Historic Preservation Services
Community Development & Neighborhood Services
281 North College Avenue
P.O. Box 580
Fort Collins, CO 80522.0580

970.224.6078
preservation@fcgov.com
fcgov.com/historicpreservation

CERTIFICATE OF APPROPRIATENESS – Minor Alteration
ISSUED: September 22, 2023
EXPIRATION: September 22, 2024

Access Sensor Technologies Inc.
c/o Sean Rogers (Hillside Construction)
21 Hemlock St. Ste. B
Fort Collins, CO 8052

Dear Property Owner:

This letter provides you with certification that proposed work to your designated Fort Collins landmark property, the Power Plant at 430 N. College Ave., has been approved by the City's Historic Preservation Division (HPD) because the proposed work appears to be routine in nature with minimal effects to the historic resource, and meets the requirements of Chapter 14, Article IV of the Fort Collins Municipal Code.

The alterations reviewed include:

- Rooftop ductwork and exhaust fan – obscured by parapet from street

Notice of the approved application has been provided to building and zoning staff to facilitate the processing of any permits that are needed for the work.

Please note that work beyond that indicated in your permit application/correspondence requires additional approval.

If the approved work is not completed prior to the expiration date noted above, you may apply for an extension by contacting staff at least 30 days prior to expiration. Extensions may be granted for up to 12 additional months, based on a satisfactory staff review of the extension request.

If you have any questions regarding this approval, or if I may be of any assistance, please do not hesitate to contact me. I can be reached at yjones@fcgov.com or at (970) 224-6045.

Sincerely,

Yani Jones
Historic Preservation Planner

■ Tenant Finish Checklist (fill out as it pertains to the project scope).

8/14/2023

Check before submitting. Separate and addition submittals may be required. ***If required, it is the applicant's responsibility to attain approvals from the following entities, some of which may be required for permit issuance.	
N/A	**Floodplain:** Is any portion of the building located in a floodplain? https://www.fcgov.com/floodplain-maps
N/A	**Historic:** Is the building historically designated? www.fcgov.com/historicpreservation
N/A	**Zoning:** Is the use of the building allowed in this zone? https://www.fcgov.com/zoning/
Yes	**Poudre Fire Authority:** 102 Remington St. / (970)-416-2891 / https://www.poudre-fire.org/online-services/contractors-plan-reviews-and-permits 1. Most commercial remodels require a separate and addition permit (see link above to submit). 2. Fire suppression system modifications require a separate and addition permit (see link above to submit).
N/A	**Larimer County Health Department:** 1525 Blue Spruce Dr. / (970)-498-6785 / https://www.larimer.org/health A separate and additional submittal are required for the service, preparation, or processing of food or drinks; daycare facilities; schools; and healthcare.
N/A	**Engineering Department:** https://www.fcgov.com/engineering/inspection.php Work impacting or encroaching into the Public Right-of-way
Yes	**Does the scope of work involve more than one trade (Electric, plumbing, framing)?**
	✔ A licensed general contractor is required
	✔ The single permit will include all subtrades which need to be listed on the permit application
No	**Is demolition occurring?**
	An optional demolition permit is available prior to tenant finish permits being issued. See: commercial demo guide
	See separate, additional State requirements for asbestos: https://cdphe.colorado.gov/indoor-air-quality/asbestos

Building Permit Submittal Checklist		
Yes	Tenant Finish Building Permit Application	
Yes	Owner Authorization Form	
N/A	Construction Waste Management Plan (required for a scope of work more than 2,500 sf)	
Yes	This checklist filled out and all documents in this checklist must follow the electronic document submittal guide.	
Yes	Plan check fee	
N/A	Site Plan (only if exterior work is being proposed i.e. attached patio cover, dining patio etc.)	
Yes	**Plans Set** must include all the following *as it pertains to the project scope:* Example*: If no plumbing work is occurring, check NA. If plumbing work is occurring, plans should contain plumbing drawings.*	
	Yes	All plans must reflect the current adopted codes
	?	A *fully stamped set of plans* is required if any of these conditions apply: 1. Scope of work exceeds 5,000 sq ft 2. First Tenant to occupy a space 3. Change of Occupancy (architect evaluation letter can be submitted where no/minor work is being done).
		Floor Plans: ■ Existing AND ☐ Proposed (include room labels, square footages, dimensions, drawn to scale).
	N/A	**Accessibility drawings:** if there are accessibility improvements (i.e. wheelchair accessible restrooms, ramps etc.).
	N/A	**Drawing Details:** such as wall sections, fire rated assemblies, stair and guardrail details, door operation and locking, interior and exterior elevations (i.e. restroom elevations).
	N/A	Energy Code items per the IECC (lighting comcheck, insulation details, mechanical ventilation, etc.)
	N/A	**Structural drawings:** Including structural evaluations for weight added to existing roofs (RTU's, condensing units, etc.) ****All structural drawings/evaluation letters must be stamped.*
	Yes	**Mechanical Drawings:** showing items such as heating/cooling equipment, ductwork, exhaust, hoods, ventilation, special equipment, or systems. ****Stamped mechanical engineered drawings are required for full new mechanical systems (I.E.: new ductwork + new RTU).*
	N/A	**Plumbing Drawings:** showing waste and vent diagrams, water supply, plumbing fixtures, water heaters, gas lines, grease interceptors, special systems, and equipment.
	Yes	**Electrical Drawings:** Includes outlets, lighting, panels, and special equipment. *New 3 phase service or service change more than 225 amps requires an engineered + stamped electrical One-Line* *Check any that apply:* ☐ New electric service ☐ Electric meter relocation

Applicant's Name: Sean Rogers Date: 9-13-2023

Job site address: 430 North College Avenue E-Mail Address: srogers@hillsideconst.com

BUILDING PERMIT APPLICATION: Tenant Finish (commercial)

All information on the application must be filled out (as applicable).

JOB SITE ADDRESS: 430 North College Avenue - Addition to Powerhouse, completed in 2013 **UNIT#:** _____

PROPERTY OWNER INFO: (All owner information is required – NOT optional)

Last Name CSU Research Foundation First Name _____ Middle _____

Street Address 2537 Research Blvd, Ste 200 City Fort Collins State CO Zip 80524

Phone # 970-491-2625 Email bo.brown@colostate.edu

CONTRACTOR INFO:

Company Name Hillside Construction Inc.

License Holder Name Sean Rogers LIC # B-423 CERT # 2771-B

CONSTRUCTON INFO:

1. Name of Business (fill in info below related to tenant): Powerhouse/Engines Lab

   Existing Tenant ☑ New Tenant ☐ First tenant/occupant in a new building/space ☐

   Name of prior tenant/business (or prior use): _____

   Proposed Use: _____

2. Are there any exterior building changes (including mechanical) associated with the work? Yes ✔ No

   Describe: New Exhaust Fan installed on Flat Roof, hidden from view from all streets below.

3. Scope of Work Square Footage (leave blank where work is not occurring):

   1st Floor Sq Ft _____ + 2nd Floor Sq Ft _____ + 3rd Floor Sq Ft _____ + 4th Floor Sq Ft _____

   + 5th Floor Sq Ft _____ + 6th Floor Sq Ft _____ + 7th Floor Sq Ft _____ Other _____

   + Unfin. Bsmt Sq Ft (remain unfin.) _____ + Fin Bsmt Sq Ft (to be fin.) _____ = *Total Scope of Work Sq Ft* _____

4. What is being added to the space (not previously existing/currently present)?:

   # of Full Baths _____ # ¾ Baths _____ # ½ Baths _____ # Fireplaces _____

5. Is the building currently fire sprinkled? Yes ✔ No

6. Asbestos Disclosure:

   In accordance with the State of Colorado Senate Bill 13-152, property owners, applying for a remodel permit, shall indicate their awareness about their property having been inspected for Asbestos Containing Materials (ACM's).

