The University of Minnesota’s (U of MN) “Design Deliverables” outlines the information and minimum level of development anticipated with the standard contracted phases of design: Predesign, Schematic Design (SD), Design Development (DD), and Construction Documents (CD).

This document is a companion to the University’s standard AIA documents. This document does not include “Work” associated with Bidding and Construction Administration (CA).

As part of the formal University of Minnesota (U of MN) review process at each of the major phases of design, the Design Professional shall review, validate and submit the “Design Deliverables” document to the University’s Design Project Manager within Capital Project Management (CPM). The inclusion of each required item shall be validated by checking the associated mark on the official submission. The Design Professional shall clarify any missing information or omissions.

Each design phase Deliverables are to include all items/information in the associated column of the “Design Deliverables” table AND, except as specifically stated to the contrary in the table, all items listed in this document associated with preceding phases.

Deviations to this “Design Deliverables” shall be reviewed as part of the project team’s project proposal/workplan and agreed to by CPM as a basis for the contracted work.

NOTES:
1. Unless otherwise noted, all movable furnishings and artwork are considered to be independent of the architectural design project, but shall be coordinated as part of the budgeted project scope.

2. Submittals of deliverables for contracted phases of design are to be preceded by a complete University review and comments period consistent with the University’s prescribed process.

3. All documents associated with a phase’s submittal requirements shall be in .pdf format. When requested by the Project Manager, electronic .dwg files (with or without the Design Professional's title block) of current phased drawings for use as backgrounds for special construction bid packs (e.g. telephone/data and audio/visual wiring bid packs)

4. Projects procured through SDSB shall also meet the requirements outlined by the MN Department of Administration (https://mn.gov/admin/assets/RECS-CS-3rdpredesign-manual_tcm36-208251.pdf)
GENERAL
INFORMATION

Project Scope
- Scope of work narrative, including Owner’s Project Requirements and Basis of Design documents
- Preliminary project program
- Spreadsheet documenting anticipated exception requests

Building Codes / Jurisdiction(s)
- List of applicable building codes on drawing title sheet
- Building code review (describe means of compliance for major code issues and building systems)
- Anticipated building and space occupancy schedules

Sustainability
- When applicable, provide necessary documentation and information as applicable to initiate B3 tracking tool
- Submit B3 tasks assigned to associated phase
- List of sustainability features incorporated into project design per B3 and/or applicable “Sustainable Design Standards”

SHPO
- When applicable, assist the University in completing CPM template and associated documentation for 30% SHPO Submission

Project Schedule
- Design Schedule by phase, identifying and aligning with key University review/approval periods
- Preliminary Construction schedule, identifying anticipated delivery method, phasing, substantial completion, certificate of occupancy

Project Budget
- Project benchmarking
- Preliminary cost estimate based upon Unit/Costs and system narratives associated with Predesign documentation price alternates

Schematic Design

Project Scope
- Initiate Request for Exceptions (RFE) to University Construction Standards

Building Codes / Jurisdiction(s)
- Life safety (egress) plans with identification of security and access control points
- Description of any proposed occupancy within construction area
- List of anticipated building code variance requests
- Preliminary SAC/WAC calculations

Sustainability
- Engage in Energy Design Assist (EDA) program if applicable
- Submit B3 tasks assigned to associated phase

SHPO
- When applicable, assist the University in completing CPM template and associated documentation for 50% SHPO Submission

Project Schedule
- Update design and construction schedule assumptions from Predesign, identifying and aligning with key University review/approval periods, anticipated delivery method, phasing, substantial completion, certificate of occupancy, and other key milestones

Project Budget
- Updated cost estimate per SD documentation
- Develop project alternates list as necessary to maintain project budget

Design Development

Project Scope
- Updated Request for Exceptions (RFE) to University Construction Standards

Building Codes / Jurisdiction(s)
- List of all code variances being requested

Sustainability
- Engage in Energy Design Assist (EDA) program if applicable
- Submit B3 tasks assigned to associated phase

SHPO
- When applicable, assist the University in completing CPM template and associated documentation for 90% SHPO Submission

Project Schedule
- If multiple bid packages, clearly indicate the scope of each release
- Identification of construction phasing, including temporary requirements during each phase

