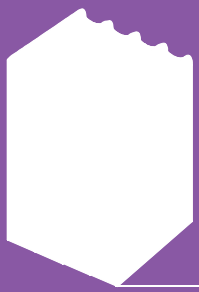
A / E Checklist of Services



Reference Materials
NIH Design Policy and Guidelines

The following Architectural and Engineering checklist of services defines the requirements that may be required for projects at the NIH. It is meant as a guide in order to obtain uniformity and coherence in the presentation of design documents. Each project officer will determine the scope of requirements that is needed based on the size and complexity of the project.

These checklists were based on existing documents from:

- The AIA Document B163 Scope of Designated Services
- The NIH/DES Statement of Work
- The NIH Special Provisions for an Indefinite Quantity A/E contract
- The NIH Statement of Work for Building 50
- The Cannon A/E checklist of services and Quality Control System.

The checklist shall be used in conjunction with the contract Statement of Work (SOW) to determine the final scope of services and deliverables.

The checklist includes:

- Project Administration and Management Services
- Predesign Services
- Schematic Design Phase Submission 15%
- Design Development Phase Submission 35%
- Construction Document Phase Submission 70%
- Construction Document Phase Submission 95%
- Construction Document Phase Final Submission 100%

Project Administration and Management Services

- **Project Administration**
  - Descriptive criteria
  - Reading from contracting
  - Research
  - Consultation
  - Conferences
  - Communications
  - Travel time
  - Direction of in-house architectural personnel
  - Coordination of work by the NIH
  - Progress reports
- **Coordination/Checking**
  - Coordination between the architectural work and the work of engineering and other disciplines involved in the project.
  - Review and checking of documents prepared for the project by the Architect and the Architect's consultants.
- **Agency Consulting/Review/Approval**
  - The services below apply to applicable laws, statutes, regulations, and codes of regulating entities and to reviews required of user or community groups with limited or no statutory authority but significant influence on approving agencies and individuals, including:
    - Agency consultations
    - Research of critical applicable regulations
    - Research of community attitudes
    - Preparation of written and graphic explanatory materials
    - Appearances on Owner's behalf at agency and community meetings
  - Organizations
    - State agencies
    - Planning boards
    - County agencies
    - Regional agencies
    - Federal agencies
    - NIH organizations, Institutes, Centers, Divisions
    - Community organizations
    - Consumer interest organizations
    - Environmental interest groups

- **Owner-Supplied Data**
  - Assistance in establishing criteria.
  - Assistance in obtaining data, including, where applicable, documentation of existing conditions.
  - Review and coordination of data furnished for the project as a responsibility of the owner.
- **Schedule and Monitoring**
  - Establish initial schedule for Architect's services, decision-making, design, documentation, contracting and construction, based on determination of scope of Architect's services.
  - Develop schedule for owner review, comment, and time to incorporate those items into the documents at each phase.
  - Review and update previously established schedules during subsequent phases.
- **Preliminary Cost Estimate**
  - Prepare a preliminary estimate of the cost of construction as well as Architectural and Engineering services.
  - Review and update the preliminary estimate of the cost of construction and Architectural and Engineering services during subsequent phases.
- **Presentation**
  - Users
  - Building committee (s)
  - Staff committee (s)
  - NIH organizations, Institutes, Centers, Divisions
  - User group (s)
  - Board (s) of Directors
  - Financing entity (entities)
  - NIH's consultants

Predesign Services

- ❑ **Programming**
  - ❍ Design objectives limitations and criteria
  - ❍ Verify Program of Requirements (POR) if applicable
  - ❍ Confirm with Master Plan
  - ❍ Develop initial approximate gross facility areas and space requirements
  - ❍ Determine space relations
  - ❍ Determine number of functional responsibilities personnel
  - ❍ Allow for flexibility and expandability
  - ❍ Allow for special equipment and systems
  - ❍ Determine site requirements
  - ❍ Determine fire protection requirements
  - ❍ Develop a preliminary budget of the Work based on programming and scheduling studies
  - ❍ Determine operating procedures - Materials Handling
  - ❍ Determine security criteria
  - ❍ Determine communications relationship
  - ❍ Determine project schedule
- ❑ **Space Schematics/Flow Diagrams**
  - ❍ Conversion of programmed requirements to net area requirements
  - ❍ Internal functions
  - ❍ Human, vehicular, and material flow patterns
  - ❍ General space allocations
  - ❍ Analysis of operating functions
  - ❍ Adjacency
  - ❍ Special facilities and equipment
  - ❍ Flexibility and expandability
- ❑ **Existing Facilities Surveys**
  - ❍ Verify basis of design
  - ❍ Identify deficiencies of existing facility
  - ❍ Perform space utilization of existing facility
  - ❍ Take photographs
  - ❍ Take field measurements
  - ❍ Review of existing design data
  - ❍ Analyze existing structural capabilities
  - ❍ Analyze existing mechanical capabilities
  - ❍ Analyze existing electrical capabilities
  - ❍ Review existing drawings for critical inaccuracies and

develop required measured drawings

- ❑ **Economic Feasibility Studies**
  - ❍ Define total project cost
- ❑ **Detailed Site Utilization Studies**
  - ❍ Land utilization
  - ❍ Structures placement
  - ❍ Facilities development
  - ❍ Development phasing Marshaling Plan (Construction Staging, office parking, storage etc.)
  - ❍ Movement systems, circulation and parking
  - ❍ Utilities systems
  - ❍ Surface and subsurface conditions "Topography"
  - ❍ Review of soils report
  - ❍ Vegetation
  - ❍ Slope analysis
  - ❍ Sediment control and grading plan
  - ❍ Ecological studies
  - ❍ "Master plan," zoning, and other legal restrictions
  - ❍ Landscape forms and materials
- ❑ **On-Site Utility Studies**
  - ❍ Electrical service and distribution
  - ❍ Gas service and distribution
  - ❍ Water supply and distribution
  - ❍ Site drainage
  - ❍ Wind analysis
  - ❍ Sanitary sewer collection and disposal
  - ❍ Process waste water treatment
  - ❍ Stormwater collection and disposal
  - ❍ Central-plant mechanical systems
  - ❍ Fire systems and water flow test
  - ❍ Emergency systems
  - ❍ Security
  - ❍ Pollution control
  - ❍ Site illumination
  - ❍ Communications system
- ❑ **Off-Site Utility Studies**
  - ❍ Confirmation of location, size, and adequacy of utilities serving the site
  - ❍ Determination of requirements for connections to utilities
  - ❍ Planning and design for off-site utility extensions and facilities