   ☐ I do not know if an asbestos inspection has been conducted on this property

   ☐ An asbestos inspection has been conducted on this property on or around the date of: _____

   ☑ An asbestos inspection has not been conducted on this property

UTILITES INFO:

Electric Service Upgrade Yes ☐ No ✔ Existing Amps _____ New Amps _____

Electric Meter Relocation Yes ☐ No ✔

VALUE OF CONSTRUCTION (*materials and labor*): $ 22,701.00

DESCRIPTION OF WORK:

Installation of Power and Ductwork for Fume Hood in Existing Work Area, New Exhaust Fan and Power on roof for Fume Hood Exhaust.

JOBSITE SUPERVISOR CONTACT INFO: Name Sean Rogers Phone 970-567-1821

SUBCONTRACTOR INFO:

Electrical Casey's Electric Structural Framing (wood only) N/A Mechanical Air Comfort on Rome Court

Plumbing N/A Fireplace N/A Roofing Advanced Roofing Tech

Applicant: I hereby acknowledge that I have read this application and state that the above information is correct and agree to comply with all requirements contained herein and City of Fort Collins ordinances and state laws regulating building construction.

Applicant Signature _____ Type or Print Name Sean Rogers

Phone # 970-567-1821 Email srogers@hillsideconst.com

THIS APPLICATION EXPIRES 180 DAYS FROM APPLICATION DATE

Planning, Development & Transportation
281 N. College Ave
Fort Collins, CO 80524
Phone 970-416-2740 Fax 224-6134

BUILDING OWNER AUTHORIZATION TO OBTAIN A COMMERCIAL BUILDING PERMIT

I, (Print) Colorado State University Research Foundation as owner of record (property address) 430 North College Avenue known as (name of business) CSU Research Foundation hereby authorize the work listed below to be done on said property. I understand that such work will **only be performed contractors licensed by the City of Fort Collins.**

☐ I am giving permission for **interior work only**. The scope of the work shall be limited to: _____

☐ I am giving permission for **exterior work only**. The scope of the work shall be limited to: _____

☑ I am giving permission for **interior and exterior work**. The scope of the work shall limited to : New Exhaust Fan installed on Flat Roof, hidden from view from all streets below.

(Property owner signature)

M.S. 'Bo' Brown, Sr. PM
(Property owner name; please print)

The foregoing affidavit was acknowledged before me on the 14th day of September, 2023 (month, year) by M.S. 'Bo' Brown for the purpose therein set forth.

Witness my hand and official seal.

My Commission Expires: July 07, 2025

RACHELLE ANDERSON
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20214027149
MY COMMISSION EXPIRES JULY 07, 2025

Notary Public

Permit # _____
Office use only

GENERAL MECHANICAL REQUIREMENTS:

CODES AND PERMITS
WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES, REGULATIONS AND ORDINANCES. PERMITS NECESSARY FOR PERFORMANCE OF WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR.

PRE-BID
FOR EXISTING BUILDINGS, THE BIDDERS SHALL PERFORM A BUILDING AND SPACE SITE VISIT PRIOR TO BID. THE ACT OF SUBMITTING A BID INDICATES THE BIDDER DOES AGREE THEY HAVE A FULL UNDERSTANDING OF THE SCOPE OF WORK INVOLVED WITH THE EXISTING CONDITIONS.

DRAWINGS AND COORDINATION
DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC IN NATURE, AND ARE NOT INTENDED TO BE SCALED FOR EXACT MEASUREMENTS NOR TO SERVE AS SHOP DRAWINGS. CHANGES FROM THE PLANS MADE WITHOUT CONSENT OF THE ENGINEER SHALL RELIEVE THE ENGINEER OF RESPONSIBILITY FOR ALL CONSEQUENCES ARRIVING OUT OF SUCH CHANGES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. WHERE CONDITIONS REQUIRE REASONABLE CHANGES TO THOSE INDICATED ON THE DRAWINGS, MAKE SUCH CHANGES WITHOUT ADDITIONAL COST TO THE OWNER. COORDINATE ALL WORK WITH OTHER TRADES.

WARRANTY
WORKMANSHIP, MATERIALS, EQUIPMENT AND PROPER OPERATION SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE FROM THE OWNER. INITIAL ACCEPTANCE OF WORK SHALL NOT WAIVE THIS GUARANTEE. THIS GUARANTEE SHALL NOT INCLUDE NORMAL MAINTENANCE REQUIRED BY THE OWNER AS DESCRIBED IN EQUIPMENT OPERATION AND MAINTENANCE MANUALS.

SUBMITTALS
CONTRACTOR SHALL SUBMIT TO THE ARCHITECT/ENGINEER A PORTABLE DOCUMENT FORMAT "PDF" COPY OF SUBMITTAL BROCHURES FOR REVIEW. PROVIDE INFORMATION ON ALL MAJOR EQUIPMENT AS LISTED ON DRAWING EQUIPMENT SCHEDULES, AS WELL AS VALVES, DUCTWORK ACCESSORIES AND TEMPERATURE CONTROL DIAGRAMS AS APPLICABLE.

OPERATION AND MAINTENANCE MANUALS
CONTRACTOR SHALL FURNISH AT THE COMPLETION OF THE PROJECT A PORTABLE DOCUMENT FORMAT "PDF" COPY OF COMPLETE OPERATION AND MAINTENANCE MANUALS TO THE ARCHITECT/ENGINEER FOR REVIEW PRIOR TO TURNOVER TO OWNER. MANUALS TO BE BOUND AND INCLUDE INSTALLATION INSTRUCTIONS, REPLACEMENT PARTS LISTS AND MAINTENANCE INFORMATION ON ALL EQUIPMENT AS DESCRIBED IN THE SUBMITTALS SECTION. COMPLETED OPERATION AND MAINTENANCE MANUALS ARE TO BE FORWARDED TO THE OWNER WITHIN 90 DAYS AFTER OWNER BUILDING ACCEPTANCE.

PRODUCT SUBSTITUTIONS
MANUFACTURER MODEL NUMBERS LISTED ON THE DRAWINGS AND/OR SPECIFICATIONS ARE TO BE CONSIDERED AS THE BASIS OF DESIGN. WHERE TWO OR MORE ALTERNATE MANUFACTURERS OR MATERIALS ARE LISTED, THE CHOICE OF THESE SHALL BE OPTIONAL WITH THE CONTRACTOR. PRIOR TO THE AWARDING OF THE CONTRACT, CONTRACTOR MAY REQUEST A PROPOSED SUBSTITUTION OF MATERIALS IN WRITING TO THE ARCHITECT/ENGINEER NO LATER THAN SEVEN DAYS PRIOR TO THE RECEIPT OF BIDS. THE COST OF ANY CHANGES REQUIRED BY OTHER TRADES, INCLUDING A/E DESIGN, DUE TO THE USE OF EQUIPMENT AND/OR MATERIALS OTHER THAN THAT OF THE BASIS OF DESIGN SHALL BE PAID BY THE CONTRACTOR.

RECORD DRAWINGS
CONTRACTORS SHALL MAINTAIN A COMPLETE AND ACCURATE SET OF MARKED UP DRAWINGS SHOWING ACTUAL LOCATIONS OF INSTALLED WORK. THESE DRAWINGS ARE TO BE FORWARDED TO THE OWNER AS PART OF THE OPERATION AND MAINTENANCE MANUALS AT THE COMPLETION OF THE PROJECT.

ACCESS DOORS
PROVIDE ALL ACCESS DOORS/PANELS AS REQUIRED FOR ACCESS TO VALVES, DAMPERS, CONTROL DEVICES, FILTERS AND ANY OTHER ITEMS FOR WHICH ACCESS IS REQUIRED FOR EITHER OPERATION OR SERVICING. WHERE ACCESS DOORS ARE TO BE INSTALLED IN ASSEMBLIES REQUIRED TO HAVE A SPECIFIC FIRE RATING, ACCESS DOORS SHALL ALSO BE FIRE RATED.

PIPING AND DUCTWORK SEALANT THROUGH RATED ASSEMBLIES
PENETRATIONS SHALL BE SEALED AS REQUIRED IN ACCORDANCE WITH BUILDING AND MECHANICAL CODES TO RESIST THE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION IN ORDER TO MAINTAIN THE RESISTANCE RATING OF THE CONSTRUCTION BEING PENETRATED.

