DAKOTA COUNTY HIGH PERFORMANCE DESIGN AND CONSTRUCTION STANDARDS

"**A**" indicates Appendix item

CSI	Section	Item	A	Standard	Reference	Additional Comments
GNRL.1	All	General - County Vision		To be a Premier County in which to live and work.		Provide efficient, effective, responsive government.
GNRL.2	All	General - CPM Goal		To provide leadership in the planning, design, construction, operation and maintenance of cost effective and energy efficient high performance and sustainable buildings in Dakota County.		Standards are to be implemented on all County projects unless authorized otherwise by the CPM Project Manager or the Capital Projects Manager.
GNRL.3	All	General - FM Mission & Goals		FM's mission is to focus on occupant comfort, maintenance efficiency and energy efficiency.		Facility design should reflect County mission and goals.
QUAL.1	All	Quality Assurance and Quality Control (QA/QC)	**A**	To assure the Citizens and Board of Commissioners of Dakota County that the construction and workmanship used for all County buildings strictly adheres to established design, engineering, material, quality control and sustainability standards.		Establish quality control team - Owner / Designer / Engineers / Contractors / Inspection and Testing. Establish minimum standards of quality, cradle-to-grave requirements for durability and reuse, selection and specification of materials, independent review and analysis, and value determination of all systems and materials selected.
QUAL.2	All	Quality		Characteristics of a product, project or service that bear on its ability to satisfy specified, stated or implied needs and be free of defects or deficiencies.		Where approved Manufacturers are shown - this establishes a minimum level of quality that must be equaled or exceeded to be considered for use in any project.
QUAL.3	All	Quality Control		Critical construction work will be independently inspected periodically and construction materials will be sampled and tested for compliance with these standards, project specifications and relevant industry standards.		Inspection and testing agencies submit written test reports directly to County for all site visits, observations, samples and tests. Weekly or biweekly Owner construction meetings are held with Architect, Engineers, Contractor, major subcontractors, and independent inspection and testing services to review progress, schedule and QA/QC. County maintains photographic record of critical construction stages.
QUAL.4	All	Quality Audit		A systematic, independent examination and review will be conducted on all major projects to determine whether quality activities and related results comply with stated project objectives and criteria and whether they are implemented effectively and responsibly to achieve planned outcomes. These may include a recommissioning process for mechanical and electrical within the first **5** years of project completion.		"Post - occupancy inspections" are performed annually or more often as conditions warrant for critical areas including building envelope and roofs. Written verification is established that all design and sustainability requirements have been achieved and maintained. MN B3 and/or EPA ENERGY STAR PROGRAM will be used to benchmark and track energy efficiency beginning at time of County occupancy of the facility.
QUAL.5	All	QA/QC Materials Inspection and Testing.		Materials sampling and testing of soils, concrete, steel, pavement, masonry and all other critical building materials and components are by certified, independent professional testing company and laboratory.		Testing firms will be selected off term contract or project specific contract tender.
QUAL.6	All	QA/QC Exterior Building Envelope Inspection and Testing.		Inspection, sampling and testing of steel supports, flashings, masonry, stone, precast stone/concrete, windows, terminations and sealants will be performed by or under the direction of a Licensed Professional Engineering Design and Masonry Inspection Consultant		Appendix includes a sample RFP for envelope consulting services.
QUAL.7	All	QA/QC Roofing Systems Inspection and Testing.		Inspection, sampling and testing of roofing membranes, insulation, terminations, flashings, counter flashings, cap flashings, penetrations, drainage and overflow scuppers by or under the direction of Registered Professional Roof Design and Inspection Consultant.		3rd party "on-site" inspection will be provided by Owner during the roof system installation. Owner will perform thermographic evaluation within one year of roof installation.
QUAL.8	All	QA/QC Indoor Air Quality		Final random sampling, testing, balancing to confirm correct air exchange rates, filtration, volume, pressure, and temperature control by a professional, independent testing and balancing agency.		All testing, balancing and functional performance testing is included in the project documents to be performed by and at the expense of the General/Mechanical contractors. Quality Assurance sampling and testing is performed during the new building commissioning or near the end of any renovation project to confirm systems meet or exceed design criteria.

CSI	Section	Item	A	Standard	Reference	Additional Comments
DESIGN.1	All	Energy Conservation		Inserted here as reference. International Building Energy Code and ASHRAE Energy Efficiency Standards are to be used as the base upon which to build maximum building energy efficiency.	IBEC, ASHRAE Energy Efficiency Standards	Included in respective line items.
DESIGN.2	All	Workspace & Furniture Standards	A	The County maintains two separate Policies and one set of Guidelines for determining workspace design. **Dakota County Workspace Guidelines** are an appendix.	County Policy #4400 & #4401	Space standards are used for all interior design and program efforts. Each project must resolve in it's program how to accommodate specialty and common use space and amenities.
DESIGN.3	All	Design for the Future		The flexibility to adjust to alterations easily must be designed into the building for all new construction since the use of the County buildings will change with County department missions and growth patterns.		Electrical and communications systems will be designed and sized to provide ample capacity for increased load concentrations in the future and to permit modifications to be made in one area without causing major disruptions in other areas of the facility.
DESIGN.4	All	Integration of Architectural and Engineering Disciplines		To ensure that the design of new County facilities and renovations are equipped with the latest in structural, office and communication technology and in addition are prepared for the evolution of these systems, all County building designs require that a higher level of integration between architecture and engineering systems be achieved than what is usually expected in the industry for office buildings. The AutoDesk Revit® form of BIM may be used to accomplish integration and coordination of design disciplines for construction of County building projects.		Focus design elements and systems on building envelope details, seismic considerations, and PREBID coordination of mechanical, electrical, communication, safety, security and special systems. Refer to submission requirements provided by the Owner for various stages of each project.
DESIGN.5	All	Exterior Wall Construction	A	All new exterior wall construction shall either be precast or brick/block cavity wall construction. Parapet tops shall be prefinished metal flashing; natural or cast stone caps are not allowed. Precast stone window sills are encouraged. Interior window sills shall be solid surface. Interior finish of exterior wall to be paint; no wall covering is allowed on exterior walls. All metal studs or furring must be vertical to facilitate fishing of electrical at a later time.		Alternate methods only allowed with approval of the Capital Projects Manager. See appendix provided typical roof and envelope details historically used as a "standard" on County building designs.
DESIGN.6	All	Bathroom General Design		The County generally employs traditional multi-user restrooms. Single-user restrooms are employed in special circumstances which include: immediate access directly from a dedicated office (Judge's chambers, Deputy post at Point of Entry, etc.); Family restrooms required by programming (as at a Library); or when adding fixture counts and only one more of each sex is required. The children's area at libraries often contains a separate single-user restroom with child-sized fixtures (mounting heights as well) and accessories. Greenway trailhead buildings employ at least two single-user restrooms per building.		Accessibility requirements in every toilet room are very important. All mounting heights for hardware, clearances, accessories, etc. have to meet Federal ADA and often more restrictive State requirements.
DESIGN.7	All	Bathroom Accessories		Soap dispensers, toilet paper dispensers and other bathroom accessories may be provided by the Owner, but must be shown and noted as such on the documents so as that their locations are correctly anticipated. The designer should verify any Owner provided bathroom accessories with the Owner during Design Development. The County uses two methods to dry your hands: electric hand dryers and wall-dispensed paper towels. Generally, every toilet room should have both towel and electric hand dryer options.		The County treats paper hand towels as compostable waste, and so it must be collected separately from trash that will go to a landfill. As such, two separate free-standing receptacles are needed for waste in EVERY restroom design. Also, special consideration should be given on the wall type and other acoustical measures to be taken so that noise is contained from adjacent spaces.

CSI	Section	Item	A	Standard	Reference	Additional Comments
DESIGN.8	All	Casework / Cabinetry Design & Countertops		Casework is used at the County in workrooms and kitchen areas. In work rooms, base and upper cabinets are the norm with plastic laminate tops. Wet location countertops are to be quartz. The base may contain drawers as needed. All shelf areas are covered with doors. Corian Solid Surface can be used for window sills only.	See "123600" for additional material details	In work areas the base cabinet nearest to the copier must contain one section configured so that boxes of paper can be slid into them while staying on the floor (no lifting when loading cabinets). This will involve special detailing of the toe space. Kitchen surfaces need to be long enough to accommodate a microwave (per ADA) or preferably one under the counter (in a cubby with a solid surface or p-lam base). Selections should be limited to the lower half of the cost levels.
DESIGN.9	All	Energy Code Compliance		Current energy code requires special focus on the monitoring or control of electrical plug loads. Multiple options are often available to accomplish these goals. The selection of the right answer for a project may effect the other energy code issues on the project and therefor need to be discussed early in the design process.		This issue, along with other energy code issues must be resolved and approved by the Owner before Design Development is complete.
DESIGN.10	All	Fall Protection (off roof)		Fall protection shall be incorporated into the design where any roof drains or equipment are located within 15' of the roof edge. Alternatives to fall protection may include a parapet at sufficient height/design such that it acts as a leading edge guardrail/wall.		Reference the County-Wide Fall Protection Study completed in 2018 for more detail. If a project contractor moves or modifies the existing fall protection, then it must be reinstalled upon project completion.
DESIGN.11	All	Reach Accessibility		Any equipment that has valves, gauges, meters or some form of monitoring or operation must be within 6'-0" above finished floor (AFF). Any equipment access or reach accessibility that exceeds this must either be remotely repeated to a lower/accessible height, or a permanent fall protection compliant system must be provided.		This will require a detailed review by the Mechanical and Electrical Engineering Team before the project is bid.
DESIGN.12	All	Handicapped / ADA Study		The County completed a County-Wide Accessibility Audit in 2018, that produced a barrier removal plan. Reference the plan for deficiencies to be removed in the needs of future projects.		All applicable codes must be meet. State accessibility requirements are often more restrictive than the Federal ADA guidelines. Accessibility audit is only the first step in compliance. Designer of record is responsible for all current compliance.
DESIGN.13	All	Networked Systems		Systems requiring internet or other connections to the County's network system need to be vetted through the Information Technology department very early in the design process so that product decisions can be made well in advance to ensure interoperability. This applies to internet based software, anything requiring an IP address and/or other connection to or through the County's data network.		Systems known to require special handling in this regard include, but are not limited to the following: Building Automation System (BAS) / Energy Management System (EMS) computers, card access systems, camera systems, lighting control systems and audio/visual systems.
DESIGN.14	All	Interior Lighting Controls		County building designs rely heavily on LED fixtures. This technology lends itself to very complex control down to the fixture. The light fixtures and all facets of controls need to be presented and approved before Design Development can be considered complete. Systems are not to be performance specified. Rather, individual products and systems are required as a basis of design.	Products Similar to: Wattstopper DLM; Lutron; Intelligent Lighting Controls (ILC)	A dedicated control system for building interior spaces is required which meets current energy code requirements. In addition, separate controls for complex meeting rooms with integrated audio visual control is also needed. Power Over Ethernet (POE) systems for lighting fixtures and lighting controls are not used at the County. See also "Conference Room Design & Construction Guidelines" appendix within standard "DESIGN.16" for additional information.
DESIGN.15	All	Exterior Lighting Controls		The County prefers to have remote access to all exterior lighting, especially parking area lighting. This allows building management to make quick, remote changes to evening hour operations without traveling to the individual building.		Exterior lighting control is separate from the building interior lighting control. It usually runs through a set of contactors which, in turn, are controlled by the Building Automation System (BAS). In buildings without BAS control, the contactors are controlled by astronomical time clocks and/or photocells.
DESIGN.16	All	Conference Room Design & Construction	A	The County has created a set of guideline standards for the design and construction of conference spaces. Any new or renovated meeting spaces created in a project should follow these guidelines.		See "Conference Room Design & Construction Guidelines" appendix.

CSI	Section	Item	A	Standard	Reference	Additional Comments
DESIGN.17	All	Vehicle Wash Bay General Design		The County desires to apply additional durability to the design of any vehicle wash bays. This includes the use of epoxy rebar an a corrosion inhibitor admixture (consider MCI's "MCI-2005 NS") within all slab-on-grade floors, enhancement of the paint coatings used for steel framing/decking (consider Sherwin-Williams "Macropoxy 646 FC Polyamide Epox Semi-Gloss"), and the enhancement of any paint coatings used on precast walls (see additional comments).		For precast walls, consider these 4-step Sherwin-Williams products: 1) Apply "Steel-Seam FT910" epoxy patching compound to all larger bug holes in precast. 2) Apply "Kem Cati-Coat HS" primer to all precast walls. 3) Coat all precast walls with "Tile-Clad HS" two-component epoxy polyamid coating. 4) Coat all precast walls with "Hi-Solids Polyurethane" two-component aliphatic polyurethane finish coating in white.
DESIGN.18	All	Parapet Heights		New construction parapets should be 42" above the roof surface so as not to require fall protection.		
DESIGN.19	All	Roof Structual Capacity		New construction roofs shall be designed for a flat roof snow load of 40 PSF min. and a thermal factor of not less than 1.1.	See also Standard #52100 - "Steel Roof Joists"	Although this is may be beyond code requirements, this is driven by FM Global Property Loss Prevention Data Sheet 1-54 Roof Loads for New Construction (County's insurance carrier).
DESIGN.20	All	Roof Design		Railings must be used for any roof openings 12" in diameter or more at its least dimension through which persons could fall. These may include: roof hatches, skylights, open courtyards, vents, etc. Mechanical equipment shall be installed by sidewall intakes and discharges in lieu of rooftops. Roof drains should be installed at least 15' from roof edge. At building edge, 42" raised parapets are preferred to railing systems. On buildings with 20,000 sq. ft of roof or less, parapet designs should be raised on all roof levels. On larger buildings, raised parapets are only required on sides of the building that have drain bodies or mechanical equipment less than 15' from the building edge. When equipment is absent and drains are 15' back from an edger, a lower parapet can be used, The lower parapets must be at least 12" above the roofing system to provide for all flashing and capping required. Roofing to the building edge is allowed only for pitched roof systems; flat roofs must have parapets.		Access to the roof shall be by full stair, ideally from a door at the mezzanine or penthouse level. With buildings that have multiple roof levels stairs to each level are required. Internal stairs are preferred over external stairs. If a large roof is divided by structure which breaks the plane of the roof such as precast panels within the floor plate, this ridge line should be kept to a minimum to avoid a tripping hazard. Any ridge higher than 12" above the roofing system will require a steal stair system to bridge the ridge. This would require handrails when the total tread/riser height demands. Providing tie-off embeds in lieu of parapets or railings is not desired. However, if large roofs with low parapets are to receive PV arrays, the arrays will need to accommodate tie-off points using rated weighted equipment in the PV field design.
DESIGN.21	All	Utility Submetering		For major new construction and renovations, the BAS wil provide sub-metering of: •Electrical Main Distribution Panelboard (MDP) •All Electrical Sub-panels (each downstream from MDP) •Gas Meters when multiple for a campus. •Domestic Water Meter	For electrical metering: E-Mon D-Mon Class 5000 Smart Meter with Split-Core Current Sensors	Electrical loads should be metered for plug loads, equipment loads and lighting loads.
DESIGN.22	All	Post-Occupancy Changes		Staff and users of a new space will occupy it for at least six (6) months before most changes can be entertained.		Per Dakota County's Design & Construction Projects: A Guide to County Stakeholder Involvement document: *"It takes time to adjust to a new space. This includes the physical space and possibly new processes or procedures. So, non-warranty items will be gathered and documented for the first six months after occupancy and then deliberated and prioritized for action. This allows time for all stakeholders to become familiar and comfortable with the changed environment and processes and reduce changes that are reactive or based on personal preferences."*
DESIGN.23	All	Air Emmissions Permitting		All projects that impact heating, cooling, fuel storage or dispensing, or the burning of any fossil fuel for any reason require consultation with Dakota County's contracted Air Emissions Permitting vendor to ensure proper permits are applied for with sufficient lead times to accommodate the issuance of new Air Emissions Permits, or modifications to existing Air Emissions Permits, such that no construction activity commences prior to the issuance of any and all necessary permits.		This permiting process can take months and could prevent Bidding to occur as assumed in the design RFP. Project engineers are to act on this item as soon as possible in the design process.

CSI	Section	Item	A	Standard	Reference	Additional Comments
DESIGN.24	All	Electric Vehicle Parking	A	See "*Dakota County EV Charging Station Parking Stall Guidelines*"		Use this guideline as a basis for development with code requirements. Final design needs to be approved by Dakota County.
GBI.1	GBI Title	Green Buildings Initiative - GBI	A	These ***High Performance Design and Construction Standards*** were concieved decades ago to document environmentally focused building products, processes, and purposes. As many of these have become common practice in later years, these Standards have evolved to include the general Design items treated above this section and the specific Systems items treated per specification section below. So, this GBI section has been edited to relate to general practices, some applicable only to new construction on new sites. If conflicts arise with this GBI section, the other two sections of this document superceded these general envioronmental requirements.		Sustainable buildings initiative (SBI) items apply across all construction items to promote cost-effective waste reduction, including the purchase of environmentally preferable, recycled-content, renewable and sustainable products; and to incorporate waste prevention and recycling in the daily operations. It is the intent of Dakota County to use wherever possible materials that demonstrate re-use, recycling or reduction of raw materials and energy during manufacturing. Sustainability guidelines adopted in the original edition of these standards are incorporated throughout by reference here. It is the intent of this section to fully incorporate sustainability guidelines into these standards.
GBI.2	GBI Planning	Dakota County Solid Waste Master Plan		The Dakota County Design Construction Sustainability Design Standards are required in County capital building projects to reduce waste generation, increase reuse and recycling, and minimize the County's environmental foot print.	Reference the County's current ***Solid Waste Master Plan***, available from the County's Environmental Reports & Studies webpage.	The design team will provide the county ways to incorporate sustainable architectural guidelines in the planning process for construction, deconstruction, or remodeling of public facilities.
GBI.3	GBI Planning	Site		Determine methods to reduce or eliminate negative impacts of the proposed development on natural and manmade systems such as surface drainage, geology, vegetation, topography, transportation, infrastructure and historical development patterns.		Include into the design process other County and/or State agencies as required for proper site design including water and natural resource management.
GBI.4	GBI Planning	Voluntary Carbon Standard		Specification for project-level quantification, monitoring and reporting as well as validation and verification of greenhouse gas (GHG) emission reductions and removals.		There is no current County Board goal for GHG. However asperationally, GHG neutral design and construction is a target. Exact requirements to this regard may be driven by State or Federal funding and then become project specific.
GBI.5	GBI Planning	Energy Conservation Primary Goal		Optimize Building or Project Energy Performance. County Board goal - benchmark and measure the energy efficiency of County buildings.		Document energy design effectiveness against energy code and when state funded against the B3 program's online tool.
GBI.6	GBI Planning	Energy Conservation Utilize Utility Programs		Contact Xcel Energy (NSP) , Dakota Electric, Center Point Energy, Minnesota Energy Resources and other energy utilities to research alternative funding sources through audits, rebates, loans, grants, energy modeling, design tools or technical assistance for new buildings and renovations.		Utility programs are constantly changing. So, the design team's engineers should research early in Schematic Design the offerings that would apply to a specivic project. This includes interuptable electric and gas rates which could efect heating, cooling and generator system designs.
GBI.7	GBI Planning	Energy Conservation Life Cycle Cost Prediction		Establish overall budget for building construction and annual operations. Account for equipment first cost, operating cost, and energy costs over 50 years. First runs of this analysis are required in early Schematic Design so that thoughtful system selections can be made.		Although commercial industry standard life cycle is 20 year, the County uses 50 year time frame. Include time of day tier rate or peak vs. off peak analysis. Life cycle cost analysis will use future increased utility costs as part of the ROI and payback calculations.
GBI.8	GBI Planning	Energy Conservation Energy Design Teaming		On major and high energy consuming projects consider forming an energy design team comprised of the: Project Manager, Architect, Electrical & Mechanical Engineers, Special consultants, Utility Companies, Operations Management, Facilities Management and Information Technology Directors.		On new building construction over 10,000 SF, consider use of lighting designer or daylighting specialists. Evaluate case by case for application to renovation projects.
GBI.9	GBI Planning	Energy Conservation Climate Analysis		Collect site specific data for energy modeling such as temperature, humidity, solar inclination, wind and weather patterns.		Historical information is readily available from the National Weather Service and other online sources.
GBI.10	GBI Planning	Energy Conservation Micro-Climate Analysis		Analyze impact of local micro-climate such as landforms, lakes, vegetation, adjacent buildings, industry and groundcover .		Applicable to new sites only and addressed during site selection.
GBI.11	GBI Planning	Energy Conservation Alternative Parking		In addition to code required Handicapped Parking, provide conveniently located reserved parking for motorcyclists, and alternative fuel vehicles.	See DESIGN.24 for specifics on Electric Vehicle charging stations.	New and major renovation projects must include provisions to install electric charging stations. Station provided by Fleet Management outside of the project budget (conduit/wire and foundation within project). Generally, charging station are for county vehicles but can be used by the general public for a fee.

CSI	Section	Item	A	Standard	Reference	Additional Comments
GBI.12	GBI Planning	Equipment Noise Control		Provide all required design provisions and signage for exterior and interior spaces exceeding code referenced sound levels.		Design and instalation of these signs are a part of the Code Required signage provision of the design team's scope.
GBI.13	GBI Planning	Indoor Air Quality Interior pollutants		Identify any planned facility activities, equipment or materials that may impact indoor air quality such as vehicle storage, copy center, or supply storage.		Design the spaces to safely store or evacuate these anticipated materials.
GBI.14	GBI Planning	Indoor Air Quality Exterior Pollutants		Review air quality in and around the County facility.		Evaluate the need for CO & CO2 detection.
GBI.15	GBI Planning	Indoor Air Quality Underground Pollutants		Evaluate on-site sources of contamination in soil and ground water such as radon, volatile organic compounds or solid waste. Follow MN Pollution Control Agency Rule 7080 for subsurface sewage treatment systems or solid waste and Rule 7150 for underground storage tanks.	MPCA Rule 7080 MPCA Rule 7150	Example: Radon in limestone foundations; past fuel storage tank or other underground contamination sources, brownfield restoration, or on-site sewage or water systems at end of life, etc. CPM Project Manager should consult with Risk Management and Environmental Resources on any positive results and mitigation measures.
GBI.16	GBI Planning	Indoor Air Quality Air Intake Locations		Locate building fresh air intakes a minimum of 50 ' from property lines, driveways, streets, highways, loading docks and vehicle parking; 50' from wet cooling towers and air exhausts; 20' above landscaped grade; 24" above finished roof grade and 25' from boiler stacks and exhaust fans.		Locate fresh air intakes consistent with prevailing wind directions as published by the National Weather Service to minimize effects of exhaust drift from boiler stacks, cooling towers and building exhausts.
GBI.17	GBI Planning	Indoor Air Quality Air Treatment		Assess the impact of outside air quality upon the design of air filtration and treatment.		Example - Use of HEPA banks in areas with high particulate count. This will also impact the volume and capacity of the air handling system, air exchange rates and carbon dioxide monitoring/control.
GBI.18	GBI Planning	Indoor Air Quality Mechanical System Commissioning		Commissioning using ASHRAE as guidelines.		Use current copy of the ASHRAE commissioning guidelines.
GBI.19	GBI Planning	Water Conservation Greywater Systems		Explore a greywater system to collect water from roofs, sinks and showers, and reuse for toilet flushing or irrigation if local code and project budget permits.		Dakota County follows the MN State Building code. Special variance by local jurisdiction is needed to implement this type of system. The Spring Lake Retreat Center received special permission (with restrictions) from State Dept. of Health for rainwater to flush toilets. This system is no longer in use due to high maintenance cost.
GBI.20	GBI Planning	Water Conservation Onsite Waste Treatment		Explore waste treatment using biological systems such as constructed wetland instead of municipal wastewater treatment plant.		Example: New highway shop outside existing metro or local municipal sanitary and storm collection systems. Prove practicality for use in zoned and existing waste collection areas. State Law Does Not permit in MUSA.
GBI.21	GBI Planning	Waste Reduction Existing Buildings Use		When planning new projects first concider the reuse and renovation of existing structures instead of building new, purchasing temporary, and/or demolishing old.		Use existing structures if possible as temporary facilities during construction phase.
GBI.22	GBI Planning	Waste Reduction Demolition		For buildings being demolished, establish aggressive goals to recycle or salvage as much as possible. Target 75% diversion from landfill.		In lieu of a Demolition and Removal approach consider Reconstruction for Reuse approach.
GBI.23	GBI Planning	Waste Reduction Program Adequate Recycling Space		Identify materials to be recycled such as paper, aluminum, glass, plastic bottles, cardboard, and food waste. Allocate space for recycling for each floor or area in addition to required space at loading dock.		Use "3" container system for waste/landfill; recycle (paper, plastic, etc.); and organics. Integrate these three containers into convenient locations and show on furniture plans as intentional requirements - not added after the fact.
GBI.24	GBI Design	Site Considerations		Preserve ecologically significant and/or sensitive areas of vegetation, wildlife habitat and topography.		Recognize during site selections that location of site in developed areas may not be conducive to application of sustainable site guidelines.
GBI.25	GBI Design	Site Green Spaces		Provide green space, minimize area of site dedicated to building, parking, and access roads.		Consult with Soil & Water Conservation District (SWCD) concerning site development intensity. Maximize open space.

