State of Minnesota
Department of Administration
Real Estate and Construction Services
Project #44FA0014

Nelson•Tremain Partnership, P.A.
125 SE. Main St. #245
Minneapolis MN 55414
December 24, 2012

view to new dorm - looking north from green space commons

Predesign for Boys Dormitory

Minnesota State Academy for the Deaf Campus

Faribault, MN

Certification

MINNESOTA STATE ACADEMY for the DEAF
NEW BOYS' DORMITORY

Minnesota State Academy for the Deaf Campus
Faribault, MN

REVISED PREDESIGN REPORT
RECS Project *#44FA0014*

Nelson•Tremain Partnership
125 SE Main Street #245
Minneapolis, MN 55414
612-331-7178

December 24, 2012

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

Gaius G. Nelson
License #15890

December 24, 2012

Agency Submittal Cover Letter

Minnesota State Academies
615 Olof Hanson Drive, Faribault MN 55021 ~ (507) 384-6602 ~ 1-800-657-3996
www.msa.state.mn.us

December 12, 2012

Mr. Gordon Christofferson
Real Estate and Construction Services
309 Administration Building
50 Sherburne Avenue
Saint Paul, MN 55155-1625

Dear Mr. Christopherson:

RE: Boys Dormitory

In accordance with Minnesota Statues 16B.335, Subdivision 3, please find enclosed a Pre-design document for a new boys' dormitory. The dormitory is located on the campus for deaf students (MSAD) on the grounds of the Minnesota State Academy in Faribault, Minnesota.

The dormitory Pre-design outlines an estimated capital budget request of $10,668,528 for the upcoming 2013-2014 legislative session. This is a reduction of approximately five million dollars from a previously submitted plan. The dormitory project consists of 35,493 square feet of new construction which will provide housing for sixty students. Importantly, "deaf space" is incorporated into the design.

Sincerely,

Brad Harper

Brad Harper, Superintendent
Minnesota State Academy

Enclosure

CC: Peter Hargreaves, State of Minnesota
Gaius G. Nelson, Nelson-Tremain Partnership

Minnesota State Academies is an Equal Opportunity Employer

Acknowledgements

This revised predesign study for the New Boys' Dormitory has involved the collaboration of several staff from the Minnesota State Academy for the Deaf. The approach has been interactive to best utilize the unique skills of the team members, to understand the Agencies' decision-making process and to encourage a "stakeholders" position in the results of this study.

Planning Team

Minnesota State Academies
Brad Harper – Superintendent
Randy Dirks – Physical Plant Director

Minnesota State Academy for the Deaf
Roxie Mitchell – Director

Real Estate and Construction Services
Peter Hargreaves – Principal Project Manager

Architect
Nelson Tremain Partnership
125 SE Main St. Suite 245
Minneapolis, MN 55414
Gaius Nelson – Principal

Table of Contents

1. Summary

This report is a revision to the original predesign report by KKE Architects dated October 10, 2009.
The purpose of this report is to -
1) Update the program to reflect current campus needs
2) Reduce building square footage and increase space use efficiency
3) Reduce construction cost

For this new design, the building square footage was reduced from 44,727 SF to 35,493 SF. The construction cost was reduced from $12,435,000 to $10,668,528. The size of the building was reduced through reduced program and increased space efficiencies. (The new "L" shape is more space efficient than the previous "U" shape - consolidating residence programs allowed the elimination of a building wing and decreased corridor length. Common activity spaces were reduced with the intention that these activities will be absorbed into the new commons building to the east. Some program spaces were consolidated - Life Skills were combined from 4 to 2 rooms. The square footages of some rooms were reduced. The residence rooms were reconfigured to private bathing for 4 rather than 2, eliminating 50% of the bath rooms while maintaining privacy for all.) This report should be reviewed in conjunction with the original predesign report by KKE Architects and the Deafspace Design Guidelines that were a part of that study.

1a. Project Description
The project described in this predesign study is a new boys dormitory building at the Minnesota State Academy for the Deaf in Fairbault, Minnesota.

This building will contain spaces for a boys dormitory with 60 resident beds, as well as support functions such as service, office, meeting, educational, activity, and social areas.
The design of this building took into account many issues, including the -
- previous pre-design study - program, building size, budget, location, shape/plan
- issues faced by special needs users - specifically pre-collage-aged deaf students
- design issues such as -
    - siting on campus
    - internal space planning and organization
    - internal expression - not including specific fixtures, furniture, and interior materials
    - external expression - including massing, colors, and materials
    - trends - as relating to the existing campus structures and general trends in dormitory design
- service requirements - such as mechanical and electrical needs
- budgetary and scheduling concerns

The following is the updated predesign study for the new Boys Dormitory building at the Minnesota State Academy for the Deaf in Fairbault, Minnesota.

2. Building Project Data Sheet (part 1)

Name of Project: New Boys Dormitory

Agency: Minnesota State Academies for the Deaf

Project Location: MSAD Campus
615 Olof Hanson Drive
Faribault, MN 55021

Code information

Building Occupancy R-2 Use Group
Primary Space Type: Dormitory
Type of Construction: Fire resistive, non-combustible, Type II-A
Total Square Feet: 35,493 sf

Square Feet Per Floor: Basement: 4,567 sf First Floor: 19,157 sf Second Floor: 11,769 sf

Stories: 2 above ground plus basement
Site Size: 2.3 acres (Campus total: 38 acres)
Parking: New parking area to be built under a separate project.

Materials information

Roofing Type: Single Ply TPO system, R-40
Exterior Wall Type: Masonry brick rainscreen (R-25) w/ stone veneer, metal panel, curtainwall and storefront

Interior Wall Type: Metal studs, high impact gypsum board/plaster, storefront

Structural System: CMU bearing wall and steel frame
Bar joists
Slab on grade and composite concrete floors

Mechanical System: Low pressure steam from central plant converted to hot water, local chilled water cooling, forced air distribution with variable volume control

Fire Protection System: NFPA 13 automatic system

Electrical System: 400KW service connected to 600KW emergency generator

Technology Systems: Hardwired computer network; WiFi; CCTV; P.A. intercom; cable TV

Building Project Data Sheet (part 2)

Costs:	Total Project Cost:	$10,690,328
	Predesign Cost:	$20,000
	Site Acquisition Cost:	$0
	Site Improvement Cost:	$66,000
	Building Cost:	$6,638,000
	Parking Cost:	$0
	State Funding Amount:	$10,668,528
	FFE and Signage Cost:	$200,000
	Relocation Cost:	$0
	Phasing Cost:	$0
	Technology Cost:	$50,000
	Hazardous Materials Abatement:	$65,000

3. Capital Expenditures

3a. Project Cost Plan

The building construction cost was developed using November, 2012 square foot construction costs by building system or component. Meeting State standards for energy efficiency and sustainability will result in basic construction costs that are generally higher than those of the private sector. The following costs are in November, 2012 dollars and should be escalated to the mid-point of construction.

	Item	Gross Area/Unit	Unit Cost	Subtotal	Total Cost
1	**Site and building preparation**	LS	$66,000	$66,000	$66,000
2	**Demolition/decommissioning**	LS	----	$337,000	$337,000
3	**Construction**	35,493 sf	$158.57	$5,628,000	
	General Conditions	LS		$500,000	
	Overhead and Profit	5.0%		$280,000	
	Insur., Bonds, Permits	LS		$230,000	
	Subtotal Construction				$6,638,000
4	**Infrastructure/Roads/Utilities/Tunnels**	LS	$486,000	$486,000	$486,000
5	**Hazardous Material Abatement**		$65,000	$65,000	$65,000
6	**Construction Contingency**			$500,000	$500,000
7	**Other Costs**				
	TOTAL PROJECT COST				**$8,092,000**

3b. Agency Capital Budget Request

TOTAL PROJECT COSTS All years and all funding sources	Project Costs All Prior Years	Project Costs FY 2016-17	Project Costs FY 2018-19	Project Costs FY 2020-21	Project Costs All Years	Project Start (Month/Year)	Project Finish (Month/Year)
1 Property Acquisition							
Land, Land Easements, Options	$0	$0			$0		
Buildings and Land	$0	$0			$0		
SUBTOTAL	$0	$0			$0		
2 Pre-design fees							
SUBTOTAL	$20,000				$20,000	May-09	Dec-12
3 Design Fees (10% of Construction Cost)							
Schematic							
Design Development							
Contract Documents							
Construction Administration							
Other Costs							
SUBTOTAL		$809,200			$809,200	Aug-16	Jan-19
4 Project Management							
(6% of Construction Cost)							
State Staff Project Management							
Non-State Project Management							
Other Costs							
SUBTOTAL		$485,520			$485,520	Aug-16	Dec-18
5 Construction Costs							
Site and Building Preparation		$66,000			$66,000		
Demolition/Decommissioning		$337,000			$337,000		
Construction		$6,638,000			$6,638,000		
Infrastructure/Roads/Utilities/Tunnels		$486,000			$486,000		
Hazardous Material Abatement		$65,000			$65,000		
Construction Contingency		$500,000			$500,000		
Other Costs							
SUBTOTAL		$8,092,000			$8,092,000	Jul-17	Dec-18
6 Art (1% to a maximum of $100,000)							
SUBTOTAL		$80,920			$80,920		
7 Occupancy							
Furniture, Fixtures, Equipment		$200,000			$200,000		
Telecommunications/technology		$50,000			$50,000		
Security Equipment (included in #5 above)							
Commissioning		$70,000			$70,000		
Other Costs							
SUBTOTAL (Items 1-7)	**$20,000**	**$9,787,640**			**$9,807,640**		
8 Inflation							
Mid-point of Construction		May-18			May-18		
Inflation Multiplier		9.00%			9.00%		
Inflation Cost		$880,888			$882,688		
GRAND TOTAL		**$10,668,528**			**$10,690,328**		

3c. Capital Budget Request

CONSTRUCTION TYPE OF SPACE	EXISTING	NEW CONSTRUCTION			REMODELED			RENEWAL (Asset Preservation)			TOTAL COST (In $000)
List Major Type of Space (Office, Lab, Ramp, etc.)	Gross Sq. Feet	Gross Sq. Feet	Cost (In $000)	Cost Per Sq. Foot (In $000)	Gross Sq. Feet	Cost (In $000)	Cost Per Sq. Foot (In $000)	Gross Sq. Feet	Cost (In $000)	Cost Per Sq. Foot (In $000)	
Residence Hall		35,493	$6,638	$187							$6,638
TOTAL			**$7,638**								**$6,638**

4. On-going Operational Expenditures

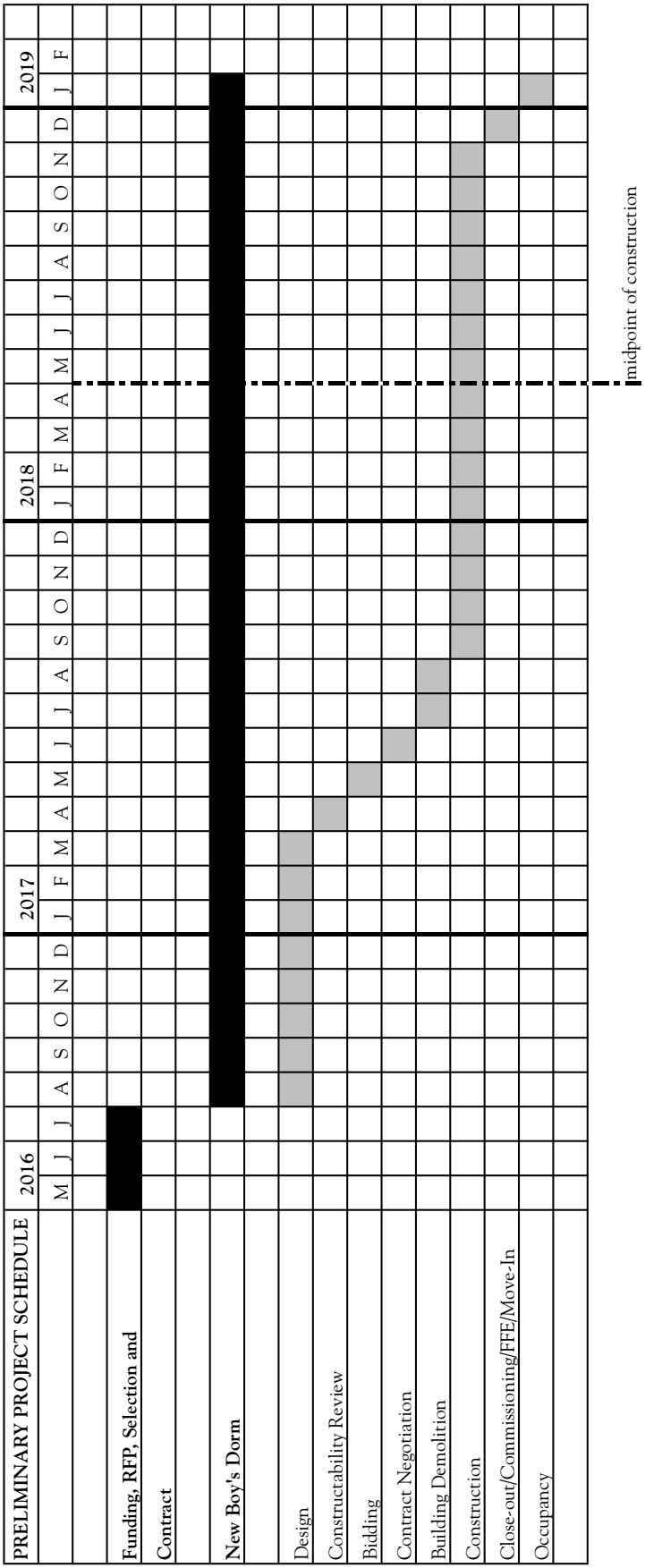
4a. Operating Budget Impact

The following chart provides an estimate of the impact of the new facility on operating costs at the Minnesota State Academy for the Deaf. Since the project is a building replacement, the operational program staff wil remain the same.

