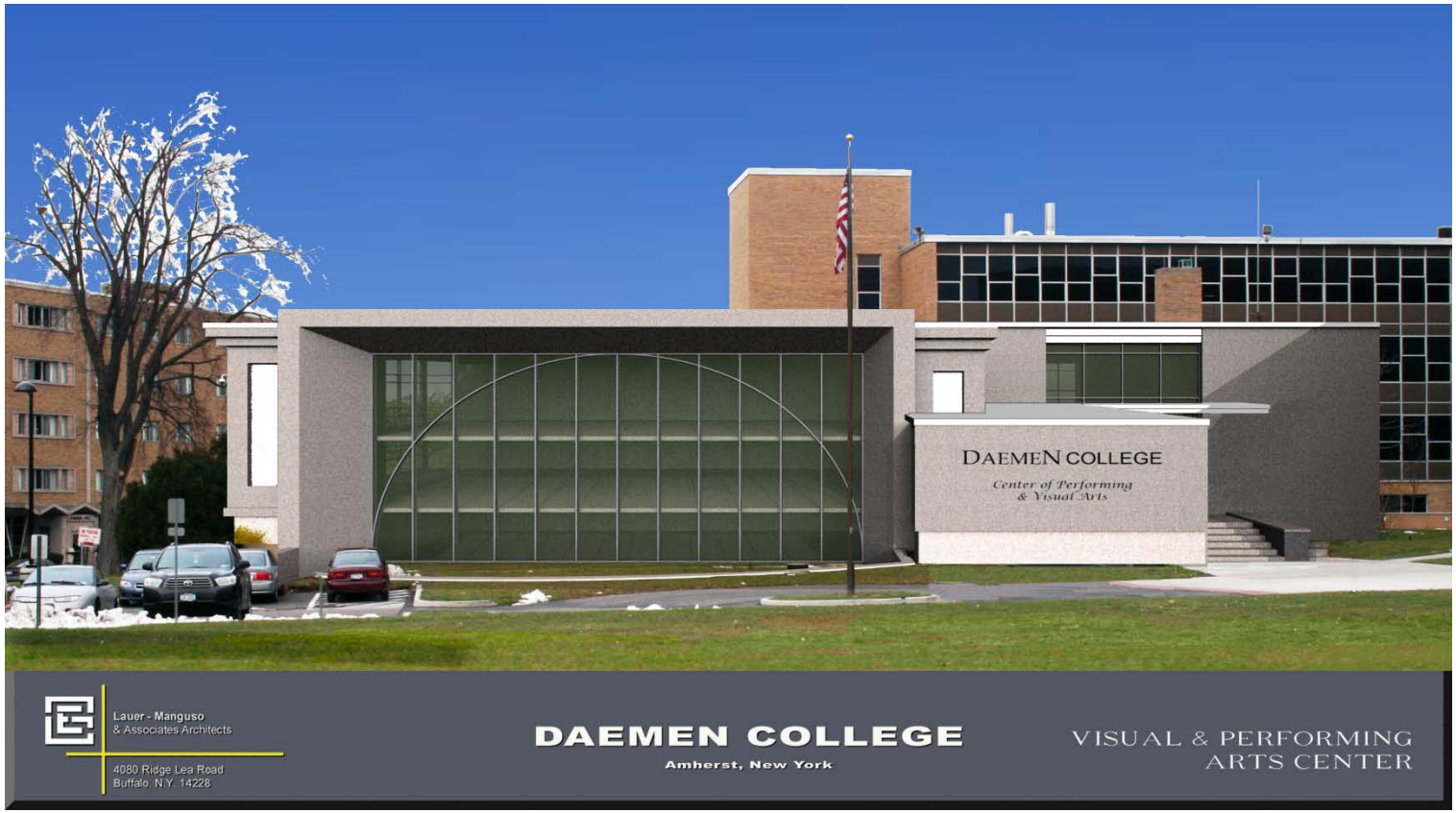

Daemen Alternative Energy/Geothermal Technologies Demonstration Program Erie County

