may be missing from the plans.*
  - *In Elevations 8, 10, and 11, the bracing shares partitions with folding partition spaces.*

- *On sheet S202, Elevation 3, there is a conflict with a door on the second floor.*
- *On elevation 4, there is a conflict with a door on the third floor.*
- *On elevations 8, 9, and 10, the bracing shares partitions with the spaces for folding partitions.*
- *On Elevation 9, there is a conflict with a door on the first floor.*

- The finish grade elevations coordinated between all disciplines. *The finish grade elevations do not appear to be coordinated. Please coordinate finish grades with structural and architectural drawings.*

  Response: Acknowledged and agreed. To be included in the next submission.
- All room numbers are coordinated between all disciplines. *There are no room numbers on the fire protection plans. Please include them in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.
- Equipment plan coordinates with architectural plans. *The kitchen plans and the architectural plans differ from the equipment plan along column line S6. Please coordinate in the next submission.*

  Response: Acknowledged and agreed. To be coordinated in the next submission.
- All kitchen equipment connected to utility systems. *The kitchen equipment is not connected to the plumbing, sanitary or gas lines. Please show them connected in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.

6A.3.6 Project Manual (developed to Design Development progress level)

- Outline Specifications in the current version of CSI Master spec divisions including: *The submitted specification is a 3-part CSI specification rather than the required outline specification. Consequently, some of the comments below are related to the full specification, as presented, and may address a level of detail beyond what is normally considered design development topics. Consequently, the presentation of information does not correlate to the outline below.*
  - Sheet metal; gutters, leaders, others uses, except flashing. *It is not clear if the project includes gutters and leaders. The Project Manual mentions leaders and gutter supports in Section 05 5000, but only in a very general sense, and may have been a left over from a previous project. The drawings are not developed sufficiently to confirm if they are included in the project. If used, both should be better identified and specified in the next submission. Clarify this in the response to these review comments.*

    Response: All typical roof drainage will be handled with internal drain lines, however there are some localized conditions, such as at stair to

the roof, where it may be most appropriate to use leaders and gutters. This will be clarified in the next submission.

- Windows; general types, materials, sub-frames, finish, glazing, screens. *Section 08 44 13 Glazed Aluminum Curtain Walls refers to Section 08 51 13 Aluminum Windows; however, this section is not included in the Project Manual and is also not included in the Table of Contents. This should be reviewed and coordinated in the next submission.*

  Response: Acknowledged and agreed. To be coordinated in the next submission.

- Doors, exterior and interior; types and thicknesses and fire rating identified if applicable. *Section 08 11 13 Hollow Metal Doors and Frames is full of colored text as if in process of editing. This should be reviewed and corrected in the next submission.*

  Response: Acknowledged and agreed. To be coordinated in the next submission.

- Interior finishes; materials for floors, walls, bases, wainscots, trim, ceilings, ceiling heights. *Specific colors and types are not indicated in the various finish sections. This should be reviewed and provided in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.

- Electric work; service connection, location, institution or public utility, overhead or underground, transformers including type and location, types of conduit and wiring, types of fixtures, location of main switchboard, 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. *Several of these items are not included, for example: the service connection for electrical is not mentioned; the transformer locations are not indicated; and the location of main switchboard is not indicated. This should be reviewed and indicated in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.

- Other built-in equipment, types and materials. *Built-in equipment does not appear to be included in the Project Manual. This should be reviewed and, if applicable, included in the next submission.*

  Response: Acknowledged and agreed. To be included in the next submission.

- Special features. *None provided. Due to the design of the project, this should be reviewed and corrected, if needed.*

  Response: Acknowledged and agreed. To be included in the next submission if applicable.

Total Project Budget

City of Framingham
Fuller Middle School
Updated for Design Development Cost Estimate

School Building Committee Reviewed on: **8/27/2018**

Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)	Estimated Budget	Scope Items Excluded from the Estimated Basis of Maximum Facilities Grant or Otherwise Ineligible	Estimated Basis of Maximum Total Facilities Grant[1]	Estimated Maximum Total Facilities Grant[1]
Feasibility Study Agreement				
OPM Feasibility Study	$175,000	$0	$175,000	
A&E Feasibility Study	$545,000	$0	$545,000	
Environmental & Site	$145,000	$0	$145,000	
Other	$135,000	$0	$135,000	
Feasibility Study Agreement Subtotal	**$1,000,000**	**$0**	**$1,000,000**	**$623,100**
Administration				
Legal Fees	$80,000	$80,000	$0	**$0**
Owner's Project Manager				
Design Development	$175,445	$280,118	-$104,673	
Construction Contract Documents	$242,886	$0	$242,886	
Bidding	$115,789	$0	$115,789	
Construction Contract Administration	$1,727,876	$0	$1,727,876	
Closeout	$95,905	$0	$95,905	
Extra Services	$40,000	$0	$40,000	
Reimbursable & Other Services	$40,000	$0	$40,000	
Cost Estimates	$80,000	$0	$80,000	
Advertising	$20,000	$0	$20,000	
Permitting	$50,000	$0	$50,000	
Owner's Insurance	$120,000	$0	$120,000	
Other Administrative Costs	$100,000	$0	$100,000	
Administration Subtotal	**$2,887,901**	**$360,118**	**$2,527,783**	**$1,575,061**
Architecture and Engineering				
Basic Services				
Design Development	$2,059,998	$819,669	$1,240,329	
Construction Contract Documents	$2,746,664	$0	$2,746,664	
Bidding	$137,334	$0	$137,334	
Construction Contract Administration	$1,833,398	$0	$1,833,398	
Closeout	$89,265	$0	$89,265	
Other Basic Services	$0	$0	$0	
Basic Services Subtotal	**$6,866,659**	**$819,669**	**$6,046,990**	
Reimbursable Services				
Construction Testing	$30,000	$0	$30,000	
Printing (over minimum)	$20,000	$0	$20,000	
Other Reimbursable Costs	$180,000	$0	$180,000	
Hazardous Materials	$170,984	$0	$170,984	
Geotechnical & Geo-Environmental	$155,925	$0	$155,925	
Site Survey	$44,000	$0	$44,000	
Wetlands	$44,000	$0	$44,000	
Traffic Studies	$38,500	$0	$38,500	
Architectural/Engineering Subtotal	**$7,550,068**	**$819,669**	**$6,730,399**	**$4,193,712**
CM at Risk Preconstruction Services				
Pre-Construction Services	$400,000	**$0**	$400,000	**$249,240**
Site Acquisition				
Land / Building Purchase	$0	$0	$0	
Appraisal Fees	$0	$0	$0	
Recording fees	$0	$0	$0	
Site Acquisition Subtotal	**$0**	**$0**	**$0**	**$0**

Total Project Budget

City of Framingham
Fuller Middle School
Updated for Design Development Cost Estimate

School Building Committee Reviewed on: **8/27/2018**

Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)	Estimated Budget	Scope Items Excluded from the Estimated Basis of Maximum Facilities Grant or Otherwise Ineligible	Estimated Basis of Maximum Total Facilities Grant[1]	Estimated Maximum Total Facilities Grant[1]
Construction Costs				
SUBSTRUCTURE				
Foundations	$3,128,871	$0		
Basement Construction	$0	$0		
SHELL				
SuperStructure	$5,462,233	$0		
Exterior Closure	$0	$0		
Exterior Walls	$4,410,611	$0		
Exterior Windows	$2,162,880	$0		
Exterior Doors	$141,120	$0		
Roofing	$2,081,748	$0		
INTERIORS				
Interior Construction	$5,667,823	$0		
Staircases	$517,094	$0		
Interior Finishes	$4,497,421	$0		
SERVICES				
Conveying Systems	$220,450	$0		
Plumbing	$1,923,288	$0		
HVAC	$8,143,186	$0		
Fire Protection	$788,684	$0		
Electrical	$5,149,789	$0		
EQUIPMENT & FURNISHINGS				
Equipment	$1,638,726	$0		
Furnishings	$1,656,900	$0		
SPECIAL CONSTRUCTION & DEMOLITION				
Special Construction	$0	$0		
Existing Building Demolition	$1,465,500	$0		
In-Building Hazardous Material Abatement	$857,780			
Asbestos Containing Floor Material Abatement	$388,800	$388,800		
Other Hazardous Material Abatement	$0	$0		
BUILDING SITEWORK				
Site Preparation	$3,758,369	$5,097,393		
Site Improvements	$3,497,366	$0		
Site Civil / Mechanical Utilities	$822,705	$0		
Site Electrical Utilities	$826,219	$0		
Other Site Construction	$0	$0		
Scope Excluded Site Cost		$0		
Construction Trades Subtotal	$59,207,563	$5,486,193		
Contingencies (Design and Pricing)	$4,144,529	$384,033		
General Conditions	$3,988,224	$369,550		
General Requirments	$2,936,369	$272,085		
Insurance	$895,218	$82,951		
Bonds	$1,265,706	$117,281		
GMP Fee	$1,560,000	$144,550		
not used		$0		
GMP Contingency	$1,652,039	$153,078		
Escalation to Mid-Point of Construction	$1,900,563	$176,107		
Ineligible Auditorium & PE Areas beyond Guidelines		$6,998,738		
Overall Excluded Construction Cost		$15,723,250		
Construction Budget	**$77,550,211**	**$29,907,817**	**$47,642,394**	**$29,685,976**
Alternates				
	$0		$0	
Alternates Included in the Total Project Budget	$0	$0	$0	
Alternates Excluded from the Total Project Budget	$0		$0	
Subtotal to be Included in Total Project Budget	**$0**	**$0**	**$0**	**$0**
Miscellaneous Project Costs				
Utility Company Fees	$280,000	$0	$280,000	
Testing Services	$300,000	$0	$300,000	
Swing Space / Modulars	$0	$0	$0	
Other Project Costs (Mailing & Moving)	$200,000	$200,000	$0	
Misc. Project Costs Subtotal	**$780,000**	**$200,000**	**$580,000**	**$361,398**
Furnishings and Equipment				
Furniture, Fixtures, and Equipment	$1,134,000	$378,000	$756,000	
Technology	$1,134,000	$378,000	$756,000	
FF&E Subtotal	**$2,268,000**	**$756,000**	**$1,512,000**	**$942,127**
Soft Costs that exceed 20% of Construction Cost		$0		

Total Project Budget

City of Framingham
Fuller Middle School
Updated for Design Development Cost Estimate

School Building Committee Reviewed on: **8/27/2018**

Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)	Estimated Budget	Scope Items Excluded from the Estimated Basis of Maximum Facilities Grant or Otherwise Ineligible	Estimated Basis of Maximum Total Facilities Grant[1]	Estimated Maximum Total Facilities Grant[1]
Project Budget	**$92,436,180**	**$32,043,604**	**$60,392,576**	**$37,630,614**

Board Authorization	
Design Enrollment	630
Total Building Gross Floor Area (GSF)	136,790
Total Project Budget (excluding Contingencies)	$92,436,180
Scope Items Excluded or Otherwise Ineligible	$32,043,604
Third Party Funding (Ineligible)	$0
Estimated Basis of Maximum Total Facilities Grant[1]	$60,392,576
Reimbursement Rate[3, 4]	62.31%
Est. Max. Total Facilities Grant (before recovery)[1]	$37,630,614
Cost Recovery[5]	$11,858
Estimated Maximum Total Facilities Grant[1]	$37,618,756

Construction Contingency[2]	$4,281,989
Ineligible Construction Contingency[2]	$3,506,487
"Potentially Eligible" Construction Contingency[2]	$775,502
Owner's Contingency[2]	$1,558,709
Ineligible Owner's Contingency[2]	$0
"Potentially Eligible" Owner's Contingency[2]	$1,558,709
Total Potentially Eligible Contingency[2]	$2,334,211
Reimbursement Rate[3, 4]	62.31%
Potential Additional Contingency Grant Funds[2]	$1,454,447
Maximum Total Facilities Grant	$39,073,203
Total Project Budget	$98,276,878

57.83	Reimbursement Rate Before Incentive Points
4.48	Total Incentive Points[3, 4]
62.31%	MSBA Reimbursement Rate

NOTES

This template was prepared by the MSBA as a tool to assist Districts and consultants in understanding MSBA policies and practices regarding potential impact on the MSBA's calculation of a potential Basis of Total Facilities Grant and potential Total Maximum Facilities Grant. This template does not contain a final, exhaustive list of all evaluations which the MSBA may use in determining whether items are eligible for reimbursement by the MSBA. The MSBA will perform an independent analysis based on a review of information and estimates provided by the District for the proposed school project that may or may not agree with the estimates generated by the District using this template.

1. Does not include any potentially eligible contingency funds and is subject to review and audit by the MSBA.
2. The proposed demolition of the _____ School is expected to result in the MSBA recovering a portion of state funds previously paid to the District for the ____ project at the existing facilities completed in ___. The MSBA will perform an independent analysis based on a review of information and estimates provided by the District for the proposed school project that may or may not agree with the estimated cost recovery generated by the District and its consultants using this template.
3. Pursuant to Section 3.20 of the Project Funding Agreement and the applicable policies and guidelines of the Authority, any project costs associated with the reallocation or transfer of funds from either the Owner's contingency or the Construction contingency to other budget line items shall be subject to review by the Authority to determine whether any such costs are eligible for reimbursement by the Authority. All costs are subject to review and audit by the MSBA.

By signing this Total Project Budget, I hereby certify that I have read and understand the form and further certify, to the best of my knowledge and belief, that the information supplied by the District in the table above is true, accurate, and complete.

_____

By:
Title: Chair of School Building Committee

By signing this Total Project Budget, I hereby certify that I have read and understand the form and further certify, to the best of my knowledge and belief, that the information supplied by the District in the table above is true, accurate, and complete.

_____

By:
Title: Chief Executive Officer

Date: _____

By signing this Total Project Budget, I hereby certify that I have read and understand the form and further certify, to the best of my knowledge and belief, that the information supplied by the District in the table above is true, accurate, and complete.

_____

By:
Title: Superintendent of Schools

Date: _____

By signing this Total Project Budget, I hereby certify that I have read and understand the form and further certify, to the best of my knowledge and belief, that the information supplied by the District in the table above is true, accurate, and complete.

