Preliminary Pre-Design

MOCA

Minnesota
Capitol Preservation Commission
Mark Dayton
Governor

2011 Preliminary
Pre-Design
January 2012
Draft

PRELIMINARY PRE-DESIGN
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Implementation Statement

These Preliminary Predesign documents are to be used as a set of guidelines and imperatives relating to the restoration of the Minnesota State Capitol. They have been developed based upon the associated Master Plan and the concepts contained therein (See Master Plan in the appendix).

These documents are not intended to be a complete set of predesign documents, which will be developed and completed by the architect of record hired by the State of Minnesota to restore the Capitol.

With that understanding, these preliminary documents will address only those elements of the project which have been identified as being critical to the project. Sections may be left blank for the Architect of Record (AOR) to complete, while other sections of the document will be extensive and complete.

Summary Statement

The restoration of the Minnesota State Capitol is based upon three principles:

1. Respecting the Architectural Integrity of the Cass Gilbert design
2. Improving the functional relationships of the spaces for the legislature, executive and judicial branches of government.
3. To provide for accessibility, life safety and mitigate security vulnerabilities.

These three principles have been selected by the Capitol Preservation Commission to guide the overall process of the restoration.

Additionally, the guideline provided by the Commission was to stay within the footprint of the Capitol. The commission is not interested in an expansion of the Capitol at this time. Every effort has been made in our planning to stay within the footprint of the Capitol and it's terrace. Therefore, there is no new extension contemplated in this project.

The Capitol, and particularly the stone exterior of the building, is deteriorating rapidly.

The mechanical systems are nearing the end of their useful life and are difficult to control and maintain. The commons area of the building does not have a direct source of outside air in violation of code requirements. The plumbing systems are nearing their end of useful life and are at risk of leaking. Most readily accessed areas have been replaced but much of the system is not readily accessible.

The Electrical Systems are inadequately sized for the modern day usage demand placed upon them by the use of computers, copiers and printers. The electrical service needs to be upgraded to 480 volts and all the electrical lines should be upgraded as well.

Life-safety systems need to be improved. There is no smoke control system and only a limited sprinkler system. Exit stairwells are not code compliant. Modern physical security design and technology can in fact be leveraged to mitigate many security vulnerabilities. The Capitol needs to be a safer and more secure building for all who work in it and visit it.

The Technology Systems, which include the communication systems and wiring for internet access, are haphazardly strung and below the current level of service now needed for the proper function of State Government.

Today, most of the Capitol has inadequate or nonexistent accessibility. When the Capitol was designed over 100 years ago, access for people with disabilities was not considered. From parking, to easily managed paths to and into the building, to modern and code-compliant fire alarm horns and strobes, and accessible restroom and hearing rooms, this building needs modernization with respect to accessibility.

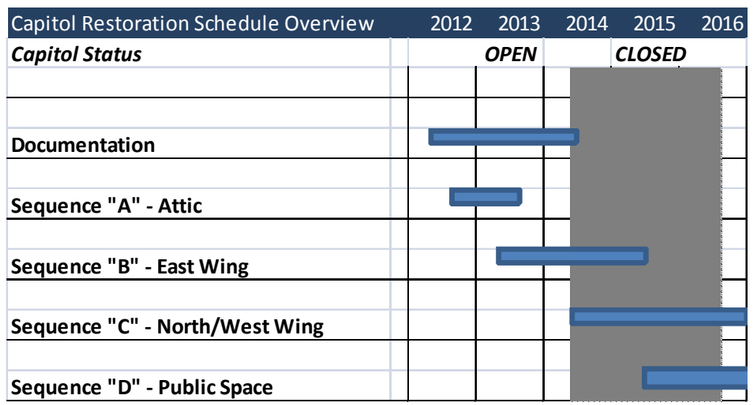
Committee Rooms need to be better organized and meeting spaces should be identified in areas with a minimal number of structural columns which impede the public viewing of the proceedings.

The Public struggles to find Legislators located in the Capitol. The physical layouts and relationships of Senate offices should be improved for ease of access by the public.

Accommodations should be made for the school buses and school children who visit the Capitol as well as providing better accommodations for visitors to witness and participate in the sessions.

Communications between the Senate and House Chambers is critical to the function of state government. Currently the building does not support these functions and movement between the bodies.

Restoration of the Capitol should focus on a 100 year building life expectancy.



Summary Statement

Funding Requests

Historically, major capital budget bills have been passed in ***even-numbered*** years. Given the Capitol restoration will require total funding in the amount of **$241 million**, the Preservation Commission requested one-time and phased funding options for their consideration. As such, the following options are presented for consideration:

1. Single Appropriation- FY2012. Total appropriation to be **$241,000,000**, which would include all sequences of work.

2. Bonding Year - FY2012 and FY 2014 are the typical bonding years. Based on the proposed sequencing of the project, funding could be appropriated as follows:

FY2012 total appropriation to be **$146,000,000**

Sequence A - $40,000,000
Sequence B - Restoration of the East Wing, Close and relocate occupants -$*106,000,000*

FY 2014 total appropriation to be **$95,000,000:**

Sequence C - Restoration of the North and West Wings, Close entire building - $48,000,000
Sequence D - Restoration of the Public Spaces - $47,000,000

3. Annual Appropriations - An alternative would be for the Legislature to appropriate funding in three consecutive legislative sessions as follows:

FY2012 total appropriation to be **$40,000,000**

Sequence A - Retain a portions of the Consultants services provide the Structural Slab installation for Attic mechanical and electrical; begin exterior stone repairs and window replacement.

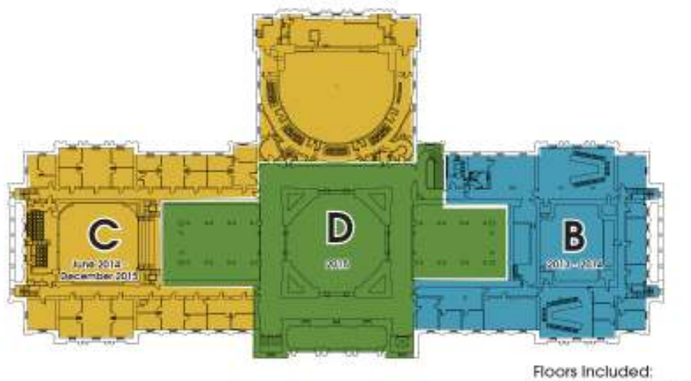
FY2013 total appropriation to be $**106,000,000**

Sequence B - Retain the remaining professional fees and Restoration of the East Wing, Close and relocate occupants.
Sequence C - Preparation of the Restoration of the North and West Wings

FY2014 final appropriation to be **$95,000,000**

Sequence C - Restoration of the North and West Wings, Close entire building
Sequence D - Restoration of the Public Spaces

Both of these options provide for the proper sequencing of the work to occur and allow for the timely completion of the project.



1.1 Building Project Data Sheet

Name of Project:	Minnesota State Capitol Restoration
Agency:	Capitol Preservation Commission and the Department of Administration
Project Location:	Saint Paul Minnesota, Capitol Mall
Building Occupancy Type	
Primary Space Types:	Mechanical Spaces, Storage, Office, Meeting Room and Public Area Restoration
Building Size	
Number of Stories	5 plus 2 mezzanine levels
Square Footage per floor	
Basement	123,177 SF
Ground	65,307 SF
First	62,531 SF
Second	61,833 SF
Second Floor Mezzanine	1,057 SF
Third	61,955 SF
Third Floor Mezzanine	1,151 SF
Fourth	1,815 SF
Total Square Footage	378,826 SF (To be verified in field by AOR)
Space Efficiency	Usable vs. Circulation/Mechanical etc. N/A
Office Space	Gross Square Feet Per Person N/A
	Typical Workstation Size N/A
Site Size, Number of Acres:	Approximately 5 Acres - Just the area immediately surrounding the Capitol
Parking:	N/A
Roofing Type	To be provide by Architect of Record (AOR) in the final pre-design.
Exterior Wall Type	To be provided by AOR in the final pre-design.
Interior Wall Type	To be provided by AOR in the final pre-design.
Structural Systems	To be provided by AOR in the final pre-design.
Mechanical System	De-coupled 100% outside air system.
Fire Protection System	To be provided by AOR in the final pre-design.
Electrical System	To be provided by AOR in the final pre-design.