CHANGES IN STATE OPERATING COSTS	Current Cost		Projected Cost (Without Inflation)			
	F.Y. 2013-14	F.Y. 2015-16	F.Y. 2017-18	F.Y. 2019-20	F.Y. 2021-22	F.Y. 2023-24
Compensation (Program and Building Operations)	$0	$0	$0	$0	$0	$0
Other Program Related Expenses	$0	$0	$0	$0	$0	$0
Building Operating Expenses	$156,000	$167,000	$179,000	$192,000	$192,000	$192,000
State-Owned Lease Expenses	$0	$0	$0	$0	$0	$0
Nonstate-Owned Lease Expenses	$0	$0	$0	$0	$0	$0
Other Expenses: (specify)	$0	$0	$0	$0	$0	$0
Revenue Offsets	$0	$0	$0	$0	$0	$0
TOTAL	$156,000	$167,000	$179,000	$192,000	$192,000	$192,000
Number of FTE Personnel	2.0	2.0	2.0	2.0	2.0	2.0

5. Schedule Information

5a. Project Schedule / Phasing



6. Program

6a. Architectural Building Program (part 1)

This building program includes spaces for a boys' dormitory with 60 resident beds as well as support spaces including service, office, meeting, educational, activity, and social areas.

6d. ARCHITECTURAL SPACE - Spaces provided in final pre-design

FINAL Pre-Design **PROGRAM** net SF numbers from final plan - of PROGRAMMED spaces

Room Name	Res	Original Program NSF	Quantity	Total NSF		Notes	Remarks
Private Cluster							
Resident Rooms = 4 bed dorm clusters	48	603	12	7236			4 residents per room; each with defined area - "Moveable" wing wall for flexibility - Provide all ADA compliant with 40" wide entry
Toilet Areas							toilet. 2 sinks, 1 shower, included in room SF - No ceiling lifts at this time (use portable)
Private Resident Room	4	206	4	824			Private rooms for behavior and reward options - All ADA compliant
Toilet							toilet, sink, shower, included in room SF
Apartment Rooms	8	1162	2	2324			4 residents, include kitchen and living area - All ADA compliant
Quiet Rooms		56	2	112			
Life Skills Area		985	2	1970			Island counter, double sink, refrigeratot, oven, stove top, microwave, disposal, storage, TV, internet, dining/game table, chairs, lounge furniture, computer
Kitchen/Lounge/Laundry Areas							Laundry off kitchen alcove
House Parent Offices		142 (1st), 189 (2nd)	2	331			Shared office area, visiblity to students, privacy of monitor, computer station, phone, visual phone
Small Conference Area		151	1	151			Built-in base & upper cabinets with sink, seating 8 - 10
Trash/Recycling Rooms		79 W, 130 E (1 ea)	2	209		2 separate, 1st FL	Trash, paper, glass and plastic recycyling
Storage Room		"	"	"		combined into above	
Housekeeping Closet		"	"	"		combined into above	Mop sink, mop hangers, utility shelf
Tub Room		78	2	156			Shared tub room - 1 per floor
Unisex Toilet Room		0	0	0		combined into above	No separate Uni-sex, toilet combined with tub room, or use public toilets on 1st floor
Social Cluster							
Lobby							
Entry/Vestibule		200	1	200			Secure, doorbell
Atrium		1806	1	1806		w/ elevator, stair	Maintain visual connection between floor levels
Coats/Boots/Storage		27	1	27			Near vestibule, well lit, with door
Toilets (1M, 1W)		335	1	335			separate M and W, no Uni-sex, near lobby
Vending		32	1	32		combined in activity	3 machines, indirect observation, available to full population
Elevator		62	3	186		combined in atrium	3 stops
Activity							
Social Area (2.0 Club Room)		917	1	917			Clear sightlines, lounge furniture, space available to boys & girls
Education Center		1253	1	1253			Workstation for staff, clear sightlines, 6 student computers, seating at tables for 20, teaching area w/ whiteboard for 4-6, book shelves, for boys & girls
Activity Room		2126	1	2126			Multi-functional space, subdivided for various uses, clear sightlines, ping pong, foosball, lounge & table seating, storage for games & equipmnet, available to full population
Games/Exercise Activity		(in activitiy)	"	"		combined	included in activity room
Weight Room		(522 in activity)	"	"		combined	included in activity room
Staff							
Director's Office		179	1	179			Front door visibility, conference for 4, computer station, telephone
Staff Lounge/Work Area		112	1	112			Copier, printer, facs, 14 lockers, office supplies seating, cabinets
Change Area		96	1	96			Adjacent to staff lounge
Toilet/Shower		(in change)	"	"		combined	Included in changing area

6a. Architectural Building Program (part 2)

FINAL Pre-Design **PROGRAM** net SF numbers from final plan (inside space + 40% grossing factor)

Room Name	Res	Original Program NSF	Quantity	Total NSF	Notes	Remarks
Building Services					**in Basement**	
Mechanical Room		414	1	414		
Electrical Room		242	1	242		
Data Room		60	1	60		
Building Storage		241	1	241		
Elevator Equipment		69	1	69		
Trash/Recycling		100	1	100		
Water Service/Sprinkler Valve		126	1	126		Combined room area
Receiving/Dock		0	0	0		NOT USED
Mechanical Tunnels		577 E, 777 W	(1 ea side)	1353	2 under bldg	Minimize extent of tunnels, connect to other bldgs (1,354 SF total)
		1,085	1		west - to power plant	not under building footprint - not included in final NET SF
Sub-Total Net Square Feet				23187	NET (inside rm spaces) SF	does not include non-program items - circulation, walls
Grossign Factor		40%		9275		to account for non-program items - circulation, walls, etc.
Total PROGRAMMED spaces - Gross Square Feet				**32462**	GROSS - PROGRAMMED	compare to 44,727 from previous study = -12,265 (27% smaller programmed spaces)
Additional Spaces						
Site Elements					**exterior**	
Bicycle Parking			1		next to activity	Roof covered area
Visitor Parking			0			not used
Employee Parking			0			not used
Receiving Area			0			not used
Playground			0			Share with existing Tate Hall playground
egress stair from bsmt			1	141	Northeast corner	concrete w/retaining wall - may desire a canopy cover
2nd Floor						
Housekeeping/Storage		98, 129		227	2 locations	
Storage/Trash/Recycling		79		79		
Lounge		238		238		
Exterior Roof						
roof deck		372		not incl		on roof above Activity Room, not enclosed
green roof		1267		not incl		on roof above Activity Room, not enclosed
Circulation						
1st FL - Egress Stair			2	398	2 locations	213 West, 185 North
1st FL - Corridors				3605	3 areas	1414 West, 1472 North, 719 East (includes occupiable space)
2nd FL - Corridors				2997	3 areas	1392 West, 1178 North, 427 Balcony (includes occupiable space)
Bsmt - Corridor			1	734		
Bsmt - Egress Stair			1	352		352 West (North stair is exterior, included in exterior site work)
Circulation Total all Floors				8086		
Building Footprint AS PER FINAL plan					GROSS SF	includes non-program items - circulation, walls, etc.
1st Floor				19,157		
2nd Floor				11,769		not including open "floor" area of atrium space
Basement				4,567		not including steam tunnel to power plant (outside of dorm building footprint)
TOTAL GROSS Square Feet - FINAL plan				35,493	Orig NTP prog = 37,796 Orig KKE prog = 44,727	added or enlarged spaces include - public toilets for M&W (no uni), vestibule, atrium, trash rm, 4bd dorms enlarged at hall (=2), enclosed lounge on second floor, study areas on ea fl by stairs (=4), storage on 2nd fl NEW dorm design = 21% smaller than original pre-design study building design

6b. Mechanical and Electrical requirements

The Mechanical and Electrical requirements for this program is to be similar to the previous pre-design study produced by KKE Architects dated October 10, 2009. This updated pre-design study anticipates using similar mechanical and electrical systems. The following pages are a copy of that initial study - "6e. Mechanical / Electrical Program (pages 35 - 41) -

6e. *MECHANICAL / ELECTRICAL PROGRAM*

MECHANICAL SYSTEMS

General

The new building will be two story with a partial basement/tunnel level for mechanical equipment and services. In addition, it will have two mechanical penthouses, one located above the East wing and one located above the West wing – each penthouse will be approximately 700 square feet in area. Outdoor air and relief air for the air handling systems will enter and exit the penthouse through wall louvers or gravity roof hoods. There will be a smaller mechanical room on the basement/tunnel level, where utilities enter, for meters, two steam-to-hot water heat exchangers (one standby), pumps and for a condensate receiver/pump set. In order to meet the criteria for energy conservation, under the recently updated State B3/SB 2030 guidelines (60% annual carbon use reduction compared to a building of like occupancy based on the 2003 Commercial Buildings Energy Consumption Survey - CBECS), the mechanical systems will incorporate several energy saving measures. These will include CO_2 and economizer control of outdoor air, premium efficient motors, variable volume air and water distribution with adjustable speed motor drives, and highly efficient equipment. The building envelope (walls, roof and windows) will need to be designed with thermal values commensurate with a 60% overall reduction in equivalent carbon emissions. The building systems will be specified in accordance with State Design Guidelines, as well as all applicable codes and standards.

Environmental Criteria

The design indoor air temperature and humidity levels will be based on requirements of the Minnesota Energy Code. The minimum outdoor air intake will be in accordance with ASHRAE Standard 62n.

Dormitory Rooms: During the cooling season, the indoor temperature range will be 74 to 78 degrees and the maximum relative humidity will be 58% RH (at 78°F). During the heating season, the indoor temperature range will be 72 to 76 degrees. Humidity will not be controlled during the heating season (no humidifiers will be provided). The minimum amount of outdoor air intake will be 20 CFM per occupant (with adjustment by carbon-dioxide sensors). Generally, the mechanical systems will be designed to limit ambient sound levels to about NC 35. The indoors will be slightly pressurized compared to outdoors. Air will be circulated through 30% efficient pre-filters, in combination with 65% efficient final filters.

Activity Rooms, Weight Rooms, Education Rooms and Staff Rooms: During the cooling season, the indoor temperature range will be 74 to 78 degrees and the maximum relative humidity will be 58% RH (at 78°F). During the heating season, the indoor temperature range will be 72 to 76 degrees. Humidity will not be controlled during the heating season (no humidifiers will be provided). The minimum amount of outdoor air intake will be 20 CFM per occupant (with adjustment by carbon-dioxide sensors). Generally, the mechanical systems will be designed to limit ambient sound levels to about NC 35. The indoors will be slightly pressurized compared to outdoors. Air will be circulated through 30% efficient pre-filters, in combination with 65% efficient final filters.

Corridors and Lobbies: Corridors and lobbies will have environmental conditions which are similar to the areas they serve.

Mechanical room, Tunnels and Penthouses: The basement mechanical room, the tunnels and the equipment penthouses will not be air conditioned or humidified. They will be heated to a minimum of 55 degrees.

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Mechanical requirements (continued)

Outside Mechanical Services (Division 23)
Existing low pressure steam (LPS), pumped condensate return (PC), domestic hot water (DHW) and domestic hot water return (DHWR) will be extended from the existing power plant through a new tunnel to the basement level mechanical room in the new building. These services will be available year-around. The maximum demand for low pressure steam will be about 1,000 pounds per hour.

Under work of Division 33 (Utilities), existing storm and sanitary sewers, along with water mains (for domestic use and for fire suppression) will be extended on the site to within five feet of the new building.

Fire Suppression Systems (Division 21)
The entire building will be protected by a wet sprinkler system. The entire building will be a single zone. Areas subject to freezing, such as entries, will be protected with dry-type sprinkler heads or other non-freeze system.

A siamese fire department connection will be installed on the building exterior wall, for firefighter hoses. A horn and strobe light will be mounted above the siamese connection. The connection will be piped to the main fire water supply line, so that the system can be pressurized by fire department truck pumps. All manual valves will be monitored, using tamper switches.

Plumbing Systems (Division 22)
The main building sanitary drains will exit the building in one location. The main building storm drains will exit the building in one or more locations.

Plumbing fixtures will be standard wall-hung, vitreous china water closets, urinals and lavatories. Other fixtures.

