

DESIGN DELIVERABLES

January 15, 2015



Schematic Design Phase	Design Development Phase	Construction Documents Phase
<p><b>General Description</b></p> <ol style="list-style-type: none"><li>Review Programming information and verify Owner requirements for site and building functions and spaces<ol style="list-style-type: none"><li>Confirm parking requirements and site circulation</li><li>Confirm programmed spaces and square footages</li><li>Confirm exterior and interior circulation and calculate efficiency</li><li>Determine scope of renovated areas, if applicable</li></ol></li><li>Develop Scope of Work narrative based on Owner/Architect contract<ol style="list-style-type: none"><li>Project phasing requirements</li><li>Interior design</li></ol></li><li>Confirm Owner's project budget and overall schedule<ol style="list-style-type: none"><li>Include all project costs, total project costs</li><li>Reconcile site and building design program with budget</li><li>Advise Owner of any budget discrepancies</li><li>Advise Owner of any schedule issues</li></ol></li><li>Document existing conditions and identify issues<ol style="list-style-type: none"><li>Hazardous materials survey and abatement</li><li>Construction phasing requirements and occupancy during construction</li></ol></li><li>Select and involve special consultants (kitchen, laboratory, acoustical, technology, etc.) and prepare AIA contracts</li><li>Discuss type of construction contract and method of construction delivery (competitive bid, negotiated, construction management, prime bid, design/build)</li><li>Create and distribute project team directory - template<ol style="list-style-type: none"><li>Project contact information</li></ol></li><li>Create and distribute project schedule to team members<ol style="list-style-type: none"><li>Schematic Design and Owner review</li><li>Design Development Owner review</li><li>Construction Documents and Owner review<ol style="list-style-type: none"><li>Identify separate bid package scopes</li></ol></li><li>Review periods for Authorities Having Jurisdiction</li><li>Bid date</li><li>Construction start date</li><li>Occupancy date (space occupancy schedules)</li></ol></li><li>Schedule Schematic Design kickoff meeting (owner, design team)</li><li>Perform building code review describing means of compliance for major code issues and building systems<ol style="list-style-type: none"><li>Identify/determine Authorities Having Jurisdiction (planning and building)</li><li>Determine applicable building codes, regulations and ordinances</li><li>Confirm whether there will be hazardous materials or high piled storage</li><li>Occupancy classifications</li><li>Construction type</li><li>Fire protection systems</li><li>Building height and area</li><li>Area separations</li><li>Occupant loads</li><li>Egress requirements and distances</li><li>Plumbing fixture requirements</li><li>Accessibility requirements</li><li>Life safety egress plans with identification of security and access points</li></ol></li><li>Meet with Authorities Having Jurisdiction for project introduction and preliminary plan review</li><li>Confirm any special site conditions and anticipated variance requests<ol style="list-style-type: none"><li>Municipal zoning</li><li>Land use and land development review</li><li>Traffic studies</li></ol></li><li>Establish sustainability goals<ol style="list-style-type: none"><li>Determine sustainable systems goals</li><li>Determine desired LEED certification level</li><li>Develop LEED checklist</li></ol></li><li>Verify items furnished and/or installed by Owner<ol style="list-style-type: none"><li>Work by others</li><li>Furniture, fixtures and equipment (FF&amp;E)</li></ol></li><li>Confirm site information has been received or ordered<ol style="list-style-type: none"><li>Property survey</li><li>Soils reports</li><li>Environmental Site Assessment</li><li>Pressure and flow tests</li></ol></li><li>Verify special equipment and fixture requirements (cranes, lab equipment, food processing equipment, etc.)</li><li>Determine documents and materials required by Owner<ol style="list-style-type: none"><li>Construction Document format</li><li>Presentation materials</li><li>Existing conditions documents</li><li>Revit model</li></ol></li></ol>	<p><b>General Description</b></p> <ol style="list-style-type: none"><li>Review Schematic Design Phase comments and responses and incorporate revisions (verify compliance with building design program)<ol style="list-style-type: none"><li>Confirm parking and site requirements</li><li>Confirm programmed spaces and circulation</li><li>Review scope of renovated areas, if applicable</li></ol></li><li>Review Owner/Architect contract and update Scope of Work</li><li>Confirm Owner's project budget</li><li>Verify existing conditions and identify issues<ol style="list-style-type: none"><li>Hazardous materials abatement</li><li>Construction phasing requirements and occupancy during construction</li></ol></li><li>Determine additional discipline or consultant involvement required</li><li>Update and distribute project team directory</li><li>Update and distribute project schedule<ol style="list-style-type: none"><li>Design Development and Owner review</li><li>Construction Documents and Owner review<ol style="list-style-type: none"><li>Confirm separate bid package scopes and bid dates</li></ol></li><li>Review periods for Authorities Having Jurisdiction</li><li>Bid date, construction start date and occupancy date</li></ol></li><li>Review and update staff time and production cost projections<ol style="list-style-type: none"><li>Adjust staff participation to achieve schedule</li></ol></li><li>Schedule Design Development kickoff meeting</li><li>Update building code review<ol style="list-style-type: none"><li>Verify City and State submittal requirements</li><li>Verify hazardous materials use and storage</li><li>Verify occupancy classifications and occupant loads</li><li>Verify fire protection systems and area separations</li><li>Verify egress requirements</li><li>Verify accessibility requirements</li><li>Develop description of water and vapor barrier characteristics of roof and exterior wall construction and perform initial energy modeling</li></ol></li><li>Meet with Authorities Having Jurisdiction for preliminary plan review</li><li>Verify special site conditions and requirements are reviewed with authorities</li><li>Update sustainable systems information<ol style="list-style-type: none"><li>Update LEED checklist</li><li>Provide estimates of probable operating costs</li><li>Document ASHRAE 90.1 compliance</li></ol></li><li>Confirm and review requirements for Owner's special systems and equipment</li><li>Review site information (property survey, soils report, etc.) and request additional information if required</li><li>Confirm all selected building systems with Owner and all disciplines and consultants<ol style="list-style-type: none"><li>Structural (storage locations and rooftop mechanical equipment locations)</li><li>Mechanical (equipment sizes and locations, mechanical room sizes and locations)</li><li>Plumbing</li><li>Drainage</li><li>Fire suppression</li><li>Electrical (panel room locations)</li><li>Lighting</li><li>Technology</li><li>Security (electronic door hardware, alarm systems)</li><li>Fire alarm</li><li>Elevators</li><li>Special systems</li><li>Determine potential long lead time items</li></ol></li><li>Determine structural requirements based on geotechnical information and equipment requirements (mechanical and operational equipment, roof loads, etc.)</li><li>Confirm documents and materials required by Owner<ol style="list-style-type: none"><li>Presentation materials</li><li>Revit model</li><li>Exterior finish materials mockup</li><li>Interior finish materials board</li></ol></li><li>Present Design Development documents to Owner<ol style="list-style-type: none"><li>Review Design Development documents and other information with Owner</li><li>Update overall project schedule</li><li>Obtain Owner's written approval of Design Development documents</li></ol></li><li>20. What toilet room accessories will be by owner or by contractor?</li></ol>	<p><b>General Description</b></p> <ol style="list-style-type: none"><li>Review Design Development Phase comments and responses and incorporate revisions (verify compliance with building design program)</li><li>Review Owner/architect contract and update Scope of Work</li><li>Confirm Owner's project budget</li><li>Confirm construction phasing requirements and occupancy during construction</li><li>Update and distribute project schedule<ol style="list-style-type: none"><li>Construction Document and Owner review<ol style="list-style-type: none"><li>Confirm separate bid package scopes and bid dates</li></ol></li><li>Review periods for Authorities Having Jurisdiction</li><li>Bid date, construction start date and occupancy date</li></ol></li><li>Review and update staff time and production cost projections<ol style="list-style-type: none"><li>Adjust staff participation to achieve schedule</li></ol></li><li>Schedule Construction Documents kickoff meeting</li><li>Finalize building code review<ol style="list-style-type: none"><li>Code record plans</li><li>General code data</li><li>Final energy modeling and compliance forms</li></ol></li><li>Finalize sustainable systems information<ol style="list-style-type: none"><li>LEED checklist</li><li>Estimates of probable operating costs</li><li>ASHRAE 90.1 compliance</li><li>LEED Certification submittal</li></ol></li><li>50% Construction Documents review (confirm all selected building materials and equipment with Owner and all disciplines and consultants)</li><li>Verify structural requirements with design loads and equipment locations</li><li>Confirm documents and materials required by Owner</li><li>95% Construction Documents review with Owner<ol style="list-style-type: none"><li>Review Construction Documents and other information with Owner</li><li>Review comments and incorporate revisions</li></ol></li><li>Present Construction Documents to Owner<ol style="list-style-type: none"><li>Obtain Owner's written approval of Construction Documents</li></ol></li><li>Submit documents for plan review to Authorities Having Jurisdiction</li><li>Incorporate responses to AHJ plan review comments</li></ol>