Cost Analysis

Minnesota State Capitol Restoration Budget Recommendation By MOCA December 31, 2011			
Program Costs			
Construction Costs	$	126,544,011.74	
Contractor Contingency	$	10,559,280.94	8.34%
Contractor Fee	$	4,619,685.41	3.65%
Total Construction Costs	**$**	**141,722,978.09**	
Owner Project Costs			
Project Mangement	$	1,483,000.00	1.05%
Architects	$	15,331,000.00	10.82%
Predesign - A/E Package	$	500,000.00	0.35%
Construction Contingency	$	14,832,000.00	10.47%
Telecommunications (voice & data)	$	5,746,000.00	4.05%
Inspections - Special construciton and General	$	741,000.00	0.52%
Commissioning Energy services	$	2,000,000.00	1.41%
Security Equipment	$	1,851,000.00	1.31%
Furniture	$	7,416,000.00	5.23%
Total Owner Project Costs	**$**	**49,900,000.00**	
Total Project Costs	$	191,622,978.09	
Inflation at 11.79%	**$**	**22,592,349.12**	11.79%
Total with inflation	**$**	**214,215,327.21**	
Other Project Costs			
Design Guidelines/Master Plan	$	700,000.00	0.33%
CM PreConstruction	$	2,225,000.00	1.04%
Relocation moving costs	$	2,000,000.00	0.93%
Historic Structure Report	$	741,000.00	0.35%
General Expenses	$	741,000.00	0.35%
Swing Space	$	20,000,000.00	
Total Owner Costs	$	26,407,000.00	
Total Program Costs	$	240,622,327.21	
Total Estimated Cost	***$***	***241,000,000.00***	
Bond Request			

Background of Capitol Restorations

General

This preliminary pre-design anticipates the restoration of the Minnesota State Capitol.

In 1896, Architect, Cass Gilbert was hired to design a white marble American Renaissance State Capitol for the people of Minnesota. In 1905 the Capitol was completed.

The purpose of this restoration is to restore the Minnesota State Capitol for the next century of service to the citizens of Minnesota.

The exterior marble stone of the Capitol is in critical need of repair and is currently weathering poorly. If left unattended, the deterioration will reach a point where it will become an annual maintenance expense which will be very expensive and unsightly for the citizens of Minnesota.

The interior and other areas of the Capitol are also in need of a comprehensive restoration. The Capitol Preservation Commission has requested that the work be focused upon three guiding principles; 1. Architectural Integrity, 2. Function, and 3. Life Safety and Accessibility. Preparing the Capitol for the next 100 years will require installation of modern mechanical and electrical systems, higher quality meeting spaces and better overall facilities for the citizens to meet with their elected officials.

Previous Attempts to secure funding to restore the Capitol have failed. The Department of Administration has had to address many issues and problems as improvement projects and small project over the years. These improvements and small projects have been able to keep the building running and functioning at a basic level. It is clear that the building has reached a point where these small project and improvement projects can no longer provide the type of replacement which must be done to secure the next 100 years for the Capitol.

Previous Appropriations

Throughout the years there have been several attempts to restore the Capitol. For a complete record of the appropriation dating back to 1985, please review the 2012 Comprehensive Master Plan.

History of Capitol Restoration Pre-Design and Design

- 2001 Miller Dunwiddie Associates created a pre-design for the interior restoration of the Capitol the purpose was to:
  - Preserve the historic resources of the Minnesota State Capitol
  - Better utilize the tenant space in the Capitol
  - Better facilitate the interaction between the public and their State Government.
- 2005 The architectural/engineering team of Hammel, Green, Abrahamson (HGA) and Schooley Caldwell (SCA) were retained to update and replace the 2001 pre-design study and to prepare schematic design for the full interior restoration of the Capitol.

The AOC should become familiarized with this revised document from July of 2007 in order to adequately complete the pre-design for the Capitol restoration.

Capitol Expenditure

General

This budget request is based on the described approach found in the 2012 Comprehensive Master Plan prepared by MOCA and WOLD for the Capitol Preservation Commission. It contemplates the complete restoration of the historic space to be returned to their original architectural integrity, and improvement in functional working of the space in the Capitol to make it easer upon the citizens to participate in the working of Government and to assure the taxpayer that life safety and accessibility issues have been resolved.

This conceptual design is driven around four sequences, designed to keep the legislature, executive, and judicial branches in the Capitol during the restoration for as long as possible. Therefore limiting the time out of the Capitol to only two years of the five year restoration.

The recommended method for accomplishing this work is through a Construction Manager at Risk (CMr) procurement method. This method relies upon the selection of the CMr early in the project and making them a participant with the Owner Project Manager (OPM) and the Architect (AE). The OPM then implements an integrated project where all parties are involved in a collaborative and interactive process resulting in a managed Guaranteed Maximum Price (GMP).

Impacts on Agency Operating Budgets

Bond interest and building depreciation are expenses recovered as part of the lease rate for Capitol building. The impact of the project on lease rates will be determined as the scope, budget, and schedule for the restoration project is being finalized.

Cost Benchmarking

As with other studies done before the report utilized recent benchmarking analysis. There is a broad range of Capitol restoration costs from many different Capitols throughout the United States. These costs ranged from a low of $70 million to well over $250 million. The scope of these restorations varied as well. Steps were taken to adjust the costs accordingly so that a comparison could be made. Once complete, a cost per square foot was generated. This average cost was $600 per square foot, not including Furniture, Fixtures, equipment, and swing space.

Capitol Benchmarking Analysis

State Capitol	Renovated Square Footage	Escalated to 2015	Adjusted Program	Adjusted $/SF
Kansas Capitol	300,000 SF	$205 million	$187 million	$624/SF
Michigan Capitol	225,000 SF	$94 million	$94million	$416/SF
Ohio Capitol	273,000 SF	$184million	$184million	$674/SF
Texas Capitol	360,000 SF	$318 million	$223million	$620/SF
Utah Capitol	310,000 SF	$265 million	$152million	$492/SF
Virginia Capitol	117,000 SF	$105 million	$98 million	$736/SF
Wisconsin Capitol	240,000 SF	$203 million	$203 million	$848/SF
AVERAGE	**260,725 SF**	**$196million**	**$163million**	**$600/SF**
Minnesota Capitol*	**387,000 SF**	**$337million**	**$198million**	**$523/SF**

Capitol Expenditure

Cost Estimate

This development of the cost estimate has utilized the benchmarking analysis, systems analysis and quantity takes off analysis. The estimates have been checked with industry on such items as decorative painting, bronze light fixtures, plaster and other historical restoration items. Regional and local data has also been reviewed to identify local conditions and costs.

