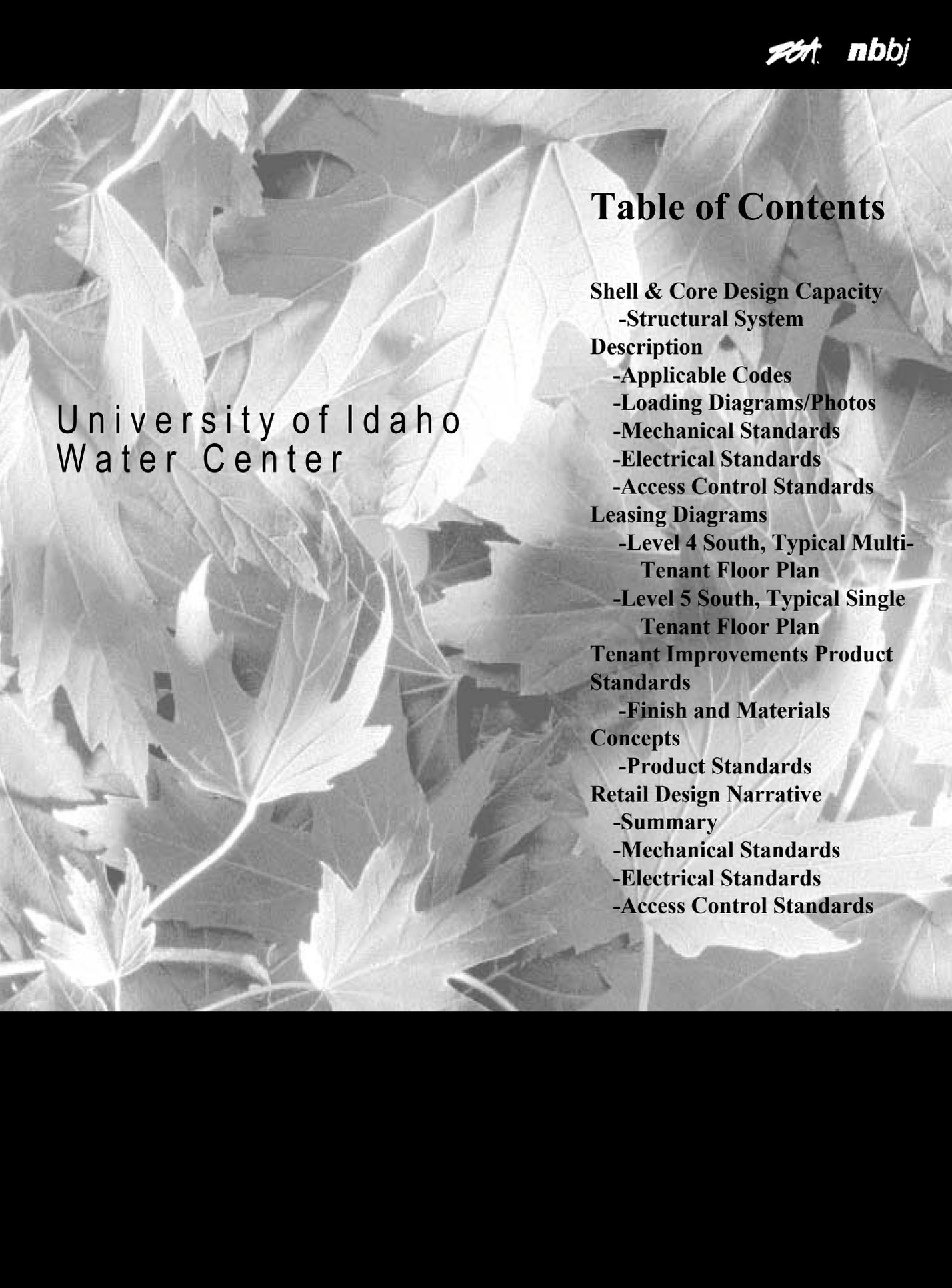


**Basis of Design &
Tenant
Improvement
Design Standards**

University of Idaho
Water Center

A background image of several overlapping maple leaves in various shades of gray, creating a textured, natural pattern.

University of Idaho Water Center

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University of Idaho, Idaho Water Center, Boise, Idaho Basis of Design & Tenant Improvement Design Standards

Vision Statement

The Idaho Water Center was envisioned to be a highly collaborative, multi-disciplinary environment focused on Idaho's most valuable natural resource: water. The Idaho Water Center will address Idaho's water challenges while creating a focal point for water-related research, water management and policy development.

Building Zoning, Stacking and Internal Organization

The internal organization of the building tries to best support the mixed-use development established for the Ada County Courthouse Corridor. Issues that were considered in development of the building dimensions, bay spacing and cores included:

- Flexibility
- Access to Daylight
- Wayfinding
- Access and Security
- Vertical Consistency in plan development
- Single and Multiple tenant layout options

Shell & Core Design Capacity

University of Idaho
Water Center

- Structural System Description
- Applicable Codes
- Loading Diagrams/Photos
- Mechanical Standards
- Electrical Standards
- Access Control Standards

University of Idaho, Idaho Water Center, Boise, Idaho Basis of Design & Tenant Improvement Design Standards

Shell & Core Design Capacity

Structural System

The Water Center is constructed primarily of poured in place concrete. The Garage Level and Level 1 are of traditional poured in place, steel reinforced concrete. Levels 2 through 6 are comprised of poured in place columns with post-tensioned (PT) concrete slabs.

The concrete deck separating the garage from Level 1 is approx. 12 inches thick and is a three-hour fire rated separation between the parking garage occupancy below and the office/classroom areas above. The concrete PT slabs on levels 2 through 6, including the roof over level 6, are typically 8 inches thick. Thickened slab areas (beams etc.) are typically an additional 10 inches thick.

The roof area over the area designated as “Lobby” on the following Level 6 diagram is constructed of steel roof deck with tapered insulation over. The underside of this roof deck is protected with spray-applied fireproofing. This fireproofing shall not be removed or damaged under any circumstances.

Post-Tensioned Prestressed Concrete

During construction, the position of all tendons and reinforcement locations were marked on the forms to leave a physical impression on the underside of the slab. These impressions can be seen in the form of paint markings on the underside of the slabs.

At post-tensioned slabs, all inserts and sleeves other than what was cast-in-place are prohibited except as noted below (the structural engineer of record must review any exceptions):

- Powder-Driven fasteners shall have a maximum penetration of 5/8 inch.
- Drilled-In concrete anchors and Powder-Driven fasteners with penetration greater than 5/8 inch shall not be placed in the top side of the slab. At the underside, they shall be placed a minimum distance equal to the slab thickness away from marked tendon locations, with no greater penetration than 5/8 inch.
- No anchors or fasteners shall be placed within a distance of four times the slab thickness from the face of any column, nor in thickened slab areas.
- Prior to drilling, the contractor shall submit PT shop drawings to the structural engineer of record indicating anchor locations. Locations of proposed drilling shall be clearly marked for review prior to drilling. A special inspector shall be present at time of drilling. Where tendon locations are questionable, the contractor shall x-ray the slab.

University of Idaho, Idaho Water Center, Boise, Idaho Basis of Design & Tenant Improvement Design Standards

Provisions for Future Tenants/Modifications

The ceiling in the Hydraulics Lab and in the Graduate Research Shop on level 1 contains a grid of “P3270” unistrut cast into the underside of the slabs and beams. This system is visible from these areas. Additional items may be attached to the ceiling by using the unistrut for support. The contractor shall contact the structural engineer of record prior to attaching anything to this system for verification of attachment and loading of the structural slab above.

A total of (250) 10 inch diameter sleeves exist on levels 2 through 7 (the roof). Typically, they are located near the columns, four feet from gridlines that run parallel to the beams, and one foot off the gridlines that run perpendicular to the beams. These sleeves can be seen from the underside of the slabs as circles in the surface of the concrete. These sleeves were provided for future items that may need to be run between the floor levels. They were constructed with a 10 inch diameter cardboard form liners filled with concrete while the slabs were being poured (see following photos).

Raised Access Floor System

Levels 2 through 6 of the Water Center contain a raised access floor (RAF) system throughout. The finished surface of the raised access floor is 18 inches above the concrete slabs. The space under the access floor contains all of the utilities typically found above the ceiling. This space is also a plenum for the supply air of the building, and thus must be kept clean and sealed to allow the hvac system to function properly.

The raised access floor system is comprised of 2 foot x 2 foot square concrete filled steel panels. Steel pedestals support the panels. The pedestals are attached to the concrete slab with epoxy.

The raised access floor system is designed for a concentrated load of 1200 pounds, and a uniform load of 300 pounds per square foot. This is much greater than the allowable loads for the slab, so the loading values for the slab must be used when redesigning or modifying any areas of the building (See loading diagrams to follow).

SHELL AND CORE - APPLICABLE CODES AND STANDARDS

2000 International Building Code (IBC)
 2000 International Mechanical Code (IMC) and 1997 Uniform Mechanical Code (UMC)
 2000 Uniform Plumbing Code (UPC)
 1999 National Electric Code (NEC)
 2000 International Fire Code
 2000 International Fuel Gas Code (IFGC)
 2000 International Energy Conservation Code (IECC)
 NFPA 45, Fire Protection for Labs Using Chemicals (Not applicable for the garage building.)
 OSHA Lab Standards 29 CFR 1910.1450 (Not applicable for the garage building.)
 Americans with Disabilities Act (ADA). UBC Chapter 11 applies, which defers to CABO/ANSI A117.1–1992.
 Boise City Zoning Ordinance, Title XI

**FLOOR AREA (Allowable Area)
 (IBC Section 503 and Table 503)**

	Group B	Group M
Total	UNLIMITED	UNLIMITED

HEIGHT AND NUMBER OF STORIES: (IBC Sections 503 and Table 503)

Maximum Building Height (in feet)	160	
Maximum Number of Stories	11	
Actual Height (in Feet)	83	Height of highest story is < 75', therefore not classified as high-rise building.
Actual Number of Stories	6	

IBC SECTION 508 SPECIAL PROVISIONS

IBC 508.2 Group S-2 enclosed parking garage with Groups A, B, M or R above
 To meet requirements of IBC 508.2.1 – a 3 hr. horizontal assembly is provided between the parking garage Type 1A construction and the other occupancies above. (12" conc. slab exceeds requirement for 3 hr. construction per IBC Table 719.1(3).) See structural drawing
 S0.02 (REINFORCING STEEL) for min. coverage of reinforcement, and sheets S2.11W, S2.12W, S2.13W, S2.14W, S2.11E, S2.12E and S2.13E for slab thicknesses. Stair and elevator shafts above and below the occ. separation are 2 hr. rated with 90 min. openings. Structure supporting the occ. separation is 3 hr. rated.

**FIRE RESISTIVE REQUIREMENTS AND EXTERIOR WALL REQUIREMENTS BASED ON LOCATION ON PROPERTY
 (IBC Section 602, Section 603, Table 601 and Table 602)**

Structural Frame including columns, girders, trusses	2 hr. (b)	
Exterior Bearing Walls	2 hr.	
Interior Bearing Walls	2 hr. (b)	
Exterior Non-Bearing Walls	Group M	Group B
< 5 ft	2 hr	1 hr
> or equal 5 ft <10 ft	2 hr	1 hr
> or equal 10 ft < 30 ft	1 hr	1hr
> or equal 30 ft	0 hr	hr
Floor and Floor–ceilings	2 hr.	
Roof and Roof–ceilings	1 hr. (c)	

(b) Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where support a roof only

(c) 1. Except in F-I, H, M and S-1, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 ft or more.

**EXTERIOR WINDOW AND DOOR OPENING PROTECTION REQUIREMENTS BASED ON LOCATION OF BUILDING ON PROPERTY
 (IBC Section 704.8 and Table 704.8)**

		Protected	Unprotected
Exterior Doors and Windows	Greater than 15' to 20'	75%	25% (75% for sprinklered bldgs per Section 704.8.1)
	Greater than 20' to 25'	No limit	45% (No limit for sprinklered bldgs per Section 704.8.1)
	Greater than 25' to 30'	No limit	70% (No limit for sprinklered bldgs per Section 704.8.1)

PLUMBING FIXTURE GUIDELINES: (IBC Sections 2901, 2902 and Table 2902.1)

Group B (Office) (100 sf /occupant)	Area (SF)	Total Occupants Occupants	Drinking Fountains (1 per 100)	Male Occupants	Male Toilets WC's (Urinals) (1 per 50)	Lavatories (1 per 75)	Female Occupants	Female Toilets WC's (1 per 50)	Lavatories (1 per 75)
Level 1	34,812	348	4	174	4	2	174	4	2
Level 2	36,018	360	4	180	4	2	180	4	2
Level 3	35,437	354	4	177	4	2	177	4	2
Level 4	35,834	358	4	179	4	2	179	4	2
Level 5	35,756	358	4	179	4	2	179	4	2
Level 6	23,719	237	3	119	3	2	119	3	2

TENANT IMPROVEMENTS - APPLICABLE CODES AND STANDARDS

2000 International Building Code (IBC)
2000 International Mechanical Code (IMC) and 1997 Uniform Mechanical Code (UMC)
2000 Uniform Plumbing Code (UPC)
1999 National Electric Code (NEC)
2000 International Fire Code
2000 International Fuel Gas Code (IFGC)
2000 International Energy Conservation Code (IECC)
NFPA 45, Fire Protection for Labs Using Chemicals (Not applicable for the garage building.)
OSHA Lab Standards 29 CFR 1910.1450 (Not applicable for the garage building.)
Americans with Disabilities Act (ADA). UBC Chapter 11 applies, which defers to CABO/ANSI A117.1-1992.
Boise City Zoning Ordinance, Title XI

NOTES:

Zoning: R-ODD (P3) Residential Office with Downtown Design Review (Parking Overlay District)
Conditional Use Permit No: CUP01-00090
Address: 220 West Front Street and 322 East Front Street
Legal Description: See Civil Site Survey Drawing

**IDAHO WATER CENTER - BUILDING 1
OCCUPANCY AND CONSTRUCTION TYPE (IBC Chapter 3 and Chapter 6)**

Occupancy Group and Division B & M
Building Construction Type Type IB

INCIDENTAL USE AREAS: (IBC Sections 302.1.1 and Table 302.3.3)

MIXED OCCUPANCY: (IBC Sections 302.3.1, 302.3.2 and 302.2.3)

(N= No Occupancy Separation Required)

Group B - Business Group M
N

FLOOR AREA

	Group B	Group M
Level 1	26,083	9695
Level 2	36,772	
Level 3	36,989	
Level 4	36,989	
Level 5	36,989	
Level 6	26,532	
Level 7	2,242	
Total	202,596	9,695

LABS

DL SELF WEIGHT OF STRUCTURE
 SDL ELEVATED FLOOR
 SDL PARTITIONS
 SDL MECH/ELEC
 SDL CEILING
 SDL FLOOR FINISH
 LL LIVE LOAD

42 PSF
 20 PSF
 4 PSF
 2 PSF
 2 PSF
 100 PSF

OFFICE

DL SELF WEIGHT OF STRUCTURE
 SDL ACCESS FLOOR
 SDL PARTITIONS
 SDL MECH/ELEC
 SDL CEILING
 SDL FLOOR FINISH
 LL LIVE LOAD

12 PSF
 20 PSF
 4 PSF
 2 PSF
 2 PSF
 60 PSF

LOBBY / STAIRS

DL SELF WEIGHT OF STRUCTURE
 SDL ELEVATED FLOOR (WHERE SHOWN)
 SDL MECH/ELEC
 SDL CEILING
 LL LIVE LOAD

12 PSF
 4 PSF
 2 PSF
 100 PSF NR

RESTROOMS

DL SELF WEIGHT OF STRUCTURE
 SDL PARTITIONS
 SDL MECH/ELEC
 SDL CEILING
 SDL FLOOR FINISH
 LL LIVE LOAD

20 PSF
 4 PSF
 2 PSF
 8 PSF
 50 PSF

FILES & LIBRARY (READING ROOMS)

DL SELF WEIGHT OF STRUCTURE
 SDL ACCESS FLOOR
 SDL MECH/ELEC
 SDL CEILING
 SDL FLOOR FINISH
 LL LIVE LOAD

12 PSF
 4 PSF
 2 PSF
 2 PSF
 125 PSF NR

NOTES:

1. WORST CASE LOADING OF S1.01 AND S1.02 ASSUMED.
2. SEE PLANS FOR SPECIFIC EQUIPMENT LOADS.
3. NR = NON REDUCIBLE LIVE LOAD, ALL LIVE LOADS REDUCIBLE PER CODE UNLESS SPECIFIED 'NR'.