Domestic cold water, hot water and re-circulating hot water will be connected to plumbing fixtures in the building, as required by the fixtures. Refer to the architectural information in the pre-design report.

Heating Ventilating and Air Conditioning Systems (Division 23)
Low pressure steam will be supplied to two (one is standby) steam-to-water heat exchangers, to generate building heating water. Two, circulating pumps (one is standby) will deliver heating water to heating terminals throughout the building. Each pump will be powered through an adjustable speed drive for variable volume control. Heating terminals will include duct-mounted booster heating coils, finned-tube radiation, cabinet unit heaters (in entries), unit heaters (in mechanical spaces) and coils in air handling units.

A central station air handling unit will be located in each penthouse. AHU-1 (20,000 CFM) will serve the East half of the building including a portion of the Main Lobby. AHU-2 (20,000 CFM) will serve the West half of the building including a portion of the Main Lobby. Each will consist of a modular unit, containing a supply fan, a return-relief fan, a hot water heating coil, a chilled water cooling coil, air filters, a discharge air plenum, and an air blender. The amount of outdoor air intake will be regulated with automatic dampers. Each fan will be powered through an adjustable speed drive, for variable air volume control. Air will be distributed to spaces through variable air volume controllers (VAV boxes) and duct-mounted heating coils, for zone temperature control. Typically, finned-tube radiation will be located at exterior walls.

Exhaust ventilation will be provided for toilet, shower, weight, kitchen and janitor rooms. Electrical rooms and other equipment rooms with cooling demands will be ventilated with separate fans or fan-coil systems.

A 70-Ton packaged high efficiency air-cooled liquid chiller will be mounted on grade adjacent to the building. Chilled water will be pumped to the air handling unit coils.

Integrated Automation / Automatic Controls (Division 25)
An electronic, direct digital control (DDC) system will be provided for the building, to monitor and control the operation of building systems. This will be an extension of the existing central building automation system (Tridium controls). The control system will monitor equipment status and system temperatures and pressures. The system will control equipment start/stop, VAV boxes, valves and dampers.

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ELECTRICAL SYSTEMS

Electrical Service
The Minnesota State Academy for the Deaf is provided with primary electrical service at medium voltage (4160 volts) characteristics from Xcel Energy. On the north end of the existing Power House Building is located an overhead primary service line from Xcel Energy. This line is terminated in a weatherproof medium voltage substation enclosure located on the north side of the Power House Building at the end of Xcel Energies overhead service.

The existing exterior medium voltage substation enclosure contains the following:

- Service Main Disconnect
- Switch #1 — Power Plant, Old Laundry Building, Mott Hall, Pollard Hall
- Tie Switch
- Switch #2 — Smith Hall, Quinn Hall, Noyes Hall
- Switch #3 — Frechette Hall, Service Building, Frechette Hall Chiller

The three primary switches noted have an associated underground 4160 volt service duct bank routed to the existing buildings. Based on the as-built electrical site plans provided by the owner the existing underground 4160 service duct bank from switch #3 is routed on the east and north sides of the existing Frechette building to existing pad mounted transformers located between the Fenchette building and the Service building. This existing duct bank exact location will need to be located. This duct bank will potentially need to be relocated due to new building construction and other new earth work associated with this project.

The existing Tate Hall building and the Lavitsen gymnasium building are not fed from this primary service. These two buildings are fed separately, directly from Xcel Energy via exterior pad mounted transformers.

Electrical Distribution
There are two (2) existing exterior pad mounted transformer located between the existing Frechette building (on the east side) and the existing Service building (west side). The two transformers are rated at 500 KVA and 225 KVA respectively.

The 500 kVA rated transformer currently serves both the Frechette building and the Service Building's electrical loads. The transformer is a 4160 volt Delta to 208/120 volt, 3 phase, and 4 wire Y configuration.

The 225 kVA rated transformer currently provides power to the Frechette building's exterior chiller. The transformer is a 4160 volt Delta 480/277 volt, 3 phase, and 4 wire Y configuration. This existing chiller provides cooling for one half of the existing Frechette building. The new dormitory building will be provided with a complete cooling system via a new exterior chiller. The engineer of record shall determine the new electrical loads of the dormitory cooling system and modify/upgrades of the existing primary service and associated 225 KVA transformer accordingly.

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Electrical requirements (continued)

Under the scope of this project, electrical service to the Service Building shall be maintained during the construction of the new dormitory building. Protection and/or modifications of the existing primary distribution and associated 500 kVA transformer shall be as determined by the engineer of record.

The new dormitory building will be approximately 44,000 square feet in size and will require an estimated 400 kW service. The existing 4160 medium voltage distribution system shall be modified and/or extended to provide power to the new Dormitory Building. The secondary voltage configuration for the new building shall be determined by the Engineer-of-Record.

Lighting
The new interior and exterior lighting systems for the building shall conform to the current I.E.S. illumination standards.

All new lighting systems shall meet or exceed the requirements of the current Minnesota Energy Code, ASHRAE 90.1 2006.

New interior space shall be fixtures utilizing fluorescent or L.E.D. lamp sources. Lighting in all spaces shall be designed to reduce contrast and glare in the spaces. Lighting fixtures in teaching and study areas shall be direct/indirect style fixtures to provide good lighting quality on the work surfaces.

Interior corridor and other egress spaces shall be provided with lighting fixtures located and styled to assist or reinforce the passageway with the illumination of the space.

New exterior illumination shall be an HID or LED type lamp source. The exterior lighting fixture layout shall be designed to provide varied lighting levels thought various lighting fixture types. The exterior lighting is to provide illuminate and direction along the pathways.

Lighting Controls
The lighting control design in all finished normally occupied spaces shall utilize automatic "dual technology" occupancy motion sensors. The sensors shall be installed in, but not limited to, the following type spaces:

- Individual offices
- Open office areas
- Activity rooms or spaces
- Social areas and classrooms
- Corridors, lobby and atrium spaces
- Conference rooms
- Storage rooms
- Restrooms

Note: The use of automatic lighting controls in the dormitory or apartment spaces needs to be reviewed with the Owner and staff.

All spaces shall be provided with controls (automatic or manual) to provide multiple levels of illumination with-in the space. This would include dimmers or multiple lamp/ballast fixture controls

The installation of photocell daylight harvesting controls shall be utilized in all spaces provided with natural illumination.

Emergency Egress Illumination
The campus has an existing EnergyNow 600 kW standby generator. The campus is not provided with a separate emergency power distribution system from the existing generator in conformance with NEC Article 700.

The Engineer-of-Record shall determine the most efficient and cost effective method of providing emergency power compliant with NEC Article 700 for required egress illumination at new building.

Fire Alarm System
The building shall be provided with a complete fire alarm system as required by the applicable codes for a dormitory space.

All normally occupied spaces shall be provided with visual notification devices. Visual notification shall be provided in excess of ADA standards to accommodate the residence needs.

Each dormitory bedroom space shall be provided with an alarm movement notification device for each bed in the space. The device shall provide automatic movement of the students' bed when the fire alarm system is activated.

All fire rated door locations are recommended to have automatic hold open devices connected to the fire alarm system. The hold open devices provide visual access to spaces beyond door location and provide better visual building circulation. This should apply to fire rated corridor and stairwell spaces.

The central office or staff space in the building shall be provided with an ability to manually activate the fore alarm audible, visual and movement notification devices.

Notification Systems
The new building shall require a visual alarm notification system in addition to the fire alarm notification devices.

A separate visual notification system shall be provided for all offices, conference rooms and dormitory spaces. This system shall provide visual notification in these and other similar spaces. The notification system shall include the following:

- Visual door bell in room, activated by push button station at the entry door into the space.
- Visual Emergency notification device. This notification system to be used for emergency conditions communications other than fire. This notification device shall be control and activated by the building staff from the central office or main staff space.

Security System
The new dormitory building electronic security system requirements are as follows:

- CCTV security cameras at all primary entrances to the building.
- Card access readers at all primary entrances to the building.

Voice and Data Communication
The new dormitory building shall be provided with a complete communication cabling system for the various spaces needs. The system shall include but not be limited to the following:

- Voice backbone cabling system from the campus voice communications system to the new building.
- Data backbone cabling system from the campus date communications system to the new building.
- Voice horizontal cabling system from the communication closets to the individual voice jacks required for the building.
- Data horizontal cabling system from the communications closest to the individual data jack locations.
- Not in Contract (NIC) – all voice and data communication equipment (network switches, telephone switches, file servers, voice mail systems, workstation PC's and telephone instruments).

All work associated with the voice and data system shall be adhere to and be in conformance with the Minnesota Office of Enterprise and Technology (OET) published standards for IT systems.

Coaxial TV Cabling System
The new building is to be provided with a CATV cabling system including backbone cabling, cable drops to TV jacks, amplifiers, taps, splitters and other components to provide a complete CATV system.

The dormitory rooms, classrooms, study areas and other similar spaces are to be provided with TV jacks for owner provided televisions.

Standards
All electrical design shall meet or exceed the following guidelines, standards or codes.

- 2008 National Electrical Code
- NFPA Standards
- International Building Code 2006
- State of Minnesota Amendments to the 2006 IBC
- International Fire Code 2006
- American Disabilities Act (ADA)
- MnSCU Facilities Design Standards 2007
- State of Minnesota Energy Code ASHRAE 90.1 2006

6f. RENEWABLE ENERGY SOURCES

Minnesota Statutes 16B.32
Minnesota statutes 16B.32 requires new buildings to consider meeting at least 2% of its energy needs from renewable energy sources which are currently defined as wind power or solar power.

Building Energy Model
Preliminary estimate for probable building energy consumption based on a 44,727 square foot building conforming to 2010 SB 2030 requirements would be an annual energy use of 3,314.2 million BTU. Two percent of this total is 66.5 million BTU's. The equivalent electrical consumption per year is 971050 KWH. Two percent of this total is 19421 KWH.

Wind Power
Discussions have been started between various public and private entities in the Faribault area about the production of wind power. The Minnesota Academy for the Deaf is one of the parties involved in this program. When implemented all parties involved will benefit from the wind generated power source. No further details on this program are available at this time. It is recommended that a wind power source dedicated for this new building only be tabled until further information is available on the program that has been started in the area.

Solar Water Heating
This type of system has solar panels installed and there is a loop of fluid that runs through these solar panels and is heated by the sun. The heat from this fluid is then transferred in a heat exchanger where domestic water is heated for use as a part of the buildings plumbing system. This system would have hot water storage and natural gas as a supplemental heat source when sunlight is not available.

Solar Electrical Production
This system can be installed on the roof of the new building and be used to provide electricity that is fed into the buildings electrical system reducing the need for electricity purchased from the electric utility.

SUMMARY OF RENEWABLE ENERGY			
Type of System	**Wind**	**Solar Water Heating**	**Solar Electrical Production**
Annual 2% Energy Conservation	N/A	66.5 MMBTU	19,421 KWH
Annual Energy Savings	N/A	$ 266 per year	$1262.36 per year
Cost of System	N/A	$ 27,500	$ 111,200 (Based on 13.9 KW AC System)
Payback Period Years	N/A	103.3 years (based on $4.00 per MCF)	88 years (based on $0.65 per KWH)

7. Concept

7a. Conceptual Design Priorities
Priority considerations for conceptual design include -

1. Site location

A. Connect with campus

- dinning, Tate Hall (girls' dorm)
- existing buildings, open spaces
- views to new boys' dorm from campus entry

2. Building organization

A. Public / Private separation

- public spaces in front
- private dorm, class, and study areas in back
- staff office as control point

B. Create Zones

- academic - instruction, study areas
- socialization - public and group activity areas

3. Elements of design

A. Observation and Control

- place office at building entry and crossroads of circulation
- corridors and public spaces to radiate from central gathering space