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Schematic Design Phase	Design Development Phase	Construction Documents Phase
<ul style="list-style-type: none"> <li>e. Exterior finish materials mockup</li> <li>f. Interior finish materials board</li> <li>18. Determine any special sheet numbering otherwise use company standard</li> <li>19. Present Schematic Design documents to Owner                             <ul style="list-style-type: none"> <li>a. Review Schematic Design documents and other information with Owner</li> <li>b. Update Scope of Work narrative</li> <li>c. Update overall project schedule</li> <li>d. Obtain Owner's written approval of Schematic Design documents</li> </ul> </li> </ul>		
<b>Cost Estimate</b> <ul style="list-style-type: none"> <li>1. Develop Estimate of Probable Construction Costs (include all project costs)                             <ul style="list-style-type: none"> <li>a. Design fees</li> <li>b. Site costs</li> <li>c. Construction costs</li> <li>d. Furniture, fixtures and equipment</li> <li>e. Soft costs</li> <li>f. Design contingency</li> <li>g. Construction contingency</li> </ul> </li> <li>2. Identify potential bid alternates</li> <li>3. For CM projects, compare Architect's estimate and CM's estimate</li> </ul>	<b>Cost Estimate</b> <ul style="list-style-type: none"> <li>1. Update Estimate of Probable Construction Costs                             <ul style="list-style-type: none"> <li>a. Identify items not included in SD estimate</li> <li>b. Adjust design contingency and construction contingency</li> </ul> </li> <li>2. Determine potential cost reduction opportunities</li> <li>3. Confirm bid alternates</li> <li>4. Develop life cycle cost estimate as Owner requested additional service</li> </ul>	<b>Cost Estimate</b> <ul style="list-style-type: none"> <li>1. Updated Estimate of Probable Construction Costs</li> <li>2. Finalize bid alternates</li> </ul>
<b>Project Manual (if required)</b> <ul style="list-style-type: none"> <li>1. Develop outline specification (list of anticipated divisions and sections)</li> <li>2. Table of contents or narratives</li> <li>3. Assemble Project Manual Workbook with cut sheets and other information for all selected building systems, materials, equipment and fixtures</li> </ul>	<b>Project Manual</b> <ul style="list-style-type: none"> <li>1. Develop preliminary specifications indicating project specific features of major equipment and component materials</li> <li>2. Develop preliminary list of sole source specified items</li> <li>3. Review any changes to building design program with Owner to clarify intent</li> <li>4. Update Project Manual Workbook for all building systems, materials, equipment and fixtures</li> </ul>	<b>Project Manual</b> <ul style="list-style-type: none"> <li>1. Complete specification including front end documents                             <ul style="list-style-type: none"> <li>a. Alternates, cash allowances and unit prices, if applicable</li> <li>b. Insurance bonds, construction agreements and bidding procedures</li> <li>c. General and Supplementary Conditions</li> <li>d. Bid documents</li> <li>e. Prevailing wage rate statutes, if applicable</li> <li>f. Testing and quality control</li> <li>g. Special inspections</li> <li>h. Commissioning</li> <li>i. Contractor prequalification statements</li> </ul> </li> <li>2. Complete list of sole source specified items</li> <li>3. Update Project Manual Workbook for all building systems, materials, equipment and fixtures</li> <li>4. Indicate of proposed sequence of operations for all electrically monitored and controlled door hardware sets, including schematic wiring diagram for each location</li> </ul>