ROOF MECHANICAL

DL SELF WEIGHT OF STRUCTURE
 SDL PIPING
 SDL EQUIP. & HOUSEKEEPING PADS
 LL LIVE LOAD

10 PSF
 SEE PLAN
 25 PSF

ROOF

DL SELF WEIGHT OF STRUCTURE
 SDL INSULATION & ROOF MEMBRANE
 SDL MECH/ELEC
 LL LIVE LOAD (SNOW)

12 PSF
 10 PSF
 25 PSF

PUBLIC ACCESS ROOF

DL SELF WEIGHT OF STRUCTURE
 SDL INSULATION & ROOF MEMBRANE
 SDL MECH/ELEC
 SDL PAVERS
 LL LIVE LOAD

12 PSF
 10 PSF
 30 PSF
 100 PSF NR

RETAIL AND LEVEL 1 CLASSROOMS

DL SELF WEIGHT OF STRUCTURE
 SDL MECH/ELEC
 LL LIVE LOAD

5 PSF
 100 PSF NR

LEVEL 1 LABS

DL SELF WEIGHT OF STRUCTURE
 SDL MECH/ELEC
 LL LIVE LOAD

6 PSF
 250 PSF

LEVEL 1 INSIDE PARKING

DL SELF WEIGHT OF STRUCTURE
 SDL MECH/ELEC
 LL LIVE LOAD

5 PSF
 50 PSF

BUILDING 2 LEVEL 1 (FUTURE)

SDL FUTURE 6" TOPPING ALLOWANCE
 DL SELF WEIGHT OF STRUCTURE

75 PSF

DL SELF WEIGHT OF STRUCTURE
 LL

130 PSF
 181 PSF NR

PEDESTRIAN PLAZA AND LEVEL 1 OUTSIDE PARKING

DL SELF WEIGHT OF STRUCTURE
 SDL PAVING SYSTEM
 SDL MECH/ELEC
 LL LIVE LOAD

80 PSF
 5 PSF
 100 PSF NR

FIRE TRUCK ACCESSIBLE PLAZA

DL SELF WEIGHT OF STRUCTURE
 SDL PAVING SYSTEM
 SDL MECH/ELEC
 LL LIVE LOAD

80 PSF
 5 PSF
 250 PSF NR
 (70,000# FIRE TRUCK W/ 24,000# AXLE)

BERM AND PLANTERS

DL SELF WEIGHT OF STRUCTURE
 SDL SOIL, RETAINING AND TREES
 SDL MECH/ELEC
 LL LIVE LOAD

500 PSF
 5 PSF
 100 PSF NR

BASEMENT GARAGE PARKING

LL LIVE LOAD

50 PSF

BASEMENT MECHANICAL AND LAB SPACES

LL LIVE LOAD

250 PSF NR

ELEVATOR MACHINE ROOM

DL SELF WEIGHT OF STRUCTURE
 LL LIVE LOAD
 EQUIPMENT

25 PSF
 SEE PLAN

BUILDING 2 OFFICE (FUTURE)

DL SELF WEIGHT OF STRUCTURE
 SDL MECH/ELEC
 SDL CEILING
 SDL FLOOR FINISH
 LL LIVE LOAD

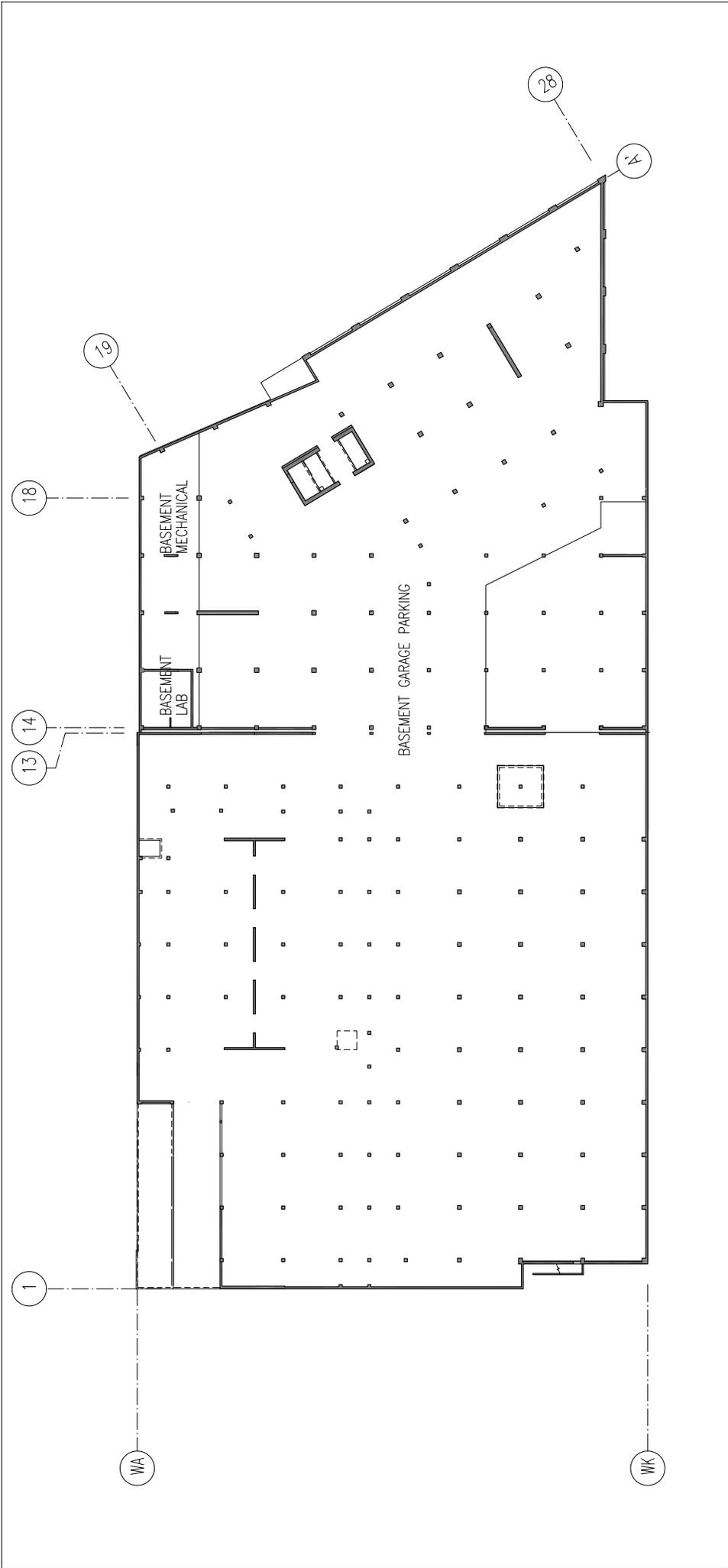
60 PSF
 4 PSF
 2 PSF
 2 PSF
 60 PSF

BUILDING 2 ROOF

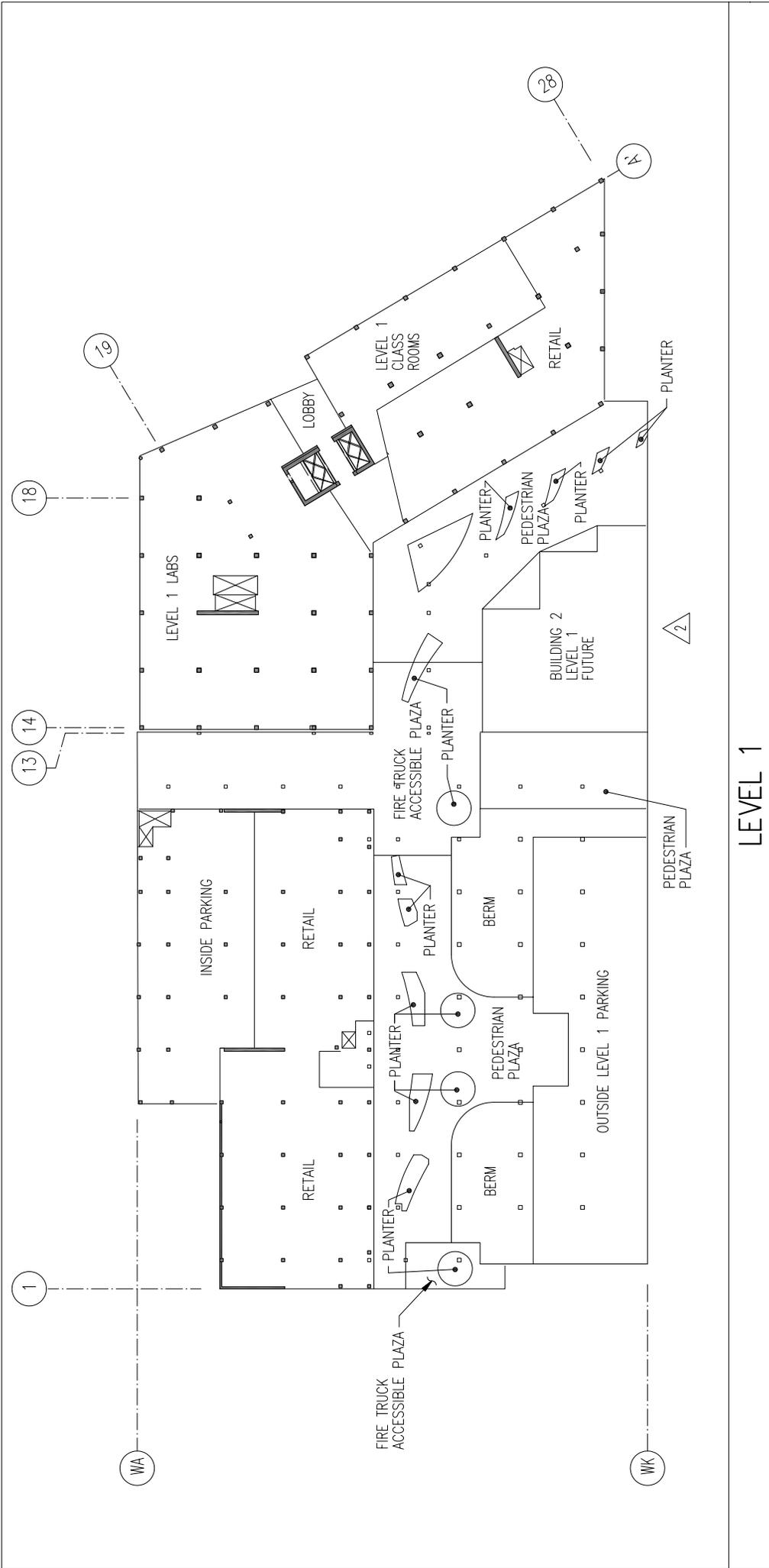
DL SELF WEIGHT OF STRUCTURE
 SDL INSULATION & ROOF MEMBRANE
 SDL MECH/ELEC
 LL LIVE LOAD (SNOW)