TOTAL PROJECT COSTS All Years and All Funding Sources	Project Costs All Prior Years	Project Costs FY2012-2013	Project Costs FY2014 - 2016	Project Costs 2016 -2018	Project Costs All Years
1. Property Acquisition					
Land, Land and Easements, Options	$ -	$ -	$ -	$ -	$ -
Buildings and Land	$ -	$ -	$ -	$ -	$ -
Other Costs	$ -	$ -	$ -	$ -	$ -
SUBTOTAL	$ -	$ -	$ -	$ -	**$ -**
2. Predesign					
Predesign - A/E Package		$ 500			$ 500
SUBTOTAL	$ -	$ 500	$ -	$ -	**$ 500**
3. Design Fees					
Schematic		$ 2,225			$ 2,225
Design Development		$ 2,966			$ 2,966
Contract Documents		$ 5,932	$ -		$ 5,932
Construction Administration		$ 1,854	$ 1,854		$ 3,708
Other Costs		$ 250	$ 250		$ 500
SUBTOTAL	$ -	$ 13,227	$ 2,104	$ -	**$ 15,331**
4. Project Management					
State Staff Project Management		$ 200	$ 200		$ 400
Non-State Project Management		$ 417	$ 417		$ 833
Other Costs		$ 125	$ 125		$ 250
SUBTOTAL	$ -	$ 742	$ 742	$ -	**$ 1,483**
5. Construction Costs					
Site & Building Preparation	$ -	$ -	$ -	$ -	$ -
Demolition/Decommissioning		$ 4,600			$ 4,600
Construction		$ 35,921	$ 99,817		$ 135,738
Infrastructure/Roads/Utilities		$ 234			$ 234
Hazardous Material Abatement		$ 1,150			$ 1,150
Construction Contingency		$ 1,348	$ 13,484		$ 14,832
Other Costs		$ 67	$ 674		$ 741
SUBTOTAL	$ -	$ 43,321	$ 113,974	$ -	**$ 157,295**
6. Art					
			$ -		$ -
SUBTOTAL	$ -	$ -	$ -	$ -	**$ -**
7. Occupancy					
Furniture, Fixtures and Equipment			$ 7,416		$ 7,416
Telecommunications (voice & data)			$ 5,746		$ 5,746
Security Equipment			$ 1,851		$ 1,851
Commissioning		$ 182	$ 1,818		$ 2,000
SUBTOTAL	$ -	$ 182	$ 16,831	$ -	**$ 17,013**
8. Inflation Midpoint of Construction					
Inflation Multiplier		11.79%	11.79%	11.79%	11.79%
Inflation Cost **SUBTOTAL**	$ -	$ 6,835	$ 15,757	$ -	**$ 22,592**
9. Other					
Swing Space		$ 11,707	$ 8,293		$ 20,000
Relocation (General Fund)		$ 1,000	$ 1,000		$ 2,000
Master Plan	$ 200				$ 200
Historic Structure		$ 741			$ 741
Design Guidelines		$ 500			$ 500
Pre Construction Services CM		$ 2,225			$ 2,225
General Expenses		$ 371	$ 371		$ 741
SUBTOTAL	$ 200	$ 16,544	$ 9,663	$ -	**$ 26,407**
GRAND TOTAL	**$ 200**	**$ 81,349**	**$ 159,072**	**$ -**	**$ 240,621**

Capitol Expenditure

Sequence Cost Analysis

As previously discussed, the Comprehensive Master Plan is based upon the four sequences of work. These sequences may be funded separately. The following charts demonstrate the breakdown based upon the sequence of the work.

TOTAL PROJECT COSTS All Years and All Funding Sources	Project Costs All Prior Years	Project Costs FY2012-2013	Project Costs FY2014 - 2016	Project Costs 2016 -2018	Project Costs All Years	Sequence A	Sequence B	Sequence C	Sequence D
1. Property Acquisition									
Land, Land and Easements, Options	$ -	$ -	$ -	$ -	$ -				
Buildings and Land	$ -	$ -	$ -	$ -	$ -				
Other Costs	$ -	$ -	$ -	$ -	$ -				
SUBTOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
2. Predesign									
Predesign - A/E Package		$ 500			$ 500	$ 500			
SUBTOTAL	**$ -**	**$ 500**	**$ -**	**$ -**	**$ 500**	**$ 500**	**$ -**	**$ -**	**$ -**
3. Design Fees									
Schematic		$ 2,225			$ 2,225	$ 2,225			
Design Development		$ 2,966			$ 2,966	$ 2,966			
Contract Documents		$ 5,932	$ -		$ 5,932	$ 5,932			
Construction Administration		$ 1,854	$ 1,854		$ 3,708	$ 500		$ 3,208	
Other Costs		$ 250	$ 250		$ 500	$ 375		$ 125	
SUBTOTAL	**$ -**	**$ 13,227**	**$ 2,104**	**$ -**	**$ 15,331**	**$ 11,998**	**$ -**	**$ 3,333**	**$ -**
4. Project Management									
State Staff Project Management		$ 200	$ 200		$ 400	$ 100	$ 100	$ 100	$ 100
Non-State Project Management		$ 417	$ 417		$ 833	$ 208	$ 208	$ 208	$ 208
Other Costs		$ 125	$ 125		$ 250	$ 63	$ 63	$ 63	$ 63
SUBTOTAL	**$ -**	**$ 742**	**$ 742**	**$ -**	**$ 1,483**	**$ 371**	**$ 371**	**$ 371**	**$ 371**
5. Construction Costs									
Site & Building Preparation	$ -	$ -	$ -	$ -	$ -				
Demolition/Decommissioning		$ 4,600			$ 4,600	$ 1,150	$ 1,150	$ 1,150	$ 1,150
Construction		$ 35,921	$ 99,817		$ 135,738	$ 9,730	$ 69,205	$ 29,627	$ 27,178
Infrastructure/Roads/Utilities		$ 234			$ 234	$ 234			
Hazardous Material Abatement		$ 1,150			$ 1,150	$ 288	$ 288	$ 288	$ 288
Construction Contingency		$ 1,348	$ 13,484		$ 14,832	$ 1,070	$ 7,612	$ 3,259	$ 2,890
Other Costs		$ 67	$ 674		$ 741	$ 67		$ 674	
SUBTOTAL	**$ -**	**$ 43,321**	**$ 113,974**	**$ -**	**$ 157,295**	**$ 12,538**	**$ 78,254**	**$ 34,997**	**$ 31,505**
6. Art									
			$ -		$ -				
SUBTOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
7. Occupancy									
Furniture, Fixtures and Equipment			$ 7,416		$ 7,416				$ 7,416
Telecommunications (voice & data)			$ 5,746		$ 5,746		$ 2,517	$ 1,078	$ 2,151
Security Equipment			$ 1,851		$ 1,851		$ 1,295	$ 556	$ -
Commissioning		$ 182	$ 1,818		$ 2,000	$ 500	$ 500	$ 500	$ 500
SUBTOTAL	**$ -**	**$ 182**	**$ 16,831**	**$ -**	**$ 17,013**	**$ 500**	**$ 4,312**	**$ 2,134**	**$ 10,067**
8. Inflation Midpoint of Construction									
Inflation Multiplier		11.79%	11.79%	11.79%	11.79%	11.79%	11.79%	11.79%	11.79%
Inflation Cost **SUBTOTAL**	**$ -**	**$ 6,835**	**$ 15,757**	**$ -**	**$ 22,592**	**$ 3,054**	**$ 9,778**	**$ 4,814**	**$ 4,945**
9. Other									
Swing Space		$ 11,707	$ 8,293		$ 20,000	$ 8,000	$ 12,000		
Relocation (General Fund)		$ 1,000	$ 1,000		$ 2,000		$ 1,000	$ 1,000	
Master Plan	$ 200				$ 200	$ 200			
Historic Structure		$ 741			$ 741	$ 741			
Design Guidelines		$ 500			$ 500	$ 500			
Pre Construction Services CM		$ 2,225			$ 2,225	$ 1,230		$ 995	$ -
General Expenses		$ 371	$ 371		$ 741	$ 185	$ 185	$ 185	$ 185
SUBTOTAL	**$ 200**	**$ 16,544**	**$ 9,663**	**$ -**	**$ 26,407**	**$ 10,856**	**$ 13,185**	**$ 2,180**	**$ 185**
GRAND TOTAL	**$ 200**	**$ 81,349**	**$ 159,072**	**$ -**	**$ 240,621**	**$ 39,817**	**$ 105,901**	**$ 47,829**	**$ 47,073**
Bonding Years						FY 2012		FY2014	
						$	**145,718**	**$**	**94,903**
Annual Bonds Off Bonding Years						FY 2012	FY2013	FY2014	
						$ 39,817	**$ 105,901**	**$ 94,903**	

Operating Expenditures

These forms will need to be completed by the Architect of Record during the completion of the pre-design phase of the project. The Architect of Record will work with the Department of Administration to gather and complete the forms.