May 20, 2010

Robert C. Beiswanger, Jr.
Daemen College

Geothermal Technologies Program 2010 Peer Review

DAEMEN COLLEGE

Open Loop, Geo-exchange System

May 20, 2010

DAEMEN COLLEGE

Open Loop, Geo-exchange System

Principal Investigators

Robert C. Beiswanger Jr.
Vice President for Business Affairs and Treasurer

Dr. Edwin G. Clausen
Vice President for Academic Affairs and Dean of the College

Overview Project

DAEMEN COLLEGE

Open Loop, Geo-exchange System

- Funding Source: U.S. Department of Defense
- DOE Funding Level: $946,423
- Total Project Cost: $1,217,941

DAEMEN COLLEGE

Open Loop, Geo-exchange System

- **Project Objective #1 - Open loop, geo-exchange system**

  Replacement of the inefficient Marian Library Heating System with a state of the art, open loop, geo-exchange system in conjunction with the Daemen College sustainable campus objectives.

- **Project Objective #2 - Development of Academic Coursework**

  Coursework is currently being developed to engage students in the evaluation and future modifications of our campus buildings. A Green Buildings course will introduce students to the concepts of high performance building, while providing hands-on opportunities for students to test design features in our older buildings, retrofits and new construction.

DAEMEN COLLEGE

Open Loop, Geo-exchange System

Project Objective #1 - Open loop, geo-exchange system.

- Remove existing boiler, associated piping, fin radiation, unit ventilators, ductwork distribution system and associated controls.
- Install a new open loop geo-exchange extraction and injection well field.
- Utilize ceiling hung and floor mounted heat pumps.
- Install a dedicated ventilation unit with heat recovery capability.
- Install two, high efficiency, condensing, sealed combustion, hot water boilers to serve perimeter fin radiation.
- Extend the campus Direct Digital Control system to interface with the geo-exchange and supplemental HVAC systems.

DAEMEN COLLEGE

Open Loop, Geo-exchange System

Project Objective #2 - Development of Academic Coursework

- Coursework is currently being developed to engage students in the evaluation and future modifications of our campus buildings.

- A Green Buildings course will introduce students to the concepts of high performance building, while providing hands-on opportunities for students to test design features in our older buildings, retrofits and new LEED-Gold Research and Information Commons.

- A second course in this curriculum, Alternative and Renewable Energy, will provide an opportunity for investigation of the ground-source heating and cooling system in our Marian Library retrofit.

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Open Loop, Geo-exchange System

Project Management, Targets/Milestones

Project Objective #1 - Open loop, geo-exchange system.

- June – July 2010 - Remove of the existing boiler, associated piping, fin radiation, unit ventilators, ductwork distribution system and associated controls.
- June - August 2010 - Installation of the open loop geo-exchange extraction and injection well field and the associated piping into the main mechanical room.
- December 2011 - Installation of the remaining project objectives

DAEMEN COLLEGE

Open Loop, Geo-exchange System

Project Management, Targets/Milestones

Project Objective #2 – Development of Academic Coursework

- Fall 2010 - Daemen College faculty will be developing the academic coursework materials and anticipates adding this to the curriculum offering in the Spring 2011 semester.