- **Environmental Studies and Reports**
  - Coordinate environmental review (NEPA) requirements with Environmental Protection Branch (EPB), Division of Safety.
  - Ecological studies
  - Attendance at public meetings and hearings
  - Presentations to governing authorities
  - Coordination of all reports with Office of Community Liason (OCL)
- **Zoning Processing Assistance**
  - Assistance in preparing application.
  - Development of supporting data.
  - Preparation of presentation materials
  - Attendance at public meetings and hearings
- **Geotechnical Engineering**
  - Establish geotechnical conditions
    - Test borings
    - Test pits
    - Soil bearing value
    - Percolation test
    - Ground corrosion and resistivity tests
    - Evaluation of subsurface material and conditions
    - Evaluation of necessary operations for anticipated subsoil conditions
    - Reports and professional recommendations
- **Site Surveying**
  - Survey by licensed surveyor
    - Description of physical characteristics
    - Legal limitations
    - Utility locations
    - Written legal description
    - Grades
    - Lines of streets, alleys, and pavements
    - Adjoining property and structures
    - Adjacent drainage
    - Right of ways
    - Restricting easements

- Site survey
  - Encroachments
  - Zoning
  - Deed restriction
  - Boundaries
  - Contours
  - Existing building information
  - Trees
  - Public utilities/above and below grade
  - Private utilities/above and below grade
  - Inverts and depths
  - Reference to a project benchmark

Schematic Design Phase Submission 15%

Site/Landscape

- ❑ All Site documentation will
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Predesign phase

Plans

- ❑ Existing Site Plan
  - ❍ Major landscaping
    - ◆ Major trees and vegetation
    - ◆ Outcroppings
    - ◆ Bodies of water
    - ◆ Fences and barriers
  - ❍ Site features and conditions
    - ◆ Existing contours
    - ◆ Flood zones or hazards
    - ◆ Property lines
    - ◆ Layout leases or easements
    - ◆ Zoning setbacks
    - ◆ Subsoil characteristics
    - ◆ Seismic conditions
    - ◆ Identifiable site constraints
    - ◆ Utility lines
    - ◆ Security features.
    - ◆ Manholes, drains, utility access
    - ◆ Location of preliminary soil boring
    - ◆ Historic or archaeological impact
  - ❍ Paved surfaces
    - ◆ Major streets
    - ◆ Vehicular routes
    - ◆ Curbs
    - ◆ Walks
    - ◆ Pedestrian access routes
    - ◆ Bicycle paths and parking
    - ◆ Parking with handicapped locations
    - ◆ Service areas
    - ◆ Other paved areas
  - ❍ Structures
  - ❍ Existing buildings with roof plans
    - ◆ Adjacent buildings with roof plans
    - ◆ Outbuilding or sheds
    - ◆ Canopies

- ❍ Other elements
  - ◆ Nuisance land uses
  - ◆ Special equipment (MRI, laser, ect.)
  - ◆ Convenience nodes (mass transit, drop-off area)
  - ◆ Facilities that may have interruption of any utility
- ❍ Proposed contours
- ❍ Construction marshaling information
  - ◆ Staging areas
  - ◆ Construction office trailer locations
  - ◆ Utility hook-ups, construction trailer
- ❍ Indications of phasing
- ❍ Limits of work
- ❍ Indication of future surrounding improvements

❑ Demolition plan

❑ Alternate schemes (indicate no.)

Reports

❑ Basis for design report

- ❍ Utilities statement: companies, agencies, individual contacts
  - ◆ Electrical power
  - ◆ Mechanical
  - ◆ Site utilities
  - ◆ Fire protection
- ❍ Analysis/description of conceptual design solutions
  - ◆ Design objectives
  - ◆ Environmental determinants
  - ◆ Site utilities
  - ◆ Land forms
  - ◆ Site lighting
  - ◆ Pest management
  - ◆ Irrigation system
  - ◆ Lawns and plantings based on programming
  - ◆ Grading
  - ◆ Physical site characteristics
  - ◆ Impact of building on site
  - ◆ Impact of site on building
- ❍ Site safety plan
  - ◆ Fire protection
  - ◆ Hazardous material handling
- ❍ Concept plan for drainage and grading
- ❍ Demolition requirements
  - ◆ Pest management
- ❍ Alternative materials, systems, and equipment

- Site utilities
- Fire protection
- Paving
- Other

Architectural

- ❑ All Architectural documentation will
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Predesign phase

Plans

- ❑ Conceptual design plan
- ❑ Floor plan of each level
  - ❍ Area names
  - ❍ Capacity information (no. of beds, seating, etc.)
  - ❍ Departmental assignments
  - ❍ Floor elevations
  - ❍ Lightwells
  - ❍ Mechanical areas
  - ❍ Multilevel spaces
  - ❍ Partition locations
  - ❍ Planning grid
  - ❍ Preliminary equipment and description
  - ❍ Public areas
  - ❍ Relative wall thicknesses
  - ❍ Room names
  - ❍ Security features
  - ❍ Service areas
  - ❍ Skylights
  - ❍ Vertical transportation
- ❑ Fire protection and egress plan
  - ❍ List features required by BOCA
  - ❍ List features required by NFPA standard 101
  - ❍ Fire protection analysis
  - ❍ Fire areas
  - ❍ Fire walls
  - ❍ Smoke zones
  - ❍ Travel distances
  - ❍ Areas of refuge
- ❑ Proposed lab module plan
  - ❍ Basic layout
  - ❍ Relation to structure

Interiors

- ❑ Interior space allocation and utilization plan
  - ❍ Preliminary furniture and equipment
  - ❍ Indicate major materials and systems
  - ❍ Outline of finishes

Exterior

- ❑ Building exterior elevations
  - ❍ Indicate surface materials for all areas
  - ❍ Finish grades
  - ❍ Major floor elevations above and below grade
  - ❍ Significant site features (plantings, water, hills, berms, etc.)
  - ❍ Exposed mechanical and electrical equipment
  - ❍ Sketch elevations or perspectives of buildings
  - ❍ Description of various design features

Sections

- ❑ Building section
  - ❍ Relative thickness of floors
  - ❍ Relative thickness of walls
  - ❍ Major floor elevations
  - ❍ Finish grades
  - ❍ Major room names
  - ❍ Important site easements
  - ❍ Significant mechanical and electrical equipment
  - ❍ Relationship to site contours
  - ❍ Above ceiling zoning analysis

Reports

- ❑ Basis for design report
- ❑ Architectural program
- ❑ Area analysis
  - ❍ Gross area tabulations
  - ❍ Area tabulations for net and gross design areas by floor
  - ❍ Space tabulation of net and gross by room
  - ❍ Review and verify area calculations guideline functions.
  - ❍ Comparison of areas and POR
- ❑ Outline specification
- ❑ Alternative materials, systems, and equipment

Structural

- ❑ All structural documentation will
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Predesign phase
- ❑ Conceptual design
  - ❍ Overall structural
  - ❍ Foundation design

- ❍ Systems outlines

Plans

- ❑ Structural schematic floor plans
  - ❍ Indicate major bracing locations
  - ❍ Locate typical bay
  - ❍ Indicate structural framing systems
- ❑ Development of alternatives

Reports

- ❑ Basis for design report
  - ❍ Existing conditions
    - ◆ Structural systems
    - ◆ Underlying soil bearing capacities
    - ◆ Seismic design criteria
  - ❍ Windloading
  - ❍ Vibration requirements and analysis
  - ❍ Summary of structural systems requirements
    - ◆ Fire-resistive construction requirements
  - ❍ Analysis for materials and systems
  - ❍ Development of conceptual design solutions

