TOWN OF JACKSON
PLANNING & BUILDING DEPARTMENT

TRANSMITTAL MEMO

Town of Jackson
- ☒ Public Works/Engineering
- ☒ Building
- ☐ Title Company
- ☒ Town Attorney
- ☒ Police

Joint Town/County
- ☒ Parks and Recreation
- ☒ Pathways
- ☒ Joint Housing Dept

Teton County
- ☐ Planning Division
- ☐ Engineer
- ☐ Surveyor- *Nelson*
- ☐ Assessor
- ☐ Clerk and Recorder
- ☐ Road and Levee

State of Wyoming
- ☐ Teton Conservation
- ☐ WYDOT
- ☐ TC School District #1
- ☐ Game and Fish
- ☐ DEQ

Federal Agencies
- ☐ Army Corp of Engineers

Utility Providers
- ☐ Qwest
- ☐ Lower Valley Energy
- ☐ Bresnan Communications

Special Districts
- ☒ START
- ☒ Jackson Hole Fire/EMS
- ☐ Irrigation Company

Date: June 27, 2023

Item #: P23-113

Planner: Katelyn Page

Phone: 733-0440 ext. 13025

Email: kpage@jacksonwy.gov

Owner
Chroman Family Ltd. Partnership
PO Box 1208
Jackson, WY 83001

Applicant
Deborah Webb / Athletic Club of JH
PO Box 961
Wilson, WY 83014

REQUESTS:

The applicant is submitting a request for a Basic Use Permit for developed recreation use at the property located at 980 W. Broadway Ave. #8 & #9, legally known as UNIT 8 and UNIT 9, POWDERHORN 980 COMMERCIAL CONDOMINIUM ADDITION PIDN: 22-41-16-32-1-13-008 & 009

For questions, please call Katelyn Page at 733-0440, x1302 or email to the address shown below. Thank you.

Please respond by: July 11, 2023 (Sufficiency)
July 18, 2023 (with Comments)

RESPONSE: For Departments not using SmartGov, please send responses via email to:
planning@jacksonwy.gov

PLANNING PERMIT APPLICATION
Planning & Building Department

150 E Pearl Ave.
P.O. Box 1687
Jackson, WY 83001

ph: (307) 733-0440
www.townofjackson.com

For Office Use Only

Fees Paid_____ Date & Time Received _____

Application #s _____ _____ _____

Please note: *Applications received after 3 PM will be processed the next business day.*

PROJECT.

Name/Description: Athletic Club at Jackson Hole, LLC

Physical Address: 980 W. Broadway, Jackson, WY

Lot, Subdivision: Powderhorn 980 Addition PIDN: 22-41-16-32-1-13

PROPERTY OWNER.

Name: Chroman Family Limited Partnership Phone: 559.920.1034

Mailing Address: PO 1208 Jackson, WY 83001 ZIP: _____

E-mail: achroman10@hotmail.com

Lorem Ips

APPLICANT/AGENT.

Name: The Athletic Club at Jackson Hole, LLC Phone: 307.690.1034

Mailing Address: PO 961 Wilson, WY 83014 ZIP: _____

E-mail: webbdds@earthlink.net

DESIGNATED PRIMARY CONTACT.

_____Property Owner __X__Applicant/Agent

TYPE OF APPLICATION. *Please check all that apply; review the type of application at www.townofjackson/200/Planning*

Use Permit

__X__Basic Use

_____Conditional Use

_____Special Use

Relief from the LDRs

_____Administrative Adjustment

_____Variance

_____Beneficial Use Determination

_____Appeal of an Admin. Decision

Physical Development

_____Sketch Plan

_____Development Plan

_____Design Review

Subdivision/Development Option

_____ Subdivision Plat

_____Boundary Adjustment (replat)

_____Boundary Adjustment (no plat)

_____Development Option Plan

Interpretations

_____Formal Interpretation

_____Zoning Compliance Verification

Amendments to the LDRs

_____LDR Text Amendment

_____Map Amendment

Miscellaneous

_____**Other:**_____

_____Environmental Analysis

PRE-SUBMITTAL STEPS. *To see if pre-submittal steps apply to you, go to www.townofjackson.com/200/Planning and select the relevant application type for requirements. Please submit all required pre-submittal steps with application.*

Pre-application Conference #: _____ Environmental Analysis #: _____

Original Permit #: _____ Date of Neighborhood Meeting: _____

SUBMITTAL REQUIREMENTS. *Please ensure all submittal requirements are included. The Planning Department will not hold or process incomplete applications. Partial or incomplete applications will be returned to the applicant. Go to www.townofjackson.com/200/Planning and select the relevant application type for submittal requirements.*

Have you attached the following?

X **Application Fee.** Fees are cumulative. Go to www.townofjackson.com/200/Planning and select the relevant application type for the fees.

X **Notarized Letter of Authorization.** A notarized letter of consent from the landowner is required if the applicant is not the owner, or if an agent is applying on behalf of the landowner. Please see the Letter of Authorization template at http://www.townofjackson.com/DocumentCenter/View/845/LetterOfAuthorization-PDF.

X **Response to Submittal Requirements.** The submittal requirements can be found on the TOJ website for the specific application. If a pre-application conference is required, the submittal requirements will be provided to applicant at the conference. The submittal requirements are at www.townofjackson.com/200/Planning under the relevant application type.

Note: Information provided by the applicant or other review agencies during the planning process may identify other requirements that were not evident at the time of application submittal or a Pre-Application Conference, if held. Staff may request additional materials during review as needed to determine compliance with the LDRs.

Under penalty of perjury, I hereby certify that I have read this application and associated checklists and state that, to the best of my knowledge, all information submitted in this request is true and correct. I agree to comply with all county and state laws relating to the subject matter of this application, and hereby authorize representatives of Teton County to enter upon the above-mentioned property during normal business hours, after making a reasonable effort to contact the owner/applicant prior to entering.

Deborah Webb Halbach owner/agent
Signature of Property Owner or Authorized Applicant/Agent

6-26-2023
Date

Deborah Webb Halbach The Athletic Club at JH
Name Printed

owner / agent
Title

Date: 3-8-23

Town of Jackson
150 E Pearl Avenue
PO Box 1687, Jackson, WY 83001
P: (307)733-3932 F: (307)739-0919
www.jacksonwy.gov

LETTER OF AUTHORIZATION

NAMING APPLICANT AS OWNER'S AGENT

PRINT full name of property owner as listed on the deed when it is an individual OR print full name and title of President or Principal Officer when the owner listed on the deed is a corporation or an entity other than an individual

Antonette Chroman, partner, Chroman Family Limited Partnership

Being duly sworn, deposes and says that Antonette Chroman is the owner in fee of the premises located at:
Name of property owner as listed on deed

Address of Premises: 980 West Broadway, Jackson, Wyoming

Legal Description: 22-41-16-32-1-13-608, 22-41-16-32-1-13-609
Please attach additional sheet for additional addresses and legal descriptions

And, that the person named as follows: Name of Applicant/agent: Deborah Webb Halbach

Mailing address of Applicant/agent: PO Box 961 Wilson, Wy 83014

Email address of Applicant/agent: webbdds@earthlink.net

Phone Number of Applicant/agent: 307-690-1034

Is authorized to act as property owner's agent and be the applicant for the application(s) checked below for a permit to perform the work specified is this(these) application(s) at the premises listed above:

☐ Development/Subdivision Plat Permit Application ☒ Building Permit Application

☐ Public Right of Way Permit ☐ Grading and Erosion Control Permit ☒ Business License Application

☐ Demolition Permit ☐ Home Occupation ☒ Other (describe) Basic Use, Sign Permits

Under penalty of perjury, the undersigned swears that the foregoing is true and, if signing on behalf of a corporation, partnership, limited liability company or other entity, the undersigned swears that this authorization is given with the appropriate approval of such entity, if required.