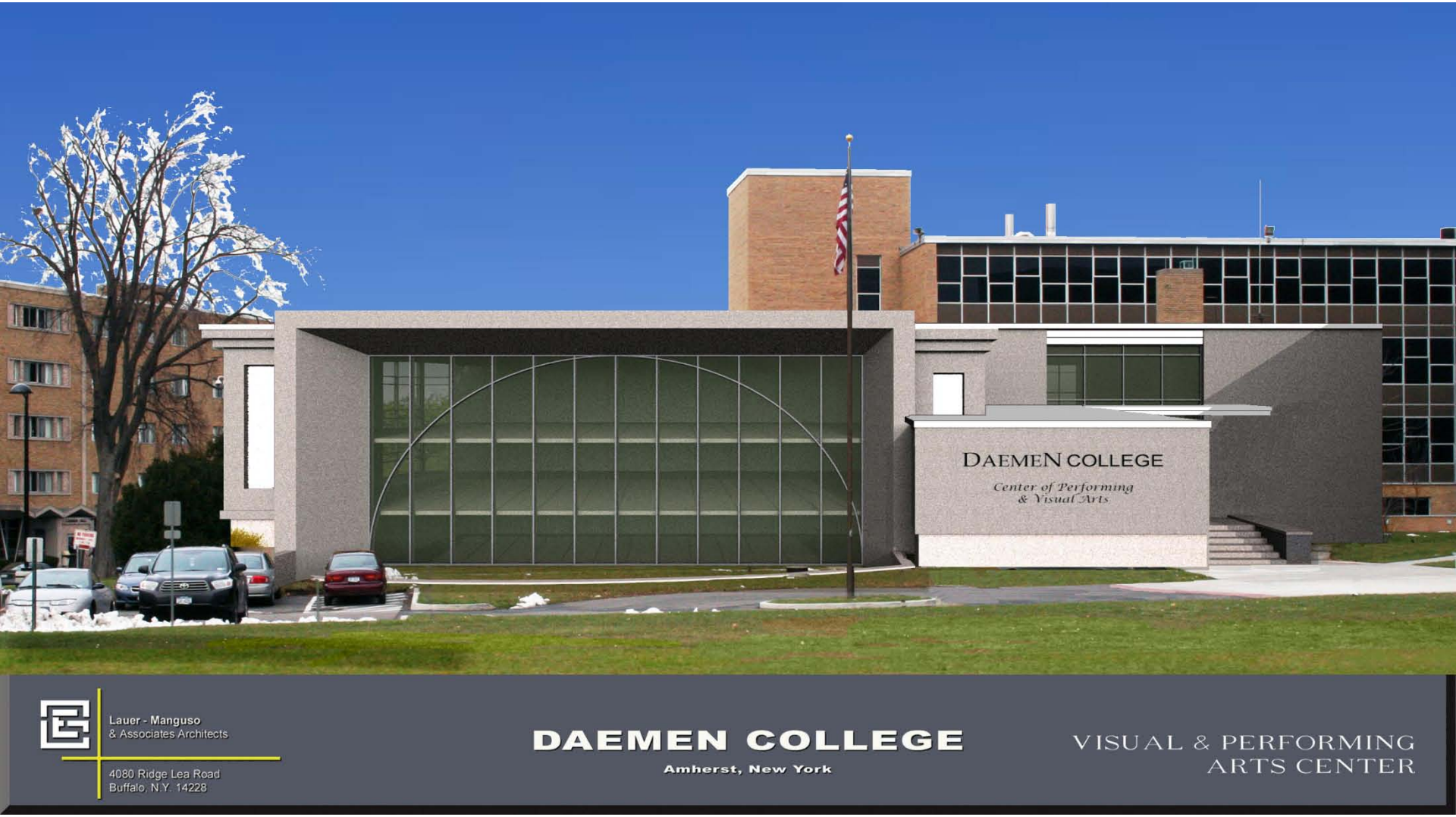
DAEMEN COLLEGE

Open Loop, Geo-exchange System

Project Budget – Visual & Performing Arts Center