Project Budget
- If a Construction Manager at Risk (CM@Risk) has been retained, reconcile DD/GMP pricing with University Review comments before proceeding to CDs
- If a CM@Risk has not been procured, provide an updated estimate based upon DD set of drawings.
<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>Predesign</th>
<th>Schematic Design</th>
<th>Design Development</th>
<th>Construction Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>System &amp; material narrative description</td>
<td>• Outline narrative for scope of work by building systems &lt;br&gt; • General level of interior finishes &lt;br&gt; • Special Equipment requirements – including relocation of specialty research equipment (if any)</td>
<td>• Outline or preliminary specifications by CSI categories, indicating project specific features of major equipment as well as component materials &lt;br&gt; • Review and update assumptions associated with anticipated level of interior finishes</td>
<td>• Preliminary draft of General Conditions and Special Conditions in accordance with contract agreements</td>
<td>• Complete specification including draft front end documents &lt;br&gt; • List of items which are sole-sourced or dual-sourced and justification for not specifying three acceptable products</td>
</tr>
</tbody>
</table>
### SITE

#### Pre-design

**Civil**
- Site plans to include the following:
  - A. Existing conditions
  - B. Extents of Demolition
  - C. Building outline(s) + location
  - D. Site Circulation
    - Building Entry and Access
    - Roads & driveways
    - Parking locations
    - Loading dock location
    - Waste/recycling collection locations
  - E. Site Utility requirements
  - F. Stormwater Management Requirements

**Landscape**
- Existing conditions
- Site concept plan

#### Schematic Design

**Civil**
- Preliminary site utility plans
- Site limits and constraints
- Storm water management plan
- Soil Boring References
- Preliminary grading plan and topographic contours
- Soil retention work, if needed

**Landscape**
- If applicable, identify key architectural site features
- Preliminary protection plan for existing trees and significant plantings
- Conceptual Landscape Plan

#### Design Development

**Civil**
- Preliminary site lighting plan
- Site development phasing
  - Extents of construction area
  - General dimensions & elevations
  - Grading plan w/ contours and spot elevations
  - Soil erosion and sedimentation control
  - Soil Boring Information
  - Plan to address existing hazardous/contaminated materials (if any)
  - Sanitary sewer flow calculations
  - Profiles for underground utilities, size and depth
  - Electrical service and distribution
  - Parking/roadway, walks and hardscape plans & elevations
  - Area traffic plan, if existing roads/walks are impacted, including vehicle & pedestrian traffic controls (if required)

**Landscape**
- Planting plan (species, quantities, and locations)
- Irrigation plan
- Protection for existing trees and significant plantings during construction
- Soil preparation & planting specifications
- Site Furniture Locations

#### Construction Documents

**Civil**
- Utility plans, elevations, inverts & details for local governing agency approval
- Site lighting plans, simulations, specifications, equipment cut sheets and photometrics
- Soil erosion and sedimentation control plan (for both construction and occupancy)
- Dewatering plan
- Construction site access + Staging Area
- Site details, including hardscape
- Utility Connection details
- Copy of local government review comments on utilities and modifications in right(s)-of-way

**Landscape**
- Landscaping Details
- Irrigation Detail
  - Piping diagrams
  - Pipe sizes
Structural System Narrative
- Note extents of potential existing structure demolition or modification, forensic exploration if applicable

Conceptual foundation system and framing plan
- Requirements for engineered fill /soil correction
- If applicable, Pier / caisson recommendations
- If applicable, special excavation requirements

Foundation plan
- Typical footing sizes
- Typical foundation wall sizes
- Typical reinforcing steel factors (i.e. lbs./SF)
- General indication for moisture protection, insulation, foundation drainage

Piling, sheeting, shoring, underpinning
Excavation limits/ over excavations
Typical floor framing plan
- Dimensioned Structural Grid/ column lines
- Beam / column layout for typical bay
- Transfer beam locations
- Slab / floor composition
- Indication of fireproofing requirements
- Wind and shear walls or cross bracing

Framing plans at unique features
Main member sizing
Typical connection details
Shaft walls & floor openings
Canopy and penthouse framing.
Definition of control joints
Structural building and wall sections