_____

By:
Title: Chair of School Committee

Date: _____

P:\2017\17050\03-DESIGN\3.4 Submissions\3-SD Submission\Total Project Cost Templates\for 8-27-18 SBC Meeting\[Total Project Budget - Schematic Design Submission-updated 10-5-18 per F. Bradley comments-wAlternate-DD.xl

6.A.2.1.1 & 6.A.2.1.2 SUBMITTAL REVIEW AND COORDINATION

The OPM has reviewed the Designer's Design Development Submission and recommends the Owner approve the submission.

OPM REVIEW

The OPM performed a review of the Progress Design Development documents, dated April 8, 2019 for the drawings and April 12, 2019 for the specifications. The OPM comments are documented in the OPM Design Review, dated April 26, 2019 and appended to the end of this section.

1. **Technical Accuracy –** The design documents at this Design Development Phase contain the typically expected level of technical accuracy, coordination and clarity. Areas of the building are laid out in plan, elevation, and section, and are generally consistent with the space summary and design requirements of the MSBA and DESE. The Design Development drawing set for this project reflects the complexities of the project design, systems and site constraints.

2. **Efficiency and Cost Effectiveness –** The project as designed represents a very efficient and compact floor plan that allows the existing building to remain operational for the duration of construction. The location of the mechanical room and electrical room maximizes the efficiency of the system, while also allowing for an efficient piping distribution. The building layout is a cost-effective solution. The materials and equipment included in the design represent generally accepted materials for school construction projects. The District's Facilities Staff has participated in the material and equipment selections.

3. **Operability –** The project is designed for ease of operation. The location of support spaces are within appropriate distances to the spaces they serve. Access to equipment for preventative maintenance is thoughtful. Lastly, the segregation of the public spaces from the instructional spaces, facilitates community use in an efficient and easily maintained manner.

4. **Constructability –** Several meetings between the Construction Manager, the OPM and the Designer on constructability and logistics have occurred. The OPM review of the progress Design Development set did not surface any significant constructability issues.

5. **Phasing –**Phase 1 will consist of a permanent parking lot behind the Farley Building and a temporary bus and parent drop-off/pick-up drive with teacher and staff parking to accommodate continued school operation during Phase 2 and Phase 3 construction. The new school is located on the site to allow for the continued operation of the existing school. Once the new school is completed, it can operate unimpeded while the existing is demolished and the parking lot and fields are completed.

6. **Bid-ability –** The MEP elements of the design development drawing set have been coordinated to the level of Design Development. The general layout of the building, floor to floor construction height and the relationship between spaces will facilitate further coordination. The OPM review did not surface any significant bid-ability issues.

7. **Site Access During Construction –** As noted in the Phasing section above, the project has been designed to allow for site access to the operational school during both Phase 2 and Phase 3 construction.

CM REVIEW

The CM performed a review of the Progress Design Development documents, dated April 8, 2019 for the drawings and April 12, 2019 for the specifications. The CM comments are documented in the CM Design Review, dated May 6, 2019 and appended to the end of this section.

SMMA

OPM Design Review Comments

Project Name:	Fuller Middle School, Framingham, Massachusetts	**Project Phase:**	Design Development
Project Number:	17050	**Reviewed Date:**	April 26, 2019
Document Reviewer:	Mariana Hernandez, John Hart, Paul Livernois, Christopher Davis, Robert Marshall, Stella Drizin, Patrick Weygint, and Joshua Delaplain-Zook	**Discipline**	All Disciplines

DESIGN REVIEW NOTES

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
1.	Architecture	LS101-103	Define the fire and smoke separation required for the 3-story atrium.					
2.	Architecture	LS101-103	No reference shown to type of construction, allowable areas, etc.					
3.	Architecture	LS101	Exit 6 is from a storage room, should not be counted towards egress totals.					
4.	Architecture	LS103	Some areas between corridor and atrium seem to be missing a railing					
5.	Architecture	A101-A103C	Provide overall dimensions, angles and working points					
6.	Architecture	A101-A103C	Indicate partition types on plans					
7.	Architecture	A101-A103C	Some structural grid lines are not appearing on the floor plans					
8.	Architecture	A101-A103C	Coordinate brace locations w/ openings, plumbing and HVAC ductwork					
9.	Architecture	A101-A103C	Reference enlarged toilet rooms back to floor plans.					
10.	Architecture	A101-A103C	Indicate ramp and stair direction					

1000 Massachusetts Avenue
Cambridge, MA 02138
617.547.5400

www.smma.com

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
11.	Architecture	A101	The interior finish notes mention a bubble skylight on the Auditorium ceiling, this skylight doesn't show on RCP or on Roof plans					
12.	Architecture	A101	Top right corner of Auditorium was cropped out from view					
13.	Architecture	A101A	Exterior HM single egress door from Corridor 1020 may need to be widened to accommodate reach required on a thick wall					
14.	Architecture	A101B and A101C	Cohort Common and Learning Common are each 1'-0" off from the main floor elevation, provide cane detection per Code.					
15.	Architecture	A101D	Room name missing from room facing exterior between Gym and Aud.					
16.	Architecture	A102A	Four apparent flues showing next to Closet 2017 seem in conflict w/ the walls and structure					
17.	Architecture	A102B	Indicate HVAC elliptical duct risers and connection detail.					
18.	Architecture	A102B	Railing missing near Breakout room					
19.	Architecture	A1022B	East stair not showing					
20.	Architecture	A102C	Ensure required door reach clearance at TP rooms typ.					
21.	Architecture	A102D	How is the roof between Classroom 2224 and Auditorium drained?					
22.	Architecture	A103A	Sunscreen image is confusing should be higher or not shown					
23.	Architecture	A103A	Roof south of Classroom 3144 shows as flat on the framing plans, coordinate with Structural drawings					
24.	Architecture	A103B	Coordinate hanging post locations with bridge, indicate railing					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
25.	Architecture	A104	Indicate tapered insulation and how drain slopes will be achieved. Roof framing plans don't show sloping steel					
26.	Architecture	A104	Indicate different roof levels and how different roof levels are accessed					
27.	Architecture	A104	Any roof ladders required to access the different roof levels?					
28.	Architecture	A104	Indicate amount and layout of roof walk way pads					
29.	Architecture	A104	Include view for stair and elevator roof.					
30.	Architecture	A-104	Smoke vent hatches not shown on roof plans					
31.	Architecture	A104	Indicate roof types, canopy construction					
32.	Architecture	A104	Show openings in Mechanical screen to allow access					
33.	Architecture	A141A-A143C	Consider consolidating room finishes to one location. They are shown/ listed as a note on the A101 series, scheduled on these sheets and with room tags as well					
34.	Architecture	A141A-A143C	Show floor transitions for detailing					
35.	Architecture	A161A-A163C	Coordinate furniture locations with architecture. Ensure clearance around furniture and doors, walls, equip, etc.					
36.	Architecture	A181-A183C	Show HVAC diffusers, return grills and exposed ductwork					
37.	Architecture	A181-A183C	Show light fixtures, sprinkler heads, smoke detectors, motion detectors, etc.					
38.	Architecture	A181-A183C	Indicate ceiling elevations					
39.	Architecture	A181-A183C	Show ceilings legend on all ceiling plans.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
40.	Architecture	A181-A183C	In some areas exposed deck is shown with a line pattern, in other areas is shown blank show one consistent way.					
41.	Architecture	A201	Drawing is very hard to read. Consider highlighting cut areas and fading out planes behind					
42.	Architecture	A211-A217	More detailed information and notes required, consider graphic refinement of patterns to provide more clarity Windows, CW and storefront need to be tagged, brick control joints need to be indicated. Applicable structural gridlines should show on the partial elevations. A key plan for the partial elevations may help in locating them.					
43.	Architecture	A300 and A301	Hard to read what is cut and what is beyond. Work w/ line weights. Label spaces,					
44.	Architecture	A311- A320	Wall sections not developed, need to show dimensions, exterior wall and roof types, indicate insulation and AVB continuity, roof edge treatments, flashing conditions, sun screen structure, overhang structure and insulation criteria, how ceilings meet with exterior walls, windows					
45.	Architecture	Floor plans	Confirm door reach clearance on both pull and push side, on the Break Out spaces					
46.	Architecture	Specs	Specs indicate precast concrete and none shown on drawings.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
47.	Architecture	Specs	Specs call for mineral wool insulation, drawings show Polyiso					
48.	Architecture	Specs	Drawing A501 shows Concrete Unit Masonry block w/ insulated cores. There is no mention of it in the specs					
49.	Civil	All	Include Legends for all series of plans.					
50.	Civil	All	Include detail references.					
51.	Civil	C-0.1 & 0.2	Include parking stripes for clarity					
52.	Civil	C-1.0, 2.0 & 3.0	Phase 1 Notes: Note 1 – Clarify? Note 2 – Fence Limits are unclear & not in legend., Note 4 – Nothing shown as bold					
53.	Civil	C-1.0, 2.0 & 3.0	Clarify the disposition of utilities within demo areas. Remain, remove, abandon, cut/cap, etc.					
54.	Civil	C-1.0, 2.0 & 3.0	Identify salvage items.					
55.	Civil / LA	C-1.1 & L1.2	Civil and LA indicate different parking layouts, curbing, striping and sidewalk materials					
56.	Civil	C-1.1	Does Phase 1 construction include both binder and wearing course? If just binder, striping will be done twice, & structures reset, this needs to be noted.					
57.	Civil	C-1.1	Reconsider using SGC directly against sidewalk on west side of parking lot. Coordinate Phase 3 Fire Access Road with sidewalk and curbing.					
58.	Civil	C-1.2	DMH3 indicates a stub for Phase “4”, not Phase 3					
59.	Civil	C-1.2	Consider a filter strip or stone apron at north edge of parking with no curb.					
60.	Civil	C-1.3 & 2.3	No utility text/callouts are indicated. Pipe sizes etc.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
61.	Civil	C-1.4	Clarify limits of pavement, binder or full depth asphalt.					
62.	Civil	C-2.x	Clarify limits of Phase 1 and Phase 2 work on Phase 2 drawings.					
63.	Civil	C-2.3 & C-6.x	Clarify if utilities are in Phase 2 or Phase 3, no roof drains shown.					
64.	Civil	C-2.3	Has City Fire and Water Depts approved a 600'+ dead end water pipe for the hydrant to the north?					
65.	Civil	C-2.3 & C-6.1	Coordinate building utilities and roof drains					
66.	Civil	C-3.0	Is entrance drive constructed at the end of Phase 2 or in Phase 3.					
67.	Civil	C-3.0	Define Phase 3 enabling and/or temporary work.					
68.	Civil / LA	C-4.X & L	Coordinate sidewalk locations, curbing and striping.					
69.	Civil	C-4.1	Are gates proposed for the Fire Access Road?					
70.	Civil	C-4.1	Review loading geometry with truck turning movements					
71.	Civil	C-5.X	Has it been confirmed that no stormwater recharge is required for the project?					
72.	Arch/Plumb/ Civil	C-6.1	Is the FDC located in the raised main entrance plaza? Is this acceptable.					
73.	Civil	C-7.2 & 7.3	Repeated and conflicting details on these 2 sheets.					
74.	Landscape		Building Footprint does not match Arch or Civil dwgs.					
75.	Landscape		Coordinate drainage system structures with civil.					
76.	Landscape		Show light poles on all enlargements and Planting Plans for coordinating design.					
77.	Architecture	Specifications	TOC is missing 320000 & 329000, headers are not consistent throughout.					
78.	Civil	Specifications	Check that cross-referenced sections are included.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
79.	Civil	Specifications	Storm Drainage piping materials do not match what is on plans.					
80.	Structural	S-000	Some additional design load information for the structure should be provided. Refer to IBC Section 1603.1					
81.	Structural	S-101A	Indicate slab on grade size and reinforcing.					
82.	Structural	S-101A, S-101B, S-1011C, S101D	Indicate slab on grade sawcut control joint locations.					
83.	Structural	S-101A, S-101B, S-1011C, S101D	Column sizes should be shown.					
84.	Structural	S-101A, S-101B, S-1011C, S101D	Pricing notes are vague and should be more specific for DD level. Typical wall and pier sections with reinforcing should be shown					
85.	Structural	S-101A, S-101B, S-1011C, S101D	MSBA requires footing elevations to be shown on the plan along each section and not just in a note.					
86.	Structural	S-101A, S-101B, S-1011C, S101D	Gridlines and dimensions should be shown.					
87.	Structural	S-101A, S-101B, S-1011C, S101D	More info is required on the extent and depth of the Geo Piers under the footings and the slab-on-grade.					
88.	Structural	S-102A, S-102B, S102C, S102D	Typical grid and general framing dimensions should be shown at DD level submission.					
89.	Structural	S-102A, S-102B, S102C, S102D	Typical member sizes for beams and girders should be shown for DD Level submission,					
90.	Structural	S-102A, S-102B,	What is the fire rating of the floor assembly? Are the framing members					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
		S102C, S102D	fireproofed?					
91.	Structural	S-102A, S-102B, S102C, S102D	Typical framing details should be shown at DD Level, Including typical exterior wall support details					
92.	Structural	S-102A, S-102B, S102C, S102D	What is the Top of Steel Elevation?					
93.	Structural	S-102A, S-102B, S102C, S102D	Will there be any expansion joints at this level?					
94.	Structural	S-103A, S-103B, S103C, S103D	Typical grid and general framing dimensions should be shown at DD level submission.					
95.	Structural	S-103A, S-103B, S103C, S103D	Typical member sizes for beams and girders should be shown for DD Level submission,					
96.	Structural	S-103A, S-103B, S103C, S103D	Typical member sizes for beams and girders should be shown for DD Level submission,					
97.	Structural	S-103A, S-103B, S103C, S103D	What is the Top of Steel Elevation?					
98.	Structural	S-103A, S-103B, S103C, S103D	Will there be any expansion joints at this level?					
99.	Structural	S-103A, S-103B, S103C, S103D	Typical braced frame member sizes should be shown.					
100.	Structural	S-103D	Should the roof deck over the Gym be acoustical deck?					
101.	Structural	S-104-B, S104C	Typical braced frame member sizes should be shown.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
102.	Structural	S-104B, S-104C	Typical grid and general framing dimensions should be shown at DD level submission.					
103.	Structural	S-104B, S-104C	Typical member sizes for beams and girders should be shown for DD Level submission,					
104.	Structural	S-104B, S-104C	Typical member sizes for beams and girders should be shown for DD Level submission,					
105.	Structural	S-104B, S-104C	What is the Top of Steel elevation at this level?					
106.	Structural	S-104B, S-104C	Will there be any expansion joints at this level?					
107.	Structural	S-105B, S-105C	Typical Sections at roof screen and top of steel elevations should be shown.					
108.	Structural	S-200, S-201	Is there any special finish required on the exposed steel?					
109.	Structural	S-300	Detail 10: Diamond isolation joints should be avoided as the joints in diamonds will telegraph thru the floor finishes.					
110.	Structural	S-300, S-301, S-302, S-303	Typical concrete and steel details should be provided for the DD set.					
111.	Structural	S-000	Include an allowance for partition loading in the floor Live Loads.					
112.	Structural	S-000	Include Design Live Loads for atypical spaces.: Gym, Auditorium, Cafeteria, Media Center/Library, Lecture Halls, etc.					
113.	Fire Protection	General	Are intermediate fire department connections required?					
114.	Fire Protection	FP1.01	Coordinate exact scope of Division 21 work with Civil. Exact scope of work is missing. Suggest site utility dwg as part of FP set, including details.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
115.	Fire Protection	General – floor plans	Typical room sprinkler layouts missing					
116.	Fire Protection	General – floor plans	Verify height of floor control assemblies is in accord with Fire Dept requirements. Height may not be allowed over 7 ft.					
117.	Fire Protection	FP1.03	Fire Dept Valves may not be allowed to be installed in dressing rooms behind stage; especially if rooms are lockable.					
118.	Fire Protection	General - roof	Are roof manifolds required or desired by Fire Dept?					
119.	Plumbing	P0.01	Water heater and pump schedules missing					
120.	Plumbing	P0.01	Backflow preventer detail – dimension to floor is to be from bottom of device to floor per Code.					
121.	Plumbing	P0.02	Detail 1 – Is redundancy required for water heater?					
122.	Plumbing	P0.02	Detail 1 – Valve and pump not allowed between heater and expansion tank. Also, check valve upstream of heater on CW supply not allowed without inspector permission. Mixing valve should be installed below top of heater.					
123.	Plumbing	P0.02	Detail 3 – No valve allowed between heater and expansion tank. Also, check valve upstream of heater on CW supply not allowed without inspector permission. Swing check valve installed in vertical position may not function.					
124.	Plumbing	P0.02	Detail 4 – Verify chip tank is sufficient for chemicals used. pH adjustment system required? Depth of vault structure may not be deep enough.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
125.	Plumbing	General – below slab plans	Verify no footings bearing on piping below slab. Also, wall footings to be dropped at pipe exits and entrances to building.					
126.	Plumbing	General – sanitary venting	Some venting indicated appears to not meet Code.					
127.	Plumbing	General – Plumbing chases	Plumbing chases should be verified for adequate depth to accommodate fixture carriers/piping. Some look shallow.					
128.	Plumbing	General – structural/ architectural/ plumbing coordination	There appear to be many instances of plumbing chases and walls with plumbing risers being located directly over beams. Requires coordination.					
129.	Plumbing	General	Recommend hot water be recirculated directly behind all lavatories to ensure timely hot water with low flow faucets.					
130.	Plumbing	General	No natural gas indicated on plans					
131.	Plumbing	General	Exterior wall hydrants missing throughout					
132.	Plumbing	P2.01	Emergency shower/eyewash required in boiler room at water treatment – corrosives used					
133.	Plumbing	P2.02	Hot water expansion loops missing					
134.	Plumbing	P2.02	Suggest hot water recirc. loop with small elec heater for non-potable hot water system to Science classroom sinks.					
135.	Plumbing	General – Science rooms	No emergency shower-Eyewash stations seen in Science Classrooms.					
136.	Plumbing	P2.03	Toilet/Shower room 1310 - Recommend floor drain outside shower.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
137.	Plumbing	General	Roof drainage seems to be missing from most of the set. Is secondary roof drainage required?					
138.	Plumbing	P3.03	Floor drain required for water heater and backflow preventer.					
139.	Plumbing	P3.03 & P3.04	Emergency showers/eyewashes missing in Science classrooms					
140.	HVAC	GENERAL	Add key plan to all drawings					
141.	HVAC	M104	Suggest heat to be added in the mechanical pump house					
142.	HVAC	M104	Consider double doors into the pump house					
143.	HVAC	M104	Add floor drains to pump house					
144.	HVAC	M104	What is the makeup air for SEF-1 through SEF-4. Where is it shown?					
145.	HVAC	M103C M102B	Please indicate why two dampers are shown normally closed and one shown normally opened?					
146.	HVAC	M305	All motorized dampers shown on the rooftop unit airflow diagram are tagged normally opened. See note above.					
147.	HVAC	M305 M306	Chilled water flow diagram needs to be shown with air cooled chillers (2) and pump house on the roof. Coordinate these two diagrams please.					
148.	HVAC	Fire Protection Chapter 9 Smoke Control (909)	Provide document that shows the firefighters smoke control panel.					
149.	HVAC	Schematic Design HVAC Narrative Part O	The new BMS is indicated as proprietary by Advanced Energy Management Systems. Please confirm if correct.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
150.	HVAC	Narrative / M101A	Narrative outlines Boiler Plant in the Pump House. Drawings show Boilers in Boiler Room 101B.					
151.	HVAC	GENERAL	Are fire smoke dampers required in the duct leaving the shafts?					
152.	HVAC	M104	Is smoke or fire protection required in the Mechanical Penthouse?					
153.	HVAC	M104	Provide makeup water piping to the Penthouse					
154.	HVAC	M104	Review ventilation requirements for Pump House					
155.	HVAC	M104	How is Pump House installed on Roof? Is it on dunnage like the chillers?					
156.	HVAC	M104	Review internal and external powered convenience outlets for the Pump House.					
157.	HVAC	Fire Alarm Fire Protection	Include a fire alarm input/output matrix for the Smoke Control System.					
158.	HVAC	GENERAL	What discipline or drawing/specification identifies all the requirements for the fire alarm smoke control panel?					
159.	HVAC	GENERAL	What discipline is covering the scope of the special inspector testing consultant? Will this be in Division 1? Please refer to Section 909 Smoke Control.					
160.	Electrical	C-2.1, E-PH-1	Locations of the site lights don't match electrical site plan. Coordinate					
161.	Electrical	C-2.3, E003-1	Electrical manhole is not shown on the civil plan. Location of the power, communication and FA services are not coordinated.					
162.	Electrical	C-2.1, E003-1	Location of the electric car charging stations is not shown on the civil plan.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
163.	Electrical	C-2.1, E003-1	Locations of the site lights, security camera poles are not shown on the civil plan.					
164.	Electrical	C-2.1, E003-1	Generator set location is not shown on the civil plan. Coordinate. Show natural gas line to the generator.					
165.	Electrical	C-4.2, E003-2	Show location of the site lights, refer to electrical plan.					
166.	Electrical	E003-1, P0.02/4, C2.1	Wiring of the (2) acid neutralization tanks is not shown on the electrical plan					
167.	Electrical	C-7.4	Add a base detail for a site lighting pole. Coordinate with detail on dwg. E004					
168.	Electrical	A001	No info shown on the dwg.					
169.	Electrical	A101, A102	Location of a toilet room (at principle office) above main electrical room is not recommended					
170.	Electrical	E300, E301	Confirm the transformers (located remote from the primary side panels) will be with the primary side disconnect switches or lockable devices will be used per MEC 450.14					
171.	Electrical	E301, E302	Panel PP2B is power fed from panel MP1B. Panel MP1B shall be 400A bus/250A main breaker.					
172.	Electrical	E301, E302	Panel MP1B shall be 400A bus/250A main breaker. Is it single or double tub panel?					
173.	Electrical	260000.2.23A , E301	Per spec- 200kW diesel generator set, but per dwg.- 250kW natural gas generator set.					
174.	Electrical	E301	Is a generator set with a natural gas engine approved by local AHJ to support life safety loads?					