PROTECTION OF MATERIALS AND EQUIPMENT
CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL WORK, MATERALS, AND EQUIPMENT PROVIDED UNDER THIS SECTION. PIPE OPENINGS SHALL BE CLOSED WITH CAPS OR PLUGS TO PREVENT THE ENTRANCE OF DEBRIS DURING CONSTRUCTION. ALL DUCTWORK OPENINGS SHALL BE SEALED CLOSED DURING CONSTRUCTION.

ALTITUDE
SUPPLIERS SHALL CONFIRM THAT ALL EQUIPMENT BEING FURNISHED IS APPROPRIATE FOR USE AT THE ALTITUDE OF THE SITE.

EQUIPMENT AND PIPING IDENTIFICATION
PROVIDE EQUIPMENT LABELS FOR ALL MAJOR EQUIPMENT, INCLUDING BUT NOT LIMITED TO AIR HANDLING SYSTEMS, FANS, VAV BOXES, CONTROLS, DAMPERS, CONTROL VALVES AND PUMPS.
PROVIDE PIPE MARKERS ON CW, HW AND HWC SYSTEMS. LABELS TO BE AT MAXIMUM 8 FEET APART, WITH FLOW DIRECTION INDICATED, AS APPLICABLE.
ADDITIONALLY, PROVIDE LABELING ON POTABLE WATER MANIFOLDS INDICATING PLUMBING FIXTURE SERVED BY THE OUTLET, AS APPLICABLE.
LABELS SHALL BE AFFIXED OR ADHERED PERMANENTLY TO EQUIPMENT. EQUIPMENT INSTALLED INDOORS TO BE LABELED WITH EMBOSSING TAPE.
EQUIPMENT INSTALLED OUTDOORS TO BE LABELED WITH ENGRAVED PLASTIC LAMINATE SIGNS.
PIPE MARKERS TO BE SELF-ADHESIVE, MANUFACTURED FOR SUCH PURPOSE.

STARTERS AND DISCONNECTS
EQUIPMENT STARTERS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. EQUIPMENT DISCONNECTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE ON THE DRAWINGS. STARTERS SHALL BE NEMA TYPE, AND SHALL INCLUDE PHASE MONITORING FOR MOTORS 5 HP AND LARGER.

TESTING
TESTING SHALL BE PERFORMED ON THE FOLLOWING SYSTEMS SPECIFIED. ALL SYSTEMS LISTED MAY NOT BE INCLUDED IN PROJECT, REFER TO DRAWINGS FOR APPLICABLE SYSTEMS.
SOIL, WASTE AND STORM DRAINAGE PIPING SHALL BE TESTED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL CODES.
DOMESTIC WATER PIPING SHALL BE TESTED AND PROVEN WATERTIGHT UNDER A PRESSURE NOT LESS THAN THE WORKING PRESSURE OF THE SYSTEM FOR A 24 HOUR PERIOD.
DOMESTIC WATER PIPING SYSTEM SHALL BE CHLORINATED AND STERILIZED IN ACCORDANCE WITH REQUIREMENTS OF LOCAL JURISDICTION.
NATURAL GAS PIPING SHALL BE TESTED WITH AN AIR PRESSURE OF MINIMUM TWO TIMES THE DESIGN SYSTEM PRESSURE, BUT NO LESS THAN 3 PSIG, FOR A PERIOD OF 24 HOURS WITHOUT PRESSURE DROP.

BALANCING
SYSTEM BALANCING SHALL BE PERFORMED BY A CERTIFIED BALANCING CONTRACTOR. BALANCE ALL SYSTEMS INCLUDING AIRFLOW TO AND FROM ALL OPENINGS, AND PUMPED WATER SYSTEMS INCLUDING DOMESTIC WATER RECIRCULATION SYSTEMS AS APPLICABLE. MAKE ANY ADJUSTMENTS NECESSARY TO RESULT IN CONDITIONS INDICATED AND PROVIDE READJUSTMENTS TO ITEMS IN REPORT AS MAY BE REQUESTED BY ARCHITECT/ENGINEER. SUBMIT TWO COPIES OF TEST AND BALANCE REPORT FOR APPROVAL. FAN AND PUMP SYSTEMS TO BE BALANCED WITHIN PLUS OR MINUS 5 PERCENT OF LISTED VALUES. AIR INLETS AND OUTLETS TO BE BALANCED WITHIN PLUS 10 PERCENT OR MINUS 5 PERCENT OF LISTED VALUES. BALANCE REPORT TO INCLUDE:

- UNIT IDENTIFICATION
- MANUFACTURER AND NAMEPLATE DATA
- EQUIPMENT NAMEPLATE AMPERAGE AND ACTUAL AMPERAGE
- RPM (DESIGN AND ACTUAL)
- FAN CFM (DESIGN AND ACTUAL)
- FAN STATIC PRESSURE (DESIGN AND ACTUAL)
- PUMP GPM (DESIGN AND ACTUAL)
- PUMP DISCHARGE AND SUCTION PRESSURE
- REGISTER, GRILLE, DIFFUSER REFERENCE NUMBER AND LOCATION
- INLET/OUTLET CFM (DESIGN AND ACTUAL)
- FLOW DEVICE PRESSURE DROP, CFM OR GPM

A FINAL BALANCING REPORT SHALL BE PROVIDED TO THE OWNER AFTER COMPLETION OF THE PROJECT.

CLEANING
AT THE COMPLETION OF WORK, ALL FIXTURES AND EQUIPMENT SHALL BE THOROUGHLY CLEANED AND DELIVERED IN A CONDITION SATISFACTORY TO THE ARCHITECT. ALL FILTERS SHALL BE REPLACED WITH NEW PRIOR TO OWNER ACCEPTANCE OF THE BUILDING.

HVAC LEGEND:

- RECT DUCT (NEW SHADED/EXISTING UNSHADED)
- ROUND DUCT (NEW SHADED/EXISTING UNSHADED)
- RECT DUCT SIZE CHANGE
- RECT DUCT CHANGE TO ROUND
- RECT ELBOW UP (SUPPLY)
- RECT ELBOW UP (NON-SUPPLY)
- RECT ELBOW DOWN (SUPPLY)
- RECT ELBOW DOWN (NON-SUPPLY)
- ROUND ELBOW UP
- ROUND ELBOW DOWN
- RECT ELBOW W/ TURNING VANES
- ROUND ELBOW
- ROUND TAKE-OFF W/ DAMPER FROM RECT MAIN
- ROUND TAKE-OFF W/ DAMPER FROM ROUND MAIN
- RECT TAKE-OFF W/ DAMPER FROM RECT MAIN
- RECT TAKE-OFF W/ DAMPER FROM ROUND MAIN
- DIFFUSER WITH FLEX DUCT
- RETURN GRILLE (UNDUCTED)
- RETURN/EXHAUST GRILLE (DUCTED)
- AIRFLOW PATTERNS
- (T) THERMOSTAT WITH ZONE TAG
- (S) SENSOR WITH ZONE TAG
- (C) CARBON DIOXIDE SENSOR
- (F) FIRE DAMPER TAG
- (FS) FIRE/SMOKE DAMPER WITH DUCT DETECTOR
- (SD) SMOKE DAMPER WITH DUCT DETECTOR
- DUCT WITH VOLUME DAMPER
- DUCT WITH MOTORIZED DAMPER
- DUCT WITH COUNTERBALANCED DAMPER
- DEMOLISHED DUCTWORK
- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTION
- HP — REFRIGERANT HIGH PRESSURE
- LP — REFRIGERANT LOW PRESSURE

GENERAL MECHANICAL NOTES

1 MECHANICAL WORK SHALL COMPLY WITH ALL APPLICABLE CODES. VERIFY ALL REQUIREMENTS PRIOR TO SUBMITTING BID OR COMMENCING WORK. THE MECHANICAL DESIGN IS BASED ON THE 2021 INTERNATIONAL MECHANICAL CODE.

2 ALL DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL – CONSTRUCTION AND INSTALLATION SHALL CONFORM TO THE CURRENT EDITION OF SMACNA OR AS REQUIRED BY ALL APPLICABLE CODES.