Beam, column & slab schedules
Mechanical and electrical concrete housekeeping pads
Foundation details
Structural details
Structural calculations
<table>
<thead>
<tr>
<th>Architecture: Exterior Envelope</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predesign</strong></td>
</tr>
<tr>
<td>- Building Massing</td>
</tr>
<tr>
<td>- Overall building cross-sections w/ floor elevations</td>
</tr>
<tr>
<td>- Design Narrative/diagram noting range of material palettes, including but not limited to transparency, fenestration, finish levels, etc.</td>
</tr>
<tr>
<td>- If applicable, indicate future opportunities for expansion &amp; alterations</td>
</tr>
<tr>
<td>- Preliminary building elevations</td>
</tr>
<tr>
<td><strong>Schematic Design</strong></td>
</tr>
<tr>
<td>- Typical elevations w/ material indications</td>
</tr>
<tr>
<td>- Fenestration layout</td>
</tr>
<tr>
<td>- Architectural Screening</td>
</tr>
<tr>
<td>- Roof layout &amp; drainage plan</td>
</tr>
<tr>
<td>- Skylights</td>
</tr>
<tr>
<td>- Penthouses</td>
</tr>
<tr>
<td>- Large scale building cross-sections</td>
</tr>
<tr>
<td><strong>Design Development</strong></td>
</tr>
<tr>
<td>- Typical exterior wall sections</td>
</tr>
<tr>
<td>- Parapet &amp; coping details</td>
</tr>
<tr>
<td>- Thermal and moisture protection</td>
</tr>
<tr>
<td>- Fireproofing</td>
</tr>
<tr>
<td>- Typical window and door details</td>
</tr>
<tr>
<td>- head, jamb, and sill conditions</td>
</tr>
<tr>
<td>- Details of unique features</td>
</tr>
<tr>
<td>- Expansion joint locations</td>
</tr>
<tr>
<td>- Roofing system section</td>
</tr>
<tr>
<td>- Control joint definition &amp; details</td>
</tr>
<tr>
<td>- Roof-mounted equipment</td>
</tr>
<tr>
<td>- Identify anticipated Building signage, for submission to Signage Committee</td>
</tr>
<tr>
<td><strong>Construction Documents</strong></td>
</tr>
<tr>
<td>- Roof details</td>
</tr>
<tr>
<td>- Exterior details</td>
</tr>
<tr>
<td>- Flashing details</td>
</tr>
<tr>
<td>Predesign</td>
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<tr>
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</tbody>
</table>
| - Area tabulations compared to program requirements  
  - Use identifications to spaces  
  - Document associated areas in ASF & GSF  
    o Existing Area  
    o New Area  
- Typical floor plans (single-line block diagrams)  
  - Include legend by space use  
  - Mechanical, electrical & other service closets & rooms  
  - Identify core vertical circulation elements including elevator(s) and elevator rooms  
  - Note anticipated scope of demolition  
- Circulation paths  
- If applicable, indicate future opportunities for expansion & alterations, or phasing/sequencing of work  
| - Floor plans  
  - Door and window locations  
  - Millwork / casework locations  
  - Defined seating, serving, & kitchen facilities  
- Demolition plans (if applicable)  
- Reflected Ceiling Plans  
- Preliminary layout of major spaces w/ fixed equipment  
- Typical wall types  
- Preliminary Room finish schedule  
- Indication of any special construction / rooms  
- Preliminary FFE Schedule (for reference and budgeting purposes); see CPM schedule templates  
- If applicable, work with U of MN Haz Mat to create preliminary Hazardous Abatement Plant  
| - Assign room numbers (coordinate w/ Space Management Team)  
- Sections and enlarged plans at vertical circulation (stairs and elevators)  
  - Sections & details of hydraulic cylinder, if applicable  
  - Description of shaft sump pits  
  - Elevator car & equipment support details  
  - Description of controls & fixtures  
- Enlarged plans and elevations at toilet rooms  
- Enlarged plans and elevations at Special rooms  
- Reflected ceiling plans w/ elevation markers  
- Typical Sections & details at soffits and ceiling features  
- Wall types, fire ratings, smoke control zones  
- Typical millwork / casework elevations  
- Equipment & furniture preliminary layouts  
- Finish schedule with preliminary finish samples  
- Door & window schedule  
| - Dimensioned floor plans  
- Enlarged plans  
- Partition details  
- Interior details  
- Interior elevations  
- Finish selections & schedules  
- Door & hardware schedules  
- FFE Schedule  
- Details of unique features  
- Details of fixed equipment |
MEP

**Predesign**

- HVAC
  - **Confirm existing capacity/distribution assumptions**
  - **System Narratives**
    - Identify specialty system requirements
  - **Indication of the required capacity/redundancy for all major pieces of equipment, e.g. “two AHU’s 100% capacity each”**
  - **Air intake & discharge locations**
  - **Major equipment locations**

- Plumbing
  - **Confirm existing capacity/distribution assumptions**
  - **System Narratives**
    - Identify specialty system requirements
  - **Indication of the required capacity/redundancy for all major pieces of equipment, e.g. “two pumps 100% capacity each”**
  - **Main water supply, storm, and sanitary leads**
  - **Major equipment locations**
  - **Restroom location(s) w/ fixture counts**