CSI	Section	Item	A	Standard	Reference	Additional Comments
GBI.26	GBI Design	Site Water Retention		Use Dakota County Best Management Practices (BMP) for rainwater. Comply with all National Pollutant Discharge Elimination System (NPDES) requirements. Retain stormwater on site instead of discharging into storm sewers. Optimize permeable surfaces and limit the amount of impervious surfaces such as parking areas to allow rainwater to infiltrate and remain on site. Use additional innovative site practices whenever feasible. Check local city and watershed stormwater ordinances in addition to the MPCA requirements.	Dakota County BMP's MPCA website	Fully comply with NPDES Stormwater Permit for Construction Activity - see MPCA website. Separate construction permit is required for one or more acre of project area. Permit is not required to resurface parking lots, but is required if pavement is completely removed and base regraded. For any major new project site improvements, Dakota County's Environmental Resources (ER) Department will be consulted per the CPM Stakeholders Guide. Low Impact (Storm Water) Development Standards (LID) checklist as adopted by the County Board will be used when appropriate for a project.
GBI.27	GBI Design	Site Connectivity		Design site to reconnect fragmented landscapes and establish contiguous networks with other natural systems both within the site and beyond its boundaries.		Coordinate with County Planning & Natural Resources groups as needed.
GBI.28	GBI Design	Site Orientation		Minimize site disruptions by siting building correctly to create favorable traffic patterns.		Balance these patterns with energy efficiency goals.
GBI.29	GBI Design	Building Orientation		Optimize building configuration to take advantage of solar energy and prevailing winds. Preferred main entry orientation is to the south or east for safety during winter. Work closely with fenestration orientation for daylighting.		Coordinate with other related items.
GBI.30	GBI Design	Landscaping		Use varieties of native trees, shrubs and plants to minimize maintenance, reduce yard waste and decrease water consumption. Use disease and insect resistant varieties.		Focus is upon locally produced materials and native plant species for disease and drought resistance. Use nursery stock from growers within a 100 mile radius. Ash trees are prohibited in all designs.
GBI.31	GBI Design	Site Landscaping		Protect and preserve mature trees when possible. Specify MPCA's Best Management Practices for soil erosion control. Specify locally produced yard waste or manure compost for soil amendments. Specify reuse of any onsite materials. Specify that all cleared materials be recycled or chipped and composted for re-use.	MPCA's Best Management Practices	SWCD – Provide multi-functional landscaping where possible to enhance site water retention. As a goal maximum 25% of landscaped areas will be manicured lawns. Seek variance from local Code as needed.
GBI.32	GBI Design	Water Conservation		Use efficient irrigation systems that are no longer needed once plants are established.		Minimize use of municipal or well water systems. Use rain gauge and programmed controlled irrigation control systems.
GBI.33	GBI Design	Site Mass Transit		If building is located near MTVA or MTA bus stop, future light rail stop or bike trail system, provide a landscaped pedestrian connection between stop shelter and building.		
GBI.34	GBI Design	Site Pest Mgmt.		Use integrated pest management system to reduce cost and the environmental effects of chemical applications.		Spot address pest problems when and if they occur.
GBI.35	GBI Design	Energy Tracking		The County has an enterprise wide energy tracking system that allows Operations to find anomalies in our energy use.		Coordinate locations of any sensors needed to extend energy management system with Building Operations.
GBI.36	GBI Design	Energy Conservation		Run a building energy use profile. Right size HVAC equipment and ductwork to take advantage of reduced internal heat loads but also increased future loads anticipated in the climate.		Use this strategy to accurate sizing of boilers, chiller, towers, emergency generators and Information Technology (IT) support mechanical equipment.
GBI.37	GBI Design	Energy Daylighting		Maximize opportunities to daylight the building. Specify skylights, light shelves or light scoops, clerestories, etc. to daylight building naturally and conserve electrical energy. Use only high insulating triple glazed curtain wall systems or R20 Fiberglass Translucent Panels.	Kalwall Corporation - System 7550 Curtainwall. Fiberglass Translucent Nanogel Panels.	For renovations - restore daylighting features. Avoid blocking natural light by changing floor plans or interior spaces.
GBI.38	GBI Design	GBI - Energy Shading		Specify shading mechanisms, overhangs, etc. to reduce solar gain during peak cooling months to conserve energy.		Cooling season for commercial buildings is April through September for Minnesota. Shades cannot interfere with window cleaning.
GBI.39	GBI Design	Natural Ventilation		For buildings 15,000 square feet and smaller, **consider** natural ventilation using operable windows. **Use only with Owner written approval**.		**IF operable windows are used: I**nterlock window contacts with pressurized cooling systems e.g. Air conditioning will not operate unless all windows are closed and latched. All buildings with operable windows must treat each window as a security opening.
GBI.40	GBI Design	Energy Vegetation		Use plant vegetation materials to protect building envelope from wind in the winter and solar gain in the summer.		Coordinate with Security initiatives requiring plantings clear of certain structures.
GBI.41	GBI Design	Indoor Air Quality Order of Construction		Specify that all wet and odor producing work be completed prior to dry work.		Consider air purge near end of construction.

CSI	Section	Item	A	Standard	Reference	Additional Comments
GBI.42	GBI Design	Indoor Air Quality Code		Specify ventilation systems to meet or exceed current ASHRAE Ventilation Standards for Acceptable Indoor Air Quality.	ASHRAE 62.1	Use most recent version of adopted ASHRAE standards.
GBI.43	GBI Design	Indoor Air Quality Air Filtration		Specify air cleaning and filtration systems that meet or exceed the efficiency ratings of *ASHRAE 52.1*. Building Air Filtration will meet or exceed MERV rating of **15**.	ASHRAE Standard 52.1, Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size	Ventilation system will be sized to compensate for high level filtration pressure-volume drop.
GBI.44	GBI Design	Indoor Air Quality Temporary Ventilation		Specify that temporary ventilation be used during construction activities and that permanent HVAC systems cannot be used until Owner approves in writing.		If permanent heating or cooling coils become dirty - they must be cleaned or replaced to "new" condition at contractor's expense.
GBI.45	GBI Design	Indoor Air Quality Spot Ventilation		Ventilate blueprint and large copier work rooms directly to the outside. Interconnect or use CBAS timing function so that fan and damper operation when equipment does.		Address ventilation issue when new equipment is added to office areas. Do not relocate specially ventilated equipment such as hoods until ventilation issues are formally addressed for its new location.
GBI.46	GBI Design	Indoor Air Quality Special Equipment		In the presences of wood shop dust, cement testing chambers, paint booths and other confined areas, special dedicated collection/mitigation systems may be required. Note specifically OSHA silica standards.	OSHA's 29 CFR 1926.1153	Specify special filtration/collection systems as needed. Example: New sawdust and silica (portland cement) collection systems were used in 2023 on the Empire campus.
GBI.47	GBI Design	Indoor Air Quality Carpet		Specify flooring materials which are off-gassed prior to installation to reduce emissions.		Use factory-cured water based carpet adhesive or no/low VOC adhesive products only unless incompadable with product secured.
GBI.48	GBI Design	Building Materials Life Cycle considerations		Preference is alway for durable, long-lasting materials. Specify building materials and products based on their full environmental life-cycle.		Include all environmental requirements in the bid documents. Require that Manufactures certify in writing that materials comply with these requirements.
GBI.49	GBI Design	Building Materials Sourcing		Consider safe use of recycled materials within the project. Use: wood from sustainably-managed forests; materials from renewable resources (avoid materials from scarce or nonrenewable resources); and materials from manufacturing plants that are energy and water efficient. Use products which: were produced from reuse waste in production; reduce air emissions; contain minimal packaging. Use paints, adhesives and sealants that are low emitting.		To reduce transportation energy costs and emissions. First choice will be manufacturers or local products within a 200 mile radius of Dakota County. This includes brick, stone, concrete products, interior finishes and furnishings.
GBI.50	GBI Construction	Waste Reduction Construction Goals		Specify construction waste recycling. Continue existing County Construction Recycling initiative. Project Manager will evaluate general contractor's compliance with minimum 50% recycled (non-landfilled) goal for each project.		Adapt County specification to specific project conditions. Hauler's reports for actual recycled content are required for each project.
ACCOM.1	Accommodation	Accessible Door Operators		Provide hardwired electric push button type door operators on all main entrances that are open to the general public. These are limited only to exterior entrances. Do not use "pressure sensitive and dependent pull type units."		At this time, push-button door operators are not used in building interiors. So, care must be taken on the selection of doors and closure types so that they remain compliant.
ACCOM.2	Accommodation	Lactation Areas		Provide designated private area for County employee nursing mothers to use lactation equipment to meet or exceed code requirements. County prefers to include a countertop with sink, a wall mirror, area for a table and chair with a swinging tablet, space for a locking refrigerator (or similar) and a 120 volt receptacle. Provide "OCCUPIED - VACANT" lock actuated signage on all new doors.	Mobile Lounge Chair similar to: Haworth ToDo "TQ85-011-R" with accessory tablet arm "TQ90-0001".	THESE ARE CODE REQUIRED ROOMS. Identify in space program for new buildings and major renovations. Lactation rooms to be used primarily by County staff, and can be located in staff only areas, not accessible to the public.
ACCOM.3	Accommodation	Wellness Room		Provide minimum of one room per building. In multi-story buildings, provide one per floor. Space required: One standard office sized room, no sidelight, no outside window.	Mobile Lounge Chair similar to: Haworth ToDo "TQ85-011-R"	Furniture to include healthcare recliner, side table, and table lamp on dimmer. Wellness rooms are separate from lactation rooms; Wellness rooms are not scheduled (lactation rooms are schedulable space). Further, Wellness rooms might be used by multiple people during personal uses, however their primary use is as a wellness space for one person.

CSI	Section	Item	A	Standard	Reference	Additional Comments
ACCOM.4	Accommodation	Lavatory Reinforcement		Provide adequate supports in public restroom vanities and lavatories to accommodate the same weight per lavatory as waterclosets in the event persons climb onto them. Wall-hung sinks at public restrooms discouraged unless reinforcement to same weight bearing capacity as waterclosets is confirmed. Public restroom vanities that are solid surface should have an integral sink for this reason. If the vanity is quartz though, then either a drop-in sink or some additional means of supporting the sink bowl (undermount) must be specified - a "Hercules Universal Sink Harness Kit" by Braxton-Bragg (or similar).		The public has been known to bathe/wash in our public restroom sinks.
01 00 00.01	All	Alternates		Use add alternates unless Owner specifies otherwise.		Alternates are recommended and included as part of value engineering. They can total up to 5% of the construction budget.
01 00 00.02	All	Bid Advertisement and Official Notice		Owner Furnishes and Advertises. Use/Modify Owner furnished - adapt to project. Bid notice must include basic project scope, bonding requirements, bid date and time and County or Consultant contact. Competitive bids will be advertised for three consecutive weeks in the official County designated paper. All projects over $50,000 are advertised 2 consecutive weeks. - Major Projects minimum 3 consecutive weeks with bids due one week following last advertisement.	County Policy #2751	Owner's Project Manager will send bid notice to publisher. Depending on the project size, bids will be advertised two or three times in consecutive weeks. Bids will be opened one week following the last official notice. Include in the Bid Notice the date when it is anticipated that County Board action will be taken for award. This process is transitioning to web only.
01 00 00.03	All	Bid Form		Use Owner furnished - adapt to project.		Owner will determine how many bid packages there will be. Owner may choose to bid packages separately.
01 00 00.04	All	Bidder Instructions		Use Owner furnished only.		Owner will provide Instructions to Bidders for Project. Specifications section 10000 must reflect this.
01 00 00.05	All	Building Permit		The Contractor shall pay for the building permit and invoice directly to the Owner at cost without mark-up. This cost shall be excluded from the Contract. Copies of all building permit information shall be attached to the invoice and submitted to the Owner. All other permits and licenses required by all other agencies shall be obtained and paid for by the Contractor. Escrow account payments shall be at the Contractor's expense and shall not be passed on to the Owner as this money is refundable.		The Contractor shall obtain the building permit fees required for the project from the City or jurisdiction in which the project occurs. Additional fees may be required from other agencies as they apply to the project.
01 00 00.06	All	SAC/WAC		The Contractor shall complete forms, pay for SAC/WAC charges, and invoice directly to the Owner at cost without mark-up. This cost shall be excluded from the Contract. Past SAC/WAC site credits will be transferred from any existing buildings on the site and be applied to new construction.		The Contractor shall obtain the SAC/WAC charges required for the project from the City or jurisdiction in which the project occurs. For the required State Dept. of Health plan review, the Architect shall submit the application and the Owner will pay the plan review fee. See also item # 220000.
01 00 00.07	All	Housekeeping		Sites to be kept clean and safe at all times. Specific requirements will be included in Owner General Conditions.		All cleaning during construction is by the General Contractor. All construction areas will be thoroughly cleaned up to the Owner's satisfaction prior to the end of the work shift every Friday. Final Cleaning following construction is by Contractor, just before Owner occupancy. Once Owner has begun furniture installation, housekeeping is performed by the Owner for completed areas. The Project Manager notifies operations staff when Owner permanent cleaning should begin.
01 00 00.08	All	Close-out		Contractor/Architect complete and submit Owner checklist		County furnishes check list of project closeout requirements to A/E & GC
01 00 00.09	All	Closet - Maintenance Storage		Owner provides standard layout for design by Architect and as prescribed in the building program.		Program space to be defined by Owner building by building.
01 00 00.10	All	Closets - Custodial		Prescribed in building program. Owner reviews design by Architect. For new construction and major renovations provide custodial closet and separate storage adjacent to restrooms.		Program minimum of 100 square feet per 25,000 square feet of space. For multistory buildings in excess of 75,000 square feet, a 150 square foot closet will be located on the main floor with trench drain and volume hot water access. CPM Project Manager should confirm the trench drain requirement with the Bldg. Services Mgr. as they may only ask for a "slop sink" instead.

CSI	Section	Item	A	Standard	Reference	Additional Comments
01 00 00.11	All	Closets - Data/Telecom		Owner approves design by Architect - building by building as prescribed in the building program. System must include Main Point of Presence (MPOP) and distribution closets as required.		MPOP size, shape and location shall be approved by Owner's IT Department. Program minimum of 150 square feet per 25,000 square feet of space or floor for distribution closets. Closets shall be centrally located on floor to minimize horizonal cable runs. Dedicated telecom/data rooms shall be provided that are central, secured and 100% environmentally controlled and powered 24-7. Confirm specific size, location and needs with Owner.
01 00 00.12	All	Closets - Equip. Storage		Exterior access for gasoline powered maintenance equipment. Consider indoor bicycle parking area for staff.		Owner approves location and size.
01 00 00.13	All	Code - Building		Current Minnesota State Buildings Codes.		Use current version of the applicable MN Department of Corrections (DOC) code requirements for all secured detention center construction.
01 00 00.14	All	Code - Disability		Current Minnesota Accessibility Code and Department of Justice's Americans with Disabilities Act (ADA) with 2010 ADA Standards for Accessible Design - whichever is more stringent.		Refer to local building official, local code or ordinance - local and state requirements may be greater than the ADA standards. Check if ADA requirements apply to any other areas of the building during all renovation projects. Include addressing ADA requirements in the scope of work for all Architect and Engineering Proposal requests. Reference the 2019 County-wide ADA/Accessibility Assessment and Barrier Removal Plan Report.
01 00 00.15	All	Code - Electrical		Current National Electrical Code (NEC) as adopted by the Minnesota Board of Electricity as required by Minnesota Statues 326B.32 Subd 2 (3) pursuant to Chapter 14.		Energy efficiency in equipment i.e. transformers or motors and conductor ampacities will generally exceed code requirements. ARC flash study and plan will be completed by Design Team.
01 00 00.16	All	Code - Plumbing		Current Minnesota Plumbing Code.		All new construction requires separate plan review submittal to and approval by the MN State Public Health Department. Submittal is made by consultant and application fee paid directly by County to State unless otherwise noted in the RFP for consultants.
01 00 00.17	All	Code - Mechanical		Current Minnesota Mechanical and Fuel Gas Code.		Consider also OSHA fall protection standard requirements within mechanical spaces for platforms and needed staff access to equipment (motors, filters, etc.) during maintenance.
01 00 00.18	All	Code - Energy		Current Minnesota Energy Code.		Exceed code in most applications with County standards. Daylighting and LED fixtures to be incorporated in design.
01 00 00.19	All	Code - Fire		Current Minnesota Fire Code.	Refer to insurance carrier's website	Fire sprinkling density is determined by local code and County Insurance Company requirements. 2019 County insurance carrier is Affiliated Factory Mutual. Independent Owner insurance company plan review is required for construction documents and Contractor submittal drawings.
01 00 00.20	All	Code - Life Safety		NFPA 101 & current Minnesota State Buildings Codes.		Use most restrictive of the two.
01 00 00.21	All	Code - Safety		OSHA - also NIOSH, ANSI and MSA as applicable		Note that OSHA requirements for fall protection may require a dedicated restraint or railing system at the roof edge or roof penetrations.
01 00 00.22	All	Code - EPA Requirements		EPA's Spill Prevention, Control and Countermeasures (SPCC) requirements at Title 40 of the Code of Federal Regulations, Part 112. SPCC plans ensure that facilities put in place containment and other countermeasures that would prevent oil spills that could reach navigable waters. Oil is defined as oil of any kind or in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with waste.		Include provisions in all project bid documents to comply with this.
01 00 00.23	All	Third Party Commissioning by Owner		Allow six (6) weeks minimum in schedule prior to Occupancy. The County PM will solicit for Commissioning (where applicable), but coordination/consultation of scope and scheduling will be done with Design Team and potentially the Contractor. Commissioning done at the County is a secondary and 3rd party check of "FPT/TAB" work. FPT/TAB work shall still be done by the Contractor and in advance of the 3rd party check.		HVAC Functional Performance Testing (FPT) and Testing and Balancing (TAB) is first performed through the GC and then verified with a 3rd party commissioning agent (Owner's FPT/TAB agent). Mechanical Engineer provides bid document that includes FPT/TAB from final design documents. Commissioning protocol to be developed by Owner with input from design team, including Sequence of Operations.

CSI	Section	Item	A	Standard	Reference	Additional Comments
01 00 00.24	All	Construction Limits		Architect and Owner - concurrence		Adjust if needed for Contractor construction or storage requirements
01 00 00.25	All	Construction Methods		Construction means and methods are Contractor responsibilities unless specified otherwise in bid documents.		Exception is Owner furnished equipment. Any special Owner requirements concerning contractor construction methods are defined in the bid document prior to receipt of competitive bids.
01 00 00.26	All	Construction Contract Type		General Contractor (Design-Bid-Build) with no multiple contract packages direct with Owner, unless prior approval is received from Owner.		Design/Build is not normally practiced at the County.
01 00 00.27	All	MEP Coordination		Contractor reviews and fully coordinates Mechanical, Electrical & Plumbing submittals for completeness of systems.		Contractor furnishes, installs, provides all drives, power and control wiring, programming, startup and initial operation of all mechanical and electrical equipment for a complete system.
01 00 00.28	All	Deliveries		Owner will not receive any materials for Contractor		State within bid document General Conditions
01 00 00.29	All	Drawings - Design Working		Architect/Engineer submits **AutoCAD** or **Revit** in latest version to Owner. All Drawings will be 30" x 42" in size, unless authorized by CPM otherwise. All 1/2 sized drawings shall be printed to be readable.		Submitted to Owner Project Manager prior to start of construction, revised during construction to incorporate all addenda and approved changes and final record set submitted to Owner prior to final payment at end of project. No font shall be smaller than 3/32" on full-sized drawings.
01 00 00.30	All	As-builts & Record Documents		Contractor submits "as-built" documents to Owner through Architect. Architect then thoroughly reviews for completeness and revises for correctness into Record Documents. Final Record Documents and updated AutoCAD file then provided to the Owner (Revit in addition whenever possible).		Flashdrive + (2) each full size and 1/2 size prints (AutoCAD for all Construction Document drawing sheets).
01 00 00.31	All	Equipment Start-up & Staff Training		Systems shall be completely functional before training is provided. Seven calendar day advance notice to Owner is required to schedule training. Equipment start up and training are base project requirements, distinct from, and in addition to, Commissioning. See section #10000.23.		Video recording of training may be required on training of advanced systems, or when all key staff cannot attend training. Specify recording or training requirements in bid documents.
01 00 00.32	All	Floor Finish		Architect specifies product when product is not provided by Owner.		Contractor strips, seals and applies finishes to hard floor including terrazzo, vinyl tile and linoleum. Product and application to be reviewed and approved by Owner at time of application.
01 00 00.33	All	General Conditions		Use only Owner provided General Conditions for Construction in the Bid Document.		Owner will provide General Conditions for Project. Specifications section 10000 must reflect this.
01 00 00.34	All	Hazard Notification		Contractor is responsible for all hazard notifications, including but not limited to: confined space work; lock/tag-out; "Hot Works Permit" (yellow tag); life safety system suspension (red tag).	OSHA Standard 1926, OSHA Standard 1910, US Dept of Labor Directive CPL 2-0.124	Includes multi-employer work place regulations. OSHA Standard 1926 Construction; OSHA Standard 1910 General Industry; US Dept. of Labor Directive CPL 2-0.124 Multi-Employer Citation Policy
01 00 00.35	All	Hazardous Materials		Certification and licensing to handle, place or remove. Specify that MSDS sheets will be provided to Owner for all Hazardous Materials incorporated into each project.		No asbestos, PCB or other hazardous materials will be used in any part of the building without prior notice to the Owner. Hazardous materials will not be used in the interior of the building.
01 00 00.36	All	Design Observations		Design Consultant visits the site weekly and submits Observation Reports (including photographs) to Owner Representative / Project Manager within 24 hours of the visit.		Design observations and corresponding reports shall be provided by all disciplines of the Design Consultant Team at relevant times as the project progresses. These are in addition to any Contractor created reports.
01 00 00.37	All	Interpret Design		Design Professional - Provide notice of any Design Interpretation directly to Owner Representative prior to any transmittal or issuance to Contractor.		Notices shall be done in writing, preferably through the RFI process.
01 00 00.38	All	Interruption		72 hour advance notice of adverse impact to existing operations.		
01 00 00.39	All	Liquidated Damages		Decision to use liquidated damages will be made by Owner. When used, amount of damages will be specified by Owner.		Case by Case - Generally not used unless actual incurred costs can be determined. Use of punitive liquidated damages can create indefensible liability for Owner and prevent recovery of actual damages.
01 00 00.40	All	Meeting Pre - bid		At least 7 calendar days prior to receipt of bids		Owner schedules with Architect
01 00 00.41	All	Meeting Preconstruction		Owner schedules within 20 days of notice to proceed		Contractor provides all communication and critical delivery info including total project schedule, submittal logs, safety, security, etc.
01 00 00.42	All	Meeting Progress		Weekly meetings on-site.		Subcontractors may be present. However, this meeting is not the Foreman's weekly planning meeting- it's an "Owner/Architect/Contractor (OAC)" meeting.

CSI	Section	Item	A	Standard	Reference	Additional Comments
01 00 00.43	All	MSDS sheets		Prior to introduction of any chemical or compound onto County property, Contractor furnishes (3) copies directly to the Owner cc: Architect for all materials to be used in construction or on County property. Contractor must keep 3 ring binder with all MSDS sheets readily available at the site project office.		Copy of each GHS SDS (formerly MSDS) sheet to Project Record - all materials used during construction. Standards: 1926.59 Hazard Communication Construction and 1919.1200 Hazard Communication General Industry
01 00 00.44	All	O & M Manuals		Contractor will furnish all operation and maintenance information necessary for the Owner to install, operate, maintain, repair or replace all components and equipment in the facility.		Design Consultant shall review manuals for content and completeness, and shall approve two (2) complete copies formatted on 8.5 x 11 sheets, fully indexed with section tabs. Minimum of 2 weeks prior to training and following Architects review.
01 00 00.45	All	O & M Training		Contractor provides to Owner. Training is scheduled 2 weeks in advance. Includes Warranties, training, spare parts in General Contractor submittal schedule.		Include specific training requirements in document. Identify additional training needs for sophisticated systems e.g. HVAC controls. Requirements are included in Owner General Conditions
01 00 00.46	All	Occupancy Permit		Obtain final Certificate of Occupancy (CO) and at the Owner's discretion, an interim Temporary Conditional Occupancy (TCO) to meet Owners needs.		Contractor obtains/pays for CO or TCO(s) prior to issuance of certificate of substantial completion.
01 00 00.47	All	Permanent Utilities - Gas & Electric		Electric & Gas Utility Companies working in coordination with the Owner, installs and connects. For new construction - Contractor initiates and opens all accounts and pays connection fees. General Contractor will provide complete as-built drawings of all utilities to the Architect. Architect reviews and corrects and submits to Owner. As-Built utility drawings will be submitted in current version of AutoCAD with one hard copy to the Owner. Owner will provide final survey of improvements for accurate locations.		Contractor notifies County 6 weeks in advance of need for permanent utilities including natural gas, electricity, water, sewer, & storm sewer. Note: Utility may require that the new service be in the Owner's name. If this is required, the Contractor will still pay for the new service connection and all temporary power use for project construction.
01 00 00.48	All	Permanent Utilities - Sewer, Water & Storm Water		Sewer, Water & Storm Water Contractors working in coordination with the Owner, installs and connects. For new construction - Contractor initiates and opens all accounts and pays connection fees. General Contractor will provide complete as-built drawings of all utilities to the Architect. Architect reviews and corrects and submits to Owner. As-Built utility drawings will be submitted in current version of AutoCAD with one hard copy to the Owner. Owner will provide final survey of improvements for accurate locations.		Contractor notifies County 6 weeks in advance of need for permanent utilities including natural gas, electricity, water, sewer, & storm sewer. Note: Utility may require that the new service be in the Owner's name. If this is required, the Contractor will still pay for the new service connection and all temporary power use for project construction.
01 00 00.49	All	Permanent Utilities - Telecommunications & County Fiber		Design Consultant to coordinate with County IT Department for specific needs. Fiber optic, or other final connectivity, will be determined by County IT. Phones may be VOIP.		Occasionally a cable or satellite TV Vendor will be involved in the project and coordinated by County IT.
01 00 00.50	All	Photos - Progress		Architect provides photos to document progress and include in weekly progress report.		Owner may create separate photo documents.
01 00 00.51	All	Photos - Final		Architect provides and pays for photo series of final exterior and interior shots to be shared with the Owner. Number of shots to be coordinated with the Owner at the time of the photo shoot.		Owner will provide credit when professional photography is used.
01 00 00.52	All	Prevailing Wages		Prevailing wages apply to all projects greater than $25,000. Contractors will submit directly to Owner.	County Board Resolution 95-55	Architect incorporates Owner's language. County Board Resolution 95-55 regulations - include reference to prevailing wages in three locations in all bid documents: 1) Advertisement for Bids, 2) Invitation for Bids, and 3) On the Bid Form.
01 00 00.53	All	Project Sign		County prefers not to publicly advertise projects through signage.		Signage use may be allowed on a project by project basis, verify with Owner.
01 00 00.54	All	Punch List Preliminary		By Contractor completed prior to Substantial Completion.		Contractor notifies Architect/Owner that they are substantially complete.
01 00 00.55	All	Punch List Final		By Architect/Engineer just prior to occupancy and following receipt of completed preliminary Contractor's punch.		Completion of this punch list is required prior to Substantial Completion.
01 00 00.56	All	Reports - Daily		On large projects, Contractor completes daily report - work force and activity and submits to both Architect & Owner.		Include weather, equipment, manpower, subs, inspections, exceptions.
01 00 00.57	All	Reports - Test		All Test Lab Reports are to be copied to: Owner, Architect, Contractor, Sub/supplier and Building Official.		Includes soil tests, concrete tests, and all field or laboratory tests specified in the bid documents.