Mechanical

- ❑ All Mechanical documentation will
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Predesign phase

HVAC

- ❑ Locate existing mechanical HVAC equipment
- ❑ Lay out major components
- ❑ Verify locations of mechanical rooms with arch plans
- ❑ Verify locations of vertical shafts with arch plans
- ❑ Identify connections to major utilities
  - ❍ Steam
  - ❍ Chilled water
  - ❍ Natural gas
- ❑ Indicate existing intakes and exhausts relationships to
  - ❍ loading docks
  - ❍ kitchen
  - ❍ emergency generator
  - ❍ other

Reports

- ❑ Basis for design report
  - ❍ Present conditions
  - ❍ Design conditions
    - ◆ Outside air temperature
    - ◆ Inside air temperature

- Air changes
- Relative humidity
- Utility pressure
- Methodology for utility demands

- Requirements for HVAC services
- Special requirements
  - Fume hood
  - Biosafety cabinet
  - Other local exhaust requirements
  - Constant temperature rooms
  - Clean rooms
- Overall HVAC system concepts
- Energy recovery systems
- Preliminary energy budget
- Life cycle cost analysis
- Analysis of conceptual design solutions
  - Energy source
  - Energy conservation
  - Heating and ventilating
  - Air conditioning
- Alternative materials, systems, and equipment

Plumbing

- Locate existing Plumbing equipment
- Lay out major components
- Verify locations of vertical shafts with arch plans
- Identify connections to major utilities
  - Steam
  - Chilled water
  - Natural gas
  - Water
  - Special water (De-ionized)
  - Sewer
  - Specialty gases (systems or tanks)
  - Vacuum
  - Compressed air

Reports

- Basis for design report
  - Present conditions
  - Requirements for plumbing services
  - Special requirements
    - Radioactive waste
    - Waste recovery
  - Overall plumbing system concepts

- Analysis of conceptual design solutions
- Alternative materials, systems, and equipment.

Fire Protection

- ❑ Locate existing fire protection equipment or systems
- ❑ Lay out major components

Reports

- ❑ Basis for design report
  - Present conditions
  - Requirements for fire protection
  - Overall system concepts
  - Analysis of conceptual design solutions
  - Alternative materials, systems, and equipment
  - Calculation of the existing water supply
  - Calculation of the required water supply
  - Hydrostatic flow test
  - Preliminary sprinkler water supply calculations
  - Schematic plans with overall fire protection concepts
  - Special fire suppression systems
    - Descriptions
    - Locations
    - Justification for use
- ❑ Integrated fire alarm and security system
- ❑ Alternative materials, systems, and equipment
- ❑ Protection analysis report for each alternative

Electrical

- ❑ All Electrical documentation will
  - Be coordinated with other disciplines
  - Address all remarks from Predesign phase

Plans

- ❑ Locate existing connections to
  - Power
    - Primary voltage
    - Primary voltage transformation
    - Secondary distribution
    - Illumination
    - Emergency and UPS systems
    - Special grounding
  - Communications
    - Shielding
    - Internal communication systems
    - Telephone system
    - Data and LAN systems
    - Television system

- Safety
  - Fire detection systems
  - Security systems
  - Equipment and alarm systems
- Other
  - Regulated clock systems
  - Special electric systems

- [ ] Layout of major components of existing system
  - Power
  - Communications
  - Safety
  - Other
- [ ] Layout of major components for proposed systems
  - Power
  - Communications
  - Safety
  - Other
- [ ] Single line indication of major feeder routes
- [ ] Indicate general space requirements
- [ ] Verify locations of electrical rooms with arch plans
- [ ] Verify locations of vertical shafts with arch plans

Reports

- [ ] Basis for design report
- [ ] Calculations of existing size and available capacity
  - Power
    - Primary voltage
    - Primary voltage transformation
    - Secondary distribution
    - Illumination
    - Emergency and UPS systems
    - Special grounding
  - Communications
    - Shielding
    - Internal communication systems
    - Telephone system
    - Data and LAN systems
    - Television system
  - Safety
    - Fire detection systems
    - Security systems
    - Equipment and alarm systems
  - Other
    - Regulated clock systems

- Special electric systems

- ❑ Existing conditions and systems
- ❑ Electrical plant analysis
- ❑ Description of primary service available
- ❑ Overall electrical system concept
- ❑ Analysis of conceptual design solutions
- ❑ Systems outline proposed
- ❑ Life safety equipment load
- ❑ Description of emergency power system
- ❑ Energy budget
  - ❍ Proposed annual usage
  - ❍ Maximum design loads
  - ❍ Test for compliance with all applicable energy codes

Summary

- ❑ All reports and documentation will
  - ❍ Be coordinated with similar activities in each discipline
  - ❍ Address all remarks from Predesign phase

Code

- ❑ Code analysis
  - ❍ Define building type
  - ❍ Define use category

Costs

- ❑ Cost analysis
  - ❍ Preliminary cost base on a systems cost estimate
  - ❍ Preliminary cost based on general square meter cost
  - ❍ Cost estimates based on engineering systems
  - ❍ Preliminary cost comparison for each alternative

Review

- ❑ Review
  - ❍ Review NIH Guidelines and POR for compliance
  - ❍ Respond in writing to all predesign comments
  - ❍ Submit all documents for review
  - ❍ Attend review meetings as necessary to answer questions
  - ❍ Ensure compliance with environmental review (NEPA) Requirements

Design Development Phase
Submission 35%

Site/Landscape

- ❑ All Site documentation will
  - ❍ Be a minimum of 35% complete
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Schematic Design 15% phase

Plans

- ❑ Vicinity Plan
- ❑ Existing Site Plan
  - ❍ Major landscaping
  - ❍ Site features and conditions
  - ❍ Paved surfaces
  - ❍ Structures
  - ❍ Other elements
- ❑ Proposed Site Plan
  - ❍ Existing site information
  - ❍ Building footprint
    - ◆ Spot elevations
  - ❍ Key design elements
  - ❍ Major landscaping
  - ❍ Utility lines
  - ❍ Concept plan for drainage and grading.
  - ❍ Vehicular access routes
  - ❍ Pedestrian access routes
  - ❍ Parking
    - ◆ Handicapped
    - ◆ Motorcycle
    - ◆ Bicycle
    - ◆ Striping
    - ◆ Overall dimensions
  - ❍ Walks
    - ◆ Overall dimensions
  - ❍ Curbs
    - ◆ Curb cuts
    - ◆ Dimensions
  - ❍ Service areas
  - ❍ Proposed contours
  - ❍ Construction marshaling information
    - ◆ Location for excavated material

- Site access routes
- Indications of phasing
- Limits of work
- Indication of future surrounding improvements
- Indication of artwork
- Location of signage
- Security measures
  - Closed circuit TV
  - Gates and booths

☐ Preliminary landscape details

☐ Demolition plan
- Erosion control measures
- Preliminary demolition and removal

☐ Alternate schemes

Reports

☐ Basis for design report
- Establishment final scope
  - Relationships
  - Form
  - Size
  - Appearance
- Utilities statement: companies, agencies, individual contacts
- Analysis/description of conceptual design solutions
- Site safety plan
- Stormwater management report
- Erosion/sediment control report
- Concept plan for drainage and grading
- Demolition requirements
- Alternative materials, systems, and equipment