Antonette Chroman
Property Owner Signature

partner
Title if signed by officer, partner or member of corporation, LLC (secretary or corporate owner) partnership or other non-individual Owner

STATE OF California)
) SS.
COUNTY OF San Luis Obispo)

The foregoing instrument was acknowledged before me by Breanna Hazen this March 8th day of March 8th, 2023. WITNESS my hand and official seal. Notary Public

Breanna Hazen
Notary Public

My commission expires:

BREANNA HAZEN
Notary Public - California
San Luis Obispo County
Commission # 2352896
My Comm. Expires Mar 24, 2025

Date: 3-8-23

Town of Jackson
150 E Pearl Avenue
PO Box 1687, Jackson, WY 83001
P: (307)733-3932 F: (307)739-0919
www.jacksonwy.gov

LETTER OF AUTHORIZATION

NAMING APPLICANT AS OWNER'S AGENT

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Antonette Chroman, partner, Chroman Family Limited Partnership

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Name of property owner as listed on deed

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Antonette Chroman
Property Owner Signature

partner
Title if signed by officer, partner or member of corporation, LLC (secretary or corporate owner) partnership or other non-individual Owner

STATE OF California)
) SS.
COUNTY OF San Luis Obispo)

The foregoing instrument was acknowledged before me by Breanna Hazen this March 8th day of March 8th, 2023. WITNESS my hand and official seal. Notary Public

Breanna Hazen
Notary Public

My commission expires:

BREANNA HAZEN
Notary Public - California
San Luis Obispo County
Commission # 2352896
My Comm. Expires Mar 24, 2025

To: Town of Jackson Planning and Building Departments

My name is Thomas Halbach and I was managing the old Teton Sprots Club in Wilson prior to its closure. My family and I are excited to be planning a new fitness facility in the old Sears/Pamida building at 980 W. Broadway in the Powderhorn Mall and requesting a change of use from retail to developed recreation. The space in question includes the easternmost 7,054 sf of the existing structure which is mostly unimproved since reconstruction. This project is an interior alteration w/ no change to the exterior of the building. The Club will be a large welcoming workout space for members to exercise independently or with their trainer or physical therapist. Behind will be a "recovery" suite with the latest therapeutic activities for relaxation or rehabilitation for our clients. The Club will operate with a manager and one employee weekdays 6am-9pm, weekends 8am-7pm. The parking and housing mitigation requirements are consistent with past retail uses. Any questions, please contact me at 307.690.7789.

Thank you for your consideration,

Thomas Halbach

Housing Mitigation Plan

updated 1/8/21

Development of a new house, hotel, or commercial space generates the need for employees. The construction workforce builds the space, the commercial workforce or residential service workforce works in the space, and first responders are needed to protect the space. Only about 27% of the employees generated by development can afford housing in the community, but the community's "community first" character goal is that 65% of employees live locally. To bridge this affordability gap, each development is required to include affordable workforce housing proportional to the employees it generates. These housing mitigation requirements are established in Division 6.3 of the Land Development Regulations. This worksheet is intended to assist in meeting the requirements for a project. However, an error in the worksheet does not amend the actual standard; if you find an error please notify the Planning Department. Fill in the highlighted cells, all the other cells will autopopulate.

Calculating the Requirement (Sec. 6.3.2 & 6.3.3)

Step 1: Location Town of Jackson

The applicable regulations vary by jurisdiction please identify the location of your project using the above dropdown options.

The required housing is based on the existing and proposed use of the site. Step 2 is to enter the existing use and Step 3 is to enter the proposed use. Section 6.3.2 of the LDRs establishes the applicability of the affordable workforce housing standards and Section 6.3.3 establishes the specifics on calculation of the requirement. Enter each use in its own row, add rows if needed. If a building has multiple units with the same use, describe each unit in its own row. (For example: if a duplex is composed of a 2,300 sf attached unit and a 1,700 sf attached unit, put each unit in its own row do not put in 4,000 sf of attached single-family.) If a unit type (e.g. apartment floor plan, or commercial tennant space) is replicated exactly multiple times, you may use the "Use Quantity" column to avoid adding multiple rows.

Step 2: Existing Development

Housing is only required for new development. Please describe the existing use of the site so that it can be credited from the housing requirement. The definition of existing use is Section 6.3.2.A.1 of the LDRs. Generally, the existing use to enter is the use with the highest housing requirement that either existed in 1995, or has been permitted since 1995. Please attach proof of existence.

Existing Use (Sec. 6.3.2.A)	Housing Requirement (Sec. 6.3.3.A)	Use Size: bedrooms	Use Size: habitable sf	Use Quantity	Housing Required
Short-Term Rental Unit	0.102*bedrooms		0	0	0.000
				Existing Workforce Housing Credit	0.000

Step 3: Proposed Development

Please describe the proposed use of the site to determine if affordable workforce housing is required as part of the development. Describe the end result of the proposed development. (For example: in the case of an addition do not enter the square footage of the addition, enter the size of the unit upon completion of the addition.)

Proposed Use	Housing Requirement (Sec. 6.3.3.A)	Use Size: bedrooms	Use Size: habitable sf	Use Quantity	**Housing Required**
Conventional Lodging	0.102*bedrooms		0	0	**0.000**

Affordable Workforce Housing Required: 0.000 units

Fee-in-Lieu Amount: $ -

If the amount of required affordable workforce housing is less than one unit, you may pay the above fee in-lieu of providing the required housing. If you elect to pay the fee, your Housing Mitgation Plan is complete. If the requirement is greater than one unit, or you would like to provide a unit to meet the requirement, please proceed to the Unit Type Sheet.

THE ATHLETIC CLUB AT JACKSON HOLE

980 WEST BROADWAY #8-#9, JACKSON, WY 83001

HOYT architects
Jackson Wyoming
hoytarchitects.design
307.733.9955

LICENSED ARCHITECT
GEORGE B. HOYT
(B-0183)
STATE OF WYOMING

OWNER
The Athletic Club at Jackson Hole
ARCHITECT
Hoyt Architects
1110 Maple Way Suite F
PO Box 7364 (83002)
Jackson, WY (83001)
307.733.9955
CIVIL ENGINEER
Jorgensen Associates
1315 hwy 89 S., Suite 203
Jackson, WY 83002
STRUCTURAL ENGINEER
Frost Structural Engineering
1020 Lincoln Road
Idaho Falls, ID 83401
MECHANICAL ENGINEER
Musgrove Engineering
645 W 25th St.,
Idaho Falls, Idaho 83402
ELECTRICAL ENGINEER
Musgrove Engineering
645 W 25th St.,
Idaho Falls, Idaho 83402
GENERAL CONTRACTOR
Diehl Construction
PO BOX 6861
Jackson, WY 83002

SHEET INDEX

GENERAL

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G102	GENERAL NOTES
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CIVIL

C100	SITE PLAN SEWER DETAILS

ARCHITECTURAL

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A102	REFLECTED CEILING PLAN
A103	FLOOR FINISH PLAN
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MECHANICAL

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E400	SPECIAL SYSTEMS PLAN
E500	SINGLE LINES
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E700	LTG DETAILS

VICINITY MAP

Jackson, WY
The Athletic Club At Jackson Hole

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PERMIT SET

06.22.2023
DRAWN BY | JM
CHECKED BY |
REVISIONS

COVER SHEET

G101

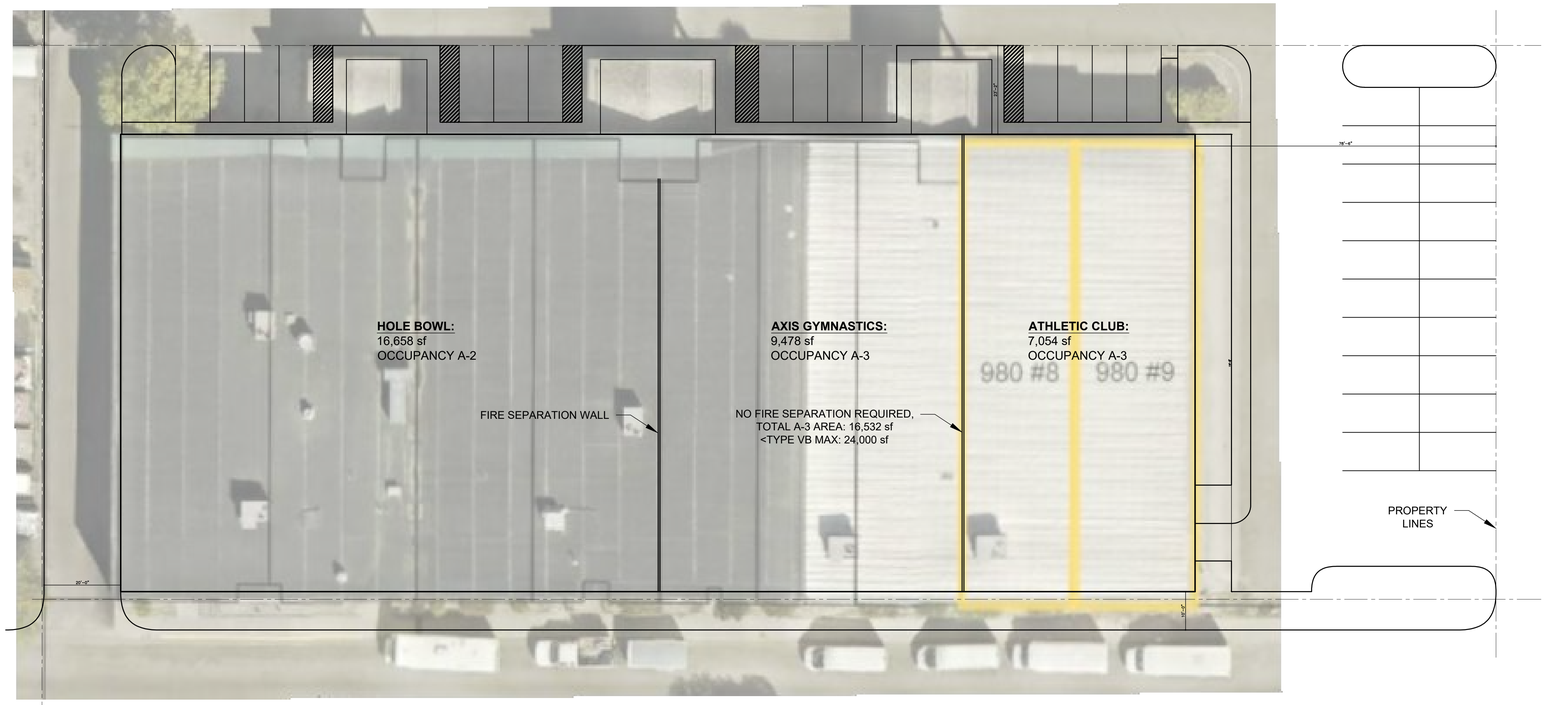
PROJECT DESCRIPTION:

The Athletic Club of Jackson Hole is proposing a tenant improvement at 980 West Broadway, #8&9. No changes are proposed to the shell or the structural system. The site is located in the CR-3 Zone, with an overall building area of 33,190 sf, with lots #8&9 occupying 7,054 sf. While the original occupancy classification of the building was Mercantile, the 2 spaces occupying lot #1-7 are classified as A-2 and A-3 now (see site plan exhibit this page). The building is fully sprinklered.
The tenant improvement consists of adding non-structural interior walls, new finishes on walls, floors & ceilings, upgraded mechanical, electrical & sprinkler systems, new plumbing, and the installation of a spa/swim area, locker rooms & exercise equipment.
The building utilizes type VB construction and the T.I. space is classified as an A-3 occupancy. The T.I. will have a max occupancy of 141, the 3 existing exits will remain.
IEBC: See sections 503, 506 & chapter 8. The alteration is classified as Level 2 and utilizes the prescriptive compliance method.

CODES APPLIED:

PROPOSED WORK SHALL COMPLY WITH THE FOLLOWING:
INTERNATIONAL BUILDING CODE; 2021 EDITION WITH AMENDMENTS
DESIGN CRITERIA UTILIZED:
SEISMIC DESIGN CATEGORY: D
WIND LOAD: 115 MPH
SNOW LOAD: 93 PSF
ICC/ANSI A 117.1, 2017 EDITION
INTERNATIONAL EXISTING BUILDING CODE, 2021 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE, 2021 EDITION, WITH AMENDMENTS
NATIONAL ELECTRIC CODE, 2023 EDITION - NFPA 70
INTERNATIONAL FIRE CODE, 2021 EDITION
INTERNATIONAL WILDLAND-URBAN INTERFACE, 2021 EDITION
INTERNATIONAL FUEL GAS CODE, 2021 EDITION
INTERNATIONAL MECHANICAL CODE, 2021 EDITION, WITH AMENDMENTS
INTERNATIONAL PLUMBING CODE, 2021 EDITION, WITH AMENDMENTS

REGULATORY AGENCY
TOWN OF JACKSON, WYOMING



Site Plan
1/16"=1'-0"

OCCUPANCY:

1004.5: MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT (R-3)
EXERCISE ROOMS: 50 GROSS
LOCKER ROOMS: 50 GROSS
SWIMMING POOLS: 50 GROSS

ACTUAL AREA: 6936.75 SF

6936.75 SF / 50 GROSS = 138.735

OCCUPANT LOAD = 139

PLUMBING:

2902.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES
WATER CLOSETS: MEN - 1 PER 125
WOMEN - 1 PER 65
LAVATORIES: 1 PER 200
DRINKING FOUNTAINS: 1 PER 500

EGRESS WIDTH:

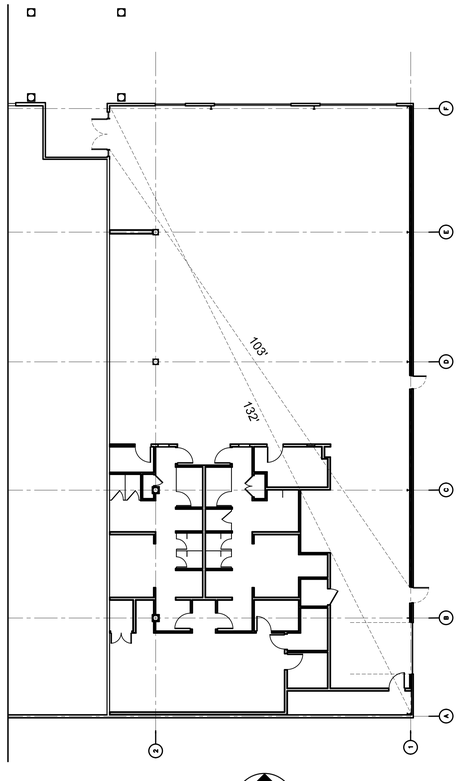
SECTION 1020.2; MINIMUM CORRIDOR WIDTH
ACCESS TO AND UTILIZATION OF MECHANICAL, PLUMBING OR ELECTRICAL SYSTEMS OR EQUIPMENT: 24"
ANY FACILITY NOT LISTED ON THIS TABLE: 44"

EGRESS ILLUMINATION:

1008.2 ILLUMINATION REQUIRED:
THE MEANS OF EGRESS SERVING A ROOM OR SPACE SHALL BE ILLUMINATED AT ALL TIMES THAT THE ROOM OR SPACE IS OCCUPIED.

ACCESSIBILITY:

FOLLOW ICC A117.1 CODES



LIFE SAFETY PLAN
NOT TO SCALE

GENERAL INFORMATION:

1. THIS PROJECT SHALL COMPLY WITH THE 2018 VERSION OF THE IRC AND THE CURRENT TETON COUNTY LDRS INCLUDING ALL AMENDMENTS. ANY BUILDING OFFICIAL, SUBCONTRACTOR OR TRADES PERSONS NOTING DISCREPANCIES SHALL NOTIFY THE ARCHITECT IMMEDIATELY UPON DISCOVERY.

2. IT IS EACH CONTRACTOR'S RESPONSIBILITY TO THOROUGHLY REVIEW AND BECOME FAMILIAR WITH ALL PERTINENT DOCUMENTS AVAILABLE REGARDING THE CONSTRUCTION OF THIS PROJECT. ANY AMBIGUITY OR DISCREPANCY DISCOVERED IN THE DOCUMENTS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT WHO SHALL MAKE CLARIFICATIONS AND INTERPRETATIONS IN A TIMELY MANNER. THE CONTRACTOR'S FAILURE TO DISCOVER AND NOTIFY THE ARCHITECT OF SAID AMBIGUITY OR DISCREPANCY PRIOR TO THE START OF CONSTRUCTION SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY RELATING TO THE MATTER.

2. CONTRACTOR SHALL COORDINATE ALL REQUIRED INSPECTIONS BY TETON COUNTY BUILDING, FIRE DEPARTMENTS AND ANY OTHER GOVERNING AUTHORITIES, AS NECESSARY.

3. CHANGES OR DEVIATIONS FROM THE DOCUMENTS, MADE BY THE CONTRACTOR OR THEIR SUPPLIERS, WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT, ARE UNAUTHORIZED CHANGES TO THE WORK AND AS SUCH SHALL RELIEVE THE ARCHITECT OF ALL RESPONSIBILITY FOR THE CONSEQUENCES ARISING THERE FROM.

3. PRIOR TO BEGINNING ANY NEW WORK OR INSTALLATION, IT IS EACH CONTRACTOR'S RESPONSIBILITY TO INSPECT PREVIOUSLY INSTALLED WORK AND/OR SUBSTRATE AND VERIFY THAT ALL SUCH WORK IS SATISFACTORY AND COMPLETE TO THE REQUIRED LEVEL OF ACCEPTANCE TO ALLOW FOR THE START OF SUBSEQUENT WORK. THE COMMENCEMENT OF ANY WORK SHALL INDICATE THAT ALL PREVIOUSLY INSTALLED WORK AND/OR SUBSTRATE WAS FOUND TO BE ACCEPTABLE AND INSTALLED ACCORDING TO INDUSTRY STANDARDS. AMY WORK FOUND TO BE IN UNACCEPTABLE CONDITION SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.