<b>Site</b> <ul style="list-style-type: none"> <li>1. Site Plans                             <ul style="list-style-type: none"> <li>a. Property lines w/ dimensions</li> <li>b. Setback requirements</li> <li>c. Utility easements</li> <li>d. Existing conditions</li> <li>e. Demolition</li> <li>f. Building outlines</li> <li>g. Future expansion</li> <li>h. Site entrance</li> <li>i. Roads and driveways</li> <li>j. Parking locations, including those required for operations service vehicles, special user needs, and ADA spaces as determined by transportation services                                     <ul style="list-style-type: none"> <li>i. Identify required parking counts based on city requirements</li> </ul> </li> <li>k. Loading dock and service entrance locations with trash compactor access route identified and all service vehicle and janitorial access shown</li> <li>l. Bus stop and shelter if required</li> <li>m. Waste and recycling collection locations</li> <li>n. Walkway locations</li> <li>o. Stairway locations</li> <li>p. Emergency telephone locations</li> <li>q. Site utilities</li> <li>r. Fire hydrant locations</li> <li>s. Emergency vehicle access showing turnarounds, width, code compliance verification and fire department connection point</li> <li>t. Security during construction</li> </ul> </li> <li>2. Preliminary grading plan</li> <li>3. Storm water management plan</li> <li>4. Preliminary site lighting plan</li> <li>5. Site logistics plan (contractor mobilization area, preliminary limit of contract, contractor access)</li> <li>6. Verification of need for MNDOT permits</li> <li>7. Listing of utility providers</li> <li>8. Transformer and generator location</li> <li>9. Detention pond</li> </ul>	<b>Site</b> <ul style="list-style-type: none"> <li>1. General dimensions and elevations</li> <li>2. Permanent exterior signage</li> <li>3. Parking and roadway plans and elevations</li> <li>4. Vehicular and pedestrian traffic controls</li> <li>5. Building elevations (coordinate with architectural floor plan elevations)</li> <li>6. Grading plan</li> <li>7. Site lighting plans, simulations, specifications, equipment cut sheets and photometrics</li> <li>8. Trash enclosure locations</li> <li>9. Conceptual details of site fixtures and equipment</li> <li>10. Electrical transformer location</li> <li>11. Utility plans, elevations and details for local governing agency approval                             <ul style="list-style-type: none"> <li>a. Water service (domestic and fire protection)</li> <li>b. Sanitary</li> <li>c. Storm</li> <li>d. Gas</li> <li>e. Electric</li> <li>f. Telephone and cable</li> </ul> </li> <li>12. Subsurface drainage (coordinate with architectural and plumbing)</li> <li>13. Soil erosion and sedimentation control plan for construction and post occupancy</li> <li>14. Service vehicle parking locations</li> <li>15. Locations of flag pole, trash collectors, benches and other features</li> <li>16. Roof drain locations (primary and secondary)</li> </ul>	<b>Site</b> <ul style="list-style-type: none"> <li>1. Retaining wall details</li> <li>2. Bollard locations</li> <li>3. Site lighting</li> <li>4. Final limit of contract</li> <li>5. Area traffic plan if major walkways and roadways are impacted</li> <li>6. Site development phasing plan</li> <li>7. Construction site access provisions</li> <li>8. Staging area provisions</li> <li>9. Construction signage</li> <li>10. Site details including hardscape</li> <li>11. Profiles for underground utilities</li> <li>12. Pipe sizes</li> <li>13. Connection details</li> <li>14. Local government review comments on site and utilities, etc.</li> </ul>