10 PSF
 12 PSF
 10 PSF
 25 PSF

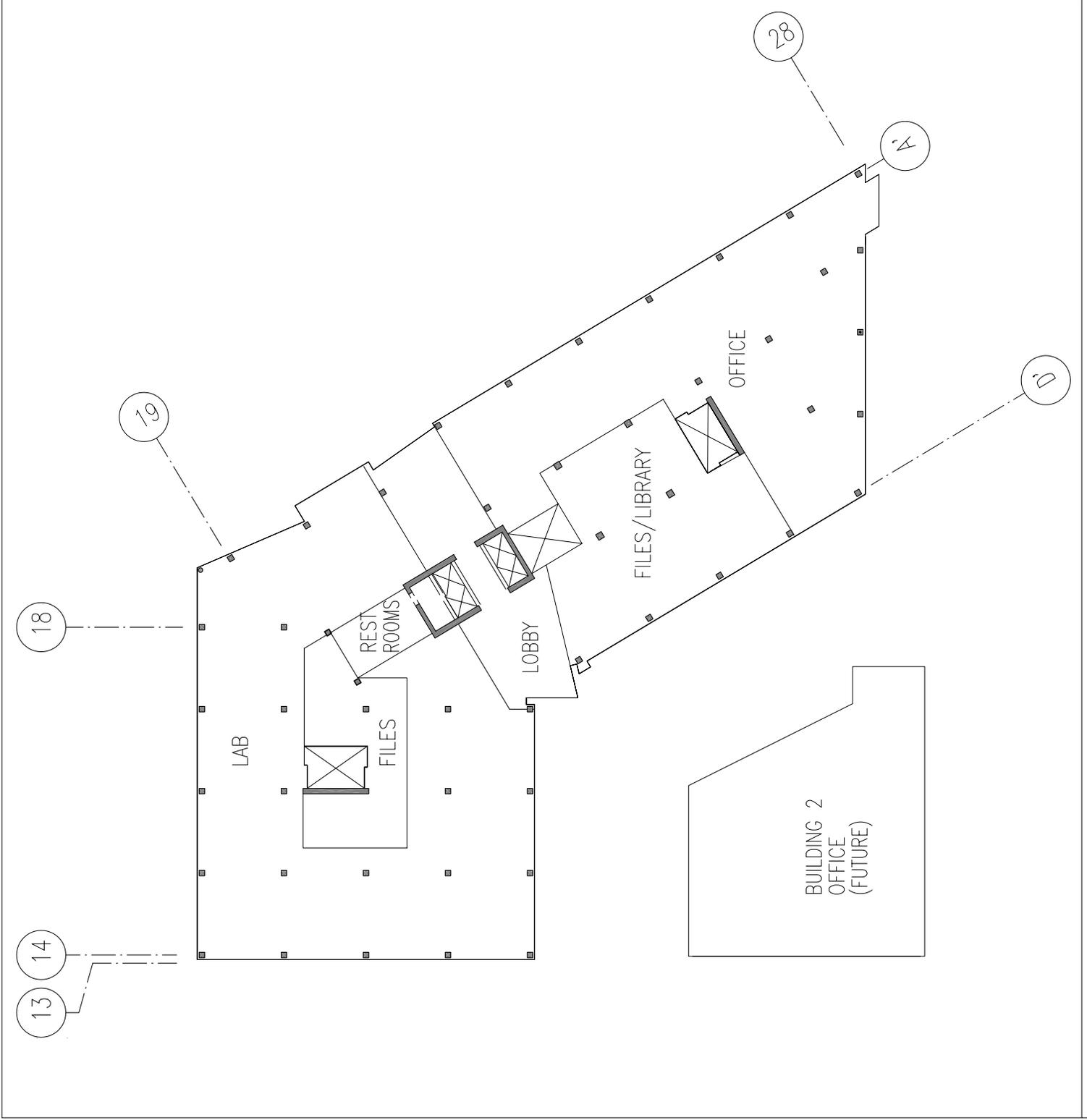
LOADING DIAGRAM



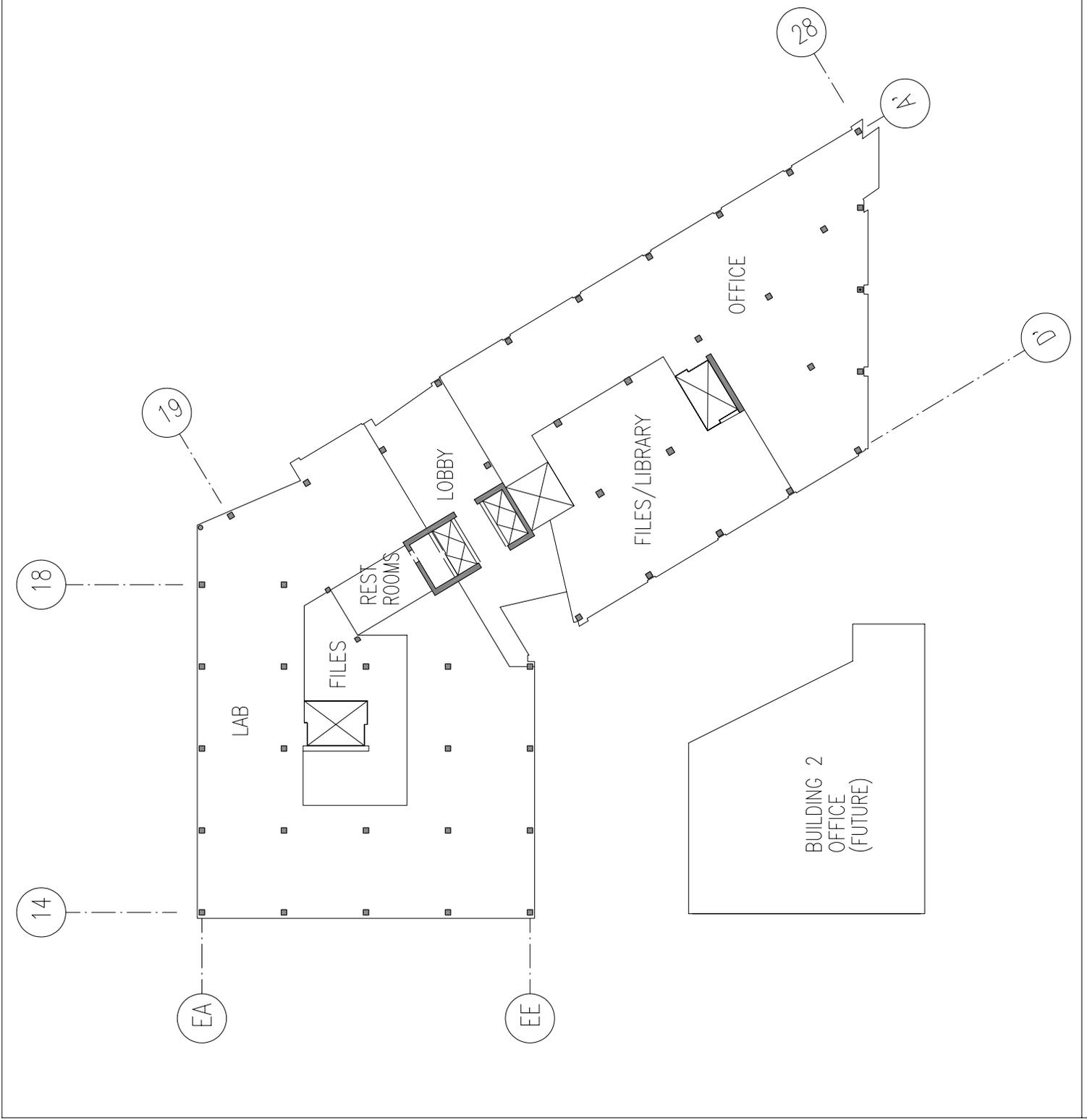
GARAGE



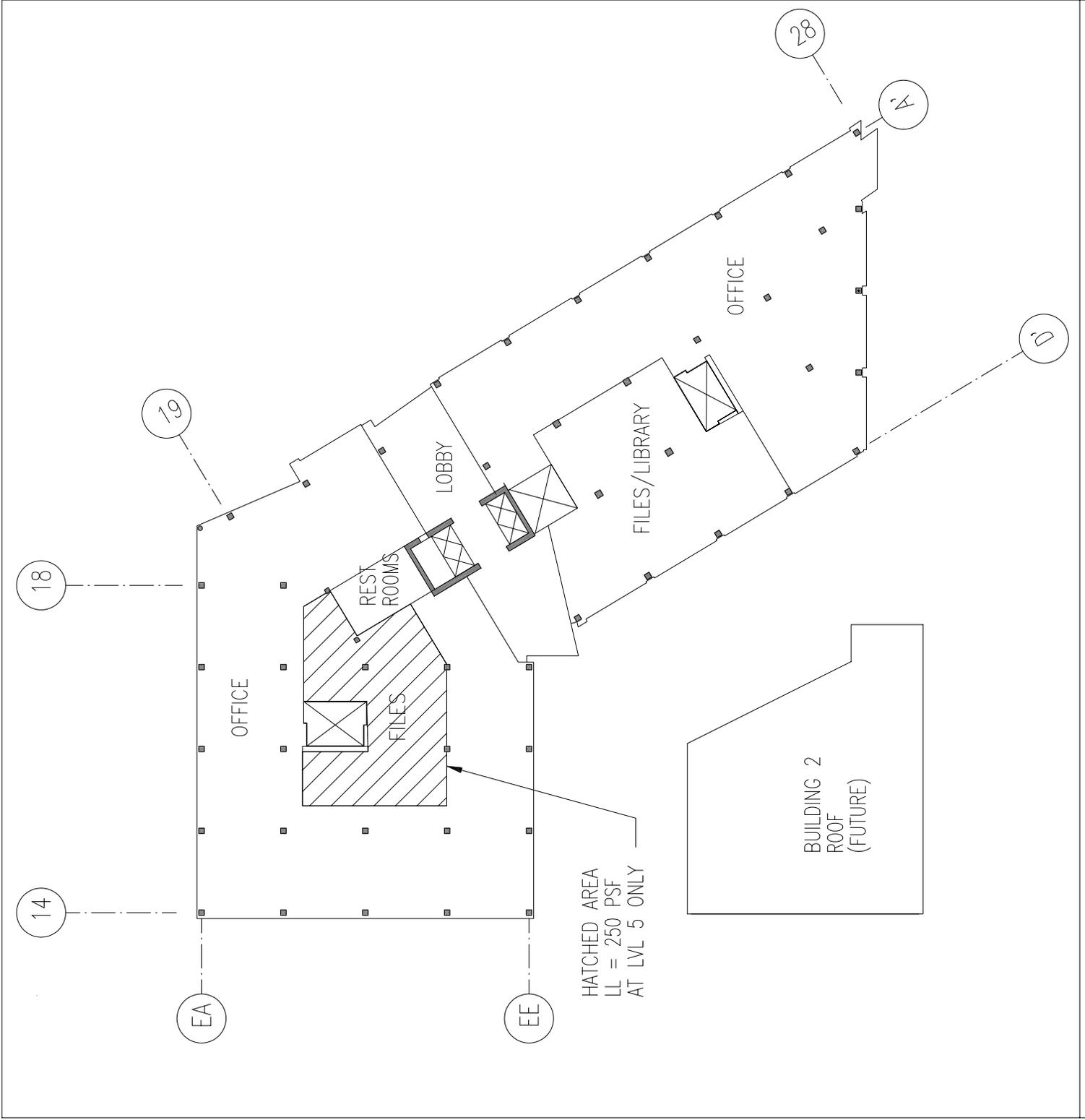
LEVEL 1



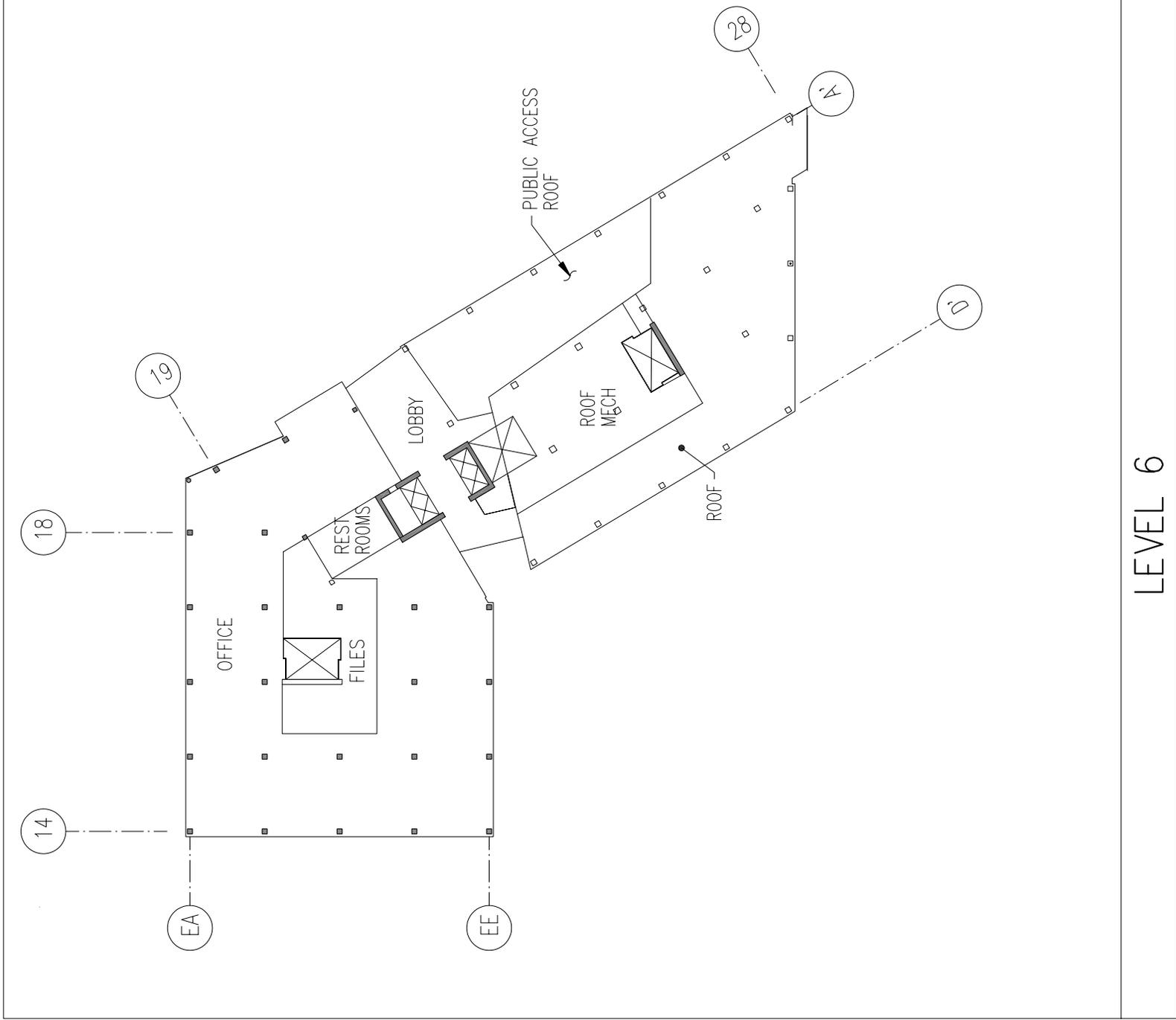
LEVEL 2



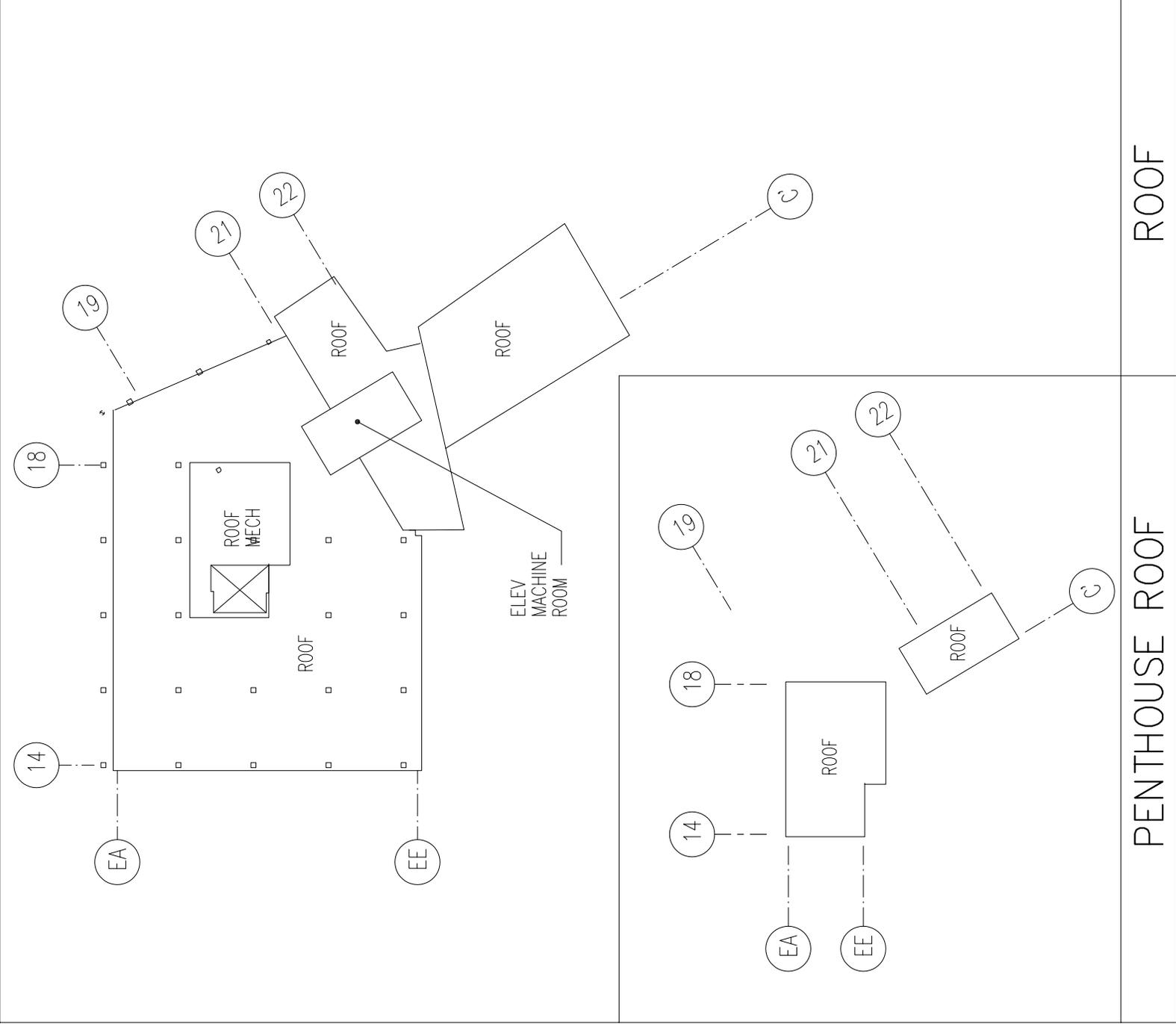
LEVEL 3



LEVEL 4-5



LEVEL 6



PENTHOUSE ROOF

ROOF



PTslab



Sleeve



PT Tendon Markings

Beam

PT Markings2



PT Tendon Markings

PT Markings



Shell and Core Design Capacity for Idaho Water Center

Mechanical Systems

September 2004

OVERVIEW

The Idaho Water Center building is a six level 215,000 sf multi-use building. Level one is intended to be a combination of retail, classroom and research space (hydraulic lab). Levels two through six house administration, office, laboratory and some classroom spaces. The Idaho Water Center is located at the northwest corner of Front and Broadway in downtown Boise.

ENVIRONMENTAL DESIGN CONDITIONS

Heating Systems

Outdoor Design Temperature: ASHRAE 99.6% design temperature of 2°F db

Indoor Design Temperature: 72°F +/- 2°F

Cooling Systems

Outdoor Design Temperature: ASHRAE 1% design condition of 94°F db/ 63°F wb

Indoor Design Temperature: 75°F

Ventilation Rates

Ventilation, pressurization and air change rates provided in accordance with ASHRAE 62-1999

Offices: 20 cfm/person

Classrooms: 15 cfm/person

Labs: 10 ACH minimum

Retail: 0.30 cfm/sf (to be provided by tenants)

Building Load Assumptions

Offices: approximately 100 sf per person

Retail: approximately 30 sf per person

Lighting loads: 0.6 to 2.5 W/sf, depending on space usage. Offices: 1.4 W/sf typical

Plug loads: 3 W/sf (computer intensive areas), or as programmed. Computers: 150 watts each.

Humidification

No humidification is provided.