☐ Development of outline specification and material list

Architectural

☐ All Architectural documentation will
- Be a minimum of 35% complete
- Be coordinated with similar activities in other disciplines
- Address all remarks from Schematic Design 15% phase

Plans

☐ Floor plans of each level
- Identification of existing and new construction
- Double line plans with precise wall thicknesses
- All programmed rooms
- Equipment rooms
- Signal rooms

Plans, cont'd

- ❍ Electrical rooms
- ❍ Telephone closets
- ❍ Mechanical rooms
- ❍ Shafts
- ❍ Circulation corridors
- ❍ Stairs
- ❍ Ladders
- ❍ Elevators
  - ◆ Number
  - ◆ Type
  - ◆ Size
- ❍ Automatic conveyances
- ❍ Room names
- ❍ Department or area names
- ❍ Planning grid
- ❍ Structural grid
- ❍ Floor elevations
- ❍ Equipment
- ❍ Furnishings and other space defining elements
- ❍ Multilevel spaces
- ❍ Skylights
- ❍ Lightwells
- ❍ Significant mechanical equipment
- ❍ Significant electrical equipment
- ❍ Capacity information (no. of beds, seating, etc.)
- ❍ Overall dimensions
- ❍ Plan and layout of typical or repetitive spaces
- ❍ Fire protection
  - ◆ Fire walls
  - ◆ Smoke walls
  - ◆ Smoke zones

❑ Roof plan

- ❍ Major roof elements
  - ◆ Skylights
  - ◆ Hatches
  - ◆ Major mechanical equipment
  - ◆ Major electrical equipment
  - ◆ Elevator machine rooms

❑ Reflected ceiling plan

- ❍ Areas of special interest
- ❍ Major components

❑ Fire protection egress plan

- ❑ Proposed lab module

Interiors

- ❑ Interior space allocation and utilization plan
  - ❍ Establish the final scope relative to interior construction
    - ◆ Special interior design features
    - ◆ Furniture
    - ◆ Furnishings
    - ◆ Equipment selections
    - ◆ Materials
    - ◆ Finishes
    - ◆ Colors
    - ◆ Artwork

Exterior Elevations

- ❑ Building exterior elevations
  - ❍ Indicate all surface materials for all areas
  - ❍ Significant site features
    - ◆ Major planting
    - ◆ Bodies of water
    - ◆ Hills, earth berms

Interior Elevations

- ❑ Building interior elevations
  - ❍ Typical spaces
  - ❍ Major spaces
  - ❍ Areas of special interest
  - ❍ Areas of special complexity

Sections

- ❑ Building sections
  - ❍ Set floor to floor dimensions
  - ❍ Establish floor elevations
  - ❍ Set interstitial space dimensions
- ❑ Construction details
  - ❍ Typical wall sections
    - ◆ At window
    - ◆ At solid wall
    - ◆ At parapets and roofs
    - ◆ At finished grades and footings
- ❑ Construction sections
  - ❍ Typical stairways
  - ❍ Typical elevator shaft and machine room
  - ❍ Utility coordination cross sections

Reports

- ❑ Basis for design report
- ❑ Area analysis
- ❑ Outline specification
  - ❍ Materials lists
- ❑ Alternative materials, systems, and equipment

Structural

- ❑ All reports and other documentation will
  - ❍ Be a minimum of 70% complete
  - ❍ Be coordinated with similar activities in each discipline
  - ❍ Address all remarks from the Schematic Design 15% Phase

Plans

- ❑ Conceptual design
- ❑ Structural floor plans each level
  - ❍ Fixed column reference lines
  - ❍ Basic structural system and dimensions
  - ❍ Bearing walls
  - ❍ Major bracing locations
  - ❍ Indicate typical bay
  - ❍ Preliminary sizing of major components
  - ❍ Columns
  - ❍ All framing members identified
    - ◆ Girders
    - ◆ Beams
    - ◆ Joists
  - ❍ Indicate structural framing systems
- ❑ Structural foundation plans
  - ❍ Footings
  - ❍ Foundation walls
  - ❍ Grade beams
- ❑ Details
  - ❍ Foundation details
  - ❍ Typical framing details
  - ❍ Subdrainage
  - ❍ Water proofing
  - ❍ Dampproofing

Reports

- ❑ Basis for design report
- ❑ Development of alternatives
  - ❍ Foundation design criteria
  - ❍ Coordination with piping systems that require support
  - ❍ Laboratory vibration analysis
  - ❍ Final structural design criteria
  - ❍ Comparative cost analysis of at least two structural systems
- ❑ Critical coordination clearances
- ❑ Outline specifications or materials list
- ❑ Column schedules

Mechanical

- ❑ All Mechanical documentation will
  - ❍ Be a minimum of 35% completed
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Schematic Design 15 % phase

HVAC

Conceptual design

- ❑ Mechanical plan drawings
  - ❍ Block layouts of mechanical spaces
  - ❍ Indicate existing equipment
  - ❍ Layout of major components in equipment rooms
  - ❍ Approximate equipment sizes and capacities
  - ❍ Required space for equipment
  - ❍ Required chases and clearances
  - ❍ Acoustical and vibration control
  - ❍ Visual impacts
  - ❍ Single line presentation of ductwork systems
  - ❍ Single line HVAC piping mains
  - ❍ BAS controls
  - ❍ Energy conservation measures
  - ❍ Shafts
- ❑ Laboratory planning modules
- ❑ Development of outline specifications
  - ❍ List manufacturers of equipment

Reports

- ❑ Basis for design report
  - ❍ Plant analysis
  - ❍ Design intent and scope of systems

    Systems outline for proposed project
    - ◆ Heating source
    - ◆ Refrigeration source
    - ◆ HVAC systems
    - ◆ Energy conservation
  - ❍ Block load calculations for space cooling and heating
  - ❍ Energy analysis for at least three HVAC systems
  - ❍ Energy recovery analysis
  - ❍ Energy conservation analysis
  - ❍ Connected load requirements
  - ❍ Wind analysis and laboratory exhaust plume

Plumbing

- ❑ Plan drawings
  - ❍ Location of existing plumbing equipment
  - ❍ Layout of major components
  - ❍ Plumbing fixtures

- ❍ Distribution layouts
- ❍ Utilities
- ❍ Piped gas systems
- ❍ Hot water
- ❍ Water softening
- ❍ Plumbing piping mains
- ❍ Drainage piping mains
- ❍ Shafts
- ❍ Plumbing specialties
- ❍ Pipe materials

Reports

- ❑ Basis for design report
- ❑ Coordination with structural for support of piping
- ❑ Development of outline specifications
  - ❍ List manufacturers of equipment
  - ❍ Specify manufacturers of equipment

Fire Protection

- ❑ Plan drawings
  - ❍ Existing systems
  - ❍ New fire protection mains
  - ❍ Preliminary equipment layouts
  - ❍ Required space for equipment
  - ❍ Block layouts for fireprotection system

