A/E Submission Requirements for New Facilities, Additions, & Renovations
PROJECT SUCCESS PLANNING [PSP]

After A/E selection, but prior to fee negotiations, the A/E shall attend a technical meeting at the district office with the construction and facilities management staff, and other designated representatives, to clarify project design intent, project goals, scope, schedule, and specific requirements based on district needs and criteria. Individual roles, responsibilities, points of contact, project objectives, and technical guidance shall be established.

The district PM shall lead this meeting, and shall remain as lead throughout project development. The PM serves as the liaison between the A/E and district staff. It is the PM’s responsibility to keep the project on schedule and within budget, with no change in scope beyond refinement unless dictated by changing needs.

CRITICAL OBJECTIVE(S)

- Originality and imaginative design are an essential part of the A/E’s responsibility. A cost-efficient, student-centered and total environmental approach is a necessity. Proposed options must illustrate a plan that is functional, and aesthetically appropriate for the type of facility being provided.

GENERAL

As appropriate, and to the extent the information is available, the district shall make available the following:

- Current facility master plan.
- Narrative and/or graphic description of existing building and site conditions.
- Requirements for space planning, as determined by the Ed-Spec’s Program of Space.
- Seismic evaluation reports.
- Utility studies.
- Studies of existing equipment to be relocated or reused.
- Vertical and/or horizontal expansion expectations.
- Environmental assessment reports or surveys.
- Boundary and/or Topographic surveys.
- Site utility surveys.
- Geotechnical investigation reports.
- Parking or traffic circulation studies (pedestrian and vehicular).
- Historical surveys or reports.
- Elevator studies.

This design guideline, the Ed-Specs and other district documents establish the minimum requirements in the production of each design phase. It will give reviewers and the A/E a clear understanding of what is required of the A/E at each stage of design.

The need to complete any special studies shall be discussed and agreed upon during the pre-negotiation design team kickoff meeting. The district PM shall advise the A/E regarding potential special studies that may be required, together with any special district criteria.
After the pre-negotiation kickoff meeting, but prior to preparation of the fee proposal, the A/E shall confirm to the district PM the list(s) of the design and construction standards and requirements for each technical discipline that was discussed and agreed upon in the meeting.

**PREREQUISITES**

Although the specific deliverables of each design phase vary, the following are common requirements for each design phase deliverable submittal:

**BASIS OF DESIGN REPORT [ B | O | D ]**

A progressively elaborated report that clarifies project design intent (project goals), scope, schedule, budget and specific requirements based on the districts needs and criteria. It includes individual roles, responsibilities, and points of contact for project participants. Each submitted report includes the information specified in this guide including:

- An Executive Summary.
- A list or narrative amplifying challenges related to meeting the program of spaces, Ed-Specs, applicable code requirements, or any other critical project requirement.
- An updated action item log and/or decisions log.
- An estimate or narrative of the projected cost and cost alternatives compared to the project budget.
- A design schedule or narrative identifying milestones, conditions and decisions that influence the overall project schedule.
- A sustainability narrative addressing project sustainability goals and opportunities related to annual energy use and intensity, water use and water reduction, and storm water management.
- A narrative discussing indoor air quality, acoustics and other related alternatives to enhance learning opportunities, contain cost, or reduce the maintenance effort.
- Provide evidence of the timely submission, and of subsequent action taken by any Authorities Having Jurisdiction over any portion of the project.
- Provide the design principal’s statement, substantially as included on the Department’s website when required.

**FORMAT**

- The Basis of Design Report shall be submitted electronically in the electronic format that complies with the district’s current standards.
- Drawings shall conform to the district’s CAD standards including sheet numbering, layering, and line types.
PRE-DESIGN PHASE [PD]

The purpose of the Pre-Design phase is to align design intent and project goals with major project parameters of functional and physical design, program, quality, cost, and schedule. As a result of the Pre-Design Phase, the district shall select from the proposed conceptual designs, solution(s) depicting the general massing and site location of the facilities for further development.

CRITICAL OBJECTIVE(S)

- **Start by confirming project parameters, budget, and schedule; and confirm information and standards available to the designer. Review submission requirements and deadlines.**
- **End with several design alternatives meriting further development during the Conceptual Design Phase [C].**

GENERAL

- Pre-Design services include site assessment, conceptual planning and design. Additional studies may be required to verify existing conditions and/or to resolve proposed programming issues. Special studies shall be handled on a case-by-case basis with the approval of the district PM.
- Functional and space programs shall be developed using the district's Ed-Specs and Program of Spaces. This information shall be provided by the district PM, or must be prepared by the A/E with district assistance as a special study.
- An Integrated Design Process (IDP) shall be led by the A/E working closely with the district PM and other district staff (planners, technical experts, and school-based administrators, maintenance or operations technicians) as needed. The district shall be represented by the PM or designated individual(s) and subject matter experts (SMEs), as needed. If a Construction Manager (CM) is assigned to the project, the CM’s PM or designated individual and subject matter experts (SMEs) will participate as needed. During Pre-Design, the IDP team shall develop programming considerations needed for the project based on quantifiable requirements for space, and budgetary capacity. The A/E shall develop a Preliminary Integrated Design Process Plan.
- The district requires the design to be created in accordance with the districts CAD standards. Concept sketches, illustrations and similar pre-design deliverables used to present alternatives for selection may be created in any form selected by the designer.
- Conceptual designs developed during the pre-design phase shall identify alternative solutions determined by scope and intent of the project. Development of alternatives shall be an interactive process between the A/E, and the district staff, with the A/E leading the process to produce a narrative and graphic description of design alternatives.
- Site, structures, vehicular and pedestrian circulation, open and screened areas, and their relationships to each other shall be combined to produce a plan that is functional and aesthetically appropriate to the type of facility and student body served.
- The A/E or CM shall submit a market study to identify factors that are likely to influence construction cost, including anticipated future bidding conditions and an estimate of probable cost escalation through duration of project.
- Based on the projects requirements, the A/E shall include a section on Sustainability in the Basis of Design [B | O | D] report documenting the project's sustainability goals in terms of energy use and energy use reduction, water use and water use reduction, and indoor air quality and greenhouse gas emission reduction targets. The A/E also shall submit the project registration information for the selected third-party rating system if needed.
SITE ASSESSMENT/EXISTING CONDITIONS [SA/EC]

CRITICAL OBJECTIVE(S)

- Determine the condition of existing facilities and systems, and the attributes, limitations and site requirements that will drive future phase decisions.

ARCHITECTURAL - Submit:

1. A gap analysis of the existing facilities compared to the Ed-Spec and Program of Spaces. Determine which spaces can remain “As-Is, Where-Is”, what spaces are “not required any longer”, and “what spaces are needed but not provided”.

2. Establish the gross area of functional areas or departments, building total square feet and cubic volume from the model, with spaces designated as new construction or renovation. Use F.I.S.H. design codes and numbers.

3. Establish the Gross to Net calculation for the facility. Use this baseline consistently throughout the design phase.

4. Create a minimum of three 3D-massing views for each of the three options being developed.

ENVIRONMENTAL SITE ASSESSMENTS - Recommend:

If a Phase 1 Environmental Site Assessment (Phase 1 ESA) or any other assessment is available it will be provided to the project designer for information only. If said report(s) are not available, the designer shall assist the owner in determining any assessment needs based on the designer’s findings during the site and existing conditions assessment inspections and the due diligence reviews of available information. The purpose of the designer’s input in no way transfers any liabilities, it is offered for the limited purpose of expanding the owner’s awareness of potential owner liabilities.

Include a narrative identifying site or building concerns necessitating additional evaluation. Advise if the investigation is part of the designer’s scope of work or recommended as additional services or by specialty consultants hired directly by the owner. Include an opinion on, but not limited to:

- Asbestos Containing Building Materials (ACBM)
- Building Materials
- Earthquake Hazard
- Groundwater Contamination
- Indoor Air Quality
- Lead-Based Paint
- Lead in Drinking Water
- Mold
- Soil Contamination
- Radon
- Threatened and Endangered Species of Flora or Fauna
- Underground Storage Tanks
- Vapor Intrusion
- Wetlands
HEATING, VENTILATING & AIR CONDITIONING - Submit:

1. Survey the condition and availability of existing chilled water, hot water, and thermal energy storage. Provide specific recommendations for meeting the needs of the project, including the potential of the new and existing buildings functioning simultaneously during the construction period.

2. Assessment of condition of existing underground utilities and recommendations for relocation and/or replacement. Provide specific recommendations for meeting the needs of the project. Include the extent of demolition and phasing, if required.

SCHEDULE - Submit:

A narrative schedule identifying conditions that influence project timelines, including:

1. Site conditions that require mitigation.
2. Availability of utilities and roadways.
3. Approvals from regulatory agencies (historic, environmental, and others, as required).

SITE DEVELOPMENT/ UTILITIES - Submit:

1. An analysis of surrounding site considerations that may impact the design and cost of the project, including but not limited to: surrounding land uses, mass transit routes, utilities, zoning ordinances, easements, aircraft flight patterns, flood hazards, wetlands, topography, biological and other environmental considerations.

2. Site analysis of onsite considerations that may impact the design and cost of the project development including but not limited to: site access/circulation, ingress/egress by pedestrians (including persons with disabilities), passenger vehicles, delivery vehicles, and school busses or mass transit, if applicable, as well as building access for emergency apparatus. Begin considering site security requirements.

3. A calculation of the number of existing and proposed parking spaces (full and compact), accessible parking spaces, and handicapped van parking spaces.

4. Delineation of the 100-year floodplain and all known soil or site conditions.

5. Investigation of the condition and capacities of the existing storm water management system. Review of local, state, and federal storm water regulations, and third-party sustainability storm water design requirements, when required. Perform a preliminary drainage analysis of existing and proposed site conditions to assess potential options for storm water management strategies. Generally locate areas where storm water storage facilities can be installed, if needed.

6. Identify all conditions that will influence project schedule, including:
   a. Site conditions that require mitigation.
   b. Availability of utilities, roadways, etc.
   c. Approvals from regulatory agencies (historic, environmental, etc.).
UTILITIES - Submit:

Field reconnaissance: investigation of conditions and capacity of utilities to service the project site, including a description of needed onsite and offsite improvements, where required. Include electric and natural gas, water source(s) for potable, fire, and irrigation needs; sanitary and storm, telephone, fiber-optics, and CATV, as further discussed below.

1. Water and sewer: determine whether water or sewage treatment, pumping, or onsite storage is necessary. Indicate if existing utilities and equipment can be used.

2. If applicable, report on existing water or waste systems including make, model, size, age, performance capability, and remaining service life for all equipment. Recommend tests as appropriate to determine remaining service life of the system.

3. Electrical and natural gas: description of existing and proposed electrical and natural gas utilities. Evaluate electric utility service type and reliability comparing the current and proposed connected loads, as well as redundancy and existing emergency and standby power sources. Evaluate natural gas for available capacity and required pressure.

4. Communications: description of existing and proposed telephone, fiber-optic and CATV infrastructure serving the project site. Report on existing network electronics including fire alarm, security, CATV, and CCTV system(s) to be modernized and/or the system to which the new construction shall interface. Include discussion of the existing systems and proposed options. District SME’s will assist in evaluating existing systems and in calculating project requirements.

SUSTAINABILITY - Submit:

1. Annual energy analyses for the purpose of optimizing the orientation and massing of buildings in conceptual schemes.

2. Project sustainability goals with respect to energy consumption, energy-use intensity, and energy reduction alternatives including renewable energy; water use and water use reduction alternatives; and storm water management preliminary calculations, storm water storage requirements and storage reduction alternatives.

3. Project sustainability goals with respect to indoor air quality and greenhouse gas emission reduction targets pertaining to both the selected third-party certification level (Green Globes or LEED) and all applicable State guidelines and project directives.
CONCEPTUAL DESIGN [C]

The A/E shall develop a minimum of three design concepts unless otherwise directed by the PM. The A/E, using an integrated design process, shall refine these alternatives to create functionally viable alternative design solutions, based on continuing deliberations with district staff. The PM acts as a liaison between the district and the A/E and communicates the selected final concept(s) and identifies the approved scope to be developed in Schematic Design 1 [SD1]. Each conceptual design shall address the following:

CRITICAL PROJECT OBJECTIVE(S)

- Start by understanding “what’s existing” and “what’s not”, “what’s changing, and what can’t”.
- End with – a general understanding of the attributes and limitations at the proposed site(s).

ARCHITECTURAL - Submit:

Basis of Design [B | O | D] report including:

1. Narrative confirming the district’s vision, goals, and objectives.
2. Programming considerations, including:
   a. Space program determined on a grade and/or departmental basis.
   b. Adjacency matrix for functional programs, grade levels or departments.
   c. Code analysis to identify design parameters.
   d. Implementation strategies and phasing considerations.

Develop concept assessments including a concise narrative and graphic illustration of each concept with a comparison of features related to cost, impact of construction on operations, duration of construction, and advantages and disadvantages of each. Include a rating scale and score sheet for comparison of alternatives.

1. Massing studies - one for each concept.
2. Assessment of impact on existing facilities.
3. Opportunities for vertical and horizontal expansion.
4. Opportunities for future buildings (permanent or portable) or exterior improvements.

COST ESTIMATING – Submit:

1. Order of magnitude cost estimate for each concept.
HVAC - Submit:

As it relates to each unique concept design, discuss the particular implication of that concept on the HVAC available or planned for the site. Progressively elaborate the findings of the site assessment.

1. Evaluate the dynamics of energy consumption particular to each concept design compared to a static baseline (all other factors being equal). Calculate the first-cost, and life-cycle cost of each concept. Include in the concept design narrative, a discussion of any significant advantage provided from one concept to another.

2. Evaluate how each concept design impacts the existing and available systems and distribution. Consider all factors including interruptions, temporary rerouting, supplemental pumping or filtration requirements, etc. Investigate system isolation valves, hazardous materials abatement, interruption of service implications, etc. Explain how existing hydronic systems will accommodate additional loads and what additional equipment is needed to make the new facility fully operational.

3. Explain what the anticipated new heating and cooling loads are and how they were calculated. Explain needed plant expansion and how it shall be accomplished.

4. Discuss alternative ways to meet the increased demand and what type of energy-saving measures will be examined in the Schematic Design Phase.

SCHEDULE - Submit:

Working in conjunction with the Construction Manager, if available, provide a narrative and, if practical, a CPM Gantt chart illustrating the scheduling implications of the various concept designs on the overall project schedule and on the operation of the existing facility, if applicable.

1. Anticipated design schedules.
2. Anticipated overall construction schedules.
3. Major milestones in design, procurement, construction and commissioning/acceptance phases.
4. Concept assessments including:
   a. Concise narrative describing integration of existing and new work.
   b. Considerations that influence phasing.
   c. Anticipated duration of each phase of construction.
   d. Impacts to the existing operations, if applicable.
5. Project risk analysis.

SECURITY (PHYSICAL) - Submit:

Concept assessments including applicable Crime Prevention Through Environmental Design (CPTED) principles.

SITE DEVELOPMENT/ UTILITIES – Submit:

Conceptual plans with Basis of Design [ B | O | D ] narrative for site access, vehicular circulation, physical security standoffs, barriers, parking, and other security elements; and items of environmental and historical significance.
UTILITIES - Submit:
As it relates to each unique concept design, discuss the particular implication of that concept on the utilities available or planned for the particular site. Progressively elaborate the findings of the site assessment.

1. Water pressure challenges and requirements for fire pump(s). Estimated sizes of the proposed main fire lines and proposed location of connections to site utility.
2. Sanitary or storm disposal challenges including onsite and offsite improvements, lift stations, underground storage, etc. associated with each concept design.

SUSTAINABILITY – Submit:
Develop concept assessments including:

1. Graphic presentation of the site climate analysis (wind, water, solar, temperature, humidity).
2. Determination of the technical and economic viability of using renewable energy sources. At a minimum, consider thermal energy storage, rainwater catchment, bio-retention, solar hot water, solar PV and geothermal.
3. Analysis of how best to use day lighting.
4. Analysis of each proposed alternative with respect to overall project sustainability goals related to Green Globes or LEED certification.
   a. **Green Globes (if chosen):** Provide the rating category for the project and the input data for the project initiation, site analysis, and programming phases. Establish input parameters and assumptions for performing a Life Cycle Cost Assessment (LCCA)
   b. **LEED (if chosen):** Document the rating system (for example, Existing Buildings or New Buildings) to be used and the level of certification reasonably obtainable. Provide a completed preliminary LEED score card to indicate where points are anticipated. Briefly discuss why certain points were selected and if others are deemed not achievable or beneficial to the project.
SCHEMATIC DESIGN [SD]

GENERAL

The Schematic Design phase documents are developed for the district selected concept approved in the Conceptual Design [C] phase. The Schematic Design further develops the concept plan to a level of detail that includes specific functional and adjacency requirements and establishes the aesthetics of the design. Deliverable submittal requirements include:

1. A Project Management Plan (PMP) developed by the Integrated Project Team (IPT).
2. Drawings conforming to the districts CAD standards including line styles, title block, key plan, graphic scales, and north arrow (either true north or plan north). All sheets shall be orientated and scaled consistent throughout the set of similar subject and aligned to enable electronic or light table overlaying. Each drawing, booklet, and other supporting submittals including cover sheets shall be clearly and consistently identified throughout the design process with the project title, location, building, phase, section, and segment.
3. All submitted documents shall be updated based on the review comments and agreements reached in design review meetings. Review comments may be provided in written or electronic forms and shall be assembled, correlated, and logged by the A\E. The A\E shall verify that all changes based on the review of the previous phase have been resolved per the direction of the PM.
4. Completed quality control checklists shall be submitted, including discipline-specific checklists for the Schematic phase.
5. Outline specifications shall be prepared using the districts Design Guideline and Master Construction Specifications, where applicable. Submissions shall show changes to the master by using the "Track Changes" function. Each subsequent submission shall indicate changes from previous submission, not all changes to the master. Specifications submitted at the end of each phase (not for each review) shall incorporate all directed changes.
6. Dimensions shall be provided in English Architectural units (feet and inches) unless otherwise specified.
7. The A/E shall submit minutes of meetings with the district, utility companies, Authorities Having Jurisdiction, as well as A/E coordination meetings during all design phases.
SCHEMATIC DESIGN 1 [SD1]

The purpose of the Schematic Design 1 is to develop the concept selected in Conceptual Design [C]. Time invested in the SD1 development and review has a disproportionately high impact at a low cost relative to later design phases. The PM will ensure participation by relevant district and school-based staff.

CRITICAL OBJECTIVE(S)

- Further develop the concept plans with emphasis on massing and adjacencies.

ARCHITECTURAL – Submit:

The updated Basis of Design [B | O | D] report including:

1. Preliminary phasing narrative (preliminary phasing plans for site and building development).
2. Types and quantity of functional areas to be accommodated (e.g.: number of science classrooms, computer labs, offices, etc.).
3. Summary of building features in tabular form: building height, gross area by floor and department and total student stations by floor and area.
4. Special construction requirements that may affect the planned scope such as unanticipated code improvements to resolve existing deficiencies.
5. Room data sheets for each typical room in the project as outlined on the department’s website. Provide a brief narrative when the district standards can’t be followed.

Submit Drawings as required for all studies described above.