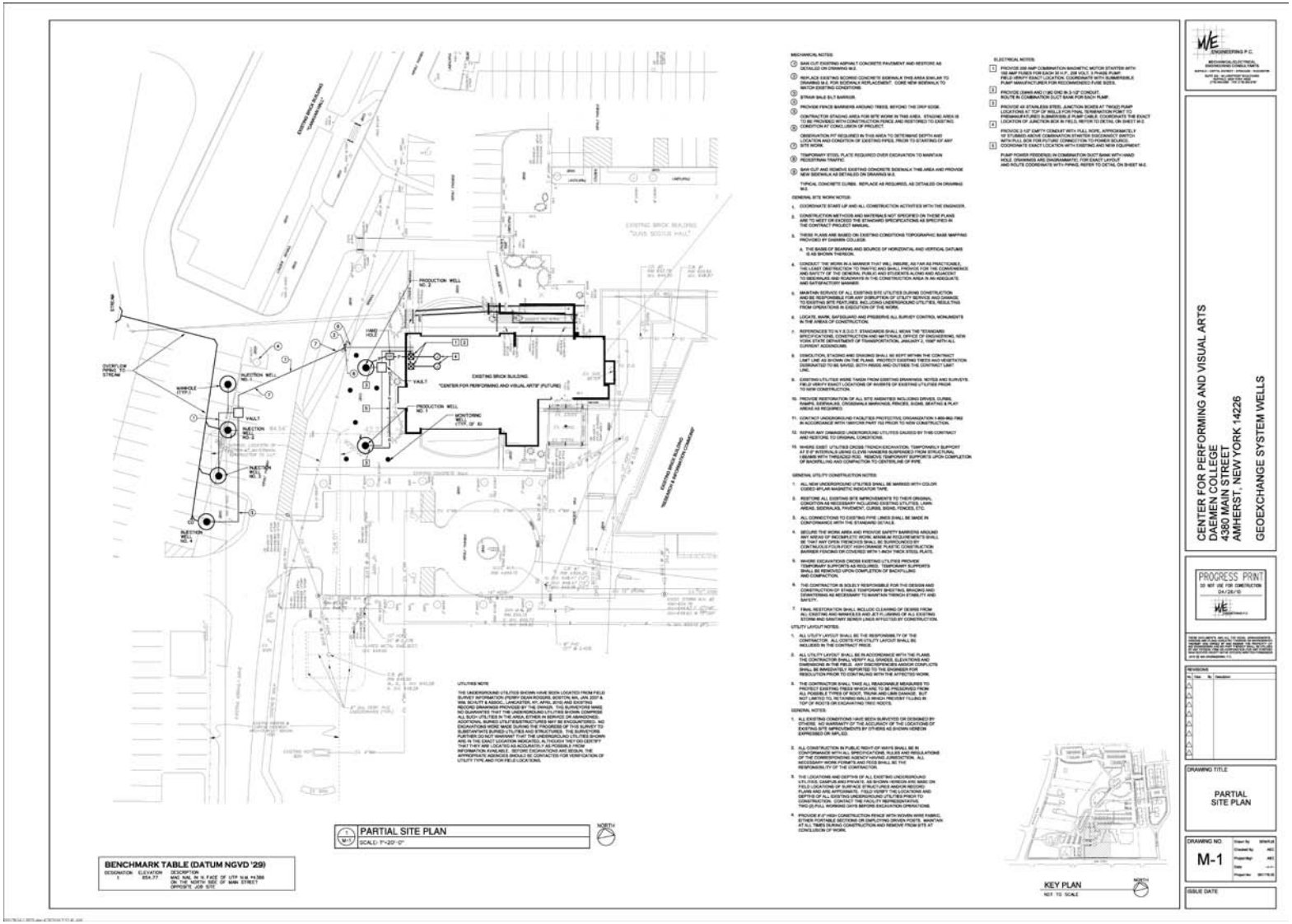
Construction	$3,915,000
Architect/Engineering	285,000
Project Development	59,000
FF & E	200,000
Total Budget	$4,459,000