CSI	Section	Item	A	Standard	Reference	Additional Comments
01 00 00.58	All	Requests for Information (RFI's)		Contractor submits to Architect and copies Owner at time of initial submittal and each resubmittal or communication. Electronic document submittal system (i.e.; Submittal Exchange) will be used for major building construction projects.		Architect is required to reply within a timely fashion. Architect is to work with the Owner's Project Manager on items dealing with cost before replying to Contractor.
01 00 00.59	All	Safety		Contractor is responsible for project site safety.		
01 00 00.60	All	Sanitary Facilities		Contractor provides unless project is in existing building and approved for use by the Owner.		When Owner approves the use of existing facilities, the Contractor must keep them clean.
01 00 00.61	All	Schedule -Initial		Owner provides initial schedule for inclusion in Construction Bid Documents.		This may range from a list of critical dates to a Critical Path Method schedule.
01 00 00.62	All	Schedule -Construction		Contractor shall provide a project work schedule to the Owner at commencement of the project. Project work schedule shall be updated monthly and submitted with progress pay applications.		Show all major or critical construction phases including long material or equipment delivery lead times prior to award of project. Notify the Owner as soon as possible if the Substantial Completion date changes.
01 00 00.63	All	Schedule of Values		Owner provides minimum requirements list to Contractor and Architect prior to preconstruction meeting.		Use AIA G703 and follow specification section format.
01 00 00.64	All	Shop Drawings		Follow shop drawing and submittal procedures as noted within current Dakota County General Conditions. Modifications only allowed with Owner approval.		
01 00 00.65	All	Site - Assessment		Environmental Assessments - completed by Owner and provided to Architect.		For renovation projects, this may include asbestos and mold investigations by Owner.
01 00 00.66	All	Site Survey		Provided by Owner.		County surveyors do not provide ALTA (American Land Title Association).
01 00 00.67	All	Soil Borings		Structural PE determines locations. Design Professional assists - Owner contracts direct and pays for all soil boring and geotechnical evaluations.		
01 00 00.68	All	Spare Parts / Attic Stock		Contractor inventories, Generates transmittal lists and transmits to Owner prior to Occupancy		Owner will specify types and quantities. Note that the County has limited storage space. This is to be considered on attic stock products that are bulky (pallets of carpeting/flooring, etc.).
01 00 00.69	All	Storage Temporary		Contractor and Owner agree at Pre-construction meeting		
01 00 00.70	All	Substitutions		Only Owner shall approve any substitutions to specified standards. See Owner General Conditions.		Architect evaluates and recommends substitutions to Owner. In general, no substitutions are approved after award unless it can be proven that the specified product cannot be obtained
01 00 00.71	All	Temporary Heat		Contractor provides enclosure and equipment. Owner pays for temporary heating fuels (natural gas and propane) for building enclosure only.		Natural gas will be used for temporary heat if available at project site. This does not include temporary heat for cold weather concrete or masonry installation.
01 00 00.72	All	Temporary Construction Utilities		Contractor furnishes, installs, and pays for installation of any temporary utilities not ultimately used for permanent utilities.		
01 00 00.73	All	Testing - Independent		Owner shall contract directly with an Independent Testing Agency. Design Consultant shall include the required testing and inspection schedule in the bid documents.		Contractor notifies test lab re: pending work- contractor pays all retest costs that are billed to the Owner.
01 00 00.74	All	Testing - Substitution Approvals		Contractor is responsible for any testing that Owner or Owner's representative requires prior to approval of substitutions. This is only when the specified item is no longer available.		Contractor will also pay for testing required to prove that a system or material is as specified. If it is in fact proven to be NOT to be as specified, then Contractor shall pay for the testing and correction.
01 00 00.75	All	Unit Pricing		Unit pricing provided by Contractor shall include all labor, material, equipment, overhead, profit, sales or use tax, insurance & bond.		Limit unit price requests and base all on some rough quantity. (Establish a NTE value)
01 00 00.76	All	Warranty		Contractor notifies Architect, or in the absence of an Architect, the Owner in writing of date requested for the warranty to begin. Warranty will be a minimum of one year. Landscaping and special construction will be two years warranty coverage. Mechanical equipment warranty minimum 1 year P&L with 5 year compressor warranty.		Also see Roof Warranty standards.
01 00 00.77	All	Warranty Inspection		End of year inspection/walk through.		Performed by Design Consultant, Contractor, Facilities Management and CPM at or before 11th month of occupancy.

CSI	Section	Item	A	Standard	Reference	Additional Comments
01 00 00.78	All	Waste Disposal		Dumpsters at adjacent Owner structures will not be used by Contractors	See Dakota County General Conditions	Contractor provides all dumpsters for waste and recycling. Owner will provide names of companies for inclusion in the bid documents. Contractor provides monthly reporting with pay request with all totals by weight and recycled characteristics.
01 00 00.79	All	Waste Reduction		Contractor will follow Owner recycling/waste guidelines		Owner furnishes to Architect for inclusion in project documents
02 40 00	Existing Conditions	Demolition	A	Supplement Architects standard demolition specification 02060 with Owner's Model Specification - Salvage and Reuse and Recycling. See Appendix F of the Sustainability Guide		Prior to initiating any demolition project - Complete the Building Demolition Plan Checklist - Appendix C of the Sustainability Guide
03 20 00.01	Exterior Improvements	Snow storage areas		During site design, identify plowing scheme, allow for heavy equipment, designate areas to stack snow, surmountable curbs and treat snowmelt run off.		If snow stacked on landscaped areas - allow access etc. in landscape plan. Load snow for slow melt into ground for recharge of aquifers. Sodium and potassium chlorides are soluble that cannot be addressed.
03 20 00.02	Metals	Reinforcing steel		Architect / Structural Engineer to specify.	North Star Steel	Maximize amount of reclaimed / recycled steel content. Goal is 100% recycled content for all reinforcing steel.
03 30 00 03 31 00	Concrete	Structural Cast in place		Use 4000 psi concrete as minimum for all areas. Increase fly ash content from 20 to 25% in Portland cement - providing strength and durability are not compromised.	Fly Ash - NSP Power Plant	Exterior concrete will be broom finished concrete. Above grade concrete will be 4,000 psi or greater. All roofs at or above 3 stories will be cast in place reinforced concrete deck with a minimum design load of 60 psf "not" including roof system and insulation. Discuss the use of water reducing agents, plasticizers and other add mixtures with owner prior to specifying or approving use. Water to cement ratio must be controlled for all project concrete without adding water or admixtures at the job site. Test cylinders will be specified to be taken only after any additions and from the final 1/3 of the truck load.
03 30 53	Concrete	Sidewalks		Use minimum 3500 psi concrete with air entrainment and granite chip aggregate to reduce effects of pit run aggregate degradation and pop out. Apply penetrating concrete sealer to all side walks. Standard reinforcing is to be 6" WWF.	Same as cast in place.	Exposed aggregate finish is prohibited from exterior walks, curb cuts, ramps or traffic crossings. Fiberglass reinforcing is acceptable as Owner approved option to WWF.
03 35 00	Concrete	Finishing		Broom finish for sidewalks. Consider light broom finish for interior concrete in wet locations including a sealer with a slip resistant admixture. Other interior concrete shall be steel troweled smooth.		An interior broom finish in garages to reduce slips on a wet surface should be considered.
03 35 19	Concrete	Colored		Color will be mixed throughout concrete. Surface color topping is not permitted.		
03 35 29	Concrete	Tooled		Smooth tool 4" around all sidewalk sections.		
03 35 33	Concrete	Stamped		Can only be used with Owner written approval.		No exterior stamped concrete.
03 38 00	Concrete	Post-tensioning		Do **not** use cast-in-place post tensioned floor slabs		Precast post tensioned or prestressed concrete plank and tees are permitted with Owner approval.
03 39 23	Concrete	Concrete Curing Compounds		Use Low VOC form release agent and curing compounds.	Seal Tight Duogard II, BioForm, AquaForm	All membrane curing compound will be pigmented unless a colored concrete highly finished surface is approved by the Owner.
03 41 00	Concrete	Precast concrete - plank/stone, columns and beams.		ACI 318 - fully self supporting - per manufacturer's installation recommendations. Bottom (interior side) of all precast plank will be "steel trowel" smooth finished. Precast concrete post, wall, roof, beam construction will be used for all high security installations and high wind resistance such as dispatch, jail, courts, etc.		Fabricate to ≥1/8" tolerance - square ends and matching surfaces
03 45 00	Concrete	Precast - wall panels		Most often used for shops, garages, cold storage, free standing garages etc.	FabCon, Wells	Refer to insulation requirements within 072000 item below.
03 80 00	Concrete	Cutting & Boring		All openings in existing concrete will be neatly cut. Roto drills / jack hammers etc. will not be used to create openings in permanent structures. Only saw cut straight lines and cores are permitted.		See OSHA respirable silica crystalline standard for construction dust control requirements.
04 00 00.01	Masonry	Inspection		Adhere to Owner's Quality Control and Assurance Policy		Independent consultant may be used under direct contract with Owner
04 00 00.02	Masonry	High Wall / Low Roof		Owner has and provides approved details for masonry terminations including all high wall/roof intersections		Use only approved flashing detail to accommodate future roof replacement without loss or damage to existing flashings.

CSI	Section	Item	A	Standard	Reference	Additional Comments
04 05 00	Metals	Embedded - Masonry		Only stainless steel masonry ties are permitted. The County prefers all embedded metals, supports and anchors \ for stone, masonry or precast stone façade components to be stainless steel. The costs of this should be discussed during design.		Other materials than stainless steel may be consider on a case by case basis by Owner. Large load bearing members may be non-stainless if detailed correctly and approved by the Owner.
04 05 13	Masonry	Mortar and grout		Architect to specify - compatible with brick.		Subject to approval by Owner independent consultant.
04 05 19	Masonry	Unit masonry anchors		Double eye and pintel installed maximum of 16" on center. horizontal and vertical for 8" nominal materials; **16"** for large brick, otherwise every other head joint. All masonry anchors will be stainless steel.	Dur-o-wall	
04 05 23.01	Masonry	Flashing Thru-wall		EPDM Flashing and end dams - EPDM - continue to visible surface and 1/4" past finished façade surface all locations.	Firestone, Carlisle SynTec	No pvc - use Firestone Flashguard or equal. Provide flashing dams at all interruptions in flashing with 4" minimum turn up.
04 05 23.02	Masonry	Limestone		Limestone will be Minnesota native Kasota stone **only**. Quality of finish will be veined cut with sawn finish. Color range will be cream - no dark brown or gold. No stone capstones are allowed (only prefinished metal).		Limestone is to be used for vertical wall sections only. Limestone should not come into contact with grade or exterior concrete pours- use granite if natural material is required.
04 05 23.03	Masonry	Vertical Expansion Joints		Provide continuous vertical 1/2"minimum vertical expansion joints in brick and backer block where designated by Architect on drawings. Provide within two feet of both sides of outside corners, at inside corners, between dissimilar materials and spaced at no more than 20 horizontal feet on center. Provide all other horizontal expansion joints in masonry structures where appropriate.		
04 05 23.04	Masonry	Embedded Flashing		Use Owner provided details for all embedded flashing.		
04 05 23.05	Masonry	Weeps & vents		Rope - cotton only maximum 24" on center horizontal joints. All weeps will be a minimum of 6" above grade. Mesh cavity protection will be used to ensure weeps are functional after wall construction is complete. The goal is to prevent the wall cavity from being filled with mortar.		Provide vents 24" on center. in exterior vertical masonry joints 4 brick courses or 12" maximum above all flashing at base of cavity veneer walls. Weep vent spacing at top of wall will be a maximum of 4' on center and a minimum of 3 full brick courses below top flashing. Masonry vents will be sized to fit tight in the joint and be firmly anchored in the mortar joint in accordance with the manufacturer requirements.
04 21 00	Masonry	Unit Masonry		Architect to specify - maximum 2 brick colors, subject to approval by Owner.	Ochs Brick Co., Springfield MN	Provide Owner with one pallet of each brick color at substantial completion. Bond and flexural strength test 1 per 5,000 sf unless approved by Owner or Owner's consultant. Brick with porosity selected for this climate is most important.
04 23 00	Masonry	Glass Unit		No glass masonry will be used for any exterior surface.		
04 22 00	Masonry	Concrete Unit		May be used for interior load bearing walls and sound insulation.		Owner prefers that concrete unit masonry be limited to interior applications only and that precast concrete panels, columns and beams be used for all exterior building perimeters.
04 41 00	Stone	Dry Placed		May only be used for exterior and interior landscaping as approved by the Owner.		Use of an adhesive is permitted.
04 42 00	Stone	Exterior Cladding		With Owner permission only.		Owner has permitted or requires the use of limestone and granite for specific applications.
04 43 00	Stone	Masonry		Mankato Kasota Limestone is used to a limited extent only at the Hastings Government Center site.		
05 00 00	Metals	Recycled Content		100% - all specification sections		Select only those manufacturers using 100% recycled metals.
05 12 00	Metals	Structural Steel		Architect/Structural Engineer to specify.		
05 21 00	Metals	Steel Roof Joists		Joists are sized in 2 Steps: 1) All steel roof joist designs will be 50% greater than code. 2) Then provide the next standard size larger than required by code. No custom joist sizes (use standard AISC sizes) permitted. Standard prime finish is sufficient.		On 3 level and greater buildings - provide full structural concrete floor as roof.

CSI	Section	Item	A	Standard	Reference	Additional Comments
05 31 00	Metals	Decking - metal		Architect to specify that all steel decking will be primed. That units will be secured to supporting members with fusion welds. Weld metal will penetrate all layers of deck material and will have good fusion to supporting members. Structural supporting members will not be damaged by welding procedures or burn-throughs. All steel roof decking will be a minimum of 16 gauge. All metal roof decking will be reviewed by and conform to Factory Mutual requirements. Use 10' wide sheets and increase thickness to resolve FM90 uplift issues. This will reduce the number of deck laps and welds.	See also Specifications Section 75100 and 75323 www.sdi.org	No holes through deck are permitted from welding process. Provide metal closure strips for complete support of roof insulation where rib openings in top surface of deck occur adjacent to edges and openings. Weld all closures into position. Wire brush, clean and paint all scarred areas, welds and rust spots on top and bottom surfaces of deck and supporting steel members. All roof deck material will be 16 gauge and prime paint finished. Use local code fireproofing and Factory Mutual requirements. If not specified, all roof deck systems will have a minimum fire resistance rating of 2 hours. Ribs will be 1.5 inches deep. Structural concrete roof deck is required at building height at or greater than 30 feet. Use most recent ANSI approved standards for composite steel floor deck and steel roof deck. USE Steel Deck Institute Best Practices Manual - Design Manuals for Composite Decks.
05 40 00	Metals	Cold formed framing		Architect and Structural Engineer to specify.		
05 52 00.01	Metals	Handrailing - Interior Stairways		Architect to specify. Custom handrailing will be specified only in public areas. Comply with current OSHA and ADA railing requirements. Maximum opening spacing between horizontal or vertical members is 4" or as specified by OSHA.		All handrail members are to be smooth and round aluminum or steel only. NOTE: Handrailing can be used as barrier to 30'. Any area above 30' must have a full barrier to prevent accidental falling or jumping. Handrailing above open areas will be at least 48" and designed to be "non-climbable".
05 52 00.02	Metals	Handrailing - Exterior Only		Architect to specify. "All exterior hand railings supported by concrete will be designed so that the vertical supports can be side bolted to the exposed concrete structure. No handrail sleeves or vertical penetration of the concrete structure is permitted for any exterior application of handrailing. All exposed railings and attachments will be unpainted 316 stainless steel with 1/2" by half round anti-skateboarding ribs attached at 4 foot intervals on the top horizontal surface."		All handrail members are to be smooth, round and 316 or marine grade stainless steel only. NOTE: Handrailing can be used as barrier to an exposed height of 30'. Any area above 30' must have a full barrier to prevent accidental falling or jumping. Handrailing above open areas will be at least 48" and designed to be "non-climbable".
06 10 00	Wood/Plastic	Rough carpentry		This language is aspirational for all projects, but note that it is mandated for B3 projects. Architects standard for Design - Use only FSC Lumber		The Owner gives purchasing preference to wood and paper products from Forests that are independently certified as well managed per the Forest Stewardship Council (FSC) - FSC Certified lumber will be used if available. FSC lumber bears the FSC logo. For chain of custody certificates visit www.fscus.org/certified_companies. Sustainable Forestry Initiative (SFI) is a lumber industry label and not a certification. SFI cannot be substituted for FSC. Research all wood sources to ensure that wood products used in County buildings are not from old growth or endangered forests.
06 40 23.01	Wood/Plastic	Architectural woodwork		• Use FSC certified lumber only. • Use oak, maple, birch or cherry - stain to match - no exotic or special cuts. • Design and manufacture sections in modules so they can be moved and re-used.		• All wood used in projects must be certified and guaranteed that wood is harvested by selectively cutting rather than clear cutting to protect rivers, streams and wildlife habitats. • Adhere to FSC requirements. Other species subject to Owner approval. • There will be no soffits above any millwork unless approved in writing by the Owner.
06 40 23.02	Wood/Plastic	Architectural woodwork hinges pulls		Cabinetry hinges will be heavy duty concealed self closing for all cabinetry doors. Extra heavy standard door hinges will be used for all heavy or oversized doors. Pulls will be stainless steel standard wire pulls.	Blum CLIP	
06 40 23.03	Wood/Plastic	Architectural woodwork drawer slides		Cabinetry drawer slides will be medium (90-100#) or heavy duty (150-500#) depending upon application and drawer width/size and loading. Custom file drawers will have only HD 150# or heavier slides. Drawers will be full extension with lever disconnects for drawer removal.	BHMA A156.9 Grade 1HD-200 Knape & Vogt KV8800 Series HD 200 lb.	
06 40 23.04	Wood/Plastic	Architectural Wood Casework		See CSI Section 12 36 00 for countertops for millwork.		

CSI	Section	Item	A	Standard	Reference	Additional Comments
06 83 00	Composite paneling	Resin Composite Paneling/Fiberglass Reinforced Paneling		FRP is not acceptable. Refer to CSI Section 10 26 23.		
07 00 00.01	Therm-Moist Protection	Sealants - interior		Interior Silicone Rubber - acid type for non-porous	Dow-Corning	ASTM C920, Type S, Class 25, Grade NS
07 00 00.02	Therm-Moist Protection	Sealants - exterior		Polyurethane polymer	Sika Corporation US 2c NS EZ Mix	ASTM C920-87. Fed Spec: TT.S 00230C. Use appropriate grade for floors/walks. Since sustained adhesion, durability and weatherability continue to be issues, verify the correct exterior sealant with Owner prior to specifying or approving for installation.
07 06 00.01	Therm-Moist Protection	Roof Design Review		Roof plans, specs and submittals will be reviewed by Independent Owner Consultant		When necessary, Owner will retain under separate contract an independent roofing consultant.
07 06 00.02	Therm-Moist Protection	Roof Inspection		Roof inspection by independent consultant		Under direct contract with Owner
07 06 00.03	Therm-Moist Protection	Roof Fall Protection		OSHA 1910.21 - 1910.30 and ANSI Standards Z359.1 - Z359.3.		OSHA and ANSI requirements apply. 1) Skylights / covers must resist at least 200 lb. force. Skylights must support 2X maximum anticipated load of worker. 2) Fixed ladders are required from one roof surface elevation to another. Ladders require a personal fall arrest system or ladder safety system if fall distance is greater than 24 feet. 3) If roof does not have parapet or handrail at 42 inches - roof tie-off systems or netting are required. Tie off points must be installed for arrest or restraint systems. Installation must be certified with 5,000 lb. static strength. (OSHA 1910.55 Appendix C) 4) Roof access - direct walk-out door preferred. If hinged door hatch, standard handrail must be around opening (OSHA 1910.23). Hinged roof access doors must be a minimum of 15 feet from the edge of the building.
07 13 00	Therm-Moist Protection	Sheet Waterproofing		Fully adhered 60 mil Butyl Rubber (polyisobutylene) or EPDM sheets where UV is present will be used below grade for structural slabs, slabs on grade, foundation walls and footings. Protection board is required for all waterproofing prior to backfill. For exterior walls, minimum 25 psi extruded polystyrene insulation board will be used. (See also section on perimeter insulation requirements Spec 72113)		Flashing for both Butyl Rubber and EDPM will be non-vulcanized EPDM sheets that will conform to their backing and fully cure to attain the elastic properties of fully cured materials. NO Hypalon (chlorosulfanated polyethylene) or PVC (polyvinylchloride) waterproofing will be used.
07 15 00	Therm-Moist Protection	Sheetmetal Waterproofing		Vertical parapet walls - Built Up -BUR Roofs		Fully adhered ice & water shield with aluminum counter flashing will be used. Fastener system will be stainless steel and 100% watertight.
07 19 23	Therm-Moist Protection	Masonry Water Repellent		All exterior face brick, concrete masonry and precast stone or concrete will be treated by Owner.	Protectosil Chem-Trete BSM 400 for Brick Masonry	Unless instructed otherwise by Owner, application of water repellants will be done independently of the Construction Contract and at a date within 5 years of completion, but not prior to two years from final payment. Just prior to the end of the two year period, a complete inspection will be performed to ensure integrity of the masonry and precast systems prior to any application. Apply only Owner approved water repellent. Use appropriate product for each system.

CSI	Section	Item	A	Standard	Reference	Additional Comments
07 20 00	Thermal Protection	Wall Insulation Systems		All exterior walls in the County, whether precast or other construction are to include the insulation requirements as noted in "Additional Comments" at right.		Meet current code requirements and the following requirements (whichever is most stringent). For precast exterior wall insulation value of **R20 -** polyisocyanurate 2.5" laminated. **R20** Wall value is not averaged and applies to prefabricated panels only. R20 is minimum requirement for all other wall systems. When calculating R values - use method that combines Isothermal (Series-Parallel Path Method) Analysis and Thermal Dynamic Building Envelop Analysis. Both methods are provided in ASHRAE Handbook of Fundamentals and from current ASHRAE/IESNA Energy Standard. Use Mass Analysis to determine "true" thermal performance of precast panels including the C-value or conductance of the material. All new construction design will consider adding additional wall insulation to increase the actual (versus averaged) exterior wall R value beyond R20. All designs will pay particular attention to location and amount of all fenestration. For masonry cavity wall construction, the insulation should be extruded polystyrene insulation (XPS).
07 21 13.01	Therm-Moist Protection	Insulation Wall		Closed cell extruded polystyrene (XPS) minimum R value R5 per inch - 4" minimum thickness with all joints caulked and sealed. Polyisocyanurate may be used with Owner approval.	Cavitymate, Amofoam SB,Certifoam 25, Dow	Emphasis on recycled content and no use of CFC's in production.
07 21 13.02	Therm-Moist Protection	Perimeter Foundation Wall Insulation		To achieve R20, provide a minimum 4 inch thick closed cell extruded polystyrene (XPS) to a minimum of 4 feet depth below exterior grade or deeper if required by code or application. Oversize lower foundation wall and provide 3" wide step in foundation wall to fully support and stabilize insulation during backfilling. Board will be minimum 25 psi and R-value of 5 per inch.		Required for all perimeter walls and between slab on grade and exterior walls at or near grade. Insulation thickness may be reduced to 2" between slab on grade and exterior walls. Formed concrete or unit masonry walls must be true and smooth enough to adhere the insulation board. In addition to vertical wall insulation, insulation board will be installed horizontally below slab on grade a full four feet from the exterior wall.
07 22 16	Therm-Moist Protection	Roof Insulation		When metal deck, fully anchored (including coverboard) to roof structure to prevent uplift. Membrane only is adhered. When exposed wood or concrete deck (PT or precast), fully adhere roof system. Approved materials will have an "aged" R value of 5 per inch. XPS with greater compressive strengths will be used for high and heavy traffic areas. Design roof insulation value will be **"non-averaged" R-38** - Consultant to coordinate w/ wall values. No long runs to roof drains are permitted. All areas must completely evaporate within 24 hours after rainfall. All corners and perimeter low spots will have crickets formed with tapered insulation installed to assure positive drainage. Use of polyisocyanurate (polyiso) or extruded polystyrene (XPS) is acceptable. Tapered insulation systems will not be used for new construction. See additional comments.	Styrofoam, Diversified, Dow, GAS EnergyGuard Ultra ISO with Ultrashield Facer. www.gaf.com	Tested stabilized R values are 4.8 at 1.5 pcf for XPS and 5.8 at 2.0 pcf for polyiso. XPS uses HCFC-142b and Polyiso uses HCFC-141b as its blowing agent during manufacturer. As of 2008 there are no alternatives in the process without increasing flame spread and lower insulation values for both types. Both systems require cover boards for fully adhered/mechanically fastened requirements. XPS has a stable and long term R-Value. The only reason to use Polyiso in lieu of XPS is to reduce cost. Quality will be reduced proportionately. Polyiso does not provide the long term R value that XPS does. Polyiso has a water absorption rate 5 times greater than XPS. Maximum compressive strength of polyiso is 18 psi with facers when new - requiring additional protection board cover. If permitted by Owner, polyisocyanurate (polyiso) insulation may be considered as an alternate providing that 100% fiberglass facers are used - no cellulose facers are permitted. Prior to specifying or installing any polyiso - verify that the material fully meets ASTM E 180 and UL 790 standards. For extremely low traffic areas Polyisocyanurate can be used with a minimum 1" perlite (100% recycled content) fiberboard cover. All other areas require 1.5" of protection board. A thermal barrier board is required to meet FM Class 1 or UL Class A roof installations.
07 26 00.01	Therm-Moist Protection	Air and Vapor Barriers - Above Grade		USE AIR BARRIERS -- Exterior wall gypboard application. Provide a true, impermeable vapor barrier that is rated 0.10 perm or less on the warm side of the insulation. Ensure vapor barrier continuity at the interior plane of insulation around the entire building envelope especially at penetrations, corners and junctions. Liquid applied or continuously seal all laps and penetrations. Do not apply vinyl or any other non-permeable finish to exterior wall boards.	Liquid applied is acceptable for block walls and other applications if approved by the Owner.	The fundamentals of creating a proper vapor barrier include developing the thermal section of exterior wall or roof; determine the dewpoint for the interior environment, locating the dewpoint within the wall construction; verifying the vapor barrier location and the thermal performance of the insulation relative to the dewpoint location. The psychometric chart is used to determine relative temperature, humidity and dewpoint readings. There are three classifications - 1. Vapor Retarder - 0.1 perm or less 2. 1.0 perm or less and greater than 0.1 perm. 3. 10 perm or less and greater than 1.0 perm.