1. Cover sheet with project name and address, district project number, location map, and signature block naming architect, engineers, and other consultants.
2. Project data sheet with drawings index, abbreviations legend & symbols, and code analysis.
3. Conceptual site plans (minimum of two) with building location(s), parking, pedestrian and vehicular circulation, emergency vehicle access, loading docks, and all other major landforms and site features including storm water ponds or underground retention/detention structures, and possible connection points to required utilities.
4. Block plans for each floor of the building showing internal organization (program, Small Learning Community (SLC), school within a school, pod, grade or department, etc.), vertical and horizontal circulation, location of mechanical and electrical equipment rooms, and utility shafts. Location of section cuts (min. 1:200 (1/16”=1'-0’)). Include overall building dimensions (area and volume).
5. Conceptual floor plans showing adjacencies and major circulation routes. Within each department/function boundary, show gross square footage.
6. Building elevations with fenestration, penthouses, materials, finish-floor elevations, floor-to-floor heights, location of grade at building, overall building height, and location of section cuts (min. 1:200 (1/16"=1'-0").
7. Minimum of two building sections through major portions of building (min. 1:200 (1/16"=1'-0").
8. Proposed wall types with a corresponding matrix illustrating where they will be used in a general sense. Application specific details like flashing locations are not required.

BUILDING INFORMATION MODEL (BIM) - Submit:
Submit the following information derived from the building information model for advancement of the design or verification of the model:

1. Updated BMP (BIM Management Plan) for the project.
2. Example for verification of data coding, as outlined in districts BIM guidelines, or as otherwise agreed.
3. BIM geographical location benchmark.

CAD STANDARDS - Submit:
Submit the following information if the project is being designed in CAD not BIM for advancement of the design or verification of the districts standards:

1. Updated CMP (CAD Management Plan) for the project.
2. Example for verification of data coding, as outlined in districts CAD guidelines or as otherwise agreed.
3. CAD geographical location benchmark.

COMMISSIONING - Submit:
A narrative addressing at a minimum the following:

1. If the contract is un-awarded, recommend the scope and timing of the award.
2. Identification of full commissioning team and team organization. Include team member roles, responsibilities, and lines of communication.
3. Basis of Design [B | O | D] report describing districts “Owner’s Project Requirements” (OPR), design narrative, and sustainability goals (LEED, Energy Star or Green Globes certification level). (Coordinated with the section on Sustainability.)
4. Draft Commissioning Plan identifying all systems, components, and features to be commissioned. Include required documentation and schedule for implementation.
5. Identify major concerns that could affect operations, maintenance or testing.
6. Identify discrepancies between the OPR and Design narrative.
7. Update design schedule and major milestones.
COST ESTIMATING - **Submit:**

Working with the CM, if applicable, provide an estimate of the projected project cost compared to the budget that conforms to the districts breakdown structure and proposed phasing plan(s).

1. A WBS estimate detailed to the level of planned outcomes not planned activities.
2. The projected cost to complete the design addressing any identified or anticipated additional services.
3. An updated market survey discussing the potential for price inflation or deflation.
4. A cost model based on district Ed-Spec, Design Guidelines and applicable SREF requirements.
5. Recommended unforeseen conditions allowance.
6. Recommended design assumptions, clarification and refinement allowance.
7. Recommended cost reduction strategies.
8. Recommended estimate inaccuracy allowance.
9. Separately computed for site, each building, new work, and renovations.
10. Building net and gross area computations for new construction and renovations.
11. Project Data Sheets (see district guidelines).

ELECTRICAL - **Submit:**

Submit the updated Basis of Design [ B | O | D ] report, including:

1. Electrical design approach proposed in narrative form. Determine whether the existing site utility service and distribution, switchgear, primary feeders, power transformers, power generators and distribution equipment are adequate for the new loads for normal, and stand-by electrical systems including hurricane sheltering requirements, if required.
2. Detailed description of the extent of new utility company work (if required). Provide copies of all correspondence and minutes of meetings with all utility company representatives.
3. Description of physical security requirements and implementation into electrical design.
4. Requirements for standby or uninterruptible power system (UPS), if required.

Submit Calculations including:

1. Existing peak demand readings at point of connection to serve new equipment/building(s).
2. Calculations to support preliminary mechanical equipment sizing and ratings, using square foot demand loads for lighting, general equipment, and approximate mechanical equipment loads for mechanical system equipment.
3. Loads associated with stand-by electrical power system, and the electrical power generation capacity supporting the areas of the buildings where standby power is required.
Submit Drawings including:

1. Project site plan showing impact of proposed new work on the existing site and distribution equipment. Indicate new and existing locations of incoming electrical power service, underground electrical vaults, manholes, duct banks, and utility tunnels. Show major electrical work with respect to locations of substations and transformers.

2. Proposed, conceptual one-line diagram for high or medium voltage and low voltage (below 600V) electrical power distribution system. One-line diagram shall show the normal and standby electrical systems main electrical components, and the correlation between the systems.

3. Plans showing locations of main electrical areas, such as main electrical switchgear, main electrical vaults, generator rooms, and/or energy center and indicating their approximate dimensions. On the plans, show outlines of major electrical equipment items in these rooms and outlines of minimum working clearance as required by the applicable National Electrical Code.

ELEVATOR - Submit:

For New and Existing Facilities:

1. Elevator study suggesting the required number, size, and location of elevators.
2. Narrative summarizing the data and recommendations developed from the studies described above including any calculations.

Submit drawings as required for all studies described above.

1. Submit floor plans indicating location of proposed and existing elevators
2. Indicate public areas and programs not served by an elevator.

ENVIRONMENTAL IMPACT & HAZARD ABATEMENT - Submit:

1. Written notification immediately upon discovery of any environmental or site data that may warrant investigation or mitigation.
2. A narrative acknowledging any ACM or other hazardous materials indicated in the AHERA or facilities management plan. The A/E should propose areas needing further evaluation based on the project scope. No drawings required at this design phase.

FIRE PROTECTION - Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Survey and description of the existing fire alarm system in the building to be modernized and/or the system to which the new construction shall interface.
2. Description of proposed options for new systems.
3. Description of building construction, building fire and smoke separation, fire sprinkler/standpipe systems, size of fire pumps (if required), water supply available/maximum demand, water flow testing results, fire alarm systems, and kitchen extinguishing systems. Indicate NFPA and Florida Building Code (FBC) fire
resistive rating of the building, occupancy type, and fire protection code analysis to assess compliance with required codes.

Submit calculations including:

1. Calculations to size fire pumps or storage tanks, if required based on water supply available/maximum demand, and water flow testing results raw data.

Submit drawings including:

1. An overall site plan indicating the proposed location of connections to existing site utilities, location for the principal backflow preventer, estimated sizes of the proposed main fire lines and routing, and the location of riser rooms entered from the exterior.

HEATING, VENTILATING & AIR CONDITIONING - Submit:

Submit the updated Basis of Design [ B | O | D ] report including:

1. System type (dual-temp, four-pipe, localized DX, or hybrid in any combination), condition and spare capacity of the existing system(s). Submit specific recommendations for meeting the HVAC needs of the project cost effectively.
2. Description of the tentative zoning of the spaces, including those proposed with dedicated HVAC systems. Describe the locations of the equipment serving each zone, focusing on the serviceability and maintainability of each major piece of equipment.
   a. Anticipate the diverse energy conservation needs of a school related to limited summer occupied areas and areas needing tighter control over humidity such as media centers and areas with wood flooring.
3. Engineering criteria and rationale used for selecting the baseline and enhanced types of HVAC systems used in the Life Cycle Cost Analysis. Coordinate with the districts HVAC standards wherein the restrictions on the system type and the capacities are outlined. Include all zone level and space level assumptions and parameters to be used in the analysis.
4. Computerized modeling and analysis shall be prepared by using Trane Trace or another public domain program acceptable to the district. Submit both the printed report and an electronic copy of the analysis including the name and version of the program used, and the responsible designer.
5. The district values innovative and imaginative designs that balance energy conservation, maintainability/operability, first cost, and life cycle cost. When proposing the design and alternatives, reference credible sources and standards including applicable energy codes, ASHRAE, and other verifiable sources. State the logic and criteria for selecting each conservation measure and a reasonable ROI and projected utility rebate, if applicable.
6. Description of the existing energy management controls system, its condition, and the justification to either connect the new work to the existing system or to replace the existing system.
7. Develop a strategy to keep existing systems operational, under control, and to protect indoor air quality during phased construction projects.
8. Describe the physical security requirements and implementation strategies related to the HVAC design alternatives.
9. Coordination of the metering requirements with the ongoing activities at the existing facilities and provide a brief description of the scope of work and extent of coordination involved.
10. Describe the potential impact of hurricanes on the HVAC equipment (in hurricane zones).

Submit calculations including:

1. Estimated heating and cooling requirements of the existing and/or new buildings based on the gross square feet area of each unique building or function space.
2. Base all energy analysis on a baseline school calendar and typical hours of operation when optimizing the orientation and massing schemes being considered. Optimize the envelope and glazing; fix all other variables (occupancy, regulated and unregulated loads) in the energy model for all schemes at this design phase submittal.

Submit drawings including:

1. Single-line air and water flow diagrams of heating plants, cooling plants, air-handling processes, and zone level (not space level) air and water distribution for the proposed options.

HISTORIC PRESERVATION- Submit:

1. Comply with specific project expectations developed on projects with known historic preservation requirements.
2. Provide written notification immediately upon discovery of any historical or archeological data that may warrant investigation or preservation.

INTEGRATED DESIGN- Submit:

Submit the updated Basis of Design [ B | O | D ] report including:

1. Design Objectives: Accessibility, aesthetics, cost effectiveness, functional and space requirements, environmental quality, security, sustainability, and, where appropriate, historic preservation.
2. Integrated Project Team (IPT) directory: list of team members, contact information, roles, and responsibilities. Include as appropriate: district representatives and stakeholders, A/E, construction management, commissioning agent, designated (sub) contractors, community representatives, regulatory agencies, and consultants for specialties such as traffic, geotechnical, environmental, hazardous materials abatement and historic preservation.
3. Project Management Plan (PMP): The IPT is responsible for developing the PMP as defined by the Project Management Institute, or as deemed acceptable by the district’s PM. The plan addresses the management of Scope/Requirements, Schedule, Cost, Change, Communications, Process Improvement, Staffing, Quality, and Risk Management. Generally, the PMP shall cover functionality, budgetary, and
Risk Management. Generally, the PMP shall cover functionality, budgetary, aesthetic, sustainability, security, schedule, procurement method, and related requirements.

4. Shared services agreements with other facilities. (This could include utilities, or inter-local agreements, or other.)

**INTERIOR AND EXTERIOR EQUIPMENT - No submission required.**

**INTERIOR DESIGN - Submit:**

Submit the updated Basis of Design [B O D] report including:

1. Narrative describing concept for interiors.
2. Signage and wayfinding concept.

**PLUMBING - Submit:**

Submit the updated Basis of Design [B O D] report including:

1. Preliminary feasibility study and descriptions of the existing and proposed utilities (i.e. storm drainage, sanitary sewer, fire and potable water services, gas, and others), where applicable. Investigate the conditions and available capacity of existing utilities to service the project’s needs; determine if improvements are needed. Describe the extent of off-site utility improvements, where required.
2. Indicate if water or sewage treatment, pumping, and storage are necessary. Indicate if existing utilities and equipment can be reused for this project.
3. Define strategies to achieve any reduction goals established for potable water comparing the baseline and the reduction alternatives. Graphical representation of energy and water usage savings with reference to the contributing technologies and their weighted contributions.

Submit calculations including:

1. Potable water baseline and reduced consumption calculations.
2. Calculations to support the strategies to achieve the water consumption and energy reduction goals.

Submit drawings including:

1. Approximate sizes of existing and new equipment in buildings.
2. Plans indicating the types and sizes of all existing, abandoned, and proposed utilities and the point of connection and isolation.
3. Locate roughly where rainwater or sewage treatment facilities, macerators, pump stations, grease traps, centralized acid neutralization tanks and any other major elements of the system shall be located, if required.
4. Indicate areas of lawn and planting irrigation, and the water source or connection point.
5. Riser diagrams for the proposed options.
6. Approximate location of treatment facilities and storage facilities (when required).
SCHEDULING - Submit:
Submit the updated narrative Basis of Design [ B | O | D ] report including:

1. Narrative or Gantt chart schedule identifying major design activities, procurement phase activities and construction phasing sequence with major milestones, and district overlapping commissioning and occupancy phase activities including moving FF&E, C&I, technology, etc. Indicate milestones for major activities including design phase submissions, bidding and awarding, mobilizing, phase occupancy (activation), etc.
2. Organize the schedule by, at a minimum, each primary design discipline and each building or phase of construction.
3. A Risk analysis in narrative or Residual Risk Register form detailed for design and anticipating the overall construction schedule and districts overlapping activation activities. Identify schedule risk areas and recommend mitigation actions.
4. Phasing narrative.
5. Phasing plans on overall site plans.
6. Phasing diagram at the building or other appropriate level of detail.
7. Written list of systems divided by technical discipline, including temporary systems by phase.

In addition to updating information, each successive submission of the narrative or Gantt chart schedule, and the Risk Analysis narrative or Risk Register shall provide an increased level of detail.

SECURITY (PHYSICAL) - Submit:
Submit the updated Basis of Design [ B | O | D ] report including:

1. Description of the basis for physical security requirements and an overview of the provisions to be implemented. Include setbacks, fencing, building envelope, access control system, monitoring, intrusion detection, video surveillance, and other systems that must be considered to develop a plan and a budget estimate. Also include special construction requirements such as integrating access control into existing openings, or accommodating the community use of facilities.
2. A narrative discussing the opportunities and challenges to integrating CPTED principles into the design or budget, and the alternatives being proposed or explored.
3. A narrative of how the Continuity of Operations Plan (COOP) may be affected by the project requirements on renovation projects.

SITE DEVELOPMENT/UTILITIES - Submit:
Submit the updated Basis of Design [ B | O | D ] report including:

1. Detailed analysis of the site in relation to the surrounding community, including, pedestrian, automobile, school buses, mass transit routes, available utilities, adjacent hazards including heavily traveled roads and geographic or attractive risks.
2. Phasing analysis to determine impact of project construction on maintaining existing school ingress/egress of pedestrians and traffic flows, transportation and storage of
construction materials, mitigation of air and noise pollution, sequencing of new conflicts, and areas of future construction.
3. Identification of floodplains and wetlands.
4. Sediment and erosion control requirements.
5. Stormwater management requirements and intended methods of implementation.

Submit drawings that include:

1. Circulation plan(s) showing ingress/egress to the site by pedestrians (including persons with disabilities), cars, buses, trucks, emergency vehicles, and mass transit traffic.
2. The student drop-off/pickup marshaling route(s) that afford adequate turn and acceleration/deceleration lanes and provide sufficient onsite car stacking.
3. Site plan showing proposed structures, equipment at grade, and the other scope requirements including site preparation and demolition.
4. Show expansion potential, proposed locations for portable classrooms, and other exterior improvements and athletic fields.
5. Indicate areas that could be left natural to minimize site disturbance and future landscape maintenance cost.
6. Indicate first floor elevations for each proposed structure and spot elevations at critical locations; e.g., structure corners, entrances, intersections, and critical floor and grade elevations.
7. "Site security" diagram indicating all of the physical security elements being implemented into the site design including access control points, and vehicle stacking. (min. scale 1:1200 (1"=100’)). Coordinate with the section on Security.

SPACE PLANNING - Submit:
Submit the updated Basis of Design [ B | O | D ] report including:

1. Verification that the program of spaces was used as a basis for design.
2. Utilization of space by net area, gross area, net-to-gross ratio by department and net-to-gross ratio for buildings. Summarize the data by the space use:
   a. By organizational grouping such as an academic program or a school within a school, or a grade level or department.
   b. By functional grouping such as classrooms, corridors and circulation, MEP space, offices, cafeterias, gyms, etc.
3. Amplify all variations from district or State standards.
4. Submit in an acceptable format with subtotals for each summarized grouping

SPECIFICATIONS - Submit:
Submit the Table of Contents of applicable Specification sections in 2011 CSI MasterFormat.
STRUCTURAL - Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Detailed listing of all applicable codes, design criteria, and national standards affecting the design. Include title, year and publishing organization for each code/standard indicated.
2. Provide description of structural design loading information (include criteria and reference source). List all load combinations that shall be used and their source.
3. Description of building structural performance design criteria.
4. Recommendations for foundation system and, where necessary, mitigation of groundwater penetration.
5. Program to perform subsurface exploration and laboratory testing in the area of any proposed construction. Explain technical issues to be resolved, field and laboratory methods to be used, estimated number and depths of borings and other field methods, estimated laboratory testing, and reporting methods.
6. Detailed work plan, which shall include the results of previous investigations relevant to the project.

SUSTAINABILITY - Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Summary of the results and conclusions of the final site selection analysis with respect to sustainability criteria outlined as part of the Pre-Design phase.
2. Graphical representation (pie or bar chart) and description comparing various water-use reduction strategies to achieve the reduction goals and any mandated water-use reduction requirements as part of the selected third-party rating system and/or district or State sustainability guidelines.
   a. Coordinate reporting with the results from the plumbing and site/civil storm water analysis to provide the potable water baseline and the required reduction target.
   b. Define strategies and alternatives including the ROI if implemented.
3. Graphical comparison (pie or bar chart) of the energy use intensity and energy consumption by end use for HVAC and lighting concepts evaluated as part of the [SD1] phase. The summary should illustrate how any mandated or elective energy conservation requirements and any energy consumption and lighting design goals for the overall project are being achieved.
   a. Coordinate the reporting with the results from the energy and lighting analysis conducted as part of the mechanical and electrical/lighting systems evaluation.
   b. Define strategies and alternatives including the ROI if implemented.
4. Graphical (pie or bar chart) summary of the preliminary results and conclusions of the Indoor Environmental Quality (IEQ) impact of each of the HVAC concepts. In addition and if requested, provide a graphical representation of Green House Gas (GHG) emissions for the selected concepts as they relate to any district or State mandates.
5. Summary assessment and preliminary estimate of renewable energy capacity as part of the [SD1] concept evaluations relative to any district or State mandates and/or third-party sustainability goals.
   a. Renewable energy to be included in the assessment should include thermal energy storage (ice storage), solar thermal, solar PV, wind, and geothermal.
   b. Indicate available incentive programs to offset the cost of renewable energy systems.
   c. Coordinate with the plumbing submission and submit as needed the explanation and technical backup information regarding how the project could meet the project goal for hot water generation using renewable solar energy.

Submit documents and calculations related to third party certification including:

Green Globes (if applicable):

1. Provide as part of the narrative Basis of Design [B | O | D] report the following as it pertains to third-party Green Globes Certification:
   a. Rating category under which the project shall be certified and submit the final input data for the project initiation, site analysis, and programming phases.
   b. Final input parameters and assumptions for performing the Life Cycle Cost Assessment (LCCA).

LEED (if applicable):

   a. Indicate where points are anticipated and provide a brief discussion describing why certain points are or are not achievable.

TELECOMMUNICATIONS - Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Assessment of whether the existing telecommunications services are adequate for project needs, and whether they comply with current district standards.
2. Description of the extent of utility company work required. Include copies of all correspondence and minutes of meetings with all utility company’s representatives.

Submit drawings that include:

1. Location of incoming telecommunications services, manholes, and duct lines on the project site plan.
2. Conceptual telecommunications riser diagrams.
3. Provision for all telecommunications spaces on the Architectural drawings including the length of the longest copper run from closet to jack. (Telecommunications closets must stack vertically.)
SCHEMATIC DESIGN2 [SD2]

The purpose of Schematic Design 2 is to further refine the solution developed in Schematic Design 1, and to validate that project goals and parameters are reflected in the design, which is further developed at a room-by-room level of detail.

CRITICAL OBJECTIVE(S)

- Start by incorporating the direction and feedback from [SD1], resolve all open issues and document the agreements reached.
- End with a design that satisfies the design objectives, accessibility, aesthetics, cost effectiveness, functional and space requirements, environmental quality, security, sustainability, and, where appropriate, historic preservation requirements.
- The start of [DD1] is predicated on completing the requirements and reasonable expectations of [SD1] and [SD2], not based on the calendar or schedule.