Overview Project



Overview Project

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



Overview Project

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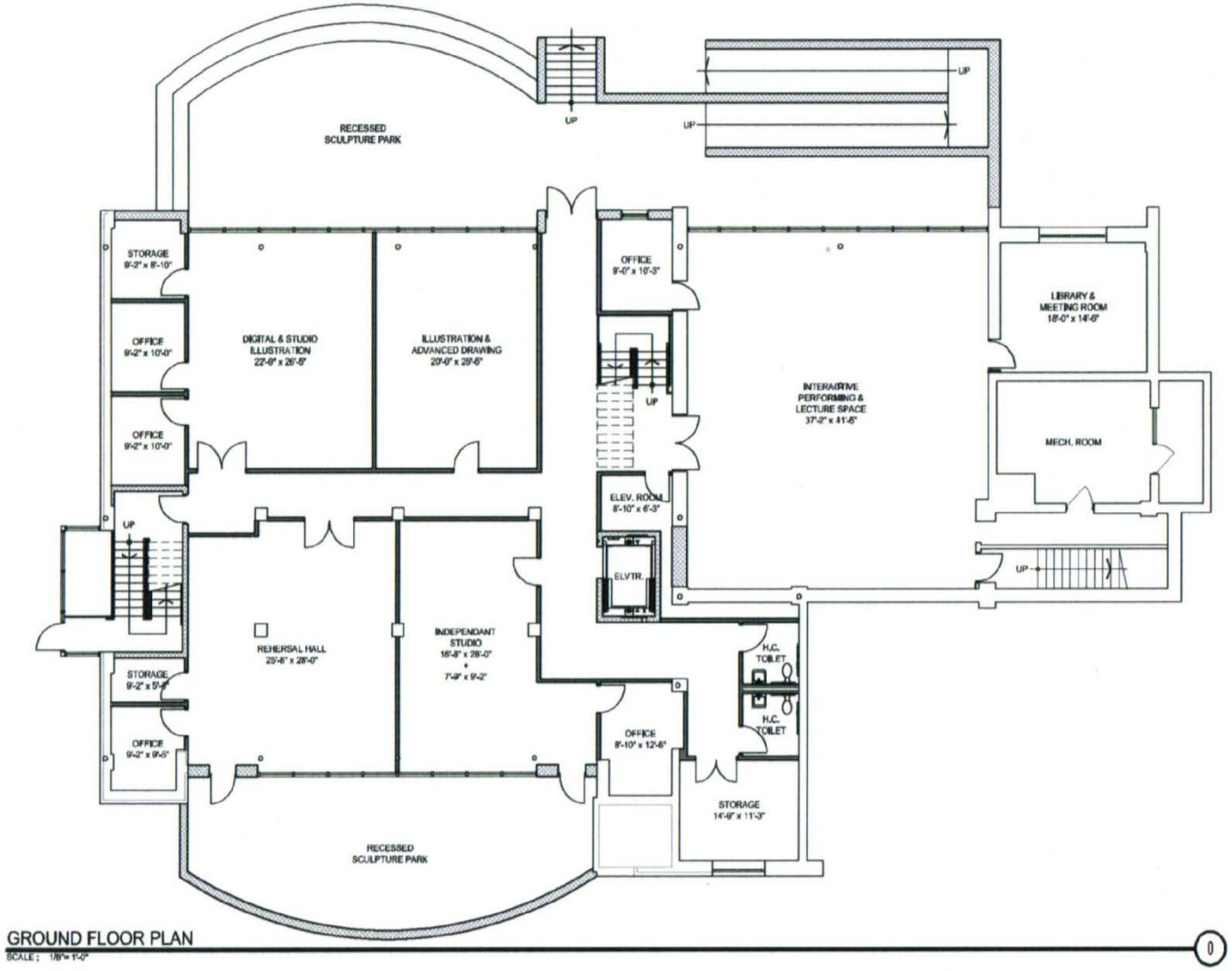