CSI	Section	Item	A	Standard	Reference	Additional Comments
07 26 00.02	Therm-Moist Protection	Vapor Barriers - Below Grade		Provide horizontal air and vapor barriers for all concrete slabs on grade unless approved in writing from Owner.		Provide under-slab vapor barrier sheets using polyolefin membranes (no polyethylene) Continuously seal all laps and penetrations. Place the vapor barrier directly under concrete slabs on grade.
07 50 00.01	Therm-Moist Protection	Roof Slope		Minimum slope of actual roof deck to be 3% or greater. Adjust parapet freeboard to accommodate as needed while still maintaining roof rating of FM90 or greater. See separate roof parapet standard.		In non-precast structure conditions, construct slope in roof structure so that insulation can be installed flat at R38 without averaging. Crickets formed with tapered insulation may be used to drain corners and ponding water with approval by Owner.
07 50 00.02	Therm-Moist Protection	Roof Drains		See CSI Section 221426.		Roof insulation can be reduced to R20 only within 24" of roof drains to provide drainage pocket. Roof drains will be 100% insulated with minimum 2" fiberglass insulation below deck.
07 50 00.03	Therm-Moist Protection	Roof Design		All roof types and roof accessories including substrate, parapets, screenwalls, equipment and skylights will be designed to withstand a **90 mph basic/sustained wind** (120 mph gusts) without tear-off or failure, or to local requirements - whichever is greater. All roof structures will be designed to 50% greater than current code for live and dead loads. All roofs will be designed to exceed Factory Mutual wind requirements and / or SPRI Wind Design Standards.		Design to most current version - FM 90 rating with a minimum 42" combination high parapet wall system. Safe parapet wall height can be achieved with an integral railing no higher than 12" above parapet wall. Railing can only be mounted to the roof side vertical wall of the parapet - providing it does not interfere with any lightning protection.
07 50 00.04	Therm-Moist Protection	Roof System Alternatives		Other roof systems may be considered for certain buildings. Approval to use other than BUR or EPDM requires full research and justification for variance. Additionally, approval is only granted with Owner's written expressed consent.		Choices are: Modified Bituminous (Atactic-polypropylene or Styrene-Butadiene or Self Adhering modified membrane), Elastomeric (Chlorinated Polyethylene or Chlorosulfonate-Polyethylene or Polyisobutylene) Thermoplastic (Copolymer-Alloy or Ethylene-Interpolymer or Polyvinyl-Chloride or TPO -Thermoplastic-Polyolefin or Nitrile-Butadiene-Polymer) Fluid Applied Roofing, Coated Foamed Roofing, heat applied Roll Roofing, tile, slate, asphalt shingle or Class B Cedar shakes combined with a fiberglass-reinforced gypsum board sheathing (Dens Deck) to create a "Class A" roof. Note: Robert Trail Library in Rosemount has TPO roof system installed in 2008.
07 50 00.05	Therm-Moist Protection	Roof Installation & Inspection		3rd party On-Site inspection will be provided by Owner during the roof system installation. Owner will perform thermographic evaluation within one year of roof installation.		Optimal time for thermographic final inspection would be 1-month before the 11-month warranty walk-thru.
07 50 00.06	Therm-Moist Protection	Roof warranty		Provide a minimum 20 year no dollar limit (NDL) roof warranty by Manufacturer from installing roofing contractor. A maintenance bond may be substituted for the warranty in the Bid Document if future solvency of the installer or the manufacturer(s) is in question. Include responsibility to repair damages caused by roof leaks if due to material failure or faulty installation. Roof membranes will be maintained consistent with manufacturer requirements.		Particular attention must be paid to the actual warranty specified in the Contract. Request that a copy of the Manufacturer's Owner sign off sheet be submitted with the shop drawings for "OWNER REVIEW" !! Do not sign anything that changes the contract warranty requirements. Note: Most roofing manufacturers require sign off by the Owner for acceptance of the roofing system. It is generally combined with the Warranty Registration sheet. The Warranty Registration sheets have conditions specified in them that may not comply with the Contract requirements.
07 51 00.01	Therm-Moist Protection	Roof Built Up		4 Ply Glass Fiber **Type VI** Felts - Hot mopped Asphalt with 20 year No Dollar Limit total roofing system Warranty to run from date of substantial completion. A vapor / heat barrier must be specified and installed when hot applied built-up asphalt roof are specified on metal decks to resolve fire rating from below. Issue is that when the asphalt melts through the roof weld holes or other roof penetrations, it fuels the fire. Cold applied adhesive that is Factory Mutual approved must be specified for protection board that must be installed below the insulation and actual roof membrane materials. Use of built-up roof systems will be Owner decision.	GAF Gafglass Ply 6 Owens-Corning Perma Ply-6	See CSO 75323 - Roof design for wind and uplift ratings are the same for all roof systems - BUR or EPDM. Gravel surface will be minimum of 4 lbs./sf. A 42" high perimeter parapet wall is required. Waterproofing and flashing of the parapet will be pre-approved by the Owner prior to inclusion in the design. Increased height parapet must be structurally designed to handle increased wind loading.
07 51 00.02	Therm-Moist Protection	Roof Built Up Electrical		Pitch pockets are not permitted. Use min. height 12" curbs with weatherproof "dog houses" around electrical penetration.		Make all attempts to keep penetrations in vertical surfaces rather than in horizontal roof system surfaces.

CSI	Section	Item	A	Standard	Reference	Additional Comments
07 53 23.01	Therm-Moist Protection	Roof EPDM		On metal deck structures: 60 mil **100%** fully adhered membrane **and** mechanically fastened insulation and with a coverboard. On precast, post-tensioned concrete, or exposed wood deck structures: 60 mil **100%** fully adhered membrane. A coverboard is only needed if required by the manufacturer, or if required per FM Global (if solar is planned for the roof). Currently, Dakota County is not within a *very* severe hail zone and so - FM Global does not require a coverboard for that reason. Fully recyclable EPDM membrane with 20 year No Dollar Limit total roofing system Warranty to run from date of Substantial Completion. Roof Assembly will be UL Class A fire rated and Class I-90 Factory Mutual requirements. **Self-adhering membranes are NOT allowed (must be low-rise foam adhesive)!** Use 90 mil for specific high durability areas such as under a vegetated roof.	Firestone, Carlisle SynTec	County standard is **R38**. Fully evaluate potential energy cost savings with soiled roof at **R38** against cost of investment and maintenance of high reflectance membrane.
07 53 23.02	Therm-Moist Protection	Roof EPDM - Mechanical Fasteners		Membrane Roofing Fasteners will be corrosion resistant and sufficient length to properly anchor the roof system to the roof deck to achieve FM90 or greater wind load rating. Pullout tests will be conducted prior to the installation of the fully adhered membrane.		Perform a minimum of 10 pullout tests for up to 50,000 square feet (4,650 square meters) or portion thereof on each roof elevation or change in substrate. Perform the pullout tests at random areas of the roof including corners, perimeter and field to provide a representative sampling of overall roof performance. The location of the pullout tests will allow for 50% more tests in the corners and perimeter than in the field. It may be necessary to perform additional pullout tests beyond the minimum number required. This includes but is not limited to occasions when 1. pullout values vary significantly 2. tests are performed in substrates that are inherently less consistent such as lightweight concrete, tectum or gypsum 3. there exist multiple questionable areas 4. local building codes require additional tests 4. roofs with high wind loading will have additional pullouts tests conducted in all corners. Ref - Form A - Pull out Test Report ANSI/SPRI FX-1-2001 dated May 2, 2001.
07 55 63	Therm-Moist Protection	Vegetated Protected Membrane Roof		Requires Owner written approval		Resource - NRCA Green Roof Systems Manual 2007 - www.nrca.net. Consider fire issues during drought conditions.
07 61 00	Therm-Moist Protection	Roof Metal/Copper		Metal or copper roofs can be specified providing a minimum 20 year roof is provided and a "non-averaged" insulation minimum value of **R38** is used. Metal roof attachment must provide 100% thermal break from interior roof framing etc.		Roof design must be meet or exceed **FM 90** rating. Match requirements for EPDM system. Copper roofs are to be designed to 50 years. Locate boiler stacks to prevent roof metal corrosion from exhaust gases.
07 65 26	Therm-Moist Protection	Sheet flashing		Flashguard or EPDM as approved by the Owner.	Firestone	Through wall flashings. Flashing will be fully supported by galvanized sheetmetal to prevent sagging. Minimum 20 gauge Kynar coated steel will be used if any part of the flashing is exposed to the exterior façade of the wall.
07 70 00.01	Therm-Moist Protection	Roof Elevations		New buildings will have no more than 3 contiguous roof levels. Minimize number of roof levels, separations and types		Owner has a library of details to be used a guideline during design.
07 70 00.02	Therm-Moist Protection	Roof Top Equipment Wind Allowance		Refer to section 233000 for standards regarding anchoring rooftop equipment for wind loading. Minimum standard protection is for basic 90 mph winds (120 mph gusts).		
07 71 16.01	Therm-Moist Protection	Roof parapet cap sheet metal flashing		24 gauge steel with Kynar finish. Aluminum only if approved by Owner. Anchor in vertical areas only at center of sections for full thermal expansion. All corner pieces will be prefabricated units w/o lap, mitered or field joints on corner.		Use only manufacturers who use 50% or greater recycled materials. Membrane will be installed to completely cover parapet and extend down exterior wall prior to cap flashing installation. Keeper strip and flashing will not be anchored to brick. Brick facia will operate independently of parapet blocking. Allow 1/2" or greater vertical brick expansion. Top brick mortar joint will be reinforced 16" o.c. horizontally with stainless steel eyes and pintels. Also see comments concerning structural integrity required for all parapet walls to 42" and 120 mph sustained wind loading.

CSI	Section	Item	A	Standard	Reference	Additional Comments
07 71 16.02	Therm-Moist Protection	Roof parapet flashing		Run roof membrane complete up and over parapet - match roof. Spring form counter flashing will be used for all roof membrane terminations.		Spring form counter flash min. 24 gauge prefinished with sealant @ drip. Ensure that brick façade is not anchored or connected to structure or block backer wall to permit independent differential movement. For built up roof (BUR) installations a special detail will be prepared for parapet flashing and counter flashing to be approved by the Owner.
07 71 26	Therm-Moist Protection	Reglets		Reglets will not be used. All terminations at roof wall intersects will be fully developed in wall flashing systems.		Complete details will be developed for approval by the Owner for all roof / flashing / wall terminations.
07 71 33	Therm-Moist Protection	Roof parapets - through wall scuppers		Through wall scuppers will be constructed of one piece 1/8" steel plate - 100% hot dipped galvanized - installed in opening over-sized 1/2" about for sealant with a minimum lip extension of 4" beyond finished wall.		Use only for overflow drains and roof drains for areas without internal roof drains. E.g. elevator, stairwell and mechanical small area penthouse roofs.
07 72 00.01	Therm-Moist Protection	Roof Cant & Wood Blocking		**Untreated** - fully cured FSC hardwood dimensional lumber per project detail. Architect will address local fire code issues prior to specifying.		Do not specify or use fiber cant or blocking or treated lumber. Roof parapet cap flashing will be sloped a minimum of 1.5" per linear foot from exterior wall to drain onto roof. Fire resistant wood blocking may be used only if required by local code. In general - the roof system will be considered to be outside the fire rated zones of the building.
07 72 00.02	Therm-Moist Protection	Roof Curbs		All roof curbing will be fully detailed to provide wind load pull out requirements. Specify that all roof curbs are to be installed by the General Contractor only. Comply with 90 mph basic wind rating for all exterior mounted items and finish panels.		Mechanical will furnish pre-made curbs to General. ID equip. in specs. NOTE: Elimination of roof penetrations is a priority. Whenever possible - vent exhaust through the exterior wall away from any air intake in lieu of penetrating the roof.
07 72 00.03	Therm-Moist Protection	Roof parapets		Parapet walls will be a minimum of 42" above roof deck and roof insulation to improve roof uplift to 90 mph and provide fall protection at building perimeters. Use fire resistive wood for parapet blocking only if required by local code official.		Provide safety from falling at all roof edges that are over six feet (**6'**) above grade or next surface. If parapet height is less than OSHA guardrail requirements, supplementary guard railing or fall protection system must be installed. If guardrail is used in lieu of a perimeter parapet structure, the railing must withstand 250 lb. of force. No stone, masonry or precast parapet caps. Fall protection will fully meet or exceed OSHA requirements at the time of installation.
07 72 26	Therm-Moist Protection	Roof Ridge Vent		For gabled roofs - provide roof ridge vent detail same as for Thompson Park Center Project in West St. Paul.		
07 72 33	Therm-Moist Protection	Roof Access		Provide internal stairways to all roof levels. A ships ladder may be permitted, but alternating treads are not allowed. Minimum roof opening size to be determined for each project. Place roof access openings minimum of 15 feet away from roof edges in strict conformance with OSHA requirements. Hatches will be fully insulated to R38, high security, provide a fall protection railing around the opening perimeter and be structurally rated to meet uplift/load capacity of the roof itself.		Owner to approve make and model of access hatch.
07 72 46	Therm-Moist Protection	Roof walkways		Provide access walkways to all roof mounted equipment that protect the roof membrane and system.		Compatible with roof system. Walkway pads must be and remain firmly attached to the roofing system. Need recommendation from consultant on what to use that will stay in place and not crumble.
07 72 53	Therm-Moist Protection	Snow Guards		Snow / avalanche guards will be provided on all steep slope metal roofs.		
07 81 16	Therm-Moist Protection	Applied Mineral Fiber Fireproofing		Gypsum - Cementous type as defined by UL. Spray fireproofing is required for standard steel beams and columns, bar joists and metal decking, lintels and structural steel in bearing or exterior walls. All materials and construction practices used will be listed by Underwriters Laboratories for hourly rating requirements. Conform to ASTM E605-77(82) for thickness and density test methods.	Grace Monokote Isolatek Intnl CAFCO 300.	Building determines 2 hour and 4 hour fire rating requirements. Minimum requirements are 2 hour for steel beams, columns, bar joists and metal decking - and 4 hour for lintels/structural steel in exterior bearing walls. Materials will be provided from a single manufacturer. Must be Factory Mutual approved. Any material that may have questionable content or is manufactured outside the United States **must be domestically tested and certified** to be free from any contamination or hazardous materials. Fireproofing materials will be made from post-industrial and post consumer recycled materials when available.

CSI	Section	Item	A	Standard	Reference	Additional Comments
07 81 23	Therm-Moist Protection	Intumescent Mastic Fireproofing		Intumescent paint type fire-proofing may be used in high traffic and visible areas only if it can be demonstrated to the Owner that a smooth high quality cleanable finish can be achieved.		Must be Factory Mutual Approved and UL Rated.
07 84 00	Therm-Moist Protection	Firestopping		Specify product suitable for application and approved by local code official.	3M, Grace	Fire stopping will be Installed at all penetrations through fire rated partitions. Firestopping must achieve the partition fire rating. There are a number of products including putty, pillows, sealants and foams. For cable trays use removable type barrier pillows such as 3M intumescent fire barrier pillows.
07 90 00.01	Therm-Moist Protection	Sealant - exterior		With foam back rod - up to 3/4 inch compatible with sealant.	Dymonic by Tremco	ASTM C920-87. Fed Spec: TT.S 00230C. Use appropriate grade for application. Since sustained adhesion, durability and weatherability continue to be issues, verify the correct exterior sealant with Owner prior to specifying or approving for installation. No sealant will be installed when ambient is below 32 degrees.
07 90 00.02	Therm-Moist Protection	Sealant - precast / masonry		With foam back rod - up to 3/4 inch compatible with sealant.	Dymonic by Tremco	Same as for exterior sealant.
07 91 13	Therm-Moist Protection	Preformed Compression Seals		Also known as Bridge Seals. Use preformed compression seals in wall joints greater than 3/4" that are installed with very straight lines.	MM Systems Corp.	
07 91 23	Therm-Moist Protection	Preformed Backer Rods		Used closed cell backer rods only.		
07 91 26	Therm-Moist Protection	Preformed Joint Fillers		Preformed closed cell neoprene expansion joint fillers may be used in wall construction for areas such as building addition intersects greater than 3/4"	MM Systems Corp.	
07 95 13	Therm-Moist Protection	Expansion Joint Cover Assemblies		All expansion joint covers will be aluminum.	MM Systems Corp., Nystrom	Architect design must be approved by Owner.
08 06 71	Opening- Door	Locks		Owner specifies	Schlage	
08 00 00.01	Doors	Keys		All Exterior and Card Reader Doors: Schlage Full Size Interchangeable PRIMUS 6 Pin Master Key System All other doors (unless directed by the county): Schlage Conventional Full Size Interchangeable 6 Pin Master Key System. Padlocks will use the Schlage Conventional Full Size Interchangeable 6 Pin Master Key System	Schlage Primus	Owner provides final lock cores and keying under separate contract.
				Owner will provide construction cores as needed for contractor use during construction.		Verify with Owner
				Contractor installs construction cylinders if needed.		County owns 40-50 temporary cores and keys that can be used. Verify number and availability with Owner.
				All mortise cylinders are provided by Contractor. Provide cylinder to accept Schlage Full Size Interchangeable Core (LFIC).		
				Permanent key blank will be Schlage on all locks (see above)		Contractor provides two (2) keys per new lock with (0) cut/bitted.
				Owner makes final key cuts under separate contract.		
				Keyway will be Schlage PRIMUS for each project, by Owner.		

CSI	Section	Item	A	Standard	Reference	Additional Comments
08 00 00.02	Doors	Door Hardware		Mortise Locksets - Schlage L9000 Series.		Electric Strike preferred over Electrified lock. If Electronic Lock is required the electrified option preferred to be 24VDC L9080EU. Standard functions are L9080 or L9050
				Cylindrical Locksets - . Schlage ND Series		Mortise Lockset preferred over cylindrical. Electric Strike preferred over Electrified lock.
				Exit Devices - Von Duprin 99 series.		Electrified exit devices preferred to be supplied with 24VDC QEL option. Vertical Rod exit devices are discouraged, but should be used wtith top rods only.
				Deadbolts - Schlage B660P		Provide at all conference room doors that lead to public areas of the building for safety/security reasons.
				Electric Strikes - Von Duprin 6000 Series or HES 1006 Series		Von Duprin **6210** is the preferred standard strike. HES 1006c electric strikes may be used on interior card reader doors. On interior doors with a deadbolt HES 1006c with deadbolt keeper is the preferred strike but the Von Duprin 6400 with deadbolt keeper may be used.
				Electronic Power Transfer - Von Duprin EPT-10		Door cords are discouraged and only acceptable in private spaces.
				Power Supplies - Von Duprin PS914 or Altronix AL600UL		Power supplies preferred to be provided by Security contractor and **centrally located** with Access controller. Exit Device QEL is preferred due to low current.
				Heavy and High Traffic Door Closers - LCN 4040XP		High traffic doors are main entrances, normally closed corridor doors, and main office entries.
				Automatic Openers - LCN 4640		Where Auto openers are used on card reader doors, Access control to disable card reader side actuator button when door is locked. Request to exit to unlock door when exiting or interior actuator button to trigger access control to unlock the door. Power supplies with auto operators shall be provided by the contractor and at each opening.
				Door Holders - IVES FS1153 or LCN SEM 7800 series		Kick down Door Holders are unacceptable. Plunger style is preferred.
08 06 71.01	Opening- Door	Magnetic holds		To be specified and Installed on all meeting rooms, non-secured corridors and assembly rooms.		Use magnetic holds whenever there is a great potential for doors to be propped open for convenience.
08 06 71.02	Opening- Door	Panic Hardware		Owner to specify manufacturer, make and model	VON DUPRIN ONLY	Focus on least amount of maintenance - provide with electric strike. **Do Not Use Precision/ Stanley**
08 06 71.03	Opening- Door	Stops		Provide stainless steel door stops for all doors to protect walls etc.		Private offices may have wall stops. All others will be firmly anchored to the floor or an integral part of the door hardware.
08 10 00.01	Opening- Door	Passage		All managers and supervisors private office doors will be individually key locked.		
08 10 00.02	Opening- Door	Exterior Vestibules		Design of vestibules shall be such to mitigate the effects of wind (perceived wind tunnel effect).		This may require automatic door operators which are separate for each door in the series.
08 31 16	Opening- Door	Access panels		24 x 24 inch - into all non-accessible areas i.e. restrooms		All locking. Access panels will be handled case by case. Access doors for jail area plumbing chases and all public ganged toilets will be full height.
08 34 13.01	Opening- Door	Garage Service Doors		3" thick energy saver with window at eye level	Midland Garage Door Co.	Midland door will be used for small dock openings.
08 34 13.02	Opening- Door	Large Door Openings	A	Types of large door specifications will be handled case by case, be very energy efficient with multiple doors interlocked to conserve energy and retention of tempered air. Refer to 2025 large door study (Appendix item) for more information.	~~Bi-Fold Doors~~	Large Truck access doors will be high insulated biparting with hydraulic operators or high energy efficient high speed roll-up doors. Light weight doors are not to be used for high security areas or detention areas vehicle sally ports.
08 41 19	Opening- Door	Exterior Entrances		Anodized or powder color coated aluminum is the standard. Consider 316 stainless steel at staff and other non-main entry doors. Maximum door opening heights will be 7'-0" unless approved by Owner.		No coated ferrous metal / steel or field painted doors except for jail areas. Any exception must be approved by Owner in writing.
08 42 29	Opening- Door	Main Entrance		Air lock vestibules will be provided between buildings or building sections that are independently ventilated.		
08 42 33	Opening- Door	Main Entrance - High Security		Security revolving doors - Use specification for Judicial Center check point entry.		
08 44 00.01	Openings - Window	Window Frames		Window Curtain Wall System to provide minimum R-value of 7	Wausau or Kawneer	Specify glazing installation and reglazing from the interior for 3rd story and above. Verify need for interior "removable-type" stops. Interior stops only will be used for all window installations above 30 feet.

CSI	Section	Item	A	Standard	Reference	Additional Comments
08 44 00.02	Openings - Window	Curtain Wall and Glazed Assemblies		In general - all exterior window systems in County buildings will be curtain wall assemblies having an integral 100% thermal break. Only premium high performance systems will be specified from each approved manufacturer. U-Factor to be less than 0.30 for all installations and less for large installations. Type of glazing will be determined by the County Project Manager based upon the security needs of the facility. Highest current performance is triple glazed with Argon or Krypton gas fill.	Wausau, Kawneer (Alcoa Co.)	Wausau - HP-WALL w/triple insulated glazing/ 2 low e panes (no neoprene) Kawneer - 7500 Wall w/triple insulated glazing/ 2 low e membranes. Laminated glass may be needed for storm proof high impact applications above 100 mph. Verify acceptable manufacture systems with Owner during design. Note: Visionwall 3 and 4 element units are not options at this time.
08 44 00.03	Openings - Window	Curtain Wall and Glazed Assemblies - Sun Control		Owner to approve case by case. These refer to external sustainable design components that provide building and interior shading.		Each window system manufacturer has various types of sun control (shelves, awnings, blinds etc.) that can be specified as part of the curtainwall system. Verify with Owner during design. Any approved system cannot interfere with window cleaning above 2 floors. Note: Exterior shades are highly susceptible to wind and hail damage.
08 45 00	Openings - Window	Translucent Panels		Translucent panels may be used only with Owner approval. Minimum requirement is that all panels be 100% thermally broken and have a U value of 0.05 or less (R value of 20). Maximum light transmission will be 20%. NOTE: NO GLASS BLOCK IS PERMITTED IN ANY EXTERIOR WALLS.	Kalwall Corporation	Translucent faces shall be manufactured from glass fiber reinforced thermoset resins specifically for architectural use. Thermoplastic (e.g. polycarbonate, acrylic) faces are not acceptable. The full thickness of the exterior face shall not change color after five (5) years outdoor exposure. Panels will have a full thermal break. Faces shall conform to FM 4411 Class 1 wall system approval. Nanogel (Kalwall) with 20% light transmission provides R20 per Manufacturer. Panel design must equal or exceed 90 MHP basic wind rating for new construction. Typical installation for translucent panels is clerestories.
08 50 00	Openings - Window	Borrowed Light		Interior windows will be provided to allow natural daylight to reach interior occupied spaces. Windows will be a minimum of 24" above finished floor or grade and at least 24" below finished space ceilings.		
08 80 00.01	Openings - Window	Glass		Use triple glazed high impact resistant glass with 2 premium low-e surfaces, 1¾" to 2" max depth and lowest U value attainable in industry (0.15 summer or less). Laminated section to sustain 120 mph or greater. Airspace gap to be 5/8" with 90% Argon fill. Exterior Low "E" (emissivity) - For new Construction use clear with effective UV reflectance to minimize UV to <1%. For existing buildings use - green, blue or gray tint to match. In all cases, Owner will approve exterior glass color. In general, existing glass color will be matched to original buildings for additions unless directed otherwise by Owner representative. For entrance doors, borrowed light and public counters - All interior glazing at public level will be a minimum 1/4" tempered glass including entrance doors and sliding service windows. All exposed glass edges, including tempered glass will be polished.	Custom Glass Products or Equal	Maximum acceptable U-Value of insulating glass is .18 Winter and .15 Summer. U values to be calculated based upon a 70 degree variation from inside to outside 70/0 degrees with outdoor air velocity of 15 mph for winter and 75/89 degrees with 7.5 mph outdoor air velocity for summer. Glass to have Solar Heat Gain Coefficient SHGC of less than 0.30. Visible Transmittance (VT) greater than 0.55. All glass will have Glazing Luminous Efficacy (Ke) of more than 1 (Ke = VT/SHGC). ANSI Z97.1 Standard and Federal Standard CPSC 16 CFR 1201. Federal Standard CPSC 16 CFR 1201, as well as state and local codes, require safety glazing material where the glazing might reasonably be exposed to human impact. NOTE: 100% post manufacturing glass is recycled at the plant. NO recycled glass from consumers is used at any float glass plant due to cost and potential for introduction of contaminants into the molten chrome float process. Average pay back ROI is 30+years. If a new or improved insulated glass system is to be considered, successful use and return on investment must be accurately demonstrated.
08 80 00.02	Openings - Window	Testing		Windows and complete window systems will be tested as directed by the Owner. Water test all windows, but air infiltration test only a small sampling. Testing Method B will be used from AAMA 503-14 Voluntary Specification for Field Testing of Newly Installed Metal Storefronts, Curtain Walls and Sloped Glazing Systems (current as of 12/18/17). Method B requires testing of the window, perimeter sealants and wall assembly conditions. Do not specify Method A. If testing sample areas fail - then all exterior window systems will be flood tested in accordance with AAMA - 30 psi "Hose Test".		At a minimum, Contract Documents will require two Owner provided random tests of each type of window system used for new construction. Retesting of failed tests will be at Contractor's expense and Contractor will reimburse Owner for associated independent professional inspection and review costs. AAMA (American Architectural Manufacturers Association) has also developed "Voluntary Guideline for Forensic Water Penetration Testing of Fenestration Products." (AAMA 511-08). This test method would apply to the Warranty period of the window system - and will be considered as part of these standards. Also evolving is the use of clear fluorescent penetrating dye and black light to examine parts for defects or damage. The water soluble dye creates a path from the exterior to the interior without damaging finishes.

CSI	Section	Item	A	Standard	Reference	Additional Comments
08 80 00.03	Openings - Window	Glass		No operable windows for security and energy efficiency reasons.		Operable window will only be considered if specifically required by a monetary grant received by the Owner. Any request for consideration of operable windows in County buildings in the future for sustainability or energy efficiencies can only be approved by the Owner.
08 80 00.04	Openings - Window	Glazing - High Insulation Value		Item held for future potential alternatives.		
08 88 19	Openings - Window	Glazing - Hurricane Resistant		Typical building glazing should be rated for 90 MPH basic wind rating. 120 MPH SUSTAINED (hurricane glass) will be **considered** for all new construction and used **for weather or security sensitive program areas** in all buildings.		
08 88 53	Openings - Window	Glazing - Security		Use impact resistant high-security glass in all high security areas including cell blocks, dispatch centers, etc.		
08 88 56	Openings - Window	Glazing- Ballistics Resistant		Glass and frame assembly will withstand up to 9 mm high caliber rifle shot.		
09 20 00.01	Finishes	Wall Gypsum Board		• Standard for all interior construction: 5/8" thick water and mold resistant, high impact. • Abuse Resistant at detention areas and elsewhere as determined. • Provide 5/8" gap between floor and wall board.		County realizes that standard is a premium product. This is understood and please specify this premium product.
09 20 00.02	Finishes	Wall Gypsum Board - Sound Proofing		• 5/8" paperless, mold-resistant soundproof drywall. To be used to improve existing or create new rooms with premium STC ratings. • Provide 5/8" gap between floor and wall board, acoustical caulk between floor and gypsum board.	QuietRock Panels by PABCO Gypsum or similar	Sound transmission (STC) rating of 50 to 58.
09 30 13.01	Finishes	Wall Tile		• Wall tile can be porcelain, glass or ceramic. • Sizes can vary but reduced grout joints is ideal. • All restroom walls, plus wet area walls are full wall tile preferred. • Wall tile above countertops at sink or wet areas.	TCNA Handbook	•Designer to be mindful of various tile manufacturers for grout joint alignment and thickness tolerances. • When mixing manufactures, nominal sizes can cause tile grout joints to not align over a long tile run. Designer to provide elevations of solution.
09 30 13.02	Finishes	Floor Tile		• Floor tile to be porcelain. • Sizes can vary but reduced grout joints is ideal. Coordination of tile size and pattern at drains need to be discussed/approved by County PM. • Floor tile needs to meet current DCOF standards of ≥0.42. • Rectified tiles are recommended.	TCNA Handbook , ANSI A-3.3.7, ANSI A137.1, ANSI A108.02-4.0/4.1	• Refer to TCNA for standard tile patterns and offset when tiles exceed 15" to be running bond of 33% or less to avoid lippage. • Lead time to be listed as a line item in specification. • If specifiying large format tile , the slab will need to prepared to receive a large tile. Surface variation should be no greater than 1/4” in 10’ and 1/16” in 1 foot, for tiles 15” or smaller. For tiles 15” or larger substrate flatness should be no greater than 1/8” in 10’ with no more than 1/16” variation in 24” when measured from the high points in the surface. • Architect/Designer to verify existing conditions with DC PM prior to specification of large format tile. • When specificying V3 and above, allow for extra sampling to show PM for approval.
09 30 13.03	Finishes	Grout & Grout Joints		• Grout joints not to exceed 1/8". • Use cementitious grout based stain resistance (Permacolor or similiar). • In food preperation areas consider epoxy grout that is stainproof, uniform in color that does not require sealing (Spectralock or similar). Flooring grout should be daker in color to avoid staining.	TCNA Handbook	• Laticrete or similar. • Architect to be submitted control samples from contractor.

