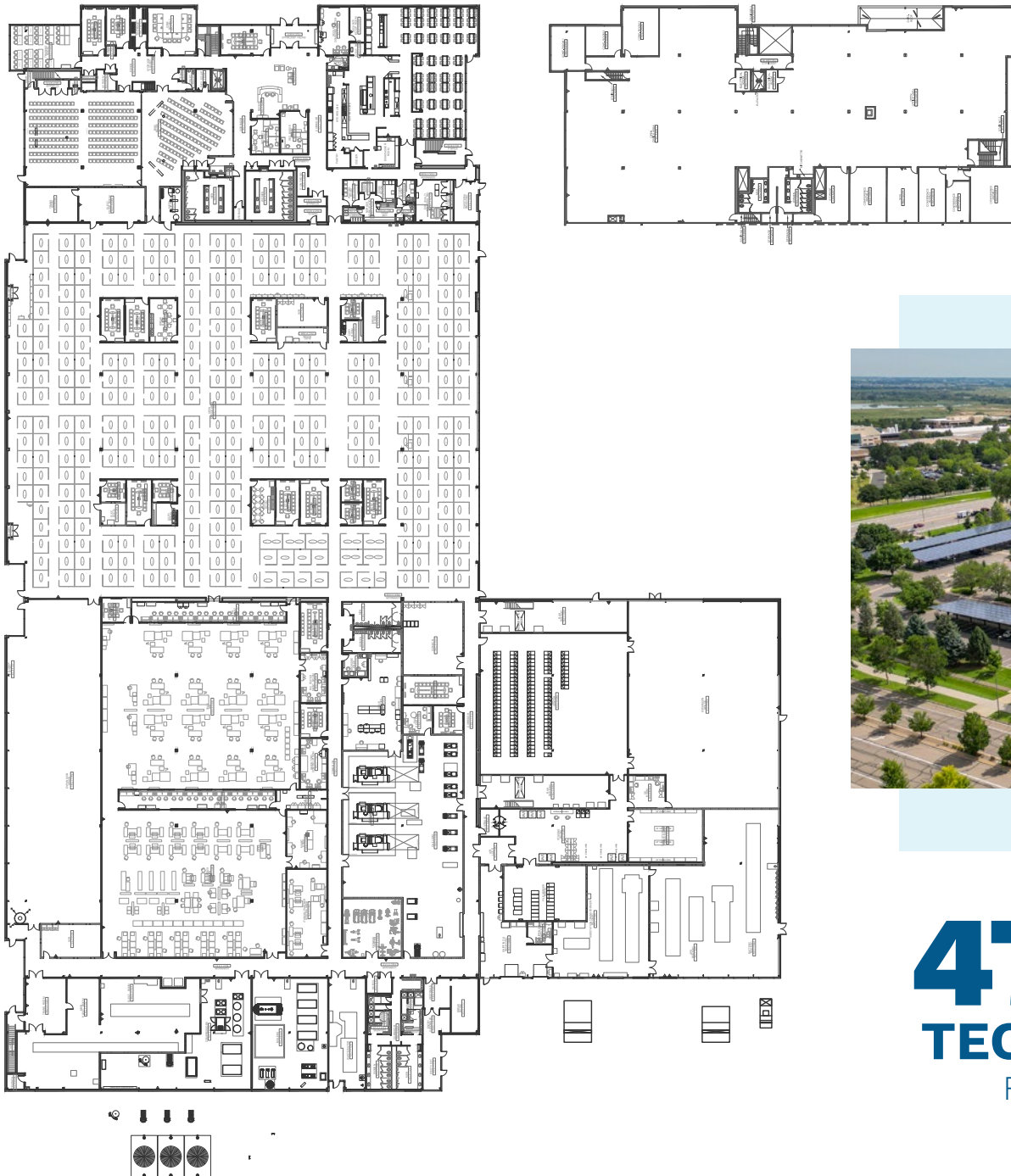


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**T.J. SMITH, SIOR**  
+1 303 283 4576  
tj.smith@colliers.com

**ROBERT WHITTELEY**  
+1 303 283 4581  
robert.whittelsey@colliers.com



**4701-4721**  
**TECHNOLOGY PARKWAY**  
FORT COLLINS, CO 80528

## Primary Switchgear - SWGR01

- S. C. Electric 13.2KV, 3-Phase double ended switch lineup
- Dual feed from Fort Collins Light and Power
  - Utility Feeder 522 into A-Side Feeder Cabinet
  - Utility Feeder 502 into B-Side Feeder Cabinet
- Installation: 2006
- 600A BUS
- Capacity: 10MW
- Existing capacity agreement with Fort Collins is for 3MW backed up on each of the dual feeders
- Studies have shown that expanding capacity up to 8MW from Fort Collins is possible, but only with an upsized feeder from the utility substation to the site. Fort Collins Light and Power would be able to provide approximate costs to do so