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## Schematic Design Phase

## Design Development Phase

## Construction Documents Phase

<b>Landscaping</b> <ol style="list-style-type: none"> <li>Existing conditions</li> <li>Landscaping concept</li> <li>Existing irrigation</li> </ol>	<b>Landscaping</b> <ol style="list-style-type: none"> <li>Planting plan</li> <li>Irrigation plan</li> </ol>	<b>Landscaping</b> <ol style="list-style-type: none"> <li>Indicate required protection of existing trees and significant plantings during construction</li> <li>Soil preparation and planting specifications</li> <li>Guying diagrams</li> <li>Piping diagrams</li> <li>Pipe sizes</li> <li>Landscape irrigation details and legends</li> <li>Equipment screening provisions</li> </ol>
<b>Structural</b> <ol style="list-style-type: none"> <li>Written description, proposed materials, foundation types, design criteria, design loads</li> <li>Structural schematic drawings</li> <li>Framing plan</li> <li>Preliminary structural sizing</li> <li>Establish grids</li> </ol>	<b>Structural</b> <ol style="list-style-type: none"> <li>Foundation plan</li> <li>Typical floor framing plan</li> <li>Framing plans at unique features</li> <li>Main member sizes</li> <li>Structural sections</li> <li>Roof and slab openings identified</li> <li>Building expansion joint locations</li> <li>Verify equipment, fixture, pipe and duct locations are not in conflict with structural elements</li> </ol>	<b>Structural</b> <ol style="list-style-type: none"> <li>Location of control joints</li> <li>Beam, column and slab schedules</li> <li>Depressed or raised slabs identified and detailed</li> <li>Roof and slab openings identified and detailed</li> <li>Verify stair and guard rails meet load requirements</li> <li>ME housekeeping pads</li> <li>Foundation details</li> <li>Structural details</li> <li>Structural notes</li> <li>Structural calculations</li> </ol>
<b>Building Exterior Envelope</b> <ol style="list-style-type: none"> <li>Typical elevations</li> <li>Fenestration layout</li> <li>Material designations</li> <li>Overall building cross sections/duct work</li> <li>Roof layout</li> <li>Perspectives</li> <li>Renderings for owner review</li> <li>Exterior building signage</li> <li>Building envelope performance compliance report</li> </ol>	<b>Building Exterior Envelope</b> <ol style="list-style-type: none"> <li>All building elevations with dimensioned height</li> <li>Typical wall sections</li> <li>Parapet and coping details</li> <li>Roof and drainage plan and scupper locations</li> <li>Canopy drainage and details</li> <li>Equipment screening</li> <li>Exterior door details</li> <li>Typical window details</li> <li>Expansion joint locations</li> <li>Building sections</li> <li>Subsurface drainage (coordinate with civil and plumbing)</li> <li>Building envelope performance compliance report</li> </ol>	<b>Building Exterior Envelope</b> <ol style="list-style-type: none"> <li>Roof details</li> <li>Exterior details</li> <li>Flashing details</li> <li>Control joint locations and details</li> <li>Roof walkway pad locations</li> <li>Roof guards, if required</li> <li>Building envelope performance compliance report</li> </ol>
<b>Building Interior</b> <ol style="list-style-type: none"> <li>Building floor plans</li> <li>Grid lines</li> <li>Demolition plans</li> <li>Proposed room numbering scheme</li> <li>Area use identification and area square footages</li> <li>Volume analysis</li> <li>Mechanical, electrical, janitorial rooms, sprinkler service location and other required service rooms</li> <li>Flexibility for expansion and alterations</li> <li>Preliminary layout of major spaces with fixed equipment/casework</li> <li>Restroom locations</li> <li>Drinking fountain locations/miscellaneous plumbing</li> <li>Reflected ceiling plan concepts</li> <li>Duct chase space</li> <li>Stairs/locations</li> </ol>	<b>Building Interior</b> <ol style="list-style-type: none"> <li>All floor plans</li> <li>Equipment and MEP chase locations</li> <li>Enlarged stair and ramp plans and sections</li> <li>Enlarged restroom plans</li> <li>Reflected ceiling plans (including fire rated ceiling assemblies)</li> <li>Wall types (including fire rated wall assemblies)</li> <li>Fixed seating layouts</li> <li>Kitchen facilities and defined serving and seating areas</li> <li>Equipment and furniture layouts</li> <li>Casework locations</li> <li>Important interior elevations (start all interior elevations)</li> <li>Details of fixed equipment</li> <li>Preliminary finish schedule</li> <li>Preliminary door schedule</li> <li>Informational signage locations</li> <li>Roof access locations</li> </ol>	<b>Building Interior</b> <ol style="list-style-type: none"> <li>Dimensioned floor plans</li> <li>Enlarged plans</li> <li>Wall types</li> <li>Interior details</li> <li>Interior elevations</li> <li>Finish schedules</li> <li>Casework details</li> <li>Door and hardware schedules</li> <li>Room signage</li> <li>Schedule of fixtures and equipment (fixed and moveable)</li> <li>Schedule of lab fixtures, if applicable</li> </ol>
<b>Elevators</b> <ol style="list-style-type: none"> <li>Elevator location</li> <li>Equipment room location</li> <li>Basis of Design description</li> <li>Emergency power determination</li> </ol>	<b>Elevators</b> <ol style="list-style-type: none"> <li>Elevator shaft location</li> <li>Elevator equipment description</li> <li>Cab materials and lighting description</li> </ol>	<b>Elevators</b> <ol style="list-style-type: none"> <li>Dimensioned plans</li> <li>Description of shaft sump pits</li> <li>Car and equipment support details</li> <li>Description of controls and fixtures</li> <li>Door and frame details</li> <li>Interior details, including finish materials and lighting for elevator cab and lobby</li> </ol>
<b>Accessibility Requirements</b> <ol style="list-style-type: none"> <li>Accessible entrance locations</li> <li>Areas of refuge at stairs</li> </ol>	<b>Accessibility Requirements</b> <ol style="list-style-type: none"> <li>Verify all elements are in compliance with applicable building code and 2010 ADA Standards <ol style="list-style-type: none"> <li>Signage</li> <li>Curb cuts</li> <li>Entrances</li> <li>Stairs and ramps</li> <li>Plumbing elements and facilities</li> <li>Kitchens, work surfaces and service counters</li> <li>Special rooms, spaces and elements</li> </ol> </li> <li>Power operated door locations</li> </ol>	<b>Accessibility Requirements</b> <ol style="list-style-type: none"> <li>Final review of all accessible components</li> </ol>