3 CONSTRUCT ALL SUPPLY AND RETURN DUCTWORK TO SMACNA 2" PRESSURE CLASS.

4 DIMENSIONS OF DUCTWORK SHOWN INDICATES CLEAR INSIDE DIMENSIONS – WHERE DUCT LINER IS TO BE ADDED, INCREASE THE SIZE OF SHEET METAL ACCORDINGLY.

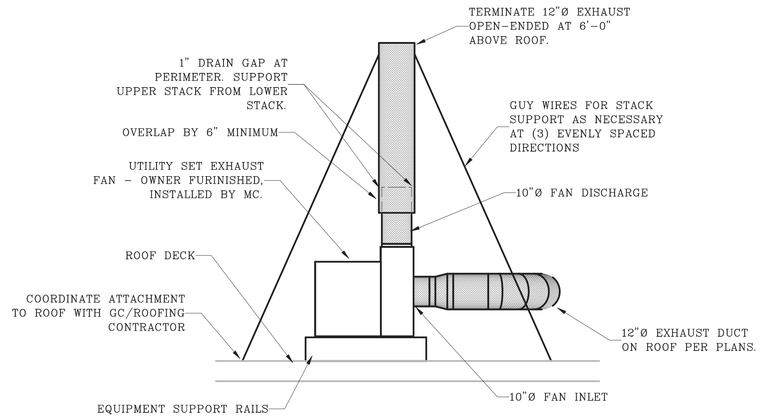
5 UNLESS NOTED OTHERWISE, THE SIZE OF THE BRANCH DUCT SERVING A SINGLE DIFFUSER SHALL BE THE SAME AS THE NECK SIZE OF THE DIFFUSER SERVED. FLEXIBLE DUCTWORK SHALL NOT EXCEED 8'-0" IN LENGTH. FLEXIBLE DUCTWORK SHALL BE UL181 LISTED WITH 50/25 SMOKE/FLAME RATING, CONSISTING OF POLYESTER FILM ENCAPSULATING AN INNER CORROSION RESISTANT STEEL WIRE HELIX CORE. FLEXIBLE DUCT SHALL INCLUDE AN EXTERIOR FIBERGLASS INSULATION WITH FOIL SCRIM FILM VAPOR BARRIER JACKET, R-6.

6 WALL MOUNTED THERMOSTATS AND SENSORS SHALL BE INSTALLED 48" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. THERMOSTATS AND SENSORS LOCATED ON EXTERIOR WALL SURFACES SHALL BE PROVIDED WITH AN INSULATED SUB-BASE.

7 TEMPERATURE CONTROLS SHALL BE DESIGN BUILD, CUSTOM, FIELD FABRICATED TO MATCH CORRESPONDING EQUIPMENT. THE SYSTEM SHALL BE A FULL DIRECT DIGITAL CONTROL (DDC) BUILDING AUTOMATION SYSTEM (BAS). THE MC SHALL HIRE A TEMPERATURE CONTROL CONTRACTOR SPECIALIZING IN TEMPERATURE CONTROL SYSTEM DESIGN AND INSTALLATION. THE CONTRACTOR SHALL PROPERLY DESIGN, PROVIDE AND INSTALL SYSTEM(S) INCLUDING ALL COMPONENTS NECESSARY FOR A FULL AND COMPLETE, OPERATIONAL SYSTEM. THIS INCLUDES, BUT IS NOT LIMITED TO: DESIGN, PROGRAMMING, LOW VOLTAGE WIRING, THERMOSTATS, DAMPER MOTORS, SOLENOIDS, MOTORIZED VALVES, SENSORS AND RELAYS. SYSTEMS SHALL UTILIZE OPEN PROTOCOL BACNet LOGIC ONLY MATCHING THE EXISTING BUILDING AUTOMATION SYSTEM. CONTROL OF THE CO2 SENSOR SHALL BE THE SAME AS IT IS FOR THE OTHER COS SENSORS WITHIN THE BUILDING.

8 HANGING, ANCHORING AND SUPPORT OF EQUIPMENT, DUCTS, PIPING AND ACCESSORIES IS DESIGN BUILD BY THE MC. THE SUPPORTS SHALL MEET CODE.

9 ALWAYS INSTALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.



EXHAUST FAN
INSTALLATION DETAIL — NO SCALE

MECHANICAL DRAWING INDEX

COLORADO LICENSED
THOMAS M. SEGERSTROM
34190
PROFESSIONAL ENGINEER
31 AUG 2023

INTEGRATED MECHANICAL
320 MAPLE ST SUITE 110
FORT COLLINS
COLORADO 80521
970.556.0570
FRONT DESK@INT-MECH.COM

HILLSIDE Construction Inc

POWERHOUSE
FIRST FLOOR FUME HOOD
430 N. COLLEGE AVE
FORT COLLINS, CO 80524

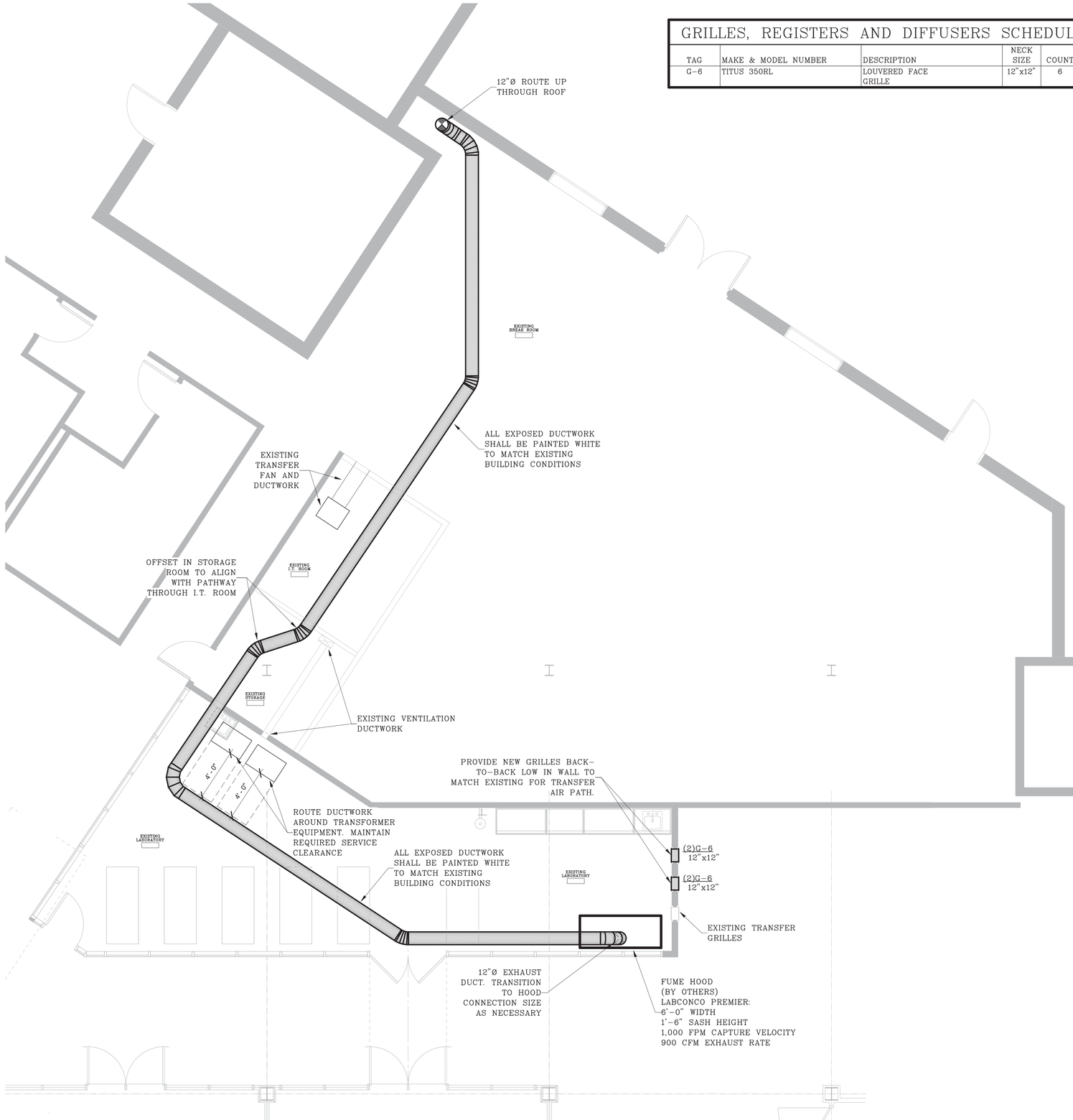
DATE: 08.31.2023
DRAWN BY: JKM
CHECKED BY: TMS
JOB NUMBER: 23-090