ARCHITECTURAL - Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Phasing narrative.
2. Potential bid alternates. The value of the alternates shall represent approximately 10% of the construction budget; prioritize the alternates to maximize the instructional impact of the selections and determine if they shall be additive or deductive.

Submit drawings that include:

1. Dimensions for overall building, column centerlines, and critical building components and features.
2. Floor plans for each floor, penthouses, interstitial spaces, and service areas. Scale (min. 1:100 (1/8"=1'-0") preferred. Use the same scale and orientation consistently throughout the entire set to avoid confusion.
3. Show room names, numbers, net area, columns and column grid, windows, and major building and instructional equipment. If applicable, identify limits of each SLC, academy, department or functional grouping. Locate expansion joints, seismic joints, vertical circulation, mechanical rooms, electrical rooms and closets, data closets, and vertical shafts.
4. Demolition floor plans (min. 1:100 (1/8"=1'-0")).
5. Phasing plan and narrative with preliminary Interim Life Safety Measures (ISLM). Scale (min. 1:200 (1/16"=1'-0").
6. Life safety plans showing means of egress, capacity, population, smoke compartments, fire walls, and horizontal exits (min. 1:200 (1/16"=1'-0")).
7. Large scale plans of mechanical, electrical, kitchen, toilet rooms and other rooms with complex requirements (min. 1:50 (1/4"=1'-0")).
8. Building elevations with fenestration, penthouses, materials, finish floor elevations, floor-to-floor heights, overall building height, adjacent grades, column centerlines, and section cut indications (min. 1:100 (1/8"=1'-0")).
9. Building sections through major portions of building (min. 1:50 (1/4"=1'-0")), with location of section cuts identified on plans and elevations.
10. Interior elevations showing structure, ductwork, piping, power, data, communications, equipment, and other built-in items (min. 1:50 (1/4"=1'-0")).

BUILDING INFORMATION MODEL – Submit:
If requested, submit the BIM 3D model capability as a communication tool with school district staff and other stakeholders to communicate design vision, functionality, and student experience.

Update the BMP (BIM Management Plan) and submit drawings that include:
1. Illustrations for review of functionality, submit un-rendered, 3D views of the following:
   a. Building elevations and entrances.
   b. Sightlines for interior and exterior circulation monitoring.
   c. Special building features including auditoriums, gymnasiums, cafeterias, and all areas with atypical room size or volume including interstitial spaces over rooms.
   d. Mechanical spaces where clearances are critical, and any other area where 3D drawings would be useful to present design ideas, educate, and resolve conflicts.

COMMISSIONING – Submit:
Submit the updated Basis of Design [B | O | D] report coordinated with districts “Owner’s Project Requirements” [OPR] and list of systems, components, and features to be commissioned.
1. Design Phase Commissioning Plan in its final form.
2. Updated Design Phase Commissioning Issues Log with proposed resolution/mitigation.
3. Identify major concerns that could affect operations, maintenance, or testing.
4. Identify discrepancies between OPR and design narrative.
5. Update design schedule and key milestones.
6. Update roster of Commissioning Team members.
7. Coordination Matrix for Commissioning Agent and A/E.

COST ESTIMATING – Submit:
Working with the DB or CM, if applicable, provide an update of the estimate performed during the [SD1] with the projected project cost compared to the project budget and [SD1] estimate.

Submit an updated estimate that conforms to the districts breakdown structure and proposed project phasing plan, including:
1. The projected cost to complete the design addressing any identified or anticipated additional services.
2. A Work Breakdown Structure (WBS) estimate update detailed to planned outcomes not planned activities.
3. A cost model based on district Ed-Spec, Design Guidelines and applicable SREF requirements.
4. Budget tracking by phase with separate computations for site, each building, new work, renovations, and alternates.
5. Updated building net and gross area computations for new construction and renovations.
6. An updated to the market survey discussing the potential for price inflation or deflation.
7. Recommended unforeseen conditions allowance.
8. Recommended design assumptions, clarification and refinement allowance.
9. Recommended cost reduction strategies.
10. Recommended estimate inaccuracy allowance.
11. Separately computed for site, each building, new work, and renovations.
12. Updated Project Data Sheets (see district guidelines).

**ELECTRICAL – Submit:**

Submit the updated Basis of Design [ B | O | D ] report including:

1. Basic assumptions and points of interconnection with the existing electrical power distribution systems. Submit a statement describing the impact of the new construction work to the existing electrical power distribution systems.
2. Present demand load (medium voltage switchgear and primary feeder) and projected additional load of new construction.
3. Two design options (campus and building level) for the electrical power distribution systems and a list of advantages and disadvantages for each. Include description of physical security requirements and implementation into electrical design alternatives.
4. Method(s) of fault current protection including, protective device coordination, arc flash, generator sizing, load, feeder and equipment sizing, voltage drop, harmonic distortion, lightning protection risk analysis, and lighting calculations.
5. Report of the life cycle cost analyses for major electrical distribution system equipment options and lighting systems options. Indicate the recommended design and equipment.

Submit updated calculations to reflect design progression and decisions concluded in the [SD1] phase.

1. Block area demand calculations based on area function for lighting and power, both normal and essential loads, to establish closest equipment sizes and ratings.
2. Updated mechanical equipment loads for mechanical system equipment and elevators.
3. Updated critical electrical system and/or stand-by electrical power system loads to determine emergency and/or stand-by generation capacity required to support the building electrical power requirements.
4. Complete life cycle cost analyses for major electrical equipment and lighting systems.

Submit drawings that include:

1. Two proposed lighting schemes for special areas such as: main entrances/lobbies, public/visitor waiting areas, elevator lobbies, public/visitor corridors, cafeterias, auditoriums, media centers, gymnasiums, etc. Vary each scheme within the confines of the district standard fixture types. Include requirements of applicable physical security standards.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Indication of area functions, location, room titles and numbers.
2. Location and dimensions of electrical equipment rooms and electrical closets.
3. Show all electrical power distribution equipment to scale. Include means and clearances for installation, maintenance, and operation of equipment.
4. Electrical rooms and/or closets shown stacked vertically on plans.
5. Show existing and proposed new underground work for electrical power distribution system.
6. Preliminary demolition drawings indicating scope of work for demolition, spaces to be made available from demolition, and construction phasing impacts of demolition.
7. Concise, conceptual one-line and riser diagrams of the proposed normal, essential and standby electrical power distribution systems. The one-line diagram shall show the entire electrical power distribution system, incoming utility, medium electrical power, main switchgears, main switchboards, and transformers.
8. Riser diagram shall include switchgear, transformers and low voltage main and/or distribution panels, branch panels, and representative methods of feeding 277/480-volt and 120/208-volt normal and essential electrical power/stand-by electrical power panels.
9. Indicate ratings and locations of existing electrical devices to be reused.

**ELEVATOR – Submit:**

Submit updated reports to incorporate new or updated data.

1. Platform size, capacity, and speed for elevators, lifts, and dumbwaiters.
2. Calculations.

Submit drawings as required for all studies described above.

1. Floor plans (min. 1:100 (1/8"=1'-0") indicating location of proposed and existing elevators.
2. Location of machine and equipment rooms for lifts and elevators. Indicate minimum room dimensions.

**ENVIRONMENTAL IMPACT & HAZARD ABATEMENT - Submit:**

Notify the district PM immediately upon discovery of any environmental or site data that may warrant investigation. Where project scope involves known or suspected asbestos or hazardous material, submit:

1. Scope of assessment and review of findings of the district industrial hygiene consultant.
2. Review the sampling strategy to ensure the scope of the sampling corresponds with the project limits of disturbance and yields a statistically viable conclusion on the extent of asbestos or hazardous materials present.
3. Submit an evaluation of the findings relative to the project scope, schedule, and budget, include:
   a. Summary of results of the review of the building records.
   b. Report on inspection of the building to determine location and condition of asbestos materials.

**FIRE PROTECTION – Submit:**

Submit the updated Basis of Design [ B | O | D ] report including:

1. Description of the existing fire alarm system in the building being modernized or how the new construction shall interface with the existing system.
2. Description of type, features, age, reliability, compliance with present day codes, capacity, zoning, supervision, control panel and power supplies, fault protection, initiating devices and circuits, and auxiliary functions for existing fire alarm system.
3. Indicate manufacturer, model number, voltage, and wiring style of existing alarm systems and devices. Provide recommendations for the proposed fire alarm work.
4. Description of proposed options for new systems.
5. Description of building construction, building fire and smoke separation, fire sprinkler/standpipe systems, size of fire pumps, water supply available/maximum demand, water flow testing results, fire alarm systems, and kitchen extinguishing systems. Indicate NFPA 220 and Florida Building Code (FBC) fire resistive rating of the
building, NFPA 101 occupancy type, and fire protection code analysis to access compliance with NFPA 101.

Submit updated calculations to reflect design progression and decisions concluded in the [SD1] phase.

1. Updated calculations to size fire pumps, water supply available/maximum demand, and water flow testing results raw data.
2. Exit calculations for each floor that justify the number of exits provided.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Estimated sizes of the proposed main fire lines and proposed location of connections to site utility.
2. Sprinkler, fire alarm, and smoke zones at a legible scale that shows an entire floor per drawing, using district standard symbols.
3. Existing areas that are completely sprinklered, location of building water supply, interior sprinkler supply lines, standpipes, fire extinguisher cabinets, exit paths from each zone, distances to the stair, and the occupancy of each area.

HEATING, VENTILATING & AIR CONDITIONING – Submit:

Submit the updated narrative Basis of Design [B | O | D] report including:

1. Description of the HVAC systems and equipment for each functional space.
2. Report on the envelope and glazing properties identifying further energy use reductions necessary to achieve any mandated or elected energy consumption targets.
3. Description of the mechanical sequences of operation and the operational parameters represented by the energy model.
4. Summary of the life cycle cost analysis with specific recommendations.

Submit updated calculations reflecting design progression and decisions of the [SD1] phase.

1. Updated energy analysis, including mandated or elected energy conservation measures. Suggest opportunities to optimize envelope and glazing properties and identify further energy-use reductions necessary to achieve the energy consumption target.
2. Outline all occupancy, regulated and unregulated load assumptions, and schedule parameters used in the analysis. Describe all modeled system operational characteristics.
3. Complete life cycle cost analysis with specific recommendations and full back-up data. State the heating and cooling capacities of each functional area used in the life cycle cost analysis. State the block cooling and heating loads for each new and/or existing building.
4. Produce an acoustic analysis to illustrate instructional areas that may be adversely impacted by the equipment placement or other mechanically produced noise requiring attenuation.

Submit updated drawings reflecting design progression and decisions of the [SD1] phase.

1. Air and water flow diagrams for the existing systems and proposed options.
2. Tentative locations and sizes of all mechanical equipment rooms and principal vertical shafts.
3. Block layout of major pieces of equipment in each mechanical equipment room.
4. Outside air, exhaust air, and relief air louvers.
   a. Resolve various items affecting louver location, considering other factors such as visibility, historical considerations, wind direction, noise, physical security requirements, hurricane and storms.
   b. Resolve various health hazard or noxious odors caused by short circuiting intake air from exhaust sources including kitchen exhaust, fume hoods, emergency generators, sanitary vents and vehicle parking or waiting areas.

HISTORIC PRESERVATION- Submit:

Comply with specific expectations developed on projects with known historic preservation requirements.

Provide written notification immediately upon discovery of any historical or archeological data that may warrant investigation or preservation.

INTEGRATED DESIGN- Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Updated Team Directory notifying the district PM of changes for approval.
2. Refined Project Management Plan (PMP).

INTERIOR AND EXTERIOR EQUIPMENT - No submission required.

INTERIOR DESIGN- Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Narrative describing interior design concept, how it meets the needs of the users, and budget considerations.
   a. Discuss appropriateness of material and color selections.
   b. How they relate to the overall building design, and their appropriateness for the geographical location of the facility.
   c. How they address instructional needs, and compare to district-wide equity standards.
   d. Note all deviations from district material and color standards.
2. Finishes for typical rooms with preliminary color pallet.
   a. Provide narrative signage/wayfinding concept and catalog cuts for proposed signage/wayfinding components.

Submit drawings including:

1. Floor plans and sketches indicating finish, signage, and wayfinding features.

PLUMBING - Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Domestic (hot and cold) water, sanitary, storm, domestic hot water generation system narratives with justification for system selection and potential use of solar energy. Coordinate with municipal utilities to verify that needed capacity is available.

Submit updated calculations including:

1. Equipment sizing.
2. Potable water baseline and update the reduced consumption calculations.
3. Updated calculations to support the strategies to achieve the water consumption and energy reduction goals. If potable water is being used to reduce energy, provide information regarding the use of life cycle cost effective water conservation measures to achieve the energy reduction.

4. Report on types and number of products that are water-efficient.

5. Outdoor water consumption calculations for exterior water usage and recycling. Show plans to reduce water usage for landscaping by choosing plant materials that do not require on-going irrigation. Where irrigation is required, specify low water use irrigation strategies and recycling where appropriate.

Submit updated drawings reflecting design progression and decisions of the [SD1] phase.

1. 1:100 (1/8-inch) scale drawings indicating room names, locations of existing and new equipment, and plumbing fixtures using district fixture numbers.

2. Preliminary layout of new utilities as they relate to sanitary, storm, and water.

3. Flow diagrams of domestic water and fuel gasses.

4. Indicate interface of new systems with existing. Show location of air compressors, grease traps, principal backflow preventers, sewage ejectors, domestic water heaters and main risers and isolation valves.

5. Plans showing incoming and leaving building services. Obtain data from district staff and indicate water pressure and flow at two fire hydrants serving each building in project and depth of cover for new water and fuel gas mains.

6. Where wells are required for a water source, install test well and obtain water analysis and expected yield in gallons per minute.

SCHEDULING – Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Updated Project Master Schedule.

2. Updated Detailed Design Schedule.

3. Updated Schedule Risk Analysis.

4. Phasing narrative.

5. Phasing plans on reduced site plans.

6. Phasing diagram.

7. Phases marked on full size drawings for district review.

8. Written list of systems, including temporary systems by phase and separated by technical discipline.

SECURITY (PHYSICAL) - Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Description of the basis for physical security requirements and an overview of the provisions to be implemented. Amplify changes made to setbacks, fencing, building envelope, access control system, monitoring, intrusion detection, video surveillance, and other systems that must be considered to develop a plan and a budget estimate. Also include special construction requirements such as integrating access control into existing openings, or accommodating the community use of facilities.

2. A narrative discussing the opportunities and challenges to integrating CPTED principles into the design or budget, and the alternatives being proposed or explored.

3. A narrative of how the Continuity of Operations Plan (COOP) may be affected by the project requirements on renovation projects.

4. Type of access control procedures and devices.
Submit updated drawings reflecting design progression and decisions of the [SD1] phase.

1. Site Plan with building ground floor plan visible (min. 1:1200 (1"=100')) showing:
   a. Perimeter fence.
   b. Location of vehicle access points.
   c. Location of active and passive barriers.
   d. Vehicular circulation, marshaling and parking.
   e. Site lighting.
   f. Video surveillance.
   g. Emergency generator locations.
   h. Central utility plant.
   i. Loading dock and service entrances.

2. Floor Plans (min. 1:100 (1/8"=1'-0'')) showing:
   a. Public entrances and lobbies, staff entrances and security access controlled areas.
   b. Video surveillance and head end equipment/monitoring room.
   c. Project specific high risk areas including large assembly, after-hours use areas, child-care centers, JROTC shooting ranges, etc. if applicable.

SITE DEVELOPMENT/UTILITIES - Submit:
Submit the updated Basis of Design [B | O | D] report including:

1. Detailed analysis of the site in relation to the surrounding community, including, pedestrian, automobile, school buses, and mass transit routes, available utilities, adjacent hazards including heavily traveled roads and geographic or attractive risks.
2. Phasing analysis to determine impact of project construction on maintaining existing school ingress/egress of pedestrians and traffic flows, transportation and storage of construction materials, mitigation of air and noise pollution, sequencing of new conflicts, and areas of future construction.
3. Report on the findings of geotechnical borings and the subsurface investigation program performed during [SD1].
   a. Additional boring locations shall be coordinated and authorized by the districts PM and added to the boring and subsurface investigation program.
   b. Ground penetrating radar locations shall be coordinated and authorized by the districts PM and added to the boring and subsurface investigation drawings.
4. Cost-efficient and feasible storm water management strategies based on [SD1] layout revisions. Some strategies require more land consumption than others, some require bio-retention, and others may require underground storage. Preliminary computations and design criteria shall adhere with local, state, and federal guidelines for storm water management practices, where applicable.
5. Storm water management designs may require infiltration or percolation tests to check soil conditions, advise accordingly.
6. Comment on the site environmental assessment by the district continuing contracted services biologist, if applicable.
7. Site review checklist(s).

Submit updated drawings reflecting design progression and decisions of the [SD1] phase:
1. District selected alternative or the district provided concept plan.
2. Topographic, utility, and landscape surveys.
3. Proposed building locations, demolition, proposed sidewalks and roads, parking, entrances and exits, and all mechanical and electrical components on grade (with circulation patterns.
4. Grading plans of all proposed construction. Show spot grades at structure corners, entrances, and intersections. Provide first floor elevations for structures and equipment pads.
5. Erosion control and drainage, storm water pollution prevention plan, staging areas, construction access and parking, and stockpile areas for earth and materials.
6. Landscape drawings showing plant groupings and a list of proposed plant materials. The plants selected must be native to the site climatic zone. Delineate irrigation limits.

**SPACE PLANNING - Submit:**

Submit the updated Basis of Design [ B | O | D ] report including:

1. Updated summary of space by function with net areas, gross area, and net: gross ratio by department, net: gross ratio for building, and all variation from district or SREF standards. Include:
   a. Unassigned space.
   b. Shell space.
   c. Circulation (horizontal and vertical).
   d. Space for future expansion.
2. Indicate variance from approved space program and provide explanation for each variance.

Submit updated calculations including:

1. Submit net and gross areas by department, academy, SLC, or as otherwise directed by the district PM.

Submit updated drawings reflecting design progression and decisions of the [SD1] phase.

1. Refer to the *Architectural and Building Information Modeling* sections for requirements.

**SPECIFICATIONS - Submit:**

Submit an updated Table of Contents of applicable Specification Sections in *2011 CSI MasterFormat*.

Submit a few sample specification sections, such as building exterior materials and typical interior materials, using the “Track Changes” function.

**STRUCTURAL - Submit:**

Submit the updated Basis of Design [ B | O | D ] report including:

1. Written description of the basic structural systems to be used on the project (foundations, substructure, superstructure, and lateral force resisting system). Include a short description of other options that were investigated for each system and why they were not chosen. Provide enough detail to describe the system fully to an experienced engineer for review purposes.
2. Comparative description, with sketches and supporting calculations, of at least three structural systems for typical buildings or wings, as deemed appropriate. (When only one structural system is possible, submit explanation and only that structural system.)
3. Describe each type of construction proposed and reasons selected including the structural framing system. (The structural design should be completed to the point where a realistic cost estimate can be performed).
4. Structural material information:
   a. Concrete: Basic material properties for concrete to be used, including compressive strength, entrained air content, maximum aggregate size, allowable water/cement ratio, unit weight or aggregate type, and anticipated admixtures.
   b. Structural Steel: ASTM material designation for the steel to be used for each of the following items: steel columns, steel beams, base plates, built-up beams or girders, steel truss chord members, and lateral bracing system. Itemize by American Institute of Steel Construction (AISC) shape as applicable, including material types and sizes.
   c. Steel Deck: Basic information on the anticipated steel decking to be used, including profile and depth, ASTM material designation, span condition, finishes and coatings, and method of attachment.
   d. Masonry: ASTM International (ASTM) designations for typical Concrete Masonry Units (CMU) to be used.
   e. Wood and Engineered Wood Products: Grade and species for all anticipated wood framing products.