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Schematic Design Phase	Design Development Phase	Construction Documents Phase
<div><b>HVAC</b><ol style="list-style-type: none"><li>Mechanical legend</li><li>Basis of Design for all systems</li><li>Initial "shoebox" building envelope energy calculations for envelope performance compliance report</li><li>Single line diagrams for air, hydronic, steam, condensate and all other materials required to describe design concepts for all mechanical systems</li><li>Indication of amount of redundancy for all major pieces of mechanical equipment</li><li>Schematic plans showing major equipment locations and air intake and discharge locations</li><li>Gross HVAC zoning and typical individual space zoning and operating schedules</li><li>Special occupancy zones such as telecommunications and network server rooms</li><li>Analysis of existing utilities and HVAC infrastructure with summary listing of required upgrades to support new work</li></ol></div>	<div><b>HVAC</b><ol style="list-style-type: none"><li>Chase locations</li><li>Verify duct and piping are not in conflict with structural elements</li><li>Preliminary calculations and load summaries with breakdowns for major areas, subsystems and equipment loads</li><li>Systems design verification using life cycle cost analysis methods</li><li>Overall building air flow diagram showing interrelationships of air handlers, exhaust fans, duct risers, duct mains and primary dampers</li><li>Duct layout for typical spaces (analyze air distribution and noise levels)</li><li>Develop equipment schedules for major pieces of equipment</li><li>Equipment locations with enlarged mechanical room plans, sections and elevations to scale with indication of required service access areas</li><li>ME smoke control schemes</li><li>Meter locations</li></ol></div>	<div><b>HVAC</b><ol style="list-style-type: none"><li>Overall building hydronic and steam system diagrams showing interrelationship of main heating/cooling plant equipment or central utility source, heat exchangers, pumps, pipe risers and mains and primary isolation and control valves</li><li>Locations of air control devices, including damper locations and shaft access requirements</li><li>Floor plans with all components and required service access areas drawn to scale (indicate duct sizes and air flow quantities relative to each room, including CFM in and out of all doors)</li><li>Detailed piping and duct design with all sizes shown, and expansion compensation and structural support requirements coordinated</li><li>Location of control panels, transformers, lab air valves, volume control boxes, thermostats and control valves</li><li>Indication of typical locations of fire dampers, smoke dampers, combination F/S dampers and air control devices with access provisions</li><li>Access panel locations</li><li>Detailed floor plans of mechanical rooms with all components and required service access areas</li><li>Enlarged plans and sections showing coordination of systems in constricted areas</li><li>Equipment details with structural support details and vibrations isolation methods</li><li>Penetration and sleeve details</li><li>Space zoning diagram by system</li><li>Connection to fire alarm and control and security systems</li><li>Installation details</li><li>Final equipment schedules</li><li>Duct construction schedule and material pressure class</li><li>Design calculations</li><li>Final energy modeling</li><li>Final HVAC component of Energy Performance Compliance Report</li><li>Final sound and vibration control analysis, attenuation requirements, and methods for control provisions with calculations documenting compliance with design criteria</li><li>Final Utility Demand and Consumption report, if required</li></ol></div>
<div><b>Plumbing and Piping</b><ol style="list-style-type: none"><li>Plumbing legend</li><li>Single line riser diagrams for all plumbing systems, including domestic, sanitary, storm, gas, RO/DI, vacuum, processed water and all other materials to describe design concepts for all plumbing systems</li><li>Main water supply, storm and sanitary leads</li><li>Major equipment locations</li><li>Restroom locations</li><li>Drinking fountain locations</li><li>Listing of any special sanitary waste equipment</li><li>Listing of utility providers</li></ol></div>	<div><b>Plumbing and Piping</b><ol style="list-style-type: none"><li>Chase locations</li><li>Updated design criteria for each plumbing system including set points, water quality levels, etc.</li><li>Equipment locations with enlarged mechanical room plans, sections and elevations to scale with indication of required service access areas</li><li>Preliminary piping plans with indication of required service access areas</li><li>Meter locations and size requirements</li><li>Fixture schedules for major fixtures</li><li>Equipment schedules for major equipment</li><li>Roof drain locations and overflows</li><li>Hose bib locations</li><li>Subsurface drainage (coordinate with architectural and civil)</li><li>Lawn irrigation service, if applicable</li></ol></div>	<div><b>Plumbing and Piping</b><ol style="list-style-type: none"><li>Submit plumbing plan to State for review</li><li>Floor plans with all components and required service access areas</li><li>Verify fixture and piping locations are not in conflict with structural elements</li><li>Fixture mounting heights</li><li>Backflow prevention locations</li><li>Access panel locations</li><li>Detailed piping design with all pipe sizes indicated</li><li>Foundation drain layout</li><li>Typical plumbing details, including structural support requirements</li><li>Equipment piping details</li><li>Penetration and sleeve details</li><li>Water riser diagram, including assumed fixture counts per floor connection</li><li>Waste and vent riser diagrams, including assumed fixture counts per floor connection</li><li>Design calculations</li></ol></div>
<div><b>Fire Protection</b><ol style="list-style-type: none"><li>Fire Protection legend</li><li>Single line diagrams for each all fire protection systems and all other materials to describe design concepts for all fire protection systems</li><li>Report documenting adequacy of serving utility (contact City to obtain flow measurements)</li><li>Location of main utility connection</li><li>Fire pump need assessment</li><li>Location of entrance and sprinkler piping layout</li><li>Proposed locations of fire department connections and test headers</li></ol></div>	<div><b>Fire Protection</b><ol style="list-style-type: none"><li>Chase locations</li><li>Preliminary piping plans</li><li>Equipment locations with enlarged mechanical room plans, sections and elevations to scale with indication of required service access areas</li></ol></div>	<div><b>Fire Protection</b><ol style="list-style-type: none"><li>Fire protection plans with header and riser layout with indication of required services access area</li><li>Detailed piping design with major pipe sizes indicated</li><li>Location of all sprinkler zone valves, drains and hose connection points</li><li>Critical zone calculation area</li><li>Fire protection service entrance details</li><li>Typical sprinkler installation details, including structural support details</li><li>Penetration details</li><li>Design calculations</li><li>Head type and finish specification</li></ol></div>