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175.	Electrical	260000.2.23K	Per spec- “load bank for indoor mounting adjacent to a generator in series with engine radiator”?? Clarify and revise type of housing if required.					
176.	Electrical	260000.2.23 M, E201A, E301	Show a manual transfer switch location and wiring for connection of roll-up generator set					
177.	Electrical	E302	Panel MP3C is fed from 75kVA transformer, it shall be 400A bus/250A main breaker					
178.	Electrical	E301, E302	Is panel 2DP1C power fed from T-6 or T-7 size transformer? Coordinate a schedule and one-line diagram.					
179.	Electrical	E301, TL111	TL dwg. requires 200A power feed to a dimmer rack and also an emergency power feed. Dwg. E301shall be revised accordingly.					
180.	Electrical	260000.2.14D	Main switchboard short circuit rating of 100kA is too high (add’l cost). Rating should not exceed 65kA.					
181.	Electrical	260000.2.14H and 2.17E, E301	Coordinate location of the utility metering CTs and PTs between the spec pars, revise a diagram accordingly.					
182.	Electrical	All plans	Add a key plan on each dwg.					
183.	Electrical	A102, E300	Rm. 2254 is not emergency electrical closet. Change a room name.					
184.	Electrical	FP1.01	FP service piping is shown in the main electrical room, it should be relocated.					
185.	Electrical	E401A	Show FP tamper and water flow switches in Rm.1023					
186.	Electrical	E401B, FP1.02	Show FP tamper and water flow switches, refer to FP plan					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
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187.	Electrical	E401C, FP1.03	Show FP tamper and water flow switches, refer to FP plan					
188.	Electrical	FP plans	Add building key plan on each dwg.					
189.	Electrical	E401D	Quantity of the FA speaker/strobes in Gym is not sufficient for 15dB above ambient noise. Consider high output and overhead mounted devices.					
190.	Electrical	260000 par.2.18Z	FA 1 watt output speakers are not sufficient for public areas such as Gym, atrium, etc.					
191.	Electrical	E402B E402C E403B E403C	Show FP tamper and water flow switches, refer to FP plans					
192.	Electrical	E202.A, FP2.01	Show location of the FP electric bell on electrical plan					
193.	Electrical	P2.01	Multiple piping runs in the main electrical room. Coordinate with electrical/ relocate					
194.	Electrical	E201A, M101A, A101A	Pumps P-1 and P-2 are located in custodian toilet rm.1016. Coordinate.					
195.	Electrical	E303, M301	Circuit breakers for the all RTUs 1 to 8 are oversized. Refer to mechanical schedule.					
196.	Electrical	E302, E303	Equipment schedule indicates all RTUs are wired from main switchboard MSB. MSB schedule does not reflect the same.					
197.	Electrical	E303, M301	Circuit breakers for the both chillers are oversized, 600Amp vs. 400Amp in M301 schedule.					
198.	Electrical	E302, E303	Equipment schedule indicates two chillers are wired from main switchboard MSB. MSB schedule does not reflect the same.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
199.	Electrical	E303, M301	Pumps P1 to P4 are 25HP on electrical plans, but they are not sized yet in schedule on M301. Coordinate.					
200.	Electrical	E204ABCD	Change roof plan number to E204, to be consistent with all other disciplines					
201.	Electrical	E204, M104, A104	Architectural roof plan does not match the engineering plans. Pump house is missing, the chillers location to be changed.					
202.	Electrical	E303, M301	There are (11) ductless cooling units in electrical schedule, and (7)- in mechanical schedule. No electrical data is shown in the mechanical schedule					
203.	Electrical	E303, M301	Exhaust and supply fans data is missing in the mechanical schedule, but electrical schedule on E303 includes the fans HP, voltage and wiring. Quantity is also different. Coordinate.					
204.	Electrical	260000.2.24, E204, E205	Drawings and spec show a different type of a lightning protection system. Coordinate					
205.	Electrical	E302, 260000.2.14 and 2.15	Note 1 for MSB and 4DP1B schedules allows the breakers be series rated. Spec does not state anything. Confirm design intent and coordinate.					
206.	Electrical	Electrical power plans, spec 12 24 14	Spec for motorized shades is included. No wiring is shown on electrical plans. Coordinate.					
207.	Electrical	E303, P0.01	Plumbing equipment schedule is missing on P0.01, although it is shown on E303 with HP, voltage and wiring data. Coordinate.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
208.	Electrical	E102B, A182B	Typical for all classrooms. Ceiling soffits on architectural and electrical plans are not matching. Verify length and installation of the LC3 fixtures					
209.	Electrical	E102B (typical for lighting plans)	Typical for all classrooms. Are (2) LC3 fixtures sufficient for classroom seating area illumination? Verify lighting calculations.					
210.	Electrical	E102D, GA005	Is auditorium lighting layout coordinated with the performance lighting pipes?					
211.	Electrical	A101D, GA001	Theatrical electrical room 1347 size and layout are not matching on these plans					
212.	Electrical	E300/6, GA111/1	Conflict in Room 1347 size and layout of the electrical and theatrical lighting control equipment					
213.	Electrical	260000.1.30, 230000.1.32	Electrical spec requires VFDs for fans/pumps be furnished and installed by Div.23. Mechanical spec requires the same be done by Div.26. VFD spec is not included in either Div.23 or Div.26 specs.					
214.	Electrical	260000.1.31	Par. refers to spec 012300 for Gym Walking Track alternate 3. Section 012300 is missing.					
215.	Security	E500	TS not called out under security system.					
216.	Security	General	Missing key plan for all sheets.					
217.	Security	501A	Floating door contacts.					
218.	Security	E501A	IC not called out on E500. Is AI meant to be IC?					
219.	Security	E501C	Door contact in wall in chair storage room 1164.					
220.	Security	E501D	Missing door hardware and card reader for AV room 1347.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
221.	Security	E502A	Motion detector should be moved out of closet 2017 into conference-lg 2016.					
222.	Security	E502B	Missing motion detector, door hardware and card reader at stair 2005.					
223.	Security	E502C	Missing card reader and door hardware at stair 2065.					
224.	Security	E503B	Missing motion detector at stair-2 3005.					
225.	Security	General	Door contacts at roof access hatches?					
226.	Security	E501A	Missing card reader and door hardware for head end room 1026.					
227.	Technology	General	Wall phone outlets in classrooms are not on the wall.					
228.	Technology	General	Speakers in classrooms are not in center of room.					
229.	Technology	General	Missing key plan for all sheets.					
230.	Technology	General	Head End Room is the MDF?					
231.	Technology	T101A	Missing annotation for tel/data outlet in main electric room 1024.					
232.	Technology	T101B	Consider adding second flush mounted ceiling speaker in media room 1240.					
233.	Technology	T102B	Missing speaker in stair 2005.					
234.	Technology	T102B	Missing speakers in SPED-Classrooms 2260 and 2264.					
235.	Technology	T102C	Missing “W” annotation for outlet next to clock in SPED-Reading room 2168B.					
236.	Technology	T102A	Missing hallway speakers.					
237.	Technology	T102B	Missing hallway speakers.					
238.	Technology	T102C	Missing hallway speakers.					
239.	Technology	T102C	Missing speaker in stair 2065.					