Reports

- ❑ Basis for design report
- ❑ Development of outline specifications
  - ❍ List manufacturers of equipment
  - ❍ Approximate sizes and capacities of major components

Electrical

- ❑ All Electrical documentation will
  - ❍ Be a minimum of 35% complete
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Schematic Design 15% phase
- ❑ Conceptual design

Plans

- ❑ Scaled Electrical plans
  - ❍ Scaled one-line diagrams of proposed electrical system
    - ◆ High-voltage circuity or transformation required
    - ◆ Emergency power
    - ◆ Fire alarm
    - ◆ Layout of major components in all electrical equipment rooms
    - ◆ Preliminary sizes of major components
    - ◆ Emergency/UPS

- High-voltage systems
- Primary transformers
- Emergency generator

- Identify special features
  - Telephone connections
  - Data connections
  - LAN locations and MIS provisions
  - Underfloor raceways
  - Occupancy sensors
  - Power outlets
  - Exit lights
  - Fire alarm
  - Signal system devices

- Tentative layouts of components where space is critical
- Ceiling plans
  - Location of lighting fixtures
  - Type of lighting fixtures
- Laboratory planning module
- Electrical site plan details
  - Service entrance locations
  - Initial distribution diagram for power
  - Telephone
  - Signal systems
- Preliminary details for site electrical work

Reports

- Basis for design report
  - Electrical plant analysis
  - Criteria for lighting
  - Criteria for electrical system
  - Criteria for communications systems
  - Building automation concept
  - Systems outline with manufacturers and types of systems
- Establishment of the final scope
- Overall building connected load requirements
- Agreement from each utility company or agency on design development drawings
- Development of outline specifications or materials lists

Summary

- All reports and documentation will
  - Be coordinated with similar activities in each discipline
  - Address all remarks from Schematic Design 15% phase

Code

- ❑ Code analysis
  - ❍ Outline of design conformance with regulatory agencies
  - ❍ Outline of applicable codes
  - ❍ Building classification
  - ❍ Zoning category
  - ❍ Construction type

Reports

- ❑ Design reports
  - ❍ Basis for design with revisions from schematic phase
- ❑ Outline of program
- ❑ Design description narrative
  - ◆ Design concepts and objectives
  - ◆ Tabulation of net and gross areas
  - ◆ Growth potential
  - ◆ Alternate schemes

Energy

- ❑ Building envelope analysis
  - ◆ Recommendations for overall building envelope
  - ◆ Review of thermal vapor flow and moisture
  - ◆ Recommendation for vapor barriers
  - ◆ Recommendation for vapor isolation
- ❑ Energy study
  - ❍ Alternate methods of energy conservation
    - ◆ Associated advantages
    - ◆ Associated disadvantages
    - ◆ Payback calculations
    - ◆ Utility company rebates
  - ❍ Alternate methods of energy recovery
    - ◆ Associated advantages
    - ◆ Associated disadvantages
    - ◆ Payback calculations
    - ◆ Utility company rebates
- ❑ Asbestos report
- ❑ Wind analysis and exhaust plume study
- ❑ Vertical transportation recommendations
  - ❍ Elevators
    - ◆ Number
    - ◆ Type
    - ◆ Size
    - ◆ Weight capacity
    - ◆ Speed
    - ◆ Arrangement
  - ❍ Other requirements
- ❑ Fire protection narrative

- Strategy for meeting life safety codes
- List any upgrade requirements to achieve fire protection policy

Costs

- ❑ Cost analysis
  - Cost estimate
    - Approximate quantities
    - Itemized breakdown
    - Identification of potential items for value engineering
  - Budget outline
    - Construction cost
    - Owner's cost
    - Project cost
    - Total Cost
    - Equipment included in budget
    - Equipment by owner

Specifications

- ❑ Specifications
  - General and supplemental conditions of contract
  - Outline of specifications or itemized list with criteria & quality standards
    - Significant architectural materials
    - Architectural systems
    - Equipment
  - Outline of project specifications in marked up form
  - Request for and justification of property items
- ❑ Schedules
  - Construction schedule in bar chart form
  - Project schedule diagram with phases of development

Calculations

- ❑ Design calculations
  - Structural
    - Preliminary structural calculations
    - Calculations for support of hydronic and hydraulic piping
  - HVAC
    - Indoor design conditions U-valve calculations
    - Outdoor design conditions U-valve calculations
    - Theoretical water vapor migration
    - Dewpoint and condensation potential
    - Ductwork sizing in plenums and shafts
    - Cooling loads
    - Heating loads
  - Plumbing

- Plumbing calculations
- Pump sizing
- Tank sizing

- Fire protection
  - Sprinkler calculations
  - Fire alarm requirements
- Electrical

- Presentation
  - Study sketches
  - Preliminary perspectives
  - Rendered perspective
  - Models
    - Study models
    - CADD models
    - Presentation model at scale

Review

- Review
  - Ensure compliance with the NIH guidelines
  - Review and approve general architectural materials
  - Respond in writing to all schematic design materials
  - Submit all documents for review
  - Attend review meetings as necessary to answer questions

Site/Landscape

- ❑ All Site documentation will
  - ❍ Be a minimum of 70% complete
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Design Development 35% phase

Plans

- ❑ Vicinity Plan
- ❑ Existing Site Plan
- ❑ Proposed Site Plan
  - ❍ Existing site information
  - ❍ Dimension major site features
  - ❍ Building footprint
    - ◆ Grade elevations at each building corner
    - ◆ Grade elevations at entrances, and critical areas
    - ◆ First floor elevations
    - ◆ Overall dimensions
  - ❍ Key design elements
  - ❍ Major landscaping
  - ❍ Utility lines
  - ❍ Concept plan for drainage and grading.
  - ❍ Vehicular access routes
    - ◆ Profile and alignment of all new roads
  - ❍ Pedestrian access routes
  - ❍ Parking
    - ◆ All striping
    - ◆ All unique spaces
    - ◆ Dimensions
  - ❍ Walks
    - ◆ Dimensions
    - ◆ Paving joints
  - ❍ Curbs
    - ◆ Dimensions
  - ❍ Service areas
    - ◆ Dimensions
  - ❍ Staking plan
  - ❍ Proposed contours
    - ◆ Grading at all altered areas

Plans, cont'd

- ❍ Construction marshaling information
  - ◆ Locate and outline
  - ◆ Locate temporary utility hookup
- ❍ Indications of phasing
- ❍ Limits of work
- ❍ Indication of future surrounding improvements
- ❍ Indication of artwork
- ❍ Location of Signage
  - ◆ Location(s) of construction sign
- ❍ Security measures

❑ Planting plan
- ❍ Location of all trees, shrubs, and lawns
- ❍ Complete planting list
- ❍ Planting details

❑ Preliminary landscape details

❑ Demolition plan

❑ Utility plot plan
- ❍ Existing utilities and their connections
- ❍ Proposed trunk sewers
- ❍ Water distribution loop
- ❍ Gas distribution mains
- ❍ Location arrangement of water treatment equipment