4. EACH CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO ESTIMATING THE COST OF THE SCOPE OF WORK AND PRIOR TO ORDERING OR FABRICATING MATERIALS OR BEGINNING ANY CONSTRUCTION RELATED ACTIVITIES FOR THE PURPOSE OF BECOMING COMPLETELY FAMILIAR WITH THE SITE AND ALL EXISTING CONDITIONS WHICH MIGHT IMPACT THE COST OF, OR PERFORMANCE OF THE SCOPE OF WORK.

5. ALL CONSTRUCTION IS TO BE PREFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND THE REQUIREMENTS OF ALL REGULATORY AGENCIES HAVING JURISDICTION OVER THE PROJECT. UNDER NO CIRCUMSTANCES OR CONDITION DOES THE ARCHITECT HAVE RESPONSIBILITY FOR THE MEANS OR METHODS USED BY A CONTRACTOR IN THE PERFORMANCE OF THE WORK OR FOR CONDITIONS OF SAFETY AT THE JOB SITE.

7. CONTRACTOR RESPONSIBLE FOR PROVIDING, COORDINATING, AND SUPERVISING TRENCHING OF UTILITIES AND SERVICES TO AND FROM BUILDING. COORDINATION SHALL INCLUDE CONTRACTOR'S REASONABLE EFFORTS TO COMBINE AS MANY DIFFERENT UTILITIES IN COMMON TRENCHES AS PRACTICAL AND GOOD PRACTICE PERMIT.

6. CONTRACTOR SHALL COORDINATE ALL FINISHES, MATERIALS, AND COLORS WITH THE ARCHITECT/OWNER, AND MUST PROVIDE SAMPLES OF ALL FINISHES FOR APPROVAL BY ARCHITECT/OWNER.

7. ALL SUBSTITUTIONS ARE TO BE APPROVED BY ARCHITECT/OWNER. ALONG WITH THE WRITTEN REQUEST, CONTRACTOR SHALL PROVIDE ALL INFORMATION REGARDING THE SUBSTITUTION IN QUESTION, INCLUDING COST, AVAILABILITY, AND REASON FOR SUBSTITUTION.

7. DIMENSIONS OF AND FROM EXISTING CONDITIONS HAVE BEEN TAKEN FROM EXISTING DRAWINGS AND/OR FIELD MEASUREMENTS. ALL EXISTING DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE ON DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PERTAINING TO THE EXISTING CONDITIONS, INCLUDING ALL WORK ALREADY IN PLACE, PRIOR TO ORDERING OR FABRICATING MATERIALS, AND PRIOR TO START OF CONSTRUCTION.

8. CONTRACTORS SHALL KEEP PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS AND DEBRIS.

9. DO NOT SCALE THE DRAWINGS. IF QUESTIONS ARISE AS TO DIMENSIONAL REQUIREMENTS, CONTACT THE ARCHITECT FOR CLARIFICATION.

10. ALL MATERIALS, FIXTURES AND EQUIPMENT PROVIDED UNDER THIS CONTRACT ARE TO BE PROVIDED IN NEW CONDITION WITH FULL MANUFACTURER'S WARRANTY, UNLESS OTHERWISE SPECIFIED BY THE OWNER, AND ARE TO BE STORED AND INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS. DAMAGED ITEMS SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

HOYT
architects
Jackson Wyoming
hoytarchitects.design
307.733.9955

LICENSED ARCHITECT
GEORGE B. HOYT
(B-0123)
STATE OF WYOMING

Jackson, WY
The Athletic Club At Jackson Hole

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PERMIT SET

06.22.2023
DRAWN BY | JM
CHECKED BY |
REVISIONS

GENERAL NOTES

G102

KEYNOTES (PER THE ICC A117.1-2017)

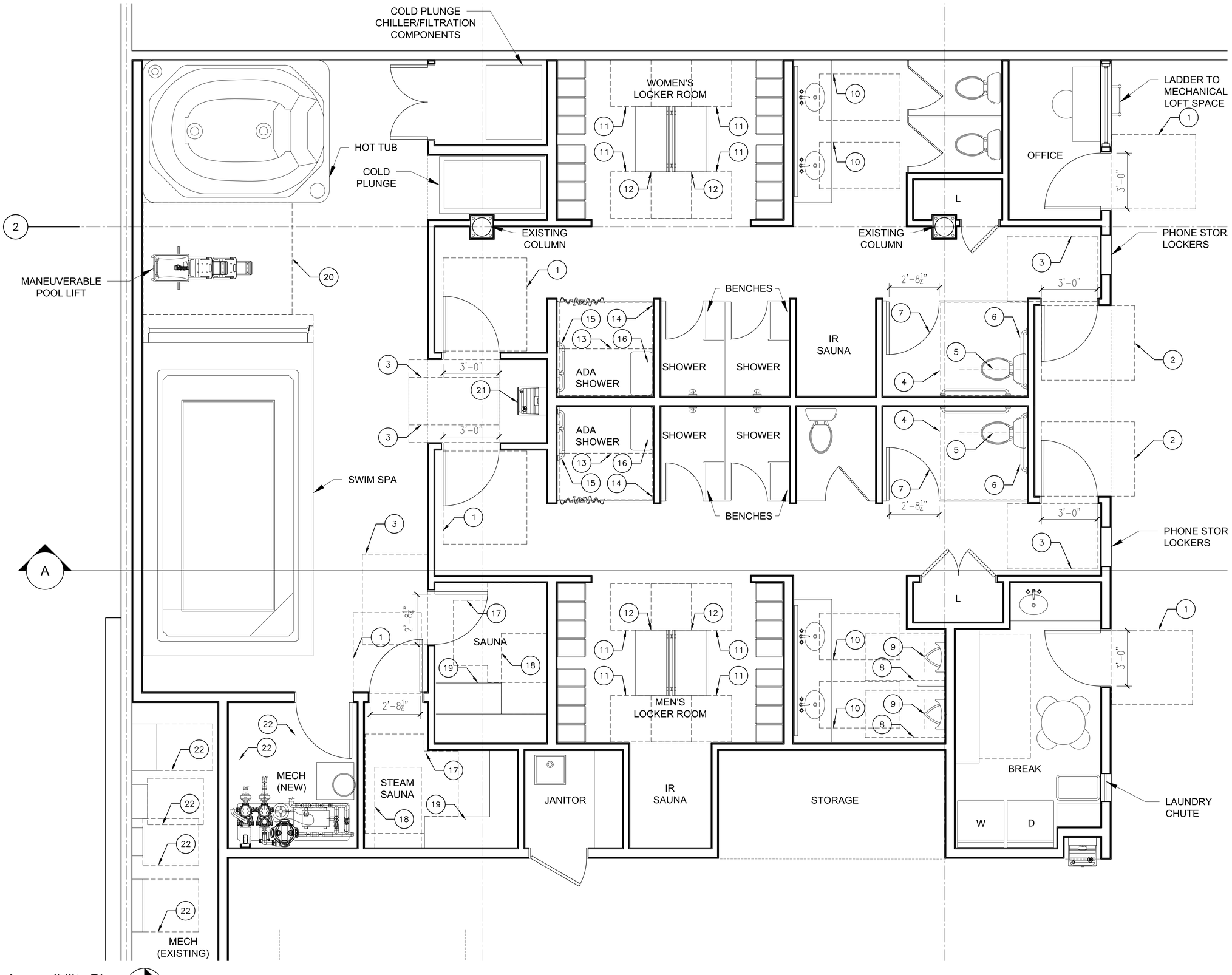
1. DOORWAY - FRONT APPROACH FROM PUSH SIDE: 404.2.3.2(A) 12" PARALLEL FROM LATCH, 52" PERP FROM DOOR
2. DOORWAY - LATCH APPROACH FROM PULL SIDE: 404.2.3.2(G) 24" PARALLEL FROM LATCH, 48" PERP FROM DOOR
3. DOORWAY - HINGE APPROACH FROM PUSH SIDE: 404.2.3.2(F) 22" PARALLEL FROM HINGE, 42" PERP FROM DOOR
4. WATER CLOSET - MIN OVERALL DIM: 604.3 60" WIDTH FROM SIDEWALL, 56" DEPTH FROM REAR WALL
5. WATER CLOSET - CENTERLINE OF WATER CLOSET: 604.2 DIST FROM SIDE WALL: 16" MIN, 18" MAX
6. WATER CLOSET - GRAB BARS: 604.5.1 & 604.5.2
7. WATER CLOSET - DOOR CLEARANCE: 604.9.3(A)
8. URINALS - MIN CLEARANCE: 605.3 30" MIN PARTITION WIDTH, 52" MIN DEPTH FROM WALL
9. URINALS - WALL HUNG DIM: 605.2(A) 17" MAX HEIGHT, 13.5" MIN DEPTH
10. LAVATORIES - MIN CLEAR FLOOR SPACE: 606.2 & 606.2(a)
11. BENCHES - CLEAR FLOOR SPACE / TRANSFER SPACE: 903.2
12. BENCHES - MIN OVERALL DIMENSIONS: 903.3 42" MIN LENGTH, 20" MIN DEPTH
13. SHOWERS - MIN COMPARTMENT DIM: 608.2.2.1 60" MIN WIDTH, 30" MIN DEPTH
14. SHOWERS - MIN CLEARANCE: 608.2.2.2 60" MIN WIDTH, 30" MIN DEPTH
15. SHOWERS - GRAB BARS: 608.3.2
16. SHOWERS - BENCH: 610.3.1
17. SAUNAS - TURNING RADIUS: 304.3.2.1(B)
18. SAUNAS - CLEAR FLOOR SPACE / TRANSFER SPACE: 612.2 & 903.2
19. SAUNAS - MIN BENCH DIM: 612.2 & 903.3