REFERENCED CODES AND STANDARDS

International Building Code 2000

International Mechanical Code 2000

Uniform Plumbing Code 2000

International Energy Conservation Code 2000

Americans with Disabilities Act (ADA)

Applicable National Fire Protection Agency (NFPA) 2000 Regulations (NFPA 13, 14, 20, 45)

Standards

American Society of Heating, Refrigeration and Air Condition Engineers (ASHRAE)

American Society of Plumbing Engineers (ASPE)

Sheet Metal Contractors Association of North America (SMACNA)

American National Standards Institute (ANSI)

Underwriter's Laboratories (UL)

PLUMBING SYSTEMS

Sanitary Drainage

Two 6" sanitary sewer lines, for design load of 110 GPM (building total)

Water

4" water main, for design load of 167 GPM (building total)

Laboratory spaces are served by a separate cold water service and are separated from the main building supply by a backflow preventer.

Hot water: Supplied at 130°F from system in mechanical room. Designed for future occupancy (total 480 GPH heater, from 40°F to 140°F in one hour, and 1500 gallon storage capacity). There is no separate domestic hot or cold water metering provided for tenant spaces.

Geothermal Heating

Geothermal heating water from the city owned / operated system is used to heat the Idaho Water Center buildings. Geothermal water lines connect through the parking garage to the mechanical plant room, which contains heat exchangers for the heating system. Backup heat exchangers and heating water supply pumps are provided in the plant room.

Laboratories - General

Fume Hoods: The current design includes fume hoods in laboratory spaces as part of the original tenant improvement scope of work, with provisions for installation of fume hoods in future lab spaces on levels two and three (hoods to be specified by other consultants).

Acid Waste: Under counter acid neutralization tanks should be used, the diluted effluent from which will be drained to the regular building drainage system. Glass or fire-retardant impregnated plastic piping must be used when acid waste drainage piping is installed in supply or return air plenums.

Emergency Plumbing Fixtures: Emergency eyewash or shower fixtures are provided in lab areas.

Laboratories - Natural Gas

A natural gas service is provided only for use within labs, for Bunsen burners in fume hoods and at bench mounted turrets. The system has been sized to allow for future expansion, at a building total of 150 MBH, with taps at both level two and level three.

Laboratories - Compressed Air

Compressed air should be provided on an as-needed basis with individual air compressors located in the mechanical service room on the appropriate floor. A cap-off provision from the compressed air line has been made for future lab spaces on the 2nd floor.

Laboratories - Vacuum System

No central vacuum system for laboratory spaces has been included in the base building design. Tenants shall make provisions for such systems as required. In other areas of the building, vacuum service is provided via venturi fittings at fume hood sinks.

Laboratories – Deionized Water

Deionized water should be provided on a space-by-space basis with separate systems.

Kitchen Facilities

No provisions for grease-laden kitchen exhaust or piping have been included anywhere in the design of the Idaho Water Center facility.

FIRE PROTECTION SYSTEMS

Combined automatic wet sprinkler and standpipe systems have been provided throughout the facility. Flexhead sprinkler connections have been provided to allow for some flexibility of tenant modification without requiring system drain and pressure tests. Future installation of sprinkler heads should match existing installations.

HEATING SYSTEMS

The geothermal heating loop operates at 165°F. The building heating water supply from this operates with 160°F supply and 110°F return temperatures, from the heat exchangers in the main plant room. Backup heat exchangers and heating water supply pumps are included in the base building design. Heating water piping feeds coils in air handling units, entrance and unit heaters, coils in fan boxes, immersion coils in domestic water tanks, and plate and frame heat exchangers for domestic hot water pre-heat. Zone-level heating control is provided by unit heaters, coils in fan boxes, and reheat coils in VAV boxes.

Heating is provided to levels two through six via the underfloor air system, with reheat in terminal boxes where appropriate. On level one, a central heating loop around the core has been installed with regularly spaced capped off piping for future connections. The capacity of this loop has been sized for future retail occupancy (915 MBH, 36 gpm has been provided for level one at multiple taps from the main heating water loop). Sizes are indicated on mechanical drawing M6.4 in the as-built set.

The perimeter zone on levels two through six is considered to encompass a distance of 10' from the exterior wall of the building.

There is a single meter provided for building heat, so there is no separate metering for individual tenant spaces.

COOLING SYSTEMS

A single 480 ton centrifugal chiller located in the garage level chiller room rejects heat to the ground through wells. A production well is located immediately to the north of Idaho Water Center, and injection wells are at the site across Front Street. The chilled water loop operates at 45°F supply and 63°F return temperatures. Cooling is provided to levels two through six via the underfloor air system, which has been sized for administration/office occupancies, with limited

conference/classroom space per current build-out. On level one, a central chilled water loop around the core has been installed with regularly spaced capped off piping for future connections. The capacity of this loop has been sized for future retail occupancy (1227 MBH, 137 gpm has been provided for level one at multiple taps from the main chilled water loop). Sizes are indicated on mechanical drawing M6.5 in the as-built set.

Note that the groundwater well system has had extra capacity designed, for use in future building projects near the Idaho Water Center site.

AIR HANDLING SYSTEMS

Levels Two through Six

- Access floor with underfloor air supply through pressurized plenum. Air supply to perimeter spaces is constant volume through the use of series fan-powered boxes, however, primary air supply is varied as necessary to maintain pressure in plenum.
- Access floor tiles fitted with individually adjustable floor diffusers
- Central air handling units located in penthouse with heating and cooling coils
- Air distributed to each floor of the building via duct shafts adjacent to stairwells
- Ducts, underfloor fan-boxes and perimeter hot water reheat coils have been installed in anticipation of heating, cooling and ventilation requirements for future administration/office occupancy
- Separated perimeter zones or conference rooms will require separate underfloor zone control series fan-powered boxes to modulate airflow to these spaces (reheat is only required on perimeter zone boxes)
- General open office spaces are treated as single zones, and the individual floor diffusers can be adjusted to suit the occupant's airflow preference.
- The return air path is in the ceiling plenum which is then ducted up to the air handling units
- A separate general exhaust system serves storage areas as well as support areas (photocopying etc). Duct cap-offs are provided for future tenant expansion of the general exhaust system.
- Accommodations for future laboratory spaces have been made on the north end of the building on levels two and three. See information below

Level 1

- Overhead air supply system to be installed by future tenants. No provision for access floor on this level
- Outdoor air louvers have been provided at regular intervals along the perimeter of level one at the underside of the level two slab for ventilation air intake and relief air louvers
- Louvers will be used for connection to tenant-installed ceiling-hung indoor modular air handlers. The system is designed for optimal configuration when outdoor air is supplied from the west side of the building and relief air is connected to the east louvers, to take advantage of prevailing wind directions and traffic patterns. Where zone control is required, fan powered VAV boxes with reheat coils will be hung from the structure to provide space temperature control.
- Heating and chilled water loops are provided from the central building plant to capped-off piping connections along the central core. This should be used for heating and cooling coils in the air handling units, as well as reheat at the perimeter as necessary
- Perimeter radiant heat is provided along the walls of level one within the currently occupied spaces only. Unoccupied shell space on level one is currently heated by hydronic unit heaters

SPECIALIZED VENTILATION/EXHAUST SYSTEMS

Laboratory Exhaust

To allow for future laboratory expansion, the laboratory exhaust system has been sized to serve each lab space including future zones on levels two and three only. Capped-off fume hood exhaust ducts have been provided at the north end of each floor, at the shaft, on levels two and three.

The system is sized to accommodate low flow fume hoods, approximately 600 cfm each, or 10 air changes per hour, whichever is greater. The total capacity of the building's fume hood exhaust system is 9200 CFM for the north end level two and level three lab areas.

ENVIRONMENTAL CONTROL SYSTEMS

Certain future equipment should connect to the base building DDC control system. This includes items such as:

- Room thermostats for Level 1
- Control valves
- In-floor fan boxes for zone control

Individual electronic controls may be provided for the following:

- Unit heaters and entrance heaters

SUSTAINABLE DESIGN

The building has been designed in keeping with the client's desire to utilize sustainable design strategies wherever possible. Future tenant improvements should incorporate energy efficiency and sustainable philosophies into any additions. This could include the use of water conserving plumbing fixtures, high efficiency motors on equipment, heat recovery when possible, low lighting levels, a reduction in mechanical equipment, or similar strategies.

TENANT IMPROVEMENT ITEMS - GENERAL

In general, the following items should be expected during a tenant improvement project:

- Fire damper at tenant space walls where required
- Exhaust and return air system in tenant spaces with transfer air back to shaft area
- Additional tenant floor diffusers
- Laboratory services (extension from duct shafts)
- Tenant sprinkler revisions
- Level 1 retail air handling units, exterior louver connections and duct distribution
- Plumbing requirements in tenant spaces (sinks at kitchen areas etc)
- Rebalance hydronic and/or chilled water system

IDAHO WATER CENTER
TENANT IMPROVEMENTS DESIGN STANDARDS

Installation Examples



Typical Exterior Fan Box Installation
Pic A1



Typical Exterior Return Air Plenum Installation
Pic A2

IDAHO WATER CENTER
TENANT IMPROVEMENTS DESIGN STANDARDS



Typical fan box coil piping connection 01
Pic A3

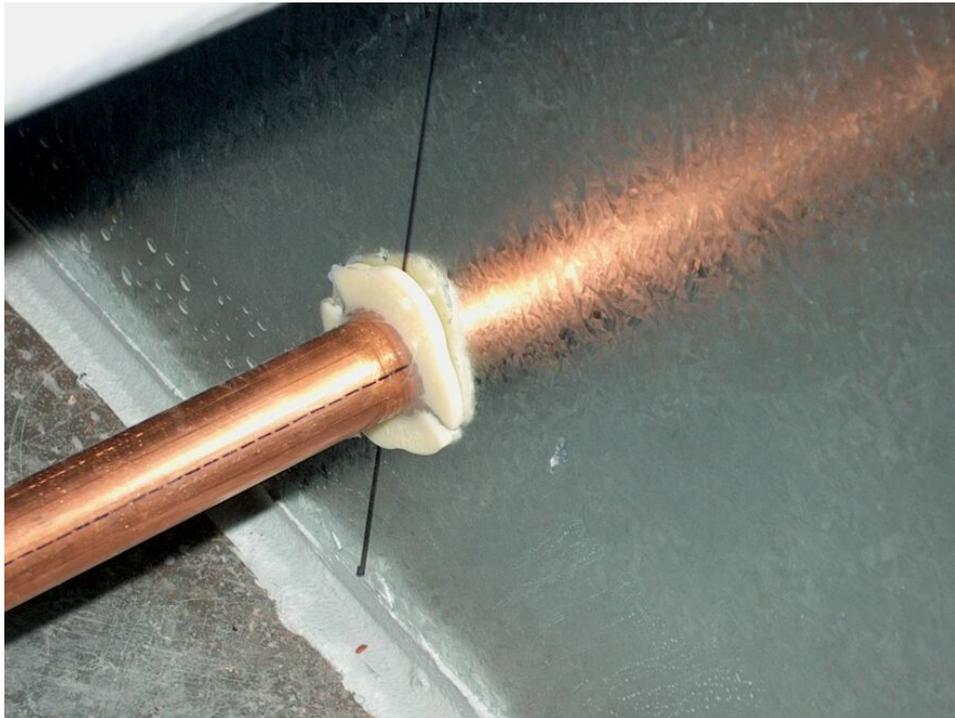


Typical fan box coil piping connection 02
Pic A4

IDAHO WATER CENTER
TENANT IMPROVEMENTS DESIGN STANDARDS



Typical fan under floor piping and supply air chase ways
Pic A5



Typical pipe sealing through underfloor air plenum divider
Pic A6

IDAHO WATER CENTER
TENANT IMPROVEMENTS DESIGN STANDARDS

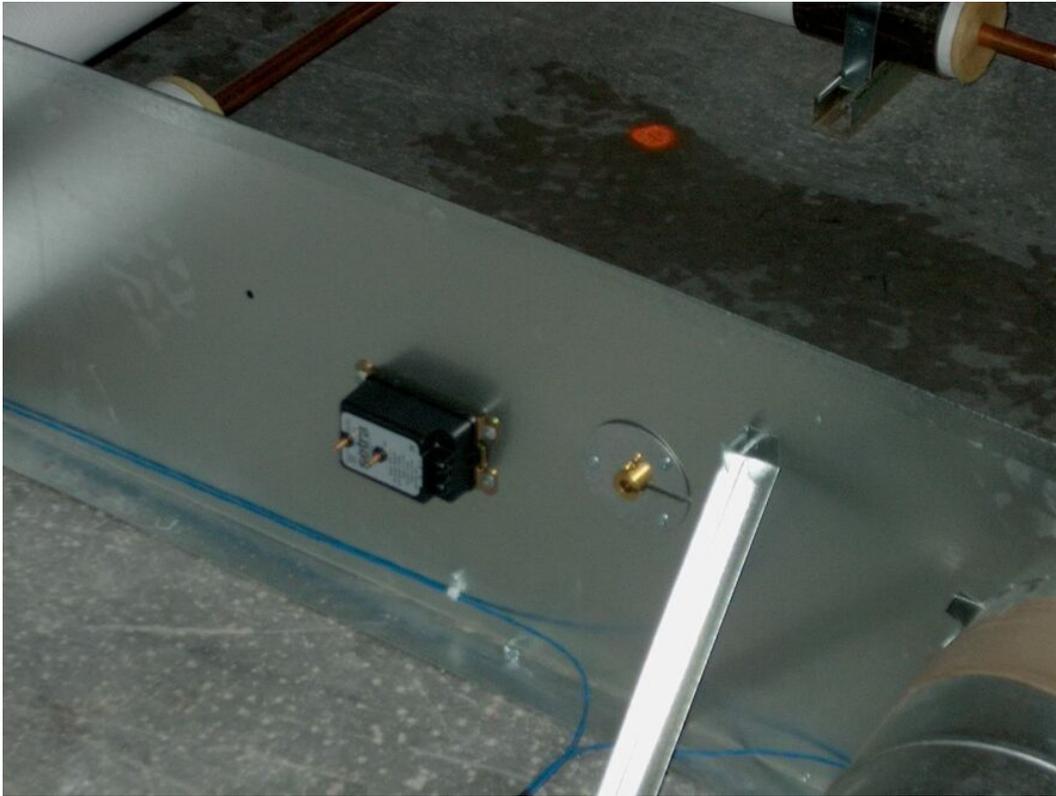


Typical RWL through underfloor air plenum divider
Pic A7

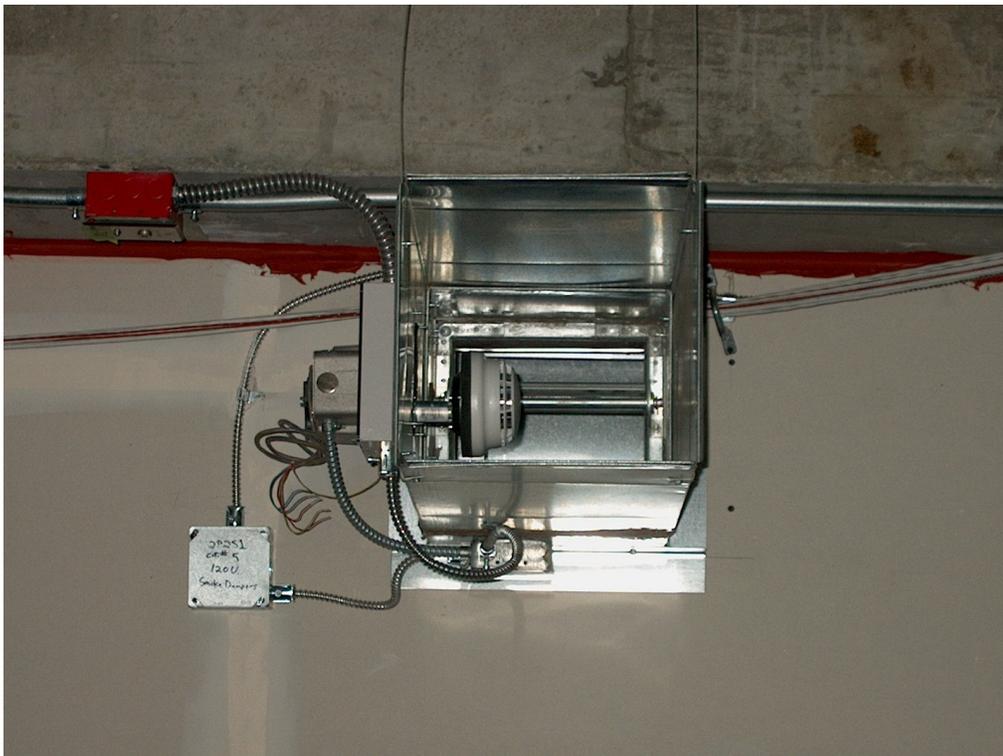


Typical Type A supply air chase way outlet
Pic A8

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TENANT IMPROVEMENTS DESIGN STANDARDS