5. Description of the design philosophy to limit the spread of damage from an extraordinary event.

6. Summary of the code analysis for each applicable code or standard.

7. Structural review checklist.

8. Geotechnical report evaluation and recommendations:
   a. A draft report, for review and comment, shall be submitted for approval.
   b. The coordinates (northing, easting, elevation) of each boring or survey line shall be reported. Boring logs shall include soil descriptions, blow counts, and all other relevant information. Auger refusal and its relation to top of rock shall be carefully explained and correlated to seismic refraction survey, if performed. Geophysical testing and evaluation shall be included where appropriate.
   c. The final report shall include resolution of all comments. Investigation methods shall be tailored to the needs of the specific project. Ground water conditions shall be investigated for each project, if the project includes significant excavations greater than 15 feet, include the installation and monitoring of observation wells. When required, monitoring shall continue for at least six months to give an indication of seasonal fluctuation.

9. Recommendations for foundation system and, if necessary, mitigation of groundwater penetration.

10. Indication of whether special geotechnical investigation procedures, e.g. Shear Wave Velocity Measurements and/or Site Specific Study, shall be required for the determination of the more accurate Site Class required to assign Seismic Design Category.

Submit updated drawings reflecting design progression and decisions of the [SD1] phase.

1. Drawings of the preferred structural system at the same scale and orientation as the other drawings in the set. The A/E and district PM need to concur on drawing scale and orientation.
2. Foundation system including walls, footing, and pile locations.
3. Floor and roof framing system, including column, beam, and girder locations. Indicate lateral bracing system on the layout.
SUSTAINABILITY - Submit:
Submit the updated Basis of Design [ B | O | D ] report including:

1. Description of the water-use reduction strategies selected for the project, including preliminary life cycle cost analysis and how they achieve the elected or mandated reduction goals.
2. Water-use reduction requirements as part of the selected third-party rating system and district sustainability guidelines. Coordinate the reporting with the plumbing and site/civil storm water analysis to provide a graphical representation (pie or bar chart) by end use of the potable water baseline versus the required reduction target and the selected strategies.
3. Summary of the energy-use intensity and energy consumption by end use and the life cycle cost for the selected HVAC and lighting concepts. Coordinate the reporting with the results from the energy and lighting system analysis conducted as part of the mechanical and electrical/lighting systems evaluation. The summary should graphically illustrate (pie or bar chart) how the elected or mandated energy conservation requirements, energy consumption, and lighting goals in districts design manuals, districts sustainability guidelines, and for the overall project are being achieved. Provide a description and graphical representation of how the design reduces greenhouse gas emissions.
4. Preliminary summary of the Indoor Environmental Quality (IEQ) aspects of the selected concept.
5. Summary and estimate of renewable energy capacity as part of the [SD1] concept evaluations and as they relate to district initiatives or mandates and third-party sustainability goals. Renewable energy to be included in the assessment must include solar thermal, solar PV, wind, and geothermal. Coordinate with the plumbing submission and submit as needed the explanation and technical backup information as to how the project shall meet the project goal for hot-water generation utilizing renewable solar energy.

Submit updated documents and calculations related to third part certification including:

1. Water-use reduction calculations based on third-party guidelines. Coordinate calculation submission for the potable water baseline and reduced consumption calculations with the plumbing engineer. Coordinate calculation submissions with the plumbing engineer to support the strategies to achieve the water reduction goals.
2. Preliminary greenhouse gas emissions reduction calculations supporting district initiatives or mandates.
3. Preliminary renewable energy calculations. Coordinate calculation submissions with the mechanical and electrical trades.

Green Globes (if applicable):

1. Provide as part of the narrative Basis of Design [ B | O | D ] report updates to the following as it pertains to third-party Green Globes certification:
   a. Rating category under which the project shall be certified and the final input data for the project initiation, site analysis, and programming phases.
   b. Final input data for the project initiation, site analysis, and programming phases.
   c. Final input parameters and assumptions for performing the Life Cycle Cost Assessment (LCCA).
LEED (if applicable):

1. As a part of the Basis of Design [B | O | D] report, submit the following as it pertains to third-party LEED certification:
   a. A completed preliminary LEED score card.
   b. The score card should indicate where points are anticipated and a brief discussion should be provided describing why certain points were selected and why others are not achievable.

TELECOMMUNICATIONS - Submit:

Submit the updated Basis of Design [B | O | D] report including:

1. Narrative describing the design, including basic assumptions, compatibility with existing equipment, and points of interconnection with the existing telecommunications systems.
2. Statement of the impact of the new construction to the existing telecommunications systems.
3. Copies of all correspondence and minutes of meetings with utility company representatives.

Submit updated drawings reflecting design progression and decisions of the [SD1] phase.

1. Room titles, area functions, location, and sizes of main computer and telephone rooms and telecommunications closets.
2. All major telecommunications equipment at scale. Include means and clearances for installation, maintenance, and removal/replacement of equipment.
3. Sheet for telecommunications symbols, notes and abbreviations.
4. Site plan showing existing and proposed telecommunications systems associated with the new construction.
5. Updated conceptual diagram of the proposed telecommunications systems.
DESIGN DEVELOPMENT [DD]

GENERAL

The final approved Schematic Design 2 Documents shall be the basis for the Design Development phase. Any changes from [SD2] documents must be approved by district’s Project Manager prior to proceeding with the Design Development documents. All documents shall be reviewed for functional and aesthetic relationships. The result of this phase shall be a set of design documents defined to the point that no further functional decisions are required.

General requirements

1. Drawings shall have graphic scales, north arrow (either true north or plan north; consistent for similar plan types), and key plan clearly identifying the drawing component within the overall plan. Drawings for the same building or site area should be similarly scaled between all disciplines to facilitate overlaying and use by the contractors team; separate large scale sheets may be included where required.

2. Drawings shall use the district's standard border and shall include the district's reuse policy. CADD standards and sheet numbering shall also conform to district policy.

3. Each submission shall build on previous submission. Drawings required by previous submission shall be included in subsequent submission whether or not specifically identified as a requirement.

4. Submit all previous comments from district and peer reviewers. All comments shall be resolved before moving into the next submission stage. For major issues, A/E must respond to comments with written resolution; i.e., responding to important comments simply with "agreed" or "disagreed" is not acceptable. Any deviation from district criteria shall be identified, justified, and documented with district's approval.

5. All previously submitted documents shall be updated with written responses to reflect review comments and further development. The A/E shall verify that all changes based on the review of the previous phase have been entered into the project log and approved by the district Project Manager.

6. Specifications shall be guided by the district's Design Guidelines. Submissions shall show changes to master by using "Track Changes" function. Each submission shall indicate changes from previous submission, not all changes to master. The final submission shall not show changes.

7. Dimensions shall be provided in English units, unless otherwise specified by the district's Project Manager.

8. All previously submitted documents shall be updated to reflect review comments and further development.

9. The A/E shall submit minutes of meetings with district, district's other contractors, and A/E coordination meetings.
DESIGN DEVELOPMENT 1 [DD1]

The purpose of Design Development 1 is to add an increased level of detail for all aspects of the project to further define the design. During Design Development 1, the team refines visualization of the project to communicate the character of interior and exterior space.

CRITICAL OBJECTIVE(S)

- **Start by incorporating the direction and feedback from [SD2], resolve all open issues and document the agreements reached.**
- **End with a design that satisfies the design objectives, accessibility, aesthetics, cost effectiveness, functional and space requirements, environmental quality, security, sustainability, and, where appropriate, historic preservation requirements.**
- **The start of [DD1] is predicated on completing the requirements and reasonable expectations of [SD1] and [SD2], not based on the calendar or schedule.**

ARCHITECTURAL - Submit:

Submit the updated Basis of Design [B O D] report including:

1. Alternates with written description. Continue cost evaluation.
2. Updated room data sheets for typical room types in the project that include:
   a. Minimum and maximum room dimensions and clearances.
   b. Minimum door size, vision panel, and hardware function.
   c. Fire ratings.
   d. Casework configuration, construction requirements, and location.
   e. Utilities (quantity and location): normal power, emergency power, isolated power, UPS, lighting, plumbing fixtures and controls, fuel gases, data connections, communications (telephone, PA, intercom, data), HVAC criteria and controls, air filtration and circulation.
   f. Special equipment (fixed and movable) with rough-in requirements. Identify who furnishes and who installs each piece.
   g. Fixtures and furniture to be accommodated, whether or not part of the contract.
   h. Special features such as enhanced hurricane protection, humidity control, eye wash, etc.
   i. Locker quantities and type.
   j. Acoustic separation or special acoustic requirements.
   k. Finishes.
3. Equipment catalog cuts.

Submit updated drawings reflecting design progression and decisions of the [SD2] phase.

1. Updated floor plans to include each floor, penthouses, interstitial spaces, pipe basements, and service areas (min. 1:100 (1/8"=1'-0")). Show room names and F.I.S.H. numbers, door numbers, net area of each room, column grid, columns, windows, interior vision panels, millwork, casework, plumbing fixtures, and major and fixed equipment. Show proposed future expansion. Coordinate with the Section on Elevators.
2. Demolition floor and ceiling plans for areas to be renovated and areas below where work in space below is required (min. 1:100 (1/8"=1'-0")) with finish schedule and partition types.
3. Equipment plan (min. 1:100 (1/8"=1'-0'')) and schedule with rough-in requirements. Identify relocated equipment, who furnishes new equipment, and who installs equipment.
4. Enlarged floor plans (min. 1:50 (1/4"=1'-0'')) as required.
5. Phasing plan with Interim Life Safety Measures (min. 1:200 (1/16"=1'-0'')).
6. Life safety plans showing means of egress, capacity, population, path of travel, travel distances, fire rated partitions, smoke barriers, exit signs, and fire extinguishers (min. 1:200 (1/16"=1'-0'')).
7. Building elevations with fenestration, penthouses, materials, finish floor elevations, floor-to-floor heights, overall building height, window and louver types, entrances, canopies, and adjacent grades (min. 1:100 (1/8"=1'-0'')). Include separate elevations indicating base building with expansion shown on floor plans.
8. Building elevations of complex areas (min. 1:50 (1/4"=1'-0'')).
9. Building sections (min. 1:100 (1/8"=1'-0'')).
10. Typical wall sections (min. 1:15 (3/4"=1'-0'')).
11. Interior elevations showing unique features, power, data, communications, millwork, casework, equipment and other built-in items (min. 1:50 (1/4"=1'-0'')).
12. Partition type details (min. 1:10 (1"=1'-0'')).
13. Reflected ceiling plans (architectural only) (min. 1:100 (1/8"=1'-0'')).
14. Finish schedule.

BUILDING INFORMATION MODEL (BIM) - Submit:

If requested, submit the BIM 3D model capability as a communication tool with school district staff and other stakeholders to communicate design vision, functionality, and student experience.

Update the BMP (BIM Management Plan) and submit drawings that include:

1. Updated BMP (BIM Management Plan) with added input from the Constructor (if one is under contract).
2. Level of Detail Matrix for model elements across all trades consistent with direction set at BIM kickoff meeting.
3. Clash detection results for major vertical and/or horizontal mains and select repetitive spaces. Identify known pinch points for further clash sessions.

Submit updated drawings reflecting design progression and decisions of the [SD2] phase.

1. Full Room Schedule showing F.I.S.H. space naming and coding as defined by district guidelines.
2. Updated gross area and departmental area schedules and graphics.
3. Updated 3D views from [SD2] submission.
4. Updated floor plans color-coded by functional area.
5. Legend showing example Door and Wall families, indicating types.
6. Legend showing example Room Finishes for typical rooms and key public areas.
COMMISSIONING - Submit:
Submit the updated Basis of Design [ B | O | D ] report coordinated with districts Project Requirements and list of systems, components, and features to be commissioned.

1. Updated Design Narrative.
2. Updated Design Phase Commissioning Plan.
3. Updated Design Phase Commissioning Log with proposed resolution/mitigation.
4. Identify major concerns that could affect operations, maintenance or testing.
5. Identify discrepancies between Owner’s Project Requirements (OPR) and Design Narrative.
6. Update design schedule and key milestones.
7. Update roster of Commissioning Team members including the Coordination Matrix for Commissioning Agent and the A/E.
8. Draft Construction Phase Commissioning Plan, including systems to be commissioned, an outline of construction phase roles and responsibilities, and an outline of required system documentation requirements.

COST ESTIMATING - Submit:
Working with the DB or CM, if applicable, provide an update of the estimate performed during the [SD2] with the projected project cost compared to the project budget and [SD2] estimate.
Submit an updated estimate that conforms to the districts breakdown structure and proposed project phasing plan.

1. WBS II Level 3 estimate.
2. Cost model budget tracking.
3. Budget tracking by phase.
4. Separate computations for site, each building, new work, renovations, and alternates.
5. Building net and gross area computations for new construction and renovations.

ELECTRICAL - Submit:
Submit the updated Basis of Design [ B | O | D ] report including:

1. Previous submission documents modified to meet the utility company's requirements. Update the written summary of proposed electrical service/methods/equipment based on discussions and agreements with the electrical utility.
2. Coordination of electrical requirements on room data sheets. (See Architectural Section.)
3. Major equipment cut sheets for primary and secondary electrical distribution systems.

Submit updated calculations to reflect design progression and incorporation of directed changes including:

1. Updated demand and connected load calculations.
2. Estimated connected loads based on panel schedules for each area function’s lighting and power, normal and essential electrical systems.
3. Updated mechanical motor loads for mechanical system equipment and elevators
4. Panel and switchboard schedules for load analysis.
5. Generator selection calculation based upon input loads by Automatic Transfer Switch (ATS) system, load steps. Apply seasonal demands to narrow down the generation capacity of the essential power system.
6. Preliminary or sample calculations for fault current, protective device coordination, arc flash, generator sizing, load, feeder and equipment sizing, voltage drop, harmonic distortion, lightning protection risk analysis, and lighting.
7. Uninterruptible Power Supply (UPS) load requirements.

Submit updated drawings reflecting design progression and decisions of the [SD2] phase.

1. Updated one-line and riser diagrams of the normal electrical power distribution system, stand-by power, and the essential electrical systems. Locate all equipment.
2. Updated area functions and locations coordinated with F.I.S.H. room titles and numbers. Show location and dimensions of electrical equipment rooms and electrical closets on drawings.
3. Final locations of primary distribution switchgear/switchboard, engine-generator sets, unit substations or pad mounted transformers, manholes and all other major items drawn to scale. Include clearance and removal paths for equipment.
4. Coordinate plans with riser diagrams and show all electrical power distribution equipment, transformers, and panel boards to scale. Include means and clearances for installation, maintenance, and operation of equipment.
5. Coordinate raceway requirements for low voltage signal systems. Anticipate the requirements for all systems including data, telephone, video surveillance, security, fire alarm, access control, energy management, CCTV, PA, and radio repeaters, show on plans to scale.
6. Coordinate reconnection of existing power sources to new equipment on plans.
7. Update demolition plans to indicate the complete electrical work in all areas to be renovated. If an entire wing or area is completely demolished, provide a reference note to the architectural demolition drawings.
8. 1:100 (1/8" = 1'-0") scale floor plans showing typical power, signal, and lighting layouts for typical rooms.
9. A representative branch circuitry plan including receptacles, lighting, and power for one major representative area for each function, such as a classroom, gym, office, etc.

ELEVATOR - Submit:

Where elevators are required, submit the updated Basis of Design [B | O | D] report including:

1. Design requirements for equipment such as structural loads (horizontal and vertical), power requirements, heating and cooling loads, special ventilation, emergency power or operation requirements.

Submit, as required, updated documents and calculations related to elevators including:

1. Floor plans (min. 1:100 (1/8"=1'-0") drawings of the elevators.
2. Location of machine and equipment rooms for elevators, or lifts. Indicate minimum dimensions, ventilation, and power requirements.
3. Minimum dimensions for hoistways.
ENVIROMENTAL IMPACT & HAZARD ABATEMENT - **Submit:**

Notify district Project Manager immediately upon discovery of any environmental or site data that may warrant investigation. Where asbestos or hazardous abatement is required, submit the updated Basis of Design [B O D] report including:

1. Submit most recent AHERA survey. Unless abated and documented otherwise, previously assessed materials shall be considered asbestos containing and verified by spot survey.
2. Submit substantially complete assessment report in accordance with district requirements.

Submit updated drawings to reflect design coordination with the districts asbestos consultant and design progression and incorporation of directed changes including:

1. Submit asbestos abatement drawings.

**FIRE PROTECTION - Submit:**

Submit the updated Basis of Design [B O D] report including:

1. Integration of new fire alarm system with existing system and other systems in the facility.
2. Operation of smoke evacuation system where such a system is required.

Submit updated calculations to reflect design progression and incorporation of directed changes including:

1. Update calculations to reflect comments from [SD2] and the evolving design.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. List of edited district standard symbols, abbreviations, and standard details.
2. F.I.S.H. room names and room numbers, door locations and swings, smoke- and fire-rated partitions, and sprinkler/standpipe risers to floor plans. Identify high impact areas requiring concealed or protected type heads on the drawings.
3. Fire alarm risers showing new equipment and/or necessary changes, if modification to the existing system is required. Include recommendations if certain requirements of district criteria might be waived to allow existing equipment to be reused, or if complete replacement may be more economically advantageous over the remaining life cycle.
4. Fire- and smoke-control aspects of the HVAC system design on the floor plans. Show duct-mounted smoke dampers, smoke detectors, and fire dampers. Include a written description of the smoke-control features. Describe each designated smoke zone and its interaction with the HVAC systems.
5. Estimated capacities of proposed air-handling units in cubic feet per minute.
6. Location of fire extinguishers and fire hose cabinets.
7. Fireproofing of structural members where applicable.
HEATING, VENTILATING & AIR CONDITIONING - Submit:

Submit the updated Basis of Design [B O D] report including:

1. List of systems designed to incorporate energy conservation, renewable energy and the use of recycled materials and media. Identify specific systems and include a short description of methods and means to accomplish each of these goals.
2. Coordination of HVAC requirements on room data sheets (see Architectural section).
3. Coordination with the Architect and kitchen equipment specialists to accommodate specified equipment. (Any request for deviation from HVAC design criteria must be approved by district and occur no later than the design development stage).
4. Description of the interaction between the existing HVAC systems and the new requirements. State the impact on the existing HVAC systems and the project cost. (Examples include: additional commissioning or TAB effort, replacement of components, removing finishes for access, painting, and fixtures.)
5. Description of seismic criteria (if applicable) on the HVAC systems.
6. A narrative of the possibility of using the existing energy management controls system in the new project. Address the key issues of the existing systems available spare capacity and compatibility and conformance with current district standards.
7. Description of the mechanical sequences of operation. Within the narrative, state that the energy model represents these operational parameters and uses actual equipment performance curves from the design selections (mechanical, plumbing, and lighting).

Submit updated calculations to reflect design progression and incorporation of directed changes including:

1. The first version of the detailed zone heating and cooling load calculations and psychometric analysis for each zone.
   a. Accompany these calculations with the architectural scaled drawings 1:100 (1/8” = 1’0”) showing the correlation between each zone boundary and the floor area and abbreviated F.I.S.H. coded room numbers used with computer input data sheets.
2. Computer modeling software programs:
   a. Submit a level of detail of the calculations consistent with the development of the architectural drawings.
   b. If Trane Trace is used, submit the data files and associated report(s).
   c. If any other approved modeling computer program is used, submit the input manuals for the other computer program, a statement justifying the decision to use this program, a listing of the capabilities and limitations of the program, and the data file(s) and associated report(s).
3. For air conditioning, heating and ventilating units, and exhaust air systems, estimate loads and capacities in cubic feet per minute, static pressure, and required fan-motor horsepower.
4. For the chilled water plant, submit as required to support the design scope:
   a. Quantity and type of chillers, capacity in tons of refrigeration, capacity in tons for ice storage and the electrical requirements.
b. Pertinent data for the chilled water plant accessories including ice storage, chilled water and condenser water pumps, and cooling towers.

c. Coordination of the ice tanks or cooling tower location with other disciplines.

d. Sound/acoustic analysis to ensure that the noise generated by the chillers, condensers and condensing units, and cooling towers is in compliance with ASHRAE requirements.

e. Specific recommendations for the design, even if these recommendations exceed OSHA and ASHRAE requirements.

f. Provide details related to emergency connections of a back-up source of chilled water including a the pumping arrangement.