B. Wide corridors

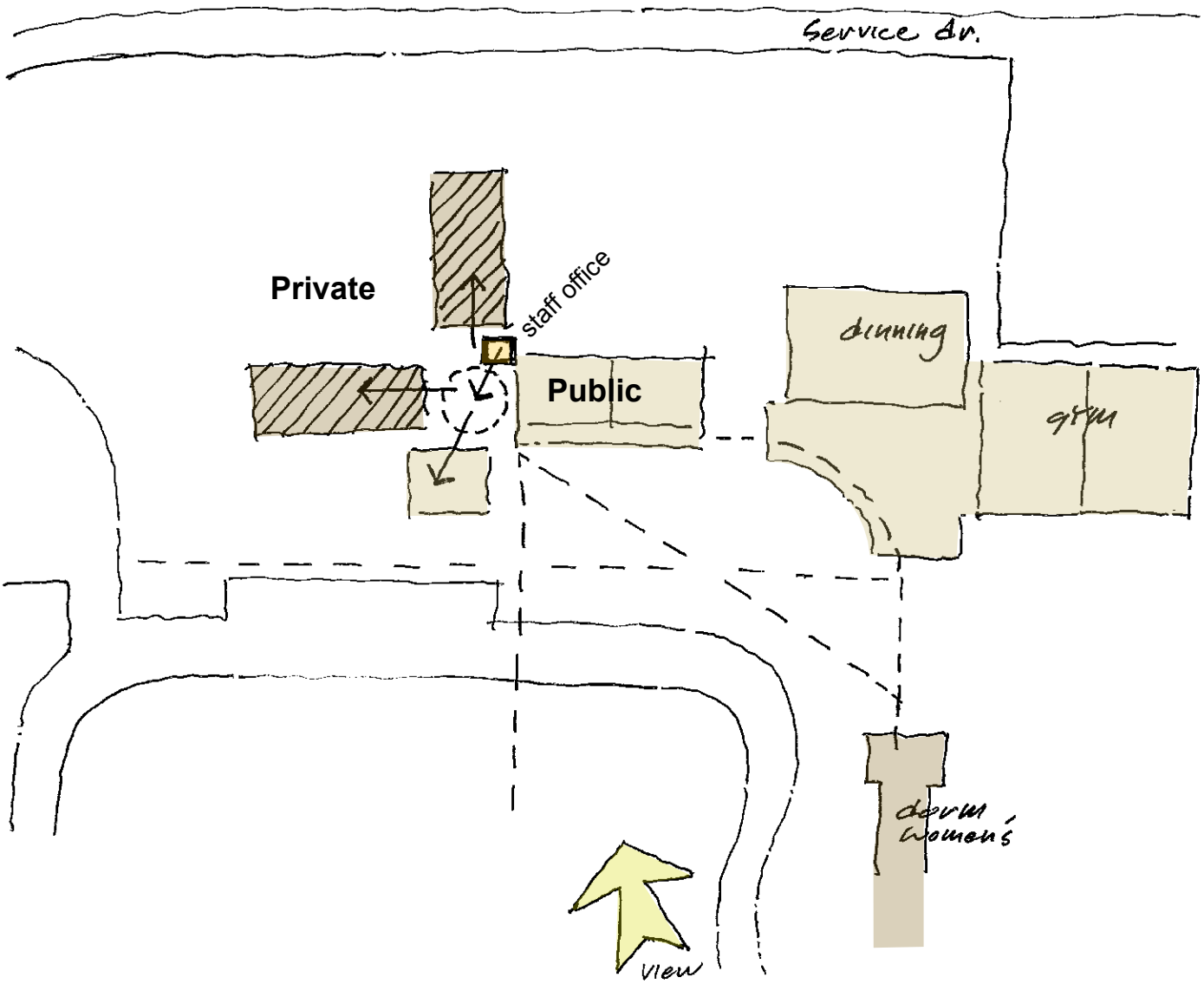
- visibility, control
- facilitate communication (long and short distance)
- create opportunities for interaction
- corridors as useable spaces
- reduce institutional feel of enclosed spaces

C. Adhere to design criteria for special needs users (see "special needs design" section)

- glass in public spaces for visual connections
- large and small group areas for social interaction
- large, open views to outside
- screen direct sunlight to reduce surface glare
- circular tables to promote communication

Conceptual Diagram - Considerations

- Connection - connect with campus
- Separate - Public and Private functions
- Control - staff office as control point
- Views - promote views to and from building



7b. Special Needs Design

Design Criteria for Hearing Impaired
The hearing impaired experience their environment through senses of sight, touch, and vibration. The visually impaired experience their environment through senses of hearing and touch. There are those who have partial sight and partial hearing and some who have combinations of the above. Therefore, it is important for the building design to address the criteria below for the users to fully participate in the programs designated for this building.

Guidelines for a Hearing Impaired environment
There was a workshop conducted prior to the completion of the original pre-design document which centered on the issues of hearing impaired environments and the users of this new boys' dormitory building.
The following is a summery of the issues addressed in that initial workshop as they pertain to this building.
(as adapted from the DeafSpace Design Guidelines by HBHM Architects for the MSAD New Dormitory Predesign Study. Refer to that study for more detailed information.)

A. Connections
1. Locate and plan the building to optimize social interaction and visual connections to foster sensory awareness and cultural identity.
2. Provide visually recognizable destinations in sequence - visual clues assist in understanding where others are in a space and assist in visual communications.
3. Visually connect interior spaces - provide visual access between spaces within the building and from within the building to the exterior.

B. Open plan with wide spaces
1. Signing requires more space between individuals to accommodate gestures. Build this in to every space.
2. Provide wide circulation paths for easy visual communication between students.
3. Enclosed spaces can be perceived as threatening - the enclosure conceals the visual cues necessary to understand conditions of the world beyond.

Special Needs Design (continued)

C. Materials and furnishings - to aid in sensory cues and communication

1. Light quantity and quality, color, textures, and vibrations are important sensory cues.
2. Group communication is facilitated by a circular arrangement of seating, desks, etc.
3. Provide light, armless chairs to allow students to move them around easily to create conversation circles, and allow ample elbow room for signing.
4. Use floor materials that transmit vibration to foster communication.
5. Design diffused daylighting and electrical lighting to provide ideal lighting for visual communications. Eliminate glare and direct view of light sources. Minimize backlighting situations.
6. Use building finishes, color, texture, materials and lighting as way finding cues.
7. Locate classroom light switches next to the instructor's area so that he or she can flip the lights on and off to get student's attention.
8. For those with partial hearing, the mechanical systems acoustics shall meet a room criteria noise coefficient (NC) of 35 to eliminate confusing background noise.

Goals of Deaf Space Design (compiled from a variety of sources)

- an architectural expression unique to deaf experiences highlighting transparency, openness, gathering, and visual connections.
- design that accentuates the visual and tactile experience.
- design (sensitive to the deaf and hard of hearing) especially concentrating on physical attributes of spaces and materials such as transparency, reflection, vibration, shared sensory reach, peripheral and 360 degree sensitivity, views to spaces beyond.
- address through physical design the five major touch points between deaf experiences and the built environment: space and proximity, sensory reach, mobility and proximity, light and color, and acoustics.
- transfer and promote the needs of the special user group into the notions of community building, visual language, practical and functional space usage and requirements, personal safety, and well-being (spatial orientation, room, and the awareness of activities within our surroundings).

Deaf Space Design (contunied)

Applications

- wide walkways (to make it easier for signers to maintain uninterrupted eye-to-eye communication).
- alcoves in halls (allow more room to pass, gather, and communicate).
- clear view corridors (open lines of sight, aiding in visual clues, connections, and distance communication).
- soft intersections to aide in views around corners (rounded corners and strategically placed reflective glass so people can see who's coming and who's behind them).
- glass elevators (so passengers can communicate with outsiders in case of emergency).
- open gathering spaces (encourage people to gather as a community and be free of barriers to visual communication).
- large rooms (to arrange furnishings into a "conversation circle" to allow clear sight lines so everyone can participate in the visual conversation).
- flat colors and lighting (avoid distracting patterns or colors that blend too easily with skin tones which make reading sign language difficult, use saturated colors that contrast human skin tones, diffused light levels make visual clues such as fascial expressions easier to perceive).

Challenges

- design an environment that supports and expresses deaf cognitive and social sensibilities.
- translate user needs to physical reality (implement the different needs of various users in a manner that is sensitive to the user while also being practical to actual space, time, natural and environmental forces, physical properties of materials, budget, etc.).
- blend and bridge various unique needs of users with the sometimes contradictory ability of a concrete, physical enclosure to express and be flexible to those needs.
- create an aesthetic of openness, extend sensory awareness, and maintain visual connections, while being a secure environment for the young adult residents.

8. Design

Placement on campus
The Proposed New Boys' Dorm will be located on the North side of the campus at the site of the current boys' dorm. The existing boys' dorm, Frechette Hall, will be demolished to make room for this new building.

The new boys' dorm will be located adjacent to the existing commons building, Rodman Hall, and close to the existing girls' dorm, Tate Hall. This new building is to be connected via walkways to the existing commons, gym, and girls' dorm as all school students will be using the public common areas of the new boys' dorm. These common spaces include education, activity, and socialization functions.

Site amenities around the new boys' dorm include covered bike storage, entry plaza, and exterior porch directly off of the Social Club room.

Internal building organization
The new boys' dorm will be divided into Public and Non-public functions.
- Public spaces will be placed in front, along the street edge, to be visible from outside of the building.
- Non-public areas such as private dorm, instruction, service, and study areas will be placed in the back of the building.

- Staff Office - is placed at the nexus of the building entry, public spaces, and corridors to the dorm rooms. This location will allow staff to see down corridors and create a single control point.

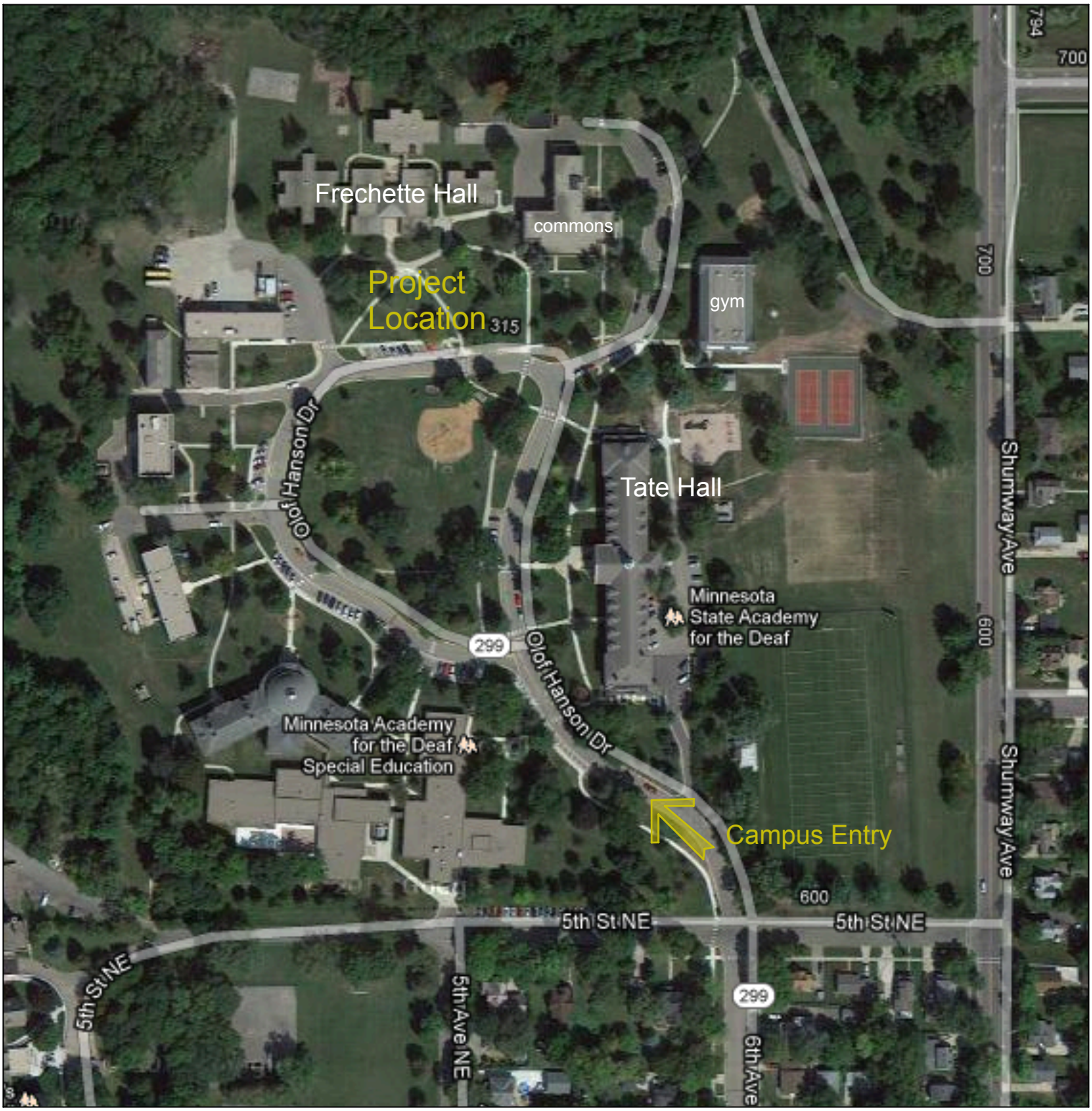
- Circulation - will radiate out from a central glass atrium space.
Circulation spaces are to be wide in order to facilitate communication, visualization, and socialization.

- Residence area - is divided into private, enclosed spaces (dorm rooms, service) and open common areas (accessible only to the building residents). Internally shared functions include study, instruction, and gathering spaces.