GENERAL NOTES (PER THE TETON HEALTH DISTRICT - RULES FOR TETON DISTRICT PUBLIC POOLS AND SPAS)

20. DECK SIZE FOR SPA POOL LESS THAN 100 SF: 3.24.a MIN 6' x 8' DECK ON AT LEAST ONE SIDE
21. DRINK FOUNTAIN REQUIRED FOR POOL/SPA ENCLOSURES: 3.32.a

KEYNOTES (PER NEC 2021)

22. ELECTRICAL PANELS - MINIMUM CLEAR DISTANCE: 110.26(A)(1)



Accessibility Plan

1/2"=1'-0"

HOYT architects

Jackson Wyoming
hoytarchitects.design
307.733.9955

LICENSED ARCHITECT GEORGE B. HOYT (B-0123) STATE OF WYOMING

Jackson, WY

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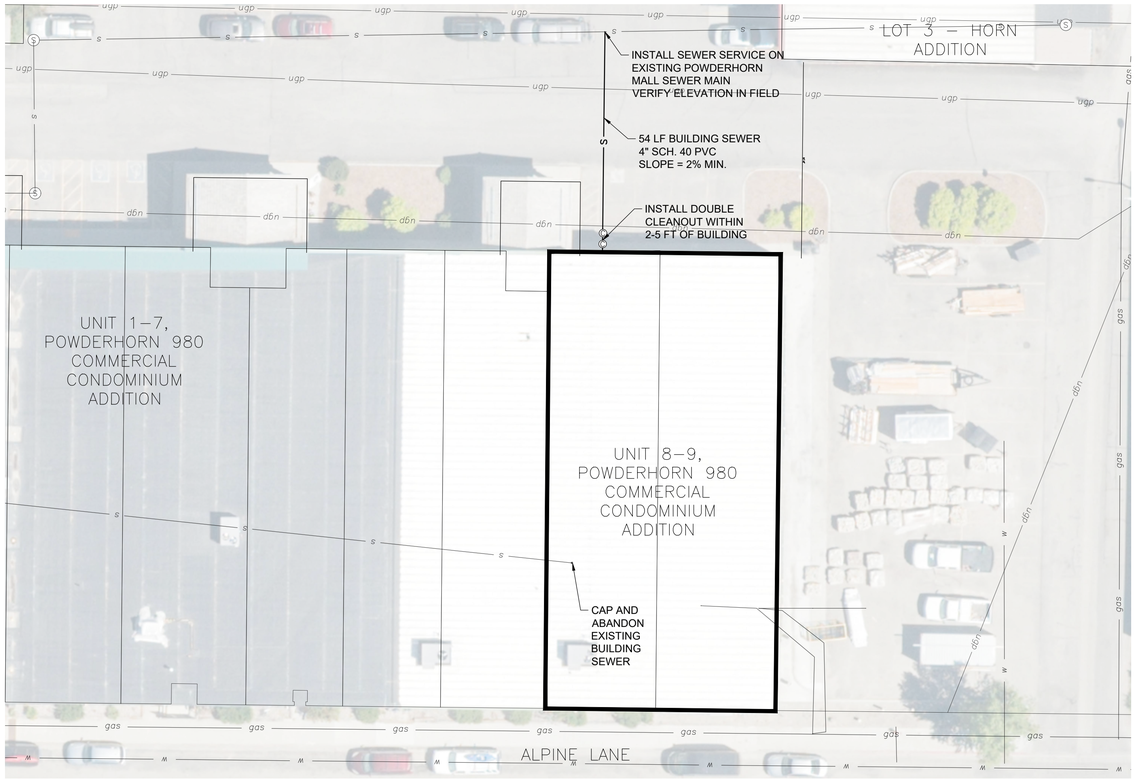
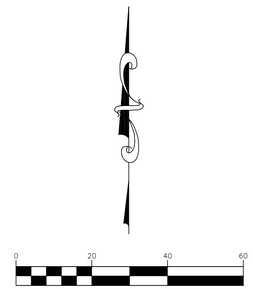
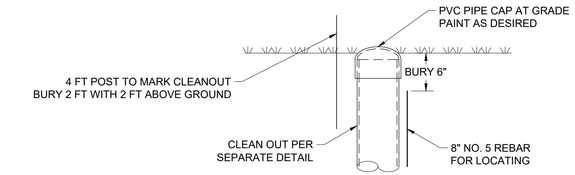
ACCESSIBILITY PLAN

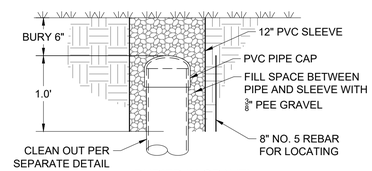
G103



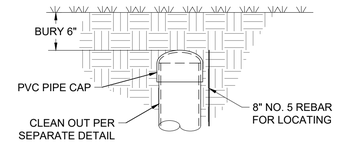




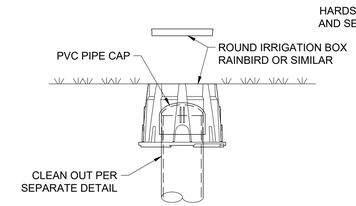
DAYLIGHT IN LANDSCAPE AREA



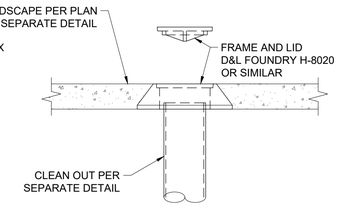
BURIED IN GRAVEL



BURIED IN LANDSCAPE AREA



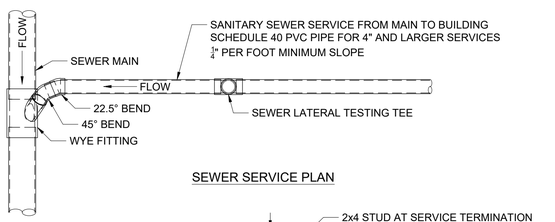
IRRIGATION BOX IN LANDSCAPE AREA



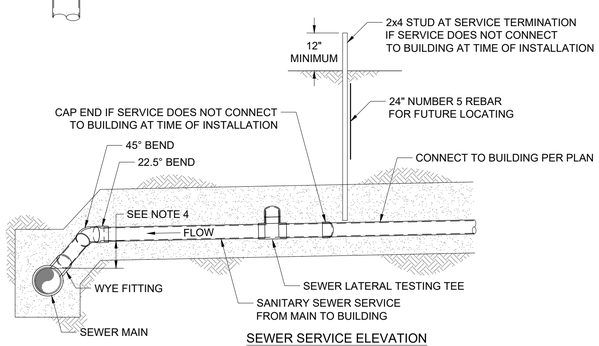
HARDSCAPE AREA

CLEAN OUT SURFACE CONDITION DETAIL

NOT TO SCALE



SEWER SERVICE PLAN



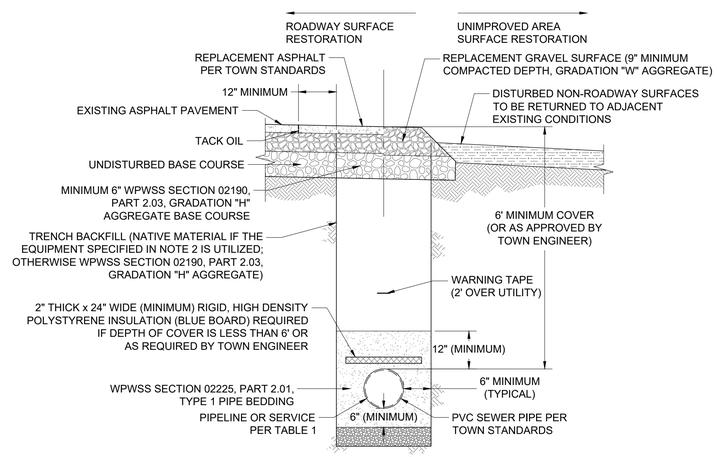
SEWER SERVICE ELEVATION

NOTE

1. NEW SERVICE CONNECTIONS TO EXISTING SANITARY SEWER MAINS SHALL BE COORDINATED WITH SANITARY SEWER UTILITY OWNER..
2. CLEANOUTS TO BE PROVIDED ADJACENT TO BUILDING, EVERY 100' ALONG THE SERVICE LINE AND AT ALL BENDS.
3. PRIVATE PARTY BEING SERVED BY CONNECTION RESPONSIBLE FOR FEE TAP AND APPROVAL BY UTILITY OWNER.
4. PROVIDE 0.1' MINIMUM SEPARATION BETWEEN INVERT OF SERVICE AND CROWN OF MAIN UNLESS OTHERWISE SPECIFIED IN PLANS OR DIRECTED BY THE ENGINEER. DISTANCE CAN BE INCREACED TO CONNECT SHALLOW SERVICE TO DEEP MAIN.