5. For the heating system, submit:

a. Total heating load based on the available information of the space heating requirements, domestic hot water load and humidification loads.

b. Written description of the proposed zoning of the heating system indicating such features as distribution of ventilation load, perimeter heat load, and reheat load associated with air terminal units.

c. Updated energy analysis with optimized envelope and glazing properties, and all reductions necessary to achieve any mandated or elected energy consumption target. State all occupancy, regulated and unregulated load assumptions, and schedule parameters used in the analysis.

d. State all modeled system operational characteristics. Use actual equipment performance curves from the design selections (mechanical, plumbing, and lighting).

e. Available preliminary electrical power (normal and emergency) data to the electrical discipline.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Applicable district standard symbols and abbreviations.

2. Equipment schedule for each major piece of equipment.

3. HVAC floor plans scaled 1:100 (1/8 inch) for typical areas showing the proposed routing of the main air distribution and piping layouts. Ductwork and piping may be shown in single line.

4. Fire and smoke partitions on HVAC floor plans. Show necessary smoke and fire dampers and smoke detectors on floor plans, per applicable NFPA codes. For buildings not equipped with quick response sprinklers, describe each designated smoke zone’s interaction with the building’s HVAC systems.

5. Mechanical equipment rooms large scaled drawings (minimum 1:50 (1/4 inch) scale) for the typical mechanical equipment rooms (MERs) with at least two cross-sections, generally cut at right angles to each other, showing all floor and ceiling mounted equipment, major ductwork, and piping. Show all ductwork and piping, 6 inches in size and larger, in double line. On the cross-sections, show actual elevations of each HVAC component, rise and drop as required to co-exist with other interfering items of equipment and other building elements, such as, beams, lights, plumbing pipes, and
cable trays in the MERs, show all miscellaneous equipment and systems, such as: heating and ventilating systems for the MERs and locations of the temperature control panels. Demonstrate clearances for access and maintenance with coil and tube pull spaces on the equipment layout.

6. Updated flow and riser diagrams for each type of the typical air handling systems, exhaust (general and special) systems, and all hydronic systems, such as: chilled water system, hot water system and glycol heat recovery system. Submit existing capacities of these systems, where applicable, and new estimated loads with pumping arrangement, and control valves for complete understanding of existing systems to be used or interfaced with the new systems.

7. Airflow relationship diagram indicating “clean” areas that are positively pressurized with respect to adjoining areas such as cafeterias, and the “dirty” areas that must be under negative pressure with respect to adjoining areas such as kitchens.

8. Schematic control diagrams for each type of typical air and hydronic systems. Show control devices, such as thermostats, humidistats, flow-control valves, dampers, freezestats, smoke dampers, duct detectors and all required limit sensors for operating and high-limit on all air and hydronic fluid systems.

HISTORIC PRESERVATION

Comply with contractual agreements for Design Development 1, as developed with the district project manager.

Notify district PM immediately upon discovery of any historical or archeological data that may warrant investigation.

INTEGRATED DESIGN - Submit:

Submit the updated Basis of Design [B | O | D] report including:

2. Plan for mitigation of challenges such as schedule delays, budget overruns, and scope changes.

INTERIOR AND EXTERIOR EQUIPMENT – Submit:

Submit the updated Basis of Design [B | O | D] report or drawings including Equipment Schedules, or an updated project Equipment List in Excel format as agreed to by the district PM.

INTERIOR DESIGN - Submit:

Submit the updated Basis of Design [B | O | D] report, including:

1. Finish schedule based on district standard materials and products.
2. Concepts for color and material palettes.
3. Finish sample boards.
4. Furniture catalog cuts and materials samples.
5. Fully developed design for lobbies and other major public spaces. Submit rendered elevations, perspectives or other presentations to describe the materials, lighting, and appearance of those spaces.
6. Signage and wayfinding system, including examples of graphic program.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Floor pattern plans (min. 1:100 (1/8" = 1'-0"))
2. Wayfinding and signage plans (min. 1:100 (1/8" = 1'-0")). Show floor and wall patterns, lighting, signage and other elements that shall assist users to reach their destination.

PLUMBING - Submit:

Submit the updated Basis of Design [ B O D ] report including:

1. Plumbing fixture catalog cuts based on district guidelines.
2. Coordination of plumbing/utilities requirements on room data sheets (see Architectural Section).
3. Recommendations for installing insulation on the domestic water and horizontal storm drainage piping for the prevention of condensation.
4. Graphical representation of energy and water usage savings with reference to the contributing technologies and their weighted contributions.
5. Coordination with utility companies, where applicable.

Submit updated calculations to reflect design progression and incorporation of directed changes including:

1. Updated calculations for sizing all systems and equipment.
2. Updated calculations to support the strategies to achieve the water consumption and energy reduction goals.
3. Updated storm water computations, sizing calculations, and site analysis to comply with local, state, and federal regulations. Indicate methodology or software used.
4. Provide a fixture schedule and list of equipment requiring plumbing and gas connections.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Plumbing riser diagrams indicating the point of connection into existing piping or site utilities. Show the location for riser isolation valves.
2. Plumbing demo floor plans at a minimum 1:100 (1/8" = 1'0") or as otherwise established for the set. Identify plumbing fixtures being kept, salvaged and removed.
3. Plumbing floor plans at a minimum 1:100 (1/8" = 1'0") or as otherwise established for the set. Coordinate new and existing fixtures with the demo set. Add new equipment using district fixture numbering system.
SCHEDULING – Submit:
Submit an updated narrative Basis of Design [ B | O | D ] report including an update of information shown on Master Schedule, Design Schedule, and Risk Analysis and provide an increased level of detail for each open activity.

1. Updated Project Master Schedule.
2. Updated Detailed Design Schedule.
3. Updated Schedule Risk Analysis.
4. Identification of anticipated midpoint of construction and escalation factors in determining construction cost. (Coordinate with the Section on Cost Estimating.)
5. Updated Phasing narrative.
6. Updated Phasing plans on reduced site plans.
7. Updated Phasing diagram.
8. Phases marked on full size drawings for district review.
9. Written list of systems, including temporary systems by phase, and separated by technical discipline.

SECURITY (PHYSICAL) - Submit:
Update the Basis of Design [ B | O | D ] report, including a physical security narrative completed by an individual well versed in the CPTED principals, include:

1. Description of the overall proposed physical security approach and the elements in the building and site design.
2. Coordination of security requirements on room data sheets (see the Architectural Section).
3. Subsections or subparagraphs corresponding to each of the following:
   a. Site considerations.
   b. Building entrances and exits.
   c. Functional areas.
   d. Special hazard areas such as stadiums.
   e. Limited visibility areas such as locker rooms.
   f. Limited supervision areas such as student parking lots.
   g. The building envelope.
4. Proposed methodology to be used for physical security requirements resulting in structural or exterior envelope hardening for enhance hurricane protection.
5. Catalog cuts for any non-district standard product including but not limited to security equipment, video surveillance, access control systems, and screening equipment if requested.

Submit updated calculations to reflect design progression and incorporation of directed changes including:

1. Calculate the enhanced hurricane protection requirements based on the projects requirements, if applicable. Document the changes required to the typical glazing, window framing, exterior envelope elements, vulnerable interior, exterior structure and life safety, plumbing, mechanical and electrical systems.
Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Physical security plan showing location of security cameras, card readers, and screening equipment (min. 1:100 (1/8"=1'-0").)
2. Site Plan (min. 1:1200 (1"=100')) including:
   a. Perimeter fence with pedestrian access points and access control reader locations.
   b. Location of vehicle access points - private, public, commercial.
   c. Vehicle stacking areas.
   d. Security control areas, such as resource officer’s office and parking.
   e. Site lighting.
   f. Camera locations overlaid with landscaping to ensure best placement.
   g. Landscaping.
   h. CPTED implementation plan
3. Floor Plans (min. 1:100 (1/8"=1'-0"):)
   a. Public entrances and lobbies.
   b. Staff entrances.
   c. Security operations center for the resource officer and video surveillance head-end equipment.
   d. Special purpose areas where cash may be collected, counted or kept.
   e. Child care centers if applicable.
   f. Central energy plant, loading dock and service entrances, and mail rooms.
4. Design sketches reflecting hurricane hardening requirements for typical exterior envelope and structural elements.
5. Coordination with the following sections Architectural, Electrical, and Site Development.

**SITE DEVELOPMENT/UTILITIES - Submit:**

Submit the updated Basis of Design [B | O | D] report including:

1. Completed subsurface investigation report for road, parking, and other paving design, where applicable.
2. Site review checklist for Design Development1.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Site plans including demolition, locations of structures, parking, roads, service areas, walks, plazas, buffers/tree groupings, landscape screening, and other site/building features. Indicate locations of accessible parking spaces and number of handicapped accessible and van accessible parking spaces on site plan.
2. Grading plan including existing and proposed contours at two (2) foot intervals of the entire area affected by the site work. Show spot elevations at structure corners, entrances, equipment pads, other critical areas, and floor elevations for all floors with direct access to grade.
3. Planting plan with list of suggested plant materials from the district standard planting list or, subject to approval, noninvasive and native drought tolerant plants for various landscaping needs. Include plant lists for all open areas including plazas, courtyards, parking lots, entryways, and other various exterior features. Indicate proposed materials and quantity to be used for each element. Show planting irrigation areas.

4. Landscape plan showing hardscape elements including benches, retaining walls, raised planters, paver and sidewalks and other site amenities.

5. Include updated topographic, boundary, utility, and landscape survey information prepared during the schematic design phase.

6. Plan showing all new and existing utilities (storm drainage, sanitary sewer, water, and gas) from building connections to mains. Coordinate with other trades (such as communications and electric) to avoid conflicts.

7. Rim and invert elevations for sewers, manholes, lift stations, grease traps, acid neutralization tanks including pipe lengths, size, and materials, where known. (Coordinate with Plumbing section for plumbing requirements.)

**SPACE PLANNING - Submit:**

Submit the updated narrative Basis of Design [ B | O | D ] report including an update of previously submitted summary of space by function with net areas, gross area, net:gross ratio by department, net:gross ratio for building, listing of deviations from approved district space program, and justification for those deviations.

Submit updated calculations to reflect design progression and incorporation of directed changes including updated net to gross ratios.

Submit updated drawings to reflect design progression and incorporation of directed changes. Refer to the Architectural and Building Information Modeling sections for requirements.

**SPECIFICATIONS - Submit:**

Submit outline specifications based on the table of contents submitted during the schematic design phase. Submit the specifications in electronic format with the “Track Changes” function enabled.
STRUCTURAL - **Submit:**

The updated narrative Basis of Design report, including a description of how the [DD1] documents address further developments in design characteristics; code compliance issues; and description of how the design meets or differs from the requirements of district’s Statement of Work.

1. Updated structural review checklist.
2. Structural material information:
   a. Concrete:
      i. Potential for fly ash or other suitable cement replacement substitution.
      ii. Concrete mixtures to be used for footings, foundations walls, slab on grade, elevated slabs, superstructure columns and beams, roof slabs. For rebar, identify bar and welded wire fabric requirements.
      iii. ASTM material designation for the rebar to be used. Indicate the anticipated uses and locations for special rebar types (epoxy coated, galvanized, and high strength).
      iv. Floor flatness requirements.
   b. Structural Steel:
      i. Market survey of firms with AISC certification likely to bid the project. Discuss the benefits and risks of requiring or not requiring this certification.
      ii. Type of anticipated structural steel connections.
      iii. Diameter, ASTM material designation, and finish for the typical bolt assembly, including nuts, washers, and bolts.
      iv. List of the locations where slip-critical bolts are anticipated. Submit the test method to be used to verify the bolt tension in the slip-critical connections.
      v. Anticipated type of moment connection.
      vi. Project welding materials.
      vii. Type of base plate/anchor rod assembly. Include material type and sizes.
      viii. Priming/painting of steel members including materials, locations, and slip coefficients.
   c. Steel Deck:
      i. Required shoring.
      ii. Deflection criteria to be considered.
   d. Cold rolled steel framing:
      i. Engineering design requirements for cold rolled products.
      ii. Typical spacing and fastening for framing members.
   e. Masonry:
      i. In coordination with architectural, discuss through wall flashing and insulation recommendations.
      ii. Various types of mortar to be used.
      iii. Lintel materials, ties, and anchor.
      iv. Masonry tolerances to be used.
v. Hot and cold weather installation techniques to be used.

f. Wood and Engineered Wood Products:
   i. Engineering design requirements for engineered wood products.
   ii. Typical spacing for framing members.
   iii. Special treatment requirements (such as pressure treated and fire resistive).
   iv. Requirements for wood sheet goods (oriented strand board (OSB), plywood), thicknesses, and locations for use (roof deck, floor deck, exterior sheathing).

3. Description of the design philosophy to limit the spread of damage from extraordinary events including hurricanes. If applicable, provide written description of design philosophy for the design of progressive collapse due to natural or manmade disaster.

Submit updated calculations to reflect design progression and incorporation of directed changes including hand calculations for primary structural members and calculations supporting the drawings below.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. 1:100 (1/8” = 1’0”) scale drawings showing the selected structural systems. The drawings shall be appropriately advanced since the [SD2] submission and coordinated with all disciplines.
2. Typical details showing relationship of structure with architectural and mechanical features, and new and existing construction features.
3. Updated list of the drawings, general notes, abbreviations, legends, key notes, symbol keys, key plans, column lines, north arrow, and coordinated backgrounds.
4. Coordinated drawings with respect to reference symbols, notes, abbreviations, specification sections, schedules, and other disciplines.
5. Foundation plans.

SUSTAINABILITY - Submit:

Submit the updated Basis of Design [ B O D ] report describing the proposed sustainability features of the project with following updates as required:

1. Description of the water-use reduction strategies selected for the project, including life cycle cost analysis and how they achieve the reduction goals and mandated water use reduction requirements as part of the selected third-party rating system and district sustainability guidelines. Coordinate reporting with the plumbing and site/civil storm water analysis to provide a graphical representation (pie or bar chart) by end use of the potable water baseline versus the required reduction target and the selected strategies.
2. Summary of the energy-use intensity and energy consumption by end use and the life cycle cost for the final selected HVAC and lighting concept. Coordinate the reporting with updated results from the energy and lighting analysis conducted as part of the mechanical and electrical/lighting systems. The update should graphically illustrate (pie or bar chart) how the mandated energy conservation requirements, energy consumption
and lighting goals in the district design manuals, district sustainability guidelines, and for the overall project are being achieved.

3. Summary of the Indoor Environmental Quality (IEQ) aspects of the project. Update the description and graphical representation of how district and third-party sustainability system requirements for Green House Gases (GHG) emission-reduction or elimination for the selected concept are achieved.

4. Estimate of renewable energy capacity for solar thermal, solar PV, wind, and geothermal as they relate to district electives or mandates and third-party sustainability goals. Coordinate the update with the plumbing submission and submit as needed the final explanation and technical backup information as to how the project shall meet the project goal for hot water generation using renewable solar energy.

Submit updated calculations to reflect design progression and incorporation of directed changes including:

1. Updated water-use reduction calculations based on third-party and district guidelines. Coordinate the update calculations for the potable water baseline and reduced consumption calculations with the plumbing engineer. Update the calculation submission with the plumbing engineer to support the strategies to achieve the water reduction goals.

2. Updated Green House Gas (GHG) emissions reduction calculations supporting district directives.

3. Updated renewable energy calculations. Coordinate the update calculations with the mechanical and electrical trades.

GREEN GLOBES (if applicable):

1. Provide as part of the narrative Basis of Design [ B | O | D ] report the following as it pertains to third party Green Globes certification:
   a. Document and discuss the preliminary input and output from the Life Cycle Cost Assessment (LCCA) for the selected concept.
   b. Submit updated calculations to reflect design progression and incorporation of directed changes including the preliminary input and results of the Life Cycle Costs Assessment (LCCA) calculations.

LEED (if applicable):

2. Provide as part of the narrative Basis of Design [ B | O | D ] report the following as it pertains to third-party LEED certification:
   a. Completed preliminary LEED score card. The score card should indicate where points are anticipated for design and construction phase. A brief discussion should be provided describing why certain points are selected and others are not achievable or recommended.
   b. Assumptions for input into LEED template calculations for all attempted credits.
TELECOMMUNICATIONS - Submit:

Submit the updated Basis of Design [B | O | D] report including a written summary of any conversations with the telecommunications department or the public utilities providers.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Telecom riser diagrams.
2. Locations of major equipment drawn to scale. Indicate equipment to be installed in the proposed main server room, if applicable, the point of connection to the public utility (D-mark), main data room (MDF), and of intermediate closets (IDF).
3. Illustrate the path and dimension the furthest copper run out from each MDF or IDF.
4. Demolition plans indicating the complete telecommunications work in all areas to be renovated. If an entire wing or area is completely demolished, provide a reference note to the architectural demolition drawings.
5. 1:100 (1/8" = 1'0") scale floor plans that show typical telecommunications layouts for typical rooms.
DESIGN DEVELOPMENT 2 [DD2]

The final approved Design Development 1 [DD1] Documents shall be the basis for the Design Development 2 [DD2] phase. Any changes from [DD1] documents must be approved by district’s Project Manager prior to proceeding with the [DD2] documents.

The Design Development 2 phase encompasses adding an increased level of detail for all aspects of the project to further define the design. Submissions at this stage must show coordination of trades and clarity of scope and design intent. The team refines visualization of the project to communicate the character of interior and exterior space and confirms that the design is on budget. All value engineering shall be completed by the end of this phase, and no functional changes are anticipated after the [DD2] review. The result of this phase shall be a set of design documents defined to the point that no further functional decisions are required.