Overview Project

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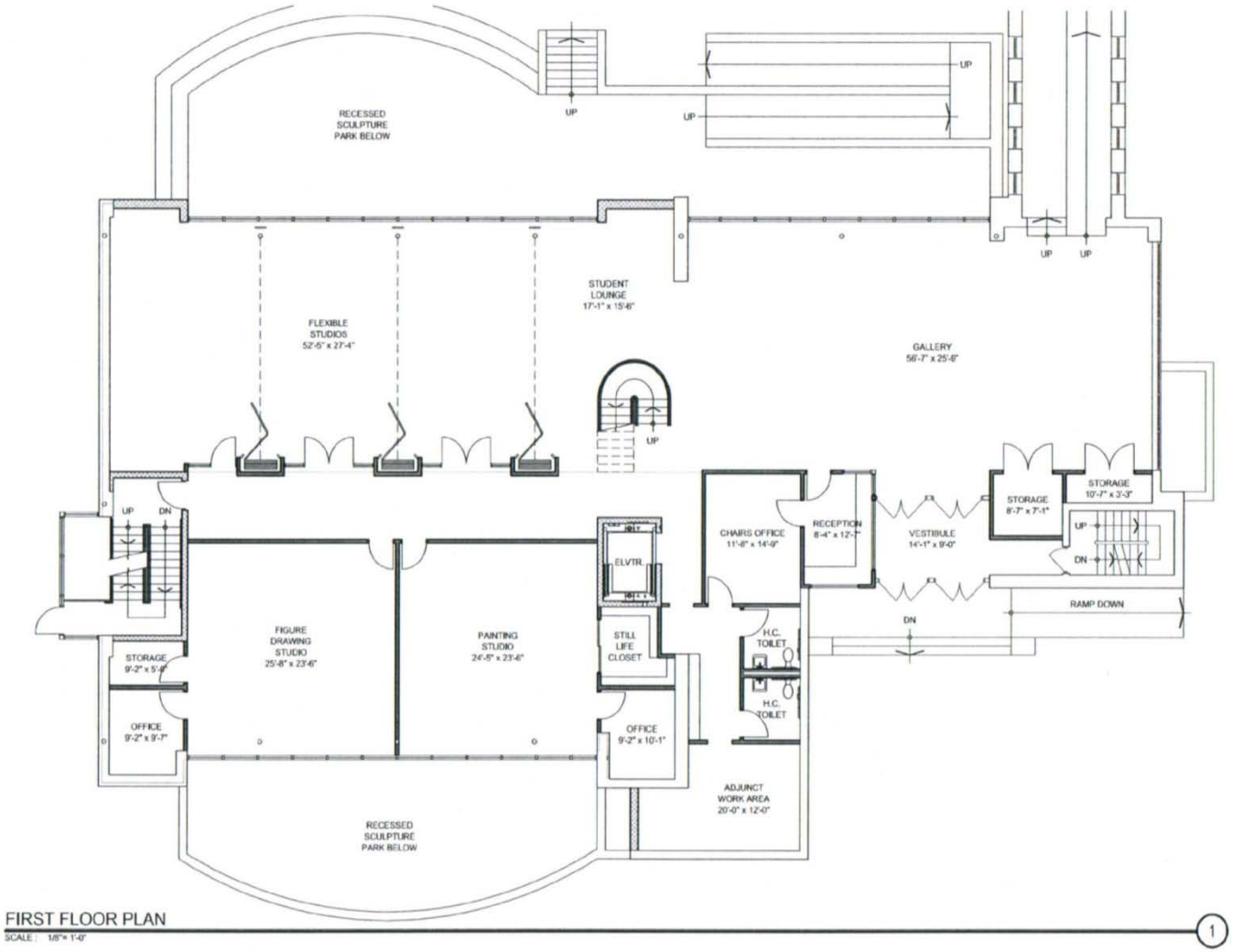