Item	Discipline	DWG/Spec	Design Development		60% Construction Documents		90% Construction Documents	
			OPM Comment	Designer Response	OPM Comment	Designer Response	OPM Comment	Designer Response
240.	Technology	T103B	Missing speaker in stair-2 3005.					
241.	Technology	T103C	Missing speaker in stair-1 3065.					
242.	AV Systems	General	Missing key plan for all sheets.					
243.	AV Systems	AV000	“BP” not called out under AV Junction Box Symbols.					
244.	AV Systems	AV101A	AV System in media room 1240?					
245.	AV Systems	AV102B	AV system in classroom next to classroom 2224?					
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Fuller Middle School

Constructability and Drawing Review Log

As of: **5/6/2019**

Revision:

ITEM #		DATE OPENED	DWG NO/DTL OR SPEC SECTION	DESCRIPTION	BIC	DATE RESOLVED	COMMENTS
GENERAL DRAWING REVIEW							
1		4/20/19	General	Provide column line plans			
2		4/20/19	General	Provide fireproofing plans to denote SOFP vs. intumscent			
3		4/20/19	General	Update all discipline sheets to include shaded locust map, similar to Architectural sheets			
4		4/20/19	General	Provide finished floor elevation plans vs. structural elevation (TOC) plans for coodination of gypcrete overlayment / finishes			
5		4/25/19	General	A540 & E-PH-1 were both included in the drawings but were not on the index. FP4.01, FP4.02, FP4.03 and FP4.04 were missing from the drawings but listed on the index.			
ARCHITECTURAL DRAWING REVIEW							
1		4/20/19	A100s, A410s	Wall types not indicated on floor plans			
2		4/20/19	A700	Add UL listings to partition types for 3rd party firestopping requirements			
3		4/20/19	A141A	Confirm flooring type in Learning Commons - drawings and finish schedule indicate VCT; JLA email on 4/12 lists polished concrete with porcelain alterante			
4		4/20/19	A141A	Confirm flooring type in Learning Commons - drawings and finish schedule indicate VCT; JLA email on 4/12 lists polished concrete with porcelain alterante			
5		4/20/19	A418 / FS100	Kitchen equipment layouts do not match; update, confirm with MEPs			
6		4/20/19	A104	Note indicates roof pavers, but no layout provided. PVC roof spec 075419 lists walkway pads, not pavers. Coordinate, confirm.			
7		4/20/19	A425	More specifc design information required for Auditorium clouds; what is suspension system? Dimensions? Etc.			
8		4/20/19	A103A	Confirm plumbing risers (C/L B4 for example) fit inside walls and avoid steel beams/braced frames.			
9		4/26/19	A221-A222	Confirm that all curtain wall openings will use preformed silicone strips to transition to surrounding AVB per spec, typ.			
10		4/26/19	A221	Confirm that double-story curtain wall intent - without any continuous vertical mullions, please clarify how dead and lateral loads will be transferred back to structure?			
11		4/26/19	A311-A320	Please provide additional information or details on the design intent for atypical façade transitions or elements - soffits, copings, canopies, screen walls, etc.			
12		4/26/19	A540	Please provide additional details for skylight intent, include whether the end walls will be glass or metal (or if just the upturned roof membrane)			
13		4/26/19	A741-744	Please provide additional details for typical sun-shade intent (even if referenced from a similar past project - e.g. Dearborn as a temporary placeholder)			
STRUCTURAL DRAWING REVIEW							
1		4/20/19	S101A, L1.3, C-4.1	Discrepancy on South retaining wall; structural and landscape call for unit masonry walls; Civil indicate concrete. Coordinate, confirm			
2		4/20/19	S100s	No posts shown on structurals for locker guardrail walls at coordiors; how are they supported? Detail section through Learning Commons.			
3		4/20/19	TE-111	Theatre rigging not shown; Indicates Division 5 steel, how attached to precast?			
4		4/20/19	S201	Steel hangers are shown at the pre-cast double-tees in the auditiorium; how are they attached?			
5		4/20/19		95% of roof is concrete on metal deck; did you consider continuing around skylights?			
6		4/20/19		Review underground Plumbing requirements with respect to rammed aggregate pier design			
7		4/20/19		Will relieving angles be required at slab edges for brick façade support?			
8		4/20/19	S101	Confirm SOG thickness at Learning Commons - 5" shown; 6" noted in JLA email 4/12; Suggest recessed SOG with topping slab for polished concrete finishing			
9		4/20/19	S100s	Suggest adding roof drain locations coordinated with Plumbing/Architectural to show any required supplemental framing			
10		4/20/19	S103A	Assume high roof has tapered insulation to roof drains? Only small area showing sloped steel			
11		4/20/19	General	Structural Plans should denote TOC elevations, especially for coordination with gypcrete overlayment FF elevations			
12	snapshot	5/1/19	S000	General Note No. 5 is open to speculation and will vary for pricing purposes by the file sub trades as it is not quantifiable.			

Fuller Middle School

Constructability and Drawing Review Log

As of: **5/6/2019**

Revision:

ITEM #		DATE OPENED	DWG NO/DTL OR SPEC SECTION	DESCRIPTION	BIC	DATE RESOLVED	COMMENTS
FIRE PROTECTION DRAWING REVIEW							
1		4/20/19	P5.01-5.04	Roof plans do not show roof drain locations			
2	snapshot	5/1/19	FP1.01	Check valve shown at incorrect elevation on 3D Model.			
3	snapshot	5/1/19	FP001	General Note 2 information needs to be shown on FP drawings in addition to Architectural drawings for quantities purposes.			
PLUMBING DRAWING REVIEW							
1		4/20/19	P5.01-5.04	Roof plans do not show roof drain locations			
2	snapshot	5/1/19	P0.01	General Notes reference plumbing drawings. Language should be reviewed. These notes will be ignored by the trade contractor at bid time.			
3	snapshot	5/1/19	P1.02	If wall mounted toilet carrier, wall should be at least 14" deep.			
4	snapshot	5/1/19	P5.04	No hose bibbs located on roof for maintenance purposes. It is suggested to have them strategically placed around equipment.			
5	snapshot	5/2/19	P1.02	Rain Leader riser is in conflict with shelving in the Academic Storage 1253.			
6	snapshot	5/2/19	P1.03	3" W. UP seems to be in conflict with millwork.			
7	snapshot	5/1/19	P2.01	No detail provided for valves (typical to all batrhrooms). They appear to be above ceilings. Important detail to know as it pertains to pre-fab options for carriers.			
HVAC DRAWING REVIEW							
1		4/20/19	M104	Indicates pre-fab HVAC Pump House; Not referenced on Architectural plans; Concrete pad required?			
2		4/20/19	General	HVAC plans do not show pipe sizing yet, are sizes on riser diagram accurate?			
3		4/20/19	M101A	Boiler Room equipment extends in Custodian Toilet Room; Coordinate vs. A101A			
4		4/20/19	M101C	No duct shown for Kiln equipment in Art Workroom 1233 (Col Line A6); Potential conflict between riser and floor layouts above, future PV Array on roof.			
5		4/20/19	M104	Does not show any venting for elevator hoistway			
6	snapshot	4/30/19	M102B	Duct riser is in conflict with stair and horizontal duct			
7	snapshot	5/1/19	M102B	In the model, this duct does not fit inside the ceiling cavity provided and is in conflict with all lightt fixtures and structural steel. This is typical on all levels.			
8	snapshot	5/1/19	M103C	Motorized damper seems to be inaccessible for service as shown on drawing.			
9	snapshot	5/1/19	M104	No structural steel reinforcement shown on structural steel drawings for rooftop equipment. Typical for all rooftop equipment.			
10	snapshot	5/1/19	M201C	Pipe dimensions. No dimensions shown on any HHWS & CHWS&R piping. Typical thoughout contract documents.			
11	snapshot	5/1/19	M201C	Drawing Note No. 5 is not quantifiable. EOR must determine all equipment that requires condensate pumps. This impacts the pipe fitters, electrical and plumbing trades.			
12	snapshot	5/1/19	M201C	Drawing Note No. 6 is not quantifiable. EOR must specify what rooms meet this requirement. This must be included in electrical drawings as well.			
13	snapshot	5/1/19	M202C	Condensate Drains: Most mini-split systems do not show condensate drain locations, travel distance, riser location or pipe size. All required for it to be quantifiable.			
14	snapshot	5/1/19	M203B	Continuation of condensate pipe and refrigeration pipe not shown. Needs to be quantifiable.			
15	snapshot	5/1/19	M101B	S.A. & R.A. Duct Risers in conflict with structure, ductwork and stairs.			
16	snapshot	5/1/19	M101B	Typical classroom displacement diffuser seems to be in conflict with smart board assembly.			
17	snapshot	5/1/19	M101C	What is the intent of this gap in the exterior loop. On some floors there is motorized damper at the end of the duct. Is this supposed to be a continuous loop as the shown for the interior loop? Needs clarification. Cannot pass thru elevator room.			
18	snapshot	5/2/19	M102C	Motorized damper could be in conflict with wall.			
ELECTRICAL DRAWING REVIEW							
1		4/20/19		Power/Lighting plans do not indicate connections to Auditorium seating for aisle lighting; Confirm not required / Review with Seating type			

JACOBS

Fuller Middle School Project
Design Development Cx Review Comments
Package Issue Date: April 12, 2019

Item	Initials	Reference	Comments	Action	Response
SPECIFICATIONS					
			DIVISION 01		
1	JAH	011000	Section 1.2.: Several spec sentences indicate a value by listing "**xxx**". Please review and add required values.	OPEN	Specs will be further refined for 100% DD Set
2	JAH	011000	Section 1.3.A.c: A reference is made to spec 018113. This spec did not appear to be included with the design package (ref. Vol. 1). Please review and reconcile.	OPEN	This section will be included in 100% DD Set
3	JAH	011000	Section 1.3.A.: LEED is indicated , however the level of LEED compliance did not appear to be indicated. Please review and reconcile.	OPEN	Will be defined in 100% DD Set
4	JAH	Div 1 specs	It is suggested that several Div. 1 specs, not currently listed in the TOC, should be added to the design package (ref. Vol. 1). As a minimum, suggest adding specs: 013100 Project Management and Coordination; 013300 Submittal Procedures; 017300 Execution; 017700 Closeout Procedures; 017836 Warranties; and 018113 Sustainable Design requirements. If contents of above-noted additions do not adequately cover Operation and Maintenance manuals and Training requirements, it is also suggested that specs for these be provided.	OPEN	Additional sections will be included in 100% DD Set
5	JRC	General Comment	Many spec sections reviewed has an incorrect section number for Part 3 - Execution. Many sections reviewed start with either 3.2 or 3.3. Suggest reviewing and correcting as required.	OPEN	Specs will be further refined for 100% DD Set
6	JRC	General Comment	Please define where requirements are for submitting shop drawings. These are not provided for in the volume 1 specification sections reviewed.	OPEN	Will be defined in 100% DD Set
			DIVISION 04		
7	JRC	04 20 00	Confirm if wetting brick based on IRA testing will be allowed	OPEN	For veneer layout it is not anticipated that wetting brick will be required as the specifications require an IRA of less than 30. Fully grouted brick areas at the base of the building are to be wetted prior to grout installation.
8	JRC	04 20 00-4	Special shapes - confirm number of shapes and confirm that cutting is not allowed.	OPEN	Special shapes are documented on sheet A501. Additional shapes may be added during CD's if warranted (stair towers). Bricks may be cut where required with approval of architect.
9	JRC	04 20 00-18	Consider using the proper term for masonry joints - Masonry Institute states that Brick Expansion Joints (BEJ) is the proper term for clay masonry products.	OPEN	JLA to review.
			DIVISION 07		
10	JRC	072100-2	Specification notes that the thickness of the insulation is as noted on the drawings. Please confirm that the designed system will provide minimum continuous R value as required by the energy code.	OPEN	The DD energy model is based on the R values indicated in the drawings. Glazed areas have been reduced significantly and mid level shading has been removed to satisfy value engineering requirements. The energy model will be re-run at 60% CD to confirm compliance with the energy code.
11	JRC	074254	Suggest that coordination guidelines for phenolic wall panels and intersection with other materials such as the aluminum curtainwall and the face brick construction be included in Part 3 - Execution, as they apply.	OPEN	This will be reviewed and provided in the 60% DD set. The design elevations are being finalized for DD based on value management requirements (the phenolic panels have been reduced significantly).
			DIVISION 08		
12	JRC	084313	Basis of design is the Kawneer Trifab 451UT system, Center glazed. Note that this does not match the system description of flush or outside glazed system. Please confirm intent. Please review drawing comments regarding integration of framing system with exterior wall materials.	OPEN	Storefront is intended for use in the interior vestibulels only. The exterior wall line will be curtain wall.
			DIVISION 22		
13	WGH	22 00 00	Section 2.28 Elevator Sump Pump: Consider specifying the required oil minder control panel's ancillary components	OPEN	Will comply.
14	WGH	22 00 00	Section 2.28 Elevator Sump Pump: Consider specifying the required oil minder control panel's ancillary components	OPEN	Will comply.
15	WGH	22 00 00	Section 2.28 Elevator Sump Pump: Consider integrating the control panel alarms with the building management system.	OPEN	Agree. Panel will be intergrated in BMS.
16	WGH	22 00 00	2.31 Acid Neutralization System: Consider integrating the control panel alarms with the building management system.	OPEN	Control panel alarm will be connected to BMS.
			DIVISION 23		
17	KML	23 00 00 TOC	Table of Contents does not indicate various spec sections (listed as single section "23 00 00 - HVAC"). Suggest updating TOC with specific sections.	OPEN	Will review and revise table of contents.
18	KML	23 00 00 Part 2.12.7.gg	Chiller controls section indicates "Optional" features. Included in this section is line item 1, which is BMS interface with BACnet or LonTalk. Please verify is this is an optional feature from the chiller manufacturer that is required for the project, or optional for the project. If optional for the project, consider making this a requirement for consolidate system monitoring and operation.	OPEN	This feature is an optional feature from the manufacturer. Will clarify specifications.
19	KML	23 00 00 Part 2.12	Chiller startup requirements call for two working days to ensure proper operation of equipment and owner training. Suggest including coordination with control contractor for integration with BMS during manufacturer's startup.	OPEN	Will review and revise start-up requirements to coordinate with controls contractor.