APPENDIX I

Fiscal Note Request Worksheet

Bill #: SF-666 Title: Capitol Building Restoration and Expansion Bond Issue and Appropriation

Comp #: ____-___ Author: Rest; Senjem, Langseth, Pogemiller; Pappas Agency: Administration

Urgent: _____ Due Date: _____ Committee: Finance

Consolidated: _____ Lead Agency: _____ Contact Person: Nicky Grancolas

What version of the bill are you working on? 0666-0

(Changing the version of the bill will automatically create a new fiscal note request.)

(The following four fiscal impact questions must be answered before an agency can sign off on a fiscal note.)

Fiscal Impact	Yes	No
State (Does this bill have a fiscal impact to your Agency?)	X	
Local (Does this bill have a fiscal impact to a Local Gov Body?)		X
Fee/Dept Earnings (Does this bill impact a Fee or Dept Earning?)	X	
Tax Revenue (Does this bill impact Tax Revenues?)		X

Dollars (in thousands)	FY07	FY08	FY09	FY10	FY11
Expenditures					
Fund					
Fund					
Fund					
Less Agency Can Absorb					
Fund					
Fund					
Fund					
Net Expenditures					
Fund					
Fund					
Fund					
Revenues					
Fund					
Fund					
Fund					
Net Cost <Savings>					
Fund					
Fund					
Fund					
Total Cost <Savings> to the State					

	FY07	FY08	FY09	FY10	FY11
Full-Time Equivalents					
Fund					
Fund					
Fund					
Total FTE					

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APPENDIX I

Bill Description

Appropriating money to the Commissioner of Administration and authorizing the issuance of state bonds to design, construct, furnish and equip the restoration and expansion of the State Capitol.

Assumptions

Based on the Minnesota State Capitol Restoration Predesign Update and Conceptual Design Plan dated October 2006 - Option A
Square footages based on 2/13/07 CAD drawings

An appropriation of $260 million of general obligation bonded funds.
The project will commence in the fall 2008.
The project will be completed by the end of calendar year 2014.
Expansion space of 120,000 useable square feet (160,000 gross square feet) will be permanently occupied the end of calendar year 2014 (FY2015).
The cost for the new parking located in the northwest section of Capitol is unknown.

Expenditure and/or Revenue Formula

A general fund relocation appropriation of $845,000 (preliminary estimate) will be required for staging and moving to facilitate the restoration.

The cost of this project will be recovered through lease rate increases to building tenants. Bond interest is recovered over 20 years and depreciation over 30 years. It is estimated that the lease rate would increase $56.96 per square foot.

The increase of 120,000 useable square feet will also result in increased annual operating costs of approximately $1.2 million and 9 FTE.

Long-Term Fiscal Considerations

Bond interest of approximately $7.3 million per year will be collected through lease rates over 20 years. Building depreciation of approximately $6.7 million per year will be collected through lease rates over 30 years. Portions of the bond interest and building depreciation will be collected beginning in FY2012 based on the date project funds are expended. Each biennium thereafter, additional bond interest and building depreciation will be collected based on the date funds are expended. In FY2018, the entire annual bond interest and annual building depreciation will be collected.

Local Government Costs

n/a

References/Sources

Minnesota State Capitol Restoration Predesign Update and Conceptual Design Plan dated October 2006
CAD drawings provided on 2/13/07 by Schooley Caldwell Associates
Relocation costs provided on 2/12/07 by Hammel Green and Abrahamson and State Architects Office

I have reviewed the content of this fiscal note and believe it is a reasonable estimate of the expenditures and revenues associated with this proposed legislation.

Fiscal Note Coordinator Signature: _____ Date: _____

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Schedule

General

2012

- Mar. 2012 Comprehensive Master Plan is completed by the Owners Project Manager
- Jun. 2012 Predesign is completed by the Architect
- Jul. 2012 Legislature to pass bonding request and to authorize the restoration of the Capitol.
- Jul. 2012 Architectural Design begins

2013

- Mar. 2013 bid package #1 is completed for Sequence A - Attic Mechanical and Electrical preparation, exterior stone repairs and window replacement.
- Jun. 2013 construction begins on Sequence A.
- Jul. 2013 Close and relocate to swing space the occupants in the East Wing of the Capitol
- Oct. 2013 bid package #2 is completed for Sequence B - East Wing Mechanical and Electrical replacement.
- Nov. 2013 begin construction on the East Wing of the Capitol.
- Dec. 2013 Complete attic mechanical and electrical preparation.

2014

- Mar. 2014 bid package #3 is complete for Sequence C - North and West Wing Mechanical and Electrical replacement.
- May. 2014 Close Capitol to public following the legislative session and relocate all occupants to Swing space.
- Aug. 2014 begin tenant finish package Sequence B
- Dec. 2014 begin construction on bid package #3 Sequence C.
- Dec. 2014 complete construction on Sequence B Mechanical and Electrical

2015

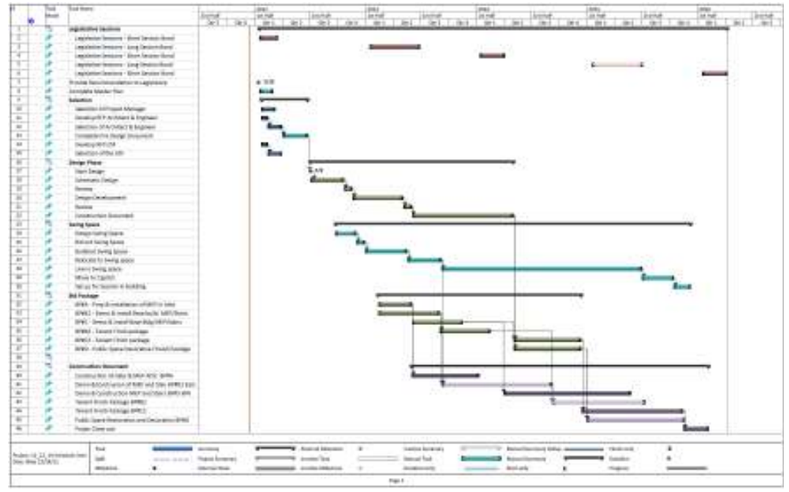
- Feb 2015 begin tenant finish package Sequence C
- Mar. 2015 begin public space improvement and renovation Bid Package #4 Sequence D
- Jun. 2015 complete construction on sequence C Mechanical and Electrical
- Jul. 2015 complete construction on sequence B tenant finish
- Nov. 2015 complete construction on Sequence C tenant finish
- Dec. 2015 Move into Capitol

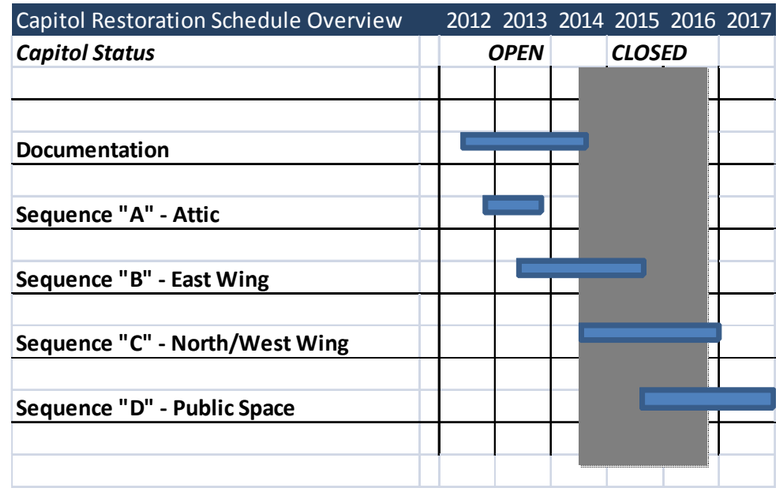
2016

- Nov. 2016 complete construction on Sequence D Public Space Restoration.