SANITARY SEWER SERVICE DETAIL

NOT TO SCALE

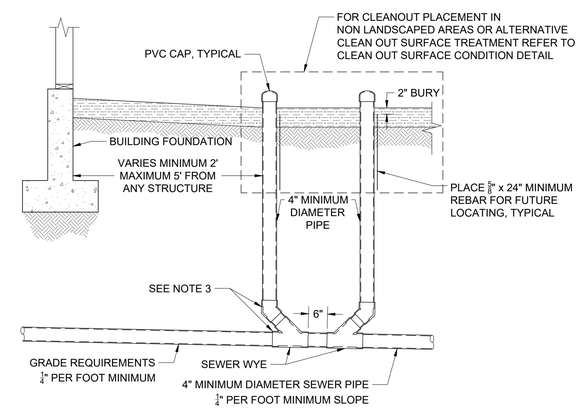


NOTE

1. TRENCH BACKFILL BELOW THE SURFACE SHALL MEET THE FOLLOWING CRITERIA:
   - 95% MODIFIED PROCTOR DENSITY WITHIN STREET AND ALLEY RIGHTS-OF-WAY.
   - 90% MODIFIED PROCTOR DENSITY OUTSIDE STREET AND ALLEY RIGHTS-OF-WAY.
2. COMPACTION OF NATIVE TRENCH BACKFILL, WITH ALL ROCK LARGER THAN 6" REMOVED, SHALL BE CARRIED OUT IN 1' MAX LIFTS.
3. PIPE BEDDING SHALL BE PLACED IN 6" LIFTS AND THOROUGHLY COMPACTED TO PROVIDE UNIFORM PIPE SUPPORT.
4. UNLESS OTHERWISE DIRECTED, ALL BASE COURSE AND GRAVEL SURFACE REPLACEMENT SHALL BE INSTALLED PER WPWSS SECTION 02231, PART 3.03.
5. ALL TRENCH EXCAVATION SHALL CONFORM TO WYOMING OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (WYOSHA) REGULATIONS.
6. PROVIDE INSULATION WHERE COVER OVER WATER LINES AND FORCE MAINS ARE LESS THAN 7 FEET AND WHERE SANITARY SEWER AND STORM LINES ARE LESS THAN 5 FEET. CONSULT ENGINEER PRIOR TO INSULATING LINES WHERE MINIMUM COVER CANNOT BE MET.

SEWER MAIN AND SERVICE TRENCH DETAIL

NOT TO SCALE — TOJ SS-100 MODIFIED



NOTE

1. PRIOR TO BACKFILLING THE TOWN PUBLIC WORKS DEPARTMENT MUST INSPECT ALL PIPE, FITTINGS, COUPLINGS, GRADE AND COMPLETE LEAK TESTING.
2. INSTALL AND COMPACT ALL BACKFILL MATERIAL PER TOWN PUBLIC WORKS DEPARTMENT STANDARD SPECIFICATIONS AND AS SHOWN WITHIN THE TRENCH DETAIL.
3. ALL PVC FITTINGS SHALL MEET ASTM D3034 SPECIFICATIONS, AND SHALL ALSO MEET ASTM D312 SPECIFICATIONS FOR RUBBER GASKETED BELL AND SPIGOT TYPE WITH INTEGRAL BELL.

BUILDING CLEANOUT DETAIL

NOT TO SCALE — REV TOJ SS-114

JORGENSEN
JACKSON, WYOMING
307.733.5150
www.jorgeng.com

Professional Engineer (Civil) THOMAS KIRSTEN 6821 Date June 22, 2023 WYOMING

PROJECT TITLE:
JACKSON HOLE ATHLETIC CLUB
980 W BROADWAY AVENUE #8
UNIT 8-9, POWDERHORN 980 COMMERCIAL CONDOMINIUM ADDITION
JACKSON, WYOMING

SHEET TITLE:
PROPOSED SEWER CONNECTION

DRAFTED BY:	JK
REVIEWED BY:	TK
PLAN VERSION	DATE
BP	06/21/2023

PROJECT NUMBER
23000

SHEET
C1.0

Plotted by JKoel on Jun 21, 2023 - 1:26pm
Ver. 18.0
P:\2022\22155-Hoyt-Nesjack\665 S Cache\Athletic Club\JA_Site.dwg

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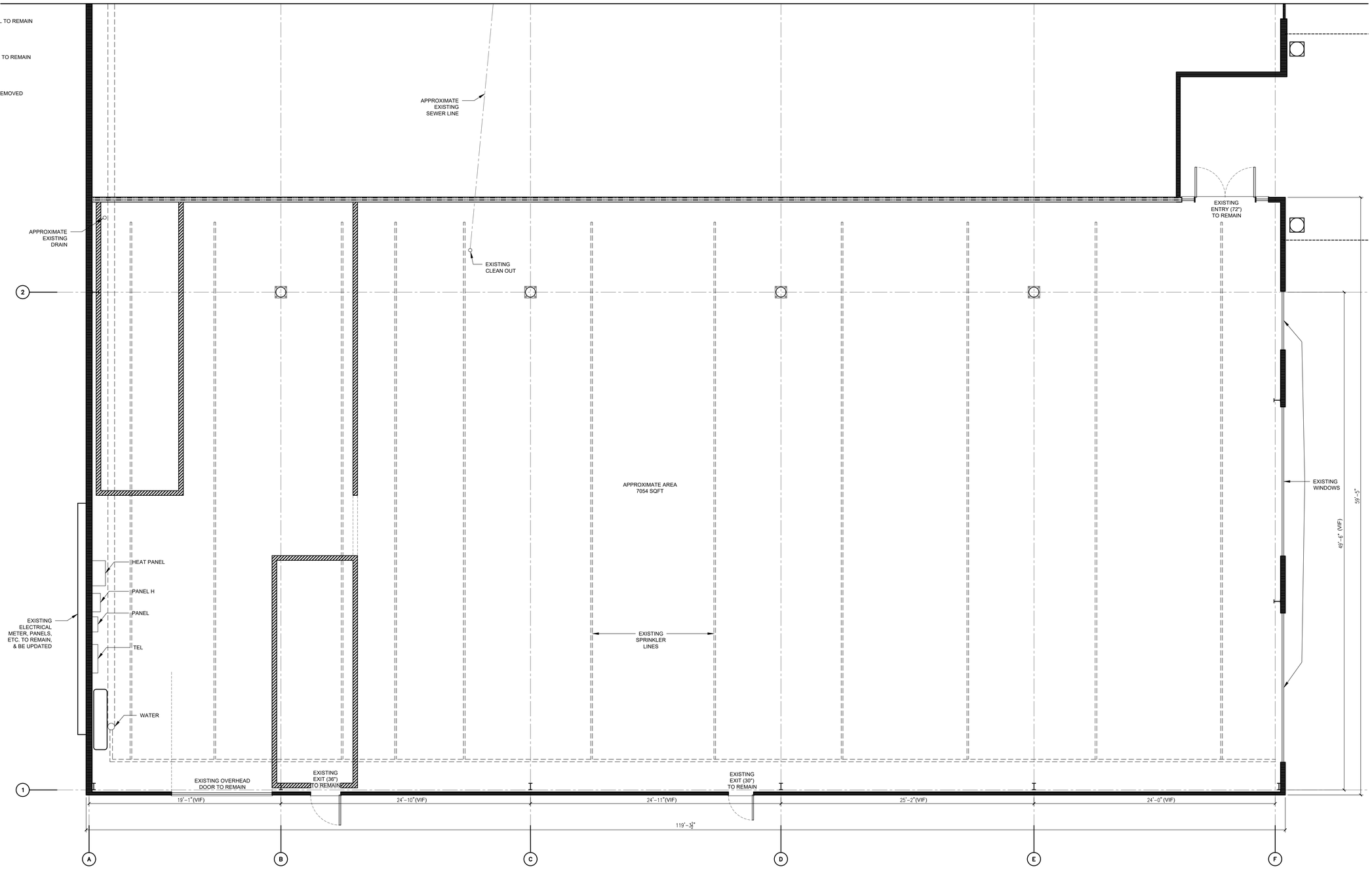
= EXISTING EXTERIOR WALL TO REMAIN