Item	Initials	Reference	Comments	Action	Response
20	KML	23 00 00 Part 2.13.B.2	Roof Top Air Handling Unit General Description calls for the units to be provided with "e. Modulating direct expansion cooling coil section" and "h. Chilled water cooling coil." Please confirm number of chilled water coils required and remove redundant items.	OPEN	Will review and remove redundant items.
21	KML	23 00 00 Part 2.13.E	Roof Top Air Handling Unit controls sections calls for "All sensors, actuators, controls shall be provided by the ATC/DDC controls subcontractor. AHU General Description section calls for units to be factory assembled and tested. Please verify if controls will be packaged with unit or field-installed custom controls and associated scope of the controls subcontractor.	OPEN	Will review and revise provisions of controls.
22	KML	23 00 00 Part 2.14	Hydronic Terminal Heating Units controls not specified for all types of equipment (devices, setpoints, integration with BMS, etc.). Suggesting noting if equipment is to be provided with packaged controls and no BMS interface.	OPEN	Will review to see if this is needed.
23	KML	23 00 00 Part 2.16	Power and Gravity Ventilators section does not indicate motor/drive integration with BMS. Consider including integration requirement for fans equipped with variable frequency drives (status, speed, alarms, etc.).	OPEN	Will review to see if this is needed.
24	KML	23 00 00 Part 2.24	Please confirm if Ductless Cooling Units will have any interface with the BMS (space temperature, unit status, alarms, etc.)	OPEN	Ductless cooling units will interface with BMS. We will review the specifications to ensure this is indicated.
25	KML	23 00 00 Part 3.14 & 3.15	Sections appear to be redundant ("Installation of HVAC Rooftop Units" vs. "Installation of Rooftop Air Handling Units")	OPEN	Will review and revise/remove redundant information.
26	KML	23 00 00	Sequence of operation not provided for all equipment and systems. To be reviewed once complete.	OPEN	Sequence of operations are underway.
			DIVISION 26		
27	JAH	260000	Section 1.2 C.: A reference is made to spec 012300. This spec did not appear to be included with the design package. Please review and reconcile	OPEN	Division 012300 is typically for alternates. We will review and edit as required.
28	JAH	260000	Section 1.3.B: Suggest adding text……"Provide all necessary coordination with other trades and the architect."	OPEN	Done
29	JAH	260000	Section 1.3.B.10: Suggest adding text…."Provide and coordinate required electrical manufacturer's site testing and installation verifications. Identify and coordinate any Factory testing and make provisions for necessary site personnel (e.g., maintenance personnel, client, Cx agent, and engineer of record) to attend FAT execution.	OPEN	Done
30	JAH	260000	Section 1.3.B.26: Suggest adding text…."Provide all necessary technical and material support for the commissioning of the project's electrical components and systems.	OPEN	Done
31	JAH	260000	Sections 1.3.B.25 & 1.7: A reference is made to spec 018113. This spec did not appear to be included with the design package. Please review and reconcile.	OPEN	We will review this reference and correct as required.
32	JAH	260000	Section 1.3.B.14: A reference is made to specs 116133, 116191, and 266111. These specs did not appear to be included with the design package. Please review and reconcile.	OPEN	We will review these references and correct as required.
33	JAH	260000	Section 1.8: A reference is made to spec 018111. This spec did not appear to be included with the design package. Please review and reconcile.	OPEN	We will review this reference and correct as required.
34	JAH	260000	Section 1.3. B. 30: Add line item indicating …"Work required for Lightning protection and building grounding, including grounding tests and lightning protection certification."	OPEN	Lightning preventor system has been added. The project will not have a lightning protection system.
35	JAH	260000	Section 1.3. B. 20: A reference is made to spec 0150003. This spec did not appear to be included with the design package. Please review and reconcile.	OPEN	We will review this reference and correct as required.
36	JAH	260000	Section 1.8: A reference is made to spec 013100. This spec did not appear to be included with the design package. Please review and reconcile.	OPEN	We wil review this reference and correct as required.
37	JAH	260000	Section 1.13: It is suggested "NETA, National Electrical Testing Association" be added to the list of Codes, Ordinances, and Permits	OPEN	Done
38	JAH	260000	Section 1.16. D. It is suggested to add a new item: ... "Electrical Contractor is responsible to provide and/or install the correct designated equipment, components, and materials. Submittal approval by the engineer does not relieve the contractor from any contractual requirement to provide a complete and fully working system."	OPEN	Done
39	JAH	260000	Section 1.15: A reference is made to spec 013300. This spec did not appear to be included with the design package. Please review and reconcile.	OPEN	We will review this reference and correct as required.
40	JAH	260000	Section 1.3 B: It is suggested to add a line item ... "Electrical Subcontractor shall conduct a light level review in the field to ensure luminaires and their footcandle readings are in accordance with project criteria and the IESNA."	OPEN	Done
41	JAH	260000	Section 1.19. A. : Division number to be provided.	OPEN	Division number will be coordinated and edited.

Item	Initials	Reference	Comments	Action	Response
42	JAH	260000	Section 1.20.C: Add text…."Provide and coordinate required electrical manufacturer's site testing and installation verifications. Site testing protocols shall be submitted by the applicable vendor PRIOR to commencement of site tests. All completed site testing is to be properly documented with test reports submitted as a Cx pre-requisite. Identify any Factory testing and make provisions for necessary site personnel (e.g., maintenance personnel, client, Cx agent, and engineer of record) to attend FAT execution.	OPEN	Done
43	JAH	260000	Section 1.20. D: At add item…."Provide all necessary technical and material support for the commissioning of the project's electrical components and systems. After establishing a general project schedule, add pertinent details of the commissioning workplan, incorporating necessary Cx predecessors, successors, and durations. Obtain/execute/submit all required documentation necessary for Cx to commence".	OPEN	Done
44	JAH	260000	Section 1.23: A reference is made to spec 017700. This spec did not appear to be included with the design package. Please review and reconcile.	OPEN	We will review this reference and correct as required.
45	JAH	260000	Section 2.24: Suggest label indicate "Lightning Protection System", ***not*** "Lightning Preventer System"	OPEN	A lightning protection system will not be provided. The project will include a lightning prevenetor system. No change necessary.
46	JAH	260000	Section 3.4: Add text or additional item: "Ensure that equipment nameplate include date of manufacture".	OPEN	Done
47	JAH	260000	Section 3.16.H.: Clarify/describe NFPA 110 testing requirements for the generator	OPEN	This is described in Part 2 of the specificaitons.
48	JAH	260000	Suggest that all control points/alarms that are to be indicated at the BMS system which are derived from the generator, generator annunciator, and ATS switches be identified.	OPEN	Done
49	JAH	260000	Section 3.16.H.: Add requirement and references for NFPA 3 & 4 testing (Integrated Life Safety tests)	OPEN	We will review these standards further before editing the specifications.
50	JAH	260000	Suggest that all control points/alarms that are to be indicated at the BMS system which are derived from the FACP be identified.	OPEN	This will be identified in the ATC control drawings point list if required.
51	JAH	260000	Add requirement for electrical subcontractor to provide "in process" panel schedule sheet while loads are being connected. Electrical subcontractor to review phase loading at panelboards at the end of work and prior to closeout to ensure balanced loading. Provide a final typed panel schedule at completion of work.	OPEN	Done
52	JAH	260000	Add requirement for Arc Flash study to provide required PPE/Arc Flash equipment ID labels	OPEN	Already included in 3.17, we will add to this section to provide more detail.
53	JAH	260000	Add requirement for "ring out" of all starters, controllers, circuits and sensors in coordination with BMS checkout to ensure all components properly connected and operable.	OPEN	Requirement will be added.
54	JAH	260000	It is suggested to add text to distribution gear nameplates (panels, switchboards, ATS units, etc.) to provide info of the gear/branch circuit that supplies it and/or which it powers. In addition, the distribution gear nameplates shall identify the year of their manufacture (required for future life cycle reviews)	OPEN	Done
55	JAH	260000	It is suggested to add text to the wiring device nameplates to include info of the panel/branch circuit that supplies it.	OPEN	Done
Drawings					
			Architectural		
56	JRC	A-104	As the documents continue through the CD phase please consider the layout of the roof drains, high and low points of the roof, as they relate to the roof skylights. The high point(s) and framing for the skylights will have an impact on the roof sill condition and the method of waterproofing / flashing, as well as the unusual connection at the ends of the skylights	OPEN	The major roof drainage strategy will be shown in the 100% DD set.
57	JRC	General Exterior Comment	As the documents continue through the CD phase please consider the number of differing plan and vertical details required due to specific material / Design considerations. Note that there are a number of air barrier details required for the maintenance of air, thermal and water separation, and proper detailing must support what appears to be a Rain Screen application with the phenolic panels. (Sheet A-501)	OPEN	JLA agrees with comment. The brick and phenolic panel systems are open joint systems.
58	JRC	General Exterior Comment	It is recognized that the Design Development sections noted are raw cut from the building model. As the documents continue through the CD phase please consider the need for integration and coordination of exterior elements and structural framing. In these cases tolerances of material and construction are often overlooked.	OPEN	JLA agrees with the comment.
59	JRC	A-211/A213	A number of elevations indicate phenolic panels with aluminum curtainwall on either or both sides. Consider how the connection is designed for maintaining the air barrier and how the glass panel may be removed in the event of breakage.	OPEN	The curtain wall utilizes a pressure plate which will facilitate any necessary glass replacement. The phenolic panels will not be set into the glazing pocket.
60	JRC	A-211/A212	A number of elevations indicate phenolic panels with face brick panels on either or both sides. Consider how the connection is designed for maintaining the air barrier.	OPEN	The AVB will always run continuous behind the systems. There will be no break or transiion in the AVB where the veneer material changes from brick to panel.