2017

- Jan. 2017 Grand Re-Opening of the Restored Capitol to the Public





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6.1 Program Summary

General

The Minnesota State Capitol Restoration is a national historic monument that has served the people of Minnesota well for over 100 years . However, it has entered a phase of rapid deterioration of it's Marble Exterior, outdated performance of it Mechanical and Electrical systems, and dysfunctional space plan due to years of ad hoc modifications to add more and more people into smaller and smaller spaces.

While this is typical throughout many of the nation's Capitols, Minnesota's Cass Gilbert Capitol has reached a tipping point of deterioration that must be corrected immediately or extreme measures will need to be taken in the future to repair the damage of time and man.

The renovation is designed to address these pressing needs which the building currently has. The project will provide for:

- Exterior envelope work including roof & window replacement and stone repairs
- Mechanical and electrical modernization of systems in order to allow for larger group gatherings in a more comfortable environment and the reliable delivery of data to the public
- Functional space reorganization to better serve the taxpayer by creating meeting spaces that serve the needs of both the public and government
- Public space restoration and the recapture and return of lost public space back to the taxpayer

This restoration will enhance the opportunity for the public to gather together and participate in the activity of government within the State of Minnesota.

6.2 Building Design Concepts

The Capitol Preservation Commission, in their second meeting, identified one of their guiding principals "Architectural Integrity". This ideal was selected to address the importance of following through with what, Architect, Cass Gilbert had originally envision in 1896 when he began working on the design of the Capitol.

This principal has guided the conceptual design approach of the 2012 restoration. The Master Plan calls for a full restoration of the original design by Gilbert. The conceptual plan follows Gilbert's original design concepts for locating key elements of the project including:

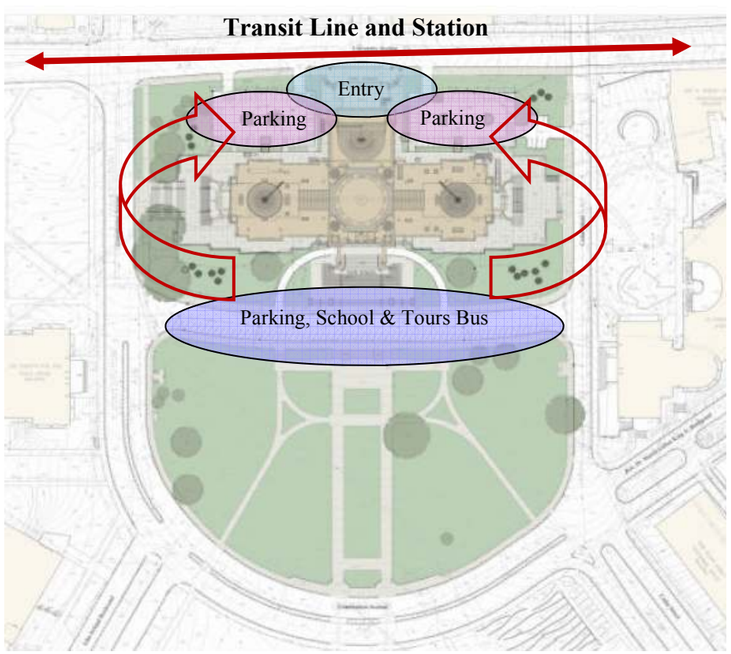
- Mechanical and electrical equipment - Gilbert provided vertical chases that consistently ran vertically through each quadrant of the building. By utilizing these existing locations and expanding them as needed to vertically distribute the main supply and electrical feeders throughout the Capitol, this will assist the modernization of these systems and will only slightly impacting the usable square footage of the building.
- Meeting Room - the structural system allowed for a single large space in each of the four quadrants. These spaces were framed by vertical mechanical ductwork on the east and west sides. These spaces located the columns inward, creating a space with a clear span that is suitable for committee rooms and other such meeting rooms.
- Public Space - was designed originally to provide access to all other public functions within the building. By using the original plans and reclaiming the public and semi-public space, the public will enjoy a clearly organized and accessible Capitol.
- Office Space - the office space was originally designed to house all agencies within state government. Cass Gilbert knew that over time Government would grow and spaces would change. Therefore, he created these spaces to be flexible and to be able to accommodate a number of functions and uses. These spaces in the 2012 plan will be designed to be flexible tenant spaces able to accommodate the changing needs of government over the next 100 years.

Utilizing the original decisions of Cass Gilbert, and utilizing modern technology, the restoration of the Capitol should provide the people of Minnesota with a facility where the people's business can be conducted for the next 100 years.

6.3 Site Design Concepts

There are several site design elements that must be resolved by the architect in the predesign phase. The master plan, nor this document, do not make an attempt to solve them but does suggest that the following items be addressed:

- Integration with light rail and public bus entry to the West
- Security related access from the South
- Parking Location and amount
- School and Tour bus entry, drop off and parking
- Parking in front of the Capitol



6.4 Design Narratives

6.4.1 Architectural Renovation

The Cass Gilbert Minnesota State Capitol is considered one of the most, if not the most, beautiful State Capitols in the United States. It is not only a State Treasure but a national one. To perform anything less than a full and complete restoration, preparing it for service for the next 100 years, would be inappropriate. The Capitol Preservation Commission has requested that the restoration hold true to the original designs and intention of the Cass Gilbert.

The proposed restoration hierarchy will be done in consultation with the State Historic Preservation Office (SHPO) focusing on:

- Group 1 - Restoring the Historic and Public spaces within the Capitol to their original design and color palate, materials and finishes. The following palate should be considered:
  - Plaster and stone walls as exiting
  - Plaster ceilings per the original designs
  - Decorative painting to be restored
  - Light fixtures shall be restored and replicated
  - Marble/stone floors to be restored
  - Mechanical and electrical devices will be custom designed grills and other items will be designed to blend into the historic space or will be concealed behind a wall.
- Group 2 - Meeting and Committee rooms will be designed to the same style and color palettes as the original building to be sympathetic to and blend with the original design. Materials and finishes will be the same as in group one.
  - Plaster and stone walls in the public view or to make a logical connection to the existing public space. Gypsum Board walls may be used in all other locations with wood base and crown molding. Wood Chair rail may likewise be used.
  - Ceilings may be hung gypsum board with an acoustical plaster.
  - Decorative Paint shall not be required. Similar color palette shall be used.
  - Light fixtures will be designed from spinning and casting from the original fixtures but will be a new “family” of fixtures.
  - Floors shall be finished in Carpets of a wool and nylon blend in a custom pattern that is consistent with both the style and period of the day.
  - Mechanical and electrical devices will be carefully located as to not attract attention. Where possible custom grills will be used.
- Group 3 - Office/tenant space shall follow a similar pattern with the color palate. However, the materials will be of a more contemporary type. For example instead of using plaster as a wall finish, gypsum board will be acceptable and so on.
  - Gypsum Board walls with metal studs, wood trim and chair rail with wood base and crown molding
  - Ceiling shall be a hung gypsum board painted in all perimeter office locations.
  - Light fixtures will be from manufactured sources. Except where they can be seen from the outside then they will be similar to Group 2 light fixtures.
  - Floors shall be finished with a good quality manufactured carpet. The pattern and color shall be compatible with the time period and colors of the building.
  - Mechanical and electrical equipment will be purchased from standard suppliers and vendors and shall be incorporated into the design to be

6.4.2 Interior/preservation Zones

Zone 1 – Primary Significance

- This zone includes spaces and elements most significant artistically and architecturally; whose use has not changed significantly; which have a high degree of integrity; are of the greatest visual interest; and which are most strongly character-defining. These spaces should be restored to original condition with as little alteration as possible. Examples include the Governor's Office, the Governor's Reception Room, the Legislative Chambers, Supreme Court Rathskeller, the Rotunda and all public corridors.