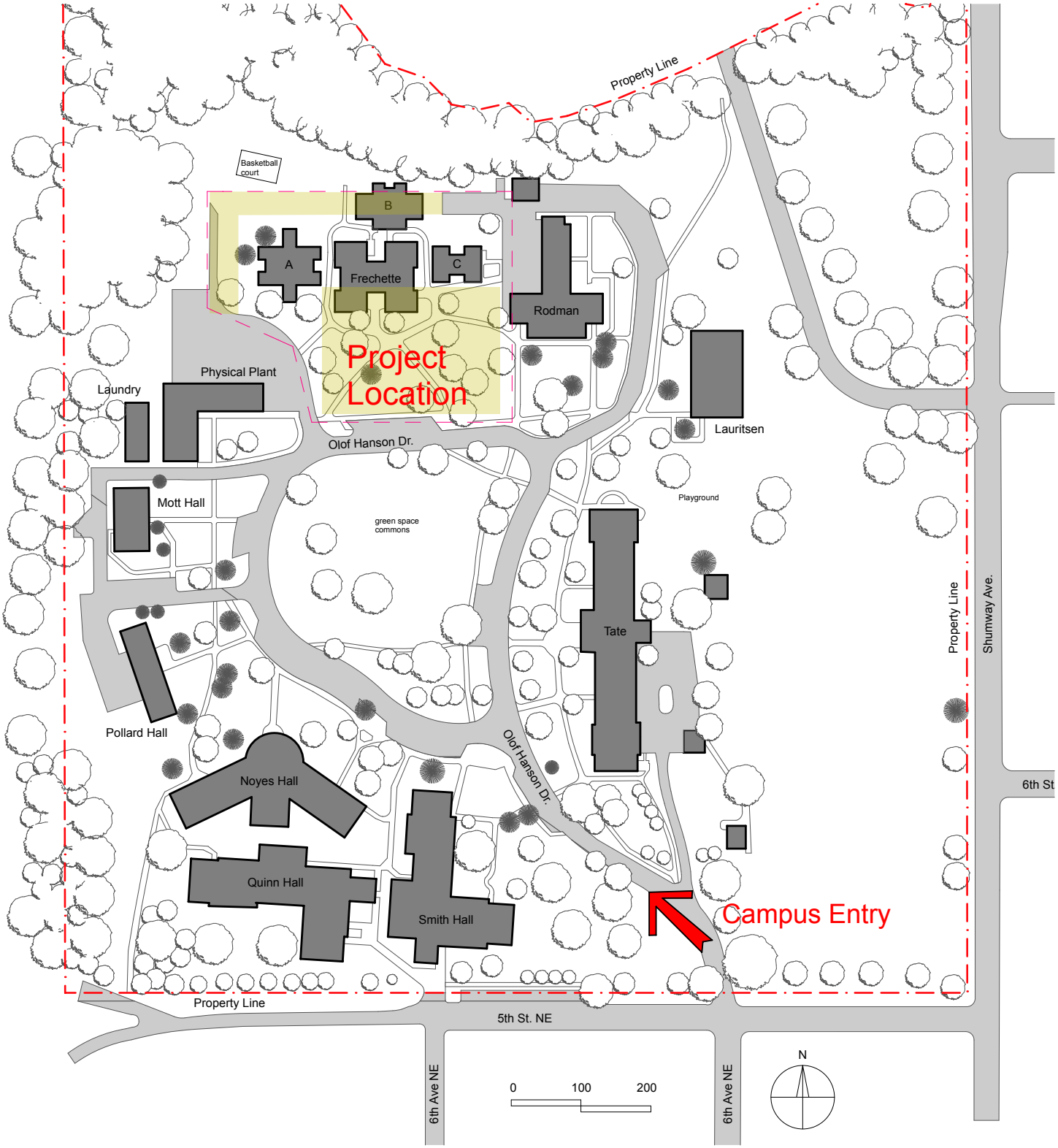
Exterior expression
The exterior will be divided into public and private expressions. The public spaces will be clad in open glass. The private areas will be clad in brick. Exterior building materials include -
- brick - at dorm areas
- glass - in open central atrium, public spaces, and stairwells
- metal panel - trim, infill panels, parapets, and window headers
- stone - at South and East entries, at fireplace in activity room
- metal grate sunscreens - on curtain wall glass in atrium, activity room, and stairwells

8a. Site Plans

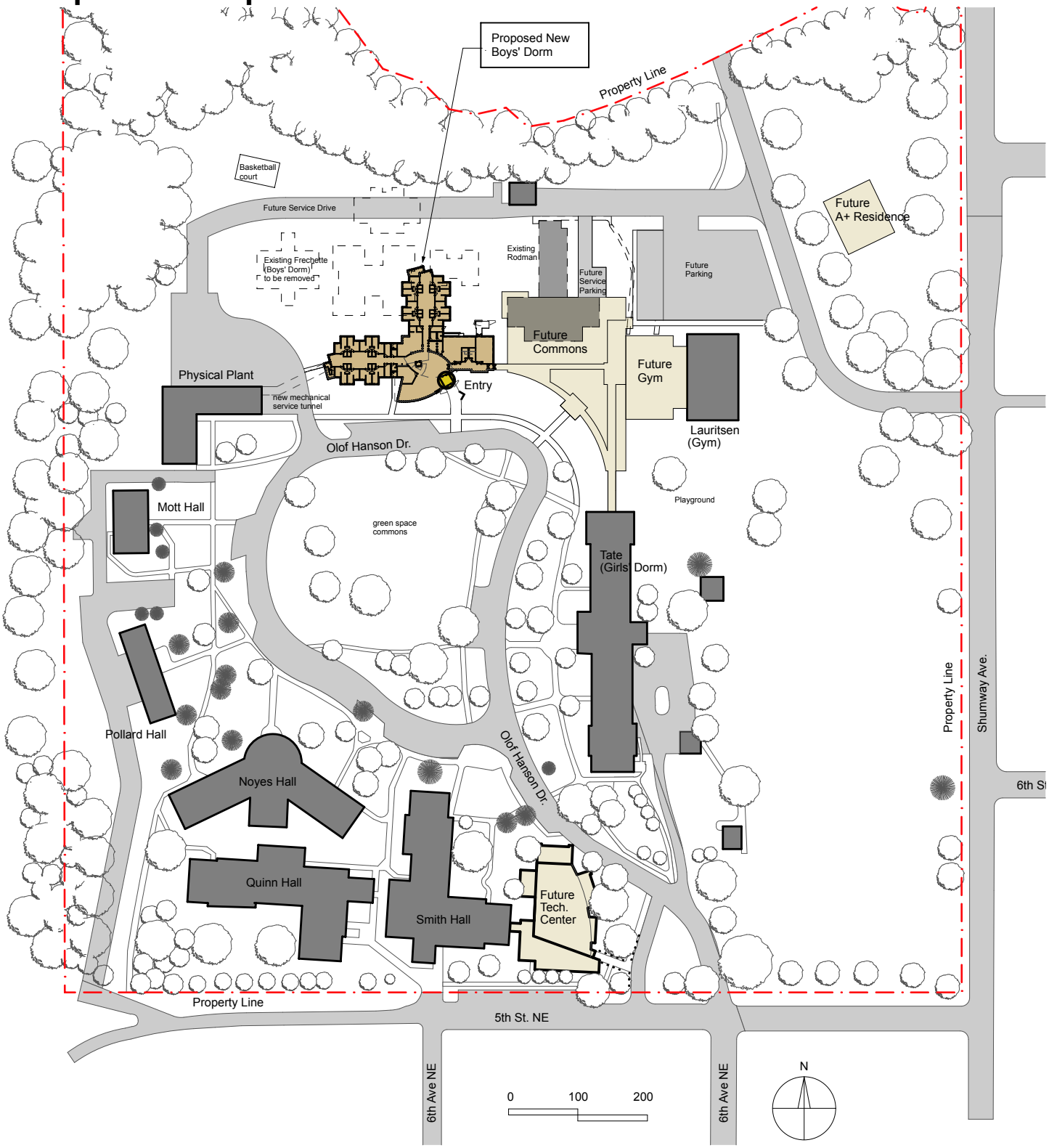
Existing Campus - aerial view



Existing Campus - Site Plan



Proposed Campus - Site Plan



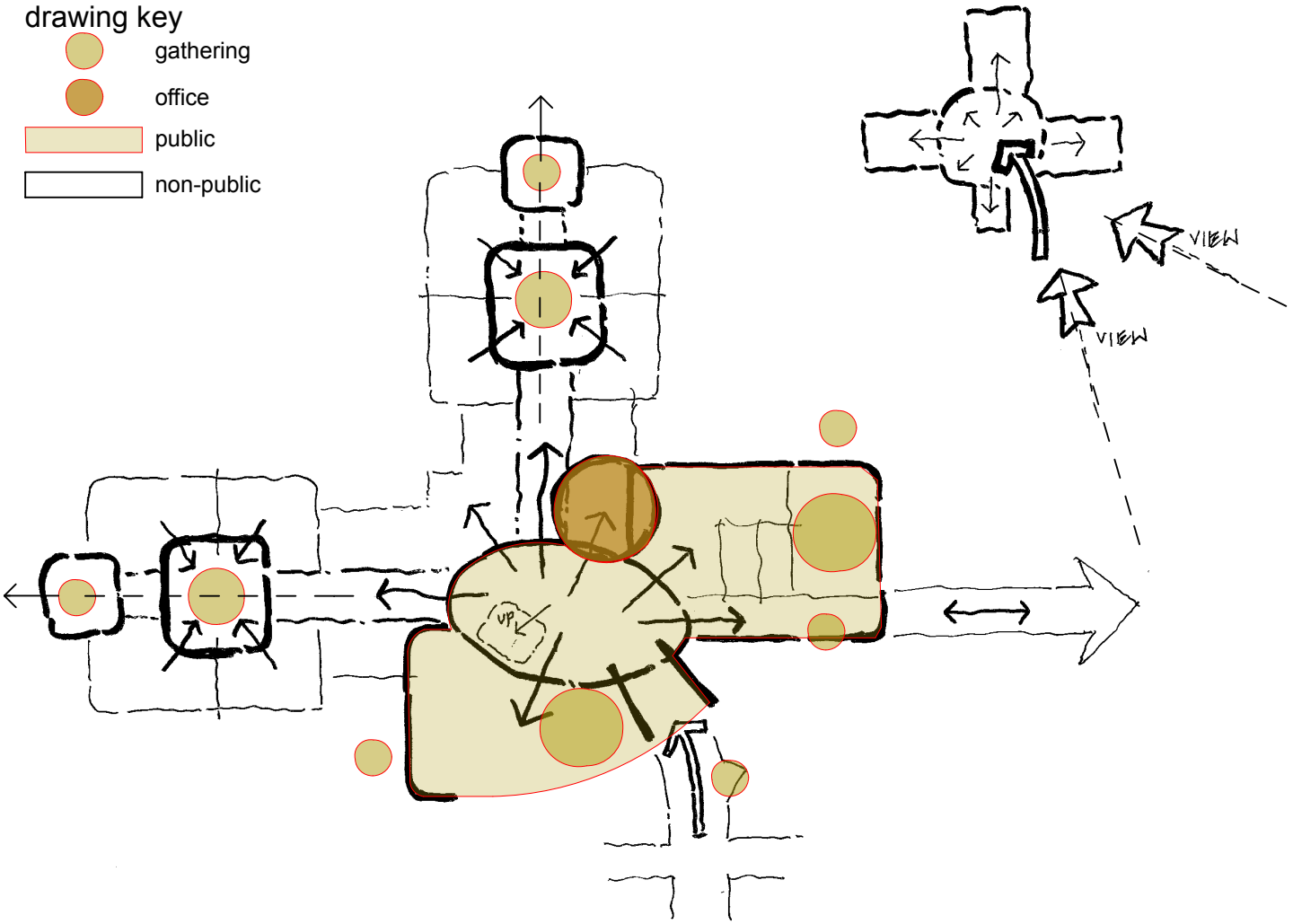
8b. Building Floor Plans

Plan Concept - Internal Organization

- Connection - optimize social interaction and visual connections
- Divide - Public and Private functions, divide spaces into zones
- Radial Circulation - from central core (radial spaces bring people together and stimulate interaction as routes merge and overlap)
- Control - Staff Office at nexus of circulation for monitoring and control
- Views - visual connections to and from building, to various activities
- Gathering - of various sizes (create opportunities for group activity)

". . provide a variety of spaces with varying degree of scales and enclosure that allow occupants choices for participation in large group activities, smaller side conversations, and private moments."