DESIGN DELIVERABLES

January 15, 2015



Schematic Design Phase

Design Development Phase

Construction Documents Phase

<p><b>Electrical Power Distribution</b></p> <ol style="list-style-type: none"><li>1. Electrical demolition</li><li>2. Single line diagrams with anticipated voltage</li><li>3. Preliminary service size</li><li>4. Building entrance location</li><li>5. Exterior equipment locations<ol style="list-style-type: none"><li>a. Transformer location</li></ol></li><li>6. Generator and electrical room locations</li><li>7. Generator and ATS descriptions</li><li>8. Preliminary generator room plans</li><li>9. Special systems and equipment listings</li><li>10. Listing of utility providers</li></ol>	<p><b>Electrical Power Distribution</b></p> <ol style="list-style-type: none"><li>1. Chase locations</li><li>2. Manhole, duct bank and building entry plans and details</li><li>3. Normal power riser diagram with circuit breaker, fuse, conduit and wire sizes and updated single line diagram</li><li>4. Emergency power riser diagram with circuit breaker, fuse, conduit and wire sizes</li><li>5. Grounding riser diagram</li><li>6. Preliminary fault current and coordination studies</li><li>7. Substation standard details</li><li>8. List of equipment proposed to be on emergency or standby power</li><li>9. Electrical load calculations</li><li>10. Preliminary panel schedules</li><li>11. Typical panel arc flash and color code label</li><li>12. Electrical equipment location plans</li><li>13. Typical electrical outlet location plans</li><li>14. Plan for temporary power during construction</li></ol>	<p><b>Electrical Power Distribution</b></p> <ol style="list-style-type: none"><li>1. Details of power service to building</li><li>2. Power plans, including primary cable, raceways, feeder conduits, electrical loads, duplex and special receptacles and branch circuitry design</li><li>3. Coordinate outlets with casework and other interior features</li><li>4. Emergency power system plans, controls and details</li><li>5. Connections to other building systems, including fire alarm systems and HVAC systems, BAS systems and utility LAN</li><li>6. Details of nonstandard electrical installations</li><li>7. Conduit and wire sizes for services, feeders and special branch circuits</li><li>8. Notes identifying locations of separate and shared neutrals</li><li>9. Switchgear and MCC elevations</li><li>10. Grounding details</li><li>11. Roof and penetration details</li><li>12. Settings for Contractor furnished equipment</li><li>13. Mounting heights of equipment</li></ol>
<p><b>Lighting</b></p> <ol style="list-style-type: none"><li>1. Electrical symbols legend</li><li>2. General drawing notes</li><li>3. Proposed light levels</li><li>4. Fixture, lamp and controls description</li><li>5. Preliminary interior lighting plans</li><li>6. Preliminary outdoor lighting plans</li></ol>	<p><b>Lighting</b></p> <ol style="list-style-type: none"><li>1. Typical interior lighting and control plans</li><li>2. Outdoor lighting and control plans</li><li>3. Fixture types and schedules</li><li>4. Control systems and control device descriptions</li><li>5. Typical photometric calculations</li><li>6. Dimming and daylighting with calculations and low voltage control zones documentation</li><li>7. Proposed lighting fixture catalog cuts for review by architectural</li><li>8. Energy code calculations</li></ol>	<p><b>Lighting</b></p> <ol style="list-style-type: none"><li>1. Interior and exterior lighting plans, including control systems and devices, lighting panels, switching and circuiting</li><li>2. Lighting control systems detailed sequences of operations</li><li>3. Lighting control systems schematics and wiring diagrams</li><li>4. Installation details, including structural support details</li><li>5. Normal lighting photometric calculations</li><li>6. Emergency lighting photometrics</li><li>7. General notes on conduit and wire sizes for lighting branch circuits</li></ol>