ARCHITECTURAL - Submit:

Submit the updated Basis of Design [ B | O | D ] report including:

1. Written description of selected alternates.
2. Updated and further developed alternates on drawings and in specifications with updated cost evaluation.
3. Changes and updates to Room Data Sheets for typical room types.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. All previously submitted drawings updated to reflect review comments and further development.
2. Floor plans updated from [DD1] submission to include each floor, penthouses, interstitial spaces, pipe basements, and service areas (min. 1:100 (1/8"=1'-0"). Identify partition types, section cut locations, interior and exterior elevation locations, detail locations, and large scale plans. Include interior and exterior dimensions and general notes.
3. Interim Life Safety Measures (ISLM) drawings (min. 1:200 (1/16"=1'-0").
4. Demolition floor and ceiling plans for areas to be renovated and areas below where work in space below is required (min. 1:100 (1/8"=1'-0")) with finish schedule and partition types. Coordinate with phasing plans.
5. Equipment plan (min. 1:100 (1/8"=1'-0")) with large scale (min. 1:50 (1/4"=1'-0")) for complex areas such as science labs, kitchens, and mechanical equipment rooms. Include equipment schedule showing rough-in requirements, and in conjunction with the construction team, if available, who is responsible for furnishing each piece of equipment, and who is responsible for its installation.
6. Enlarged floor plans (min. 1:50 (1/4"=1'-0")) for toilet rooms, kitchens, and other rooms requested by the project team.
7. Phasing plans (min. 1:200 (1/16"=1'-0")). Include plan for each phase on each floor showing work to be accomplished during that phase, temporary installations, previously completed work, and existing areas to remain. Include a written description of activities for each phase on the drawings.
8. Life safety plans showing means of egress, capacity, population, path of travel, travel
distances, common paths of travel, fire-rated partitions, smoke barriers, areas of smoke
compartments, exit signs, fire extinguishers, fire hose cabinets, areas of refuge, and
horizontal exits (min. 1:200 (1/16"=1'-0"). Coordinate with the section for Fire Protection.
9. Physical security plan showing location of security cameras, card readers, and screening
equipment (min. 1:100 (1/8"=1'-0"). Coordinate with the section for Security.
10. Building elevations with fenestration, penthouses, materials, finish floor elevations,
interstitial floors, floor-to-floor heights, overall building height, window and louver types,
entrances, canopies, skylights, and adjacent grades (min. 1:100 (1/8"=1'-0"). Indicate
locations of wall section cuts.
11. Building elevations of complex areas (min. 1:50 (1/4"=1'-0").
12. Building sections (min. 1:50 (1/4"=1'-0")).
13. Wall sections (min. 1:15 (3/4"=1'-0")).
14. Construction details at scale large enough to clearly show components and assembly:
   a. Openings including windows, curtain walls, storefronts, doors and louvers
   b. Waterproofing including flashings, counter flashings, roof accessories, and
     penetrating items such as wall supported canopies
   c. Equipment mounting and suspension
15. Interior elevations showing power, data, communications, millwork, casework,
equipment, and other built-in items (min. 1:50 (1/4"=1'-0").
16. Partition type and fireproofing details (min. 1:10 (1"=1'-0").
17. Reflected ceiling plans (architectural and M/E/P) (min. 1:100 (1/8"=1'-0"). Identify
    bulkheads, light fixtures, supply and return grilles, ceiling mounted equipment, exit lights,
    and other devices. Locate ceiling grid.
18. Door schedule with door and hollow metal frame details. Indicate door type, size, rating,
material, glazing, security requirements, and hardware set.
19. Vertical circulation details for stairs and elevators. Plans at min. 1:50 (1/4"=1'-0"),
sections at 1:15 (3/4"=1'-0"), min., and details as required to show installation, fire
protection, and construction. Coordinate with the Elevator section.
20. Continue to develop and update bid alternates for 10% of project budget.

BUILDING INFORMATION MODEL - Submit:
Submit the following updated information derived from the building information model for
advancement of the design or verification of the model:
  1. Updated BMP (BIM Management Plan) with any modifications from [DD1].
  2. Updated Level of Detail Matrix for model elements.
  3. Example of F.I.S.H. numbering and Archibus equipment numbering schema schedule in
     Excel for Rooms & Spaces and select MEP systems.
  4. Updated clash detection results for major vertical and/or horizontal mains and repetitive
     areas. If previously clashed/resolved and no design changes have been made, the area
     may be omitted.
  5. Clash detection schedule to be followed in CDs. (Refer to the BMP for details).
Submit updated calculations to reflect design progression and incorporation of changes directed
or if design criteria have changed since [DD1] submission.
  1. Room Schedule showing space naming and coding as defined by district guidelines and
     or Florida Inventory of School Houses (F.I.S.H.).
  2. Updated energy model status for energy reduction goal.
  3. Updated gross area and departmental area schedules and graphics from [DD1].
Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Updated 3D views from [DD1] submission.
2. Floor plans color-coded by functional area.
3. Legend showing example door and wall families, indicating types.
4. Legend showing example room finishes for typical rooms and key public areas.

COMMISSIONING - Submit:

Submit the updated Basis of Design [ B | O | D ] report coordinated with the districts “Owner’s Project Requirements” [OPR] and list of systems, components, and features to be commissioned.

1. Updated Design Narrative.
2. Updated Design Phase Commissioning Plan.
3. Updated Design Phase Commissioning Log with proposed resolution/mitigation.
4. Identify major concerns that could affect operations, maintenance or testing.
5. Identify discrepancies between [OPR] and Design Narrative.
6. Update design schedule and key milestones.
7. Update roster of Commissioning Team members.
   a. Coordination Matrix for Commissioning Agent and the A/E.
8. Draft Construction Phase Commissioning Plan, including systems to be commissioned, an outline of construction phase roles and responsibilities, and an outline of required system documentation requirements.
9. Report on selected control system type, configuration, and capabilities together with key decisions about equipment and systems sequences of operation.
10. Review of technical specifications to coordinate O&M manual requirements.
11. Description of appropriate training and demonstration requirements for district’s personnel. Include complete list of all types of equipment/systems and what Training and Demonstration is required.
12. Updated Construction Phase elements of the Commissioning Plan, including systems to be commissioned, outline of construction phase roles and responsibilities, and outline of required system documentation requirements.

COST ESTIMATING - Submit:

Working with the constructor if available, provide an update of the estimate performed during the [DD1] with the projected project cost compared to the project budget and [DD1] estimate.

Submit an updated estimate that conforms to the districts breakdown structure and proposed project phasing plan.

1. WBS II Level 4 estimate.
2. Cost model budget tracking.
3. Budget tracking by phase.
4. Separate computations for site, each building, new work, renovations, and alternates
5. Building net and gross area computations for new construction and renovations.
6. Project Data Sheets (refer to district cost estimating guidelines).
7. Market survey.
ELECTRICAL - Submit:
Submit the updated narrative Basis of Design [ B | O | D ] report including copies of all correspondence and minutes of meetings with all public utility company representatives.
Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission.

1. Final load calculations based upon connected equipment schedules. Apply appropriate demands and diversities to reflect the equipment sizing selected.
2. Equipment and panel schedules to verify that equipment and feeders are sized per National Electric Code for lighting and power, normal and essential loads.
3. Final mechanical motor loads for mechanical and elevator power schedule.
4. Final generator sizing, including starting calculations to substantiate generator selection.
5. Generator fuel storage requirements.
6. Fault current, protective device coordination, arc flash, voltage drop, harmonic distortion, and lighting calculations.
7. UPS load requirements.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Updated list of symbols and abbreviations.
2. Updated detailed electrical site plan.
3. Full set of floor plans showing locations of primary distribution switchgear, engine generator sets, unit substations or utility company transformers, feeder routing plan and other major items of equipment. Submit 1:50 (1/4" = 1'0") scale plans of all electrical closets with equipment and clearances with equipment drawn to scale
4. Indicated F.I.S.H. room titles and area functions on electrical floor plans. Show location of all equipment, lighting fixtures, outlets, and devices. Provide complete wiring of devices and equipment in specialty areas (kitchens, auditoriums, gyms, stadiums, etc.).
5. Finalized one-line and riser diagrams of the normal electrical power distribution system and the emergency power system. Locate, size, and identify all equipment. Show branch-circuit wiring of offices, classrooms, and other unique spaces.
6. Detailed proposed phasing scheme of electrical work.

ELEVATOR - Submit:
Submit the updated Basis of Design [ B | O | D ] report if design criteria have changed since [DD1] submission.
Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission.
Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Floor plans (min. 1:100 (1/8"=1'-0") drawings of the elevators
2. Provide separate drawings for elevators. Show sizes, space requirements, and details of hoistway enclosures, pits, pit ladders, cabs, machine room access and railings, and entrances using larger scale than floor plans as necessary. Show dimensional locations of elevator cars, entrances, vents, and counterweights. Include sections through hoistways and penthouses. Indicate the installation requirements for separately contracted components such as smoke detectors, heat detectors, and sprinkler heads. Indicate what utilities may and may not be installed within designated elevator equipment rooms and shafts.
3. Indicate architectural features in areas to be used for these systems.
4. Location of machine and equipment rooms for elevators, and lifts. Indicate dimensions, ventilation, hoist beams, and power requirements.
5. Size of machine beams and end reactions. Indicate location and detail of machine beam pockets. Show rail loadings and hydraulic elevator piston pit loads.
6. Locations of vents, electrical, and mechanical services.

ENVIRONMENTAL IMPACT & HAZARD ABATEMENT - Submit:

Notify district PM immediately upon discovery of any environmental or site data that may warrant investigation. Where asbestos abatement is required, and in conjunction with the districts separately contracted asbestos consultant, submit updated drawings to reflect design coordination, progression and incorporation of directed changes including:

1. Submit substantially complete asbestos abatement drawings in accordance with district guidelines.
2. For each "Major Decontamination" area, show the limits of sealing off the location, quantities of asbestos material, arrangements for auxiliary rooms (for example, changing rooms and shower rooms), the engineering of the negative air systems, the path of asbestos transportation to the loading platform, and location and connection to required utilities.
3. For each "Minor Decontamination" area, show the exact location, type, and length of pipe or element to be abated by the "Glove and Bag" approach or by non-friable approach, and any other abatement features.
4. Submit major and minor summary of the square feet of floor space for all abatement areas, the total linear and/or square feet of asbestos to be abated, and the total cost of abatement. Include in the cost estimate any cost for decontamination of equipment and fixtures.

FIRE PROTECTION - Submit:

Submit the updated narrative Basis of Design [B | O | D] report including copies of all correspondence and minutes of meetings with all public utility representatives or the fire department having jurisdiction.

Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Sprinkler/Standpipe risers supply piping.
2. Terminations of sprinkler main and inspector test drain.
3. Sprinkler alarm valve(s) and water-flow and tamper switches.
4. Sprinkler system fire department connection.
5. Sprinkler design hazards per NFPA 13.
6. Fire extinguisher and fire hose cabinets.
7. Exit signs and emergency lighting.
8. Specific occupied areas not to be protected by automatic sprinklers.
9. Interconnection of HVAC system (dampers, fans) with duct smoke detectors and/or fire alarm system.
10. Interface of new and existing fire alarm system.
11. Fire control room.
12. Coordinate with the sections for Architectural, Electrical, and Plumbing.

HEATING, VENTILATING & AIR CONDITIONING - Submit:

Submit the updated Basis of Design [B | O | D] report if design criteria have changed since [DD1] submission. Coordinate with the Architect and equipment specialists to accommodate kitchen equipment, fume hoods, and any other equipment that will influence the performance or design of the HVAC systems specified for the project. Present all district-approved deviations from HVAC design criteria.

Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission.

1. Final version of the room-by-room heating and cooling load calculations:
2. Ensure compliance with district HVAC design requirements. These calculations shall be accompanied with the architectural drawings correlating each HVAC zone boundary and the floor area, and a room schedule correlating with the F.I.S.H. architectural room numbers and abbreviated/coded room numbers used with computer input data sheets. (Submit input manuals, if not submitted during [DD1], for the computer programs with indications of the capabilities and limitations of the programs.)
3. Show derivation of all U-factors for building elements based on the actual building construction and published window data. The accuracy and the level of detail of the calculations shall be consistent with the development of the architectural drawings and include calculations for:
   a. Peak zone-by-zone heating and cooling loads.
   b. Building block heating and cooling loads.
   c. Psychrometric chart for each air-handling unit showing cooling and heating coil condition and computation of humidification loads.
   d. Coil entering and leaving conditions and fan-motor heat gains for supply and return air fans.
   e. Room-by-room air balance sheet for each air-handling unit showing supply, return, exhaust, make-up, and transfer air quantities with the required air balance, that is, positive, negative, or zero with respect to adjoining spaces.
   f. Indoor and outdoor design temperatures.
4. Excel spreadsheet for each air-handling system. Provide the details of supply, return, exhaust, make-up, and relief air, for each room. In addition, for each room provide area, height, volume, value of one air change per hour, actual calculated air changes per hour, and required minimum air changes per hour.
5. Complete engineering calculations and selection of major HVAC equipment, such as chillers, ice storage, cooling tower, air-handling units, heating and ventilating units,
return and exhaust fans, circulating pumps, and energy recovery equipment, heat exchangers, domestic water heaters and dehumidification or humidification equipment.

6. Catalog cuts for all selected equipment.

7. Coordination with electrical and plumbing disciplines by compiling and distributing pertinent information, such as normal and emergency power requirements, makeup water consumption for all HVAC and other major equipment.

8. Updated sound/acoustic and dispersion analyses to ensure that the noise generated by the air-handling units and the fans comply with district requirements and the design does not pose any potential for short-circuiting of air or health hazard due to emissions by cooling tower, emergency generator, or boilers or other sources of hazardous or noxious odors or emissions.

9. Updated energy analysis to indicate and incorporate adjustments during this phase of design.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Final demolition drawings indicating scope of work for demolition.

2. 1:100 (1/8’ = 1’0”) scale HVAC floor plans for all areas showing (at minimum) main supply, return, and exhaust air ductwork with sizes based on the updated calculations.

3. Illustrate duct and ceiling clearances where ductwork crosses, with 1:50 (1/4’ = 1’0”) scale local sections. Show all ductwork, regardless of sizes and/or complexity of layout, in double line. Show 150 mm (6 inch) and larger piping in double line. Coordinate with the sections for Electrical, Fire Protection, and Plumbing.

4. Indicate individual room air distribution and temperature control arrangement for a representative sample of typical spaces, such as offices, classrooms, conference rooms, and special spaces such as gyms, kitchens, cafeterias and auditoriums on duct and piping layouts.

5. Submit separate floor plan drawings for layouts of air distribution and piping systems.

6. Updated, 1:50 (1/4’ = 1’0”) scale, typical mechanical equipment room plans with resolution of review comments made during previous submission.

7. Updated typical schematic and riser diagrams for air-handling systems and hydronic systems by providing quantities and sizes to reflect the latest engineering calculations. Show locations of all exhaust fans and all major components, with respect to the building floor and each other.

8. HVAC work associated with phasing plan.
   a. The phasing plan should be reviewed and approved by the district Facilities Manager, and School Leadership team, in consultation with the district PM.
   b. The plan should address and resolve such issues such as vacating occupied spaces and creating swing spaces, scheduling utility shutdowns, and address keeping existing systems operational until new systems are completed and tested.

9. Extent of the outside chilled water and condenser water piping. Indicate how the piping shall be run overhead, laid in tunnels, trenches, or by direct burial. For the direct burial layout, show a profile of the relative elevations of the new pipes with the existing utilities and define the scope of work where necessary for re-routing existing utilities.
10. Updated control diagrams for each type of typical air and hydronic system used for development in previous submission by providing written description of the sequence of operation on the floor plans.
   a. Explain the function and role of each control device and describe the safety/alarms and normal operating controls of each system.
   b. Submit a schedule showing electrical control interlock of each component.
   c. Submit a single-line diagram of the direct digital control architecture.
11. Scope of work involved with the central Energy Control Center (ECC).
   a. Indicate the planned capabilities, including features of energy management and conservation.
   b. Submit a point schedule for analog/digital input/outputs to be included in ECC.

HISTORIC PRESERVATION
1. Notify district contracting officer immediately upon discovery of any historical or archeological data that may warrant investigation.
2. Comply with contractual agreements for Design Development 2 [DD2].

INTEGRATED DESIGN - Submit:
Submit the updated Basis of Design [B | O | D] report including:
2. Plan for mitigation of challenges such as schedule delays, budget overruns, and scope changes.

INTERIOR and EXTERIOR EQUIPMENT - Submit:
Submit updated equipment lists if design criteria or equipment availability has changed since [DD1] submission.

INTERIOR DESIGN - Submit:
Submit the updated Basis of Design [B | O | D] report including:
1. Finish schedule.
2. Finish sample boards.
3. Furniture catalog cuts and materials samples.
4. Signage and wayfinding system.
Submit updated drawings to reflect design progression and incorporation of directed changes including:
1. Fully developed design for all spaces, including lobbies and other major public spaces. Submit rendered elevations, perspectives or other presentations to describe the materials, lighting, and appearance of those spaces.
2. Floor pattern plans (min. 1:100 (1/8"=1'-0")).
3. Updated wayfinding and signage plans (min. 1:100 (1/8"=1'-0")). Standard sign design with tactile and braille text. Supplemental details at larger scale as necessary to fully describe system.
4. Interior elevations for all spaces indicating finishes and color selections. See the Architectural Section for requirements.
5. Details for millwork and features coordinated with the Architectural Section.
PLUMBING /SANITARY - Submit:
Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission.

1. Updated calculations for sizing all systems and equipment.
2. Updated calculations to support the strategies to achieve the water consumption and energy reduction goals.
3. Provide final storm water computations, sizing calculation, and site analysis to comply with local, state, and federal regulations.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. 1:100 (1/8” = 1’0”) floor plans. Add plumbing piping; pipe sizes as required. Coordinate quantities with architect. Submit schedule for equipment on drawings.
2. 1:50 (1/4” = 1’0”) plans showing location and sizing of new equipment.
3. System riser diagrams with points of connection, isolation, calculations and equipment selections.
4. Coordinate site and building utility drawings. Verify inverts and size at the point of connection from site to building, include:
   a. Water (domestic and fire).
   b. Fuel gas.
   c. Storm drainage.
   d. Sanitary sewage.
   e. Irrigation, rain harvested water and other special piping systems.
5. Location and sizing of pumps, storage facilities, and treatment equipment.
6. Areas/zones of irrigation systems. Describe system design (automatic, manual, quick coupler, master, satellite or both controls).

Waste Disposal Systems
Submit the updated narrative Basis of Design [ B | O | D ] report, including equipment selections for the following applications:

1. Grease traps.
2. Solids interceptors.
3. Acid neutralization tanks.
4. Macerators, lift stations and other sanitary waste specialized equipment including septic holding tanks or leach fields.

Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission.

1. Submit all calculations, updated to support the equipment selections indicated.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Locations of all equipment and major piping on 1:50 (1/4” = 1’0”) scale plans and section.
2. Demolition work on 1:50 (1/4” = 1”0”) scale plans and sections.
3. Site plans.
4. Completed schedules and equipment lists.
5. All standards and details.
SCHEDULING – Submit:
Submit an updated narrative Basis of Design [B | O | D] report including an update of information shown on Master Schedule, Design Schedule, and Risk Analysis and provide an increased level of detail for each open activity.

1. Updated Project Master Schedule with increased detail.
2. Updated Detailed Design Schedule with increased detail.
3. Updated Schedule Risk Analysis with increasing detail, new risks and mitigation plans.
4. Identification of anticipated midpoint of construction and escalation factors in determining construction cost. (Coordinate with the Section on Cost Estimating.)
5. Updated Phasing narrative.
6. Updated Phasing plans on reduced site plans.
7. Updated Phasing diagram.
8. Phases marked on full size drawings for district review.
9. Written list of systems, including temporary systems by phase, and separated by technical discipline.

Submit updated drawings to reflect design progression and incorporation of directed changes including full-size contract drawings for the phasing plans. Several reduced sized site or floor plans may be reflected on each full sized sheet to communicate the intent of the phasing plan.

SECURITY (PHYSICAL) - Submit:
Submit the updated Basis of Design [B | O | D] report that includes a physical security narrative, completed by a qualified individual with CPTED training and experience. Include:

1. Catalog cuts for proposed security equipment: video surveillance cameras and head-end equipment, monitors, access control systems, and screening equipment.
2. Description of the overall proposed physical security approach and the building and site design elements incorporated for compliance with applicable security standards.
3. Subsections or subparagraphs corresponding to each of the following:
   a. Site Considerations,
   b. Building Entrances and Exits,
   c. Functional Areas,
   d. Special hazard areas such as large assembly spaces and stadiums,
   e. Limited visibility areas such as toilet rooms, locker rooms and stair towers,
   f. Limited supervision areas such as student parking lots,
   g. And the Building Envelope.
4. Proposed methodology to be used for physical security requirements resulting in structural or exterior envelope hardening for enhance hurricane protection.
5. Catalog cuts for any non-district standard product including but not limited to security equipment, video surveillance, access control systems, and screening equipment if requested.
Submit updated calculations to reflect design progression and incorporation of directed changes including:

1. Calculate the enhanced hurricane protection requirements based on the projects requirements, if applicable. Document the changes required to the typical glazing, window framing, exterior envelope elements, vulnerable interior areas, exterior structure and life safety, plumbing, mechanical and electrical systems.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Physical security plan for each floor and site showing location of security cameras, card readers, and screening equipment (min. 1:100 (1/8"=1'-0").)
2. Updated design sketches reflecting hurricane hardening requirements for typical exterior envelope and structural elements.