- New MSAD Residence Hall Workshop Report, (bottom of) page 11



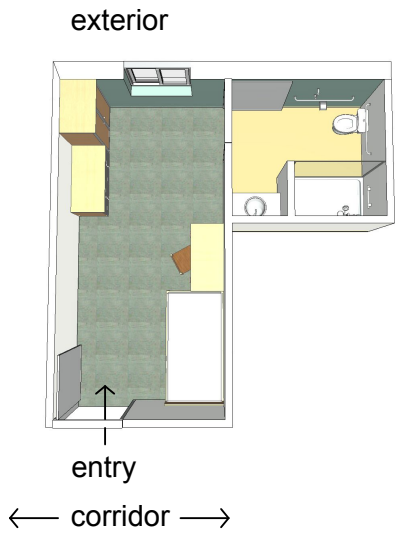
Dorm Room Types (part 1)

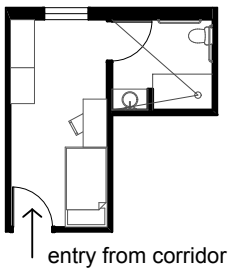
3 different Resident Room types - (see program for quantities of each)

1.) Private Room - for a single resident

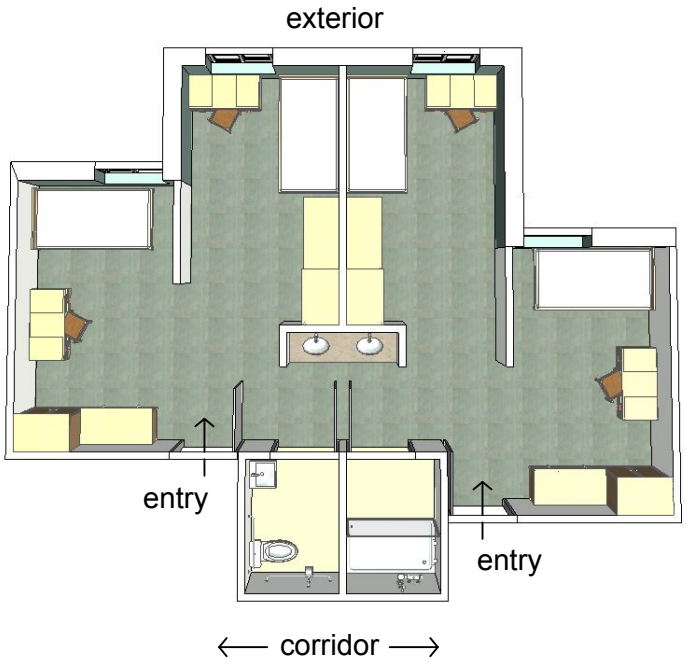
2.) 4 Bed Cluster - for younger residents

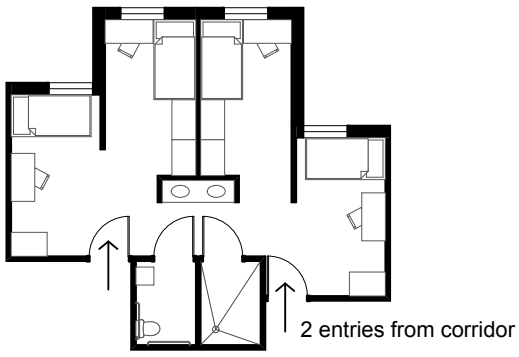
3.) 4 Bedroom Apartment - for older residents. Includes private rooms, kitchen, living rm, and laundry





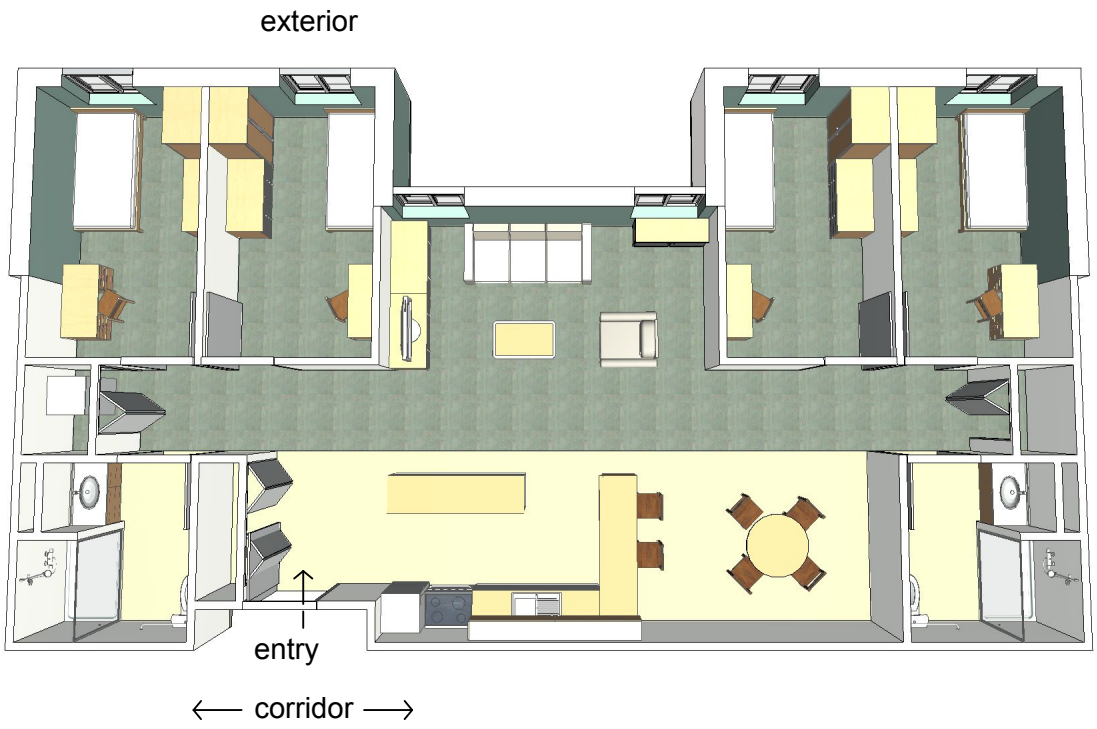
1.) Private Room

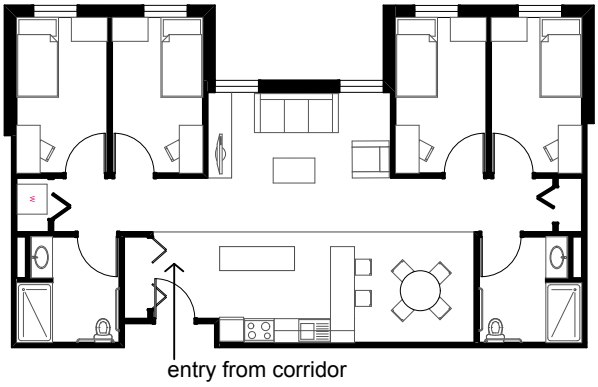




2.) 4 Bed Cluster

Dorm Room Types (part 2)





3.) 4 Bedroom Apartment

0 8' 16' 32'

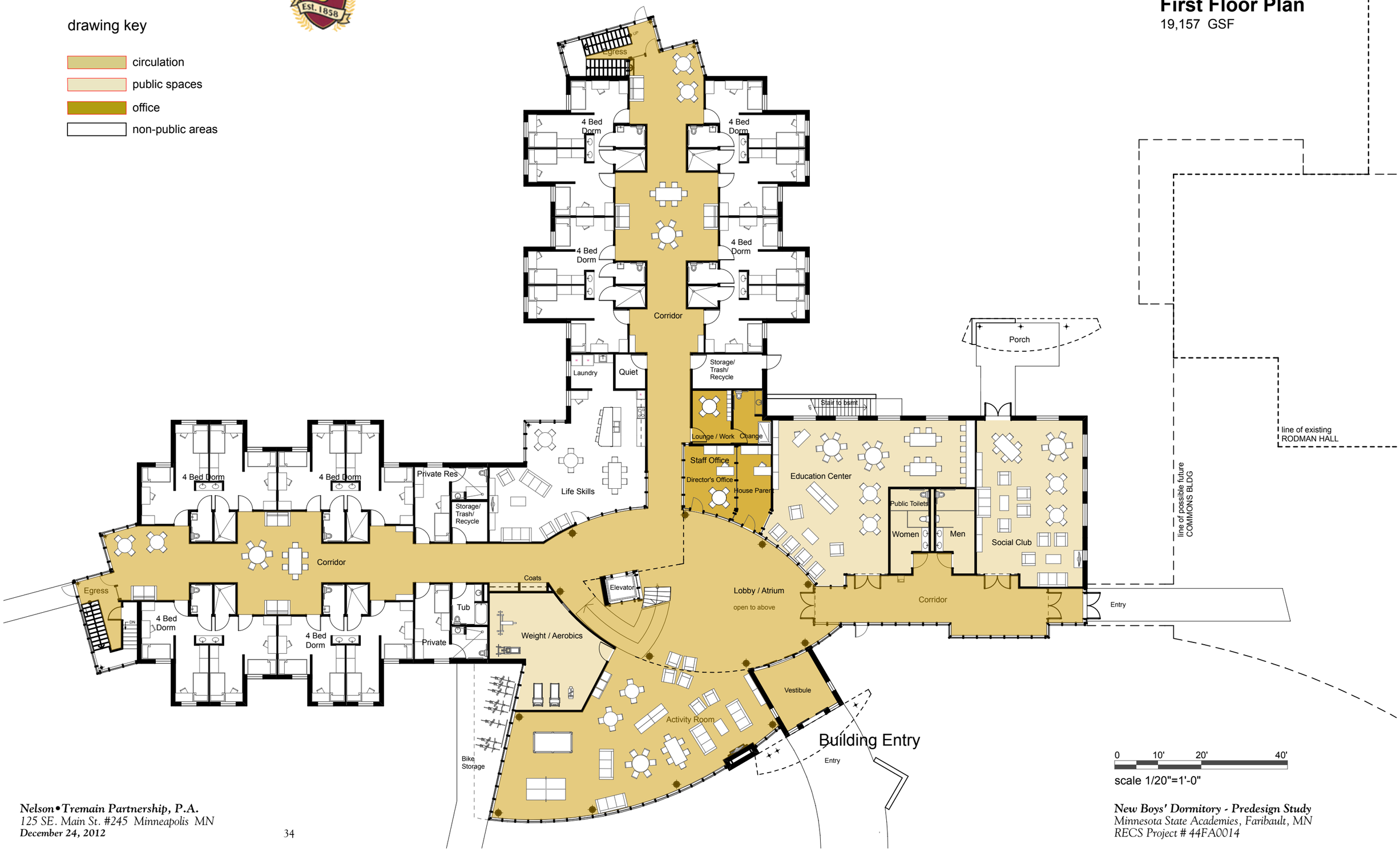
scale 1/16"=1'-0"

drawing key

- circulation
- public spaces
- office
- non-public areas

First Floor Plan

19,157 GSF



Nelson•Tremain Partnership, P.A.
125 SE. Main St. #245 Minneapolis MN

December 24, 2012

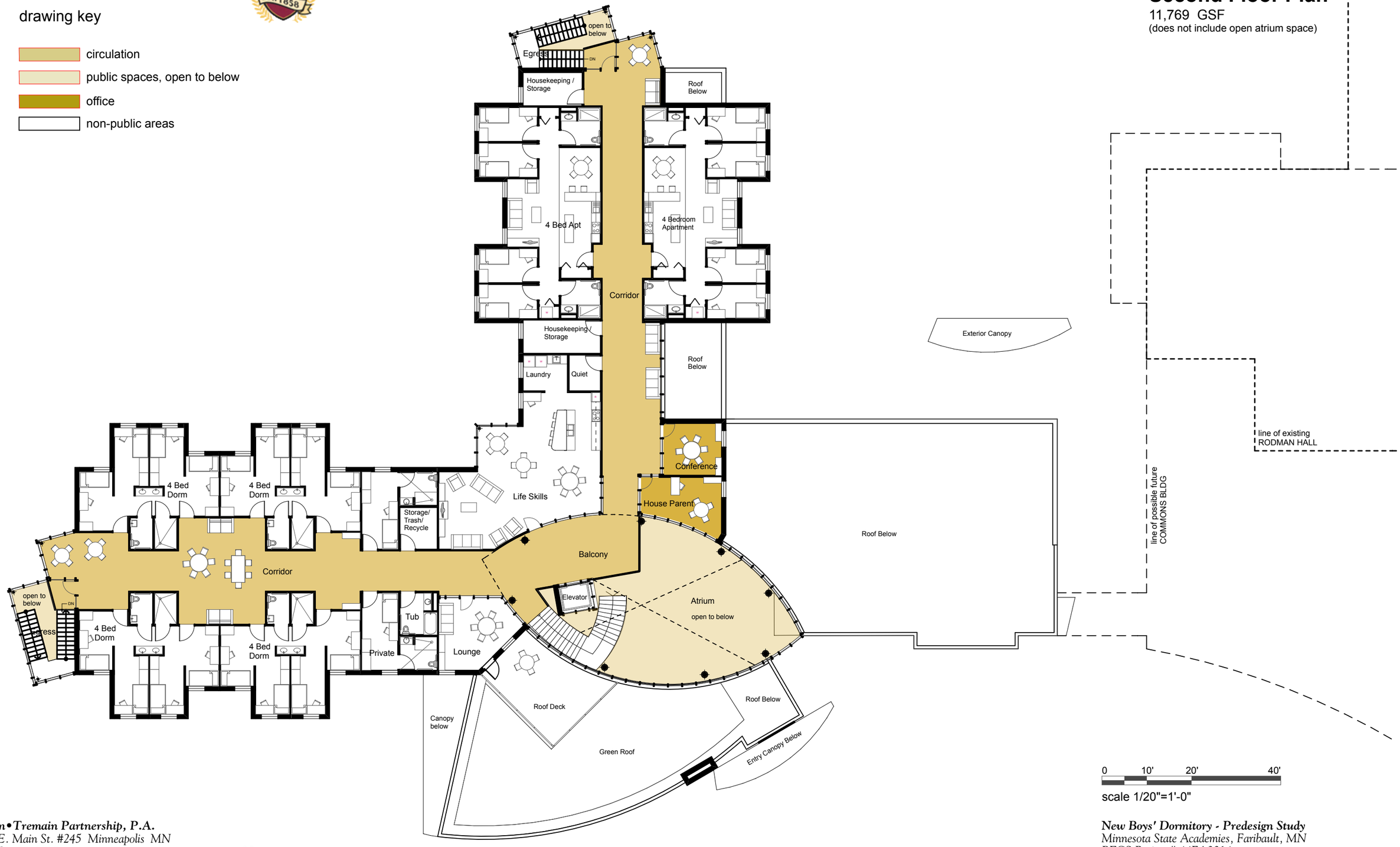
New Boys' Dormitory - Predesign Study
Minnesota State Academies, Faribault, MN
RECS Project # 44FA0014

drawing key

- circulation
- public spaces, open to below
- office
- non-public areas

Second Floor Plan

11,769 GSF
(does not include open atrium space)