Typical installation of Temperature and Pressure Sensor
Pic A9



Typical Fire/Smoke Damper installation
Pic A10

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Typical Type B supply air chase way outlet
Pic A11

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TENANT IMPROVEMENTS DESIGN STANDARDS



Typical duct mounted smoke detector
Pic A12



Fire Protection Pre-Action System in
Pic A13

IDAHO WATER CENTER

Shell & Core Design Capacity September 16, 2004

- A. UTILITY SERVICES
1. Electrical
 - a) Idaho Power Company provides service to the Idaho Water Center site at 12.5 kV, three phase, under IPCo rate schedule 19.
 - b) Two utility company transformers are installed. Separate metered services at the secondary voltage, 480Y/277V three-phase four-wire, for the Retail portion of the building and the Garage have been provided.
 2. Voice/Data
 - a) Telephone service has been provided by connection to the local service provider and by connection to the Boise State University communications network.
 - b) The local telecommunications utility is: Qwest
 - c) The contact phone number is: 800-743-3793.
- B. EMERGENCY POWER SYSTEM
1. The emergency power system provides operation of essential functions during an extended loss of utility power. The emergency power system in the buildings will provide minimum power to: emergency egress lighting, exit lighting, fire alarm systems; security systems; mechanical systems designated for smoke control, telephone equipment, dewatering pumps and sewage pumps, and fire pumps.
 2. A 300 kW generator is installed in the garage.
 3. Fuel System
Six to eight hours fuel supply (approximately 240 gallons) at full load consumption rate. Separate above ground fuel tank with double wall construction and leak detection, located in the generator room.
- C. SECONDARY POWER DISTRIBUTION
1. The following distribution systems have been provided:
 - a) 480Y/277 volts, 60 hertz normal power. This is the main power for large equipment, HVAC, lights and water pumping equipment.
 - b) 208Y/120 volts, 60 hertz for receptacles, small equipment, etc.
 2. Service capacity criteria for the building is based on the Electrical Systems Design criteria. Capacity for connected electrical loads by load type are

estimated as follows:

	<u>Load Type</u>	<u>Watts/SF</u>
a)	Lighting	1.5
b)	Receptacle Power	
	(1) Data	4.0
	(2) Office Outlets	2.5
	(3) Laboratories	10.0
c)	HVAC Systems	10
d)	Miscellaneous Loads	1.0

3. Installed in the Main Electrical Room on the first floor of the building are two main service switchboards for building distribution. Each switchboard is rated for 3000 Amperes, 480Y/277 Volts, three-phase, four wire. Feeders from the secondary distribution switchboard consist of copper conductors in raceway, in ratings of 1200 to 400 amperes, for distribution to the Garage electrical equipment for Mechanical loads, and to Automatic Transfer Switches for the Emergency Power System.
4. Power distribution to the floor electrical rooms is provided by copper or aluminum busway in feeder and plug-in configurations. Provisions for two main busways will be provided in each electrical room stack, in ratings to 3000 amperes. The initial design will provide one busway rated 2500 amperes in each electrical stack. The second busway location in each stack will be reserved for future, with space and floor penetrations sized for up to 3000 ampere rated busway equipment.
5. Electrical rooms are specifically dedicated to electrical equipment per NEC. No mechanical, plumbing or architectural appurtenances not specifically related to the electrical space shall be installed in the electrical spaces. Telephone and Data raceways and conduits do not run through the electrical rooms.
6. Each floor has two electrical distribution rooms, vertically stacked in two risers for efficient distribution. Programming and egress considerations require that the electrical rooms on the first floor are not stacked under the remaining electrical rooms on floors two through six. The electrical rooms are sized for the initial electrical installation and allow for future additions of branch circuit panelboards.
7. Lighting shall be powered at 277 volts.
8. Distribution Transformers: Located in floor electrical rooms, for step down from 480 VAC to 208Y/120 VAC distribution to the occupied spaces. Shell and core construction provides one transformer to serve two floor levels, in alternating electrical rooms. Transformers in the first floor electrical rooms serve the corresponding area on the second floor above, for instance.
9. Panelboards:
 - a) NEMA 1 enclosure, surface or flush mount as indicated by the location, copper or tin-plated aluminum bus, ground bus, short-circuit rating as indicated, bolt-on branch circuit breakers, 42- single pole capacity, with minimum of 3 spare single-pole circuit breakers and 3 spare spaces. Provide full size neutral conductors and busses throughout in all 4-wire

systems. Provide double neutrals and isolated ground bus in all branch panelboards serving loads with non-linear loads (computers, copiers, etc.).

10. Transient voltage surge suppression is provided at each panelboard serving computer, communications, clock, security, or EMCS equipment.
11. All conductors to be copper. An equipment-grounding conductor will be provided in each conduit containing feeder or branch circuits.
12. Energy Monitoring
 - a) Major feeder circuit breakers have been provided with energy monitoring features. Ability to monitor amps, volts power, and reactive power will be included. If directed by the Owner, this information can be captured into a network system to provide building energy use profiles to aid in building management decisions.

D. FIRE ALARM SYSTEM

An addressable fire alarm system has been provide that will monitor all fire alarm devices and provide visual and audible annunciation as required by code and the local jurisdiction. Systems will have manual and automatic detection. Smoke detection in all exit corridors, equipment spaces, and other spaces as desired by the owner and as required by codes.

E. VOICE/DATA

1. Voice and data distribution is designed as a raceway-only system which will include service entrance ducts from the utility interface point outside the building to the Main Telecommunications Equipment Room (Main TER) in the Building. The location of the Main TER room is on the first floor area of the building near the south electrical/telecommunications room stack. The Main TER space will be approximately 15' x 30' x minimum 10'6"clear height, which will allow space for the service provider entrance equipment, and areas for the Incumbent Local Exchange Carrier (ILEC) and Competing Local Exchange Carriers(CLEC) who may provide communication service to the site.
 - a) The Communications conduit pathways will consist of 4" conduit, EMT or RGS type where run exposed in the Garage. Where installed underground, Communications duct bank will consist of 4" Type EB or Schedule 40 rigid PVC (straight sections) with Schedule 80 conduit using 30 foot radius sweeps for building entrance and all offsets. Underground duct banks shall be concrete (slurry) encased.
 - b) Dedicated conduits will be provided for service entrance facility.
 - c) Fire-retardant treated plywood will be provided in the Main TER room for termination and protection blocks and other service equipment provided by the ILEC.
2. The design shall be in compliance with the Electronics Industries Association standards EIA/TIA 569 and EIA/TIA 568 and the NEC.
3. The Main TER room and Intermediate Distribution Frame (IDF) Rooms on each floor will have space for equipment racks, ¾ x 8 feet fire retardant plywood on all walls, with 18x 4 inch cable trays. There will be 4 inch conduits provided to hallway cable trays, and between the Main TER and the Telecommunications Closet rooms on the floors. Telecommunications cables to the office and lab

areas will be run below raised access flooring or overhead where there is no access flooring.

4. Provide emergency power, grounding and environmental space conditioning as required for the Owner-furnished telecommunications equipment. The Lighting in these rooms is typically 50 foot candles at 3 feet above the floor, HVAC is 24 hrs/day, 365 days/ yr. 64-75 F. with 30%-55% humidity, positive pressure. The dust should be less than 100 micrograms / cubic meter / 24 - hour period. The Entrance rooms and communication rooms will have two-hour rated walls with all conduits entering being fire stopped after the cable installation. For preliminary estimates use 7000 BTUH cooling for entrance rooms (Main TER) and 3500 BTUH cooling for Telecommunications Closets on each floor.
5. Locate telecommunication MDF room and IDF rooms to limit the distance to any station drop to 250 feet of cable.
6. Grounding
 - a) Provide telecommunication grounding system designed for proper system operation and code compliance.
 - b) Connect to main building grounding system to make a single point telecommunication system ground.
7. Switching and control equipment to be provided and installed by owner.
8. Voice/Data Raceway System: Provide a raceway-only system within the buildings for voice and data systems cable. Provide outlet boxes and single-gang mud rings in walls for voice/data devices, conduit with pull strings, up to above ceiling or down to raised access floor, in walls with insulation or other restricted cable installation access. Provide pull string only from outlet boxes to above ceiling or below raised floor, where wall cavities are uninsulated or otherwise unobstructed for cable installation. Provide cable tray route on each floor for main cable routing from IDF rooms to occupied spaces, and between IDF rooms on a common floor.

F. GROUNDING

1. Provide all grounding per NEC
2. Provide green insulated grounding conductor in all feeders and branch circuits. Size per NEC.
3. A ground loop for the building has been provided. Minimum conductor size is #4/0. Provide exothermic connections for all below grade connections. Provide 3/4 inch diameter copper clad ground rods minimum 10' length at 100 to 150 foot intervals along ground loop and exothermically weld to ground loop conductor.
 - a) Connect ground loop to concrete column rebar.
 - b) Grounding system shall be designed for 10 ohms impedance or less.

END OF ELECTRICAL NARRATIVE



Shell and Core Design Capacity for Idaho Water Center

Access Control/CCTV Systems

September 2004

OVERVIEW

The Idaho Water Center building is a six level 215,000 sf multi-use building. Level one is intended to be a combination of retail, classroom and research space (hydraulic lab). Levels two through six house administration, office, laboratory and some classroom spaces. The building access and site is currently monitored and controlled by a networked based integrated access control and digital CCTV monitoring system. This computer based system secures, records, and controls access to the building via an electronic proximity type card readers, digital video recorder, and electronic badging system. Below is a brief description of the two main sub-systems.

ACCESS CONTROL DESIGN CONDITIONS

- Proximity type card readers are installed at both lobby entrances.
- Two elevator cabs are controlled after hours by access control system.
- Loading dock and shipping area doors controlled by card readers.
- Parking garage entrance controlled by card readers.
- Interior stairwell doors tenant space card reader ready.
- All perimeter doors monitored by door position indicator switches.
- Push to talk intercom at main lobby and loading dock door.
- Building alarm monitoring and badging station located in building security office.

CCTV VIDEO SYSTEM

- Building Camera system made up of hi-resolution color cameras connected to building digital Video recorder and controller located in building security office.
- Main building entrances covered by 1/4" CCD camera at building entrance signage.
- Building Entrance covered by PTZ cameras in dome enclosures.
- Loading dock interior and exterior covered by PTZ cameras.
- Parking garage lobby and public spaces covered by PTZ and fixed cameras.
- Elevator lobbies covered by cameras.



Building Reception area covered by cameras.

Building Reception cameras tied to duress alarm push buttons.

Leasing Diagrams

-Level 4 South, Typical Multi-Tenant Floor Plan

-Level 5 South, Typical Single Tenant Floor Plan

**University of Idaho
Water Center**



Idaho Water Center
Typical multiple tenant floor plan - level 4, south wing

scale: not to scale





Idaho Water Center
Typical single tenant floor plan - level 5, south wing

scale: not to scale



**Tenant
Improvements
Product Standards**

University of Idaho
Water Center

- Finish and Materials Concepts
- Product Standards

University of Idaho, Idaho Water Center, Boise, Idaho Basis of Design & Tenant Improvement Design Standards

Finish and Materials Concepts

Overview

The Idaho Water Center was conceived to be a building container in which local, state and federal agencies, and higher education institutions are housed. The goal of these various entities for their interior spaces is to create an environment that is conducive to collaboration, efficient and effective in layout, inherently flexible, sustainable, contextual, and economical.

The finish and material concept builds upon those objectives, and strives for a functional, basic, and honest use of materials that fit within the context in which they are located. Value/cost, maintenance, environmental friendliness, and context are considerations used in the material selection process.

Color Palette

Colors are to be derived from natural stone and indigenous landscape materials in neutral tones. Consideration is to be given to high value contrast (dark to light) color and material for accent. Accent colors are to be used only for graphics and wayfinding signage.

Tenant Space

The finish concept for the Tenant Spaces was derived with the goal of creating an environment that optimizes the work being performed within these spaces. Lab spaces requiring hard surface flooring are to have sheet vinyl or vinyl composition tiles. Office spaces are to have modular carpet tile for ease of replacement and access to the underfloor space. Changes in floor finish can be used to designate and accentuate circulation or wayfinding elements. Walls are to be painted gypsum wallboard in neutral colors. Ceilings are to be standard 2x2 suspended acoustical ceiling tile with high sound absorption and light reflectivity. The ceilings are designed to allow for maximum height and volume. Typical doors are wood in natural, clear finish. Frames are to be clear anodized aluminum. Private office fronts are to have side relites to bring in natural light and view inside. Conference room fronts are to be primarily transparent glazing with clear anodized aluminum frames. Conference room interiors are to have built in white board and tackable fabric panels and pencil rails on one wall, where appropriate. All built in office casework is to be plastic laminate; lab casework to be specialized in accordance to required function.



IDAHO WATER CENTER
TENANT IMPROVEMENT PRODUCT STANDARDS

DIVISION 3 - CAST-IN-PLACE CONCRETE (NOT APPLICABLE)

DIVISION 4 – MASONRY (NOT APPLICABLE)

DIVISION 5 - METALS

- A. Section 05500 – Metal Fabrications:
 - 1. MTL-12: Blackened steel.
Location: Lobby
 - 2. B-4: 2'-4" high flush blackened steel base.
Location: Lobby
 - 3. B-5: 2" high blackened steel channel base.
Location: Lobby
 - 4. B-6: 2" high flush blackened steel base.
Location: Lobby

DIVISION 6 - WOOD & PLASTICS

- A. Section 06402 Interior Architectural Woodwork:
 - 1. PL-1: Wilsonart D4361 Alabaster
Location: Upper Cabinets
 - 2. PL-2: Wilsonart 4623-60 Graphite Nebula
Location: Countertops
 - 3. PL-3: Wilsonart 1595-60 Black
Location: Base Cabinets
 - 4. PL-4: Wilsonart “Chemsurf” Black.
Location: Laboratory Shelves
 - 5. PL-5: Wilsonart 1595-07 Black (Glossy)
Location: Recycle Station
 - 6. B-2: 2" Painted MDF base, paint to match adjacent wall color; semi-gloss.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION (NOT APPLICABLE)

DIVISION 8 - DOORS & WINDOWS

- A. Section 08111 – Standard Fire Rated Steel Doors and Frames:
 - 1. Color: PT-1 ("c") unless noted otherwise.
- B. Section 08211 – Flush Wood Doors: VT Industries, Architectural Wood Doors
 - 1. WD-1: Maple, quartered sawn, slip matched. Finish #CL02
Location: Typical
- C. Section 08411 - Aluminum Framed Entrances and Storefronts:
 - 1. Interior Door Frames: Kawneer 450, Clean Anodic Finish
Location: Typical
- D. Section 08711 – Door Hardware
 - 1. Hinges: McKinney
 - 2. Mortise Locks, Closers, Exit Devices: Sargent
 - 3. Closers: LCN
 - 4. Trim: Rockwood
 - 5. Weatherstrip/Seals: Pemko



IDAHO WATER CENTER
TENANT IMPROVEMENT PRODUCT STANDARDS

6. Concealed Overhead Closers: Rixson
- E. Section 08800 - Glazing
1. GL-1: Clear Float glass, AFGD Glass Co.
 2. GL-2: Translucent Privacy Film, 3M Fasara Interior Design Film, # SH2PT SA Rice Paper, Snow White
 3. GL-3: Clear-Tempered, AFGF Glass Co.
 4. GL-4: Translucent Security Film, 3M Scotchshield Ultra Safety and Security Film, # S35NEAR400