CSI	Section	Item	A	Standard	Reference	Additional Comments
09 30 13.04	Finishes	Tile Cove Base		• In public restrooms and wet environments cove base is required. • Cove base can be specified through a tile manufacturer with either wall or floor tile. • If tile manufacturer does not provide a cove base a substitution of a stainless steel cove based profile.		• Accepted cove base profile include Schluter Dilex AHK or AHKA based on site conditions. Substitutions to be approved by city building official. • Color to selected by architect.
09 30 13.05	Finishes	Tile Edging		• All outside tiled edges of wall tile to have tile finishing and edge protection. • Tile adjacent to different floor finish or a higher or lower elevation need tile transition strip. Floor height not to exceed 1/2"		• Accepted wall edge profile is Schluter - Jolly. • Accepted floor finish at same elevation is Schluter - Schiene. • Sloped transitions need to be determined with existing conditions but stainless steel is recommended in high traffic areas.
09 30 16.01	Finishes	Floor Quarry tile		• For new kitchen installations, or when patching existing, use 6"x6" minimum - dark grout - limit use of quarry tile and provide only when requested by Owner. • If existing building - check slab tolerances to determine thin-set vs mud-set tile. If new building adjust specification for substrate tolerance and floor flatness to accept thin-set.	ANSI A108.02-4.0/4.1	• Use 50% or better post consumer - recycled materials. Special tile and grout sealer is required.
09 34 00	Finishes	Tile Waterproofing / Crack Isolation		• In wet conditions apply a liquid waterproof/crack isloation membrane to all surfaces and corners and walls.		• Accepted products Hydro Ban or similar. • Product will require flood testing. • Consider uncoupling membrane when the floor has heavy loads.
09 51 23.01	Finishes	Ceilings Acoustical		• 3/4" thick, 2' x 2' square ASTM C635 intermediate duty, Armstrong Optima 3150 basis of design. • Tiles will have recycled content to be determined by Owner. • Ceiling tiles will be recycled for all renovation projects. • Specify only 1" grid • Product to be Guaranteed for 30 years against sag, mold, mildew and bacteria. • Fire Rating to be UL Class A.	1.Armstrong World Industries. 2.CertainTeed Ceilings. 3.USG Building Systems.	Wire minimum 12 gauge pre-stretched. Provide 10% spares to Owner and include recycled content certification. Provide for minimum noise reduction coefficient NRC>.90 and lighting reflectance rating of 0.90 or higher for indirect lighting . Product must have recycled content of 70-75% and an expended materials recycling program in place at time of purchase. Note: High reflectance fiberglass panels will not support speakers, antennas or friction collar type light fixtures. Separate structural panels area required for these items.
09 51 23.02	Finishes	Ceilings Concealed Spline		Interlocking, concealed spline ceilings are not permitted in any location.	"	"
09 60 00	Finishes	Walk-off Carpet @ Entry Vestibules		• Walk-off carpeting (see carpet standards appendix) shall be used in lieu of recessed floor mats.		
09 65 13.01	Finishes	Resilient Cove Base		• VOC adhesive - 60% + Recycled. 4" Rubber straight base. For major new installations - Color: Burnt Umber. Review In other areas - try to match existing. • In remodels, the use of 4.5" base is recommended to avoid patching and repairing of drywall.		• Non-rubber base (wood, stone, etc.) may be used in certain public accessible areas. NO carpet base will be installed at exterior walls. For all detention areas, security caulking will be used in lieu of base flashing.
09 65 13.02	Finishes	Resilient Finishing Accessories		• Where two flooring finishes (carpet to resilient flooring) are adjacent to each other a floor finish transition or threshold will be required. • When new specification occurs: Johnsonite: Burnt Umber		• Where adjacent flooring finishes differ in height/thickness an adapter will be required. Height not to exceed 1/2". • Accepted products are Johnsonite Metal Edge and Johnsonite Thresholds.

CSI	Section	Item	A	Standard	Reference	Additional Comments
09 65 19	Finishes	Floor Resilient tile - VCT		• Should only be used where budget is a stong concern or matching existing. • Flooring in data roooms to be stattic dissipative resiliient flooring.	• Tarkett/Johnsonite, Armstrong (If available)	• Acceptable at areas where flooring would get water damage. convenience stations 3' minimum. • This material to be applied in areas that have the greatest potential for damage by activity i.e. food, coffee, duplicating equipment, laboratories, etc. Janitor closet - convenience stations 3' minimum. • This material is not ideal with new additions of resilient flooring.
09 65 19	Finishes	Luxury Vinyl Tile		• LVT (Luxury Vinyl Tile) w/ manufacturer recommended adhesive based on locations. • Minimum of 20 mil (high traffic) durable **wear layer** is recommended for commerical traffic. • Microbevel • Size could be plank or squares. • Installation method dependent on style and size. • Consider thickness as it is adjacent to other flooring materials. 2.5mm is acceptable with a transition. Most manufacturers do offer 5mm (overall thickness) for seamless transition to carpet but it will depend on project budget. • Do not use embossed LVT because it collects dirt easier.	• Manngington or similar	• Acceptable at areas where flooring would get water damage such as kitchenettes. • This material to be applied in areas that have the greatest potential for damage by activity i.e. food, coffee, duplicating equipment, laboratories, etc.
09 65 43	Finishes	Linoleum Flooring		• Use of linoleum product can be discussed, particularly to match adjacent/existing. • Review price comparision of LVT vs linoleum floor. • When sustainablity goals are a factor, use linoleum.	• Forbo - Marmoleum	• Use in areas similar to LVT, but where large sheet goods are needed.
09 66 13.01	Finishes	Epoxy Floor Terrazzo		• 3/8” thick epoxy terrazzo over a concrete slab/deck can be used at very high traffic areas, such as libraries and lobbies when budget allows. • Epoxy terrazzo can be installed over an existing terrazzo flooring system. • Matrix epoxy polymer can be any color. • The type of aggregate choice plus size determines the design. The larger the aggregate, the more expensive the design. Color and type of aggregate will also drive the cost. Specialty aggregate not to exceed 50 percent of the mix. • Metal divider strips are used to control cracking at column lines and expansion joints but also enhance the design.		Follow recommendations from the NTMA - National Terrazzo & Mosaic Association, Inc.
09 66 13.02	Finishes	Floor Terrazzo		Full depth terrazzo. Use in High Traffic entry and gathering areas only. Pattern will be standard size 2 (¼") or as approved by Owner. 20% recycled glass will be included in the terrazzo chip mix. Terrazzo system will be 2" bonded including .5" terrazzo topping on structural concrete slab. Concrete slab will be minimum of 5". Terrazzo dividers will be brass 1/8" wide or as approved by Owner. Contraction and expansions joints will be placed so that no cracking occurs in the terrazzo field. Use only white Portland Cement.		Use only where matching existing.

CSI	Section	Item	A	Standard	Reference	Additional Comments
09 68 13.01	Finishes	Floor Carpet Tiles	A	• 100% Nylon 6 materials. • Solution Dyed • Face density will be 5,500 or greater. • Design selection will be from existing manufacturers standard patterns, designs and colors. No custom colors or patterns. Custom colors may be used to match existing if necessary but only with approval by Owner. • New locations can be exceptions to this rule and based on approval of PM. • The use of releasable adhesive location to be reviewed with owner such as high traffic areas. • It must also be nonflammable and water-resistant. Carpet must pass Federal Flammability Standards and be CRI Green Label Certified. • 100% PVC free backing with recycled content.	Interface, Mohawk, Shaw, Mannington	• Sustanbility efforts vary per manufacturer. Consider Cradle to Cradle certification and high Total Recycle Content. • Four (4) or less carpet patterns/colors will be used per facility or renovation project. • Consider layout to mimimize waste. • Review specifcation and amount of attic stock with PM as this can add additional cost to the project as well as storage issues at facitilies.
09 68 13.02	Finishes	Textile Composite Flooring		• Knit/woven/braided solution dyed fiber • Felt cushion • ASTM E96-16, Standard Test Method for Water Vapor Transmission Materials. • ASTM-F 2170-2 relative humidity probe moisture testing is required • Specify aggressive, pressure-sensitive adhesive designed for the installation of Kinetex textile composite flooring modules is required per manufcturer recommendations. • Provide aluminum edge with lip to protect edge.	J & J Kinetics	• A tight installation without compression is mandatory for optimum performance and appearance of the modular installation. • Review specifications on subfloor substrate requirments. • Review specifcation and amount of attic stock with PM as this can add additional cost to the project as well as storage issues at facitilies. • When cleaning use moist cloth when when product is wet. When product is dry, use a solvent based product applied to a towel for the removal of contaminants.

CSI	Section	Item	A	Standard	Reference	Additional Comments
09 68 13.03	Finishes	Flocked Carpet Tile		• Flocked Floor Covering 100% Nylon, Type 6.6 wear layer with an intermediate fiberglass layer. • Vinyl cushioned backing. • 100% bulk continuous filament. • Minimum density of 5000 •V1190 pressure sensitve adhesive will allow replacement. • In behavioral health, corrections and jails - Sustain 1195 recommended for a full wet set/permanant adhesive. • Manufacturer shall utilize a testing lab that is NVLAP accrediated labortory.	Forbo Flooring	• Adhesive system providing a watertight installation. • Review specifications on subfloor substrate requirments. • Review specifcation and amount of attic stock with PM as this can add additional cost to the project as well as storage issues at facitilies. • Cleaned primarily with water and commecially available detergents.
09 68 13.01	Finishes	Carpet Adhesive Options		• Self releasing adhesive will be used for carpet tiles in all areas. Owner to determine schedule for use of carpet squares and roll carpet for special applications such as stairways with Designer. . • Adhesive must be water based - releasable and have low to no calculated VOC's. • Coordinate carpet install to be done with limited staff in building.		• Review specifcation and amount of attic stock with PM as this can add additional cost to the project as well as storage issues at facitilies.
09 68 13.02	Finishes	Carpet Recycling		• The County is a responsible stewardship of recycling existing carpet. Recyling efforts will vary per manufacturer. • Research existing installed carpet tile in replacements and condider specifying a manufactuer that will work for proper disposal. • Include these items clearly in specification so bidders are aware of this item and they account for any additional labor. Ideally, this will be very low to zero cost. Not all carpet can avoid landfill such as broadloom. • Custody chain (recycle certificate) will be required by installer at the end of project and submitted to project PM. • Use local waste to energy plant with verifiable delivery receipts for all disposed Dakota County carpet if carpet does not qualify to be recycled.		• The 1st Goal is to maintain installed carpet as long as possible to get full value of the installation and reduce the need for disposal. If carpet is in very good condition, there are a few companies in the Metro that reuse carpet. • There is a careful balance between the cost and consumed energy in the recycling process since most of the mills are in Georgia. Each option must be carefully researched and benefits analyzed for each project. • Most carpet program guidelines vary based on yardage.
09 69 00	Finishes	Floor - Raised Access		This system is very project specific and has traditionaly been used in data centers. Details of the construction should be disussed on a project by project basis.	Tate Access Floors, Inc. Access Floor Systems	
09 72 00	Finishes	Wall Coverings		• If it is used, it cannot be applied to exterior walls. • Vinyl, Type II (20-32 oz) Commercial Grade. • In corridors with heavy traffic and movable equipment consider a Type III wallcovering with over 33 oz.		If wall covering is removed from the wall, substantial preparation is needed before paint is applied. As such, consider using vinyl where wall covering is already used.

CSI	Section	Item	A	Standard	Reference	Additional Comments
09 91 23	Finishes	Wall Paint Interior Surfaces		• NO - VOC interior latex paint - use color schemes from manufacturers standard palette to eliminate addition of VOC pigments. • Always provide a minimum of 3 draw-down samples for submittal approval. • DC Standard is Sherwin Williams but substitions can be recommended. • Eggshell or Satin Finish for walls. The use of semi-gloss should be verified with PM.	Sherwin Williams, Benjamin Moore, Glidden	• Manufacturer and contractor must demonstrate 100% recycling of buckets - no land fill disposal. • When considering recycled primer - a test area must be coated and allowed to completely cure prior to Owner approval for use to ensure the material is suitable for the application. • Specify that contractor will remove all leftover paints, sealants and adhesives from site. All excess full gallon paint to be turned over to the Owner for future use.
09 96 00	Finishes	High-Perfomance Coatings		Provide high performance coating fluid applied coatings wall, floor and other items intended for applications requiring better scrub-ability and durability than normal, increased chemical resistance, or increased protection from corrosion.	Sherwin Williams	• Sherwin Williams, Pro-Industrial, Water-based paint. • In detention areas: Sherwin Williams - Pro-Industrial, B-53 series, single component water-based alkyd urethane epoxy. In detention cells: Pro-Industrial, B73-300 Series two component water-based epoxy
09 96 59	Finishes	High-Build Glazed Coatings/Epoxy Coatings		In detention areas, this coating system is preferred in all showers to form a continuous, non-tiled/grouted, waterproof finish.		The PrimeCoat system has been used by the County for retrofit applications. Other similar systems should be explored for new build applications. So as not to single-source a product, alternates including High-Performance Coatings (09-9600) should be considered.
10 10 00	Specialties	Visual Display Surfaces		Marker Boards and tack boards will be specified by the Architect. All items will be hung on carrier hardware or wood furring. **No items will be directly glued to any gypboard surfaces**.		
10 14 00.01	Signage	Interior Signs		Signage may be included under separate contract to the Owner. Unless approved by the County's PM, signage is part of the project design. Signage specification will be prepared by the Project Architect and approved by the Owner.		Provide all code required signage (elev equipment, egress, restroom etc.) plus public meeting rooms and suite entry signage. Signs within an office suite, including those for cubicles are the user's responsibility. Signage Standard lettering, etc. will be provided by PM.
10 14 00.02	Signage	Interior Signs - Library	A	The Dakota County Library has specific terms for wayfinding.		Project plans and any signage produced should align to these standard wayfinding terms.
10 21 13	Specialties	Restroom Partitions		Consider the fire resistance of partitions as paramount. Dimpled, heavy gauge stainless steel, or modified plastic partitions, with heavy duty continuous piano hinges are to be used. Use only 316 Solid Stainless Steel hardware. Use hollow pin torx fasteners with 5 year guarantee against any corrosion. Type 304 stainless is not acceptable unless specifically approved by Dakota County's CPM Project Manager. Plastic partitions can no longer be specified as 100% recycled plastic for water closets and urinals, unless a fire retardant additive to ensure UL listing compliant is provided AND unless specifically approved in writing by the CPM Project Manager.		Partitions will be structurally supported from the ceiling. Floor mounted partitions can only be used with Owner written approval. In rare instances, panel plumbness and rigidity may require some floor connections/mounting. For large ADA toilet enclosures - provide solid walls between adjacent unit to partition door. Avoid Poly Solid Plastic by Metpar Corp. All doors to receive coat hooks secured with fasteners to bear heavy loads.
10 22 26	Specialties	Operable Partitions		Use specification for Northern Service Center as standard.		FM confirms that NSC partitions are working OK. Installer has been responsive to maintain partitions.
10 26 13	Specialties	Corner Guards		Provide at all corridor and high use area corners. Corner guards will be surface mount only with 3" X 3" 2 piece snap on design.		Do not use recessed type. Use Terpromark TCG-75S series aluminum retainer, pvc impact absorber, vinyl cover with end caps. Color selected by Architect, clear can be used at staff areas.
10 26 23	Specialties	Protective Wall Covering		Provide a sheet of stainless steel to 4' height minimum around slop/floor sinks (often in Janitor's closets). Stainless steel is preferred over the otherwise commonly used FRP sheet.		

CSI	Section	Item	A	Standard	Reference	Additional Comments
10 28 13.01	Specialties	Restroom Towel Dispensers - Cloth		Cloth dispensers are no longer used at the County. In the past, they've used at Parks facilities for a 2nd means of drying hands (beyond the standard electric hand dryers).		Cloth dispensers are no longer used at the County.
10 28 13.02	Specialties	Paper Towel Dispensers		Provide stainless steel slim line - multifold (3 Fold) paper towel dispensers in all non-park restrooms, kitchenettes, laboratory and public health examination rooms. No paper towel dispensers shall be used at Parks facilities. Locate near sinks to avoid drips. Architect shall still provide location.	Bobrick B-262	New wall mounted dispensers provided and mounted by Owner.
10 28 13.03	Specialties	Electric Hand Dryers		One electric hand dryer for every two sinks at public restrooms. No high velocity driers in "noise sensitive" areas. Locate in an area so as to avoid drips.	World Dryer Corps. Model # Q-973A, with stainless steel shroud including "SteriTouch" antibacterial protective finish (or equivalent as approved by the County).	New wall mounted dryers provided and mounted by Contractor.
10 28 13.04	Specialties	Soap Dispensers		Owner provides soap dispensers. Architect to provide location.		Convert to volume fed foam type dispensers to eliminate waste.
10 28 13.05	Specialties	Combination Paper Towel & Semi-Recessed Trash		Provide semi-recessed stainless receptacles.	Bobrick B-3942 or similar	Owner may provide free standing units in lieu of built in units. Freestanding would include a black "step on" (hinged lid) trash receptacle and a green organics container for paper towels.
10 28 13.06	Specialties	Mirrors at 2 or more Sinks		Provide mirrors from top of vanity to light fixture or ceiling. Mirrors are to be mounted with concealed security fasteners.		Use best quality impact resistant glass for all courts and high traffic areas. Mirrors will be sealed between frame and glass to prevent chemical damage to mirror during cleaning.
10 28 13.07	Specialties	Mirrors at a single Sink		Use a tempered and framed 24x36 solution.	Bradley 781-24362 or similar	Bottom of reflective surface (not frame) to meet MN Accessibility Code.
10 28 13.08	Specialties	Toilet Paper Dispensers		Provide Bobrick B-2740 unit. Use 2 units in each stall for 4 rolls in large volume areas.	Bobrick B-2740 or similar	
10 28 13.09	Specialties	Sanitary Napkin Disposal Receptacles		Provide hard surface "cleanable" disposal units with disposable liners. Mount all units ahead of water closet. No receptacles will be mounted behind or below toilet. Stainless steel box receptacles with uncleanable interior corners are not acceptable.	Bobrick B-270 or similar	Evaluate type that empties from bottom similar to hospital installation.
10 28 13.10	Specialties	Baby Changing Stations		Provide in both male and female public restrooms. Units will be plastic and surface mounted.	Koala Bear Kare KB100 or similar	Do not place units within handicapped toilet stalls.
10 75 16	Specialties	Flagpoles		Ground-set, internal halyard lines and internally/top lighted is preferred. All flagpoles should have an insulated plug near the base, but still above grade to prevent internal lines from freeing into a block of winter ice.		Customarily, all public County buildings require 1 if not 3 flagpoles. Number of flagpoles depends on the building and should be confirmed with Dakota County.
11 13 13	Equipment	Dock Bumpers		Constructed of 100% recycled "post consumer" tire rubber material.	Durable Corporation	
11 13 19	Equipment	Loading Dock Levelers		Specify same electric - hydraulic unit installed at Northern Service Center	Rite-Hite	Provide for buildings 100,000 sf or larger.
11 23 00	Equipment	Laundry		Commercial Washers and Dryers. Washers and dryers will be considered case by case. Residential type washers and dryers are not installed in County Office Buildings due to water damage and venting problems.		Industrial washers and dryers for Jail, JSC. Parks Dept. provides laundry mat type at Camp Grounds.
11 31 13	Equipment	Kitchen Appliances		Owner's Project Manager will coordinate purchase/selection of appliances (refrigerators, microwaves, dishwashers, etc.) with Facility Management Purchasing Technician.		Color and manufacturer selections may be predetermined.
11 51 13	Equipment	Automated Book Storage & Retrieval Systems	A	Automated Material Handler (AMH) systems for libraries are an FF&E item, but must be coordinated within the design of any library project.		A dedicated fire suppression system for the exterior book drop is **REQUIRED** and must be provided by the AMH vendor. AMH will also have a connection to the building's fire alarm system. Some manufacturers will submit without the required fire suppression system, check all submissions.

CSI	Section	Item	A	Standard	Reference	Additional Comments
11 51 23	Equipment	Library Cantilever Stack Shelving	A	Stack shelving for Libraries are typically 25" in total width (end cap) and vary in height. Although shelving is an FF&E item, it must be coordinated within the design of any library project.		Normally procured through a CPV contract.
12 21 13	Furnishings	Window Blinds		1) Standard is 1" aluminum horizontal louver blinds. Color chosen by Architect and approved by Owner and generally should match the color of the window frame. 2) Opaque roller window shades should be used for "Lockdown /Emergency Refuge" areas with doorway glazing adjacent to public areas.	Levelor	Manufacturer must demonstrate commitment to sustainability and provide accurate data on the amount of recycled content used in the manufacture of all blinds systems. If a wood horizontal louver blind is approved by the Owner for a specific application, the manufacturer must demonstrate that only FSC certified lumber or equivalent is used in the finished product. No exotic species will be used for any wood application. Wood will be oak, cherry, maple or poplar.
12 36 00.01	Furnishings - Countertops	Plastic Laminate		• Plastic laminate tops shall be used in non-wet areas. • Textured laminate not to be used on horizontal surfaces. • GP48 Standard Grade for Horizonal, GP28 Horizontal. • Bevel or Square Edge.	• Formica, Wilsonart, Pionite or Similar	• Designer to be mindful of laminate seams when speciifying patterns. • If interior cabinet color is important, designer to include in millwork shop drawings.
12 36 00.02	Furnishings - Window Sills	Solid Surface		• Use 1/2" solid surface (Corian or comparable) at window sills. • Not for use of countertops.	Corian by Dupont	• There are approximately seven different price points for Corian. Select from the lower end (bottom third) price point products.
12 36 00.03	Furnishings - Countertops	Quartz		• Use in wet locations and select areas ONLY as approved by the CPM Project Manager. • 2cm on appropriate substrate. • Preferred in fully functioning kitchen areas that do not otherwise require stainless steel counters. • Mitered Straight Edge • Could be used in backsplash in wet areas in leiu of tile.	ASTM C616/C616-15	• There are different price points for Quartz. Select from the lower end (bottom third) price point products. • Do not need to do brand specific.
12 48 13	Furnishings	Rugs and Mats		Provided by Owner except for entry vestibule knock off mats. Exterior Entrance Floor Mats and Frames will be specified and approved by Owner. Contractor will provide both as part of construction contract.		See also section 096000 for entry vestibule matting requirements.
12 50 00	Furnishings	Office Seating		• Wyzenbeek (Double Rubs) to be appropriate for specification. • Coated upholstery on seat is recommended.		Percent of recycled content will be based upon product availability and life-cycle cost effectiveness.
12 55 13	Furnishings	Detention Bunks		Free-Standing Double Bunk Beds. Bottoms: Two 10 gauge perforated steel sheet, front and back flanged 2" down and up, will all corners rounded. Frames: 2" x 2" x 3/16" steel angle welded securely to legs and bottom pan. Legs: Four 2" x 2" x 3/16" steel	Chief Industries	NO GAPS BETWEEN BUNKS AND WALLS. Current mattress dimensions are 26" x 75-1/2" - For new cell block construction - address issue of single occupancy initially and double bunk retrofit in selection of bunks.
12 55 16	Furnishings	Detention Desks		Top: 10 gauge stainless steel, flanged 1-1/2" at back and down in front, with 15" galvanized steel towel bar. Top - 36" x 15-1/2". Seat: 12" diameter, 16 gauge stainless steel with arm to swivel under desk. Shelves: 2 shelves with sides, 12 gauge.	Chief Industries	No gaps between desk and wall.
12 55 19	Furnishings	Detention Stools		Seats: 12" diameter, 16 gauge stainless steel. Seat Supports: 2-3/8" diameter black iron pipe support and mounting plate with security screws. Height: 18". Shop primed.	Chief Industries	

CSI	Section	Item	A	Standard	Reference	Additional Comments
12 55 23	Furnishings	Detention Tables		Table Top: 10 gauge stainless steel. Supports 3" x 3" x 3/16" and 4" x 4" x 3/16" steel tubing, shop primed. Seats: 12" diameter, 16 gauge stainless steel.	Chief Industries	
12 55 26	Furnishings	Detention Clothes Hooks		Auto Release Clothes Hook(s). 14 gauge Type 304 stainless steel, all welded construction. Security screws.	Acorn	Model 1830 - Single Hook. Model 1828 - Four Hook Panel
12 55 83.01	Furnishings	Detention Mirrors		Type 2 - 16" x 12" Rear mounted mirror. Frame: 14 gauge Type 304 stainless steel. Mirror: 20 gauge Type 304 stainless steel polished to a No. 8 architectural finish.	Bradley Corp	Model SA01- Rear/Chase Mount. Model SA03 - Front Mount.
12 55 83.02	Furnishings	Detention Toilet Paper Holder		Type 2 - Seamless recessed cylinder. Type 304 stainless steel. Security Screws.	Acorn	Model 1840-FA.
12 55 83.03	Furnishings	Detention Grab Bars		Type 2 - Straight and L-shaped corner extruded aluminum bars, with integral continuous angle mounting profile and grip and radius edges.	Safebar	Through wall fastener anchors only. Fasteners will be 316 min 3/8" diameter thru bolts.
12 55 83.04	Furnishings	Detention Cuff Rings		Stainless Steel	Bob Barker	Model BBCR
12 59 00	Furnishings	Systems Furniture		Sizes and conditions vary per project. However, **Dakota County Workspace Guidelines** shall be followed - see also "DESIGN.2" for this appendix.		• Do not put any panels parallel/adjacent to walls or windows. • Leave walls open and accessible especially at exterior perimeter. • Furniture layout plan will be completed prior to and fully coordinated with wall switches, fire pulls, extinguishers and thermostat, etc. • Panel system modification will not interfere with final fire system locations approved by local code officials. • Fasten panel ends directly to wall where possible.
12 92 00	Furnishings	Interior Planters		Service Centers will have permanent interior planting beds.		
12 93 00	Furnishings	Bicycle Racks		Coordinate with specifications and Figure 7.6.1 from the County Park Standards - currently "Dero's Heavy Duty Hoop Rack at 2" dia. grade 304 satin finished stainless steel piping" for all buildings.		Number of racks will be decided by Owner case by case and zoning codes.
13 19 00	Special Construction	Kennels & Animal Shelters		There will be no interior to exterior accessible animal kennels in any County building.		
13 31 23	Special Construction	Fabric Structures		For salt and large area outdoor storage that requires roof protection for environmental run off potential - Tensioned Fabric Structures with 20 year minimum warranty will be specified.		
14 20 00	Elevators	Construction		Emergency power off with auto return to main level. All passenger elevators will be high speed and have high efficiency center parting doors. Freight elevators will be oversized for height and side parting oversized doors. Only Geared Traction freight and passenger elevators will be used for new or renovated construction.		Cars will gently return to main floor on power off and door opens. Owner requires center parting doors on all passenger elevators. California style vandal resistant call stations will be used in public lobbies and elevator cars. Provide for traveling communications and security wiring in elevator design. Clarify requirements with Owner during design. Consider new-type traction elevator that requires no head house for retrofits.
14 84 13	Conveying Equipment	Window Washing Scaffolding		Install permanent swing stage transport and dolly at roof lines for all buildings over 3 stories.		