0 10' 20' 40'

scale 1/20"=1'-0"

drawing key

circulation

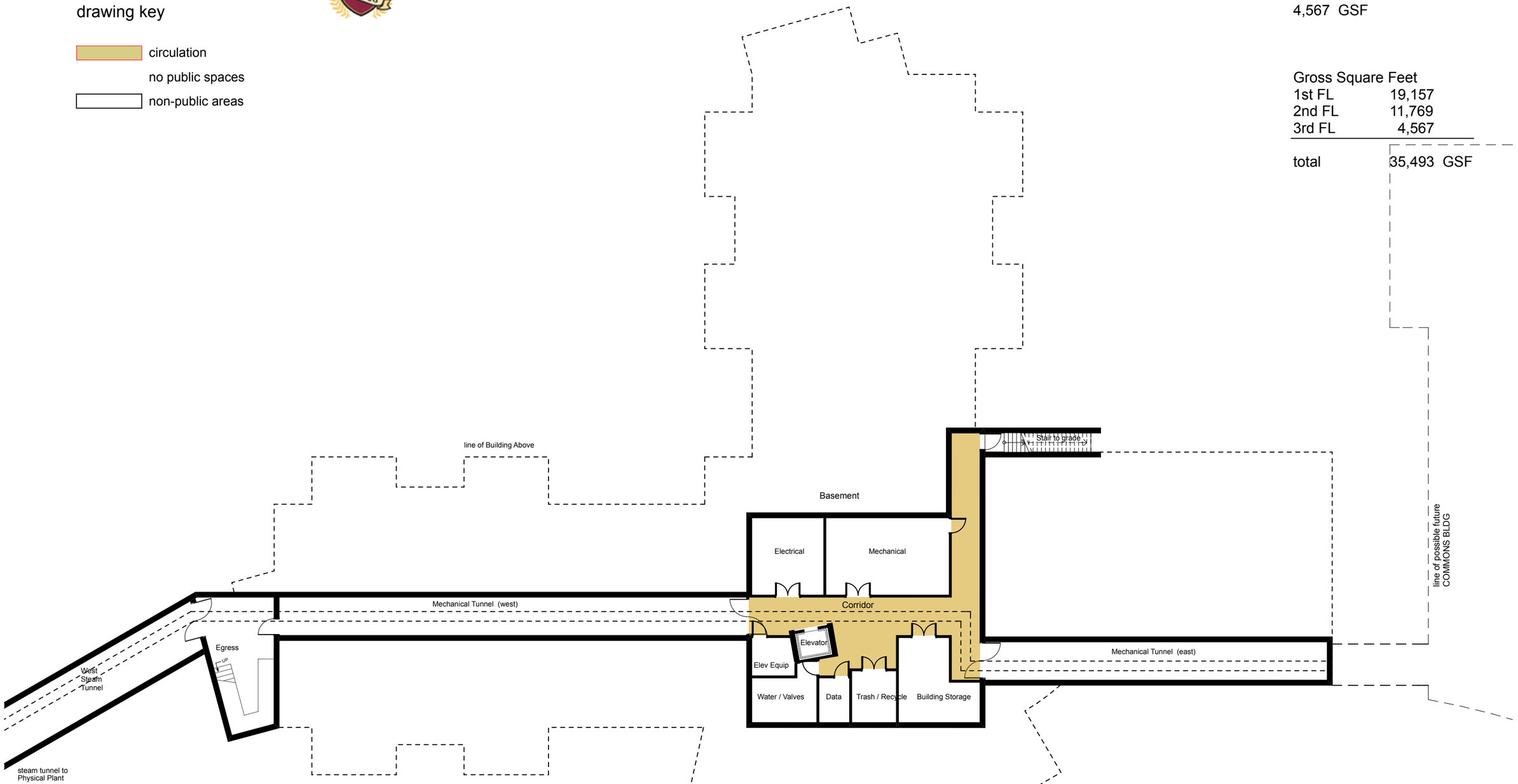
no public spaces

non-public areas

Basement Floor Plan

4,567 GSF

Gross Square Feet	
1st FL	19,157
2nd FL	11,769
3rd FL	4,567
total	35,493 GSF



0 10' 20' 40'

scale 1/20"=1'-0"

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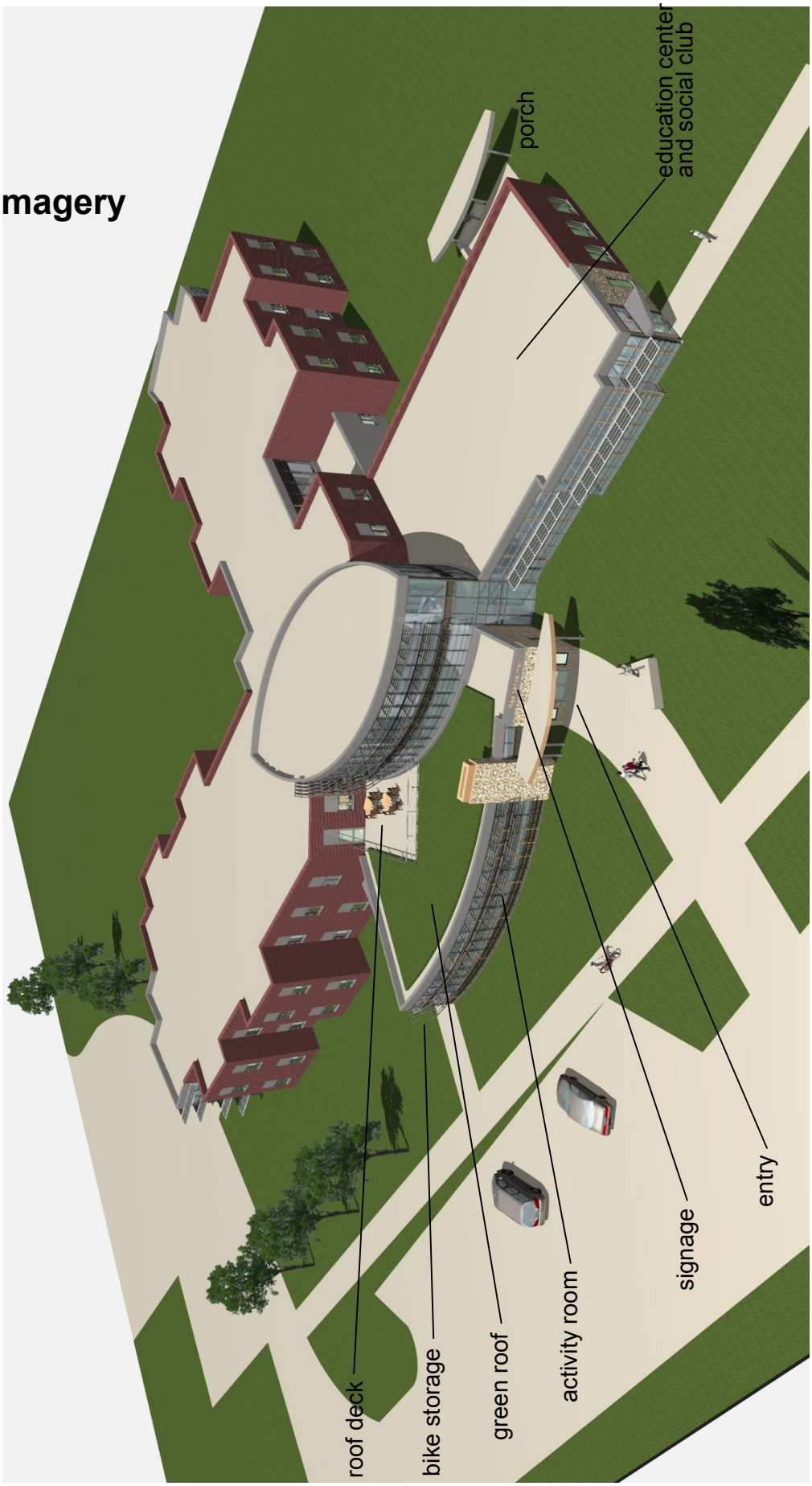
December 24, 2012

New Boys' Dormitory - Predesign Study
Minnesota State Academies, Faribault, MN
RECS Project # 44FA0014

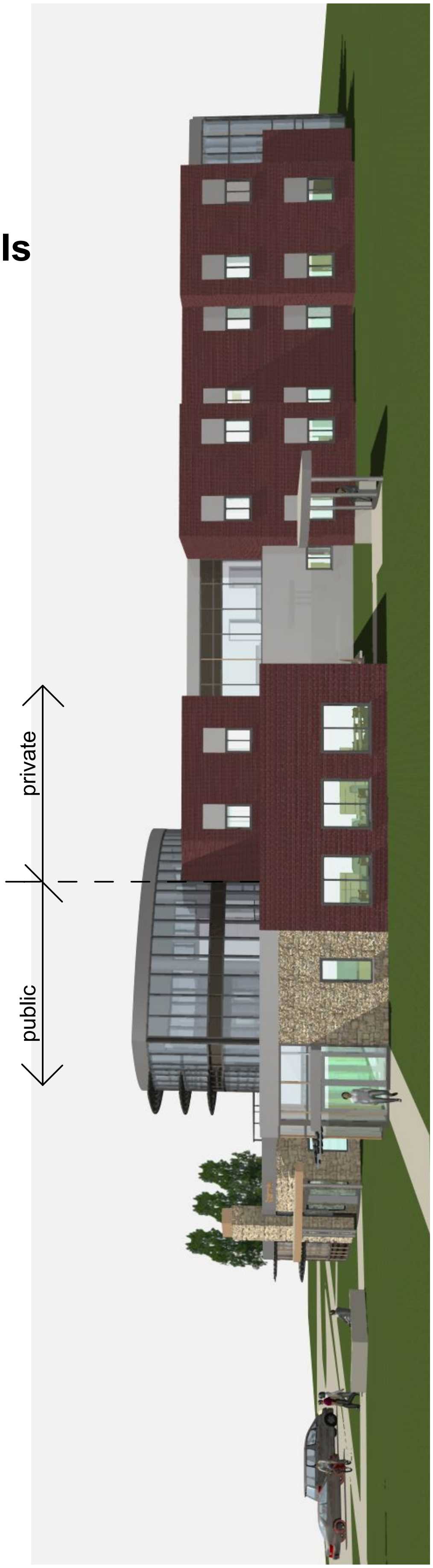
8c. Exterior Imagery



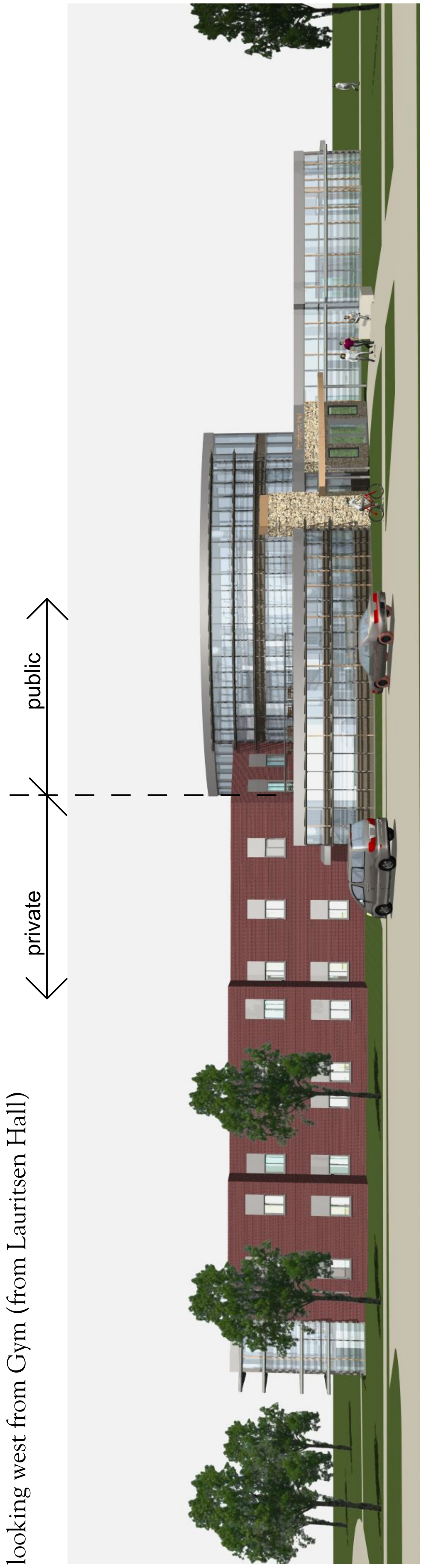
Massing
view from southeast looking northwest