DIVISION 9 - FINISHES

- A. Section 09511 - Acoustical Panel Ceiling:
1. Ceiling Panels: Type ACT-1: BPB Celotex "Symphony M"; 2'x2'.
 2. Metal Suspension System: Classic Stab System, 15/16", # C12-12-15
 3. Wall Angle: Shadow Line, #SM1000
- B. Section 09653 - Resilient Wall Base and Accessories:
1. TS-1: Schluter, Schiene-E
Location: Typical carpet to ceramic tile transitions.
 2. B-1: Roppe P193 "Black-Brown".
Location: Typical
- C. Section 09651 - Resilient Floor Tile:
1. VCT-1: Armstrong "Stonetex Excelon" 52144 Coal Black, 12 x 12
Location: Wet labs at interior zones, Hallway outside restrooms
 2. VCT-2: Armstrong "Stonetex Excelon" 52139 Limestone Beige, 12 x 12
Location: Wet labs at exterior zones
 3. TPS-1: Tajima Lay Flat Tile #LF3006 (Darker Gray Color)
Location: North wing Lab corridors
 4. TPS-2: Tajima Lay Flat Tile #LF3001 (Lighter Beige Color)
Location: Interior "wet" work rooms
- D. Section 09653 – Sheet Vinyl Floor Coverings
1. SV-1 Mannington BioSpec #15151 "Wheat Straw"
Location: Wet Labs at exterior zones
 2. SV-2 Mannington Fine Fields #10153
Location: Wet Labs at interior zones
- E. Section 09681 - Carpet Tile:
1. CPT-1: Shaw: Everton Square 69510, "Blackstone"
Location: Elevator Lobby, Open Areas at Prow, Classrooms
 2. CPT-2: Shaw: Ducks in a Row 70761, "Twine"
Location: Core Spaces
 3. CPT-3: Shaw: Hush 43200, "Walnut"
Location: Office and Open Office
 4. CPT-4: Shaw: Ducks in a Row 70761, "Twine"
Location: Office and Open Office
- F. Section 09841 – Acoustical Wall Panels
1. ACP-1 Fabric: DesignTex Hardwear 2 #6385-102 "Cadmium Too"
Location: Classrooms



IDAHO WATER CENTER
TENANT IMPROVEMENT PRODUCT STANDARDS

2. ACP-2 Fabric: DesignTex Hardwear 2 #6399-202 “Krypton Too”
Location: Conference Rooms
 3. ACP-3 Fabric: Modernfold Inspirations #109278-013 “Silk”
Location: 6th Floor Conference Center
- G. Section 09912 - Painting:
1. PT-1: Benjamin Moore 2148-60, "Timid White".
Location: Typical walls
 2. PT-2: Sherwin Williams 1135, "Castille Foam".
Location: Lobby
 3. PT-3: Benjamin Moore HC-108, "Sandy Hook Gray".
Location: Lobby, Accent walls in office areas
 4. PT-4: Sherwin Williams 1020, “Distant Thunder”.
Location: Accent walls at north interior zones
 5. PT-8: Benjamin Moore 2145-70 "Cotton Balls".
Location: Typical ceilings/soffits (flat sheen)
 6. PT-11: Parker Paint 7764M "Coffee 'N Cream".
Location: Lobby accent walls
 7. PT-12: Benjamin Moore 2133-10, "Onyx".
Location: Lobby reveals, Exposed above ceiling areas
 8. "a": Flat.
 9. "b": Eggshell.
 10. "c": Semi-gloss.

DIVISION 10 - SPECIALTIES

- A. Section 10101 – Visual Display Boards
1. WB-1: White Board, ADP Lemco, Inc.
 2. WB-2: Projection Dry Erase Wallcovering, Walltalkers “Erase Rite”
- B. Section 10162 – Baked Enamel Steel Toilet Compartments
1. Compartments and Screens: Flush Metal Partitions, Corp., “Flushite”
- C. Section 10265 – Impact Resistant Wall Protection:
1. CG-1: Satin Stainless Steel Corner Guards.
Location: Shop, Labs, Hallways in lab areas
- D. Section 10520 – Fire Protection Specialties
1. Semi-Recessed Fire Extinguisher Cabinet: JL Industries, #1837 V 10 FX
 2. Fire Extinguisher: JL Industries, #Cosmic 5E
- E. Section 10801 – Toilet and Bath Accessories
1. Paper Towel Dispenser/Waste Receptacle: Bradley, Model # 234
 2. Soap Dispenser: Bradley, Model # 6437
 3. Toilet Paper Dispenser: Bradley, Model # 594 (Combination unit-toilet tissue/napkin disposals, partition mounted), #5123-55 (at men’s and women’s ADA stalls),
 4. Sanitary Napkin Vending Machine: Bradley, Model # 4017
 5. Sanitary Napkin Disposal: Bradley, Model # 4713-15
 6. Grab bars: Bradley, Model # 812-001, B-6808: 36” long and 48” long



IDAHO WATER CENTER
TENANT IMPROVEMENT PRODUCT STANDARDS

7. Shower Curtain Rod: Bradley, Model # 9531
8. Shower Curtain/Hooks: Bradley, Model # 9537
9. Towel Hook: Bradley, Model # 9124
10. Baby Changing Stations: Bradley, Model # 9611, light grey
11. Utility Shelves: Bradley, Model # 9984

DIVISION 11 – EQUIPMENT

A. Section 11132 – Projection Screens

1. Electrically Operated Projection Screen: Da-Lite Company, Tensioned Contour Electrol, Da-Mat viewing surface
Location: Seminar Rooms, Large Classrooms, Conference Rooms
2. Manually Operated Projection Screen: Da-Lite Company, Designer Contour Manual, Da-Mat viewing surface, Controlled Screen Return
Location: Small Classrooms

B. Section 11451 – Residential Appliances

1. MICRO: Microwave Oven; General Electric Company, Model #: JE1440BF
2. RF-1: Refrigerator; General Electric Company, 24.9 CU Ft., Model #: GSH25KGPBB
Location: Coffee Rooms, Break Areas
3. RF-2: Under counter Refrigerator; Marvel Industries, Model #: 6ADABB Black
Location: Work Areas
4. IC-1: Ice Maker; Marvel Industries, Model #: 30iMABB Black
Location: Coffee Rooms, Break Areas
5. D/W: Dishwasher; Asko, Model #D3120
Location: Coffee Rooms, Break Areas

C. Section 11610 – Laboratory Fume Hoods

1. CFH-1: Standard Accessible Chemical Fume Hood, Restricted Bypass, Kewaunee Scientific Corporation, Model # H09K5472B00CGHJ0V678
 - a. 18” Acid Storage Unit, #G80M3718L11010-A
 - b. 18” Flammable Storage Unit, #G63M3718-0110-A
2. CFH-2: Standard Non-Accessible Chemical Fume Hood, Restricted Bypass, Kewaunee Scientific Corporation, Model # H07K5472B00CGHJ0V678
 - a. 36” Acid Storage Unit, #G80M3736-010-AA
 - b. 36” Flammable Storage Unit, #G68M3736-0110
3. CFH-3: Accessible Hydrofluoric Acid Chemical Fume Hood, Restricted Bypass, Kewaunee Scientific Corporation, Model # H09K5472B00AGHJ0V678
 - a. 18” Acid Storage Unit, #G80M3718L11010-A
 - b. 18” Flammable Storage Unit, #G63M3718-0110-A
4. CH-1: Canopy Hood; Kewaunee Scientific Corporation, Model # 2B-2818-6S

DIVISION 12 - FURNISHINGS

A. Section 12361 – Metal Laboratory Casework

1. Metal Casework: Kewaunee Scientific Corporation, Style: Trademark, Color: No. 61 Light Neutral
2. Epoxy Countertops, Troughs and Sinks: Kewaunee Scientific Corporation, 1” thick “Kemresin”



IDAHO WATER CENTER
TENANT IMPROVEMENT PRODUCT STANDARDS

3. Stainless Steel Countertops, Sinks & Shelves: 16 GA., Type 304, #4 Satin Finish
4. Laboratory Accessories:
 - a. Pegboards: Kewaunee Scientific Corporation, Research Collection, Composite Resin Laboratory Pegboards
 - b. Drainboards: Kewaunee Scientific Corporation, Research Collection, Composite Resin Laboratory Pegboards with SS Drip Trough
 - c. Reagent Rack Shelves & Supports: Kewaunee Scientific Corporation, Research Collection

- B. Section 12494 – Roller Shades
 1. WT-2: Mechoshade “ThermoVeil” 1300 Series, #1317 “Straw”
Location: Clerestory at Classroom 1122

- C. Section 12511 – Black Out Shades
 1. WT-3: Mechoshade “ThermoVeil” 0700 Series, #0706 “Oyster”
Location: Laboratories and conference rooms located along perimeter windows

- D. Section 12512 – Horizontal Louver Blinds
 1. WT-1: Levelor Riviera DustGuard 1” Blind, color #864 Flint Gray
Location: Typical perimeter windows

DIVISION 13 – SPECIAL CONSTRUCTION (NOT USED)

DIVISION 14 - CONVEYING SYSTEMS (NOT USED)

DIVISION 15 - MECHANICAL

- A. Section 15410 – Plumbing Fixtures
 1. WC-1: Wall-mounted water closet
American Standard 2257.103 Bowl with AquaVantage Z6000AV Series Flushometer
Location: Restrooms, Locker rooms
 2. WC-2: Wall-mounted barrier-free water closet
American Standard 2257.103 Bowl with AquaVantage Z6000AV Series Flushometer
Location: Restrooms
 3. UR-1: Wall-mounted urinal
American Standard 6541.132 Urinal with AquaVantage Z6003AV Series Flushometer
Location: Restrooms
 4. L-1: Counter-mounted lavatory
American Standard 0620.000 Lavatory with Zurn Z-831R1-3M Faucet.
Location: Restrooms, Locker rooms
 5. L-2: Counter-mounted, barrier-free lavatory
American Standard 0620.000 Lavatory with Zurn Z-831R1-3M Faucet.
Location: Restrooms
 6. S-1: Single compartment stainless steel sink
Just SL-Series-A-18 GA Sink with American Standard 6274.000 Top-Mount Kitchen Faucet
Location: Kitchen Areas and Coffee Nooks
Just SL-Series-A-18 GA Sink with Chicago Faucets 930-FC-CEF Faucet
Location: Lab Areas
 7. S-2: Double compartment stainless steel sink
Dayton DSE-23322 Sink
Location: Lab Areas
 8. ESH-1: Emergency shower and eyewash
Chicago Faucets CF model #9204CP Combination Shower & Eye/Face Wash



IDAHO WATER CENTER
TENANT IMPROVEMENT PRODUCT STANDARDS

- Location: Lab Areas
 - 9. EEW-1: Emergency eyewash
Chicago Faucets 9003NF Emergency Eye Wash
Location: Lab Areas
 - 10. TUR-1: Laboratory gas cocks - single
Location: Lab Areas
 - 11. SEP-1: Sediment Interceptor
Jay R. Smith Mfg. 8710T Solids Interceptors
Location: Lab Areas
 - 12. TWV-1: Emergency Shower Mixing Valve
Guardian Equipment G3800 Thermostatic Mixing Valve
Location: Lab areas serving Emergency showers
 - 13. Water Closet Rough-In Connections: 3" waste, 2" vent, 1.5" cold water
 - 14. Urinal Rough-In Connections: 2" waste, 1.5" vent, 1.5" cold water
 - 15. Lavatory Rough-In Connections: 1.25" waste, 1.25" vent, 0.75" cold and hot water
 - 16. Single and Double Compartment Sink Rough-In Connections: 1.5" waste, 1.25" vent, 0.75" cold and hot water
- B. Section 15431 – De-Ionized Water System
- 1. DI-1: Culligan 3-Tank Recirculating System (Custom), 8gpm, 100psi
Location: Labs, where deionized water required
 - 2. Tanks: Stainless Steel, 14" diameter cation, anion and mixed-bed deionizer, two required, provide one for standby
 - 3. Recirculation kit: suitable for receptacle plug-in with flow switch, ½ hp plastic pump, check valves, isolation valves, Culligan part #00-3310-22
 - 4. UV Conditioner: Aquafine SL-1 with 1" flanged fittings (120V/1PH operation)
 - 5. Resistivity Monitor: Thornton 200CR, with 10' cable and sensor (120V/1PH operation)
- C. Section 15431 – Hydrofluoric Acid Exhaust Fume Scrubber
- 1. FMS-1: Swirlaway 5621600 scrubber for hydrofluoric acid, 1200 rated CFM, with impaction and demister chambers, water nozzles, interlock to hydrofluoric acid exhaust fume hood. Install with colenoid valve, pressure reducing valve, balancing valve, and reduced pressure backflow preventer.
Unit to be hung from structure
Location: Labs with fume hoods for hydrofluoric acid
- D. Section 15485 – Electric Domestic Hot Water Tanks
- 1. DHWT-1: Ruud EGSP6 electric domestic hot water storage tank, 15.75" diameter, 15.125" height, 6 gallon capacity, 150 psi maximum, 120V/1PH, 3000 watts input, 15 GPH recovery @ 80 degree temperature rise.
Location: Labs, under counters, where 15 gph recovery required
 - 2. DHWT-2: Ruud EGSP2 electric domestic hot water storage tank, 9.75" diameter, 14" height, 2 gallon capacity, 150 psi maximum, 120V/1PH, 1500 watts input, 10 GPH recovery @ 80 degree temperature rise.
Location: Labs, under counters, where 10 gph recovery required
- E. Section 15710 – Hydronic Radiant Panels
- 1. Runtal RC-9 or RC-11.
Location: First floor retail, at perimeter
- F. Section 15734 – Computer Room Air Conditioning Units
- 1. AC-3: Liebert Mini-Mate 2MMD36E water-cooled 3 ton server room cooling unit, direct drive,

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TENANT IMPROVEMENT PRODUCT STANDARDS

- 1250 CFM, 0.3" e.s.p., 400 FPM face velocity, 4" pleated 30% efficient filtration media
Location: Server rooms or high-load computer rooms (3 ton capacity)
2. ACU-3: Liebert Mini-Mate MC38W condensing unit, 6.5 gpm, 208/1/60, 20.7 FLA, remote mounted, for use with AC-3.
 3. AC-4: Liebert Mini-Mate 2MMD96E water-cooled 8 ton server room cooling unit, direct drive, 3750 CFM, 0.5" e.s.p., 500 FPM face velocity, 4" pleated 30% efficient filtration media
Location: Server rooms or high-load computer rooms (8 ton capacity)
 4. ACU-4: Liebert Mini-Mate MC98W condensing unit, 6.5 gpm, 208/3/60, 38.4 FLA, remote mounted, for use with AC-4.
- G. Section 15830 – General Exhaust Fans
1. EF-1: Greenheck BDF-90-4 Cabinet Fan, 1250 CFM, 0.375" w.c., belt drive, ¼ hp, 120/1/60, in acoustic lined cabinet, with backdraft damper and reverse acting thermostat.
Location: Storage Rooms and Server Rooms
- H. Section 15725 – Modular Indoor air Handling Units
1. Trane Series M Modular Climate Changer
Location: First Floor Retail (ceiling)
- I. Section 15830 – Fan Coil Units
1. FC-1: Titus High Speed DLHK-3-0-2-309, 600 cfm, LAT 75-80, EWT 160, LWT 110
Location: Access Floor Space – series fan-powered boxes
 2. FC-2: Enviro-Tec HLP-40, HLP-50 or HLP-60 (depending on requirement), LAT 75-80, EWT 160, LWT 110
Location: Access Floor Space, labs (constant volume)
- J. Section 15880 – VAV Fan-Powered Boxes
1. FVAV-1: Titus DTQS, size 3, 10" diameter duct inlet size, approximately 250 to 1000 CFM, low-profile type.
 2. FVAV-2: Titus DTQS, size 5, 12" diameter duct inlet size, approximately 300 to 1400 CFM, low-profile type.
 3. FVAV-3: Titus DTQS, size 6, 14" diameter duct inlet size, approximately 500 to 2000 CFM, low-profile type.
Location: Level 1 Ceiling Classrooms
- K. Section 15880 – Diffusers and Grilles
1. Titus Diffuser OMNI 24x24, Supply Air Diffuser, Standard Finish White
Location: Ceiling Installations, corridors
 2. Titus Grille, 300RL, Supply Air Grilles Standard Finish White
Location: Ceiling or Sidewall Installations, Labs, Offices, Corridors
 3. Titus Grille, 350RL, Return/Exhaust Air, Standard Finish White
Location: Sidewall or T-bar Ceiling Installations, Labs, Offices, Corridors, Locker Rooms
 4. Titus Grille 8RF, Return Air – Ceiling Installations, Standard Finish White
Location: Ceiling Installations, coffee/kitchen areas
 5. Titus Linear Bar Grille, CT-480, 2.5" Wide, Supply Air, Standard Finish White
Location: Ceiling Installation, Main Lobby
 6. Krantz Floor Diffuser, Type DB-E-DN Plastic Floor Diffuser, with carpet trim flange, diffuser core, retention ring, airflow adjustment damper, dirt basket, and rated for plenum installation per NFPA, flat black
Location: Floor Installations, typical



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- L. Section 15900 – Controls and Instrumentation
 - 1. All controls and accessories shall be provided by Siemens.
 - 2. Thermostats: sensor-type, connected to EMCS, with no individual user control.