Zone 2 – Secondary Significance

- Zone 2 spaces and elements are those which retain a high level of integrity and have experienced a minimal level of alteration, but which were clearly secondary in character when designed and executed, and employed elements that involved a lesser degree of skill and workmanship. The surviving elements of such spaces should be retained and treated sensitively (missing components do not necessarily have to be replaced.) The original plan configuration should be kept largely intact. However, some modifications are permitted if the overall character is kept intact. Improvements should be as reversible as possible. Examples include areas within the Attorney General's suite, selected conference rooms where technology is required, and historic restrooms and stairs.

Zone 3 – Tertiary Significance

- Zone 3 includes spaces and elements originally intended to be flexible in design and subject to change over time as the state's space needs demanded; and which thus were designed with little decoration or special architectural treatment. These spaces may be partitioned in the course of new construction. In spaces where historic elements were employed, however, this zoning category advocates their retention during rehabilitation. Examples include typical office space and new public restrooms.

Zone 4 – Minimal Significance

- This zone includes spaces which have undergone alteration and have retained no ornamentation or architectural character; and spaces designed as non-public work spaces which have no historic or architectural significance. These spaces may be removed, altered, or updated in any manner. Examples include mechanical, electrical and other non-public service areas.

(Restoration Zones Provided from the HGA/SCA 2007 Capitol Restoration predesign document)

The Architect of Record, working with the owner project manager will review and determine the various zones within the capitol. These zones will be presented to the Capitol Preservation Commission by the Owner's Project Manager (OPM) once complete.

6.4.3 Landscape Architecture

The 2011 Master Plan for the renovation of the Minnesota State Capitol does not contemplate a great deal of landscape work. Those areas of the Capitol grounds that will be impacted by the restorative work on the Capitol include the two parking lots located on the north side of the Capitol and the street with parking along the south side of the Capitol.

The Architect of Record retained to complete the preliminary predesign shall study the impact in these three areas and propose a design solution that can be presented the Capitol Preservation Commission by the OPM.

6.4.4 Civil Engineering

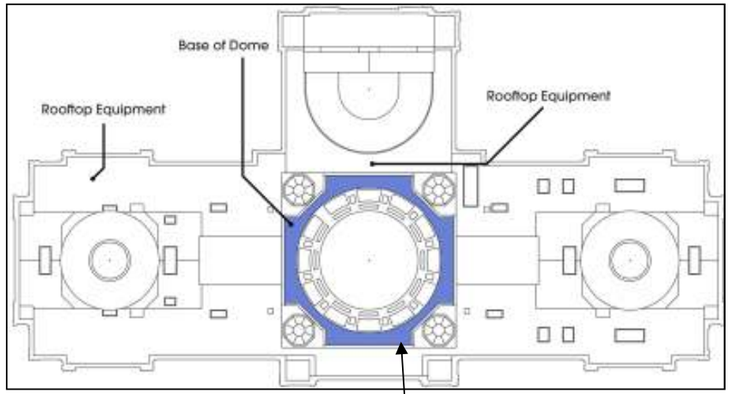
To be completed by the Architect of Recorded during the finalizing of the pre-design for the Capitol Restoration.

6.4.5 Structural Engineering

In 2008 an investigation revealed that there was slight to moderate deterioration to the 5 steel bands that are embedded in the middle dome of the Capitol. The Department of Administration has recently completed a project to address water infiltration and reinforce structural supports.

The 2012 Master plan calls for the development of a new mechanical attic space that will require the installation of new mechanical floor in the attic space below the dome. Structural engineers should study the exiting structure and provide an analysis of how this addition will impact the overall structure of the building. The designers should consider the sensitive nature of the location of new equipment structures. Proper care should be taken to mitigate dynamic load transfers to the historic structures. The AOR shall document those findings in the final pre-design document.

Base of Dome - New Structural Mechanical Floor To be added



Base of Dome - New Air intake grills

6.4.6 Mechanical Engineering

Existing Systems

The existing systems are maintained and managed well. However, Cass Gilbert's ventilation system design consisted of open windows and natural ventilation which is impractical in today's environment. The retrofitted systems do not ventilate all areas of the building and are not code compliant. Recirculation of interior air only can create an unhealthy environment. The occurrence of leaking pipes are a risk and cause damage to the building. Aging systems are more expensive to maintain and use a great deal more energy.

Systems descriptions

The following systems description explains the current state of the mechanical system.

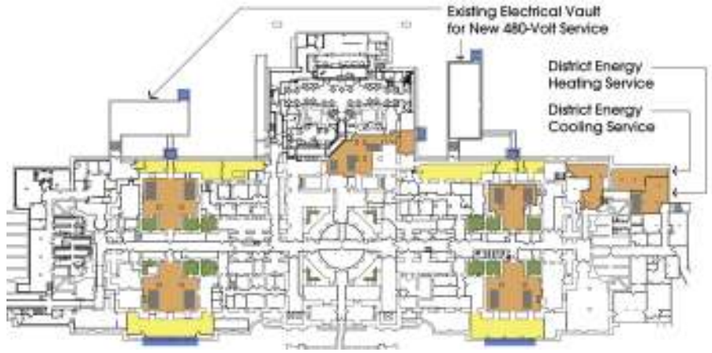
- Ventilation Systems – The building has been retrofitted over the years to where today it has 32 air handling units. These units are primarily located in the basement. Two units have been installed on the roof to serve the House and Supreme Court assembly areas. The systems serving the rotunda and the grand stairs areas do not have a direct source of outside air ventilation and originally relied on natural air flow through the building.
- Plumbing Systems – The current systems are original in many areas and have reached their expected life.
- Water distribution - was upgraded in 1984, however, the system pipe materials include copper and galvanized steel. Over the years dissimilar materials have created corroding and leaking of joints.
- Hot Water - heated from district energy to temperatures of 110 Deg. F for general use and 140 Deg. F for the kitchen. A booster is used for the dishwasher to reach 180 Deg. F.
- Storm, waste and vent piping - uses a combination of materials. Leaks in accessible locations are repaired as needed.
- Mechanical Systems - Generally, the mechanical systems have been repeatedly modified, repaired, and added to over recent years, creating an unordered condition that is difficult to maintain.
- Building Controls – Have been updated over time for direct digital control of most of the central systems. Pneumatic systems remain at terminal devices.
- Fire Protection – Approximately 1/3 of the building total floor areas have been retrofitted with a fire protection system.
- District Energy Service – the building heating and cooling is provided by St. Paul District Energy. Service piping enters the building in the northwest corner of the building. Currently, there is a project underway to improve the hot water heating service and distribution system.

Mechanical Approach & Recommended Design

- Modern systems require connectivity throughout the building. The challenge is making connections where none were originally intended.
  - Outside Connections
  - Equipment Locations
  - Horizontal Distribution
  - Vertical Distribution

It is recommended the mechanical systems be designed as a "De-coupled Cooling Systems". This energy efficient approach delivers a high concentration of fresh air for ventilation. Less air is circulated, requiring smaller equipment and ductwork. Devices located in each room provide temperature controllability by the occupant.

Space for the mechanical equipment and duct work shall be used in both the existing basement mechanical rooms as well as in the exiting attic space.



Basement mechanical Rooms and equipment locations

Mechanical Duct space in the attic of the Capitol

6.4.7 Electrical Engineering

Systems descriptions

The following systems description explains the current state of the mechanical system.

- Communication/Data – The communication and data systems currently run “as needed”. This needs to be reworked to provide more efficient distribution of service. Wireless systems also need to be configured.
- Electrical Service - Current service in to the building is 208 volt. The building is set for 13.8 KV, with the utility vaults outside of the Capitol. Transition to 480 volt should be relatively straight forward.