<p><b>Fire Alarm</b></p> <ol style="list-style-type: none"><li>1. System description</li><li>2. Fire alarm panel locations</li><li>3. Preliminary fire alarm device and appliance location plans</li></ol>	<p><b>Fire Alarm</b></p> <ol style="list-style-type: none"><li>1. Riser diagram</li><li>2. Fire alarm panel, device and appliance location plans</li></ol>	<p><b>Fire Alarm</b></p> <ol style="list-style-type: none"><li>1. Detailed fire alarm panel, device and appliance location plans including<ol style="list-style-type: none"><li>a. duct detectors</li><li>b. fire smoke dampers</li><li>c. sprinkler flow and tamper switches</li><li>d. monitor and control modules</li><li>e. door hold opens</li><li>f. door lock releases</li></ol></li><li>2. Strobe light candela ratings</li><li>3. General notes on conduit and wire sizes</li><li>4. Detailed sequences of operations</li></ol>
<p><b>Communications (Voice, Data and Video Systems)</b></p> <ol style="list-style-type: none"><li>1. Building entry locations</li><li>2. Entry locations and TNS space location plans</li><li>3. Summary of access and security needs</li></ol>	<p><b>Communications (Voice, Data and Video Systems)</b></p> <ol style="list-style-type: none"><li>1. Backboard locations in TNS spaces</li><li>2. Raceway and grounding riser diagrams</li><li>3. Conduit and cable tray layout and sizes</li><li>4. Material cut sheets</li><li>5. List of equipment and preliminary layout of telecommunications spaces</li><li>6. Typical voice data and video outlet locations</li><li>7. Emergency phone locations and type</li><li>8. Courtesy phone locations</li></ol>	<p><b>Communications (Voice, Data and Video Systems)</b></p> <ol style="list-style-type: none"><li>1. Detailed voice data and outlet locations</li><li>2. Details of service to building</li><li>3. Floor box schedule</li><li>4. Conduit, outlet box and floor box installation details</li><li>5. Power outlet locations in TNS spaces</li><li>6. Final equipment rack locations in TNS spaces</li></ol>
<p><b>Security (Access Controls, Surveillance and Security Alarms)</b></p> <ol style="list-style-type: none"><li>1. System descriptions</li><li>2. Panel locations and rack and wall space requirements</li><li>3. Preliminary device location plans</li><li>4. Narrative of security systems needs</li></ol>	<p><b>Security (Access Controls, Surveillance and Security Alarms)</b></p> <ol style="list-style-type: none"><li>1. Riser Diagrams</li><li>2. Equipment location plans</li><li>3. Electronic security equipment closet layout</li><li>4. Emergency phone locations and type</li></ol>	<p><b>Security (Access Controls, Surveillance and Security Alarms)</b></p> <ol style="list-style-type: none"><li>1. Detailed equipment location plans</li><li>2. Equipment schedules, including all device specifications and electronic security system specifications</li><li>3. Card readers and locations</li><li>4. Concealed and exposed raceways</li><li>5. Wiring diagrams, including quantity, types and splice and termination locations</li><li>6. Installation details, including field device installation details</li><li>7. Detailed sequences of operations</li><li>8. Trade coordination diagrams clearly showing responsibility of each trade contractor responsible for security system installation</li></ol>
<p><b>A/V and Special Systems</b></p> <ol style="list-style-type: none"><li>1. System descriptions</li><li>2. Panel locations</li><li>3. Preliminary device location plans</li></ol>	<p><b>A/V and Special Systems</b></p> <ol style="list-style-type: none"><li>1. Riser diagrams</li><li>2. Equipment locations</li><li>3. A/V equipment location plans</li></ol>	<p><b>A/V and Special Systems</b></p> <ol style="list-style-type: none"><li>1. Detailed equipment location plans</li><li>2. Equipment schedules</li><li>3. Wiring diagrams</li><li>4. Installation details, including cabinets, hangers and connection boxes</li><li>5. Detailed sequences of operations</li></ol>