Overview Project

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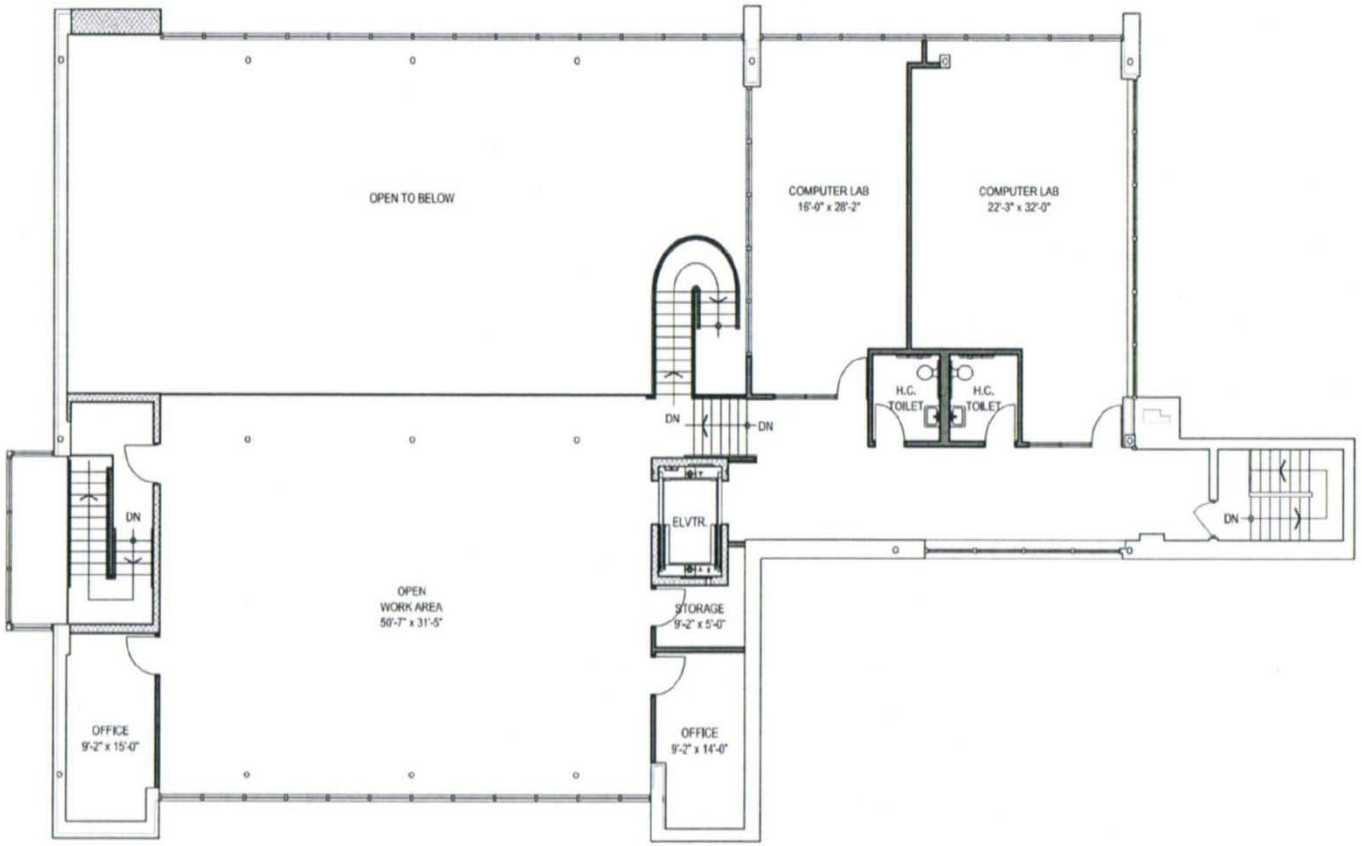
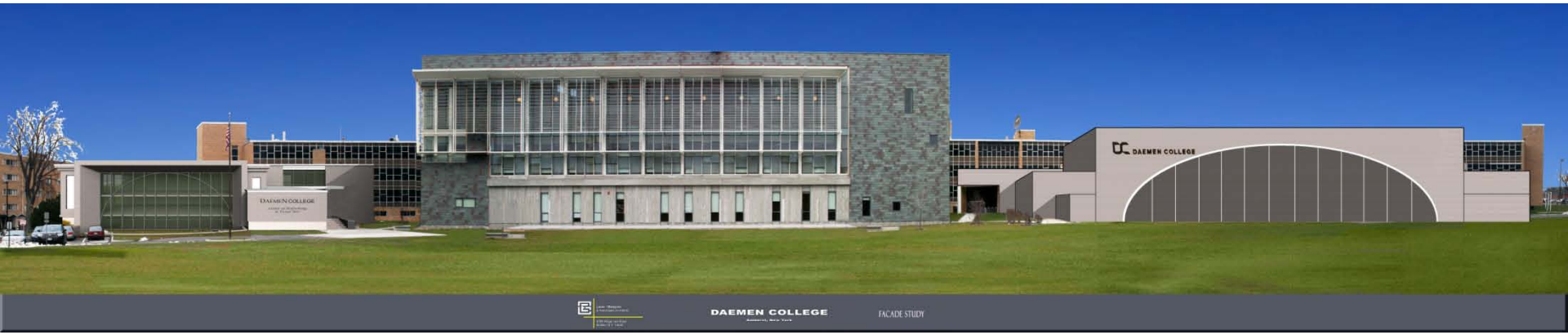


SECOND FLOOR PLAN

SCALE: 1/8"= 1'-0"

2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