MECHANICAL NOTES, LEGEND, INDEX

M0.1

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

TAG	MAKE & MODEL NUMBER	DESCRIPTION	NECK SIZE	COUNT	DUTY	COLOR	FRAME SIZE	FRAME TYPE	FRAME CONST	DAMPER	REMARKS
G-6	TITUS 350RL	LOUVERED FACE GRILLE	12"x12"	6	RETURN	WHITE	NECK +1.75"	SIDEWALL	ALUM	NO	



MECHANICAL FLOOR PLAN

1/4" = 1'-0"

0 1' 2'

BUILDING KEY PLAN NO SCALE

COLORADO LICENSED THOMAS M. SEGERSTROM 37190 PROFESSIONAL ENGINEER
31 AUG 2023

INTEGRATED MECHANICAL
320 MAPLE ST SUITE 110
FORT COLLINS
COLORADO 80521
INTMECH.COM
970.556.0570
FRONT DESK@INTMECH.COM

HILLSIDE Construction Inc

POWERHOUSE

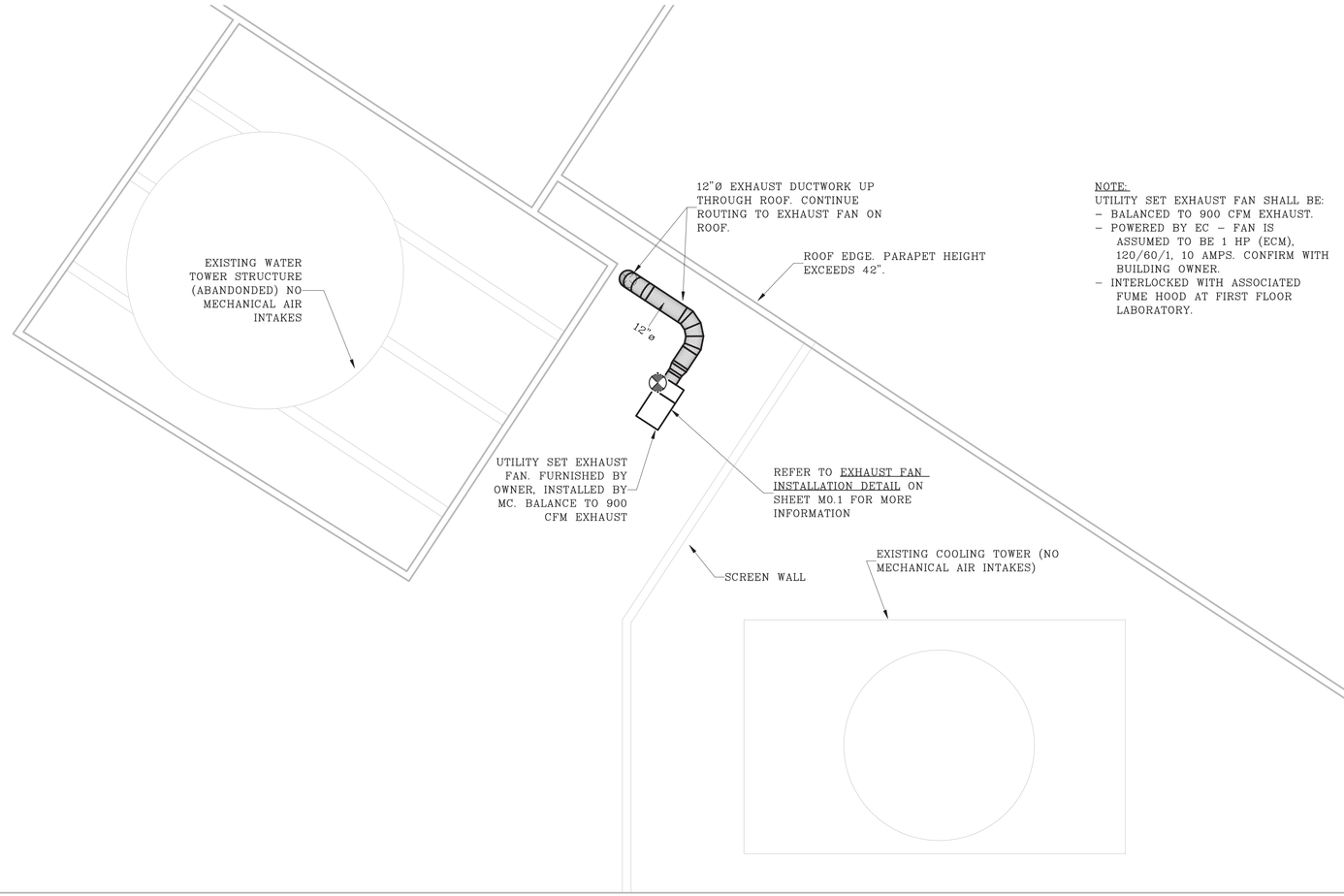
FIRST FLOOR FUME HOOD

430 N. COLLEGE AVE
FORT COLLINS, CO 80524

DATE: 08.31.2023
DRAWN BY: JKM
CHECKED BY: TMS
JOB NUMBER: 23-090

MECHANICAL FLOOR PLAN

M2.1



NOTE:
UTILITY SET EXHAUST FAN SHALL BE:
- BALANCED TO 900 CFM EXHAUST.
- POWERED BY EC – FAN IS ASSUMED TO BE 1 HP (ECM), 120/60/1, 10 AMPS. CONFIRM WITH BUILDING OWNER.
- INTERLOCKED WITH ASSOCIATED FUME HOOD AT FIRST FLOOR LABORATORY.

MECHANICAL ROOF PLAN

1/4" = 1'-0"

0" 1" 2"

BUILDING KEY PLAN NO SCALE

COLORADO LICENSED
THOMAS M. SEGERSTROM
34190
PROFESSIONAL ENGINEER
31 AUG 2023

INTEGRATED MECHANICAL
320 MAPLE ST. SUITE 110
FORT COLLINS
COLORADO 80521
INTMECH.COM
970.556.0570
FRONT DESK@INTMECH.COM

HILLSIDE Construction Inc

POWERHOUSE

FIRST FLOOR FUME HOOD

430 N. COLLEGE AVE
FORT COLLINS, CO 80524

DATE: 08.31.2023
DRAWN BY: JKM
CHECKED BY: TMS
JOB NUMBER: 23-090

MECHANICAL ROOF PLAN

M2.2

ELECTRICAL SPECIFICATIONS

1. Scope

The scope of the work covered herein consists of furnishing all labor, materials, necessary equipment and services to complete the Electrical Work and related work in full accordance as indicated on the drawings, as specified herein or both and subject to the terms and conditions of the Contract.

2. Codes, Rules, Permits, Fees

Electrical Contractor is generally responsible to insure all work, both old and new, complies with the NEC and any applicable local and state codes and ordinances.

3. Drawings

Drawings are diagrammatic and indicate the general arrangement of systems and work included in the contract. Drawings are not to be scaled. The Architectural drawings and details shall be examined for exact location of fixtures and equipment. Any conflict shall be immediately brought to the attention of the Architect or Engineer before proceeding with the work.

4. Shop Drawings

Materials or products specified herein and/or indicated on drawings by trade name, manufacturer's name or catalog number shall be provided as specified.

5. Cooperation With Other Trades

The Subcontractor shall give full cooperation to other trades and shall furnish in writing to the contractor, with copies to the Engineer, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay. Coordinate all conduit runs and equipment with other trades. Verify nameplate electrical data of actual equipment furnished by others before beginning installation.

6. Cutting, Patching, And Finishing

The Electrical Contractor shall do all cutting, drilling, etc. required for work under this section of the specifications, inside the building.

