**PROJECT DESCRIPTION**

**LOCATION:**
OAKLAND UNIVERSITY, ROCHESTER, MI.
"INNOVATION DISTRICT"

**SITE ZONING:**
SP - SPECIAL PURPOSE

**PROJECT SCOPE:**
975,638 S.F. OR 22 ACRES+
CAMPUS TOTAL:
62,769,960 S.F. OR 1,443 ACRES+
840,000 S.F. GROSS

**BUILDING AREA:**
3 STORIES, PARTIAL BASEMENT, 52 FEET

**USE GROUP:**
E - EDUCATIONAL

**CONSTRUCTION:**
1B

**OCCUPANCY LOAD:**
1,161 OCCUPANTS

**OAKLAND UNIVERSITY** is located in the city of Rochester and on the border of Auburn Hills comprising of 1,443 acres of land. The university has a strategic vision with goals, guidelines, physical and social appeal. A near term development project for the university includes the proposed Innovation District utilized for all research and development programs. Team 5 proposes the first landmark building to be provided on the Innovation District grounds. Working with the University, the design team had developed the Interdisciplinary Research Center dedicated to the students, faculty, and industry partners of the expanding academic programs of Bioengineering, Computer Science, Cyber Security, Environmental Science, Fastening and Joining and Robotics.

**ARCHITECTURE**
- CODE ANALYSIS
- ORDINANCE ANALYSIS
- FACILITY RESEARCH
- PROGRAM DESIGN
- SITE & UTILITY PLANS
- FAÇADE DESIGN
- SYSTEM INTEGRATIONS
- TECHNICAL DRAWINGS

**STRUCTURAL**
- CODE ANALYSIS
- ENVIRONMENTAL LOADS
- FOUNDATION DESIGN
- STEEL FRAMING
- DIAPHRAGM DESIGN
- LATERAL SYSTEMS
- CONNECTIONS
- TECHNICAL DRAWINGS

**MECHANICAL**
- CODE ANALYSIS
- MECHANICAL LOADS
- VAV & AHU SYSTEMS
- HYDRONIC SYSTEMS
- GEOTHERMAL DESIGN
- SANITARY & WATER
- FIRE SUPPRESSION
- DAYLIGHT INTEGRATION

**ELECTRICAL**
- CODE ANALYSIS
- ELECTRICAL LOADS
- POWER DISTRIBUTION
- PHOTOVOLTAIC DESIGN
- EGRESS LIGHTING
- LIGHTING DESIGN
- TECHNICAL DRAWINGS

**CONSTRUCTION**
- CODE ANALYSIS
- ORDINANCE ANALYSIS
- COST ESTIMATE
- LOGISTICS PLANNING
- PERMITTING PLANS
- QUALITY MANAGEMENT
- SUSTAINABILITY PLANS
- TECHNICAL DOCUMENTS

**COLLABORATION AND PROFESSIONAL INPUT**

**COLLABORATIVE GROUP**
- 40 PROFESSIONAL ENGINEER MENTORS
- 20 UNIVERSITY FACULTY
- 5 UNIVERSITY FACULTY DISCIPLINE ADVISORS
- 2 CLIENT CONTACTS
- 1 PROFESSIONAL ENGINEER TEAM ADVISOR
- 1 UNIVERSITY FACULTY TEAM ADVISOR

**OVER 100 HOURS OF PROFESSIONAL AND UNIVERSITY FACULTY ASSISTANCE WITH CAPSTONE TEAMS**

**PUBLIC HEALTH, SAFETY, AND WELFARE**

**HEALTH AND WELFARE**
- AIR FILTRATION
- AIR DISINFECTION
- INCREASED AIR CHANGES
- EXHAUST AIR SYSTEM
- WATER FILTRATION
- SYSTEM NOISE POLLUTION
- POWER QUALITY
- ADEQUATE LIGHTING
- DAYLIGHT INTEGRATION
- LIGHTING CONTROLS
- OPEN FLOOR PLAN
- PUBLIC RESTROOMS
- SAFE MATERIALS
- REDUCED EMISSIONS
- DUST CONTROL

**SAFETY**
- FIRE SUPPRESSION SYSTEM
- MECHANICAL FIRE DAMPERS
- CARBON DIOXIDE SENSORS
- EMERGENCY POWER SYSTEM
- SECURITY SYSTEM
- SHORT-CIRCUIT ANALYSIS
- HAZARD RISK CATEGORY LEVEL
- OVERCURRENT PROTECTION
- EMERGENCY EGRESS LIGHTING
- OCCUPANCY LOADING CRITERIA
- SAFETY DESIGN FACTORS
- LOAD COMBINATIONS
- SUPPORT MEMBER PROPERTIES
- UTILITY LOCATION PLANS
- CONSTRUCTION SAFETY PLANS

**KNOWLEDGE AND SKILLS GAINED**

**SKILLS & KNOWLEDGE**
- METHOD OF OPERATIONS
- DISCIPLINE INTEGRATION
- PROJECT SPECIFIC NEEDS
- EDUCATION FACILITY DESIGN
- INDUSTRY STANDARDS
- IDENTIFYING PROBLEMS
- TIME MANAGEMENT
- STRESS MANAGEMENT
- SOFTWARE USAGE
- CODE ANALYSIS
- DECISION MAKING
- CLIENT COMMUNICATION
- PRESENTATION SKILLS
- GRAPHICAL REPRESENTATION
- PROBLEM SOLVING

**SOFTWARE UTILIZED**
- ADOBE ACROSS
- ADOBE PHOTOSHOP
- AUTODESK 3DS MAX
- AUTODESK AUTOCAD
- AUTODESK REVIT
- AUTODESK VISUAL LIGHTING
- MICROSOFT EXCEL
- NAVISWORKS MANAGE
- NCMA MASONRY
- RAM STRUCTURAL SYSTEMS
- RSM2 ESTIMATING
- SKYCN PLATFORM
- SKM SYSTEM ANALYSIS
- SPOT ANALYSIS
- TRANE TRACE 3D PLUS
- TRIMBLE SKETCHUP

**CONSTRUCTION DOCUMENTATION**

**PROJECT TIMELINE**

- **SEPTEMBER, 2020**
  - TEAM CONTRACTS

- **OCTOBER, 2020**
  - PROJECT PROPOSAL

- **NOVEMBER, 2020**
  - SCHEMATIC DESIGN

- **DECEMBER, 2020**
  - TECHNICAL REPORT 1

- **JANUARY, 2021**
  - DESIGN DEVELOPMENT

- **FEBRUARY, 2021**
  - TECHNICAL REPORT 2

- **MARCH, 2021**
  - CONSTRUCTION DOCUMENTATION

- **APRIL, 2021**
  - TECHNICAL REPORT 3