- Electrical/Lighting
  - **Confirm existing capacity/distribution assumptions**
  - **System Narratives**
    - Identify specialty system requirements
  - **Indication of the required capacity/redundancy for all major pieces of equipment**

**Schematic Design**

- HVAC
  - One-line diagrams for each air, hydronic, steam, condensate and all other HVAC related systems, and other materials as required to describe the fundamental design concept for all mechanical systems. Including zoning concept.
  - Identify special occupancy zones
  - Overall building air flow diagram indicating air handlers, exhaust fans, duct risers, duct mains
  - Note special filtration requirements
  - Mechanical Equipment
    - Air handling units - location, size and type
    - Chiller - location, size and type
    - Boilers, heat exchanger, pumps - location and size
    - Plans indicating shaft, chase, recess requirements
  - Preliminary calculations

- Plumbing
  - One-line (riser) diagrams for every plumbing system (e.g. domestic water, sanitary, storm, gas, RO/DI, etc.) and other materials as required to describe the fundamental design concept for all plumbing systems.
  - Updated design criteria for each plumbing system (including set points, water quality levels, etc.)
  - Preliminary piping plans (domestic & process) with indication of required service access areas
  - Preliminary calculations

- Electrical/Lighting
  - Manhole, duct bank, and building entry plans and details
  - Electrical equipment location plans
  - Panel numbering scheme
  - One-line diagrams with equipment ratings
  - Equipment
    - Switch gear - location and size
    - Transformers - location and size
    - Generators - location and size
  - Preliminary interior lighting plans
  - Preliminary outdoor lighting plans
  - Fixture, lamp, and controls descriptions

**Design Development**

- HVAC
  - Equipment schedules (major equipment)
  - Equipment locations (w/enlarged mechanical plans)
  - Duct layout for typical spaces
  - Indication of typical locations of fire dampers, smoke dampers, and combination F/S dampers
  - Control diagrams (concept form) for all mechanical and plumbing systems
  - Outline of major control sequences of operation
  - M/E smoke control schemes
  - Preliminary floor plans of mechanical rooms w/all components and required service access areas drawn to scale
  - Meter locations and types
  - Design calculations

- Plumbing
  - Meter locations and types
  - Back flow prevention locations
  - Fixture schedules
  - Equipment schedules (major equipment)
  - Preliminary floor plans of mechanical rooms w/all components and required service access areas drawn to scale
  - Floor drain locations
  - Foundation drains
  - Water riser diagram, including assumed fixture counts per floor connection
  - Waste and vent riser diagrams including assumed fixture counts per floor connection
  - Design calculations

- Electrical/Lighting
  - Normal power riser diagram with circuit breaker, fuse, conduit and wire sizes
  - Emergency power riser diagram with circuit breaker, fuse, conduit and wire sizes
  - Grounding riser diagram & calculations
  - Fault current and coordination studies used to specify equipment ratings
  - Substation standard details
  - List of equipment on emergency power
  - Electrical load calculations

(continued on next page)

**Construction Documents**

- HVAC
  - Detailed piping and duct design with all sizes indicated, including CFM in and out of all doors. Indicate location of control panels
  - Detailed floor plans of mechanical rooms w/ all components and required service access areas drawn to actual scale
  - Cross-sections through mechanical rooms and areas where there are installation/coordination issues (tight space, zoning of utilities). Indicate required service access areas
  - In common mechanical space, indication of space zoning by system
    - Connection to fire alarm & campus control systems
  - Equipment details, including structural support requirements
  - Penetration/sleeve details
  - Installation details
  - Duct construction schedule (on the drawings), indicating materials and pressure class for each duct system
  - Detailed controls drawings, including clear differentiation of trade responsibility for control, fire, and control power wiring
  - Detailed sequences of operation including the specific set points for all control loops that will result in attainment of the required design criteria, as well as alarm set points and time delays

- Plumbing
  - Detailed piping design with all pipe sizes indicated
  - Typical plumbing details, including structural support requirements
  - Water heating piping details
  - Penetration/sleeve details

- Electrical/Lighting
  - Details of power service to building
  - Power plans, including primary cable raceways, feeder conduits, electrical loads, duplex and special receptacles, and circuiting
  - Emergency power system plans, controls, and details

(continued on next page)
Predesign
Schematic Design
Design Development
Construction Documents

**MEP (continued)**

**Electrical/Lighting (DD continued)**
- Panel schedules
- Interior and exterior lighting plans, including control systems and devices, lighting panels, switching and circuiting
- Fixture types and schedule
- Dimming, daylighting and low voltage control zones
- Emergency lighting
- Typical photometric calculations
- Preliminary short circuit and protective device coordination study
- Typical electrical outlet location plans
- Plan for temporary power during construction.