Item	Initials	Reference	Comments	Action	Response
61	JRC	A-211/A212	Brick panels, suggest study on BEJ (Brick Expansion Joint) and position of random pattern brick joints as well as masonry openings and their associated lintel design.	OPEN	Generally where the brick rises more than one story there will be a continuous relieving angle bracketed from the floor edge. Localized loose lintels will employed as necessary.
62	JRC	A-213	As the design continues - please consider the offset configuration of the sun shade framing indicated on several of the elevations. The curtainwall specified may not be able to achieve the offset positioning as have been indicated. Primary issue will be structural loading on the horizontal mullions as well as the potential interference with the specified weep designation for each glass panel.	OPEN	It is anticipated that the horizontal will be structural in this configuraion. Openings are being adjusted accordingly. This will maintain the integrity of the separate panels to allow for zone drainage. The current design is under review by manufacturers.
63	JRC	A-214	As the design continues - please consider the location of the horizontal masonry joint and its final location. Confirm that the expansion or contraction limits are maintained.	OPEN	Refer to item 61. The only locations where veneer will bear directly from foundation to roof are at the auditorium and gymnasium.
64	JRC	A-215 - A 217	Please see comments noted above as similar	OPEN	Refer to responses above.
65	JRC	A-311-A-320	The following comments apply generally to all wall sections. Please consider these as suggestions as the construction document phase continues.	OPEN	Refer to responses above.
66	JRC	A Series	Typical head and sill details at curtainwall - consider minimizing potential thermal bridging with structural slab.	OPEN	Thermal bridging will be considered.
67	JRC	A Series	Typical head and sill details at curtainwall - consider the method of flashing and how potential movement may impact it.	OPEN	Flashing and movement will be considered. As details develop JLA would be pleased to do a sit down review of BEx comments.
68	JRC	A Series	Typical brick details - the specifications call for special shapes. As the design continues note that the potential cost and detail consideration increases with the number of special shapes intended for the project.	OPEN	Specials will be detialed as required to meet the design intent.
69	JRC	A Series	Roof / parapet details - provide the masonry walls to expand, minimizing potential water infiltration	OPEN	Details will be provided for review.
70	JRC	A Series	Typical air barrier details - primarily at the intersection of differing materials. Allow for thermal expansion and movement.	OPEN	Details will be provided for review.
71	JRC	A Series	Glazing at offset panels - Standard frames as specified may not achieve the required thermal barrier and subject the framing to condensation, sections 2 and 3 on sheet A318	OPEN	JLA to reivew. The intent here is not clear to the reviewer due to incomplete drafting.
72	JRC	A Series	Exterior sun shade details - as they develop please consider the limitations on weight and wind loading that could contribute to the limits of the aluminum curtainwall system. In addition, the connections for the sun shades could impact thermal separation, (bridging), and failure of the air barrier cavity seals at the line of insulation.	OPEN	JLA understands comment.
73	JRC	A Series	Details for skylight will be reviewed with next package. Several items to consider are the thermal barrier between the framing and roof deck as well as the height of the skylight curb, primarily for winter snow depth and potential water infiltration.	OPEN	Skylight detials are under development. A section at the curb will be provided for review by the commisioning agent.
			Plumbing		
74	WGH	P0.02	Schematic H.W. Heater / Storage Tank Piping Detail 1 includes a hot water return recirculation pump connected to the BMS for the potable domestic hot water system. Non-Potable Water Heater Piping Detail includes a hot water return recirculation pump controlled by a (7) programmable time clock. Is this recirc pump and time clock connected to the BMS?	OPEN	Detail to be revised with circ pump connected to BMS.
75	WGH	P0.02	Detail 7 calls for an oil minder control panel. Does this control panel integrate with the BMS? The specified unit includes this option.	OPEN	Yes. Will connect panel to BMS.
76	WGH	P0.02	Detail 7 shows a single float switch. The specifications indicates a stainless steel probe. The specified unit includes additional floats and sensors. Cx suggest coordinating the detail and specifications.	OPEN	Agree Will coordinate and update detail.
			Mechanical		
77	KML	General	Drawing set does not include a symbol/abbreviation legend.	OPEN	Symbol/abbreviation legend is included on drawing M302.
78	KML	M Series	All terminal heating/cooling equipment locations not yet indicated. Several occupied spaces are not outfitted with ventilation or tempering.	OPEN	Terminal equipment locations will be indicated.
79	KML	M Series	Mechanical equipment nomenclature/tags not yet indicated.	OPEN	Equipment tags/nomenclature will be indicated.
80	KML	M101A	No exhaust indicated for Recycling/Trash Room 1014.	OPEN	Exhaust will be indicated.
81	KML	M101A	Kitchen makeup and exhaust air equipment and ductwork not indicated on mechanical floor plans.	OPEN	Kitchen make up and exhaust equipment and ductwork will be indicated.
82	KML	M101A	Enlarged Boiler Room Plan appears to indicate the boiler plant is not confined to the designated space (pumps and expansion tank shown in Custodian Toilet 1016.	OPEN	Boiler room plan has been updated.
83	KML	M101A-103D	Ductwork plans do not indicate supply/return designations.	OPEN	Ductwork plans will indicate supply/return designations.
84	KML	M101A-103D	Ductwork plans do not yet show duct routes and connections to all terminal units.	OPEN	Duct routes and connections to all terminal units will be indicated.
85	KML	M101A-103D	Ductwork plans do not indicate min/max airflow values utilized for basis of design and energy modeling.	OPEN	Ductwork plans will indicate max design airflow values for equipment. The VAV schedule will indicate minimum airflow values.
86	KML	M201A-203D	Mechanical piping plans do not indicate system or supply/return designations (CHWS/R, HHWS/R).	OPEN	Piping plans will be updated to indicate suppy/return designations.
87	KML	M201A-203D	Mechanical piping plans do not yet show supply and return CHW/HW piping and connections to all terminal units.	OPEN	Piping plans will be updated to indicate connections to terminal units.
88	KML	M201A-203D	Mechanical piping plans do not indicate min/max flow rates or differential pressures utilized for basis of design and energy modeling.	OPEN	Hydronic flow rates of equipment will be indicated in future submissions on the piping plans and schedules.

Item	Initials	Reference	Comments	Action	Response
89	KML	M201A-203D	Mechanical piping plans do not include roof level and connections to Rooftop Air Handling Units equipped with chilled water and heating hot water coils.	OPEN	Drawing M104 indicates both ductwork and piping layout at the roof level.
90	KML	M301	RTU schedule notes call for variable frequency drives for energy recovery wheels. Specifications call for fixed plate heat exchangers or enthalpy plate heat exchangers for energy recovery. Please verify what type of energy recovery, if any, is required.	OPEN	The basis of design rooftop units will be equipped with fixed plate heat exchangers. We will review and revise the RTU schedule notes.
91	KML	M301	Air-Cooled Liquid Chiller schedule notes call for 30% propylene glycol solution for heating hot water system freeze protection. Please verify if this note is applicable for the chilled water system or should be relocated.	OPEN	Schedule note has been updated to indicate chilled water.
92	KML	M301	Equipment schedules in development. To be further reviewed once complete.	OPEN	Equipment schedules will continue to develop.
93	KML	M Series	Roof Top Unit Detail/Layout not included. To be reviewed once complete.	OPEN	Make up air unit detail on drawing M304 will be updated to apply to all rooftop units.
94	KML	M Series	Control diagrams not provided for all equipment and systems. To be reviewed once complete.	OPEN	Control diagrams will be provided in future submissions.
95	KML	M Series	Because of the size of the building and the numerous systems, CxA suggest including single line flow diagrams for the mechanical systems including: heating hot water piping systems, chilled water piping systems, condensate piping, and air distribution systems.	OPEN	Drawing M305 includes flow diagrams for ductwork, heating hot water and chilled water piping systems.
			Electrical		
96	JAH	E001	Suggest modifying "Electrical Symbols " with respect to raceways and panels data - a similar symbol is used for both.	OPEN	Ok
97	JAH	E-PH-1	Drawing is not listed on drawing table of contents. In addition, if drawing is to be utilized with or is to complement drawing E003-1, there should be a note or reference between the two.	OPEN	This is an early bid package not to be issued with final set.
98	JAH	E-PH-1 & E002	Drawing E-PH-1 lists two fixtures that do not appear on the lighting fixture drawing (E002) - namely, SL1A & SL2. If these fixture types are correct, and all lighting fixture info is to be found on E002, these fixtures should be added to drawing E002. If incorrect, remove/correct the fixtures on drawing E-PH-1.	OPEN	E-PH-1 is an early bid package not to be issued with the final set.
99	JAH	E-PH-1	Add circuit info for the lights as design is finalized	OPEN	This has been completed.
100	JAH	E002	Complete lighting fixture table . Of the dozen or so fixtures utilized on the lighting drawings, the "mgr. column" (2nd from right) and the "schedule column" (farthest right column) do not contain all required references. Also, for many fixtures, a single alpha character is designated for a manufacturer, however, this is at variance with the fixture manufacturer chart.	OPEN	This will be completed as the drawings develop.
101	JAH	E002	The drawing indicates lighting fixture schedule notes. However, they appear to be a mixed set - some Notes are applicable for ALL fixtures yet some are only applicable to just a few fixtures. Please clarify general from specific notes or ADD notes that apply to all utilized fixtures in the appropriate fixture schedule column.	OPEN	This will be completed as the drawings develop.
102	JAH	E002	Drawing title & contents focus on lighting and lighting fixtures. It is recommended that the ELECTRICAL GENERAL NOTES be moved to a separate drawing.	OPEN	Ok
103	JAH	E003-1	Add circuit info for the lights as design is finalized	OPEN	Ok
104	JAH	E003-2	Add circuit info for the lights as design is finalized	OPEN	Ok
105	JAH	E002-E005 (typ)	Suggest removing north arrow from non-plan drawings	OPEN	Will remove.
106	JAH	E101A (typical for all power and lighting plan drawings)	Instead of just showing a north arrow, it is suggested to show a keyplan for these drawings (would apply to mechanical and plumbing drawings, as well).	OPEN	Ok
107	JAH	E101A (typical for all power and lighting plan drawings)	Add circuit info for all equipment/lights as design progresses.	OPEN	Ok
108	JAH	E201A (typical for all power plan drawings)	Identify all components	OPEN	Ok
109	JAH	E204ABCD	Note 1 indicates a lightning protection system is shown but drawing does not provide this. Review and reconcile.	OPEN	We will revise to what will be a lightning preventor system.
110	JAH	E300	Suggest indicating code/manufacturer clearance for electrical equipment on drawing.	OPEN	Will add to the drawings.
111	JAH	E301	ATS-OC connection to panel EHP3C is not indicated at ATS end. Please add info.	OPEN	Will correct.
112	JAH	E301	Load Bank not indicated at generator. Please add info.	OPEN	Ok
113	JAH	E301	MSB connections to panels LP3C, MHP3C, LP3B and at transformers for panels MP3B and MP3C are not indicated at MSB end. Please add info.	OPEN	Ok
114	JAH	E301	There is an emergency LS panel installed on floors 1 and 2 - suggest adding a similar panel at floor 2	OPEN	Will review to see if this is needed.
115	JAH	E301 and E302	Panel schedule lists panel 4DP1B - Riser does not. Add panel to riser or remove from schedule? Please reconcile.	OPEN	Will correct.
116	JAH	E301 and E302	Verify Main switchboard ID - MSB or MSB-1 ?	OPEN	MSB, this will be corrected.
117	JAH	E302 +	Need to add several more panel schedules to detail all the panels shown on riser (add add'l drawings, as required).	OPEN	Will be added as the drawings progress.
118	JAH	E302+	Complete panel schedules with circuit numbers, AIC rating, and MLO/MCB indication (add add'l drawings, as required).	OPEN	Will be completed as the drawings progress.
119	JAH	E304	Det. 12: Please verify is AHJ requires generator to have local EPO	OPEN	This is a code requirement, we will review with AHJ.

Item	Initials	Reference	Comments	Action	Response
120	JAH	E304	Det. 12: Provide connection detail to load bank at generator	OPEN	Will add to the drawings.
121	JAH	E305	Suggest Automated Lighting Control one-line be presented on a separate drawing for clarity and ease of review	OPEN	Ok
122	JAH	E400	Suggest Smoke Seq of OPs and fire alarm matrix be moved to a separate drawing for clarity and ease of review	OPEN	Ok
123	JAH	E401A (typical for all FA plan drawings)	Instead of just showing a north arrow, it is suggested to show a keyplan for these drawings (would apply to mechanical and plumbing drawings, as well).	OPEN	Ok

6A.3.1

SMMA

Project Management

Memorandum

To:	Fuller Middle School Building Committee	Date:	6/3/2019
From:	Joel G. Seeley	Project No.:	17050
Project:	New Fuller Middle School		
Re:	Proprietary Specification		
Distribution:	School Building Committee (MF)		

School Building Committee Members,

Please find the updated listing of Proprietary Specifications, dated May 22, 2019, recommended to be included in the project by Framingham Public Schools Building and Grounds Department. These have been reviewed by the architect and the engineers and they agree with the recommendation. This is an update of the list reviewed at the April 8, 2019 School Building Committee Meeting.

Also attached is an excerpt from the MSBA's Detailed Design Requirements Module 6, which requires a vote by an elected body of the District for proprietary specifications.

The School Building Committee is requested to approve the attached recommended listing of Proprietary Specifications and recommend approval by the School Committee.

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Cambridge, MA 02138
617.547.5400

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MEMORANDUM

DATE: March 15, 2019, *Revised March 21, 2019, Revised April 8, 2019, Revised May 22, 2019*

PROJECT: Fuller Middle School Framingham, MA
SUBJECT: Proprietary Items

TO: Joel Seeley, SMMA
FROM: Elizabeth Bugbee, AIA Jonathan Levi Architects

On February 20, 2019 the Framingham Public Schools Building and Grounds Department identified and recommended the following items to be listed as proprietary in the specifications for the new Fuller School. These items were reviewed with the architect and MEP engineers, who agree with the recommendations. These will need to be voted on and approved by the SBC in order to be included in the specification for the new Fuller Middle School.

SYSTEM	MANUFACTURER	REASON FOR RECOMMENDATION
Automatic Temperature Controls	Tridium Niagra N4 Supervisor - JACE Controller	Tridium Niagara N4/Supervisor is the current City standard for the Building Management System (BMS). This would be an extension of the City's existing building management Architecture system with Tridium Niagara N4/JACE controllers and will provide a seamless tie-in to the existing City's building management system BMS Server. The Tridium Niagara N4/Jace would therefore result in the reduction of costs of maintenance staff training and servicing, to improve reliability of service from contractors, and improve integration of systems into the existing Facility control network. The Tridium Niagara N4 Supervisor system provides an open platform to allow integration of a variety of other control system protocols with JACE Controller (eg BACNet IP, etc.)
Network Switches	HP	Maintaining a standard set of manufacturers for this type of equipment helps to lower the total cost of ownership of the system by allowing the City to maintain a standard operating procedure for installation, operation, support and maintenance.
Access Control	S2	Maintaining a standard set of manufacturers for this type of equipment helps to lower the total cost of ownership of the system by allowing the City to maintain a standard operating procedure for installation, operation, support and maintenance.
Closed Circuit TV	Cisco Meraki System	Maintaining a standard set of manufacturers for this type of equipment helps to lower the total cost of ownership of the system by allowing the City to maintain a standard operating procedure for installation, operation, support and maintenance.
Door Hardware Key System and Lock Cylinders	Schlage Classic Keyways: C, E, EF and F.	The existing Framingham Public Schools master key system is a registered system with Schlage Lock. The school district would like Fuller Middle School keyed into the existing registered master key system.
Classroom Door Hardware	Securitech QID	Allows user to quickly lock classroom door via push button in lieu of thumb turn or key and has visual indicator to notify occupants that the door is deadbolted and the outside lever is locked.