❑ Alternate schemes

Reports

❑ Site construction document design report
- ❍ Establishment of final scope
- ❍ Utilities statement: companies, agencies, individual contacts
- ❍ Analysis/description of conceptual design solutions
- ❍ Coordination with NIH Utilities Master Plan
  - ◆ Verify location, sizing and timing of all the required interfaces
  - ◆ Provide schedule confirmation of any utility work
- ❍ Site safety plan
- ❍ Stormwater management report
- ❍ Erosion/sediment control report
- ❍ Review planting plan against master plan
- ❍ Concept plan for drainage and grading
- ❍ Demolition requirements
- ❍ Alternative materials, systems, and equipment

❑ Develop specification and material list

Architectural

- ❑ All Architectural documentation will
  - ❍ Be a minimum of 70% completed
  - ❍ Be coordinate with similar activities in other disciplines
  - ❍ Address all remarks from Design Development 35% phase
- ❑ Entire project site on one sheet for reference
- ❑ General notes
- ❑ Reference and coordination symbols
  - ❍ Enlarged plan bubbles
  - ❍ Section indications
  - ❍ Exterior elevation keys
  - ❍ Interior elevation keys
  - ❍ Wall type indications
- ❑ All dimensions
  - ❍ Overall
  - ❍ Column grid
  - ❍ Locating dimensions
    - ◆ Partitions
    - ◆ Openings
    - ◆ Equipment

Plans

- ❑ Floor plans of each level
  - ❍ All room names
  - ❍ Room numbers
  - ❍ Accurate door size, and swings
  - ❍ Safety and protective elements
    - ◆ Fire extinguishers
    - ◆ Fire hoses
    - ◆ Lead linings
    - ◆ Radio frequency shielding
  - ❍ Fixed equipment
  - ❍ Portable equipment
  - ❍ Plumbing fixtures placed and identified
    - ◆ Sinks
    - ◆ Showers
    - ◆ Tubs
    - ◆ Toilets
    - ◆ Toilet stalls
    - ◆ Eyewash
    - ◆ Safety showers
    - ◆ Any item requiring plumbing

Plans, cont'd

- ❍ Construction dimension
- ❑ Roof plan
  - ❍ Materials
  - ❍ Elevations
  - ❍ Slopes
  - ❍ Drains
  - ❍ Other penetrations
  - ❍ Window washing system
    - ◆ Davits
    - ◆ Bollards
    - ◆ Rails
    - ◆ Equipment
- ❑ Reflected ceiling plans
  - ❍ Suspended ceiling grids
  - ❍ Lighting fixtures
  - ❍ Diffusers
  - ❍ Registers
  - ❍ Sprinkler heads
  - ❍ Ceiling-mounted equipment
  - ❍ Exit signs
  - ❍ Equipment
  - ❍ Wall-mounted items
  - ❍ Shelving and special features
- ❑ Enlarged plans
  - ❍ Special spaces
  - ❍ Stairs
- ❑ Interior Elevations
- ❑ Coordination utility cross-section at a minimum 12.5 mm scale
  - ❍ Corridors
  - ❍ Mechanical rooms
  - ❍ Utility placements
- ❑ Utility discipline zones
  - ❍ Coordination with existing structural
  - ❍ Coordination with new structural
- ❑ Vertical circulation
- ❑ Dimensional locations
    - ◆ Elevator cars
    - ◆ Elevator entrances
    - ◆ Counterweights
    - ◆ Hoistway vents
    - ◆ Trap doors for lowering overhead

Reports

- ❑ Architectural report
  - ❍ Upgrade basis of design

Structural

- ❑ All Structural documentation will
  - ❍ Be a minimum of 70% complete
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Design Development 35% phase
- ❑ Conceptual design

Plans

- ❑ Structural floor plans for each level and roof
  - ❍ Final column reference lines
  - ❍ Structural system dimensions
  - ❍ Size bearing walls
  - ❍ Major bracing locations
    - ◆ Bracing type
    - ◆ Dimensions
  - ❍ Indication of typical bay
  - ❍ Sizing of major components
  - ❍ Column sizes
  - ❍ All framing members sized
    - ◆ Girders
    - ◆ Beams
    - ◆ Joists
    - ◆ Open web joists
    - ◆ Concrete joists
    - ◆ Waffle slab
    - ◆ Space frames
    - ◆ Lintels
    - ◆ Type, extent, and direction of framing
    - ◆ Reference structural items to schedule
  - ❍ Slabs
- ❑ Structural foundation plans
  - ❍ Size of caissons
  - ❍ Size of footings
  - ❍ Size of foundation walls
  - ❍ Size of grade beams
- ❑ Structural notes
- ❑ Critical coordination clearances
- ❑ Sections and details
- ❑ Column schedules
- ❑ Details
  - ❍ Reinforcing

- Size
- Spacing
- Elevation of reinforcing
- Type
- Depths

- Dimensioned foundation details
- Large openings
- Nonstandard beam to column framing
- Concrete stairs
- Exterior wall construction
- Window wash supports
- Anchors and ties
- Elevator shaft details,
- Vibration isolation details
- Large mechanical equipment and anchorage
- Typical framing details
- Standard structural steel connections
- Sump pump systems
- Reference to appropriate schedules

- Correlation with architectural and mechanical features
- Specifications

Reports

- Structural report
  - Final structural system
  - Design codes
  - Identification of design stresses
  - Allowable foundation bearing capacity
  - Compaction requirements
- Special condition
  - Shoring/underpinning of adjacent structures
- Schedules
  - Slabs
  - Beams
  - Columns

Mechanical

- All mechanical documentation will
  - Be a minimum of 70% complete
  - Be coordinated with similar activities in other disciplines
  - Address all remarks from Design Development 35% phase

HVAC

- ❑ Conceptual design
- ❑ Mechanical plan drawings
  - ❍ Legend
  - ❍ Plan showing Ducts
    - ◆ Double line drawing of ducts >150 mm
    - ◆ Single line drawing of ducts <=150 mm
  - ❍ Indicate size of ducts
  - ❍ Indicate insulation/moisture prevention
  - ❍ Fire dampers
  - ❍ Smoke dampers
  - ❍ Balancing dampers
  - ❍ Location of all equipment
  - ❍ Indicate smoke detectors
    - ◆ Within ducts
    - ◆ In air-handling units
  - ❍ Special or complex ductwork

Sections

- ❑ Drawing sections
  - ❍ Through equipment rooms
  - ❍ Typical ductwork

Details

- ❑ Details of unique conditions
- ❑ Control diagrams with legend and operating description
  - ❍ Conditioning air systems
  - ❍ Exhaust systems
  - ❍ Refrigerator systems

Schedules

- ❑ Equipment schedules
  - ❍ Air conditioning
  - ❍ Ventilation units
  - ❍ Refrigeration elements
  - ❍ Cooling towers
  - ❍ Fans
  - ❍ Pumps

Reports

- ❑ Design report
  - ❍ Sizing calculations for ducts
  - ❍ Combustion air supply calculations
    - ◆ Boiler plants
    - ◆ Ventilation system
    - ◆ Heating system
  - ❍ Calculations for fan pressures and pump heads
  - ❍ Calculations for required sound attenuation of major fans