7. Excavation And Backfilling

The Subcontractor shall do all trench and pit excavating and backfilling required for work under this section of the specifications, inside and outside the building, all required shoring, bracing, pumping and all protection for safety of persons and property.

8. Material And Workmanship

All materials and apparatus required for the work shall be new unless indicated otherwise on the plans.

Electrical Contractor shall provide and install all electrical as shown, verifying all mounting heights and exact locations of all wall–mounted electrical devices with architect prior to rough–in.

Connections and junction boxes to equipment are diagrammatic. Verify exact location of connection to specific equipment and devices.

9. Panelboards

Panels shall be as manufactured by Square–D, G.E., Siemens or equivalent of sizes, ratings, and requirements shown on the plans. Panels shall be of dead front construction. All bussing shall be as specified on panel schedules.

Multi–pole breakers shall have a single handle to trip all poles at once.

A laminated black plastic with white lettering plastic nameplates with the identification number as shown on the panel schedule shall be mounted on the outside of the door with sheet metal screws. Nameplate size shall be 3" wide X 1–1/2" high with 1/2" high engraving. Provide a completed circuit directory, typed and mounted in a clear plastic sleeve, on the interior of the panel door.

10. Grounding

Provide a complete grounding network for the entire electrical system to comply with NEC requirements.

All conduits shall have a ground wire installed. A conduit ground shall not be used.

Bond service entrance ground to building steel, metal water mains, made electrodes, etc.

11. Disconnect Switches

Equipment disconnect switches shall be Square–D, G.E., Siemens or equivalent general duty, or heavy duty of the type and rating shown on the plans. Fuses shall be provided of the appropriate type and rating for the equipment to be served.

12. Miscellaneous Equipment

Switches – All general use lighting (SPST toggle with or without pilot) switches to be rated 20A., 120–277V. as manufactured by Leviton, Lutron, P & S, or equivalent. Coordinate color with Owner/Architect.

Receptacles – All general use duplex receptacles to be rated 20A., 120V as manufactured by Leviton, Lutron, P & S, or equivalent. Coordinate color with Owner/Architect.

Conductors – All conductors shall be rated 600V, copper, type THWN, XHHW/THHN. Where indicated aluminum conductors may be used and shall be type THHW/XHHW. Conductors of #8 AWG and larger shall be stranded. Type NM cable is permitted where permissible by code.

Lighting fixtures – Lighting fixtures shall be as indicated on the fixture schedule or approved equals.

13. Conduit

Conduit shall be EMT, GRC, SCH. 40 PVC, SCH. 80 PVC, liquid tight metal flexible, or metal flexible.

GRC shall be used at exposed exterior locations. Flex shall be used for connection to all fixed equipment, except in damp or wet locations, where liquid tight metal flexible shall be used. EMT shall be used at all exposed interior locations. All remaining locations may use PVC.

Insulating bushings with double lock–nuts shall be used for entrance of 1–1/4" or larger into enclosures.

Sizes indicated are minimums, larger sizes may be used to facilitate wire pulls, etc.

14. Telephone System

Provide a 4' x 8' x 3/4" plywood backboard for telephone distribution. A driven ground rod shall be installed adjacent to the backboard. Install empty conduit(s) as indicated on the plans with pullwire installed for the telephone service entrance.

A 3/4" conduit shall be routed from all the telephone outlets to the ceiling space. Terminate conduit in ceiling space with a 90 degree bend and bushing at end of conduit. Extend conduit to nearest accessible ceiling space if no access to the ceiling space above the outlet is present. Provide a conduit path through all obstructions to the backboard.

15. Equipment Furnished By Others

Electrical Contractor shall provide conduit, wire and disconnect switches indicated on drawings, to connect electrical equipment supplied by others which shall include both new and relocation of existing equipment. All final electrical connections are to be by electrical contractor.

16. Record Drawings

The Contractor shall keep accurate records of actual construction including device locations and conduit runs if different from the plans.

The Contractor shall provide the owner with a reproducible set of plans of the complete electrical and fire alarm systems as installed. The scale on these drawings shall be no smaller than the scale used on the original plans.

17. Testing

Final tests shall be made only after the Engineer is satisfied that all work has been completed.

18. Final Acceptance

After testing, a final inspection shall be made by the Engineer and other authorized persons with the Electrical Contractor.

Final acceptance of the project shall not prejudice the Owner's right to require replacement and/or repair any defective work or materials.

FEEDER SCHEDULE – EXISTING

1. EXISTING FEEDER TO REMAIN
2. 4 SETS (4–500kCML AL, #3/0G CU) 3"C
3. 2 SETS (4–250kCML AL, #3G CU) 2–1/2"C
4. 2 SETS (4–250kCML AL, #3G CU) 2–1/2"C
5. (4–300kCML AL, #4G CU) 3"C
6. 2 SETS (4–250kCML AL, #3G CU) 2–1/2"C
7. 2 SETS (4–250kCML AL, #3G CU) 2–1/2"C
8. (3–#8 CU, #10G CU) 3/4"C
9. (3–#8 CU, #10G CU) 3/4"C
10. (4–#3 CU, #8G CU) 1–1/4"C
11. #8G CU TO BLDG STL
12. (3–#4 CU, #8G CU) 1"C
13. (4–#2/0 CU, #6G CU) 2"C
14. #4G CU TO BLDG STL
15. (4–#3 CU, #8G CU) 1–1/4"C
16. (3–#1, #6G CU) 1–1/4"C
17. (4–300kCML AL, #4G CU) 2–1/2"C
18. #4G CU TO BLDG STL
19. (4–#1 CU, #6G CU) 1–1/2" RMC
20. (4–#1 CU, #6G CU) 1–1/2" RMC
21. (4–#1 CU, #6G CU) 1–1/2" RMC (CONCRETE)
22. (3–#2/0 CU, #6G CU) 2"C
23. 2 SETS (4–250kCML AL, #3G CU) 2–1/2"C
24. #2G CU TO BLDG STL
25. (3–#1, #6G CU) 1–1/4"C
26. (4–300kCML AL, #4G CU) 2–1/2"C
27. #4G CU TO BLDG STL

KEY NOTES

(THIS SHEET ONLY)

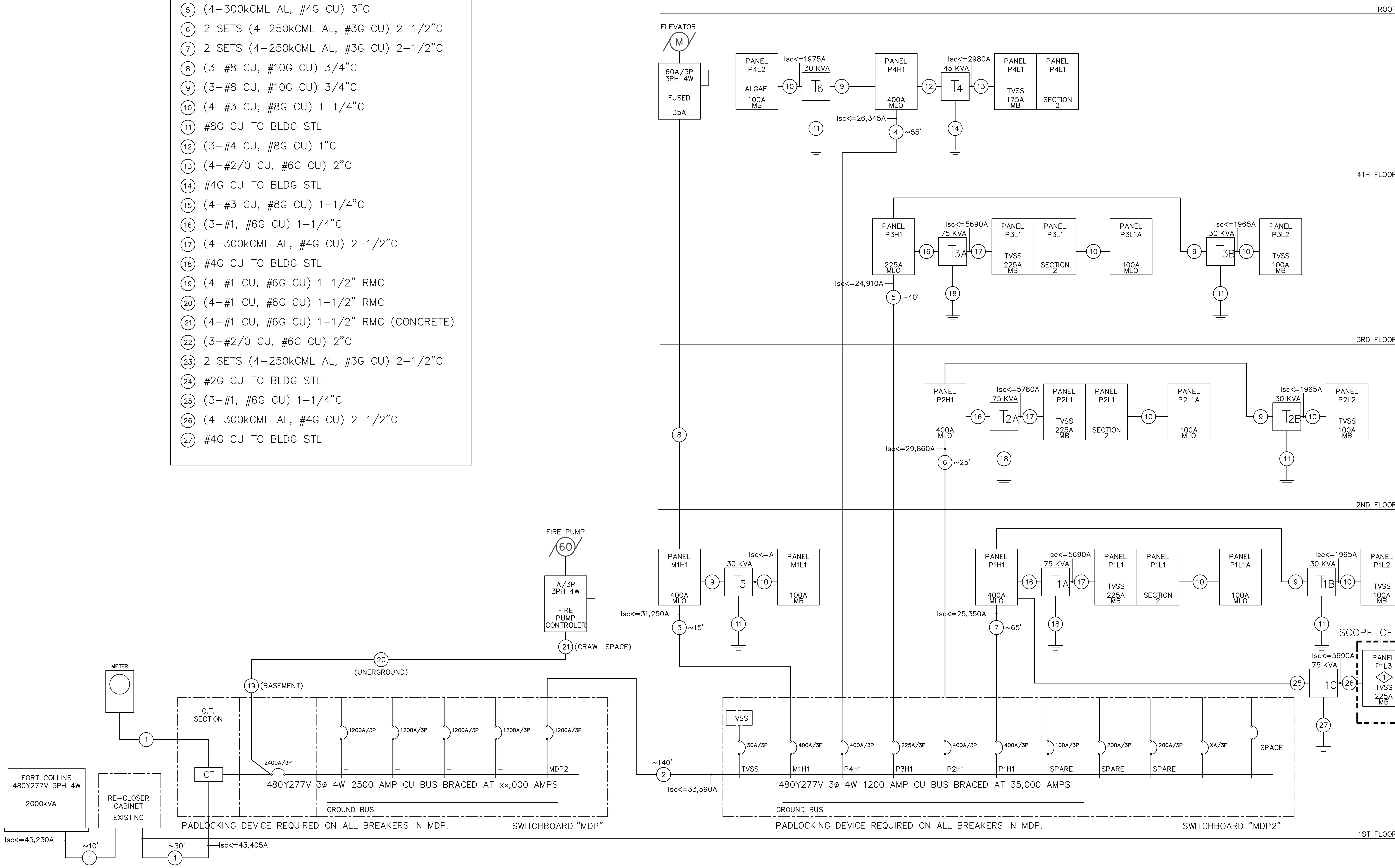
<1> PANEL 'P1L3' IS AN EXISTING PANEL. PROVIDE NEW CIRCUITING AS SHOWN.