DIVISION 16 - ELECTRICAL

- E. Section 16122 - Armored and Metal Clad Cables
 - 1. AFC cable systems
- F. Section 16125 - Access Floor System
 - 1. Communications Integrators Incorporated
- G. Section 16140 - Wiring Devices
 - 1. Receptacles - Pass & Seymour
 - 2. Switches - Pass & Seymour
 - 3. Multi-Outlet Assemblies - Mono-Systems Inc.
- H. Section 16289 - Transient Voltage Surge Suppression
 - 1. Cutler-Hammer Clipper Power System - Visor Series
- I. Section 16470 - Panel Boards
 - 1. Cutler-Hammer
- J. Section 16470 - Panel Boards
 - 1. Cutler-Hammer
- K. Section 16501 – Light Fixtures

Type	Description	Manufacturer	Catalog Number	Watts	Lamp	Location
AH	Recessed incandescent adjustable (360° horizontal rotation and 35° vertical tilt) downlight, semi-specular clear alzak reflector, 4.5" aperture, 75 watt AR70 lamp on separate circuit per wall. Painted white flange.	Lithonia	DLV ADJ AR70 4ACT30 277 TRW	85	75 watt AR70 (12V)	Entrance lobby
AJ	Recessed incandescent downlight, semi-specular clear alzak reflector, 4.5" aperture, 35 watt MR-16 lamp on separate circuit per wall. 50° visual cutoff to lamp image, medium distribution, and with painted white flange.	Lithonia	DLV DWN MR16 4AC 277 TRW	42	35 watt MR- 16 (12V)	Entrance lobby
CA	Recessed compact fluorescent downlight, semi-specular clear alzak reflector, 6" aperture, 32 watt triple tube lamp. 50° visual cutoff to lamp image, medium distribution, and a white flange.	Lithonia	AFV 32TRT 6AR MVOLT GEB10 TRW	34	PL-T 32W/35/4P	Throughout
CA1	Recessed compact fluorescent downlight, semi-specular clear alzak reflector, 6" aperture, 32 watt triple tube lamp. Suitable for mounting in a GWB ceiling. 50° visual cutoff to lamp image, medium	Lithonia	AFV 32TRT 6AR MVOLT GEB10 TRW	34	PL-T 32W/35/4P	Throughout

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	distribution, and a white flange.					
CA2	Recessed compact fluorescent downlight, semi-specular clear alzak reflector, 6" aperture, 32 watt triple tube lamp. Suitable for mounting in a GWB ceiling. 50° visual cutoff to lamp image, medium distribution, and a white flange.	Lithonia	AFW 26TRT 6ARMVOLT GEB10	34	PL-T 32W/35/4P	Throughout
CB	Recessed compact fluorescent wall wash downlight, semi-specular clear alzak reflector, 6" aperture, 32 watt triple tube lamp. 50° lamp cutoff and lamp image. White flange.	Lithonia	AFVW 32TRT 6AR MVOLT GEB10 TRW	34	PL-T 32W/35/4P	Classrooms, corridors
CF	Ceiling surface mount compact fluorescent downlight, semi-specular clear alzak reflector, 6" aperture, 32 watt triple tube lamp with white housing finish.	Lightolier	CS6132VUCCL 32W	34	PL-T 32W/35/4P	Corridors, stairs
CF1	Stairway surface mount compact fluorescent downlight, semi-specular clear alzak reflector, 6" aperture, 32 watt triple tube lamp with black housing finish, mount to metal landing, paint conduit to match.	Lightolier	CS6132VUCCL 32W - BLACK FINISH	34	PL-T 32W/35/4P	Stairs
CF2	Stairway surface mount compact fluorescent downlight, semi-specular clear alzak reflector, 6" aperture, 32 watt triple tube lamp with black housing finish, bracket mount to wall side of centered stair tube steel, paint conduit to match. 50° visual cutoff to lamp image, medium distribution.	Lightolier	CW6132VUCCL 277V 32W - BLACK FINISH	34	PL-T 32W/35/4P	Stairs
CH	Exterior wall mount compact fluorescent area light, 26 watt triple tube lamp with polycarbonate front housing, die-cast aluminum mounting base, photocell control and local switch.	Kenall	S7IID-C-MW-26Q1-120	28	26W Quad/35/4P	Roof
E	Surface universal mount exit sign, brushed aluminum finish, green letters, LED lamps, single face, no arrows	Lithonia	LES W 1G 277V	1	LED	Throughout
E1	Surface universal mount exit sign, brushed aluminum finish, green letters, LED lamps, single face, arrows as shown	Lithonia	LES W 1G 277V	1	LED	Throughout
E2	Surface universal mount exit sign, brushed aluminum finish, green letters, LED lamps, double face, arrows as shown	Lithonia	LES W 2G 277V	2	LED	Throughout
FA	Pendant mount fluorescent 8'-0" long fixture for use with (2) 32 watt T8 lamps per 4' length. Fixture shall have 10% upright reflector, a wireguard, a white paint finish and 1'-6" long rigid stem pendant. Fixture shall have integral 277 volt ballasts.	Lithonia	AF10-2-32-277-GEB-WGAFPV 8'	128	F32T8/35	Labs
FA3	Fluorescent lensed sealed wet location 8'-0" in length for use with (2) 32 watt T8 lamps per 4' length, Fixture shall have 3'-6" long rigid stem pendant and an acrylic lens, Fixture shall have two	Lithonia	TDMW 2 32 277 2GEB WLF 8'	128	F32T8/35	Labs

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	integral 277 volt ballasts for dual-switching.					
FB	Fluorescent industrial 4'-0" fixture totalling 8'-0" in length, single lamp row, surface mounted, symmetric reflector. To be connected end-to-end for through wiring, where applicable. Vandal and antenna resistant lens. Complete with integral ballast.	Lithonia	TC-1-32-277-GEB10 IS	68	F32T8/35	Labs
FB1	Fluorescent industrial 4'-0" length, single lamp, surface mounted, symmetric reflector. To be connected end-to-end for through wiring, where applicable. Vandal and antenna resistant lens. Complete with integral ballast.	Lithonia	C-1-32-277-GEB10 + HRC + CSMR 48WH + WGCSMR	34	F32T8/35	Labs
FC	Wall mount fluorescent fixture, approx. 4'-0" length, 2 lamp, clear polycarbonate lens, mounted to wall. Complete with integral ballast.	Lithonia	DM 2 32 AR 277 GEB10 IS	68	F32T8/35	Corridors
FD	Recessed ceiling mount wallwash fluorescent fixture for use (1) 28 watt T5 fluorescent lamp. Fixture shall have a steel housing, an aluminum reflector, parallel blade louver and white trim ring. Fixture shall have an integral 277 volt ballast.	Lithonia	WWG 2 32 277 GEB IRLS	30	F28T5/35	Classrooms
FE	Surface mount telescoping staggered fluorescent striplight fixture, 4'-0" length extending up to 6', mount in architectural cove with asymmetric reflector. Complete with integral ballast.	Lithonia	SST-2-32-277-GEB10RS	68	F32T8/35	Bathrooms
FF	Ceiling surface mount indirect fluorescent fixture for use with (2) 28 watt T5 lamps. Fixture shall have steel housing, a perforated metal lamp shield, and a white finish. Fixture shall have integral dimming ballast.	Lithonia	AVSM 2 28T5 MDR ULR 277 GEB-dim	60	F28T5/35	Support spaces
FF1	Ceiling recess mounted indirect fluorescent fixture for use with (2) 28 watt T5 lamps. Fixture shall have steel housing, a perforated metal lamp shield, and a white finish. Fixture shall have integral 277 volt ballast.	Lithonia	2AV G 2 28T5 MDR 277 GEB	60	F28T5/35	Offices
FH	Ceiling pendant mount fluorescent indirect linear 8' long fixture for use with (2) 28 watt T5 lamps per 4' length. Fixture shall have steel housing, a semi-specular reflector, perforated metal shield with white acrylic lens insert, 24" long cable suspension and a white finish. Fixture shall have two integral 277 volt ballasts for dual switching.	Linear	EL29 B 2 ET5 277 NS/PRD C24 BW SC 8FT	120	F28T5/35	Offices
FH1D	Ceiling pendant mount fluorescent direct/indirect linear 8/12' long fixture for use with (1) 54 watt high output T5 lamp per 4' length. Fixture shall have steel	Linear	EL29 B 1 ET5HO 277 NS/PV1 C24 BW ED 12FT	190	F54T5/35/H O	Conference rooms, classrooms

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	housing, a semi-specular reflector, radial parabolic louvers, 24" long cable suspension and a white finish. Fixture shall have an integral 277 volt dimming ballast.					
FH2	Ceiling pendant mount fluorescent indirect linear 12' long fixture for use with (2) 28 watt T5 lamps per 4' length. Fixture shall have steel housing, a semi-specular reflector, perforated metal shield with white acrylic lens insert, 24" long cable suspension and a white finish. Fixture shall have two integral 277 volt ballasts for dual switching.	Linear	EL29 B 2 ET5 277 NS/PRD C24 BW SC 12FT	180	F28T5/35	Offices
FH3	Ceiling pendant mount fluorescent indirect linear 4' long fixture for use with (2) 28 watt T5 lamps per 4' length. Fixture shall have steel housing, a semi-specular reflector, perforated metal shield with white acrylic lens insert, 24" long cable suspension and a white finish. Fixture shall have two integral 277 volt ballasts for dual switching.	Linear	EL29 B 2 ET5 277 NS/PRD C24 BW SC 4FT	60	F28T5/35	Offices
FJ	Ceiling recessed 2' x 4' lensed fluorescent fixture, (2) T5 lamps.	Lithonia	2SP8 G 2 32 AR 277 1/3 GEB10 IS	58	F28T5/35	Support spaces
FK	Surface mount under cabinet fluorescent fixture, low profile	Lithonia	NC 42120	18	F18T5/35	Support spaces
FM	Surface mount fluorescent covelight fixture, 4'-0" length module, mount in architectural cove recess for uplighting ceiling, finish in white semi-gloss.	Insight	CF5HO SMC 4' 2 W	58	F54T5/35/H O	Lobbies
FM1	Surface mount fluorescent covelight fixture, 4'-0" length modular, 9" extended arm mount in architectural cove with architectural louver, dimming ballast. Finish of semi-gloss white.	Insight	CF5 EAS-9" 4' 2 W DM	30	F28T5/35	Lobbies
FN1	Surface mount fluorescent wallwash fixture, 4'-0" module, finish of semi-gloss white. Three modules as one fixture totals in length to 11'-10-1/2", to fit in cove space.	Insight	CF5 SMC 4' 2 W	30	F28T5/35	Lobbies
FN2	Surface mount fluorescent wallwash fixture, 4'-0" length module, mount on stair tube steel toward wall. Finish of semi-gloss black.	Insight	CF5 SMC 4' 2 BL	30	F28T5/35	Stairs
FN3	Surface mount fluorescent wallwash fixture for use with (1) 28 watt T5 lamp. Fixture shall have an an extruded aluminum housing, a hammertone asymmetric reflector, adjustable mounting brackets and a white paint finish. Fixture shall have an integral 277 volt ballast.	Insight	CF5 SMS 4' 2 W	30	F28T5/35	Lobbies
HB	Recessed ceramic metal halide downlight for use with (1) 70 watt Par 30 MH flood lamp. Fixture shall have a semi-specular alzak reflector, a 6" aperture and a white	Lithonia	RH 35MHC 6AC 277 TRW	95	70W CMH PAR30 flood 3K Medium base	Lobbies high ceiling

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	trim ring. Fixture shall have an integral ballast.					
HC	Recessed ceramic metal halide downlight with alzak aluminum reflector. 45° cut off to lamp and lamp image. Matte white flange.	Lithonia	RH 35MHC 6AC	56	39W CMH PAR30 3K Medium base	Lobbies high ceiling
HH	Recessed ceramic metal halide adjustable downlight for use with (1) 70 watt Par 30 MH flood lamp. Fixture shall have a semi-specular alzak reflector, a 6" aperture, 40 degree vertical lockable adjustability, an integral universal spread lens and a white trim ring. Fixture shall have an integral ballast.	Lithonia	DPH P30 70MHC 6ACT30 277 TRW	95	70W CMH PAR30 flood 3K Medium base	Lobbies high ceiling
XAA	Wet location, recessed, 35W low voltage halogen, flush mounted wall light located 6" above ground in side of bench. Fixture 7" diam trim and 3" diam opening, 7-1/2" deep. Cover made of machined aluminum and tempered glass. Complete with integral transformer. Adjustable bracket with 12° spot lamp aimed to 10° below horizontal.	ALLSCAPE	SP12 100MH 277 E17 NA	37	35W MR-16 Spot (12V)	Planters
XAB	Landscape uplight knuckle-mounted to in-ground ballast. 70W metal halide PAR30 lamp source, wet location. Fixture supplied with honeycomb louver and spread lens. Fixture has all aluminum construction, 'aim-and-lock' technology, verde polyester powder coat wrinkle finish.	Lithonia	700 70M 20 277 FL KM JB CTB5 RAL6009 GS	77	70W MH PAR30	Tree uplight
XAC	Wall mounted downlight with forward throw and sharp cutoff. Suitable for wet location. Beam direction to be adjusted on the pivot bracket locked to the exact degree to light floor without wall wash. Housing to be made of cast aluminum, graphit gray finish.	SPI	EXR 4723 120 GY412 WL CS	56	39W CMH T6 G12 3K	Exterior wall
XHB	Surface mounted ceramic metal halide downlight with forward throw and sharp cutoff	Erco	33272.023 + 34970.023	56	39W CMH T6 G12 3K	Exterior entries
XHC	Ceramic metal halide downlight, suitable for wet location, surface mounted to the wall with forward throw and sharp cutoff, remote ballast. Hinge with internal wiring and +/- 90° tilt. Cast aluminum housing, concealed cable routing, fixable pivot bracket with scale for accurately setting angle of tilt, aimed to light floor with no wall wash, graphit gray finish.	Erco	33272.023 + 34970.023	56	39W CMH T6 G12 3K	Exterior entries
XHE	Ceramic metal halide bollard, 3' high. Cast aluminum housing with dark bronze powder coat finish (to match Type XHL).	Urban Accessories	DG1 277V	56	39W CMH T6 G12 3K	Site
XHK	Ceramic metal halide pedestrian pole light, 10' high. Round steel top reflector and intermediate reflector with white	Louis Poulsen	SATT MIN 100MH ED17MED 277 DRA4.5	120	100W CMH, ED-17 coated lamp	Site

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	finish underside. Pole 3.5" diam steel, hand hole at base. Clear polycarbonate cylinder lamp enclosure with frosted anti-glare ring. RAL Dark Bronze finish to match Type XHL.				with medium base, constant colour	
XHL	Metal halide, one-armed pole light, 20' high. One-piece tubular, extruded aluminum housing. Hydroformed reflector with borosilicate glass refractor in the optical compartment. Dark Bronze finish.	Kim Lighting	1A/OTS600/175MH2 77/DB-P PBTS20-6188-DB-P	210	175W CMH, ED-28 clear lamp with mogul base, pin oriented	Site