- Provide a list identifying all proposed proprietary items (if any)with an affidavit which shall indicate an elected body of the district (school committee, city or town council, or selectmen, - but not an 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 is in the public interest to do so. Provide MSBA with a certified copy of the vote of the elected body.
- An 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
- Confirmation of project registration with CHPS or USGBC
- Structural narrative including methods of lateral bracing and how requirements of earthquake code will be met
- Structural calculations and required floor loads
- Energy 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 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
    - 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

Proposed Space Summary - Middle Schools

= Change from MSBA Template over 5%

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Date: 6/21/2019 Design Development Submittal

FULLER Middle School 630 Students Grades 6-8	Existing Conditions			Schematic Design			Design Development 5/17/19			Design Development MSBA Comment Response 6/21/19			MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			**31,685**			**36,000**			**35,600**			**35,600**			**29,580**	
(List classrooms of different sizes separately)																
Classroom - General	775	20	15,500	900	21	18,900	885	21	18,585	885	21	18,585	950	22	20,900	850 SF min - 950 SF max, includes closet
ELL Classrooms	675	9	6,075	900	6	5,400	885	6	5,310	885	6	5,310				includes closet
Teacher Planning	0	0	0	90	15	1,350	95	15	1,425	95	15	1,425				Shared between classrooms
Classroom Breakout	0	0	0	290	7	2,030	290	7	2,030	290	7	2,030				Shared between classrooms. Includes SPED use
Small Group Seminar (20-30 seats) / Resource	0	0	0	400	1	400	405	1	405	405	1	405	500	2	1,000	Professional Development/ Itinerant / Workspace. Some uses served in Admin "Teachers Work Rooms"
Science Classroom / Lab	915	10	9,150	1,195	6	7,170	1,180	6	7,080	1,180	6	7,080	1,200	6	7,200	
Prep Room	240	4	960	80	6	480	80	6	480	80	6	480	80	6	480	
Science Teacher Planning	0	0	0	90	3	270	95	3	285	95	3	285				Shared between classrooms
SPECIAL EDUCATION			**10,875**			**9,150**			**9,075**			**9,075**			**7,550**	
(List classrooms of different sizes separately)																
Self-Contained SPED	930	5	4,650	900	6	5,400	885	6	5,310	885	6	5,310	950	5	4,750	To be revised to SD figures in next submission
SPED Teacher Planning	0	0	0	90	3	270	95	3	285	95	3	285				To be revised to SD figures in next submission
SPED Classroom Breakout	620	7	4,340	300	2	600	300	2	600	300	2	600				Shared between classrooms. SPED use also in Gen Classroom Breakout
Self-Contained SPED Toilet	0	0	0	95	3	285	95	3	285	95	3	285	60	5	300	For medically fragile students
Resource Room	935	1	935	520	3	1,560	520	3	1,560	520	3	1,560	500	3	1,500	Should be divisible
Small Group Room / Reading	0	0	0	345	3	1,035	345	3	1,035	345	3	1,035	500	2	1,000	Allows division into 2 smaller spaces
SPED Office w/Storage	190	5	950	0	0	0	0	0	0	0	0	0				
ART & MUSIC			**5,620**			**3,675**			**3,640**			**3,640**			**3,250**	
Art Classroom	600	2	1,200	1,185	1	1,185	1,175	1	1,175	1,175	1	1,175	1,200	1	1,200	assumed use - 50% population 2 times / week
Art Workroom w/ Storage & kiln	0	0	0	150	1	150	80	2	160	80	2	160	150	1	150	separated kiln room
Band / Chorus - 100 seats	2,120	2	4,240	970	2	1,940	950	2	1,900	950	2	1,900	1,500	1	1,500	For 70 students, Includes Teacher Planning space and music storage
Music Practice / Ensemble	60	3	180	200	2	400	135	3	405	135	3	405	200	2	400	includes additional, larger ensemble space
VOCATIONS & TECHNOLOGY			**3,350**			**3,170**			**3,185**			**3,185**			**6,400**	Distributed V&T in Cohort Commons
Tech Clrm. - (E.G. Drafting, Business)	1,660	1	1,660	950	0	0	950	0	0	950	0	0	1,200	2	2,400	Functions to be served in Fab Lab
Tech Shop - (E.G. Consumer, Wood)	1,690	1	1,690	1,980	1	1,980	1,960	1	1,960	1,960	1	1,960	2,000	2	4,000	Assumed use - 25% Population - 5 times/week
Fab Lab	0	0	0	1,190	1	1,190	1,225	1	1,225	1,225	1	1,225				Includes closed off area for 3D printers area closer to MSBA Tech classroom standard
HEALTH & PHYSICAL EDUCATION			**24,265**			**9,985**			**9,795**			**9,795**			**8,400**	
Gymnasium	9,680	1	9,680	8,300	1	8,300	8,265	1	8,265	8,265	1	8,265	6,000	1	6,000	Gym enlarged to fit 2 MS BB Courts
Gym Storeroom	260	2	520	300	1	300	315	1	315	315	1	315	150	1	150	
Health Instructor's Office w/ Shower & Toilet	685	3	2,055	150	2	300	150	2	300	150	2	300	250	1	250	PE instructor - no shower or toilet
Locker Rooms - Boys / Girls w/ Toilets	3,500	2	7,000	500	2	1,000	415	2	830	415	2	830	1,000	2	2,000	3 toilets, no shower, 40 lockers
Unisex Toilet / Shower	140	1	140	85	1	85	85	1	85	85	1	85				Include 4 lockers
Fitness Center	4,870	1	4,870													
MEDIA CENTER			**3,720**			**6,280**			**6,250**			**6,250**			**4,003**	
Media Center / Reading Room	3,720	1	3,720	1,990	1	1,990	1,990	1	1,990	1,990	1	1,990	4,003	1	4,003	
Cohort Commons	0	0	0	1,430	3	4,290	1,420	3	4,260	1,420	3	4,260				Distributed Media Center and Vocations and Technology functions
DINING & FOOD SERVICE			**13,740**			**8,960**			**8,690**			**8,840**			**8,922**	
Cafetorium / Dining	8,570	1	8,570	4,725	1	4,725	4,725	1	4,725	4,725	1	4,725	4,725	1	4,725	2 seatings - 1SSF per seat
Stage	0	0	0	1,590	1	1,590	1,510	1	1,510	1,510	1	1,510	1,600	1	1,600	
Chair / Table / Equipment Storage	440	1	440	430	1	430	270	1	270	420	1	420	410	1	410	Area shared with additional custodial storage
Kitchen	3,485	1	3,485	1,915	1	1,915	1,820	1	1,820	1,820	1	1,820	1,930	1	1,930	1600 SF for first 300 + 1 SF/student Add'l, includes Dry Storage, Office, Toilet, Scramble
Staff Lunch Room	1,245	1	1,245	300	1	300	365	1	365	365	1	365	258	1	258	Allows teacher collaboration
MEDICAL			**1,560**			**610**			**620**			**620**			**610**	
Medical Suite Toilet	50	3	150	60	1	60	60	1	60	60	1	60	60	1	60	
Nurses' Office / Waiting Room	930	1	930	250	1	250	260	1	260	260	1	260	250	1	250	includes interview room/ closet/ kitchenette
Examination Room / Resting	160	3	480	100	3	300	100	3	300	100	3	300	100	3	300	
ADMINISTRATION & GUIDANCE			**4,600**			**5,250**			**5,245**			**5,245**			**3,430**	
General Office / Waiting Room / Toilet	1,540	1	1,540	425	1	425	445	1	445	445	1	445	415	1	415	
Teachers' Mail and Time Room	100	1	100	95	1	95	100	1	100	100	1	100	100	1	100	
Duplicating Room	130	1	130	200	1	200	200	1	200	200	1	200	200	1	200	
Records Room	90	1	90	200	1	200	210	1	210	210	1	210	200	1	200	
Principal's Office w/ Conference Area	560	1	560	375	1	375	480	1	480	480	1	480	375	1	375	includes toilet
Principal's Secretary / Waiting	80	1	80	125	1	125	130	1	130	130	1	130	125	1	125	
Assistant Principal's Office - AP1	110	1	110	150	1	150	150	1	150	150	1	150	150	1	150	
Assistant Principal's Office - AP2	0	0	0	150	0	0	150	0	0	150	0	0	150	1	150	
Supervisory / Spare Office	170	1	170	150	1	150	145	1	145	145	1	145	150	1	150	
Conference Room	310	1	310	350	1	350	365	1	365	365	1	365	350	1	350	includes closet
Small Conference Room	0	0	0	210	1	210	205	1	205	205	1	205				For parent meetings
Guidance Office (Student Support)	170	8	1,360	150	6	900	150	6	900	150	6	900	150	4	600	Distributed 2 per cohort
Guidance Waiting Room W/ Sto Closet	0	0	0	75	3	225	75	3	225	75	3	225	100	1	100	Distributed 1 per cohort
Guidance Storeroom	60	1	60	15	3	45	15	3	45	15	3	45	50	1	50	Distributed 1 per cohort

Proposed Space Summary - Middle Schools

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ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
Teachers' Work Room			0	300	3	900	200	3	600	200	3	600	465	1	465	Distributed 1 per cohort. Serves uses of removed Small Seminar Rooms
Dept Head / Coach offices	90	1	90	150	6	900	150	6	900	150	6	900				Distributed 2 per cohort
Office / Conference Room							145	1	145	145	1	145				Allows for shared collaboration space
CUSTODIAL & MAINTENANCE			**3,515**			**2,140**			**2,630**			**2,480**			**2,105**	
Custodian's Office	100	1	100	165	1	165	385	1	385	385	1	385	150	1	150	includes custodial staff break area/ lockers, toilet area
Custodian's Workshop	250	1	250	250	1	250	250	1	250	250	1	250	250	1	250	
Custodian's Storage	105	9	945	130	3	390	105	4	420	90	3	270	375	1	375	
Recycling Room / Trash	0	0	0	400	1	400	395	1	395	395	1	395	400	1	400	
Receiving and General Supply	220	1	220	310	1	310	310	1	310	310	1	310	310	1	310	
Storeroom	1,240	1	1,240	145	3	435	120	3	360	120	3	360	420	1	420	alternates with Academic Storage
Network / Telecom Room	380	2	760	190	1	190	200	1	200	200	1	200	200	1	200	Includes head end and IDF rooms
Outdoor Equipment Storage							310	1	310	310	1	310				outdoor equipment storage
OTHER			**27,670**			**6,700**			**6,755**			**6,755**			**0**	
Other *(specify)*																
Adult ESL Offices	2,370	1	2,370	0	0	0	0	0		0	0					
City Offices, (PIC, Bldg& Grounds, BOH)	17,300	1	17,300													
Auditorium	5,400	1	5,400	4,200	1	4,200	4,405	1	4,405	4,405	1	4,405				
Stage	1,900	1	1,900	1,600	1	1,600	1,590	1	1,590	1,590	1	1,590				
Auditorium Storage	160	1	160	400	1	400	120	3	360	120	3	360				includes AV rooms
Dressing Rooms	270	2	540	250	2	500	200	2	400	200	2	400				Drama Classroom used as green room
Total Building Net Floor Area (NFA)			**130,600**			**91,920**			**91,485**			**91,485**			**74,250**	
Proposed Student Capacity / Enrollment															**630**	
NON-PROGRAMMED SPACES					% of GFA	**44,870**		% of GFA	**45,275**		% of GFA	**45,275**				
Other Occupied Rooms (list separately)					0%			0%			0%					Non-Programmed space areas are
					0%			0%			0%					required to be included in the
					0%			0%			0%					following submittals:
					0%			0%			0%					Schematic Design Submittal
Unoccupied MEP/FP Spaces					1%	1,685		1%	1,415		1%	1,415				Design Development Submittal
Unoccupied Closets, Supply Rooms & Storage Rooms					0%	235		0%	280		0%	280				60% Construction Documents
Toilet Rooms					3%	3,560		2%	3,325		2%	3,325				90% Construction Documents
Circulation (corridors, stairs, ramps & elevators)					25%	34,175		19%	25,970		19%	25,970				Final Construction Documents
Remaining[3]					4%	**5,215**		10%	**14,285**		10%	**14,285**				
Total Building Gross Floor Area (GFA)[2]			195,900			**136,790**			**136,760**			**136,760**			**107,280**	
Grossing factor (GFA/NFA)			**1.50**			**1.49**			**1.49**			**1.49**			**1.44**	

[1] **Individual Room Net Floor Area (NFA)** Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

[2] **Total Building Gross Floor Area (GFA)** Includes the entire building gross square footage measured from the outside face of exterior walls

[3] **Remaining** Includes exterior walls, interior partitions, chases, and other areas not listed above. Do not calculate this area, it is assumed to equal the difference between the Total Building Gross Floor Area and area not accounted for above.

Architect Certification

I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: Jonathan Levi Architects

Name of Principal Architect: Jonathan Levi

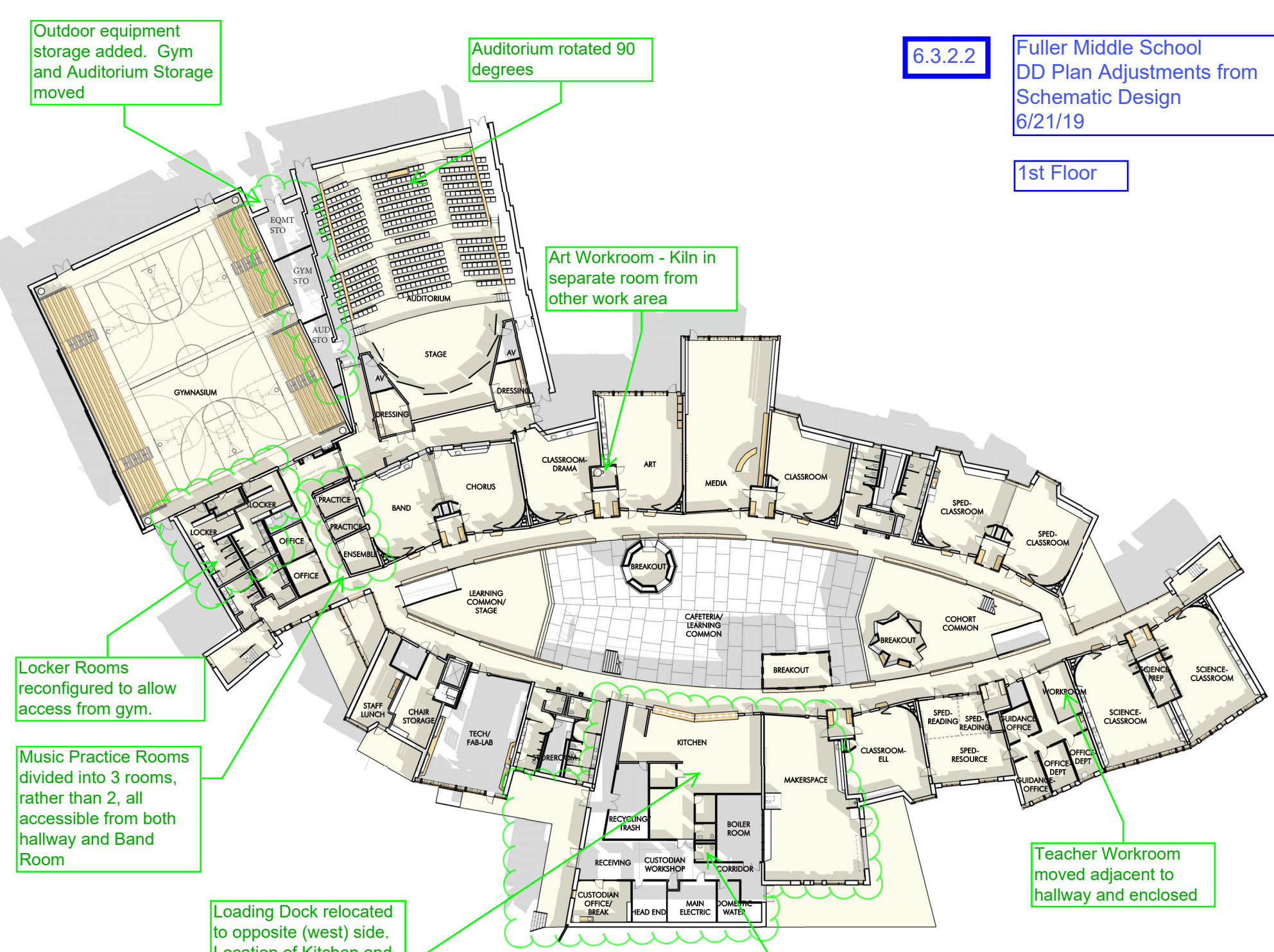
Signature of Principal Architect:

Date: 6/17/2019

6.3.2.2

Fuller Middle School
DD Plan Adjustments from Schematic Design
6/21/19

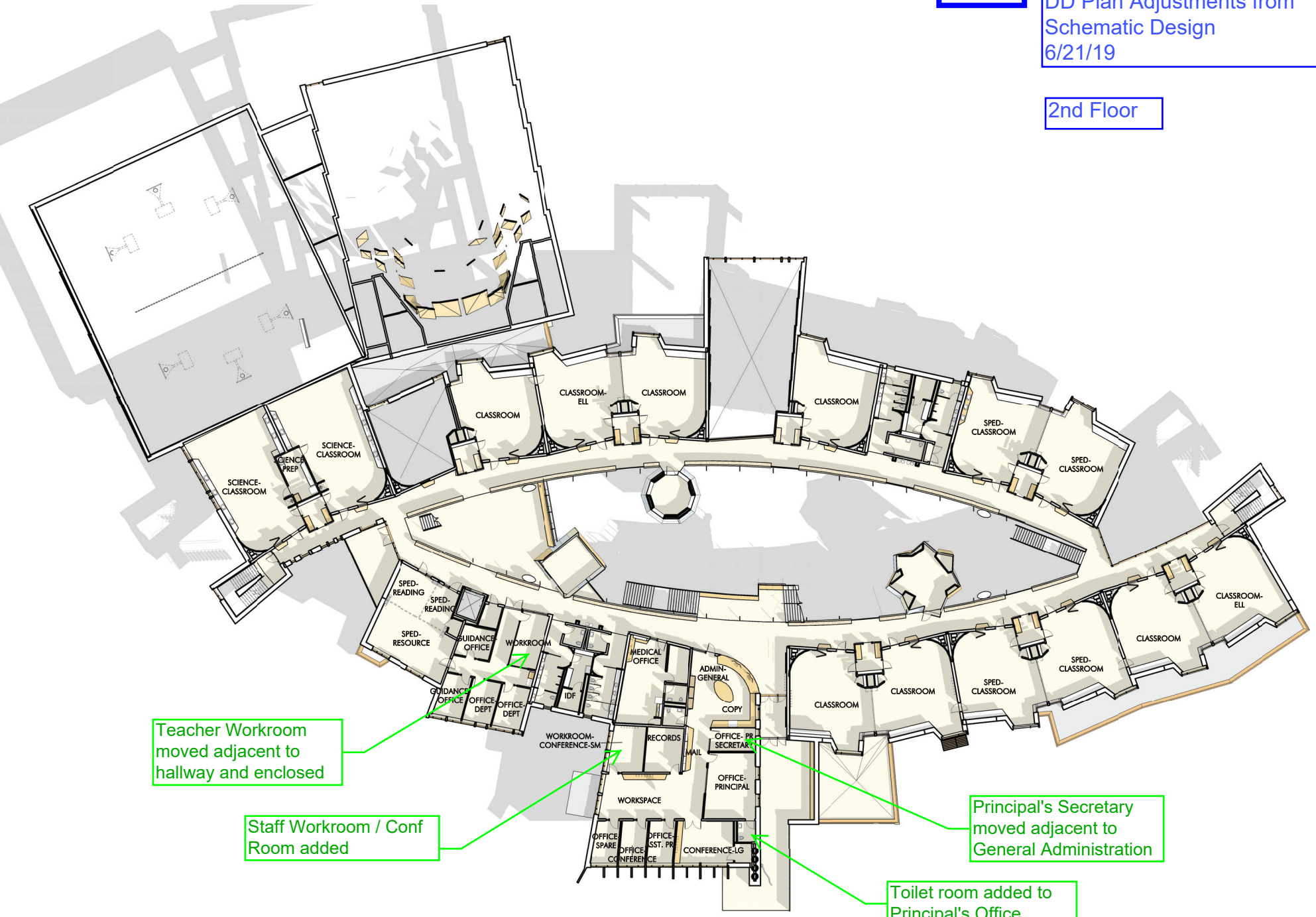
1st Floor



6.3.2.2

Fuller Middle School
DD Plan Adjustments from Schematic Design
6/21/19

2nd Floor



Teacher Workroom moved adjacent to hallway and enclosed

Staff Workroom / Conf Room added

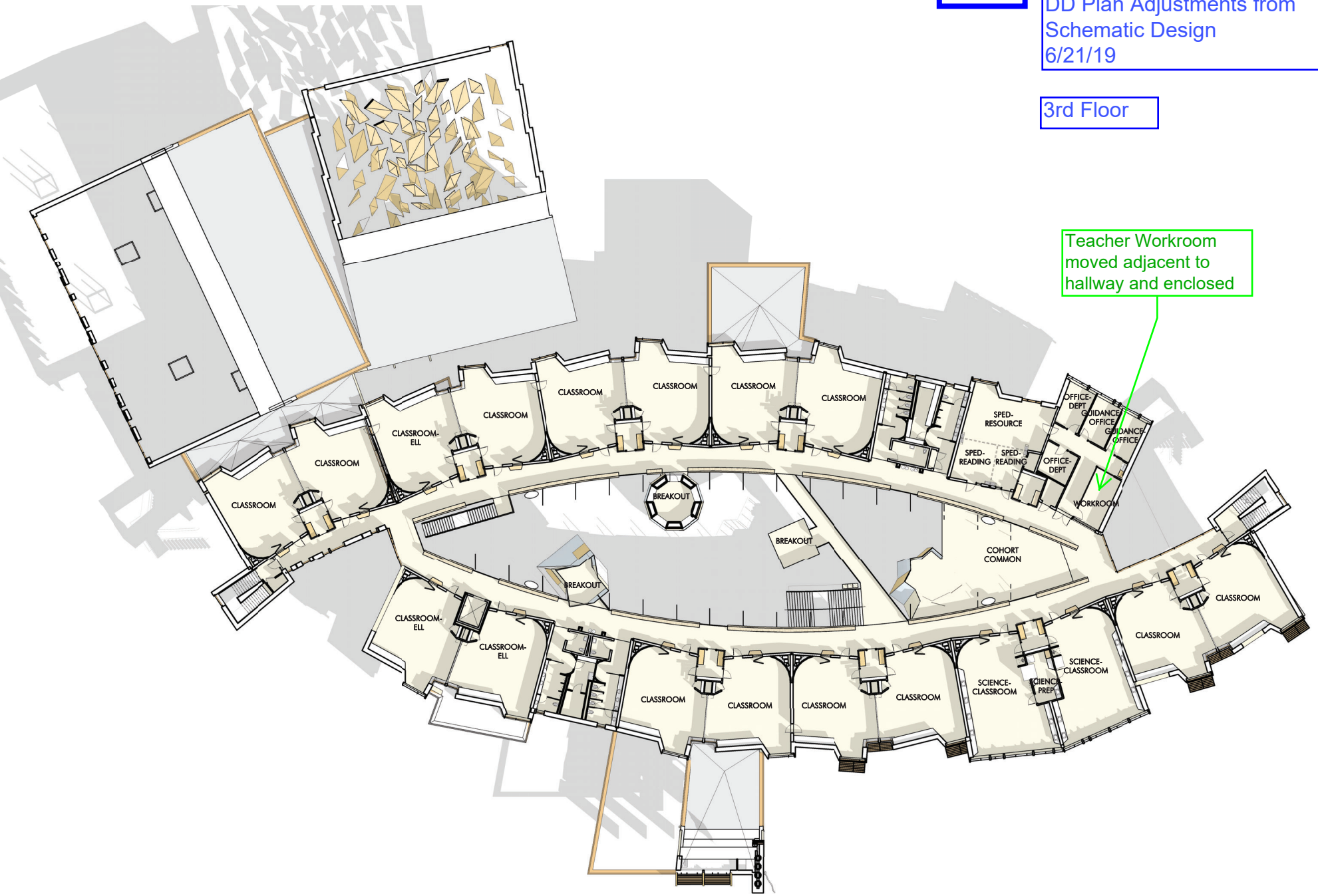
Principal's Secretary moved adjacent to General Administration

Toilet room added to Principal's Office

6.3.2.2

Fuller Middle School
DD Plan Adjustments from Schematic Design
6/21/19

3rd Floor



6.3.3

CITY OF FRAMINGHAM
DEPARTMENT OF PUBLIC WORKS
FRAMINGHAM, MASSACHUSETTS 01702

"Dedicated to Excellence in Public Service"

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EXECUTIVE DIRECTOR | FDPW
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DIANE M. CONNER
ASSISTANT DIRECTOR | FDPW

April 30, 2019

Ms. Amanda Loomis
Framingham Planning Board
Memorial Building Room 205
150 Concord Street
Framingham, MA 01702

Re: Fuller Middle School – 31 Flagg Drive, Framingham

Dear Ms. Loomis,

The Department of Public Works (DPW) is in receipt of submittals for the above referenced project. It should be noted that the DPW and the School Department have met on multiple occasions to review and discuss this project. These meetings have been beneficial and the School Department has addressed DPW issues. Therefore the comments below should be taken in context for the deliverables as submitted to the Planning Board and Conservation Commission and provided to DPW. We anticipate that many of these comments have already been addressed. Nonetheless, based on that context, we have reviewed said submittal, and subsequently offer the following observations:

GENERAL:

1. All work should be inspected by a DPW Utility Inspector. To schedule a pre-construction meeting, contact the Engineering Division at (508) 532-6022 or (508) 532-6010 forty-eight hours prior to the start of work.
2. All site drainage, water, and sewer work outside the building footprint shall be performed by a licensed Framingham Drain layer.
3. Any proposed surface openings and excavation work within the City right-of-way limits will require a Street Opening Permit (SOP) with the work conducted under said permit being performed in compliance with the City of Framingham SOP Policy.
4. A Trench Opening Permit (TOP) shall be obtained prior to the excavation of any trench. A trench is defined under MGL 82A and 520 CMR 14.00 as any excavation greater than 3' in depth and less than 15' between soil walls as measured from the bottom.
5. All proposed work shall comply with City of Framingham DPW construction standards. City of Framingham construction standards are available on the City of Framingham website.

ROADWAY:

1. The applicant should review MassDOT minimum warrants for the proposed school zone.
2. The proposed school zone needs to be reviewed and approved by the City of Framingham Traffic Commission.

DRAINAGE:

1. DPW recommends the applicant to design the stormwater system to meet the requirements of the EPA MS4 General Permit issued to the City.
2. The "Rules & Regulations Governing the Subdivision of Land in Framingham", amended April 3, 2017, states "The specified design storms shall be defined as a 24-hour storm using the rainfall distribution recommended by the National Oceanic and Atmospheric Administration (NOAA) Atlas 14, as amended, or the Northeast

Regional Climate Center (NRCC) "Atlas of Precipitation Extremes for the Northeastern United States and Southeastern Canada." The stormwater calculations should be updated using the correct rainfall data. Applicant should resubmit calculations.

WATER:

1. The existing water service shall be cut and capped at the water main prior to the demolition of the building. The existing tee shall be removed and replaced with a straight piece.
2. Tapping the proposed hydrants off 6-inch water lines is inconsistent with DPW construction standards. Hydrants shall be tapped off a minimum 8-inch water main.
3. The proposed inline gate valves should be located on the outside of the 6-inch fire service and the 2-inch domestic service.

SEWER:

1. The existing sewer service shall be cut and capped at the sewer main in Flagg Drive.
2. Provide a sewer profile for the proposed sewer lateral including the invert elevation at the building and the sewer main invert elevation in the street.
3. Provide two sewer manholes one upstream and one downstream of the proposed grease interceptor.

ITEMS REVIEWED:

1. Plan: Walnut Street Pump Station and Sewer Project 1, 31 Flagg Drive, Framingham, MA; Prepared by: CDW Consultants, LLC; Stamped & Signed by: Eric S. Wilhelmsen, P.E.; Date: April 5, 2019 (title block).
2. Doc.: Stormwater Report Fuller Middle School 31 Flagg Drive, Framingham, MA; Prepared by: CDW Consultants, LLC.

If you have any questions or require additional information, please contact the Engineering & Transportation Division at (508) 532-6010.

Yours very truly,

Tam D. Nguyen
Civil Engineer

Eric V. Johnson, P.E.
City Engineer

TDN/EVJ

CC: W. Sedewitz, Chief Engineer
S. Leone, Asst. Dir. of Water & Sewer
D. Nau, Dir. of Highway & Sanitation
J. Stefanini, DPW Permit Engineer
B. Lukis, Dir. of Water & Sewer
J. Barsanti, Asst. Dir. of Water & Sewer

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