Elevations and Materials

Exterior materials include -
- brick [private]
- glass [public]
- metal panel
- stone (at entries)
- metal sunscreens (on curtain wall glass)



East Elevation
looking west from Gym (from Lauritsen Hall)



South Elevation
looking north from green space commons

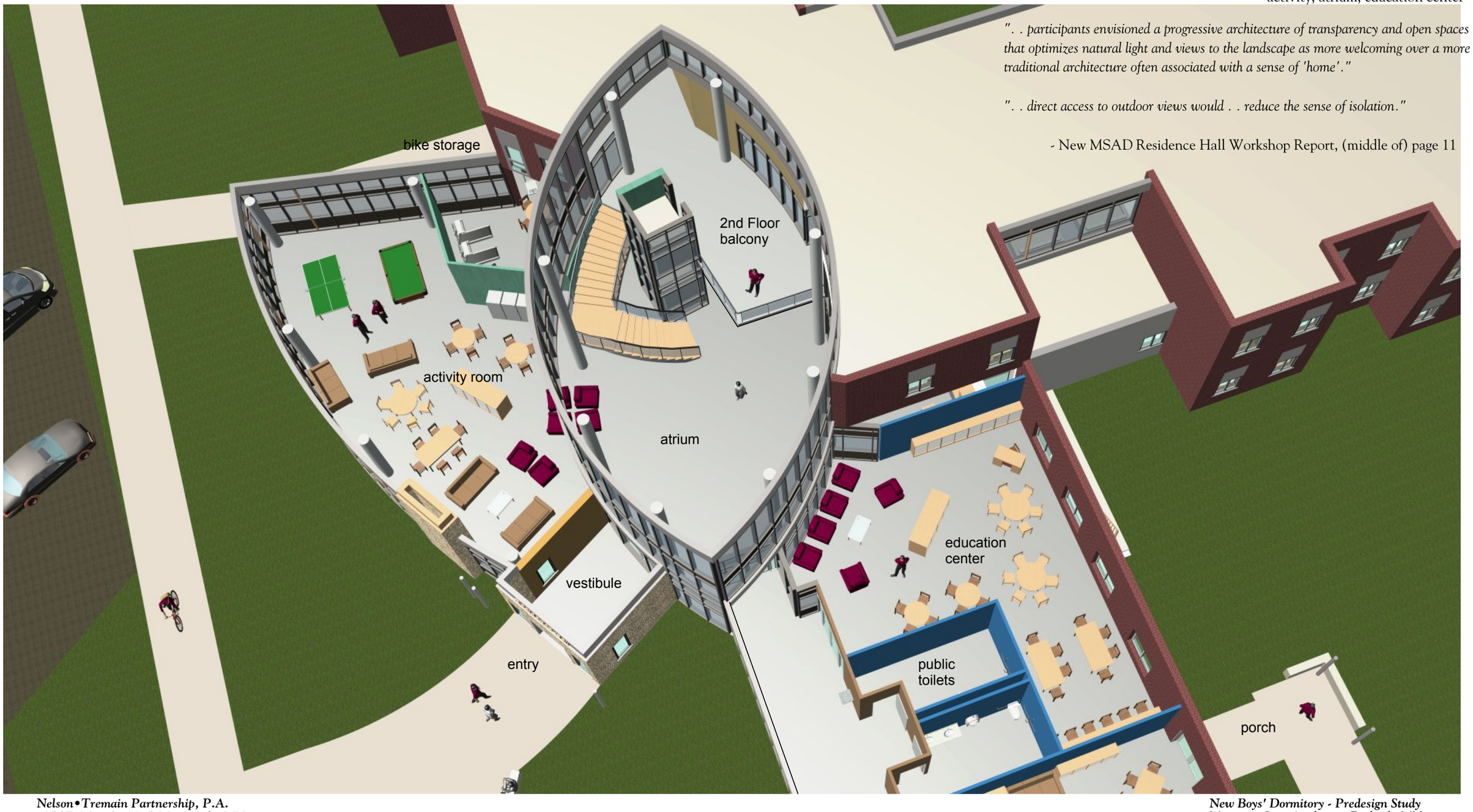
Interior Perspective

view from above into common spaces
- activity, atrium, education center

". . participants envisioned a progressive architecture of transparency and open spaces that optimizes natural light and views to the landscape as more welcoming over a more traditional architecture often associated with a sense of 'home'."

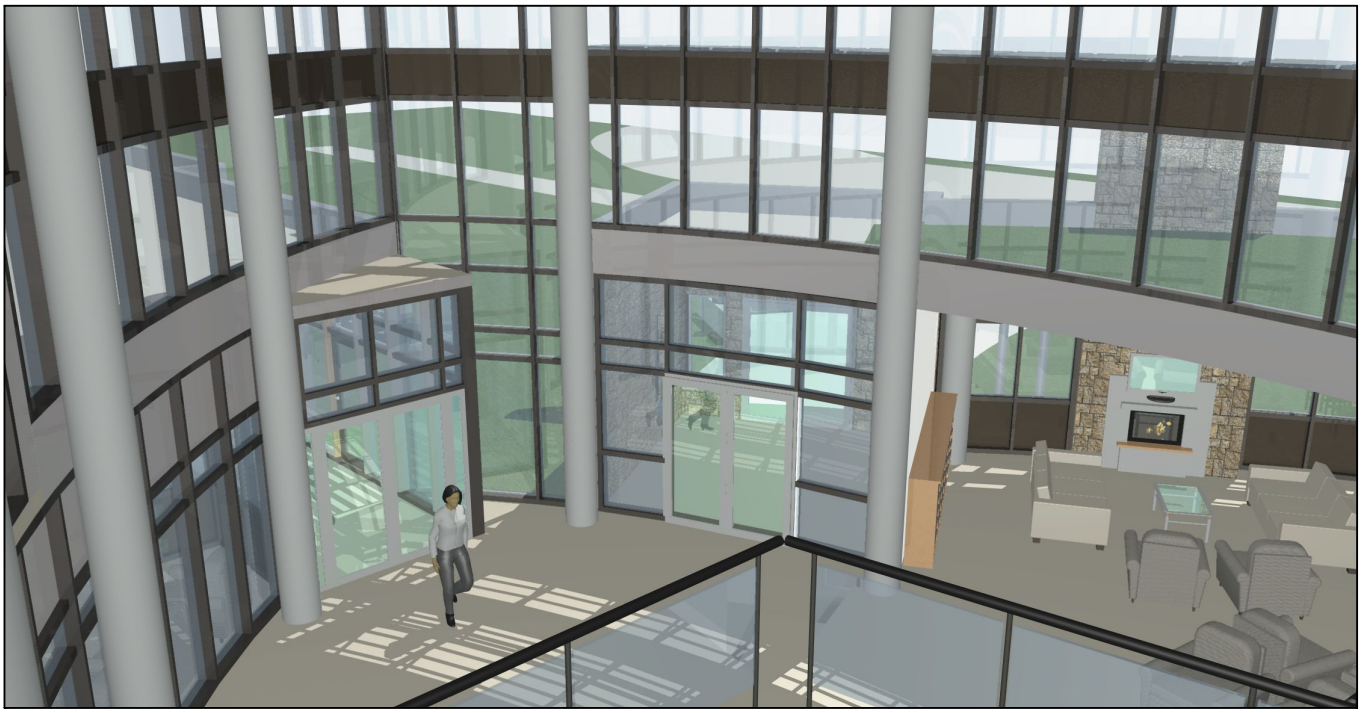
". . direct access to outdoor views would . . reduce the sense of isolation."

- New MSAD Residence Hall Workshop Report, (middle of) page 11



Interior Perspectives

views at atruim



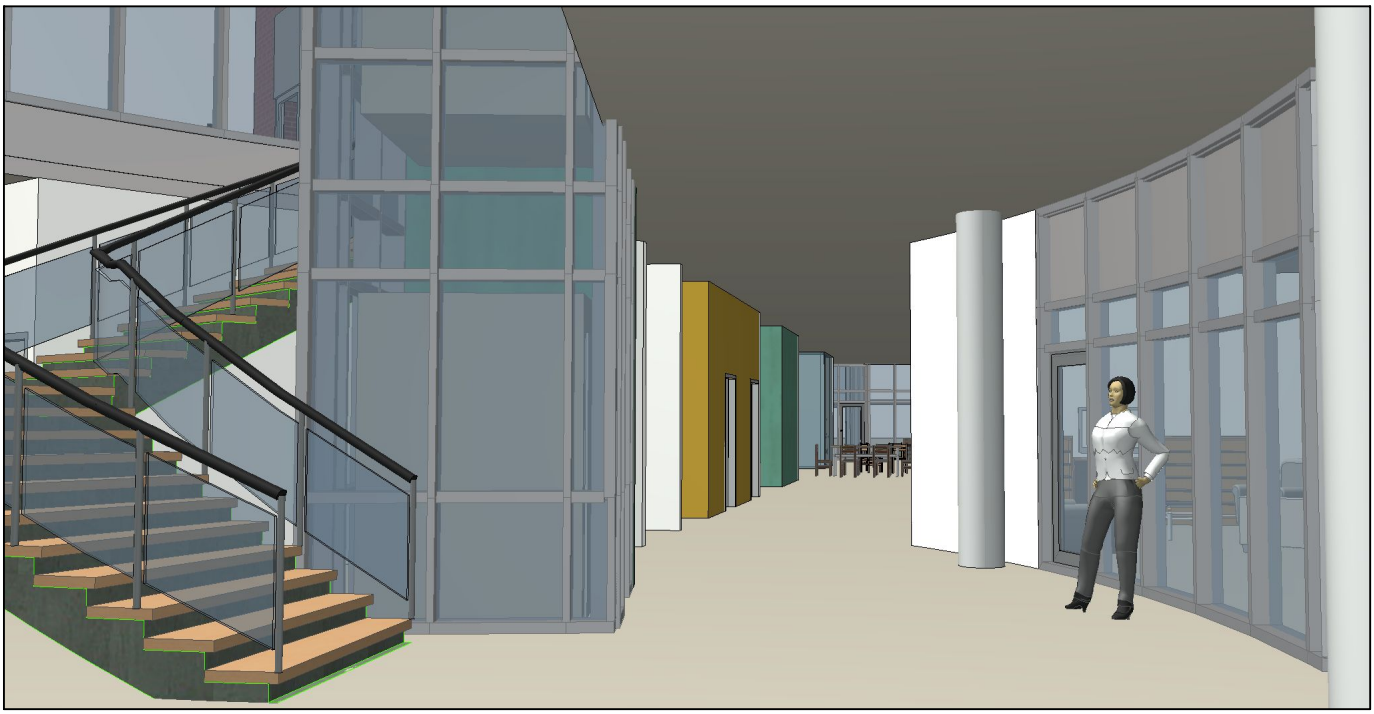
view to entry from balcony

view into activity room

Interior Perspectives

views at atruim

view to balcony from entry



view down hall (looking west)

9. Specialty Requirements

9a. Information Technology / Telecommuting

September 21, 2009

Office of Enterprise Technology
State of Minnesota
Innovation. Change. Transformation.

Tom Macdonald
Ericksen Ellison & Associates Inc.
305 2nd Street NW Suite 105
New Brighton, MN 55112

Dear Tom,

RE: Information Technology & Telecommuting Plans

MINNESOTA ACADEMY FOR THE DEAF
NEW DORMITORY BUILDING
EEA PROJECT NO. 5762

Minnesota statutes require state agencies to prepare information technology and telecommuting plans when proposing capital investments in office space. Office space requests include a new building (new construction or acquisition of an existing building), renovation/remodeling and/or relocation. The Minnesota Office of Enterprise Technology (OET) is required to review and approve these plans.

This project provides for a new dormitory building to house students of the Minnesota Academy for the Death. It is assumed that information technology will be limited to telecommunications and PC's used by students and a limited number of staff.

I have reviewed the preliminary draft pre-design information provided for this project and ascertained that an Information Telecommuting Plan is NOT required for this project. Furthermore, based upon the understanding that IT technology will be primarily telecommunications and that designers are required to follow OET's *"Building Infrastructure Guidelines for State-Owned Buildings"* no further Information Technology Plan will be required. This project does not involve any IT office space nor telecommuting personnel.

If you have any questions concerning this memorandum, or the requirements for these plans, please contact myself.

Sincerely,

Orrin Butterfield, PMP
Office of Enterprise Technology
651-556-8019

Cc: Dave Osteraas, Manager, Project Management Office, Office of Enterprise Technology

State of Minnesota Office of Enterprise Technology
Centennial Office Building ▲ 658 Cedar Street ▲ St. Paul, Minnesota 55155 ▲ voice: 651-296-8888
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