CSI	Section	Item	A	Standard	Reference	Additional Comments
21 13 13	Fire Suppression	Fire Life Safety		All areas will be 100% sprinkled. Density of sprinklers will be determined by Factory Mutual standards and Current Owner Insurance carrier recommendations with Owner approval. Insurance Carrier is Facotry Mutual (FM).		Provide Concealed pop-down heads in all public areas/meeting rooms. All buildings 5000 square feet or larger will be 100% fire sprinklered. Buildings smaller than 5000 square feet do not need to be fire sprinklered unless required by local code official or owner. Adhere to most recent or stringent code requirements.
		Book Drops		County uses Novec 1230 or FM-200 systems. Fire Trace, Fike, and Kidde system are used at the libraries for this purpose. This suppression system needs to notify the onsite fire alarm panel upon activation.		All library book drops have their own suppression system to extinguish any fire which may pass through the library book drop.
		Fire Pumps		A fire pump will be installed on any building which does not meet the pressure standards for proper use.		The fire pump is to be appropriately sized for the building and located near the main line into the building.
		Chemical		Chemical suppression systems are only installed as required by NFPA or at the direction of the county. When possible, the area covered by the chemical suppression will be controlled by the main building's fire panel (main panel should also be used as a releasing panel). When the main panel cannot also act as a releasing panel, a Honeywell Notifier panel will be used as a releasing panel. The releasing panel will communicate with the building's main fire panel.		Chemical suppression systems by by UL compliant and meet NFPA standards.
22 00 00.01	Plumbing	SAC/WAC		The contract documents shall specify that SAC/WAC charges shall be passed through direct to the Owner.		Limit number of units to minimum possible to reduce impact upon environment. See also item # 010000.06.
22 00 00.02	Plumbing	Plumbing Connections		Use soldered ~~or ProPress~~ copper pipe connections. ProPress is allowed on a case-by-case basis for branch lines. ProPress is not allowed for branch lines sized larger than 2".		N/A
22 05 53.01	Plumbing	Identification tags/signs		Valve tags - Brass 19 gauge **or Plastic** 1-1/2" with fasteners		Provide ID tags on the grid surface of suspended ceilings with black font on a field of clear dots, with the name of the device (i.e.; "VAV 150"). Locate tag as close to the device as possible.
22 05 53.02	Plumbing	Identification tags/signs		Valve schedules - 8.5 by 11 laminated copies in holders		Provide in each mechanical room and janitor's closet.
22 05 53.03	Plumbing	Identification tags/signs		Piping - words and arrows at least 1/2 pipe size , minimum 1/2"		
22 05 53.04	Plumbing	Identification tags/signs		Piping - Underground ID at floor - direct bury tape above all underground utilities.		
22 07 19	Plumbing	Insulation - Piping Exterior		Full metal aluminum or stainless jackets are required for all exterior insulated piping		
22 11 00	Plumbing	Pipe Cleaning - all water		Owner 7 day notification is required. Piping systems will be cleaned and flushed in the presence of Owner's maintenance staff.		Owner maintenance staff must confirm that all systems are clean prior to operation.
22 13 19.13	Plumbing	Drains - floor		Ensure all floors slope to drains. Recess entire area to be sloped by a minimum of 2" for correct installation of sloped floors to drains.		Eliminate flat floors in wet areas. Provide recesses as necessary in structural deck. Recess finished floor elevations 2" to achieve positive drainage within and to all restroom and mechanical rooms. Areas not installed correctly will be removed and replaced prior to Owner acceptance. Exception - warehouse storage areas will be dead flat except in drive lanes. Drive lanes only will be sloped to trench drains.
22 14 26	Plumbing	Roof Drains		Provide only **interior** drains w/secondary overflow scuppers. Overflow scuppers will be one piece and project a minimum of **3"** beyond finished wall face. Scuppers will be one piece minimum 1/8" steel with epoxy coating. SWCD - Roof drainage will be managed in a way to reduce irrigation requirements, filter runoff, and minimize storm water impacts. Roof drainage will not be conveyed across parking areas, walkways and the like because the relatively clean water will contribute to the movement of pollutants (sand, salt, oils, etc.).		Drain below grade vs. surface. No primary exterior downspouts. Exception - For small areas such as elevator head house, stairs to roof, clerestory and mechanical penthouses - use only scuppers to drain onto adjacent roofs. SWCD 2008 - for water retention purposes, use new Lakeville Liquor Store water infiltration / irrigation for model. (160th St East of Cedar Avenue.)
22 16 16	Plumbing	Pipe Soil and Waste		All cleanouts will be easily accessible without moving furniture, equipment, mechanical or structural elements.		Locate logically. Cleanouts must be easy to locate and to clean out with a drain cleaning machine.

CSI	Section	Item	A	Standard	Reference	Additional Comments
23 00 00	HVAC	VFD Drives/Harmonics		Special consideration will be given to the location and proximity of all equipment that may produce transient harmonics or be sensitive to it. i.e. computer equipment, broadcasting equipment, transformers, VFDS, UPS, fluorescent lighting, LEDs etc. Fans and Pumps - Electrical Systems and VFD drive protection will be designed to prevent harmonic distortion from VFD Drives. A formal harmonic analysis will be performed if VFD drive loads are expected to be greater than 10% of total building power load.		Attention will also be paid to "reflected harmonics" and the potential for high voltage harmonic distortion is possible when large or multiple Uninterruptible Power Supplies are specified and the building includes an emergency generator. Total electrical system will be designed to accommodate and/or resolve harmonic issues and UPS failure events. New elevator systems will be shielded to prevent RFI affects in the surrounding building and neighborhood.
22 31 16.01	HVAC	Ductwork interior and UG (underground)		Allow adequate vertical and horizontal space to accommodate all ventilation and piping requirements in the building space program. No direct buried underground ventilation ductwork unless approved in writing by Owner.		The use of Revit MEP for Mechanical, Electrical and Plumbing will be used to eliminate this problem.
22 31 16.02	Plumbing	Water Softener		Use system with brine tank style. All make-up water for mechanical systems will be softened.		Provide secondary overflow containment and positive drainage connection to sanitary sewer for all water softening systems. Provide separate closet area for brine tank separate from mechanical room for bulk salt delivery to eliminate salt dust on mechanical systems. Locate tank closet at exterior wall.
22 33 13.13	Plumbing	Electric Water Heaters - restrooms		Instant on - point of demand spot heaters - hard wired when approved by Owner. Install recirculating domestic hot water system where applicable at Owner's discretion.		Water heater efficiency standard was increased in 2009 as part of Federal Stimulus grant. Verify current standard at time of design.
22 34 36.23	Plumbing	Gas Water Heaters - janitors		Provide both instant on and 30 gallon high volume.		Locate this unit in mechanical room near drain. Refer to "DESIGN.23" for permitting.
22 42 00	Plumbing	Plmbg. Fixtures - Motion Controlled		All restroom faucets, wash fountains and flushometers shall be individually motion sensor controlled.		Motion sensors shall be hardwired (not battery backup) unless approved otherwise by the County's PM. If possible, wire each motion sensor transformer (individually) to a single access panel location within the room so as to consolidate them for easy maintenance.
22 42 13.01	Plumbing	Plmbg. Fixtures		Water Closets - Minimum of two per each public restrooms - except in single-use and family restrooms. Water closets will be wall mounted unless directed otherwise by the Owner.		Women's and Men's - No residential water closets. Commercial tank type units may be considered in noise sensitive office space areas. Meet or exceed minimum Federal gallons/flush regulations for water conservation.
22 42 13.02	Plumbing	Plmbg. Fixtures		Urinals - Specify 1 Pint per flush units. Urinals will be wall mounted unless directed otherwise by the Owner.		When there are 2 or more single-use restrooms in one area, provide a urinal and a toilet in one unit.
22 42 13.03	Plumbing	Plmbg. Fixtures		For all gang toilets/urinals - configure back to back and provide door access for clean-out and maintenance of plumbing via large accessible plumbing chase.		Where possible, provide secure access into plumbing chase with 2'-6" to 3' especially for public accessible restrooms.
22 42 16	Plumbing	Plmbg. Fixtures		Lavatories - no wall hung - in counter only. Restroom vanity or counter surface will be quartz. Lavatory Counters will be custom structurally designed with structural steel knee supports for each application. Include low-flow (0.5 gpm) faucets.		All restrooms. With owner approval - single units may have wall hung lavatories. For public restroom standard - use detail for the Northern Service Center public restrooms.
22 42 36	Plumbing	Plmbg. Fixtures		Laundry sink - provide in each mechanical room		Provide 1 - Sink per "nonboiler" rooms 600 SF or larger.
22 42 43	Plumbing	Plmbg. Fixtures		Flush and lavatory valves. Public water closets, urinals and sinks will be provided with automatic valves for ADA compliance and public health. Fixtures and valves will be designed, installed and adjusted so they work correctly, will not misfire or get occupant wet. Design valve configuration for ease of maintenance.	Sloan	Provide infrared automatic valves.
22 45 26	Plumbing	Plmbg. Fixtures - Emergency		Provide eye wash/shower stations in boiler rooms and at maintenance areas.		Provide in all Boiler rooms and elsewhere when required by OSHA and Owner (County Risk Management.)
22 46 00	Plumbing	Plmbg. Fixtures - Detention		Where fixtures are adjacent, match existing. For all new, use only referenced manufacturers.	Metcraft, Allen-Bradley (Bradley Corporation)	Acorn not allowed.

CSI	Section	Item	A	Standard	Reference	Additional Comments
22 47 13.01	Plumbing	Plmbg. Fixtures		Water Fountains - Elkay all stainless - no lead. 1 or 2 water fountains as required by local code official's interpretation. County prefers to incorporate bottle filler whenever possible.	Similar to Elkay ezH2O Vandal-Resistant Bottle Filling Station, & Bi-Level Cooler, Non-Filtered Refrigerated Stainless (VRCTL8WSK)	Specific model to be approved by Owner.
22 47 13.02	Plumbing	Plmbg. Fixtures		Bottle Fillers - Elkay all stainless - no lead.	Similar to Elkay ezH2O In-Wall Stainless Bottle Filling Station (LZWS8)	Specific model to be approved by Owner. Used sparingly and in coordination with large kitchens, normally water fountain / bottle fillers are otherwise used.
23 00 00.01	HVAC	Intake and Exhaust		Set at adequate height, orientation and location to eliminate snow blockage. Install plate type or recovery wheel heat recovery units (HRU) on exhausts to recapture embodied cooling and heating energy. Adequately size air handling rooms to achieve installation and maintenance of HRU.		Locate intake upstream - NW of boiler stack or above boiler exhaust. Heat recovery units are mandatory on County facilities. Goal is to maximize capture of embodied heat / cooling to the greatest extent possible and reduce overall facility energy use and expense. For retrofits and new construction provide closed loop glycol heat exchanger.
23 00 00.02	HVAC	Maintenance & Safety		Provide and maintain service space around all equipment. Manufacturer's recommendations will be considered the minimum requirements.		Boilers, pumps, vav boxes, valves, etc. above ceilings and rooftops. Provide space around air handling units and variable air volume boxes to service the equipment and to remove coils. For VAV's in hallways with cable trays - keep cable tray to one side - do not place in center of hallway.
23 05 13	HVAC	Motors - Electric		95% or greater efficiency - power factor corrected to 100% Evaluate and specify NEMA Premium motors. Efficiency and ampacity ratings will be shown on the nameplates of all motors that are provided with packaged equipment such as cooling towers, fans etc. This applies to fractional horsepower motors also. Motors controlled by VFDs will be rated as an "inverter duty motor." VFD's will have an integral filter or internal design that reduces reflected wave harmonics into the power distribution system. VFD's will be located within sight of the motor or as close to fan housings and pumps as possible.	VFD's: ABB or Danfoss (no Yaskawa)	Motors 1/2 HP and above are 3 phase high energy efficient. Highest available energy efficient at all HP - 3 year warranty part/labor. Note that average energy used by a motor in one year is 5 times the purchase cost of the motor. Use current version of MotorMaster (4.0 or newer) to determine motor efficiencies for new and replacement units. US Dept. of Energy at http://mm3.energy.wsu.edu/mmplus/mmdownload/register.cfm
23 05 23.01	HVAC	Piping - Hydronic		Valves - locate above ceilings in open office areas.		Provide surface marker signs for all concealed valves.
23 05 23.02	HVAC	Valves		All valves will be ball or butterfly. Specify 3-way control valves at all coils. (Verify use of 3-way valves with Owner)		Ball valves will be full flow for size of pipe served without restriction in size. No globe valves will be permitted unless required by code officials.
23 05 53.01	HVAC	Identification tags/signs		Ventilation signage will be a minimum of 2" wide with arrows to show direction of flow.		Clearly state system - MUA, Return, Supply, Relief, Mixed, etc.
23 05 53.02	HVAC	Identification tags/signs		For Piping - words and arrows will be at least 1/2 pipe size , minimum 1/2"		
23 05 53.03	HVAC	Identification tags/signs		Piping - Underground ID at floor - direct bury tape 12" above UG piping and ductwork if permitted.		
23 05 53.04	HVAC Equip.	Identification tags/signs		Engraved Plastic Laminate Signs - Specify recycled content		Provide and identify each major piece of equipment.
23 05 53.05	HVAC	Insulation - Ductwork		Exterior insulation only - all joints sealed. All ductwork interior will be smooth cleanable surfaces. No interior duct insulation is allowed.		Exception - transfer units to private offices and conference rooms.
23 05 53.06	HVAC	Identification tags/signs		Valve tags - Brass 19 gauge **or plastic** 1-1/2" with fasteners		ID valves above ceilings with color dots - blue=domestic water/red=heat
23 05 53.07	HVAC	Identification tags/signs		Valve schedules - 8.5 by 11 laminated copies in holders		Provide in each mechanical room and janitor's closet.
23 05 66	HVAC	Air Purification		Ultraviolet Air purification in Air Handling Units to eliminate microbial contaminates.		Consider for pandemic potential.

CSI	Section	Item	A	Standard	Reference	Additional Comments
23 05 93	HVAC	Testing & Balancing - Air and Water		Notify Owner seven days in advance when Contractor is providing testing and balancing. For QA testing and balancing and functional performance testing - Owner will contract directly with and provide the services of an independent testing and balancing firm for all new building construction projects and major interior renovations. Major renovation is defined as any change that significantly modifies the building air and heating water distribution systems.		Owner Maintenance staff to be present during complete process when this service is provided directly by the construction contractor.
23 06 30	HVAC	Fan Schedule Design Considerations		All fans will be sized and designed to provide the maximum energy efficiency, stability and service life possible.		Adequate fan installation and maintenance space will be provided at floor level and designed into and around each unit. Calculate annual energy cost to determine maximum energy efficiency and fan sizing by the following method: number of hours/yr. x power (bhp) X 0.746 kW/bhp x dollars/kWh.
23 07 13.01	HVAC	Ductwork - Supply airtightness		All ductwork must be airtight prior to any insulation and have a high HVAC Transport Efficiency. Ductwork joints must be airtight and designed to hold the maximum fan pressure without damage or joint separation.	ASTM Standard E779 (ASTM 1999)	Duct thickness and method of joining will be capable of handling no less than 2 inch water gauge (500 Pa) For VAV systems with AHU & VFDs use 4 inch water gauge.
23 07 13.02	HVAC	Insulation - Ductwork		Interior only if required - hard cleanable surfaced.		Approved by Owner - case by case. NO compressed coated fiberboards.
23 07 19	HVAC	Insulation - Piping Exterior		Full metal jacket all exterior insulated piping		Non - ferrous
23 09 00	HVAC	Instrumentation & Controls for HVAC		All electronic sensors (thermostats, thermistors), controls, hardware and their faceplates shall be generic in nature and cannot be proprietary, nor branded by the project's controls contractor.	Ascent Microset 4 by Alerton	Similarly, the BAS control screens also shall not be branded by the project's controls contractor (refer to 23 09 23 items below).
23 09 23.01	HVAC	Building Automation Systems	A	A computer based building automation system (BAS) will be designed that monitors and automatically controls lighting, heating, ventilating and air conditioning to efficiently operate County office buildings. Systems integration concepts can be used, EXCEPT that fire alarm and security systems will function as "stand-alone" systems with a monitoring only interface to the BAS.	County's **Basic Sequence of Operation** is provided herein as an Appendix for further designer development.	Facilities Management's Bldg. Services Director is the author of record for the County's BAS - Sequence of Operation.
23 09 23.02	HVAC	Automatic Temp Control Part 1	A	Full DDC - fully compatible with existing Owner systems and communications protocols.	County's **BAS Project Expectations** is provided herein as an Appendix.	The system will provide full color graphics at the site. The Hastings Government Center will also have real time full color graphics via modem communications or if new technology allows or is presently feasible the County's Intranet will access this system with password protection. The decision as to which manufacturers will be installed in the facility will be made by Facility Management staff who will also write the performance specifications for the Architect and not by the mechanical contractor for Division 15 or the construction manager. The low bidder may or may not be awarded the project. This will be accomplished by a break down cost analysis on the bid form with all temperature control bidder submitting total job cost separately from division 15 bidder or the construction manager. Alarms deemed critical by the Owner will be sent to the Hastings Facilities Management dispatcher during normal business hours and to a cell phone and alphanumeric pager after normal business hours. Language shall be clearly decipherable and easily understandable.

CSI	Section	Item	A	Standard	Reference	Additional Comments
23 09 23.03	HVAC	Automatic Temp Control Part 2		Full DDC - fully compatible with existing Owner systems and communications protocols.	Owner will provide system requirements.	**Control Devices**: EMS system shall control all functions of the air handlers; i.e. mixed air dampers, heating valves, cooling valves, VFD's, static pressure and stop start. Status Indication: Will be accomplished utilizing clamp on current sensors. No flow, immersed paddle or duct mounted switches will be used. **Laptop Communications**: A laptop computer will be used for off site monitoring and diagnostic analysis. The successful bidder will provide any and all software needed to accomplish this. If memory space is not adequate in the County's existing laptop computers the contractor will provide one new laptop capable of this task. All systems will be fully BACnet compatible.
23 09 23.04	HVAC	Automatic Temp Control Part 3		Full DDC - fully compatible with existing Owner systems and communications protocols.	Automated Logic Allerton	**Meeting Rooms:** will operate independently, heating or cooling by occupant over-ride. **Facility Pressure:** System will alarm and optional shut down if facility goes into negative pressure. System will have effective means (demonstrated to Owner) to control facility pressure. **County Network Compatibility**: The BAS (EMS) will be able to operate on the County network, being accessible from any connected P.C.
23 13 13	HVAC	Fuel Systems - Any Hazardous Fluid Handling System Including all Petroleum Products.		Fuel oil tank and piping systems for boilers and generators will be installed within the building footprint with full containment liner for all contents of tank. Tanks will be classified as above ground tank with access for inspections. All building piping will be exposed - no underground. For above ground tanks in bunker vapor detection will be provided in room with complete sump monitoring for fill, fill pipe, etc. Install a liquid spill monitor in a depression in the bunker floor. When approved by the Owner, direct buried underground double wall tanks will have tank monitoring probes), complete vapor detection between shells, and sump monitoring sensors. Dispensers - Gilbarco high hose with lighted panels. Provide tank level indicators and auto leak testing function in tank management requirements. This section includes all hydraulic hoisting systems.	2019 NEW: OPW *(old were: Eidsen BMT, Gilbarco, Gasboy)*	Direct buried tanks may be considered for maintenance shops providing they are double wall ACT-100 (UL 58 and Sti-P3 - 30 year warranty) fiberglass coated with interstitial and external leak detection with limited underground pipe runs and well sloped fill areas to keep water out of the systems. Current manufacturer for leak detection systems is OPW. Fuel management system will be OPW fully compatible and connected to existing Owner system. Minimum standard for direct buried fuel or any petroleum product piping is 2" Environ Geoflex piping system with primary/secondary containment pipe and a 4" corrugated underground rated plastic containment/protection pipe sealed watertight below grade and opened so any discharge will go into the sumps. Mount sump containment tanks e.g. Environ MBS3642 on top of UG tanks. Use fuel resistant concrete for all slabs and structures for fueling islands. Installing tank contractor will immediately complete MPCA registration forms and transmit to Owner.
23 21 23	HVAC	Pumps		All pumps will be direct drive - dual system - redundant	Bell & Gossett	
23 22 13	HVAC	Steam & Condensate Heating Piping		Provide isolation valves for all equipment piping connections		
23 25 16	HVAC	Water Filters		Provide high efficiency sand filters on condenser water return from cooling towers, heating hot water loops and chilled water loops. Owner will specify whether to use sand or other filters.	Process Efficiency Products Inc., 322 Rolling Hills Rd., Mooresville, NC 28117-9920	Reduce fouling materials acquired from the atmosphere and corrosive nature of systems on piping and components. Extends life of coils, pumps and tubes.
23 30 00.01	HVAC	Licensing Requirements		Effective 7/1/2003 anyone who installs gas piping, heating, ventilation, cooling, air conditioning, fuel burning or refrigeration equipment must post a $25,000 bond with the Department of Administration, Building Codes and Standards Division. Require proof of the bond from all HVAC installers on project. See also Standard Assurances for Construction Contracts - contractors have to certify compliance. New statute is Minn. Stat. Sec. 326.992		

CSI	Section	Item	A	Standard	Reference	Additional Comments
23 30 00.02	HVAC	Rooftop Equipment Anchor Requirements.		All equipment and anchoring systems (knee walls, blocking, curbs, etc.) will be designed to withstand all lateral and wind-uplift loads during a120 mph sustained wind event. A minimum safety factor of 3 is required for all County buildings. Effort will be made to move all HVAC equipment intake and exhausts to vertical surfaces. All exterior mounted equipment including stands, supports, anchors and fasteners will be nonferrous, stainless steel or steel with a minimum G-90 hot-dip galvanized coating. Lightning protection systems will be mechanically fastened to vertical sections of parapets with #12 stainless or system compatible screws that have a minimum 1-1/4" embedment. Use only looped connectors. Pronged connectors will not be used. For direct installation on a built-up roof - fasten connectors with asphalt roof cement. Use a liquid sealer compatible with the membrane for single-ply roofs.		Determine wind loads using American Society of Civil Engineers (ASCE) 7-05 for minimum rooftop equipment design requirements. All design efforts should be made to eliminate roof top equipment and penetrations. **A mechanical penthouse will be constructed to shield vital equipment.** There will be no exposed ductwork on any roof. Equipment spring vibration isolators and all anchors will accommodate **uplift resistance** in addition to lateral resistance. All equipment supports, sleepers, and curbs will be anchored directly to the structure. All fans and condensers will be structurally anchored to the curb (for fans at least two stainless steel screws each side.) All doors on rooftop equipment will be hinged and not removable. Cowlings less than 4' feet in diameter will be attached to the curb with 1/8" diameter stainless steel cables. Larger than 4' will us 3/16" stainless steel cables.
23 32 33	HVAC	Ductwork Return		Use ducted returns for all mains.		Reduce potential for stirring up materials in open ceiling plenums used for air return. Explore use of return air ductwork or wall cavity for air return grilles at floor level to circulate heat to floor and prevent "short-circuiting" of supply air to ceiling returns.
23 33 13.16	HVAC	Dampers - Fire		Install with actuators outside ductwork. Provide adequate access to service damper and actuator while maintaining fire rating of wall assembly. All fire dampers will be motorized and fully addressable so they can be tested.		At dampers provide access hatches with plexiglass viewing ports for viewing damper without opening ductwork.
23 36 16	HVAC	Air terminal units		As directed by Owner.		This includes constant volume single duct terminal units, variable volume single duct terminal units, variable volume single duct fan-powered terminal units and dual duct terminal units, ceiling induction terminal units (with Owner permission only), series fan powered variable air volume terminals, reheat units, unit ventilators and energy recovery devices.
23 36 16.01	HVAC	VAV Actuators		Direct couple control motors to damper shaft.		No linkage rods.
23 36 16.02	HVAC	VAV Controllers		Factory stamped position arrow on damper shaft protrusion		Must show true position. Field markings, etc. will not be accepted
23 36 16.03	HVAC	VAV Reheats		Provide removable access covers for cleaning.		Install in obstruction free areas for maintenance access.
23 41 00.01	HVAC	Air Filters		Spares - replace all filters prior to Owner occupancy. Three sets are supplied by Contractor - 1 for start-up, replacement set at occupancy and one complete spare set.	Owner's FM to provide name of Manufacturer	Provide one complete set of replacement filters for all filter banks.
23 41 00.02	HVAC	Air Filters		Gauges - provide manometer type 0-3" wg		
23 41 33	HVAC	Air Filters		2" prefilter - high efficiency 4" primary	AAF - Amer-frame	Disposable S media MERV 15 or Higher. Fabricate frames from not lighter than 1.6 mm / 16 gauge sheet metal with rust proof coating. Each air filter will be equipped with a suitable filter holding device. All frame seats will be gasketed and all joints between filters, housings and walls will be airtight.
23 52 16.01	HVAC	Boilers - Condensing		Multi staged units as required - generally two to three units staged, modulating and condensing boilers to handle complete load. Design system to return low temperature water to boilers.	Condensing - Aerco	Provide redundancy w/ one spare unit to guarantee load. Boilers for large buildings will be dual fuel. Rated efficiency of lead or main winter boilers will exceed 80% and high efficiency shoulder season boilers will exceed 92% rated efficiency. Minimize size of high energy efficiency condensing boilers will be 60 hp unless approved in writing by the Owner.
23 52 16.02	HVAC	Boilers		Control only through Energy Management System		Boilers must also be able to run manually and independent of building automation system. Refer to "DESIGN.23" for permitting.
23 53 00	HVAC	Expansion Tanks		No bladder types. All tanks with viewable site glass from floor.		
23 55 00	HVAC	Direct Fired Units		If permitted by Owner - provide standard outdoor air intake required by manufacturer.		Use only with Owner approval.
23 64 00.01	HVAC	CFC - Refrigerants		For all refrigerant systems - use HFC-134a	Dupont SUVA 134a	Use of CFC's are banned. HCFC's are to be phased out. Do not specify any refrigerant that is scheduled at the time of bid to be banned.