**Electrical/Lighting (CD continued)**
- Connections to other building systems, including fire alarm and HVAC systems
- Details of non-standard electrical installations
- Conduit and wire sizes for services, feeders, and special branch circuits
- Notes identifying locations of separate and shared neutrals
- MCC elevations
- Grounding details
- Roof and floor penetration details
- Lighting control system schematics and wiring diagrams
- Lighting control system detailed sequences of operation
- Installation details, including structural support details
<table>
<thead>
<tr>
<th>FIRE PROTECTION</th>
<th>Predesign</th>
<th>Schematic Design</th>
<th>Design Development</th>
<th>Construction Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Confirm existing capacity/distribution assumptions</td>
<td>Location of fire pump and controller, jockey pump and sprinkler valves</td>
<td>One-line diagrams for each fire protection system, and other materials as required to describe the fundamental design concept for all fire protection systems</td>
<td>Fire protection service entrance details</td>
</tr>
<tr>
<td></td>
<td>System Narratives</td>
<td>Location of test headers and fire department connections</td>
<td>Preliminary piping plans</td>
<td>Fire protection plans (incl. header and riser layout) with indication of any required service access areas</td>
</tr>
<tr>
<td></td>
<td>• Identify specialty system requirements</td>
<td>Preliminary floor plans of mechanical rooms with all components and required service access areas drawn to scale</td>
<td>Fire pump sizing calculations</td>
<td>Zoning extents, for areas where the contractor will size the piping</td>
</tr>
<tr>
<td></td>
<td>Connection to utility and supply capacity</td>
<td></td>
<td>Location of all sprinkler zone valves, drains, and fire hose connections</td>
<td>Typical sprinkler installation details, including structural support details</td>
</tr>
<tr>
<td></td>
<td>Identify if a Fire Pump is required</td>
<td></td>
<td>Design calculations</td>
<td>Penetration/sleeve details</td>
</tr>
</tbody>
</table>
DATA + SECURITY

Pre-design

Low-Voltage / Data
- Confirm existing capacity/distribution assumptions
- System Narratives
  - Identify specialty system requirements
- Block diagram of MDF & IDF room locations

Security
- System Narratives
  - Identify specialty system requirements

Schematic Design

Low-Voltage / Data
- MDF & IDF room locations and sizes
- Preliminary AV device location plan
- Preliminary AV equipment schedule (for reference and budgeting purposes)

Security
- Panel locations
- Preliminary device location plans

Design Development

Low-Voltage / Data
- Preliminary equipment layouts in MDF & IDF rooms
- Raceway and grounding riser diagrams
- Conduit and cable tray plans with conduit and cable tray sizes
- Typical voice, data and video outlet location plans (Coordinate power and data requirements and locations)
- Riser diagram

Security
- Riser diagram
- Detailed sequences of operation

Construction Documents

Low-Voltage / Data
- Detailed voice, data and video outlet locations
- Detailed equipment location plans
- Equipment schedules
- Wiring diagrams
- Installation details for conduit, outlet box and floor boxes, including mounting heights
- Details of telecommunications service to the building

Security
- Detailed equipment location plans
- Wiring diagrams
- General notes on conduit and wire sizes
- Installation details
- Detailed sequences of operation
- Details of connections to HVAC, fire pump, fire suppression, door hold-open, door lock, and University's central systems
<table>
<thead>
<tr>
<th>Pre-design</th>
<th>Schematic Design</th>
<th>Design Development</th>
<th>Construction Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colored floor plans, renderings, models, or other graphics as necessary to clearly present concept as part of Capital Oversight Group (COG) submission.</td>
<td>Colored floor plans, renderings, models, or other graphics as necessary to clearly present concept as part of Board of Regents (BOR) SD review as required by CPM, and for inclusion on CPM website.</td>
<td>Updated renderings, models and graphics required only as appropriate for design development.</td>
<td>Updated renderings, models and graphics required only as appropriate for construction document preparation.</td>
</tr>
<tr>
<td>Preliminary interior finish samples.</td>
<td>Exterior building material samples reflective of design intent.</td>
<td></td>
<td>Interior finish board.</td>
</tr>
<tr>
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</table>