DRAWING INDEX

NUMBER	DRAWING TITLE	PERMIT SET 9/13/23		
E0.1	LEGEND, NOTES & ONE–LINE DIAGRAM	●		
E1.1	POWER PLAN – 1ST FLR PARTIAL	●		

COORDINATION: N/A – ARCHITECTURAL DRAWING SET
N/A – PLUMBING DRAWING SET
8/24/23 – MECHANICAL DRAWING SET

CODES: 2023 NATIONAL ELECTRICAL CODE (NEC)
2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)



ONE–LINE DIAGRAM
SCALE: NONE

Job#23137

INTEGRATED MEP
MECHANICAL - ELECTRICAL - PLUMBING
320 MAPLE ST, SUITE 110
FORT COLLINS, CO 80521
970-566-0570

HILLSIDE
970-567-1821

COLORADO REGISTERED PROFESSIONAL ENGINEER 33212 9/13/23

POWERHOUSE
1st Floor Fume Hood
430 N College Ave
Fort Collins, CO 80524

DATE	DESC.
9/13/23	Permit Set
//23	-

NOTES & ONE-LINE DIAGRAM

E0.1

GENERAL POWER NOTES:

1. REFER TO MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT.
2. ALL CONDUCTORS SHALL BE COPPER AND #12 UNLESS OTHERWISE NOTED.
3. ALL SWITCHES, CONVENIENCE RECEPTACLES, AND PLATES SHALL BE WHITE NONMETALLIC UNLESS NOTED. CONFIRM COLOR WITH ARCHITECT PRIOR TO ORDERING DEVICES.
4. PROVIDE POWER TO VVT'S AS REQUIRED BY M.C.. (REFER TO MECHANICAL PLANS)
5. COPIES OF ALL INSTALLATION, OPERATIONAL AND MAINTENANCE MATERIALS ARE TO BE SAVED AND PROVIDED TO THE PROJECT MANAGER FOR ASSEMBLY AND DELIVERY TO THE CONTRACTOR AND OWNER.
6. LABEL ALL JUNCTION BOXES WITH CIRCUIT NUMBERING DURING ROUGH-IN OF CONDUIT SYSTEMS.
7. THE ELECTRICAL CONTRACTOR JOB FOREMAN SHALL DOCUMENT ALL UNDERGROUND FEEDERS AS WELL AS ANY DEVIATIONS TO THE CONSTRUCTION DOCUMENTS ON THE RECORD DRAWINGS. SHOW DIMENSIONS ONLY WHEN ACCURACY CAN BE ASSURED.
8. FIRE ALARM DEVICES ARE NOT SHOWN ON DRAWINGS AT THIS TIME. FIRE ALARM SHOP DRAWINGS SHALL BE PROVIDED BY A LICENSED FIRE ALARM CONTRACTOR AND SIGNED AND SEALED BY A PROFESSIONAL ENGINEER.

KEY NOTES

(THIS SHEET ONLY)

1. NO WORK IN THIS AREA. EXISTING TO REMAIN AS CURRENTLY INSTALLED.
2. COORDINATE ROUGH-IN AT FUME HOOD WITH EQUIPMENT VENDOR. FUME HOOD EXHAUST FAN POWERED THROUGH FUME HOOD CONTROL PANEL. COORDINATE ROUTING OF CONDUIT FROM LAB TO ROOF MOUNTED EXHAUST FAN WITH OWNER.
3. FUME HOOD EXHAUST FAN LOCATED ON ROOF. EXHAUST FAN IS ESTIMATED TO BE 120V/10A AT THIS TIME. VERIFY POWER REQUIREMENTS WITH EQUIPMENT VENDOR PRIOR TO ROUGH-IN.

PANEL P1H1 (Existing) Job # 22122

VOLTAGE	277/480	AIC AMPS	30,000	BUSSING	AL
				NEUTRAL BUS	100% YES
RATED AMPS	400	MAIN LUG ONLY	400	GROUND BUS	YES
PHASE / HERTZ	3/60	FEED	BOTTOM		
# OF CIRCUITS	60	MOUNTING	SURFACE	FEED THROUGH LUGS	NO
MANUFACTURER	SQ D	COVER TYPE	HINGED	FED FROM	Panel MDP
PANEL TYPE	Powerlink	ISOLATED GND	NO	NOTE; "L" BREAKERS TO BE "LOCK ON"	

CIR#	BKR	CIRCUIT DESCRIPTION	Cat.	WATTS	BKR TYPE	PH	BKR TYPE	WATTS	Cat.		BKR	CIR#
1	20A-1P	Lights – Crawl Space	L	720		A		1,884	E	Lift Station	15A-3P	2
3	20A-1P	Lights – Power Servers PS110 & PS111	L	3,200		B		1,884	E	"	"	4
5	20A-1P	Lights – Reception, Lobby, West Stairwell	L	1,320		C		1,884	E	"	"	6
7	20A-1P	Lights – Power Servers PS15 & PS16	L	3,200		A				Spare	20A-1P	8
9	20A-1P	Lights – Power Servers PS13 & PS14	L	3,200		B						10
11	20A-1P	Lights – Power Servers PS11 & PS12	L	3,200		C						12
13	20A-1P	Lights – Driveway	L	2,600		A						14
15	20A-1P	Lights – Bathroom, Lockers, Visual, Hall	L	1,920		B				Spare	60A-3P	16
17	20A-1P	Lights – Exterior Building Mounted	L	1,440		C				"	"	18
19	20A-1P	Lights – Site	L	2,500		A				"	"	20
21	20A-1P	Lights – Power Servers PS18 & PS19	L	3,200		B				Spare	30A-3P	22
23	20A-1P	Lights – Exterior Building Mounted	L	2,000		C				"	"	24
25	30A-3P	Optomec Cooler	E	4,986		A				"	"	26
27	"	"	E	4,986		B						28
29	"	"	E	4,986		C						30
31	30A-3P	Spare				A		16,620	M	Chem/Bio Engineering	100A-3P	32
33	"	"				B		16,620	M	"	"	34
35	"	"				C		16,620	M	"	"	36
37						A		7,620	M	Panel P1L2	45A-3P	38
39						B		7,620	M	"	"	40
41						C		7,620	M	"	"	42
	125A-3P	Panel P1L1	M	23,725		A		1,647		Panel P1L3	125A-3P	
	"	"	M	23,725		B		1,647		"	"	
	"	"	M	23,725		C		1,647		"	"	