The building communication/data systems need to be upgraded. The electrical service can be reused, however, the distribution wiring and panels should be replaced to provide a modern standard of function.

The AOC shall review the existing condition of the electrical and communication systems then, working with an electrical engineer, provide an efficient solution that will be flexible and able to be adapted to the changing technology for the next 50 to 100 years.

Space	Ambient Illuminance Target[1]	Task Lighting Required
Circulation, Lobby, Waiting, Rotunda	3 fc to 5 fc	NA
Chambers	25 to 35 fc	NA
Office	15 to 20fc	Yes, add'l 30 to 35fc
Admin Support	15 to 20 fc	Yes, add'l 30 to 35fc
Library	30 fc	30 fc (active stacks)
Gallery	5 to 10 fc	As necessary for accent
Conference	15 to 20 fc	NA
Restrooms	5 fc to10 fc	NA
Equipment Rooms w/windows	5 fc	NA
Equipment Rooms w/o windows	10 fc or greater	NA

[1] Values are average illuminance targeted for horizontal task plane (e.g., floor, table, desk). Actual field measurements may be higher or lower depending on a variety of field conditions, including paint color schemes and actual voltage. Average-to-minimum uniformity at 3-to-1 or less in workspaces.

Lighting Levels

6.4.8 Lighting Design

Lighting design is a very broad topic and will require research by an electrical engineer working with the AOC. The lighting design should provide information on:

- Lighting controls
- Egress and emergency lighting
- Lighting - interior
- Lighting - exterior

However, lighting also includes the selection of light fixtures and, specifically, the careful understanding of the historic light fixtures and the restoration and replication process involved with these building elements.

Light fixtures shall be divided into the following hierarchy:

- Level one - Restoration of the bronze decorative light fixtures
- Level two - Replication of the historic fixtures to replace any of the original fixtures that are currently missing.
- Level three - Creation of a family of light fixtures using those elements (spinning and castings) from the original fixtures to make a new family of historic fixtures. These fixtures are used in Meeting room and other locations where the public will go or where the fixture will be seen from the exterior.
- Level four - Office fixtures that will be selected for approved manufactures that provide quality light fixtures.
- Level five - Storage and all other types of light fixtures that perform a utilitarian function.

Cass Gilbert designed several of the light fixtures that are in the Capitol. These fixtures shall be restored.

Example of Historic Bronze Light Fixtures Designed by Gilbert

6.4.9 Life Safety & Applicable Codes

General

Emergencies other than fire include panic, medical, weather and various security breaches. Any threats to life safety of the building occupants can be mitigated (but not eliminated) to a certain extent by the fire and life safety features designed into the structure. Recommendations outlined in this report significantly improve the fire and life safety level in this building.

All new construction, repairs, remodeling and alterations will comply with the current State Building Code. Other building features are evaluated in accordance with best fire and life safety practices and the Minnesota Conservation Code, which is specifically designed to address existing buildings and those of historical and social significance.

Key Life Safety Objectives

There are three (3) primary goals.

1. Minimize Fire-related Injuries and Prevent Undue Loss of Life
    a. The first goal is to minimize fire-related injuries and prevent undue loss of life. This includes building occupants and emergency responders. It pertains to both life safety and structural stability of the building.
2. Minimize Downtime
    a. A second goal of this project is to minimize downtime of legislative activities. Continued functionality is essential for the State Capitol.
3. Minimize Property Damage and Structural Collapse
    a. The third goal is to minimize property damage and structural collapse. This goal is directly related to the first goal because structural collapse affects life safety.

Applicable Codes

This outline documents general code design features based upon the requirements that will be enforced by the city of Saint Paul since they have jurisdiction for code enforcement of:

- Building Code: 2003 Minnesota State Building Code, which adopts by reference and amends the 2000 International Building Code Chapter 1300 Administration of the State Building Code
- Chapter 1301 Building Official Certification
- Chapter 1302 Construction Approvals
- Chapter 1303 Minnesota Provisions of the State Building Code
- Chapter 1305 Adoption of the 2000 International Building Code
- Chapters 1300, 1303,1311 - Minnesota Conservation Code
- Fire Code: Minnesota State Fire Code (Chapter 7510) which adopts by reference and amends the 2000 International Fire Code 7510.3510 Rules and Standards Adopted by Reference. The International Fire Code 2000
- Chapter 1311 Adoption of the Guidelines for the Rehabilitation of Existing Buildings
- Mechanical Code: Minnesota State Mechanical Code (Minnesota Rules Chapter 1346) which adopts by reference and amends the 2000 edition of the Uniform Mechanical Code.
- Energy Code: Minnesota Energy Code, consists of Minnesota Statutes 16B.617 (7670) and Minnesota Rules chapters 7672,7674,7676 and 7678.
- Plumbing Code: Minnesota Plumbing Code, Minnesota Rules Chapter 4715
- Electrical Code: Chapter 1315 Adoption of the 2005 National Electrical Code
- Elevator Code: Chapter 1307 of the Minnesota State Building Code which adopts by reference and amends the American Society of Mechanical Engineers ASME A17.1 1996.
- Accessibility Code: Chapter 1341 of the Minnesota Building Code

This information was provided by HGA/SCA in the 2007 predesign for the Capitol restoration. Since that time some of these codes may have changed or been amended. The AOC should verify that each code listed either is or is not applicable.

Furthermore, the AOC should work closely with the building and code officials and the SHPO to identify and determine the code compliance performance measures so at to protect the historic fabric and feel of the Capitol.

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Information in this section provided by HGA/SCA 2007 Capitol Restoration Predesign Document Revised April 2007.

7.1 Sustainable Design

Beginning on **July 1, 2010** all Minnesota State bonded projects — new and substantially renovated — are required to meet the Minnesota Sustainable Building 2030 (SB 2030) energy standards. In lieu of the current B3 energy requirements of 30% less than current state energy code, the SB 2030 energy standard has been incorporated into the Minnesota Sustainable Building Guidelines (B3) which are also required for all state bonded projects.

SB 2030 may require either energy modeling or prescriptive energy reduction strategies on new and substantially renovated buildings to attain cost effective energy reduction standards. This may require additional design services to ensure compliance with these energy standards. In conjunction with SB 2030, it is anticipated that utility's energy conservation program incentives will be offered to help cost effectively meet SB 2030 energy standards.

General Criteria

• Construction and operation of buildings result in high levels of energy and resource usage.
Great care must be taken therefore when creating "sustainable" projects.
• Consultants shall design buildings to use resources in a way and at a rate that does not jeopardize the needs of future generations.
• Design decisions must balance economic, environmental and community needs.
• Sustainability may increase or reduce costs. Time and effort is required to make informed sustainable design decisions.
• Design decisions must consider the full life of materials including life-cycle assessment (LCA) and life-cycle cost (LCC) factors, and must also consider operating costs.
• Design decisions must be well documented since issues, suppliers, resources and product choices change frequently.
• Consultants shall use building components that are produced using reliable sustainable technology, avoiding untested systems, materials, and processes.
• The consultant shall develop and document the project using the 'Minnesota Sustainable Design Guide' as a resource, available at: www.sustainabledesignguide.umn.edu
• Note: Sustainability Guidelines will be updated periodically since issues, suppliers, resources and product choices change frequently.

Definitions

Commissioning - A systematic process for ensuring that building systems perform as efficiently as possible.

Deconstruction - The process of taking buildings / structures apart so that components can be reused or recycled.

Life-cycle Assessment (LCA) - Reviewing the full life of a product and its impact on the environment including: mining of the raw material; refining and creating a finished product; transportation to the site; installation in the project; resources used during its life; and its final disposal.

Life-cycle Cost (LCC) - Reviewing the full life cycle of a product and the cost to use it in the project including: the first cost of the product; the cost to operate and maintain it; and the cost of disposal.