**SITE DEVELOPMENT/UTILITIES - Submit:**

Submit the updated Basis of Design [B O D] report including:

1. A substantially complete signage plan and signage schedule with site locations, construction details, and sign face graphics.
2. Final Storm Water Pollution Prevention Plan (SWPPP) report, where applicable. Submit SWPPP, required drawings, and calculations to regulatory review agencies, if applicable.
3. Finalized storm water management practices with landscape architect and/or plumbing engineer, where applicable.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Topographic, boundary, utility, and landscape survey drawings.
2. Complete grading plans of the entire project, including large-scale drawings of major site elements.
   a. Include spot elevations at structure corners, entrances, other critical areas, and all first floor elevations.
   b. Show rim and invert elevations on all storm drainage structures.
   c. Show demolition, erosion, and sediment control as well as storm water management practices.
   d. If rock excavation is anticipated, indicate estimated quantity on grading plans.
3. Vertical profile and horizontal alignment for roads. Indicate all traversed utilities.
4. Large-scale plans, where necessary, of concrete or other paving joint patterns.
5. Layout plan, substantially complete, showing locations of buildings, inlets, equipment at grade, and landscape features. Include dimensioning of parking lots, service courts, and other major elements of the site design. Indicate contractor's staging area.
6. Site Plan and details, including:
   a. Fence construction details
   b. Location of site lighting, cameras and access control coordinated with landscaping plan.
   c. Landscaping and irrigation.
7. CPTED implementation plan coordinated with the Security section.
8. Construction details for major site amenities, landscape components, utilities and storm water best management practices (BMP’s).
9. Planting plan, substantially complete, with symbols showing location of all trees, shrubs, planting beds, and lawns. Provide a complete planting list and planting details with common name, genus and species, size/caliper, and special comments at a minimum. Check plants for suitability to the microclimate and planting season availability. Indicate any areas to be irrigated.

10. Stormwater management plans.


12. Utilities drawing showing connections to mains or other site improvements

SPACE PLANNING - Submit:

Submit the updated narrative Basis of Design [ B | O | D ] report including an update of the previously submitted summary of space by function with net areas, gross area, net:gross ratio by department, net:gross ratio for building, listing of deviations from approved district space program, and justification for those deviations.

Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission including updated net:gross calculations.

SPECIFICATIONS - Submit:

Update of all previously submitted documents to reflect review comments and further development. Submit the specifications in electronic format with the “Track Changes” function enabled.

STRUCTURAL - Submit:

Submit the updated Basis of Design [ B | O | D ] report including:

1. Updated Structural Review Checklist.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Deep foundations:
   a. Location of bearing strata.
   b. Number of piles, piers or sizes for caissons.
   c. Pile, pier, or caisson cap size.

2. Foundation system:
   a. Wall and slab-on-grade thickness.
   b. Brick shelf locations.
   c. Footing steps and elevator pits.
   d. Coordinated waterproofing and water stop system details.
   e. Completed footing schedule including rebar details and sizes.
   f. All building expansion joints.
   g. Foundation wall and slab-on-grade construction control joints.
   h. Utilities passing through footing or foundation walls.

3. Concrete superstructure showing:
   a. Beams, columns and piers,
   b. Elevated slabs with locations and sizes/thicknesses, and reinforcing.
4. Structural steel superstructure, showing:
   a. All columns and beams.
   b. Column sizes and orientation.
   c. Beam sizes.
   d. Lateral bracing system.
   e. Connection moments, vertical, and lateral loads.
   f. Column schedule.
   g. Base plates and anchor bolts.
   h. Steel beam camber.
   i. Shear stud type and length.
   j. Approximate locations and support for major mechanical equipment. Identify and label equipment with weight over 1,000 lbs. on MEP drawings.

5. Elevated slab-on-deck, including:
   a. Slab thickness and typical reinforcing.
   b. Steel decking configuration, gauge, and orientation.
   c. Changes in top-of-slab elevation.
   d. Verification that thickness is coordinated with fire-rating requirements.
   e. Slab flatness requirements.

6. Masonry systems, including:
   a. Typical masonry thickness, reinforcing, and spacing requirements for loadbearing walls.
   b. Assist the architect in reinforcing and spacing requirements for non-loadbearing walls shown on architectural drawings.
   c. Masonry seismic anchorage and lateral support requirements.
   d. Masonry bond beam requirements.
   e. Seismic design.
   f. Enhanced hurricane reinforcement.

Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission.

1. Submit calculations covering all parts of the structure and miscellaneous facilities.
2. For computer-generated results, provide copies of computer input data and output summaries in user-friendly language, accompanied by diagrams that identify joints, members, and areas, according to the notations used in the data listings. Calculations shall include:
   a. Gravity load and lateral load calculations for the majority of the framing members.
   b. Foundation calculations.
   c. Vibration calculations.
   d. Calculations showing that the system is not vulnerable to progressive collapse.
   e. Adequacy of existing structure, where applicable, to account for new functional loads or new criteria.
   f. Seismic calculations.
SUSTAINABILITY - Submit:
Submit the final Basis of Design Report [B | O | D] describing the final sustainability features of the project, including:

1. Final description of the water-use reduction strategies selected for the project including the life cycle cost analysis and how they achieve the reduction goals and mandated water use reduction requirements as part of the selected third-party rating system and district sustainability guidelines. Coordinate the reporting with the final plumbing and site/civil storm water analysis to provide a graphical representation (pie or bar chart) by end use of the potable water baseline versus the required reduction target and the selected strategies.

2. Final summary of the energy use intensity and energy consumption by end use and the life cycle cost for the final selected HVAC and lighting concept. Coordinate the reporting with the results from the energy analysis conducted as part of the mechanical systems evaluation and the lighting analysis conducted by the lighting/electrical engineer. The update should graphically illustrate (pie or bar chart) how the mandated energy conservation requirements and energy consumption goals in the district design manuals, district sustainability guidelines, and for the overall project are being achieved.

3. Final summary of the Indoor Environmental Quality (IEQ) aspects of the project. Submit the description and graphical representation of how requirements for district and third-party sustainability system Greenhouse Gas (GHG) emission-reduction or -elimination requirements for the selected concept are achieved.

4. Final renewable energy capacity for solar thermal, solar PV, wind, and geothermal as they relate to district mandates or elected third-party sustainability goals. Coordinate with the plumbing submission and submit as needed the final explanation and technical backup information as to how the project shall meet the project goal for hot-water generation using renewable solar energy.

Submit updated calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD1] submission.

   1. Final water-use reduction calculations based on third party and district guidelines. Coordinate with calculations for the potable water baseline and reduced consumption calculations performed by the plumbing engineer.
   2. Final GHG emissions-reduction calculations supporting district mandates.
   3. Final renewable energy calculations. Coordinate the update calculations with the mechanical and electrical trades.

GREEN GLOBES (if applicable):
Provide as part of the Basis of Design Report [B | O | D], the following as it pertains to third-party Green Globes certification.

   1. Preliminary input information for the Construction Documents Questionnaire and a preliminary copy of the Automatic Output Reports from the online GBI Assessment Tool.
   2. Documentation and discussion of the input and output from the Life Cycle Cost Assessment (LCCA) for the selected concept.
   3. Submit the input and results of the Life Cycle Costs Assessment (LCCA) calculations.
LEED (if applicable):
Provide as part of the Basis of Design report [ B | O | D ] the following as it pertains to third-party LEED certification:

1. Updated preliminary LEED score card. The score card should indicate where points are anticipated for design and construction phase. A brief discussion should be provided describing why certain points are selected and others are not achievable or recommended.
2. Documented input into LEED template and calculations for all attempted credits.
3. Submit preliminary template calculations as required for all credits being attempted.

TELECOMMUNICATIONS - Submit:
Submit the updated Basis of Design [ B | O | D ] report including:

1. Provide copies of all correspondence and minutes of meetings with utility company representatives.

Submit updated drawings to reflect design progression and incorporation of directed changes including:

1. Detailed telecommunications site plan.
2. Finalized one line and riser diagrams of the normal electrical power and the emergency power distribution. Locate, size, and identify equipment. Show typical branch circuit wiring of offices, classrooms, and lab areas.
3. Full set of floor plans. Indicate room titles and area functions. Show locations of equipment, outlets, cable trays, and major interconnecting conduits.
4. Proposed phasing scheme for telecommunications work.
CONSTRUCTION DOCUMENTS

GENERAL

The Construction Document phase involves the production of complete drawings, specifications, and other documents necessary for the bidding and construction of the project, prepared from the approved [DD2] documents. Also included at this phase are the final cost estimate, the final phasing plan, and the construction schedule.

It is the A/E’s responsibility to provide a quality set of documents. Related documents shall be complete, fully coordinated, and ready for reproduction for bidding and entering into contracts.

Prior to reproduction for issue for construction bids, make any changes to the documents identified as necessary during the review conference with district Project Manager.

General requirements:

1. Drawings shall have graphic scale and scale bar, north arrow (either true north or plan north; consistent for similar plans), and use the district approved border and key plan.
2. Each submission shall build on previous submission. Drawings required by previous submission shall be included in subsequent submission whether or not specifically identified as a requirement.
3. Submit all previous comments from district and peer reviewers. All comments shall be resolved before moving into the next submission stage. For major issues, the A/E must respond to comments with written resolution; i.e., responding to important comments simply with “agreed” or “disagreed” is not acceptable. Any deviation from district criteria shall be identified, justified, and documented with district’s approval.
4. All previously submitted documents shall be updated with written responses to reflect review comments and further development. The A/E shall verify that all changes based on the review of the previous phase have been approved by the district project manager.
5. Specifications shall be guided by district guidelines. Submissions shall show changes to master by using “Track Changes” function. Each submission shall indicate changes from previous submission, not all changes to master. The final submission shall not show changes.
6. Dimensions shall be provided in English units, unless otherwise specified by the district project manager.
7. The A/E shall submit minutes of meetings with the district, district’s other contractors, and A/E coordination meetings.
CONSTRUCTION DOCUMENTS [CD1]

The purpose of the Construction Documents phase is to add the level of detail required for construction of the project, to coordinate the trades, and to clarify the project’s scope and intent. This includes refinement of design details and specifications showing that the project can achieve its highest value and a performance suitable for a 50+-year life expectancy building.

ARCHITECTURAL - Submit:

Submit the final Basis of Design [B O D] report including the final cost evaluation for proposed alternates.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Complete drawings, fully coordinated with other disciplines and suitable for bidding and approval by Authorities Having Jurisdiction. The documents should be considered 100% complete with no additional coordination, information, drawings, or specifications required.
2. Demolition floor and ceiling plans for areas to be renovated and areas below, where work in space below is required (min. 1:100 (1/8"=1'-0'")) with finish schedule and partition types. Coordinate with phasing plans and Interim Life Safety Measures (ISLM) plans.
3. Updated floor plans from [DD2] submission to include each floor, penthouses, interstitial spaces, pipe basements, and service areas (min. 1:100 (1/8"=1'-0'")). Identify partition types, section cut locations, interior and exterior elevation locations, detail locations, and large scale plans. Include interior and exterior dimensions and general notes.
4. Equipment plan (min. 1:100 (1/8"=1'-0'")) with large scale (min. 1:50 (1/4"=1'-0'")) for complex areas such as CTE and science labs; auditoriums, catwalks and fly lofts, and kitchens. Include equipment schedule showing rough-in requirements and who is responsible for furnishing and installation of each piece of equipment.
5. Enlarged floor plans (min. 1:50 (1/4"=1'-0'")) for spaces with complicated coordination requirements which may include, but not be limited to, kitchens, toilet rooms, CTE and science labs, art and music rooms, and auditoriums or gymnasiums.
6. Phasing plans (min. 1:200 (1/16"=1'-0'")) Submit plan for each phase on each floor showing work to be accomplished during that phase, temporary installations, previously completed work, and existing areas to remain. Include a written description of activities for each phase on the drawings.
7. Interim Life Safety Measures (ISLM) plan (min. 1:200 (1/16"=1'-0'")) showing means of egress, capacity, population, path of travel, travel distances, fire rated partitions, smoke barriers, exit signs, and fire extinguishers (min. 1:200 (1/16"=1'-0'")) Coordinate with the Section on Fire Protection.
8. Physical security plan showing location of security cameras, card readers, screening equipment (min. 1:100 (1/8"=1'-0'")) coordinate with the Section on Security.
9. Building elevations with fenestration, penthouses, materials, finish floor elevations, floor-to-floor heights, overall building height, window and louver types, glazing materials, entrances, canopies, skylights, and adjacent grades (min. 1:100 (1/8"=1'-0'')). Indicate locations of wall section cuts.
10. Building elevations of complex areas (min. 1:50 (1/4"=1'-0'')).
11. Building sections (min. 1:50 (1/4"=1'-0'')).
12. Wall sections (min. 1:15 (3/4"=1'-0'')).
13. Construction details at a scale large enough to clearly show components and assembly including: windows, storefront, flashings and waterproofing, roof accessories, equipment mounting and suspension.
14. Interior elevations showing power, data, communications, millwork, casework, equipment, and other built-in items (min. 1:50 (1/4"=1'-0'')).
15. Partition types and fireproofing details (min. 1:10 (1"=1'-0'')). Indicate sound attenuation and fire ratings. Identify UL or other acceptable testing agency design numbers.
16. Reflected ceiling plans (min. 1:100 (1/8"=1'-0'')). Identify bulkheads, light fixtures, supply and return grilles, ceiling mounted equipment, exit lights, and other devices.
17. Door schedule with door and hollow metal frame details, borrowed lights and threshold details. Indicate door type, size, thickness, rating, material, glazing, access control and security requirements, and hardware set.
18. Vertical transit details for stairs, elevators, and lifts. Plans at 1:50 (1/4"=1'-0''), min., sections at 1:15 (3/4"=1'-0''), min. and details as required to show installation, fire protection, and construction. Coordinate with the Section on Elevators.
19. Completely developed alternates on drawings.

BUILDING INFORMATION MODEL - Submit:

Submit the following final information derived from the building information model for advancement of the design or verification of the model:

1. F.I.S.H. schedule in Excel for Rooms & Spaces.
2. Major equipment schedule in Excel on the districts template.
3. Final Level of Detail Matrix for model elements.
4. Description of the clash detection process followed during design and assumptions on element tolerances, areas and elements that have been clashed. Identify any major conflicts discovered in the process and resolution result summary.

Submit final calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

1. Full Room Schedule showing space naming and coding as defined by district guidelines with F.I.S.H. data.
2. Updated building gross area and departmental area schedules and graphics from [DD2].
Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Floor plans color-coded by functional area.
2. Digital copies of BIM model in native format and IFC format, as per the district BIM Guide. Submit models as follows on DVD. Models shall be used for reference or as set out in the BMP:
   b. Combined: Architectural and Structural
   c. Run Virtual Testing and Balancing from the design model to produce Air Balance Schedules required by the Section on HVAC.

**COMMISSIONING - Submit:**

Submit the final Basis of Design [ B | O | D ] report including Commissioning Agent's report of document review and statement indicating how each of the items in the report shall be or has been addressed. Include:

1. Updated design narrative.
2. Final design phase commissioning plan. Include revisions to commissioning team members, schedules and other modifications required by the progress of the project. The plan shall include a list of equipment and systems being commissioned and proactive logs of required submittals, O&M’s, start-up inspections, special tools, spare parts and training required.
3. Updated design phase commissioning issues log with mitigation incorporated. Verify that discrepancies between the districts “Owner’s Project Requirements” [OPR] and design narrative have been resolved.
4. Coordination matrix for commissioning agent and A/E.
5. Final determination of control system type, configuration, and capabilities together with key decisions about equipment and systems sequences of operation.
6. Discussion of technical sections of the specifications to coordinate O&M Manual requirements.
7. Description of required training and demonstration requirements for district’s personnel. Include complete list of all types of equipment/systems and what training and demonstration is required.
8. Updated construction phase commissioning plan, including systems to be commissioned, an outline of construction phase roles and responsibilities, and an outline of required system documentation requirements.

**COST ESTIMATING - Submit:**

Working with the constructor if available, provide the final estimate performed. Include a comparison to the last estimate with the projected project cost compared to the project budget estimate.
Submit a final estimate that conforms to the districts breakdown structure and proposed project phasing plan.

1. WBS II Level 4 Estimate.
2. Cost model budget tracking.
3. Budget tracking by phase.
4. Separate computations for site, each building, new work, renovations, and alternates.
5. Building net and gross area computations for new construction and renovations.
6. Project Data Sheets (refer to district cost estimating guidelines).

**ELECTRICAL - Submit:**

Submit the final Basis of Design [ B | O | D ] report including:

1. Written approval by the utility company of the design of the electrical incoming service.
2. Copies of correspondence with utility companies and other pertinent communications.

Submit final calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

1. Load calculations for record. Calculations should include review comment changes and incorporate final connected equipment schedule loads, demands, and diversities.
2. Updated equipment/panel schedules that represent loading.
3. Updated mechanical motor loads for mechanical and elevator power schedules.
4. Updated generator sizing, including starting calculations to substantiate generator selection.
5. Updated UPS load calculations and sizing.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. 100% complete drawings, including complete legend symbol list, details, and schedules. Schedules include transformers, distribution switchboards, distribution panelboards, and branch-circuit panel boards and load schedules.
2. Coordinated drawings showing all new services to site and buildings; all new medium voltage cable installations; all manholes, ductbanks, transformers, roadway, parking, and grounds lighting; and the medium voltage service point on the electrical site plan.
3. Completed building electrical floor plans. Indicate all lighting and power circuit systems. Show fault current and motor protective devices, contactors, controllers and feeder sizes. Locate all panels, transformers, and other major electrical components.
4. Completed one-line and riser diagrams including quantity and sizing of all conduit, cables/conductors, ground wire, and equipment sizes. Indicate nominal transformer impedance voltage. Transformers, panel boards, and feeders shown in respective positions.
5. Descriptions/names of all electrical power distribution equipment shown on plans and on one-line/riser diagrams.
ELEVATOR - Submit:

Submit final report and narrative if design criteria have changed since the [DD2] submission.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Floor plans (min. 1:100 (1/8”=1'-0") drawings of the elevators, and lifts. Indicate equipment rooms and piping routing. Indicate architectural features in areas to be used for these systems.
2. Separate drawings for elevators. Show sizes, space requirements, and details of hoistway enclosures, pits, pit ladders, cabs, machine room access and railings, and entrances using larger scale than floor plans as necessary. Show dimensional locations of elevator cars, entrances, vents, heat or smoke detectors, sprinklers, sump pits, sump pumps or floor drains, and counterweights.
3. Include sections through hoistways and penthouses.
4. Arrangement of equipment in machine and equipment rooms for elevators and lifts. Indicate minimum fire ratings, clearances, ventilation, hoist beams, and power requirements. Indicate size and locations of trap doors, hoist beams, and divider beams.
5. Size of machine beams and end reactions. Indicate location and detail of machine beam pockets. Show rail loadings and hydraulic elevator piston pit loads.
6. Complete details of hoistway entrances, and sills at scales large enough to describe construction and installation requirements.
7. Locations of vents, electrical, and mechanical services.

Coordinate the project requirements with the specifications:

1. Include description of operating features and emergency operations, backup power requirements, and features that make automatic transport devices and equipment usable by and accessible to persons with disabilities.

ENVIRONMENTAL IMPACT & HAZARD ABATEMENT - Submit:

Notify district project manager immediately upon discovery of any environmental or site data that may warrant investigation.