Plumbing

- ❑ Plumbing system plan drawings
  - ❍ Create legends
  - ❍ Show location and size of equipment
    - ◆ Pumps
    - ◆ Tanks
  - ❍ Locate piping
    - ◆ Double line drawing and piping >150 mm
    - ◆ Single line drawing and piping >=150 mm
  - ❍ Indicate size of pipes
  - ❍ Indicate insulation/moisture prevention
  - ❍ Indicate piping system
    - ◆ Chilled water
    - ◆ Condenser water
    - ◆ Hot water
    - ◆ Steam piping (including low quantities)
    - ◆ Waste
    - ◆ Sanitary
    - ◆ Vent
    - ◆ Oxygen
    - ◆ Nitrous oxide
    - ◆ Medical compressed air
    - ◆ Shop compressed air
    - ◆ Fuel gas
    - ◆ Vacuum outlets
  - ❍ Walk-in coolers, freezers, cold rooms
    - ◆ Refrigeration systems
    - ◆ Schematic piping
    - ◆ Wiring diagrams
    - ◆ Automatic controls
- ❑ Plot plan for outside of building underground distribution
  - ❍ Therapeutic pool equipment
  - ❍ Blowers
- ❑ Riser diagrams

Details

- ❑ Detailing
  - ❍ Unique conditions
  - ❍ Vibration isolation engineering
- ❑ One line flow and control diagrams
  - ❍ Chilled water
  - ❍ Condenser water
  - ❍ Hot water
  - ❍ Steam piping (including low quantities)
  - ❍ Air conditioning steam

- ❑ Schedules

Reports

- ❑ Design report
  - ❍ Equipment selections based on manufacturer's catalog data
  - ❍ Sizing calculations
    - ◆ Piping mains and principal branches
    - ◆ Boiler
    - ◆ Condensate tank
    - ◆ Feedwater heater capacities
    - ◆ Feedwater storage capacity
  - ❍ Capacity, discharge pressure, and Net Positive Suction Pressure (NPSH)
    - ◆ Condensate transfer pumps
    - ◆ Boiler feedwater pumps
    - ◆ Pressure reducing valves
    - ◆ Safety valves
    - ◆ Oil tanks and pumps
    - ◆ Gas systems
    - ◆ Blowdown systems

Fire Protection

- ❑ Plan drawings
  - ❍ Create legends
  - ❍ Indicate existing systems
  - ❍ Showing location and size of equipment
  - ❍ Locate piping
  - ❍ Indicate size of pipes
  - ❍ Equipment layouts
- ❑ Ceiling plan drawings
  - ❍ Sprinkler locations

Specifi-cations

- ❑ Specifications
  - ❍ List manufacturers of equipment
  - ❍ Sizes and capacities of major components

Reports

- ❑ Fire Protection Design Report
  - ❍ Update Basis of Design

Electrical

- ❑ All Electrical documentation will
  - ❍ Be a minimum of 70% complete
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Design Development 35% phase
- ❑ Conceptual design

Plans

- ❑ Plan drawings indicating location of
  - ❍ Transformer vaults
  - ❍ Padmount transformer location
  - ❍ Auxiliary power system connection
  - ❍ Engine generator sets
  - ❍ Unit substations
  - ❍ Other major equipment
- ❑ Floor plans
  - ❍ Room numbers
  - ❍ Room titles
  - ❍ Area functions
  - ❍ Lighting fixtures
  - ❍ Outlets for power
  - ❍ Layouts for special systems
- ❑ Scaled ceiling plans for each space
- ❑ Plot plan with primary feeder location showing access to the project
- ❑ One line riser diagram of electrical distribution
- ❑ One line riser diagram of auxiliary power distribution

Diagrams

- ❑ Riser diagrams for
  - ❍ Fire alarm
  - ❍ Nurse call
  - ❍ Telephone
  - ❍ Paging
  - ❍ Television
  - ❍ All low-voltage systems
- ❑ Specifications

Reports

- ❑ Electrical design report
  - ❍ Electrical plant analysis
  - ❍ Lighting calculations
  - ❍ Load calculations
  - ❍ Description of short circuit method
  - ❍ Voltage drop calculations

Summary

- ❑ All reports and other documentation will
  - ❍ Be a minimum of 70% complete
  - ❍ Be coordinated with similar activities in each discipline
  - ❍ Address all remarks from the Design Development 35% phase
- ❑ Review energy study
- ❑ Revise basis of design report

- ❑ Vertical transportation
  - ❍ Required capacity
  - ❍ Speed and control system
  - ❍ Physical space requirements
    - ◆ Hoistway enclosure
    - ◆ Pits
    - ◆ Cabs
    - ◆ Machine rooms
    - ◆ Entrances

Cost

- ❑ Cost
  - ❍ Revision of cost estimate
  - ❍ Revision of cost outline
  - ❍ Quantity take-off
  - ❍ Labor cost by trade and spec. section
  - ❍ Material cost by trade and spec. section
- ❑ Revised specifications
- ❑ Equipment
  - ❍ Use of owner-furnished material/equipment
  - ❍ Special manufacturing requirements
  - ❍ Delivery requirements
  - ❍ Storage requirements
  - ❍ Manufacturer's plans and details for installation

Schedule

- ❑ Construction schedule
  - ❍ Bar chart
  - ❍ Narrative report
    - ◆ Long lead items
    - ◆ Delivery times
    - ◆ Scheduling instructions
    - ◆ Phasing instructions
    - ◆ Optimum construction efficiency
- ❑ Design schedule
- ❑ Occupancy schedule
- ❑ Calculations
  - ❍ Design calculations for all disciplines
- ❑ Presentation
- ❍ Revised renderings
  - ❍ Revised models

Review

- ❑ Review
  - ❍ Review and approval of architectural materials
  - ❍ Review and approval of architectural material details
    - ◆ Openings
    - ◆ Windows

- Doors
- Penetrations
- Walls
- Copings
- Roofing system
- Water proofing
- Caulking
- Flashing

- Respond in writing to all comments from Design Development 35% Phase
- Submit all documents for review
- Attend review meetings as necessary to answer questions

Site/Landscape

- ❑ All Site documentation will
  - ❍ Be a minimum of 95% completed
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Construction Document 70% phase

Plans

- ❑ Vicinity Plan
- ❑ Existing Site Plan
- ❑ Proposed Site Plan
  - ❍ Existing site information
  - ❍ Dimension major site features
  - ❍ Building footprint
  - ❍ Key design elements
  - ❍ Major landscaping
  - ❍ Utility lines
  - ❍ Concept plan for drainage and grading.
  - ❍ Vehicular access routes
  - ❍ Pedestrian access routes
  - ❍ Parking
  - ❍ Walks
  - ❍ Curbs
  - ❍ Service areas
  - ❍ Staking plan
  - ❍ Proposed contours
  - ❍ Construction marshaling information
  - ❍ Indications of phasing
  - ❍ Limits of work
  - ❍ Indication of future surrounding improvements
  - ❍ Indicate artwork
  - ❍ Locate signage
  - ❍ Security measures
- ❑ Planting plan
  - ❍ Location of all trees, shrubs, and lawns
  - ❍ Complete planting list
  - ❍ Planting details
- ❑ Landscape details
- ❑ Demolition plan
- ❑ Utility plot plan