Mandatory - A process or choice that must be included in the project.

Recommended - A process or choice that is not required but should be included in the project.

Sustainable Design - Continued

Sustainability - Using resources in a way and at a rate that allows people to meet their needs, while allowing future generations to meet their needs.

Volatile Organic Compounds (VOC) - Chemicals whose presence in the air may frequently cause poor air

quality.

Sustainability Guidelines For Renovation Projects

A. Site Issues

A.1 - Mandatory

1.1 Review site features with care. Avoid building on sites or portions of sites that tend to flood; are subject to erosion; have delicate plant or animal life; or include wetlands.

1.2 Audit the site for hazardous materials.

1.3 Prevent erosion to reduce effects on air and water quality, both on and off-site.

1.4 Reduce thermal effects generated by the building and parking design.

1.5 View and design the building and site as a whole "system".

1.6 Where existing site damage is present, reduce the need to develop additional "raw" land by repairing damage and reusing the existing site.

1.7 Remove topsoil and store for re-use.

1.8 Ensure that adequate time and space is allotted for deconstruction including removal and storage of salvaged materials.

A.2 - Recommended

2.1 Avoid building on inappropriate sites. Reduce environmental impact generated by placing the building on the site.

2.2 When appropriate, locate buildings where roads, utilities, and other services exist.

2.3 Reduce the amount of paving required for automobile use.

2.4 When appropriate, conserve natural areas and restore damaged areas to provide space for native plants and animals.

2.5 Reduce storm water runoff and increase on-site infiltration.

2.6 Reduce the amount of light leaving the site (light pollution).

B. Water Use

B.1 - Mandatory

1.1 Limit potable water use for landscape irrigation.

1.2 Design projects so that water is used efficiently thereby reducing local water and wastewater needs.

B.2 - Recommended

2.1 Design landscaping such that plants require minimal irrigation.

2.2 Design to accommodate collection and treatment of water used during the project.

C. Energy Use

C.1 - Mandatory

1.1 Design to decrease energy use and lower operating costs.

1.2 Design systems for easy operation and maintenance.

1.3 Verify that HVAC systems are designed, installed and adjusted to operate as planned (Commissioning).

1.4 Select materials that do not contribute to ozone layer damage. Support early phase out of chemicals causing ozone layer damage.

1.5 Whenever possible, use renewable technologies to reduce dependence on fossil fuels.

C.2 - Recommended

2.1 Projects should exceed the minimum State of Minnesota Energy Code requirements by 40%.

2.2 Provide a plan for ongoing review and adjustment of building energy and water use

D. Materials & Resources

D.1 - Mandatory

1.1 Design projects to accommodate recycling activities when occupied including providing appropriate storage spaces.

1.2 Review all material selections. Seek practical options to virgin or non-renewable materials.

1.3 Specify durable products or materials requiring little maintenance.

1.4 Make construction waste recycling part of the project. Minimum requirements include recycling of wood, metals, cardboard/paper and concrete.

1.5 Specify low VOC emitting materials.

1.6 Whenever possible, specify building products that have recycled content. Used salvaged materials and products when practical.

Sustainable Design - Continued

1.7 Whenever possible, use products produced locally in order to reduce material transport distances.

1.8 Specify reprocessed or re-blended paint products whenever practical.

1.9 Specify carpeting with recycled content and/or carpeting that is recyclable whenever possible.

D.2 - Recommended

2.1 Purchase wood products from organizations that follow sustainable forest management practices.

E. Indoor Environment & Air Quality

E.1 - Mandatory

1.1 Observe requirements listed in the DOA 'Building Air Quality Guide' available at: www.sao.admin.state.mn.us .

1.2 Include indoor air quality monitoring in the design.

1.3 Specify that the construction process does not cause indoor air quality problems in occupied spaces or adjacent properties.

1.4 Design to maximize day-lighting opportunities whenever possible.

1.5 Design so that daylight and outside views are provided to occupied spaces whenever possible.

E.2 - Recommended

2.1 Provide a reasonable level of occupant control of heat, ventilation, and lighting.

7.2 Telecom

General Description and Existing Conditions

Capital campus Centrex phone service is supplied to the majority of the Capital building by the State's Office of Enterprise Technology (OET) with some offices choosing to use their own phone systems. It is anticipated that the Capitol system will be migrating to a Voice over IP (VoIP) system soon.

The telecommunications infrastructure systems will be designed and installed per TIA/EIA standards, applicable codes, and standards for state buildings. The finished infrastructure will support voice, data, and video distribution in the various room and space types (ie Senate Offices, Hearing Room, etc.) throughout the building. The necessary telecommunications infrastructure for the State Capitol will be in place to afford employees opportunities to telecommute successfully. The telecommunications cabling infrastructure will be capable of supporting information technology that is identified during the design phase of this project, enabling agencies to cost effectively minimize their need for office space, provide more of their services electronically and decentralize their operations as specified by Appendix E, MN Statute 16B.335, Subsection 5 & 6, from the predesign manual.

It is quite possible that the existing infrastructure cabling feeds to the Capitol building (both from the local carrier and from the Capitol complex OET network) will need to be re-routed to the new equipment room/server room locations on the basement level as part of this renovation. Also, the phone equipment within the Governor's secure phone room may need to be relocated to one of the new equipment room/server rooms and enclosed in a security cage within the room as part of this renovation. Existing telecommunications systems are likely to be moved or replaced. Wireless LAN Access Points will be installed to provide 100% wireless network access coverage in the building. New infrastructure cabling will be installed based on the technology needs and programming of the particular space or area.

Telecommunication Spaces

To properly address the information technology requirements of the 425,000-plus square foot Capitol building and maintain TIA/EIA standards based cable lengths to workstation outlets, we recommend the following spaces for telecommunications. The specific location of these spaces will develop as design continues:

- Two 30' X 50' main equipment/server rooms (primary & secondary). One in the east wing and one in the west wing of the sub-basement level addition.
- One 10' X 15' entrance facility room (MPOP) on an outside wall in the existing basement level nearest to the carriers existing manhole location.
- Two 10' x 12' telecom rooms in the existing basement level (one in the east wing and one in the west wing).
- Two 10' x 12' telecom rooms in the addition to the basement level (one in the east wing and one in the west wing).
- Three 10' X 12' telecom rooms in the ground level (one in the north wing, one in
- the east wing and one in the west wing).
- Three 10' X 12' telecom rooms in the first floor level (one in the north wing, one in the east wing and one in the west wing).
- Two 10' x 12' telecom rooms in the second floor level (one in the east wing and one in the west wing).
- Two 10' x 12' telecom rooms in the third floor level (one in the east wing and one in the west wing).

The two main equipment room/server rooms on the sub-basement level addition would be utilized for the termination of Intra-building and Inter-building backbone infrastructure cabling, core network hardware, main phone equipment, and each Agencies file/ application servers. The telecom rooms located throughout the building would be utilized for the termination of infrastructure cabling and network hardware required to meet the technology needs of the particular space served by the telecom room.

Refer to Real Estate and Construction Services (RECS) website for:

- Designer procedures manual.
- Building Infrastructure Standards of State Owned Building (2003)

Wifi and Distributed Antenna Systems (DAS)

The Capitol will be outfitted with a DAS systems that will provide for:

- 80211.a, g and b
- Cell phone coverage by at least 5 carries
- 800 Mght (emergency radio systems)

The system shall deploy a single antenna per space systems. Tuning of the systems will be by a qualified and trained expert. All antenna will be hidden from the public sight as long as service is maintained.

The Architect will use caution in placing the antenna to avoid interference by various construction materials.

Note the AOR will need to review, update, and complete the required "Predesign Check List for Technology and Telecommunications as part of the complete predesign package. The Technology Plan within the pre-design must be reviewed and approved by the state's Office of Enterprise Technology (OET). A letter of approval o such, from OET shall be included in the final pre-design.