- L. Section 16551 - Lighting Control System (Local Control)
 - 1. ETC Unison

- M. Section 16721 - Fire Alarm
 - 1. Simplex Grinnell

- N. Section 16745 - Telecommunication Cable and Termination Equipment
 - 1. Permanent link cable - Avaya
 - 2. Non-Permanent link, riser & backbone, UTP cable(s) -
 - 3. 4-pair Cable Unshielded Twisted Pair
 - a. Physical specifications: 4 twisted pair, 23 or 24 AWG, solid copper conductors, 100-Ohm nominal impedance +/- 15%.
 - b. Electrical characteristics: Superior to the individual characteristics established in EIA/TIA 568-B for Category6 (CAT6) cable performance.
 - c. Cable construction: round cable, individually insulated conductors under a common plenum rated sheath.
 - d. Cable color: blue, white, and yellow
 - 1) Manufacturer: Avaya.
 - 2) Type: 2071
 - 3) No substitutions.
 - 4. Copper STP Backbone Cable
 - a. Solid copper, 24 AWG, twisted-pair backbone cable, CAT3, ARMM type, in sizes as indicated on the drawings, with the following minimum specifications:
 - b. Characteristic impedance -- 100 ohms at 1 MHz.
 - c. Attenuation - 7.9 dB maximum per 1000 ft at 1 MHz.
 - d. Listed Type CMR.
 - 5. Composite Optical Fiber Riser Cable
 - a. Tight buffered, water-blocked option.
 - b. Provide with Corning manufactured glass.
 - c. Single-mode:
 - 1) 12 strand 8.3 micron/125 micron
 - 2) Depressed Clad
 - 3) Fiber attenuation shall not exceed .7dB/KM @1310nm wavelength or 7dB/KM @1550nm
 - 6. Multi-mode:
 - a. 24 strand 50/125 micron,
 - 1) Performance: 800nm 1310nm

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- a) 10Gb Ethernet distances (m): 300m 300m
- b) Maximum Attenuation(dB/km) 3.0 1.0
- b. Riser rated.
- c. Manufacturer: OCC Type BX
 - 1) Single Mode: BX12-xxxD-SDxx-900-OFNR
 - 2) Multi-Mode: DX12-xxxD-ALT-OFNR
 - 3) Or Approved Equivalent
- 7. 8-Pin Modular to 8 pin modular UTP Patch Cords
 - a. Physical Specifications: 4-pair cable, with male 8-pin modular plugs with insert-molded strain relief on both ends.
 - b. Performance Characteristics: Superior to the individual characteristics established in EIA/TIA 568-B for Category6 (proposed draft 10), cable performance.
 - 1) Manufacturer: Avaya GS8E XL.
 - 2) Type: (5-foot, black) (7-foot, black)
 - 3) No substitutions.
- 8. Termination Blocks
 - a. 110 termination blocks with legs, field terminated, 300-pair capacity. Complies with EIA/TIA-568-B Category5e (CAT5e) performance. Complete with designation strips and 5-pair connector blocks.
 - b. Manufacturer:
 - 1) Termination Block: Avaya 110AW2-300
 - 2) Connection Block: Avaya 110C5
 - 3) Wiring Guides Avaya 110 Jumper Trough
 - 4) Or Approved Equivalent
- 9. 8-Pin modular Patch Panel
 - a. 19-inch rack mounted patch panel, suitable to terminate 48 UTP 4-pair cables. Complies with EIA/TIA-568-B Category 6 performance. Wired with T568-A pinning. Complete with wire management bars and designation strips
 - 1) Manufacturer: Avaya
 - 2) Type: PATCHMAX, PM-GS3-48.
 - 3) No substitute
- O. Optical Fiber Patch Panel
 - 1. 19-inch rack mounted patch panel with quick release hinged front door, hinged rear door, slide out shelf, front facing label panel. Complete with coupler panels and couplers.
 - a. Manufacturer: Avaya.
 - b. Type: LST1U-072/5.
 - c. Arrangement: Closeable front door and rear cable management space
 - d. Or Approved Equivalent
- P. Connectors/Outlets
 - 1. Non-keyed 8 pin modular connectors suitable to terminate UTP 4-pair cables. Complies with EIA/TIA-568-B Category6 performance. Outlet wired with standards compliant T568-A. Suitable to be mounted in corresponding faceplate, mounting plate or surface mount box.
 - a. Manufacturer: Avaya.
 - b. Type: MGS400BH-246
 - c. Faceplate: M13L-246
 - d. No Substitute
 - 2. Single-mode optical fiber pigtail/STII+-connector suitable for splicing on the approved optical fiber cables
 - a. Manufacturer: Avaya.

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- b. Type: BS1STII+-UC-5
 - c. Or Approved Equivalent
 - 3. Wall mounted 8 conductor outlet and face-plate, mounted over a standard electrical j-box. Stainless steel face-plate with two mounting studs to support wall mounted type telephones.
 - a. Manufacturer: Avaya.
 - b. Type: 630-B8.
 - c. Or Approved Equivalent
- Q. Equipment Racks
- 1. 19-inch double-sided equipment rack, 84-inch high, deep side rails, double-sided vertical wire management channels and standard EIA spacing.
 - a. Manufacturer: Panduit Corporation.
 - b. Type:
 - 1) CMR19X84 (rack)
 - 2) WMPVS45 (side channel)
 - 3) WMPVC45 (center channel)
 - c. Or Approved Equivalent
- R. Cable Managers
- 1. Wall mounted, split front distribution (D) rings.
 - a. Manufacturer: Simon Company
 - b. Part Number: S146 (6")
 - c. Or Approved Equivalent
 - 2. 19-inch rack mount, 3 ½-inch high, horizontal cable management.
 - a. Manufacturer: Panduit Corporation.
 - b. Part Number: WMPHF2
 - c. Or Approved Equivalent
- S. Section 16930 - Lighting Control Equipment (Building Control)
- 1. MicroLite

DIVISION 17- LOW VOLTAGE

- A. Section 17775- Access Control
- 1. Software: GE Interlogix Diamond II
 - 2. Networked Intelligent Controllers: Info Graphic Systems ACU2X/ACU2XL.
 - 3. Networked Controllers: Info Graphic Systems ACURS2/ACURS4.
 - 4. Remote Modules and Enclosures: Info Graphic Systems REN, RIM, RRM.
 - 5. Remote Reader Modules: Info Graphic Systems RRE,RRE2,RRE2A,RR4E.
 - 6. Power Supplies: Altronix AL600ULX.
 - 7. Batteries: Genesis NP-12 7.0 Ah.
 - 8. Card Readers: HID Corp. MiniProx, ProxPro II,
 - 9. Request To Exit Device: DSC t-Rex.
 - 10. Door Contacts: Sentrol 2515A Maxi-Gap.
 - 11. Duress Alarm: Potter HUB-T.
 - 12. Badge Printer: Fargo Persona C11.
- B. Section 17780-CCTV
- 1. Matrix Switcher: Pelco CM6800.
 - 2. Multiplexer: Pelco Genex MX4016CS.
 - 3. Monitor: Viewsonic VG181b.
 - 4. PTZ Controller: Pelco KBD 00A.



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5. Power Supply: Pelco MSC Series 24v.
6. Power Supply: Pelco WCS Series 24v.
7. Camera Mounts: Pelco MRCA.
8. Cameras: Pelco SpectraIII Series Domes.
9. Outdoor Mounts: Pelco IWM Series.
10. Outdoor Fixed Cameras: Pelco DF5 5"
11. Door Intercom: Aiphone KA-DGR Panel.
12. Door Release: Aiphone RY-3DL.
13. Video Phone: Aiphone KB3x5.
14. Power Supply: Aiphone PS-2429UL.

Retail Design Narrative

**University of Idaho
Water Center**

- Summary**
- Mechanical Standards**
- Electrical Standards**
- Access Control Standards**

University of Idaho, Idaho Water Center, Boise, Idaho Basis of Design & Tenant Improvement Design Standards

Retail Design Narrative

The retail tenant spaces in the Idaho Water Center are located on level 1 with direct visual and physical access from the exterior. The retail spaces have direct access to the public plazas that extend through the Ada County Courthouse Corridor. The floor-to-floor height of the first floor is 18 feet to accommodate the retail tenant spaces.

Tenant signage must comply with the Ada County Courthouse Corridor Signage Guidelines. A copy of those guidelines can be obtained from the developer.



Retail Design Narrative for Idaho Water Center

Mechanical Systems

September 2004

OVERVIEW

The Idaho Water Center building is a six level 215,000 sf multi-use building. Level one is designed for future retail area, with levels two through six housing administration, office, laboratory and some classroom spaces. This document focuses on the retail level of the building.

ENVIRONMENTAL DESIGN CONDITIONS

Heating Systems

Outdoor Design Temperature: ASHRAE 99.6% design temperature of 2°F db

Indoor Design Temperature: 72°F +/- 2°F

Cooling Systems

Outdoor Design Temperature: ASHRAE 1% design condition of 94°F db/ 63°F wb

Indoor Design Temperature: 75°F

Ventilation Rates

Ventilation, pressurization and air change rates provided in accordance with ASHRAE 62-1999

Retail: 0.30 cfm/sf (capacity for more - to be defined by the tenant improvement designer)

Building Load Assumptions

Retail: approximately 30 sf per person

Lighting loads: 1.2-2.5 W/sf, depending on space usage. Offices: 1.4 W/sf typical

Humidification

No humidification is provided.

REFERENCED CODES AND STANDARDS

International Building Code 2000

International Mechanical Code 2000

Uniform Plumbing Code 2000

International Energy Conservation Code 2000

Americans with Disabilities Act (ADA)

Applicable National Fire Protection Agency (NFPA) 2000 Regulations (NFPA 13, 14, 20, 45)

Standards

American Society of Heating, Refrigeration and Air Condition Engineers (ASHRAE)

American Society of Plumbing Engineers (ASPE)

Sheet Metal Contractors Association of North America (SMACNA)

American National Standards Institute (ANSI)

Underwriter's Laboratories (UL)

PLUMBING SYSTEMS

Connections for supplemental plumbing systems in the retail areas have not been provided. The installation of small bar sinks or service sinks will require a new connection into the existing domestic cold and domestic hot water main located on level one.

FIRE PROTECTION SYSTEMS

Combined automatic wet sprinkler and standpipe systems have been provided throughout the facility. Flexhead sprinkler connections have been provided to allow for some flexibility of tenant modification without requiring system drain and pressure tests. Future installation of sprinkler heads should match existing installations.

HEATING SYSTEMS

The geothermal heating loop operates at 165°F. The building heating water supply from this operates with 160°F supply and 110°F return temperatures, from the heat exchangers in the main plant room. Heating water piping feeds coils in air handling units, entrance and unit heaters, coils in fan boxes, immersion coils in domestic water tanks, and plate and frame heat exchangers for domestic hot water pre-heat. Zone-level heating control is provided by unit heaters and reheat coils in VAV boxes. Perimeter heat is provided by radiant hydronic heating panels in occupied spaces.

On level one, a central heating loop around the core has been installed with regularly spaced capped off piping for future connections. The capacity of this loop has been sized for future retail occupancy (915 MBH, 36 gpm has been provided for level one at multiple taps from the main heating water loop). Sizes of capped branch lines are indicated on mechanical drawing M6.4 in the as-built set.

COOLING SYSTEMS

Chillers located in the plant room reject heat to the ground through wells located on an adjacent site. The chilled water loop operates at 45°F supply and 63°F return temperatures.

On level one, a central chilled water loop around the core has been installed with regularly spaced capped off piping for future connections. The capacity of this loop has been sized for future retail occupancy (1227 MBH, 137 gpm has been provided for level one at multiple taps from the main chilled water loop). Sizes of capped branch lines are indicated on mechanical drawing M6.5 in the as-built set.

AIR HANDLING SYSTEMS

Level 1 - Retail

- Overhead air supply system to be installed by future tenants.
- Outdoor air louvers have been provided at regular intervals along the perimeter of level one at the underside of the level two slab for ventilation and relief
- Louvers will be used for connection to tenant-installed ceiling-hung indoor modular air handlers. The system is designed for optimal configuration when outdoor air is supplied from the west side of the building and relief air is connected to the east louvers, to take advantage of prevailing wind directions and traffic patterns. Where zone control is required, fan powered VAV boxes with reheat coils will be hung from the structure to provide space temperature control.
- Heating and chilled water loops are provided from the central building plant to capped-off piping connections along the central core as noted above. To be used for heating and cooling coils in the air handling units, as well as reheat at the perimeter as necessary
- Perimeter radiant heat is provided via unit heaters (shell and core space) and ceiling-mounted hydronic panels (areas currently built-out)

ENVIRONMENTAL CONTROL SYSTEMS

Certain future equipment should connect to the base building DDC control system. This includes items such as:

- Room thermostats for Level 1
- Pressure controllers
- Control valves

Individual electronic controls may be provided for the following:

- Unit heaters and entrance heaters

SUSTAINABLE DESIGN

The building has been designed in keeping with the client's desire to utilize sustainable design strategies wherever possible. Future tenant improvements should incorporate energy efficiency and sustainable philosophies.

TENANT IMPROVEMENT ITEMS - GENERAL

In general, the following items should be expected during a tenant improvement project:

- Fire damper at tenant space walls where required
- Exhaust and return air system in tenant spaces with transfer air back to shaft area
- Additional tenant floor diffusers
- Laboratory services (extension from duct shafts)
- Tenant sprinkler revisions
- Level 1 retail air handling units, exterior louver connections and duct distribution
- Plumbing requirements in tenant spaces (sinks at kitchen areas etc)
- Rebalance hydronic and/or chilled water system

RECOMMENDATION FOR EQUIPMENT AND SYSTEMS

The following are recommended equipment and manufacturers for the retail level that are in keeping with the basis of design:

- Ceiling-mounted indoor air handlers: Trane Series M Modular Climate Changer
- Grilles/diffusers: Titus Omni (ceiling diffuser), 300RL (supply grille), 350RL (return/exhaust grille)
- Ceiling-mounted fan-powered boxes: Titus DQTS with perimeter hot water reheat coils
- Hydronic radiant panels: Runtal RC-9 or RC-11

Idaho Water Center Retail Design Electrical Narrative

September 16, 2004

The TI Design Standards are to be followed for the Retail Tenant Improvement work. This narrative focuses on supplemental information and description applicable to the tenant improvement work.

Normal Power System

A 400 amp 480Y/277V three-phase four-wire metered service has been provided for the retail spaces. This meter center consists of (6) six separate 100 amp, 3 pole tenant meters. The future tenants will have to provide a panel in their space and connection from this panel to the meter center.

Emergency Power System

The building includes an on-site generator and distribution system for life safety requirements only

Fire Alarm System

Provide devices compatible with installed Simplex building fire alarm system. Install per Boise Fire Code.

Voice/Data

Voice connection to the Public Switched Network and Data connectivity to Data Service Providers is located in the Entrance Room; Contact Building Manager for names of providers having points of presence in the Entrance Room.

END OF ELECTRICAL NARRATIVE



Retail Space Design Capacity for Idaho Water Center

Access Control/CCTV Systems

September 2004

OVERVIEW

The building access and site is currently monitored and controlled by a networked based integrated access control and digital CCTV monitoring system. This computer based system secures, records, and controls access to the building via an electronic proximity type card readers, digital video recorder, and electronic badging system. Below is a brief description of the two main sub-systems.

ACCESS CONTROL DESIGN CONDITIONS

- Proximity type card readers are installed at both lobby entrances.
- Loading dock and shipping area doors controlled by card readers.
- Parking garage entrance and stairwells controlled by card readers.
- Push to talk intercom at main lobby and loading dock door.
- Exterior retail spaces doors conduit rough-in for card reader.
- Building alarm monitoring and badging station located in building security office.
- Systems allows access to retail back of house areas through building access control system.
- Separate retail tenant intrusion alarm systems possible within tenant space.

CCTV VIDEO SYSTEM

- Building Camera system made up of hi-resolution color cameras connected to building digital Video recorder and controller located in building security office.
- Main building entrances covered by 1/4" CCD camera at building entrance signage.
- Building Entrance covered by PTZ cameras in dome enclosures.
- Loading dock interior and exterior covered by PTZ cameras.
- Parking garage lobby and public spaces covered by PTZ and fixed cameras.
- Building Reception area covered by cameras.
- Building Reception cameras tied to duress alarm push buttons.
- Separate tenant DVR can be connected to tenant cameras and doors.