Plans, cont'd

- ❍ Existing utilities and their connections
- ❍ Proposed trunk sewers
- ❍ Water distribution loop
- ❍ Gas distribution mains
- ❍ Location arrangement of water treatment equipment

❑ Alternate schemes

❑ Specifications and material list

- ❍ Supporting documentation

Reports

❑ Site Construction Document Design Report

- ❍ Update Basis of Design

Architectural

❑ All Architectural documentation will

- ❍ Be a minimum of 95% completed
- ❍ Be coordinated with similar activities in other disciplines
- ❍ Address all remarks from Construction Document 70% phase

❑ Entire project site on one sheet for reference

Plans

❑ Floor plans of each level

- ❍ Indication of art work
- ❍ Signage location
- ❍ Interior planting

❑ Roof plan

❑ Reflected ceiling plans

❑ Floor covering plan

- ❍ Material type
- ❍ Graphics
- ❍ Patterns

❑ Enlarged plans

❑ Fire protection egress plan

❑ Lab modules

Interiors

❑ Interior space allocation and utilization plan

❑ Interior elevations

- ❍ Signage location

❑ Exterior elevations

❑ Signage location

❑ Building sections

❑ Construction details

- ❍ Any unique condition not previously covered

❑ Installation plans

- ❍ Furniture
- ❍ Equipment

- ❑ Color and finish boards with physical samples
- ❑ List of new and reused items
  - ❍ Number
  - ❍ Cross referenced to details
  - ❍ Cross referenced to specifications

Report

- ❑ Architectural Design report
  - ❍ Update Basis of Design

Structural

- ❑ All Structural documentation will
  - ❍ Be a minimum of 95% completed
  - ❍ Be coordinated with similar activities in other disciplines
  - ❍ Address all remarks from Construction Document 70% phase
- ❑ Conceptual design

Plans

- ❑ Structural floor plans for each level and roof
  - ❍ Column reference lines
  - ❍ Final dimensions
  - ❍ All bracing
  - ❍ Sizing of all components
  - ❍ Special provisions for installation or removal of equipment
- ❑ Structural foundation plans
  - ❍ Locate grades
  - ❍ Locate clean out manholes
  - ❍ Locate trenches
  - ❍ Locate area wells
  - ❍ Locate and dimension all elevator pits
  - ❍ Locate elevation of bottom of footing
  - ❍ Indicate concrete member
    - ◆ Dimensions
    - ◆ Size
    - ◆ Spacing
    - ◆ Reinforcing
  - ❍ Locate finished and unfinished spaces
  - ❍ Pipe sleeves through footings
  - ❍ Pipe sleeves through below grade walls
  - ❍ Caissons
    - ◆ Bottom elevation
    - ◆ Bell size
  - ❍ Elevations
  - ❍ Top of slab elevations

- ❍ Top of steel elevations

Details

- ❑ Sections and details
- ❑ Critical coordination clearances
- ❑ Details
  - ❍ Clarification of lengths or arrangement of reinforcement
  - ❍ Any condition not previously addressed
- ❑ Schedules
  - ❍ Schedule for reinforcing bar
  - ❍ Column schedule
- ❑ Structural notes
- ❑ Correlation with architectural and mechanical features
- ❑ Specifications

Reports

- ❑ Structural report
  - ❍ Completed computations
  - ❍ Special condition
  - ❍ General note
  - ❍ Boring logs
  - ❍ Girder diagrams
    - ◆ Live loads
    - ◆ Uniform loads
    - ◆ Concentrated loads
    - ◆ Reactions
    - ◆ Girder material
    - ◆ Stresses

Mechanical

- ❑ All Mechanical documentation will
  - ❍ Be a minimum of 95% completed
  - ❍ Be coordinated similar activities in other disciplines
  - ❍ Address all remarks from Construction Documentation 70% phase
- ❑ Conceptual design

Plans

- ❑ Complete Construction Documents for HVAC, Plumbing, and Fire Protection
  - ❍ Symbols legend sheet
  - ❍ Plans
  - ❍ Elevations
  - ❍ Sections
  - ❍ Notes
  - ❍ Details
  - ❍ Riser diagrams

- Schedules
- Control diagrams
- Specifications
- Completed calculations

- ❑ Sanitary
  - Invert elevations for sewage system
  - Legends
  - Notes
  - Details
  - Site plan
  - Sized equipment
  - Profiles greater than 60 m
    - Original grade
    - Finished grade
    - Manholes
    - Inlets
    - Pipe size
    - Road and walk crossings
    - Elevations of other pertinent utilities

Reports

- ❑ Mechanical Design Report
  - Update Basis of Design

Electrical

- ❑ All Electrical documentation will
  - Be a minimum of 95% completed
  - Be coordinated with similar activities in other disciplines
  - Address all remarks from Construction Documentation 70% phase

Drawings

- ❑ Conceptual design
- ❑ Floor plans
- ❑ Ceiling plans
- ❑ Plot plan
- ❑ Electrical distribution plan
- ❑ Riser diagrams
- ❑ One line diagrams with size and fault currents
  - For all switchgear
  - For all switchboards
  - For all panel boards
  - Feeder sizes
  - Transformer sizes
- ❑ Specifications

Reports

- ❑ Electrical design report
  - ❍ Update Basis of Design

Summary

- ❑ All Reports and other documentation will
  - ❍ Be a minimum of 95% completed
  - ❍ Be coordinated with similar activities in each discipline
  - ❍ Address all remarks from the Construction Document 70% phase
- ❑ Basis of Design Report
- ❑ Cost estimates
- ❑ Specifications
- ❑ Schedules
- ❑ All design calculations
- ❑ Presentation
  - ❍ Finished rendering
  - ❍ Final model
- ❑ Reviews
  - ❍ Respond in writing to all 70% of Construction Document comments
  - ❍ Submit all documents for review
  - ❍ Attend review meetings as necessary to answer questions

Construction Document Phase
Final Submission 100%

Final Submission

- ❑ All Reports and other documentation will
  - ❍ Be 100% completed
  - ❍ Be coordinated with similar activities in each discipline
- ❑ Final Basis of Design Report for all disciplines
- ❑ Final cost estimates
- ❑ Final specifications
- ❑ Drawings (sealed by Registered Architect, Landscape Architect and Professional Engineers responsible for the design)
- ❑ Final schedules
- ❑ Final design calculations
- ❑ Presentation
  - ❍ Finished rendering
  - ❍ Final model
- ❑ Reviews
  - ❍ Respond in writing to all 95% of Construction Document Phase comments
  - ❍ Submit all documents for review
  - ❍ Attend review meetings as necessary to answer question
- ❑ Final deliverable
  - ❍ Mylar set of working drawings
  - ❍ Electronic copy of CADD Drawings
  - ❍ Electronic copy of specifications
- ❑ Assistance to the government in preparation of
  - ❍ Invitation for bids
  - ❍ Phasing or commissioning requirements