## Secondary Double-Ended Substations

### SES01 - West End Substation

- Cutler Hammer Double ended 13.2KV/480V Substation
- 5000A Bus
- Dual dry-type transformers: 3000/4000 KVA Capacity
- Installation: 1998

### SES02 - Office Area Substation

- Cutler Hammer Double ended 13.2KV/480V Substation
- 5000A Bus
- Dual dry-type transformers: 3000/4000 KVA Capacity
- Installation: 1998

### SES03 - Chiller Substation

- General Electric Double ended 13.2KV/480V Substation
- 3000A Bus
- Dual dry-type transformers: 2000/2667 KVA capacity
- Installation: 2005

## Generators

### Backup Generator #1

- Wagner Cat Diesel
- 2.5MVA/2MW rated capacity
- 480/277 VAC
- Feeds into SES04B
- 2006 Installation

### Backup Generator #2

- Wagner Cat Diesel
- 2.5MVA/2MW rated capacity
- 480/277 VAC
- Feeds into SES04A
- 2006 Installation

### Emergency Generator #4

- Cummins Diesel
- 250KW rated Capacity
- 480V/277 VAC
- 2006 Installation
- Feeds emergency distribution
- Emergency Lighting
- Elevator
- Other Life Safety Systems

### Emergency Generator #5

- Cummins Diesel
- 80KW Rated
- 1998 Installation
- Feeds Lift Station

## Solar Power Generation

- Parking awnings configured with total ~1MW solar generation panels
- Solar power feeds into SES01B Transformer Secondary

### SES04 - Backup Generator Substation

- General Electric Double ended 13.2KV/480V Substation
- 4000A Bus
- Dual dry-type transformers: 2500/3333 KVA Capacity
- Installation: 2005
- Generators #1 and #2 provide emergency power
- Configured to accept a 3rd future generator

### SES05 - Data Center Substation

- General Electric Double ended 13.2KV/480V Substation
- 4000A Bus
- Triple dry-type transformers: 2500/3333 KVA capacity
- Triple fed from A, B, and C bus off SWGR01

## UPS Systems

Six UPS Systems. Two were recently “mothballed” late last year as they were no longer needed.

### APC-A

- 1600KVA de-rated to 600KVA
- Served Data Center space
- System has been placed into maintenance by-pass when last battery refresh was due
- Installation: 2007

### APC-B

- 1600KVA de-rated to 600KVA
- Served Data Center space
- System has been placed into maintenance by-pass when last battery refresh was due
- Installation: 2007

### MGE-800A

- 800KVA de-rated to 480KVA
- Serves select mechanical system loads
- Batteries refreshed in May 2021
- Capacitors refreshed in July 2021
- Backed up by Generators #1 and #2
- Installation: 2007

### MGE-800B

- 800KVA de-rated to 480KVA
- Serves select mechanical system loads
- Batteries refreshed in May 2021
- Capacitors refreshed in July 2021
- Backed up by Generators #1 and #2
- Installation: 2007

### MGE-400A

- 400KVA de-rated to 266KVA
- Serves IT and PLC (controls) system loads
- Batteries refreshed May 2021
- Capacitors refreshed July 2021
- Backed up by Generators #1 and #2
- Installation: 2007

### MGE-400B

- 400KVA de-rated to 266/KVA
- Serves IT and PLC (controls) system loads
- Batteries refreshed May 2021
- Capacitors refreshed July 2021
- Backed up by Generators #1 and #2
- Installation: 2007

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## Building Management System Controls

Three separate controls systems serve different areas of the building

- **Trane**
  - Central Plant Systems
- **Johnson Controls Metasys**
  - Office Area Heating/Cooling
- **GE Cimplicity**
  - Chiller Plant Summaries
  - Air Handlers
  - PCW
  - Secondary Chilled Water System
  - Exhaust Fans
  - Cooling Towers
  - Exhaust Fans
  - Generators

## Chilled Water System

- **Primary/Secondary pumping system**
- **Secondary flow capacity**
  - Two secondary chilled water pumps @ 1683 GPM
  - Intel operates these pumps with n+1 redundancy
- **Water cooled chillers:**
  - Three 800 ton (nominal) Trane CVHF0910 chillers (n+1 redundancy)
    - 2006 installation
  - Chiller room was designed for future 800 ton chiller, but it was never needed
- **Thermal Storage Tank**
  - Provides 35,000 gallon chilled water capacity in the event of a chiller outage
  - Serves all chilled water air handlers