CSI	Section	Item	A	Standard	Reference	Additional Comments
23 64 00.02	HVAC	Chillers		Two or three individual units, one or two to handle full load. Design load will be calculated to include **R38** non average roof insulation and **R20** walls.	Trane	Specify highest quality energy efficient/environmentally safe systems. Provide for light and staged loads with 100% system redundancy.
23 64 00.03	HVAC	Chillers Redundancy		All pumps, towers and equipment to be redundant.		
23 64 00.04	HVAC	Chillers		Provide isolation valves all piping to equipment		
23 64 00.05	HVAC	Chillers		Pumps - condenser - install lower than tower or dry coolers. Wet cooling towers will be located a minimum of 50 feet from any air intake or occupied staff area. Cooling tower drives will be adjustable speed to maximize energy efficiency.		All pumps designed for self priming - non-cavitating. Where site permits - locate wet towers 100 feet from building.
23 64 00.06	HVAC	Chillers + Data Equip		Provide 24 hour - 7 day per week spot-cooling for data closets and special use rooms. Systems are smaller and run cooler. Cooling requirements will be evaluated on a case by case basis.	Owner (IT staff) will provide requirements.	Provide free-cooling option for winter operation where needed. Typically only for large data center.
23 65 00	HVAC	Cooling Towers		Cooling Towers shall be preferred in an all-stainless steel construction. Additionally, it shall be specified that the Contractor provides a written “passivation plan” with water treatment to mitigate corrosion of any galvanized components within the system.		The Contractor shall be made responsible by the specifications for implementing the passivation plan for the first cooling season of operation. Additionally, the Mechanical Engineer, the Owner and the Contractor shall meet with the Contractor’s “first season” water treatment contractor at start up of the unit to confirm the “passivation plan” to be followed.
23 72 00	HVAC	Energy Recovery Equipment		The Design Team shall review the potential use of Energy Recovery Equipment with the County at Schematic Design. Wherever feasible, Energy Recovery Equipment shall be used.		There are 5 types of HRU units - Heat-Wheel Air to Air, Heat-Pipe Air to Air, Fixed-Plate Air to Air, Packaged Air to Air and closed loop glycol system. Selection of the type is building specific.
23 73 23	HVAC	Custom Indoor Central-Station Air Handling Units		Provide functioning freeze stat operation. Fully insulated. Provide full size door for full face access to fan, cool/heating coils, filters and air mixing chamber.		Provide air blenders - longer runs - etc. Designer will review the number, location and layout of all sensors with the Owner during design.
23 82 36 23 83 16	HVAC	Piping - Hydronic - Perimeter Radiant Heating - Fin Tube		Perimeter radiation at all exterior walls with or without windows. At windows install as part of window opening sill area.		Install where heat loss potential is the greatest along building perimeters. “The perimeter heating loop temperature will be controlled up to 180˚F by outdoor exterior temperature boiler/hot water reset. Eliminate false temperature sensor readings. The sensor for the reset function must be in a location that accurately reads the ambient outdoor temperature and is unaffected by the building or operations about the building. The boiler reset function will be programmed to achieve the maximum energy efficiency of operation. Perimeter heating will be thermostatically controlled by a local room thermostat in the same room and within 10 feet of the perimeter heating units. The perimeter heating zone valves will open 1st upon call for heat. If heating needs are not met by the perimeter heating and supply temperature reset, then the room VAV (reheat coil if present) will open to supplement the perimeter heating to achieve the set point of the thermostat. Fully coordinate control of the perimeter heating zones with the VAV and boiler reset temperature controls and functions to prevent hunting and competition issues. To avoid isolated potential for freezing, the perimeter heating hot water return loop temperature will not be used to control the perimeter main hot water loop temperature. This would satisfy the temperature in the supply loops, but may not provide adequate heat at each zone. For new installations – the percentage of fins per length of pipe for each location will be reviewed with the Owner.”
23 84 13	HVAC	Humidifiers		No humidification systems to be provided in new building construction. Abandoned systems will be removed when mechanical systems are upgraded, replaced or modified.	Dri-Steem	Exceptions: Humidification will be maintained at the Robert Trail Library for the wood ceilings and the Historical Museum.
26 00 00	Electrical	Clocks		Battery operated only. For multiple clock installations at one building - install clocks that automatically adjust to true time (I.e. atomic) .		No master clock systems.

CSI	Section	Item	A	Standard	Reference	Additional Comments
26 00 00.01	Electrical	Closets Electrical		Electrical distribution panels will be housed in separate secure rooms. Data Closets are not to be combined with electrical closets- see separate section for Data Closets.		Reviewed by Facilities Management / base upon size-complexity or square footage. Electrical closets will be dedicated space not shared with other systems such as telecom or data. For multiple story buildings, electrical closets will be stacked. The locations of vertical backbone pathways, horizontal pathways, closets, equipment rooms and utility entrance facilities for electrical and communications distribution equipment will be established before the architectural concept and is finalized. The spacing and number of closets will be based upon distribution need and good electrical engineering in limiting excessive runs of conduit and conductors. Electrical Engineer will demonstrate how the greatest economy in copper cabling can be achieved.
26 00 00.02	Electrical Energy Mgmt.	Load Shedding		Provide capabilities on all projects - non-essential loads		Remote activation and monitoring including on-site demand meter.
26 05 00.01	Electrical	Receptacles - 120 v		Grey receptacles with stainless steel covers.		All receptacles will be UL rated and manufactured from a trusted source.
26 05 00.02	Electrical	Wall Switch		Commercial-grade, quick make, quick break with toggle handle totally enclosed - 20A, 120V. Similar construction for all low-voltage controlled switches.	Hubbell, Leviton, P & S	Same construction for 3-way and 4-way switches. Gray switches with stainless steel covers.
26 05 13.01	Electrical	Wire - 600 V		All copper - increase all design ampacity by 20% above code		#10 AWG and larger - stranded; #10 AWG and smaller = solid copper
26 05 13.02	Electrical	Wire - Pulling		All wiring must be pulled into the conduit at the same time		All trades and contractors to coordinate work to eliminate damage
26 05 13.03	Electrical	Wire - Splicing		Conductors may be spliced only in ACCESSIBLE junction boxes		
26 05 13.04	Electrical	Wire Testing		Post install - Megger test all feeders for continuity and insulation Q/A		
26 05 13.05	Electrical	Wire - Power & Lighting		Min. wire size = #12 AWG. Use rigid conduit. MC cable is not allowed.		
26 05 13.06	Electrical	Wire - Neutral		Neutral wire to be one wire size larger than lead wires		A second neutral is required for all K type Transformers by Code.
26 05 13.07	Electrical	Wire - Std Circuits		20 A @ 120V and 20 A @ 277 #10 AWG Runs longer than 50'		All others ampacity code +20% - plus voltage drop calculation for run length
26 05 19	Electrical	Wire - Control		Min. wire size = #14 AWG. Use rigid conduit. MC cable is not allowed.		
26 05 26	Electrical	Grounding System		Provide "Custom-designed" grounding system to be specified by Electrical Engineer - Approved by Owner. Include detailed pre-occupancy continuity testing of the complete grounding system. Grounding system will include lightning protection, roof mounted equipment, and bonding to any grounding grids within 180' of new construction.		Primary and secondary - special attention to lightning attenuation to protect sensitive equipment including telecom. data. etc. Provide a custom-designed internal and external grounding system by specific building location and surrounding built environment and topography.
26 05 33.01	Electrical	Boxes - Junction		Locate above accessible ceiling in finished areas only including pull boxes.		Support boxes from structure - not by conduit.
26 05 33.02	Electrical	Conduit		Use only metallic including embeds unless approved in writing by Owner.		Conduit for placement in slab will be approved by Owner and can be other than metallic.
26 05 33.03	Electrical	Conduit		Liquid tight flexible for outdoor, damp, corrosive, HVAC interior or internal Drive		Final 3 foot connection to all sprinkler system valves.
26 05 33.04	Electrical	Junction boxes		Locate above partition height in modular office areas.		Also Tstats, fire alarms, etc.
26 05 39.01	Electrical	Duct - underfloor		Run trunks on 20' centers - locate knockouts on floor plan. Use only for slab on grade or in areas where underfloor area is inaccessible.		Owner to provide "standard" ergonomic partitioned layout plan. Fully coordinate with furniture layout plans.
26 05 39.02	Electrical	Duct - underfloor		Provide markers in concrete or on raised floor 36" OC and at ends		
26 05 43	Electrical	Duct - infloor boxes		Provide markers in concrete or on raised floor 36" OC and at ends	Wiremold Co. West Hartford CT	For infloor junction boxes - use Walker Infloor Systems RFB8 High Capacity Recessed Floor Box. Cover plates for telecom and data will be provided by the General Contractor.
26 05 53.01	Electrical	Enclosures		NEMA standard - all locking for security		Address preventing unauthorized access
26 05 53.02	Electrical	Identification tags/signs		Sign all control switches and panels		Provide identification tags with black font on a field of clear, with the name of the panelboard and circuit # on every receptacle cover plate.
26 05 53.03	Electrical	Signage		All electrical components ID with engraved red/white		Use plastic laminate with recycled content.

CSI	Section	Item	A	Standard	Reference	Additional Comments
26 09 00	Electrical	Lighting Control System		In general, all lighting control systems will be fully compatible and controllable by and through the building automation system (BAS) and be fully BACnet Compatible and must be provided by the project.	GE , Lutron or approved Equal: Firms regularly engaged in manufacturer of lighting control and ancillary equip., of types and capacities required.	Products must have been in satisfactory use in similar service for not less than 5 years. Component pretesting; All components and assemblies will be factory pretested and burned-in prior to installation. System Support: Factory applications engineers will be available for telephone support.
26 09 23.01	Electrical	Lights - controls		Provide manual override for all controlled devices or circuits. See also standard "DESIGN.14" above for additional information.		Manual over-ride of controlled lighting systems (occupancy or photo-sensor) will be keyed or located remote from occupant or public access.
26 09 23.02	Electrical	Lights - exterior		Provide both photo cell and time clock control as minimum. Make use of 2 stage motion sensing egress to control parking lighting. Higher level for 10 minutes then returns to reduced level. Specify LED directional lighting when available to provide highest energy efficiency possible and to eliminate insect attraction.		Federal Lighting Standard limits the maximum wattage and amount of light that bleeds onto adjacent properties. All parking lots will be lit so that only the parking areas receive illumination. Prior to implementation address any lighting level increases with surrounding neighbors for both urban and rural settings. DCC is example of 2 stage exterior employee parking lot lighting.
26 09 23.03	Electrical	Lights - occupant sensor - general		Ceiling mounted motion sensors in all private, open offices, public areas, toilets, etc. 2012 - Watt Stopper DT-305	Watt Stopper	Also store rooms - no wall sensors - all ceiling mount - dual tech. Include contractor requirement to field adjust all occupancy sensors after 3 months of owner occupancy.
26 09 23.04	Electrical	Lights - occupant sensor - meeting rooms		Provide occupancy sensors in all meeting rooms - provide manual over-ride - standard switch to turn lighting off during presentations. Watt Stopper DT-305 Ceiling mount only.	Watt Stopper	
26 09 23.05	Electrical	Lights - on/off control		Exterior and interior lighting will be controlled for on/off and unoccupied shutdown sweeps through the building EMS/BAS.		Fully programmable through the EMS
26 09 23.06	Electrical	Lights - switches		Locate manual switches above wall panels or outside systems furniture installation areas for modular office areas. If occupancy sensors cannot be used in any space, then ADA height requirements will be used in accessible areas.		Or in areas that panels will never be installed. Maintain ADA requirements. Coordinate light switches, fire pulls, extinguishers, thermostats with partitions to prevent interference or covering them up.
26 09 23.07	Electrical	Lights - timed switches		Install in all boiler, electrical and mechanical rooms.		Dial control - maximum on time of 1 hour. Provide one at each entry door into room.
26 22 00	Electrical	Transformer		High Energy Efficient - specify only K-type or equal. (note that a 2nd neutral conductor is required for all K - type transformers.)	GE, ABB, Square D	Low temp and high power factor. High-efficiency transformers are those meeting NEMA standard TP 1-1996, which have a 98% operating efficiency. All units must be Energy Star Approved.
26 24 13.01	Electrical	Switch Disconnect		Non-fusible quick make/break w/lockable "OFF"	GE/Westinghouse/SqD	Comply with UL Ratings, NFPS and Electrical Codes
26 24 13.02	Electrical	Switch MCC/Board		Solid copper bus bars only	GE	
26 24 16.01	Electrical	Panel Boards		Circuit Breakers only. Eliminate fuses to greatest extent possible.	General Electric	Provide minimum of 25% spare breakers in each panel.
26 24 16.02	Electrical	Panels		Provide separate rooms for all electrical - no cupboards		
26 24 19.01	Electrical	MCCs		Provide H-O-A switches - all panels		
26 24 19.02	Electrical	MCCs Starters		To be specified by Electrical Engineer - Approved by Owner		Locate starters in MCC panels.
26 24 19.03	Electrical	MCCs Contactor		To be specified by Electrical Engineer - Approved by Owner		
26 27 13	Electrical	Meter - Owner		Owner monitoring meter for buildings larger than 50,000 square feet. Provide sub metering of HVAC systems and lighting systems to measure building energy efficiency.	GE/Westinghouse/Cutler H.	Watt-hour Meter with programmable demand indicator & pulse initiator. In each building, separate submeters will be provided for 1) lighting, 2) cooling equipment, 3) balance of building mechanical system, and 4) 120v occupant distribution systems.
26 28 00	Electrical	Ground fault receptacles		All restrooms, sinks, convenience stations, kitchenettes or any receptacle within 24" of a water source.		Will be resettable locally, not panelboard mounted.
26 28 13	Electrical	Fuses		All over current protection will be circuit breaker - no fuses		
26 31 00	Electrical	Photo Voltaics (PV)		Solar Panels: Examined on a case by case basis.		There are a number of issues to consider for using PV panels on buildings. If the modules are interdependent of each other. If one panel fails - are they all off line. Panels are high maintenance. They will not generate power if they are dirty or covered with snow. Batteries system is needed if the power is to be stored for light load applications.

CSI	Section	Item	A	Standard	Reference	Additional Comments
26 32 13.13	Electrical	Emergency Generator		Buildings 30,000 sq. feet and larger will have full emergency power. Buildings less than 30,000 sf will be handled on a case by case basis to determine when emergency generators will be provided. Provide submeter for fuel on all gensets. Smaller buildings may receive generators only upon written direction by the Owner.	Cummins Engine Co., Caterpillar Inc., Katolight Corp.	Electricity deregulation - continuous service - emergency shelters. Configure exhaust to eliminate noise from occupied parts of the building and potential for smoke to enter fresh air intakes. Carefully evaluate available technology to achieve the highest fuel efficiency and lowest emissions. Assist the Owner with filing for the State permit(s). Refer to "DESIGN.23" for permitting.
26 32 23	Electrical	Wind Energy Equipment		Will be considered only upon specific direction from Owner.		Dakota County is not located in optimal wind zone. Turbine at the Visitor's Center was removed after vendor bankruptcy.
26 33 13	Electrical	Batteries		Sealed - 5 to 6 year warranty - straight line prorate after 1st year (UPS)		RE: NEC, UL, ANSI and NEMA standards for material ratings
26 33 53	Electrical	Uninterruptible Power		Critical areas, lighting, LAN data and telecommunications closets, court and hearing room lighting only, all safety, fire and security systems. Per DC IT's direction, whenever possible, the UPS unit should be separate and not combined with the function of any Power Distribution Units (PDU's).	EPE, Liebert Solid State	One (1) hour load carry time if generator backup present. Electronics must be located above batteries and capacitors within system housing. Capacitors cannot be located above any control systems.
26 35 00	Electrical	Harmonic Distortion		Design considerations for Harmonics relating to UPS, VFD and Emergency Gensets. Must be consistent with current best practices.		
26 35 13	Electrical	Capacitors		Power Factor Correction to > 95% Target is 100%		Install at service entrance equipment.
26 35 13	Electrical	Current Transformer CTs		Size and type required for feeder monitoring.		As needed in switchgear.
26 36 23	Electrical	Switchgear - Paralleling		Paralleling switch gear will be provided so that all generators can be used for peak shaving during normal operations.		SPECIAL WARRANTY - Contractor will provide 5 year full parts and labor warranty for the switchgear and all required accessories.
26 41 13	Electrical	Lightning Protection		All Buildings will be equipped with 100% lightning protection. System will comply with UL96 and NFPA 426. Installation will be UL certified.	Thompson Lightning Prot.	Verify that the system materials (copper or aluminum) are compatible with roof flashing/parapet coping materials and finishes. This applies to all materials that will come in contact with the lightning protection system. No dissimilar materials. See Section 07500 for additional wind load and anchoring requirements.
26 41 23	Electrical	Lightning Suppression		Surge arrestors and suppressors.		Any building within 180 feet of an adjacent taller structure will be so equipped.
26 43 00	Electrical	Transient Voltage Protect		Provide transient voltage protection and surge suppression on main building service. For existing building renovations provide surge suppression equipment on all 120 volt feeders lines if not integral with transformer or main feeder.		Eliminate need for individual suppression at sensitive equipment and work stations.
26 50 00.01	Electrical	Lights - custom		No custom manufactured light fixtures are permitted		No special cost allowances for lighting fixtures will be included in the bid document. If approved by the Owner in writing, the fixtures may be bid separately or provided by the Owner. Unit pricing will generally be used for any specialty item.
26 50 00.02	Electrical	Lights - lamps		Minimize use of lamp types and sizes to 3 throughout building. During DESIGN DEVELOPMENT a complete schedule of the number and types of lamps will be provided to the Owner for approval. Employ using LED lighting for all lighting applications, where applicable. LED drivers are to be 100% solid state.		Includes cove lighting, task lighting and lighting in systems furniture. All lamps subject to Owner review and approval.
26 51 00.01	Electrical	Lights - level office areas		FC @ work surface - provide 30-50 FC Supplemented with energy efficient task lighting when necessary.		Use of indirect in ceiling reduces glare.
26 51 00.02	Electrical	Lights - interior (new)		All new systems to be LED. Color temperature to be 3500 K. All fixtures within a room to be the same color temperature. Any variation to this standard must be approved by the CPM Project Manager.		See lighting control standards for further discussion.

CSI	Section	Item	A	Standard	Reference	Additional Comments
26 51 00.03	Electrical	Lights - interior (matching existing)		Legacy fluorescent systems to be as follows... In the absence of specific direction, fixtures with 2 - 25 watt T8 lamps with 4 lamp ballasts will be used. One ballast per 2 fixtures, rigid conduit with 5' whips. The standard is T-5 3500 K - for 4' lamps. Compact fluorescents for spots up to maximum of 42 watts - UL listed w/ballasts Class P with THD less than 15% operating lamps at 20kHZ or higher w/PF above 90%. For indirect linear lighting - use only 4' lamps evenly spaced or design length to even fixture length - 2' and 3' lamps are not permitted.	Phillips, GE, Sylvania	All lighting is Owner line item approval and all must be recyclable. The goal for lighting efficiency is maximum 1.0 watt per square foot including ceiling and workstation task lighting. The current fluorescent lamp color temperature standard is 3500K. Provide indirect surface mount fixtures in ceiling. For large renovations, verify the color temperature to match existing.
26 51 00.04	Electrical	Lights - Daylighting		Provide as much natural light as possible through the interior occupied spaces. Use creative integration of daylight and energy efficient lighting options and effective control strategies to provide for the greatest visual comfort for employee productivity while maintaining the minimum wall insulation R-value.		Use effective design measures and modeling to draw natural daylighting as deep as possible into the interior space of each floor. Maximize number and location of windows to provide quality and visually stimulating environment. Orient building to reflect daylighting strategy. i.e. light shelfs, side and transom lites, tube lighting, etc.
26 51 00.05	Electrical	Lights - UL rating		Each complete lighting fixture must be UL approved.		Individual component UL rating or approval is not acceptable for entire fixture. Entire fixture must be approved - UL rated and UL labeled.
26 51 13.01	Electrical	Lights - ballasts remote		For inaccessible or high bay fixtures - locate ballasts remote in separate room unless catwalk or other access provided in high bay areas. Provide adequate ventilation to maximize ballast life.		Consider upgrade to LED long life technology for all high bay applications.
26 51 13.02	Electrical	Lights - luminaires		Owner to approve all fixture types and models prior to bidding.		Energy efficient - occupant friendly.
26 51 13.03	Electrical	Lights - reflectors		High specular -maximize lighting - minimize number of lamps		See other comments concerning indirect and task lighting in work areas. Indirect lighting and high luminescent ceiling panels will be used to the greatest extent possible.
26 52 00	Electrical	Lights - emergency		Integral with fluorescent fixtures - battery w/o generator		Battery operated w/generator backup in high security areas such as holding cells and court rooms.
26 53 00	Electrical	Lights - exit signs		Use 2.5 watt light emitting cathode as available in lieu of high resolution Red or Green LED - high energy efficient - meet UL 924 with maximum power consumption of 9.5 watts per double face sign. Unit to be self powered with solid-state voltage limited charger.	Cooper Lighting/Sure-Lites	Sign Warranty 1 year. Battery warranty - 15 year pro-rated. LED lamp with estimated life of 25 years. Housing to be Die Cast aluminum with hinged face plate. Face - no dot effect in lettering. Voltage to be 277 VAC, 60 Hz or dual voltage 120/277 if only 120 is available.
26 56 00.01	Electrical	Lights - exterior		All exterior lighting will be LED with the distribution type focused on illuminating only target County property areas. Exterior LED lights should have a 10 year warranty on the LED and finish of the fixture.	Kim, Sterner, Philips	480 volt power. Check status of Federal Law and corresponding MN Statute concerning exterior lighting.
26 56 00.02	Electrical	Lights - Lighting Level Parking Lots		5 foot candle @ lot surfaces or less as may be required by code or Statute. Lighting levels will be reduced and carefully directed when near adjacent residential areas		Safety, security, productivity issue. 2008 Code is 1 FC average.
26 56 00.03	Electrical	Lights - parking lot		Locate along perimeter - eliminate exposure to car, trucks & plow	Parking Lot = Philips LUMEC RVM @ 4,000K correlated color temperature	Install directional lighting or specify cut-off shields to control light spill
26 56 36	Electrical	Lights - flagpole		Provide at 2-3 feet off the ground to allow for snow cover. Preferred lighting location is from adjacent building or structure.	Flood/Flagpole = Philips GARDCO DFC/L-7 @ 4,000K correlated color temperature	
27 00 00.01	Telecom	Comms. Cabling		CAT 6 cable to desktops, CAT 6A to wireless access points. Owner IT department will complete cabling on some smaller projects, but commonly the project handles hiring a contractor for completion of communications cabling.		• All Division 27 submittals should be reviewed by the Owner as facilitated by the County's Project Manager. • A data/network pre-installation meeting must be required by the specifications. • This pre-installation should be scheduled by the contractor at the time submittals are sent for approval.
27 00 00.02	Telecom	Fiber Optics		Fiber Optic from MPOP (MDF Room) to Closets (IDF Rooms).		

CSI	Section	Item	A	Standard	Reference	Additional Comments
27 00 00.03	Telecom	Comms. Cabling & Fiber - Labeling		All cables must be labeled at both ends. Current cable labeling standard is "closet label, three digit cable number". Examples: K015, A101, D250. If closet covers more then one floor then (floor number, closet label, three digit cable number) Examples: 1N015, 3J101, 2G250.		All devices (regardless of installing contractor/vendor or device type) shall be labeled using the same convention as approved by Owner. No part of the label shall include a vendor's abbreviation or other mark.
27 00 00.04	Telecom	Paging - Emergency Communications		Provide paging system when directed by Owner. When Sound masking system is present, it will be provided as part of the paging speaker system for all open office areas to reduce and eliminate sound carry-over cubicle to cubicle. Paging and sound masking requirements will be evaluated on a case by case basis.		Libraries require paging especially in public areas.
27 00 00.05	Electrical	Sound Masking		Sound Masking will be specified for all large open office settings. Paging, when required, will be integral with the sound masking sound masking system. Requirements will be evaluated and approved by the Owner on a case by case basis		Provide local control of soundmasking for Courts areas and large meeting rooms. Paging will be zoned as a minimum by floors, then departments then section. Audio systems in courtrooms and large meeting rooms will be independent of other systems.
27 00 00.06	Telecom/Data	Cable Trays		Cable tray locations will be developed by the project electrical engineer and approved by Owner. Cable trays will be placed on each floor back to IDF or MDF closets for station and riser cables. Minimum width of cable trays is 12 inches wide. Minimum width for main distribution cable trays is 18 inches wide.		Backbone raceways will be installed to eliminate the need for independent suspension of Telecom and control wiring through plenum ceilings. Electrical Code requires that all wiring in plenum ceiling must be separately supported. Wiring cannot lie on ceiling grid.
27 00 00.07	Telecom/Data	Electrical		All DATA cabling will be blue. Provide at least two 20A double duplex dedicated, isolated ground outlet IDF (Intermediate Distribution Frame) closet. Provide at least four 20A double duplex, dedicated, isolated ground outlets and four standard 20A double duplex outlets in each MDF (Main Distribution Frame) closets. These outlets must be on separate 20 amp circuits. Each closet requires a grounding bus back to main electrical panel or directly to building grounding system. Each closet wired back to a central UPS system.	Copper Data Cabling: GenSpeed6000	Confirm specific needs for each situation with Owner
27 00 00.08	Telecom/Data	Lighting		Lighting in the closets to be a minimum of 50 foot candles (540 lux at 3 feet (1 foot) from the floor. Bright lighting in closets is needed for technicians to easily distinguish color coded pairs and tiny fiber optic strands from one another.		
27 00 00.09	Telecom/Data	Temperature Control		All closets will be designed to maintain temperatures between the range of 64 degrees and 75 degrees Fahrenheit 24 hours 7 days per week.		All special cooling equipment will be fully equipped to provide free cooling when exterior ambient temperatures are available to do so. Requirement continue to change. Verify needs with Owner for each project.
27 00 00.10	Telecom	Humidity Control		All closets will be designed to maintain humidity ranges of 30% to 50% humidity 24 hours 7 days per week.		Requirement continue to change. Verify needs with Owner for each project.
27 00 00.11	Telecom Rm	Doors		Doors into Telecommunications Closets will be a minimum of 36 inches wide and 80 inches tall. Doors will open out for 180 degree radius to allow for maximum use of available floor space or additional door swing space will be provided inside the room.		Doors and room heights will be sized to accommodate all special equipment for these rooms.
27 00 00.12	Telecom Rm	Ceilings		Provide no suspended or drop ceilings. Minimum clear ceiling height is 8 feet 6 inches. Communications racks are usually a minimum of 7 feet tall. Provide adequate space above 7 feet for cable trays and cable management.		Meet or exceed local codes, ordinances and requirements including fire protection. Cabinets are only used at County Data Centers and all other locations are 2-post racks.