= EXISTING INTERIOR WALL TO REMAIN

= INTERIOR WALLS TO BE REMOVED



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Existing Floor Plan
1/4"=1'-0"

EXISTING FLOOR PLAN

A100

DOOR, FRAME, AND HARDWARE SCHEDULE

DOOR NUMBER	LOCATION	DOOR			HARDWARE	NOTES
		UNIT SIZE				
		W	H	TYPE	GROUP	
101	MAIN ENTRY	6'-0"	6'-8"	EXISTING	ENTRY	(2) 3' DBL GLASS DOORS
102	EXIT 1	2'-6"	6'-8"	EXISTING	ENTRY	
103	EXIT 2	3'-0"	6'-8"	EXISTING	ENTRY	
104	EXISTING MECHANICAL	3'-0"	6'-8"	NEW	KEYED	
105	GARAGE	10'-0"	10'-0"	EXISTING	ENTRY	
106	EMPLOYEE AREAS	3'-0"	6'-8"	NEW	PRIVACY	
107	LOCKER ROOM	3'-0"	6'-8"	NEW	STOREROOM	
108	WOMENS LINEN CLOSET	2'-0"	6'-8"	NEW	STOREROOM	
109	MENS LINEN CLOSET	4'-0"	6'-8"	NEW	STOREROOM	(2) 2' DBL DOORS
110	SAUNA	2'-10"	6'-8"	NEW	PASSAGE	
111	STEAM SAUNA	3'-0"	6'-8"	NEW	PASSAGE	
112	NEW MECHANICAL	3'-0"	6'-8"	NEW	STOREROOM	
113	JANITOR	3'-0"	6'-8"	NEW	STOREROOM	
114	COLD PLUNGE MECHANICAL	4'-0"	6'-8"	NEW	STOREROOM	(2) 2' DBL DOORS
201	LOFT	4'-0"	4'-0"	NEW	STOREROOM	SIMPLE DBL ACCESS DOORS

GENERAL NOTES:

1. INTERIOR DOORS TO BE 1-3/4" THICKNESS MINIMUM MATCH EXISTING (1 3/4" H.M.).
2. PRIOR TO PURCHASING OF DOORS VERIFY SWING DIRECTIONS OF DOORS.
3. DOOR STOPS TO BE COMMERCIAL GRADE.
4. DOOR HARDWARE SHALL MEET THE REQUIREMENTS OF IBC 1010.1.9.1 AND SECTION 404.2.6 OF ICC A117.1-09. HARDWARE SHALL NOT REQUIRE PINCHING, TIGHT GRASPING, OR TWISTING OF THE WRIST TO OPERATE.
5. INTERIOR & EXTERIOR DOOR HARDWARE TO BE COMMERCIAL GRADE. ALL EXTERIOR DOORS TO BE KEYED ALIKE.

Floor Plan

1/4"=1'-0"

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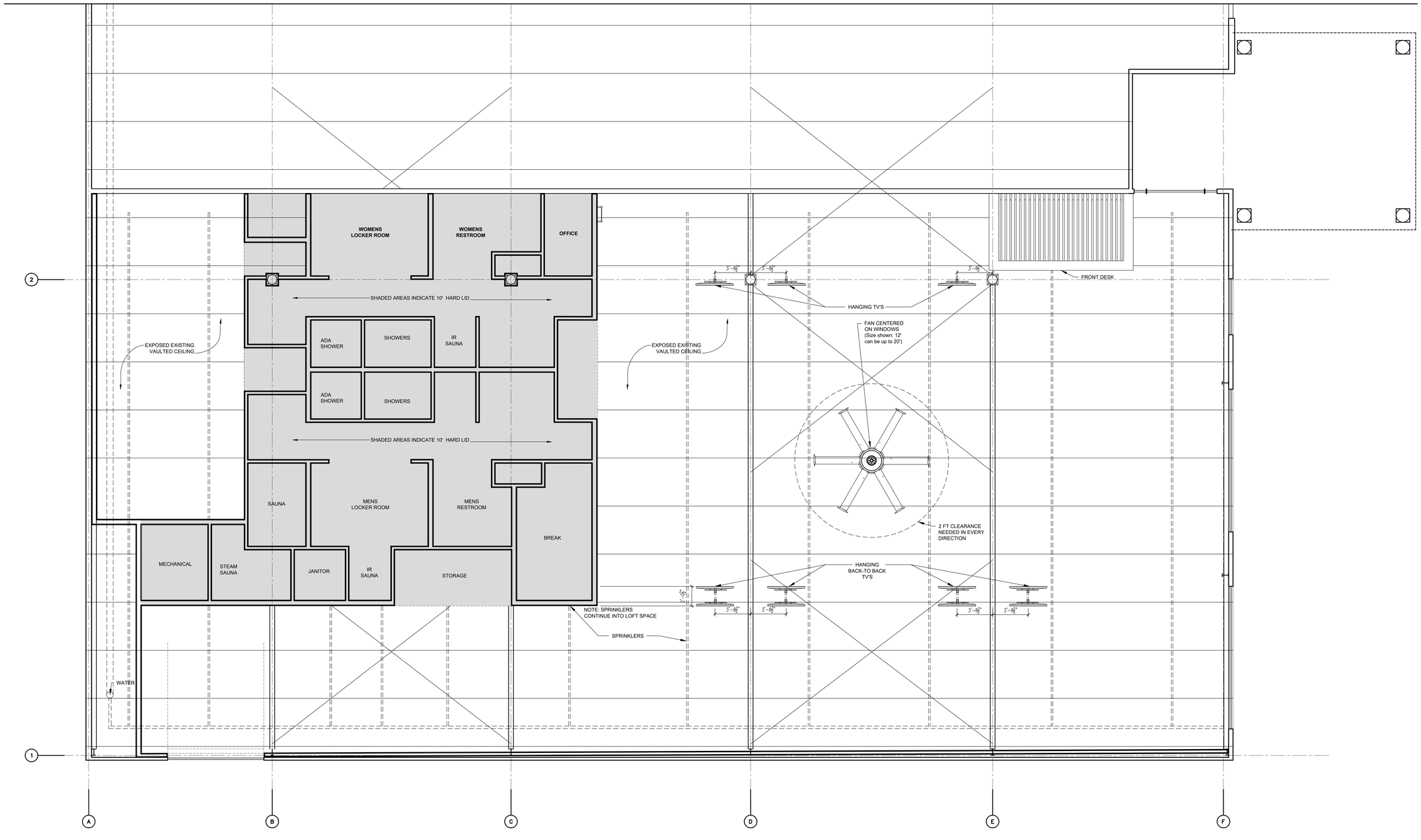
FLOOR PLAN

A101



Reflected Ceiling Plan

1/4"=1'-0"

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LICENSED ARCHITECT
GEORGE B. HOYT
(B-0123)
STATE OF WYOMING

Jackson, WY

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REFLECTED CEILING PLAN

A102

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LICENSED ARCHITECT
GEORGE B. HOYT
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STATE OF WYOMING