Where asbestos abatement is required, submit final calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

1. Submit a summary of the square footage of all abatement areas (major and minor).
2. The total linear and square feet of asbestos to be abated.
3. The total or estimated cost of abatement including the cost for decontamination of equipment and fixtures.
Submit complete and coordinated final drawings ready for bidding that reflect coordination with the districts asbestos consultant and the design progression and incorporation of directed changes including:

1. Restoration of the impacted building sub-systems as an integral part of the overall project design.
2. Integrated phasing of how the abatement and the general modification work shall be executed.
3. Clear delineation between the district’s scope of work and schedule and the other contractors required coordination. If the contractor needs to perform work associated with the areas abated, clarify the expectations of how the districts work area will be left upon clearance, such as “district will remove all asbestos pipe insulation and fittings, contractor will reinsulate remaining piping”.

**FIRE PROTECTION - Submit:**

Submit final calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Details of the fault current protection intended to lessen the effect of transient voltage and lightning strikes. Illustrate building to building fiber optics or bonding requirements and the placement of TVSS equipment. Coordinate with the section on Electrical.
2. Details of the fire pump system, including elevation and detail of fire pump.
3. Details of the stairwell sign indicating stairwell number, floor number, and upper and lower floor terminus of stairwell.
4. Interconnection of elevator controls with fire alarm system.
5. Interconnection of kitchen fire extinguishing and fire pump system to the fire alarm system.
6. Zoning of each fire alarm initiating device.
7. Single-line riser diagram for the fire alarm system.
8. Location and details of FACP and all enunciator panels.
9. Reference notes to HVAC drawings that indicate interconnection of the HVAC system (dampers, fans) with duct smoke detectors and/or fire alarm system.
HEATING, VENTILATING & AIR CONDITIONING - Submit:

Submit the final narrative Basis of Design [B | O | D] report including an updated energy modeling report. Certify that the energy model represents the operational parameters of all designed systems and uses actual equipment performance curves from the design selections (mechanical, plumbing, and lighting). Discuss any adjustments made to the previous model and their effects.

Submit complete and final energy and engineering calculations of all systems that reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission. Include the room heating and cooling calculations and:

1. Final selection of all pumps with the pump head calculations based on the actual piping layout and takeoffs, and pressure drop through the equipment selected for the systems.
2. Final selection of all fans with the fan static pressure calculations based on the actual duct layouts and takeoffs, and static pressure drop through the equipment for the systems. (Detailed calculations are required even if variable speed drives are used.)
3. Sizing and selection of all expansion tanks based on the actual piping layout and volume computation.
4. Sizing and selection of all hot water convertors and heat exchangers based on the flow requirement of each connected coil or heat transfer device.
5. Acoustic analysis of all systems and steps taken to attenuate sound to levels appropriate for the intended use of the space.
6. Complete selection data, including catalog cuts and calculations for all HVAC equipment and drawings, showing all equipment schedules.
7. Complete coordination with equipment by providing utility connections, interface between the local controls and central energy management controls, trend logs and recording requirements, and local and remote alarms.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Previously submitted drawings with comments of the last review incorporated.
2. HVAC demolition drawings showing the extent of demolition work. Indicate sizes of ductwork and piping to be dismantled. Show capacities and sizes of existing equipment being removed. Show points of connection, disconnection, blank offs, dead-end flanges and isolating valves. Coordinate demolition and restoration work with other disciplines. State the revised capacities of the existing systems affected by the demolition work together with additional efforts involved in testing, balancing, and adjusting them. Coordinate with the section on Environmental Impact & Hazard Abatement.
3. Complete coordination with the architectural drawings (louvers, ceiling access panels, and reflected ceiling plans,) and structural drawings (operating weights of ceiling and floor mounted equipment, concrete and steel supports, and roof and floor openings).
4. HVAC floor plans for all areas showing all ductwork and piping at 1:100 (1/8 inch) scale or larger including:
   a. Ductwork and piping on separate drawings.
   b. Duct pressure classification on the floor plans for all air distribution systems. Identify the duct sections with demarcation symbols where the change in pressure rating takes place.
   c. All duct/pipe sizes and air/fluid quantities.
   d. Air quantities for each room and each air inlet/outlet, expressed in cubic feet per minute, and fluid quantity (where required) in gallons per minute.
   e. All volume dampers, fire dampers, smoke dampers, automatic control dampers, rises and drops in ductwork, and air inlets/outlets, on the air distribution floor plans.
   f. All piping specialties, such as expansion loops, anchors, valves, drip assemblies, isolation valves and balancing fittings, on the piping floor plans and drain valves at low-points.
   g. All architectural room names and numbers conformed to F.I.S.H. requirements.
   h. All smoke and smoke/fire barriers or partitions.

5. Large scale HVAC floor plans for all mechanical equipment rooms, with at least two cross-sections taken at right angles to each other at 1:50 (1/4" = 1'0") scale. Show all equipment located on roof and/or grade. Coordinate to show the walking pads on the architectural drawings.

6. Outside chilled water and condenser water distribution showing pipe sizes and insulation with plans, profile, sections, details, and all accessories, such as, anchors, expansion loops/joints, valves, manholes, capped and flanged connections, and the interface between the new and existing work. Show rerouting any utilities, cuttings of roads, pavements, and trees, as well as the extent of new and demolition work.

7. Automatic temperature control drawings. Show all duct detectors, control valves and dampers, static pressure sensors, and differential pressure control assemblies, whose actual physical location is critical for the intended sequence of operation on floor plans. For projects involving energy management head end equipment, provide a point schedule with intended analog/digital input/outputs, graphics capabilities, and the requirements of the other trades. Provide a riser diagram showing locations of all field data-gathering panels and their interface with the head end. Show the actual location of the head end and peripherals on floor plans. The written sequence of operation describing the role of each individually numbered device should be shown on the floor plans on the same drawing on which the control schematic diagram is shown. Do not write the sequence in the specifications. Each sequence should describe the start-up, capacity control, safeties, morning warm-up cycle where applicable, and night setback cycle where applicable.

8. Standard detail drawings. Edit district details to suit the project and include any special details deemed useful and necessary for the project.
HISTORIC PRESERVATION

Comply with contractual agreements for Construction Documents 1 ([CD1]) developed with the district project manager related to this contract or project.

Notify district project manager immediately upon discovery of any historical or archeological data that may warrant investigation.

INTEGRATED DESIGN AND CONSTRUCTION - Submit:

Submit the final Basis of Design [B | O | D] report including:

2. Report confirming compliance with project goals including program, budget, sustainability, and security. Deviations from the districts written project goals or requirements (OPR) Guidelines, Program of Spaces, or Ed-Specification shall be presented to the district for written approval.

INTERIOR and EXTERIOR EQUIPMENT - Submit:

3. Submit final equipment lists if design criteria or equipment availability has changed since [DD2] submission.

INTERIOR DESIGN - Submit:

Submit the final Basis of Design [B | O | D] report including:

1. Finish sample boards with finishes, furniture and fabrics, all keyed to floor plans.
2. Furniture catalog cuts and materials samples.
3. Fully developed design for lobbies and other major public spaces. Submit rendered elevations, perspectives or other presentations to describe the materials, lighting, and appearance of those spaces.
4. Signage and wayfinding system.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Complete construction drawings, fully coordinated with other disciplines and suitable for bidding and approval by Authorities Having Jurisdiction. The drawings should be considered 100% complete with no additional coordination or information required.
2. Floor pattern plans (min. 1:100 (1/8"=1'-0").)
3. Updated wayfinding and signage plans (min. 1:100 (1/8"=1'-0")). Standard sign design with tactile and Braille text. Supplemental details at larger scale as necessary to fully describe system.
4. Interior elevations for selected spaces indicating finishes and color selections and details for millwork casework and any other special features. Coordinate with [CD1] Architectural Section requirements.
PLUMBING - **Submit:**

Submit the final Basis of Design [B | O | D] report including:

1. Graphical representation of energy and water usage savings with reference to the contributing technologies and their weighted contributions.
2. Written approval by utility companies or regulatory review agencies, where applicable.

Submit final calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

1. Final calculations for sizing all systems and equipment.
2. Final calculations to support strategies to achieve the water consumption and energy reduction goals.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Legend, notes, and details.
2. Demolition plumbing floor plans shown at 1:100 (1/8" = 1'0") scale.
3. All piping sized and equipment shown.
4. Sizes, rims, and invert elevations, pipe lengths, and materials of storm and sanitary sewer systems including the points of connection and isolation valve locations.
5. Irrigation system at the same scale as storm sewer drawings.
6. Finalized riser diagrams.
7. Profiles of storm and sanitary sewers.
8. Special systems: fuel gas distribution and pressure regulation, acid neutralization and solids or grease interceptors.

**SCHEDULING – Submit:**

Submit the final Basis of Design [B | O | D] report including:

1. Updated Project Master Schedule with increased detail.
2. Updated Schedule Risk Analysis identifying new risks and mitigation actions, particularly in construction areas.
3. Updated Phasing narrative.
4. Updated Phasing diagram.
5. Full-size contract drawings for the CPM phasing plans. (One drawing may include several reduced site plans.)
6. Written list of systems, including temporary systems by phase, and separated by technical discipline.
SECURITY (PHYSICAL) - Submit:

Submit the final Basis of Design [B | O | D] report including the complete and final physical security narrative:

1. Updated description of the overall proposed physical security approach and the building and site design elements being included for compliance to the applicable Physical Security standard.
2. Subsections corresponding to each of the chapters of the Physical Security standard, (i.e., Site Considerations, Building Entrances and Exits, Functional Areas, and Building Envelope).
3. For physical security requirements resulting in structural or exterior envelope hardening for hurricane protection or to prevent progressive collapse, indicate the methodology and software for analyses.
4. If required, provide a letter from the security specialists, affirming that they have performed a back-check to confirm that all the physical security elements have been incorporated into the Construction Documents.

Submit final calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission. Include 100% complete calculations related to hurricane enhancements to the glazing, window framing, exterior envelope elements, and to any vulnerable interior or exterior structure. Calculations shall be stamped and sealed by a licensed Professional Engineer.

Submit complete and coordinated final drawings ready for bidding that reflect enhanced hurricane protection requirements for typical exterior envelope and structural elements and reflect design progression and incorporation of directed changes thereto.

SITE DEVELOPMENT/UTILITES - Submit:

Submit the final narrative Basis of Design [B | O | D] report including a copy of the approved Storm Water Pollution Prevention Plan (SWPPP) and filed permit application with the Authority Having Jurisdiction.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Complete and coordinated site and landscape contract drawings expanded with the level of detail necessary for construction.
2. Stormwater management drawings.
SPACE PLANNING - Submit:

Submit the final narrative Basis of Design [B O D] report including an update of the previously submitted summary of space by function with net areas, gross area, net:gross ratio by department, net:gross ratio for building, listing of deviations from approved district F.I.S.H. space program, and justification for those deviations.

Submit final calculations of net and gross areas that reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

SPECIFICATIONS - Submit:

The project manual including all technical disciplines organized using CSI MasterFormat 2011 section and page conventions. Sections shall be progressively elaborated electronic files showing the edits with the “Track Changes” function. After incorporation of comments, submit the project manual in the final form. Assure the specification drafts have been edited and tailored in their application to represent accurate coordination between drawings and specifications and that proper provisions have been provided in specifications to include required submittals for the purposes of achieving the project’s sustainability goals. Documents shall be fully coordinated with other disciplines and suitable for bidding and approval by Authorities Having Jurisdiction. The specifications should be considered 100% complete with no additional coordination or information required.

STRUCTURAL - Submit:

Submit the final narrative Basis of Design [B O D] report including final Structural Review Checklist.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

1. Deep Foundation Drawings:
   a. Final number and size of deep foundation members at each location. Indicate the design depth (tip or bottom of pile, pier or caisson elevation) of each deep foundation member for bidding purposes.
   b. Test pile, pier, or caisson locations.
   c. Completed pile, pier or caisson cap schedule including top of cap elevations, reinforcing, and anchorage.
   d. Tie-beam information including size, reinforcing, clearances and connection details to pile, pier or caisson caps.

2. Concrete Foundation/Framing Drawings:
   a. Typical details for concrete footings, beams, columns, slabs, and walls as required for the project; include only details that apply to the scope of work.
   b. Completed concrete column, beam, pilaster, and footing schedules. Indicate information for concrete slab construction including:
      i. Slab joint pattern for concrete slabs-on-grade.
ii. Slab thickness and top of slab elevations.
iii. Slab reinforcing including sizes, spacing, placement, and clearances.
iv. Typical slab construction details, including construction and control joint
details, typical details at slab-column isolation joints, slab-wall joint
details.
v. Indicate all changes in slab elevations, including depressions and pits,
and sump pits at the bottom of all elevator pits.
vi. Indicate all sloped slab locations with both beginning and ending slope
elevations.

3. Continuous and isolated footings:
a. Footing sizes and locations.
b. Top of footing elevations.
c. Step-foothing locations and the top of footing elevations at each step.
d. Footing reinforcing sizes, spacing, and clearances.
e. Required keyways and dowels.

4. Foundation walls:
a. Elevation at top of wall.
b. Elevation at top of brick shelf or other supports.
c. Elevation at beam pockets and changes in wall heights.
d. Wall thickness and location to column lines.
e. Wall reinforcing size, direction, spacing, and clearances.
f. Integral pier or pilaster size, location, reinforcing, and elevation.
g. Wall penetrations including size, locations, and additional reinforcing.
h. Locations and details for embedded items such as connection plates or anchors.
i. Coordinate with waterproofing and waterstop systems defined and shown on the
architectural drawings.

5. Steel Frame Drawings.
a. Steel framing member sizes. Include all shear stud and camber information for
floor framing members.
b. Connection design loads including vertical reactions and design moments for
moment connections.
c. Column orientation on framing plans.
d. Locations requiring the installation of slip-critical bolts.
e. Bridging and bracing member sizes, locations, and connections.
f. Metal decking sizes, span criteria, and direction.
g. Relevant typical details. Include only details that apply to the project.
h. Complete column schedule, including member sizes, splice locations and types,
base plate sizes and orientation, and column loads and heights.
i. Anchor bolt sizes, hardware, and pattern.
j. Non-typical or non-standard connection details.
k. Dunnage and support steel members. Provide sizes and details.
l. Lintels (loose and attached) and support angles.
6. Masonry Drawings:
   a. Typical masonry reinforcing and spacing requirements for load bearing walls. Assist the architect in reinforcing and spacing requirements for load non-bearing walls shown on architectural drawings.
   b. Masonry seismic anchorage and lateral support requirements.
   c. Masonry bond beam requirements.

Submit final calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

1. Incorporate all resolved comments and corrections of the [DD2] Submittal. Include progressive collapse calculations in submittal. Coordinate with the Section on Security.
2. Each calculation sheet shall be initialed and dated by the engineer(s) assigned as Design Checker(s) for that portion of the work. Final calculations shall be indexed, sealed, and signed by the engineer whose name appears on the Design Calculations index. Observe the following guidelines:
   a. State assumptions and design criteria prior to the presentation of the calculations.
   b. Individual calculations to verify sizes, bolts, and welds, shall be provided with all details.
   c. Sketches used to describe the basis of calculations shall be drawn to approximate proportions.

**SUSTAINABILITY - Submit:**

Submit final calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

1. Final water use reduction calculations based on third-party and district guidelines. Coordinate with calculations for the potable water baseline and reduced consumption calculations performed by the plumbing engineer. See the Section on Plumbing.
2. Final Greenhouse Gas (GHG) emissions reduction calculations supporting district mandates.
3. Final renewable energy calculations.
4. Final calculations related to the mechanical and electrical project requirements.

**Green Globes (if applicable)**

Provide as part of the final narrative Basis of Design [B O D] report the following as it pertains to third party Green Globes certification:

1. Final input information for the Construction Documents Questionnaire and submit a final copy of the Automatic Output Reports from the online GBI Assessment Tool.
2. Documentation and discussion of the final input and output from the Life Cycle Cost Assessment (LCA) for the selected concept.
Submit final calculations and results of the Life Cycle Costs Assessment (LCCA) calculations to reflect design progression and incorporation of changes directed or if design criteria have changed since [DD2] submission.

**LEED (if applicable)**

Provide as part of the Basis of Design report [B | O | D] the following as it pertains to third-part LEED certification:

1. Final LEED score card indicating the rating level proposed. The score card shall indicate where points are anticipated for design and construction phase. A brief discussion should be provided describing why certain points are selected and others are not achievable or recommended.
2. Documented input into LEED template calculations for all attempted credits.

Submit final LEED template calculations as required for all design level credits being attempted. Indicate the rating level proposed.

**TELECOMMUNICATIONS - Submit:**

Submit the final narrative Basis of Design [B | O | D] report including written approval by the telecommunications utility companies of the design for incoming services and any other pertinent correspondence.

Submit complete and coordinated final drawings ready for bidding that reflect design progression and incorporation of directed changes including:

100% complete drawings, including complete legend symbol list, details, and schedules.

1. All new telecommunications services to site and buildings, all new fiber and copper cabling installations, all manholes and ductbanks.
2. Complete telecommunications riser diagrams.
3. Complete building telecommunications floor plans
CONSTRUCTION DOCUMENTS 2 [CD2]

General

The Construction Document 2 phase involves the production of final permitting and bidding documents. The A/E shall revise and update all [CD1] submissions based on district review comments. The district PM shall ensure that all district and community stakeholders are informed of the final design decisions using this set of documents.

The A/E’s remains responsible for providing a quality set of documents. Related documents shall be complete, fully coordinated, and ready for reproduction for contract.

Prior to reproduction for issue for construction bids, make any changes to the documents identified as necessary during the review conference with district Project Manager.

General requirements

1. Drawings shall have graphic scale and scale bar, north arrow (either true north or plan north; consistent for similar plans), and use the district approved border and key plan.
2. This final submission includes all drawings required by previous submission that shall be incorporated in the bid set.
3. All previous comments from district and peer reviewers are resolved. Unless specifically approved for resolution in an addendum, unresolved comments hereinafter may be considered Errors or Omissions by the district and are subject to applicable contract resolution provisions. Any deviation from district criteria shall be identified, justified, and documented with district’s approval.
4. The A/E shall verify that all changes based on the review of the previous phase have been approved by the district project manager.
5. The final submission of the specifications shall not show changes by using the “Track Changes” function; it shall be presented in final bidding form and format.
6. The A/E shall submit minutes of meetings with the district, district’s other contractors, and A/E coordination meetings.

Submit the following narrative information:

1. Written responses to review comments from previous submission.
2. All previously submitted documents updated to reflect review comments [CD1] review comments.
3. Final summary of space by function with net areas, gross area, net:gross ratio by department, net:gross ratio for building, listing of deviations from approved district space program, and justification for those deviations.
4. Final WBS II Level 4 Cost Estimate incorporating all changes to [CD1] documents. Submit final Project Data Sheets (refer to district cost estimating guidelines).
Submit the following drawings for preflight review:

1. All previously submitted drawings updated to reflect review comments from [CD1].
2. Final architectural drawings signed and sealed by an architect registered in the jurisdiction where the project is to be built.
3. Sign-off by designated district representatives.
4. Specifications.
5. Update all previously submitted documents to reflect review comments [CD1] review comments.

**GENERAL NOTES:**

Submit all materials, packaged and marked to the districts Construction Services Department in electronic and, if requested, paper format. If the district has engaged peer reviewers or a constructor, similar packages shall be distributed to those firms simultaneously. Electronic files shall be in PDF format, bookmarked to correspond with the format of this document unless otherwise agreed or requested.

Reports, calculations, estimates, and other related data, including edited specifications, can also be e-mailed when directed by the project manager.

The project manager shall be responsible for confirming the addresses of the offices where the deliverables shall be mailed. See the section on Integrated Design and Construction.

Identify each submission package including every CD/DVD with project name, project number, and date.