## Condenser Water System

- **Cooling Towers**
  - Three 800 ton (nominal) NC8309K3BG Marley Cooling Towers (n+1 redundancy)
    - 2006 Installation
  - Site was previously configured with two additional towers and heat exchanger that served as heat recovery units for Data Center Return Air Handler units. Those units have been decommissioned and abandoned in place

## Compressed Dry Air System:

- **Air Compressors**
  - Two Atlas Copco ZR200 compressors
    - Each rated for 898 CFM @ 115 psi
    - 1998 Installation
  - A third compressor has been decommissioned and abandoned in place
- **Air Dryers**
  - Two Atlas Copco CD520 desiccant dryers
    - Rated for 1000 SCFM @ 125 psi
    - 2006 Installation
  - One Atlas Copco PE-400
    - 2011 Installation
- **Air Receiver Tanks**
  - Three tanks
    - 1080 gal capacity each
- **Instrument Air Compressor for pneumatic controls**
  - Atlas Copco ZT55
    - 2006 Installation

## Hydronic Heating System

- **Boilers**
  - Three Cleaver Brooks FLX 700-700-15ST
    - Two boilers are active.
    - One boiler does not have an updated burner controller. It is kept in a dry layup and put together every year for inspections. Boiler is operated for approx. 1 week annually around inspection time before being placed back into dry layup. IFM indicates the boiler is good and dependable, just isn't tied in via controls with the other two boilers

## Heat Exchanger Loops

- **Three separate loops**
  - **AHU Glycol Loop**
    - Serves rooftop chilled water units
    - Tranter GCD-054-M-4-HP-390
    - 1550 GPM (n+1 redundancy on pumps)
  - **Lab Process Chilled Water (PCW) Loop**
    - Serves east and west lab spaces
    - 6,000 MBTU/Hr capacity
    - Pumps rated for 400 gpm (n+1 redundancy)
  - **Data Center RAH Heat Recovery/Free Cooling Loop**
    - Loop has been abandoned in place
    - 9,900 MBTU/Hr capacity

## Reverse Osmosis System

- System used to provide RO water for ultrasonic humidifiers in DC areas
- 590 gallons per day capacity

## Air Handler Summary

- **DX Units and Spaces Served**

- All units are R-22 refrigerant based

- **Office Areas**

- AH-02-04
  - Capacity: 550 MBTU/Hr
  - 2006 Installation
- AH-02-05
  - Capacity: 550 MBTU/Hr
  - 2006 Installation
- AH-02-16
  - Capacity: 35 MBTU/Hr
  - 2006 Installation

- **IT Areas**

- AH-02-13
  - Capacity: 81 MBTU/Hr
  - 2006 Installation
- AH-02-14
  - Capacity: 33 MBTU/Hr
  - 2006 Installation
- AH-02-18
  - Capacity: 840 MBTU/Hr
  - 2006 Installation
- AH-02-19
  - Capacity: 164 MBTU/Hr
  - 2006 Installation

- **Battery Room**

- AH-02-17
  - Capacity: 972 MBTU/Hr
  - 2006 Installation

- **Chiller Room**

- AH-02-21
  - Capacity: 182 MBTU/Hr
  - 2006 Installation
- AH-02-22
  - Capacity: 182 MBTU/Hr
  - 2006 Installation

- **Chilled Water/Glycol Units and Spaces Served**

- **UPS/Battery Room**

- AH-02-01
  - Capacity: 1520 MBTU/Hr
  - 2006 Installation

- **Server Area**

- AH-02-02
  - Capacity: 1260 MBTU/Hr
  - 2006 Installation

- **DC Support Area**

- AH-02-03
  - Capacity: 436 MBTU/Hr
  - 2006 Installation

- **Office Areas**

- AH-02-06
  - 799 MBTU/Hr Capacity
  - 1998 Installation
- AH-02-07
  - 799 MBTU/Hr Capacity
  - 1998 Installation
- AH-02-08
  - 1105 MBTU/Hr Capacity
  - 1998 Installation
- AH-02-09
  - 1105 MBTU/Hr Capacity
  - 1998 Installation

- **Lab Areas**

- AH-02-10
  - Capacity: 1055 MBTU/Hr
  - 1998 Installation
- AH-02-11
  - Capacity: 1055 MBTU/Hr
  - 1998 Installation

- **Office/Support Areas**

- AH-02-15
  - Capacity: 459 MBTU/Hr
  - 1998 Installation