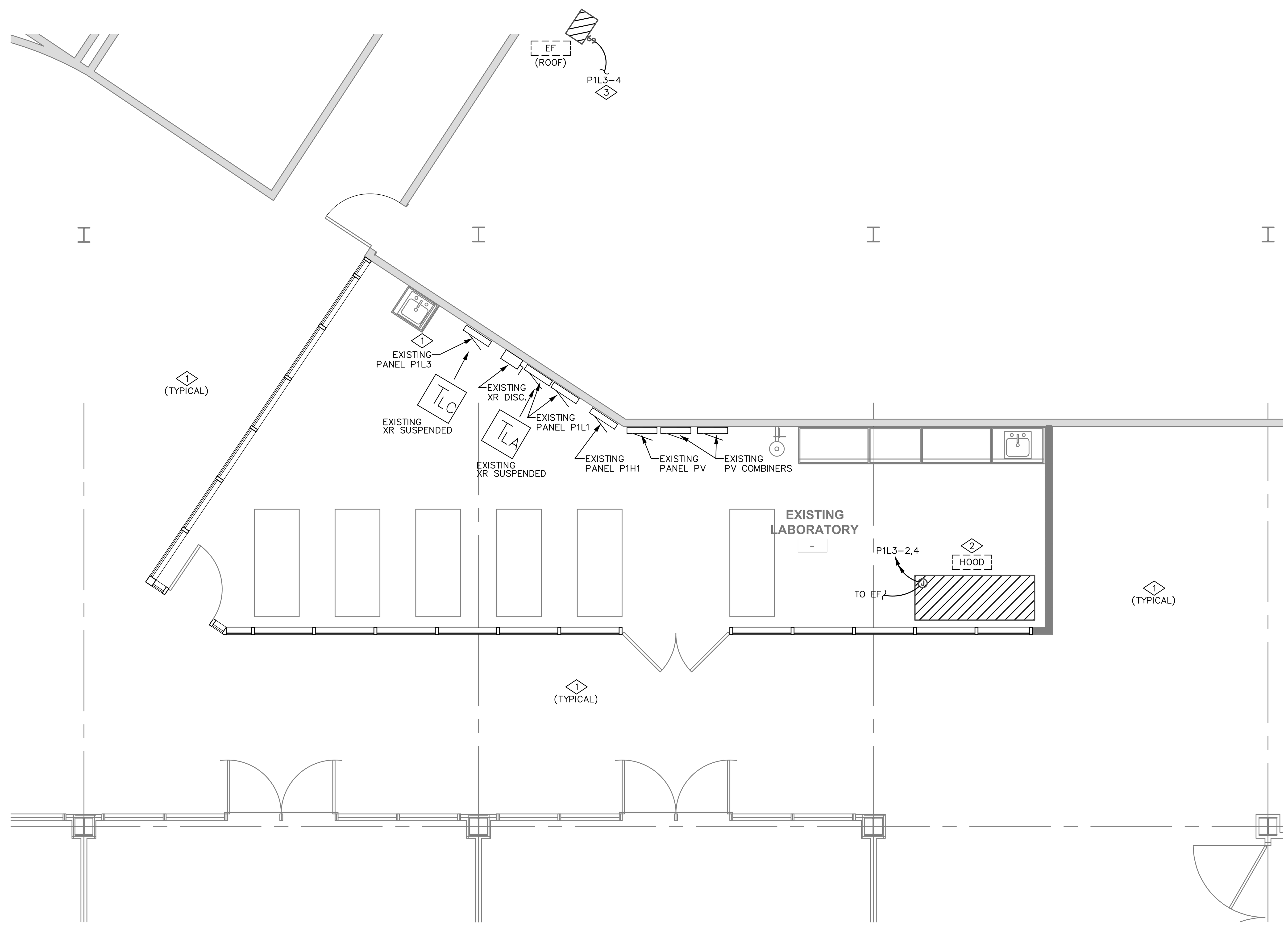
Category	Connected	Demand Factor	Demand		Connected	Demand
R- Recept.	3,240	N.E.C. 220-13	3,240	LINE L1	65,502	68,357
L- Lighting	28,500	1.25	35,625	LINE L2	68,002	68,357
H- Heating	0	1	0	LINE L3	64,442	68,357
C- Cooling	0	1	0	**LINE TOTAL**	**197,945**	**205,070**
E- Equip.	22,310	1	22,310	**DEMAND AMPERAGE:**		
M- Misc.	143,895	1	143,895	205,070 / 1.732 / 480	**247**	**Amps**
Total:	**197,945**		**205,070**			

PANEL P1L3 (Existing) Job # 22122 ***Affected Circuits Shown in Italics***

VOLTAGE	120/208	AIC AMPS	10,000	BUSSING	AL
				NEUTRAL BUS	100% YES
RATED AMPS	225	MAIN BREAKER	225	GROUND BUS	YES
PHASE / HERTZ	3/60	FEED	TOP		
# OF CIRCUITS	42	MOUNTING	SURFACE	FEED THROUGH LUGS	YES
MANUFACTURER	SQ D	COVER TYPE	Hinged	FED FROM	Panel P1H1
PANEL TYPE	Powerlink	ISOLATED GND	NO	NOTE; "L" BREAKERS TO BE "LOCK ON"	

CIR#	BKR	CIRCUIT DESCRIPTION	Cat.	WATTS	BKR TYPE	PH	BKR TYPE	WATTS	Cat.		BKR	CIR#
1	20A-1P	Receps – Cord Drops 1 & 2	R	720		A		***500***	***E***	***1st Flr Laboratory – Fume Hood***	***20A-1P***	2
3	20A-1P	Receps – Cord Drops 3 & 4	R	720		B		***1,200***	***E***	***1st Flr Laboratory – Fume Hood EF***	***20A-1P***	4
5	20A-1P	Receps – Cord Drops 5 & 6	R	720		C				Spare	20A-1P	6
7	20A-1P	Receps – North	R	1,080		A				Spare	20A-1P	8
9	20A-1P	Spare				B				Spare	20A-1P	10
11	20A-1P	Spare				C				Spare	20A-1P	12
13	20A-1P	Spare				A				Spare	20A-1P	14
15	20A-1P	Spare				B				Spare	20A-1P	16
17	20A-1P	Spare				C				Spare	20A-1P	18
19	20A-1P	Spare				A				Spare	20A-1P	20
21	20A-1P	Spare				B				Spare	20A-1P	22
23	20A-1P	Spare				C				Spare	20A-1P	24
25	20A-1P	Spare				A				Spare	20A-1P	26
27	20A-1P	Spare				B				Spare	20A-1P	28
29	20A-1P	Spare				C				Spare	20A-1P	30
31						A						32
33						B						34
35						C						36
37						A						38
39						B						40
41						C						42

Category	Connected	Demand Factor	Demand		Connected	Demand
R- Recept.	3,240	N.E.C. 220-13	3,240	LINE L1	2,300	1,647
L- Lighting	0	1.25	0	LINE L2	1,920	1,647
H- Heating	0	1	0	LINE L3	720	1,647
C- Cooling	0	1	0	**LINE TOTAL**	**4,940**	**4,940**
E- Equip.	1,700	1	1,700	**DEMAND AMPERAGE:**		
M- Misc.	0	1	0	4,940 / 1.732 / 208	**14**	**Amps**
Total:	**4,940**		**4,940**			



POWER PLAN – 1ST FLR PARTIAL

SCALE: 1/4" = 1'-0"

Job#23137

INTEGRATED MEP
MECHANICAL - ELECTRICAL - PLUMBING
320 MAPLE ST. SUITE 110
FORT COLLINS, CO 80521
970-566-0570

HILLSIDE
970-567-1821

COLORADO REGISTERED PROFESSIONAL ENGINEER 33212 9/13/23

POWERHOUSE
1st Floor Fume Hood

430 N College Ave
Fort Collins, CO 80524

DATE	DESC.
9/13/23	Permit Set
//23	-

POWER PLAN

E1.1