CSI	Section	Item	A	Standard	Reference	Additional Comments
27 00 00.13	Telecom	Closets LAN-WAN Equip		Owner provides standard design to Architect. See separate comments regarding types and sizes of closets.		For new data closets, provide adequate number of conduit runs for future cabling and space sufficient to access data equipment racks from all sides. For multiple level buildings, data and telecom closets will be stacked.
27 00 00.14	Telecom/Data	Telecommunications Room Specifications		The size of the telecommunications closets should be determined by the area they serve.		Main Communications closet (MDF) 20' x 20' Intermediate closets (IDF) 5000 square feet or less 10' x 7' Intermediate closets (IDF) 5000 to 8000 square feet 10' x 9' Intermediate closets (IDF) 8000 to 10,000 square feet 10' x 11' Intermediate closets (IDF) 10,000 square feet and above 11' x 12'
27 00 00.15	Telecom/Data	Closet Locations		Closet locations are determined by centrally locating within the building floor plate. The rule of thumb is to begin from any extremity and move in about 200 feet and place closet in a nearby location. Using that point as a center reference for a radius, draw a circle and ensure all locations are less than 200 feet. Maximum cable length for any run is 280 feet.		Telecommunications rooms should be exclusively for telecommunications. No electrical or other equipment will be designed for or placed into these rooms.
27 00 00.16	Telecom/Data	Backboards		Each closet will have ¾" electrical grade plywood backboards on one wall as directed by the Owner, painted with fire retardant paint on both sides.		This will be handled case by case. VOIP is impacting the requirement for this item.
27 00 00.17	Telecom/Data	Patch Panels		CP48BLY – Panduit 48 port patch panel for rack.		CJ688TGOR –Panduit orange jacks for patch panel jacks.
27 00 00.18	Telecom/Data	Patch Cables		FLEXboot Series cat6 24AWG patch cable	Monoprice.com	Owner will complete all patching (connect patch panels to switches). At a minimum, contractor should leave a pair of patch cables for every data jack.
27 00 00.19	Telecom/Data	Data Jacks		CFP2SY – Panduit 2 port stainless steel faceplate. CFP4SY - Panduit 4 port stainless steel faceplate. CMBIW - Mini-com Blank Inserts for faceplates. CBXJ2IW - Panduit MINI-COM surface mount box.		
27 00 00.20	Telecom/Data	Data Racks		•Tripp Lite 45U 2-Post Open Frame Rack Threaded Holes 800lb Capacity. Mfg. Part: SR2POST •Tripp Lite Rack Enclosure 6' Vertical Cable Manager Double Finger Duct . Mfg. Part: SRCABLEVRT6HD2		
27 00 00.21	Telecom/Data	Data Racks - Horizontal Cable Management		•Tripp Lite Rack Enclosure Cabinet Horizontal Cable Manager Finger Duct with dual-hinge cover. Mfg. Part: SRCABLEDUCT2UHD		
27 00 00.22	Telecom/Data	Data Racks - Placement		The data rack should be at least 3 feet from the wall to allow access to equipment. Ladder racking should be used from the wall to rack.		
28 00 00.01	Electronic Safety & Security	Duress System		Duress system will be provided for Courts and other areas as determined from Safety and Security planning. New systems will match and be extensions to existing systems.		Owner will provide direction during design development.
				Duress Systems to be Innovonics based and tied to Intrusion System and Card Access system (if present)		All duress buttons to be wireless
				Duress Receiver - Innovonics ISW-D8125CW-V2	Innovonics	
				Duress Repeater - Innovonics EN5040-T	Innovonics	
				Duress Button - Innovonics EN1233S	Innovonics	

CSI	Section	Item	A	Standard	Reference	Additional Comments
28 00 00.02	Electronic Safety & Security	Intrusion Detection System		Control Panel - Bosch B9512G		Owner will provide direction during design development. Typically panels are to be reused in renovations. Panels to include battery back-up and be connected to Emergency Generator where present.
				Keypad - Bosch D1260W		
				Motion Detector - Ceiling - Bosch DS9370		
				Motion Detector - Wall - Bosch ISC-CDL1-W15G		
				Door Position Sensor - Recessed - George Risk Industries GRI 180-12		When door has a card reader, Door Position Sensors to tie to Access Control controller. Access control will then send a dry contact for door status to the intrusion.
				Door Position Sensor - Surface - George Risk Industries GRI 4400-A		
				Door Position Sensor - Garage Door - George Risk Industries GRI 4700-A		
				Glass Breaks - GRI-GB-550 On the Glass Shock Snesor		Glass Break sensors will only be used upon permission from the owner.
				Communication Module - Bosch B426	Bosch	The intrusion panels onboard communicator will be used to capacity before using the communication module. All additional communication modules needed will be the Bosch B426.
				Monitoring		Installer will work with owner and the current alarm monitoring company to ensure the system is online and communicating.
				Area/Zone Creation		All areas/zones created (physical and digital) will be approved by the owner.
				Intrusion Panels will tie into the Lenel Card access system if it exists on site.		The Intrusion system's points will be imported ito the card access system and tracked via the Lenel-Bosch Integration in addition to being tracked at the panel. The intrusion system will also be set up in such a manner that a valid card read on pre-determined set of doors will de-activate the intrusion system if it is active.
28 00 00.03	Electronic Safety & Security	Security System Cabling		All security data cabling will be **yellow**. Duress system will be provided for Courts and other areas as determined from Safety and Security planning. New systems will match and be extensions to existing systems.	Copper Data Cabling: GenSpeed6000	Owner will provide direction during design development. Includes all security equipment.
28 10 00.01	Electronic Safety & Security	General		Refer to County Security Policy concerning application and approval of card reader and camera locations. For New Construction - all security system power requirements will be identified and included in the building electrical design. All security systems will have battery back-up. Where available, security systems will be connected to UPS power systems or Generator power.	Lenel	Owner specifies. Security and duress systems specified by Owner will include: Network and stand alone capability; manual override ability; user friendly - simplicity; multi-building control and access; easily added onto; exterior doors fail closed; various alarm functions and have keyed access. Attachment of Security Cameras to the exterior of County Buildings will be reviewed and approved by Capital Projects prior to installation. No camera will be directly mounted on the top of any parapet cap flashing to prevent water intrusion into the wall cavity. All attachment hardware will be 316 stainless steel or approved equal. Any attachment to brick or block masonry will only be made at mortar joints and not in the field of the brick or block.
				~~Approved Installers - Pro-Tec Design 5929 Baker Rd, Minnetonka, MN 55345~~		
				Installer Qualifications - Certified Lenel Value Added Reseller Lenel Access Control Expert Certified Bosch Professional Certification (or higher) Lenel Intrusion Professional Certified Avigilon Authorized Partner Axis Certified Professional		Installer must provide proof of these qualifications to be approved.

CSI	Section	Item	A	Standard	Reference	Additional Comments
28 10 00.2	Electronic Safety & Security	Card Access		Card Access to tie into existing Lenel Onguard Access Control System. Contractor to provide any license adjustments to account for added equipment.		Owner will provide direction during design development
				Access Panel Controller - Lenel X or M Series		Add to existing controllers and locations where possible.
				Card Reader Control board - Lenel LNL-1320		All readers to tie to LNL-1320 unless alternate approved by Security Services Administrator.
				Input Module - Lenel LNL-1100		
				Output Module - Lenel LNL-1200		
				Standard Wiegand Card Reader - HID Signo 40 (Standard Profile)		Card Readers to read 125Khz HID Prox and 13.5MHz HID ICLASS SE Standard technologies
				Mullion Wiegand Card Reader - HID Signo 20 (Standard Profile)		Card Readers to read 125Khz HID Prox and 13.5MHz HID ICLASS SE Standard technologies
				Door Position Sensor - Recessed - George Risk Industries GRI 180-12		When door has a card reader, Door Position Sensors to tie to Access Control controller. Access control will then send a dry contact for door status to the intrusion.
				Door Position Sensor - Surface - George Risk Industries GRI 4400-A		
				Door Position Sensor - Garage Door - George Risk Industries GRI 4700-A		
				Request to Exit - Bosch DS160		
				Door Release Buttons - Potter HUB-M		
				Power Supplies - Altronix AL600UL		
				Public Entry Doors		All public entrance doors will have an electric strike/lock controlled as an output by the card access system unless it has a dedicated reader. Refer to 80000.02 for electric lock/strike information.
				Door Forced Alarms		Door forced open alarms will be created with the associated REX device
				Door Held Open Alarms		Door held open alarms will be created with the associated REX device.
				Lock Down Key Switches - Schlage 653-14 L2 NS 630		All buildings serving the public with a card access system will also install lockdown keyswitches at certain locations in the building to allow users to lockdown the building. Core of keyswitch provided by owner.
28 10 00.03	Electronic Safety & Security	Cameras		All CCTV cameras to tie into existing County Avigilon Video Management System. Contractor to provide any additional licensing required for added equipment. Cameras to be placed per County Security Policy, Cameras shall be placed for monitoring and protection of County Staff, buildings, and equipment.	Avigilon	Owner will provide direction during design development. New servers or workstations to be provided by owner if required. Camera models below to be used as a general guideline, each camera model and months to be selected based on desired view.
				Interior Fixed Cameras: Axis P3267-LVE (or replacement) is the basis of design. Confirm with Owner the exact Axis model to suit the need. Minimum of 2 MP.	Axis	Existing Cameras to be reused when possible. County maintains a camera replacement cycle to ensure up-to-date cameras.
				Exterior Cameras: Axis P3267-LVE (or replacement) is the basis of design. Confirm with Owner the exact Axis model to suit the need. Minimum of 2 MP.	Axis	Primarily used for viewing Code Blue Towers.
				Multi Sensor Cameras: Axis Q6010-E, Axis P3719-PLE, or P3807-PVE; Interior: M3067-P; (or replacements) are the basis of design. Confirm with Owner the exact Axis model to suit the need. Minimum of 2 MP.	Axis	The Q6010-E cameras should be used when their will be an attached PTZ or if there may be an attached PTZ in the future. The P3719-PLE or P3807-PVE should be used when it will only be a multi-Sensor camera. The M3047-P camera is currently only installed in the Data center.
				PTZ Cameras: Axis PTZ + Panoramic - Axis Q6075-E + Axis Q6010-E (or replacements) are the basis of design. Confirm with Owner the exact Axis model to suit the need. Minimum of 2 MP.	Axis	The Q6075-E cameras will draw power from Q6010-E Camera

CSI	Section	Item	A	Standard	Reference	Additional Comments
28 31 00.01	Electronic Safety & Security	Fire Detection & Alarm	A	The County has a "Fire Alarm Disabling Notification Policy" maintained by Building Services Manager.		The County's Project Manager (PM) shall work with the Building Services Manager and FM staff for any approved disabling. FM staff will handle any notifications. Designers should be aware of this policy and when appropriate, alert contractors to this necessary coordination within the project's contract documents (temp. facilities/controls spec).
28 31 00.02	Electronic Safety & Security	Fire Detection & Alarm		100% smoke detected including mechanical rooms/HVAC, electrical and storage rooms. Retrofitted and new installations will be "fully addressable" alarm systems. Replacement systems will be Honeywell Notifier. Changes to fire detection and alarm system, new or replacement must be reviewed by Factory Mutual. All system equipment must be UL approved and the complete finished system UL certified. Note: Central Station must be UL listed/approved via the annual service contract.. This includes a UL listed Contractor and UL certified runner to respond to all supervisory and trouble alarms. Fire alarm notification devices to be horn/strobe type with standard audio tones unless recorded notifications (or other tones) are required by the local jurisdiction. This local use exemption, dictating recorded messaging, has been required at the JDC.	Honeywell Notifier	For building additions - if existing system is older than 10 years, non-addressable technology, or not a Notifier or Simplex System, the system will be upgraded to fully addressable for the entire building to ensure accurate alarm reporting and troubleshooting. Separate costs will be identified in the CIP budget process for modifications to existing buildings. NOTE: Honeywell Notifier is proprietary and can only be installed by 4 certified Honeywell local vendors. 2011 - Factory Mutual review comment is for County to provide an FM Approved Central Station monitoring service. The Burnhaven Library was exempted short-term from this requirement.
				Fire Panels: Notifier Onyx Series (selections noted below)... NFS-320 for small system installations NFS-640 for mid-sized system installations NFS-3030 for large system installations Notifier Inspire servies may also be used.	Honeywell Notifier	The exact panel selection is dictated by the size of the building and the number of devices connected to it.
				Manual Stations - NBG-12LX	Honeywell	
				Annunciator - LCD-160/LCD-80	Honeywell	An annunciator will likely only need to be used for larger buildings
				Photo Detector - FSP-951	Honeywell	
				Heat Detector - FST-951	Honeywell	
				Duct Detector - DNR(A) Detector with FSP-951R	Honeywell	
				Horn and Strobe - P2RL (Wall Mounts, PC2RL (Ceiling Mount)	Honeywell	
				Speaker and Strobe - SPSRL (Wall Mount) SPSCRL (Ceiling Mount)	Honeywell	
				Strobe - SCRL (Ceiling), SRL (Wall)	Honeywell	
				Horn - HRL (Wall)	Honeywell	
				Speaker - SPCRL (Ceiling), SPRL (Wall)	Honeywell	
				Monitor Module: FMM-1	Honeywell	
				Control Module: FCM-1	Honeywell	
				Relay Module: FRM-1	Honeywell	
				Dual Monitor Module - FDM-1	Honeywell	
				Dual Monitor Module - FDM-1	Honeywell	
				Wireless Gateway: FWSG (Swift Wireless Gateway)	Honeywell	Wireless will not be used without Owner Approval
				Wireless Detectors: Swift FWD-200P series	Honeywell	Wireless will not be used without Owner Approval
				Wireless Modules: Swift FW-MM FW-RM	Honeywell	Wireless will not be used without Owner Approval
				Dialer - Bosch B465 with B440 cellular module		Dialer to be a dual path, IP & Cellular, module. Data plan provided by County Security Vender. Existing dialers to be reused.
				Wireless Notification Bases: Depends on device	Honeywell	Wireless will not be used without Owner Approval
28 31 49	HVAC	CO2 Detection		Provide carbon dioxide sensing devices in the ductwork and provide one ambient exterior CO2 detector.		To be used to address IAQ. Coordinate with BAS. CO2 detectors will periodically record readings.
31 00 00	Earthwork	Elevator Jack Hole		Eliminate hydraulic jacks below grade. All elevators or elevator retrofits will be in shaft traction unit wherever possible.		Eliminate any potential for underground hydraulic oil spill contamination.
31 23 16.01	Exterior Improvements	Excavation/trenching		Contractor notifies Owner and contacts Gopher One-call		Owner provides information for private utilities. Follow OSHA 1926.650 - 652.

CSI	Section	Item	A	Standard	Reference	Additional Comments
31 23 16.02	Earthwork	Excavation Rock		Include unit pricing with option for separate contracting		Undocumented rock outcropping - specify type and hardness (i.e. rippable and non rippable.) Most limestone at Hastings Government Center is nonrippable.
31 23 23	Earthwork	Backfill		Structural fill will be clean "pit run" granular material		Compact to 95% of modified proctor
32 10 00	Exterior Improvements	Pavement Base		Thickness and type per soils report recommendations. In the absence of specific recommendation, base will be 12" Class VII with recycled content. The use of pervious pavement will be considered as an alternative for all projects including items such as "proof of parking."	Barton Sand & Gravel, 612.425.4191 Maple Grove	Use Class VII (recycled concrete) or recycled CLV aggregate, MnDOT 3138. MnDOT adopted policy in 1980 allowing use of salvaged concrete for aggregate base and stabilizing aggregate. Type and % of recycled content will be approved by Owner for each project. Base will extend beneath all curb and gutter.
32 12 16.01	Exterior Improvements	Pavement Asphalt		Min. 4" in all parking areas 2" base and 2" wear course. Address in civil engineering design. Allow for the planned County use of heavy equipment for snow removal prior to frozen ground. All bituminous pavement depths must meet or exceed the required 4" thickness as determined by post-installation core sampling. Any nonconforming areas will be repaired with a minimum 1.5" wear course. MnDOT forgiveness calculation will not be used on any County building project.	MnDOT Hwy Mix	Minimum of 1 core per 2500 sy to verify - finish derivation +/- 1/4per 10 ft. and specified compressive strength of the installed pavement. Use as a minimum MnDOT percentages of recycled content I.e. crushed glass - sustainable building issue. Use only asphalt suppliers that have a recycled content program and use recycled asphalt materials such as TOSS (tear off roof shingle scrap) or MASS (post manufacturing shingle scrap). In 2008, only MASS was available. Pine Bend Paving is the local supplier. Bituminous tack coat will be per MnDOT Spec 2357.2. When exterior ambient air temperatures drop below 32 degrees F - medium cure (MC) cutback asphalts will be used during early and late construction season.
32 12 16.02	Exterior Improvements	Pavement Bituminous		2" base course + 2" wear course all parking and driveway pavements - minimum pavement depth is 4".		Use MnDOT Shingle Scrap and glass aggregate design mixes.
32 13 13	Exterior Improvements	Pavement Islands - Concrete		No landscaping or irrigation in small islands unless required by local ordinance or code.		Eliminate any small islands whenever possible and safe to do so. This provision may conflict with storm water site containment provisions. Options are depressed infiltration basins and islands large enough to support vegetation.
32 13 13.01	Exterior Improvements	Concrete		Minimum 4000 psi - 1 - 4" slump - air entrained 5 - 8% (Only air entrainment admixture is permitted)	Portland Type I or II	The use of plasticizers is not allowed on any project unless approved in writing by the Owner. Requests to use of plasticizers with the justification must be submitted directly to the Owner for written approval. Finish burlap drag, broom finish or wood float as approved by Owner.
32 13 13.02	Exterior Improvements	Pavement Concrete		4,000 psi minimum 6" - reinforced. Truck traffic and dock areas - thickness per structural engineer. Dock levelers will be installed for new construction. All aprons adjacent to buildings will be 12" thick minimum and supported by building structural foundation shelf.		Finish burlap drag or wood float. Provide concrete pads for motorcycle parking - minimum one space for each building. Provide adequate bollards, crash rail, and dock bumpers to protect building at docks and areas directly exposed to vehicles.
32 16 00	Exterior Improvements	Curb & Gutter		Specify no curb if permitted by local ordinance. Request variance with justification. If code requires curb - use MnDOT - spec D318 surmountable curb 1st and then B-618 at all pavement edges except HC ramping only if there are no other alternatives. Standard Plate No. 7100H. Ramped curb cuts will be broom finished - no exposed aggregate. Comply with local code when necessary. Check local codes/ordinances to determine if sheet drainage to adjacent planted areas can be used as part of storm water strategy for project.	MnDOT website	Finish burlap drag, wood float or broom finish. Install surmountable curbs for areas of rain gardens, snow stacking and parking lot expansions. Define all expansion joints clearly on plans and specify that Contractor is responsible to not have cracks in other locations of curbs. See MnDOT website at http://www.dot.state.mn.us/tecsup/splate/english/e7000/s7100h_spt.pdf
32 17 23	Exterior Improvements	Pavement Marking		Actual parking space width 9' - 0" plus 4" for striping.		HC - blue with white insignia. Curb - yellow to 13538 FS 595A City of Eagan requires 10' wide spaces. Note: For parking code or ordinance requirements use proof of parking and efficient planning and design for
32 84 00.01	Exterior Improvements	Irrigation		Porous Pipe subsurface irrigation system. SWCD - Promote the use of native vegetation and functional landscaping to help achieve this standard. The method and extent of irrigation to be used will be determined by the Owner for each project.	Aquapore Porous Pipe, MTI, Plymouth or Rainbird Xerigation Drip Irrigation.	Where possible - use drip irrigation system to conserve water and lower operating expenses by delivering water slowly to the plants root zones. Install rain fall sensors to control sprinkler systems. Use storm water harvesting and recycled storm water for irrigation.
32 84 00.02	Exterior Improvements	Irrigation		Irrigate zoned critical areas adjacent to facilities. SWCD - Plantings and landscaping will be designed to meet multiple benefits (aesthetics, energy conservation, storm water runoff treatment, screening, etc.) and reduce the need for irrigation.	Rainbird, Toro	See Landscaping irrigation.

CSI	Section	Item	A	Standard	Reference	Additional Comments
32 91 19	Exterior Improvements	Topsoil - Black Dirt		Reuse all acceptable topsoil on site. If required, add to/amend to create a minimum 6" topsoil cover. Roller compacted all lawn areas. To keep all areas open and accessible for inspection to ensure slab at grade waterproofing remains undamaged during construction. Topsoil-SWCD – Efforts will be made to avoid soil compaction and preserve existing topsoil. Employ techniques to restore soil structure such as deep ripping to 18" and incorporation of compost, or other approved soil amendment. The objective is to eliminate compaction in non-paved areas.	Consider specifying an organic topsoil that meets MNDOT 3877.2H for new planting beds.	See sustainability issue regarding low water moisture preservation. Need to pay special attention to construction compacted soils in non pavement areas including soil amendment. Evaluate what effect freeze thaw have upon materials prior to deep discing. Reduce paved walk areas and provide planted walk areas. Build sidewalks only when mud paths develop. Imported top soil shall at a minimum, meet MnDOT's common borrow requirements.
32 92 19	Exterior Improvements	Seeding		Owner will provide mix specification for non-sodded areas		Emphasis will be on native and drought resistant grasses and incorporating soil amendments prior to seeding or planting.
32 92 23	Exterior Improvements	Sod		Sod all critical areas adjacent to pavements and buildings. SWCD - Sod shall be used in high foot-traffic areas and native vegetation will be emphasized in most landscaping areas.		Comply with local ordinance 1st.
32 93 00	Exterior Improvements	Security		Keep plantings away from immediate building walls.		Eliminate hiding places adjacent to entries and next to building. Provide clear sight lines for security patrols from lots about buildings.
32 93 00	Exterior Improvements	Security		Planters or bollards to be placed to restrict vehicle access to front entryways and plazas.		
32 93 33	Exterior Improvements	Shrubs		Use Minnesota Hardy stock - northern climate only		Plants rated for USDA Hardiness Zones 3b, 4a & 4b only.
32 93 43.01	Exterior Improvements	Mulch		Install minimum 3' diameter about all new planted trees.		Planting areas will use landscape mulch. Rock will not be used as a mulch.
32 93 43.02	Exterior Improvements	Tree Specification		Tree sizes should be 1.5" - 2" in diameter with varieties of hardy local indigenous stock		Mix and random plant 2+ deciduous species and 2+ evergreen
32 96 43	Exterior Improvements	Tree Installation		Plant to correct depth, cut/remove burlap and banding		Avoid placement of trees in sidewalk areas. Mix of deciduous & coniferous trees to be planted in asymmetrical patterns.
33 00 00.01	Utilities	Pipe UG Warning Tape		Caution water, gas, electric, sewer below - 6" wide by 4 mils thickness.	Allen Sys, Embed, Seton	Bright colored - continuous tape a minimum of 12" above utility line. Provide metal marking signs on steel posts in high traffic areas.
33 00 00.02	Utilities	Utility Separation		Do not cross water and sanitary or storm sewer lines.		Any variance requires written approval from City and Owner.
33 11 13.01	Utilities	Pipe - potable water		All site water will be ductile iron		
33 11 13.02	Utilities	Pipe - Thrust Blocks		Install concrete thrust blocks to address 100 psi minimum water pressure.		All underground systems.
33 11 19	Utilities	Pipe - Fire		Ductile iron - post indicator will be as required by local fire code official.		Specify model and manufacturer if a specific model is not required by local code official or Factory Mutual.
33 12 19	Utilities	Fire Hydrants		UL246, NFPA 24, AWWA C502	Need to specify	Strictly adhere to local jurisdiction or Fire Marshall requirements.
33 12 33	Utilities	Water meter		City Standard - include RPZ (CSI 331213.13)		Provide independent owner meter(s) and multiple City meters for all buildings compatible with BAS for monitor and control of water use I.e. irrigation and boiler water makeup. Eliminate sewer and storm water fees from water bills for irrigation of water that does not enter these systems.
33 31 13	Utilities	Pipe - Sanitary Sewer		Minimum building feed 6" - B&G to 8' then code to service		Ductile iron - push joints or fiberglass if permitted.
33 41 13.01	Utilities	Pipe - Storm Sewer		2' and greater - RCP - 18" and smaller PVC or Fiberglass if Permitted		
33 44 13.01	Utilities	Catchbasin covers		Loading - domed cast iron for landscaped areas. Use Heaviest Duty for driving surfaces.		Openings to be small enough to prevent access by children or bicycle tires.
33 44 13.02	Utilities	Catchbasins concrete		Precast concrete - cast steps joint sealed. See Owner provided detail.		If permitted by local code, provide weep holes in the sides of the storm water sewer catch basins and manholes to allow water that migrates in the Class 5 base under the asphalt to weep into the storm water sewer system. Place screen over the weep holes to keep the Class 5 from falling into the storm sewer.
33 46 13	Utilities	Pipe - Foundation Drain		PVC - perforated - filter fabric - 12" aggregate drain bed		Use Pipe product with recycled content when available.
33 49 13.01	Utilities	Manholes - concrete		Precast concrete - joint sealed		
33 49 13.02	Utilities	Manholes - covers		Heavy duty cast iron ring and cover label "Storm Sewer" or "Sanitary Sewer"		ASTM A48 Class 35 B hot dip asphalt coated

CSI	Section	Item	A	Standard	Reference	Additional Comments
33 51 13	Utilities	Pipe - Natural Gas		As specified to meter by Utility		Provide independent owner meter(s) and submeters for buildings 30,000 sf and larger compatible with BAS for monitor and control of energy use. Example - Generators, boilers, etc.
33 70 00	Electrical	New Service		480/277 volt Entry - Contractor to initiate request to Utility		Owner provides all construction power within existing buildings. Contractor to arrange for service installations on new work sites.
33 71 39	Electrical Utilities	Electrical Lines		Direct buried underground rated - all copper.		All electrical lines will be located within 10' of perimeter property borders and enter the property and building at right (90º) angles to the property line at the shortest distance between the building and property line in order to quickly locate and minimize costs for future improvements. UG tape mark minimum 12" above lines. Lines to be 24" minimum deep unless approved in writing by Owner. All lines will have at least 2 permanent markers designating these lines. UG tape marker is required to be continuous within 12" of the top of the line. Reinforced concrete ductbank may be required by the Owner. Pipe sleeves or concrete ductbank is required under all pavements.
33 82 00	Utilities	Communication Lines		Conduit encased underground rated - shielded copper and fiber.		All communications lines will be located within 10' of perimeter property borders and enter the property and building at right (90º) angles to the property line **at the shortest distance between the building and property line** in order to quickly locate and minimize costs for future improvements. Lines to be 24" minimum deep unless approved in writing by Owner. All lines will have at least 2 permanent surface markers designating these lines. UG tape marker is required to be continuous within 12" of the top of the line. Reinforced concrete ductbank may be required by the Owner. Pipe sleeves or concrete ductbank is required under all pavements. A metallic location wire will be buried with all fiber optic lines.