= VINYL TBD

= RUBBER GYM FLOORING

= TURF

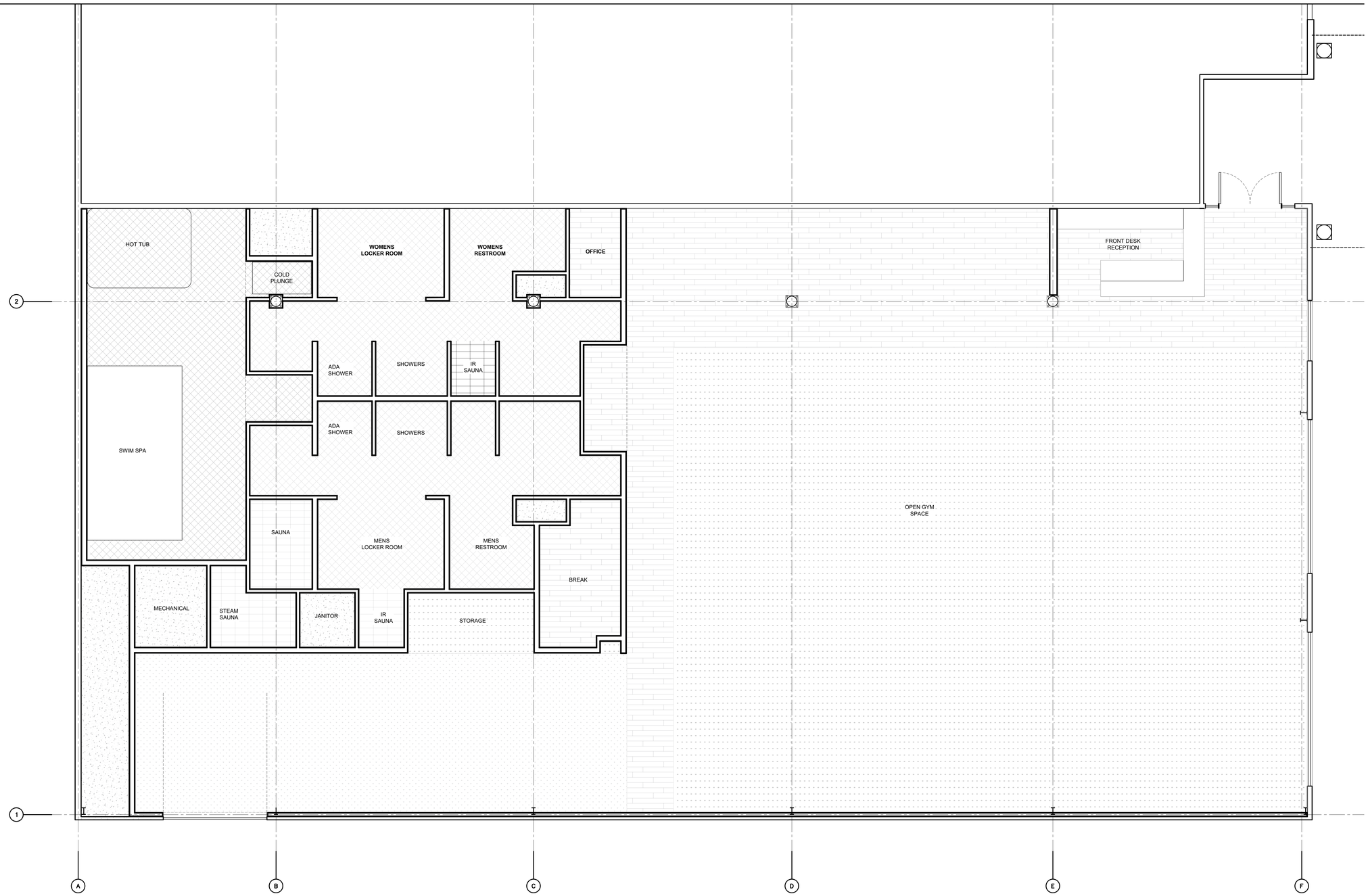
= NON SLIP TILE TBD

= EXISTING CONCRETE

= WOODEN FLOORING INTEGRATED BY MANUFACTURER

NOTES

1. SAUNA, STEAM SAUNA, AND INFRARED (IR) SAUNA FLOORING TO BE PROVIDED BY MANUFACTURER.
2. CONTRACTOR MUST VERIFY MATERIAL HEIGHT DIFFERENCES AND TRANSITIONS TO COMPLY WITH ADA REQUIREMENTS.
3. VERIFY CONDITIONS AND SUITABILITY OF EXISTING CONCRETE WHERE EXPOSED



Floor Finish Plan
1/4"=1'-0"

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FLOOR FINISH PLAN

A103

FRAMING PLAN NOTES

1. TYPICAL BEARING WALL FRAMING SHALL BE 2x4 OR 2x6 STUDS AT 16" O.C. GYPBOARD SHALL BE ATTACHED USING 5d COOLER OR #6 SCREWS AT 6" O.C. AT PANEL EDGES AND AT 12" O.C. IN THE FIELD.
2. PROVIDE (1) TRIMMER STUD AND (1) KING STUD EACH SIDE OF ALL OPENINGS
3. HANG JOISTS FROM ALL "B2" BEAMS W/ IUS2.37/11.88 OR ITS2.37/11.88 HANGERS
4. PROVIDE DOUBLE STUDS AT ALL "B2" BEARING POINTS
5. FRAMING SYSTEM HAS BEEN DESIGNED FOR A DEAD LOAD OF 15 PSF AND A LIVE LOAD OF 125 PSF
6. "B1" = (2) 2x6 HEADER AND "B2" = (2) 1 3/4 x 11 7/8 LVL BEAM

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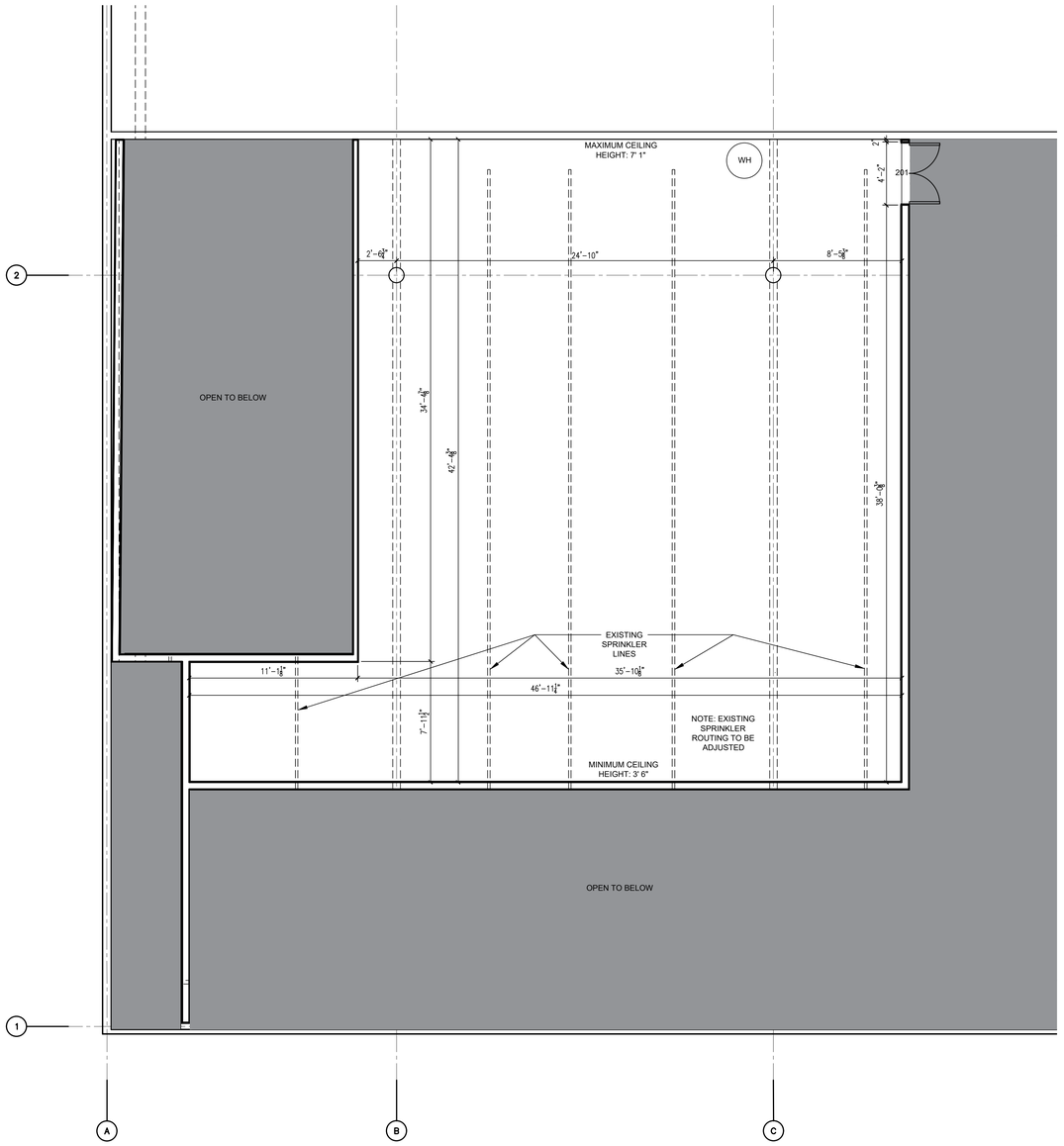
307.733.9955

Professional Engineer
Ryan D. Frost
14891
Date
WYOMING
06/23/2023



Loft Plan
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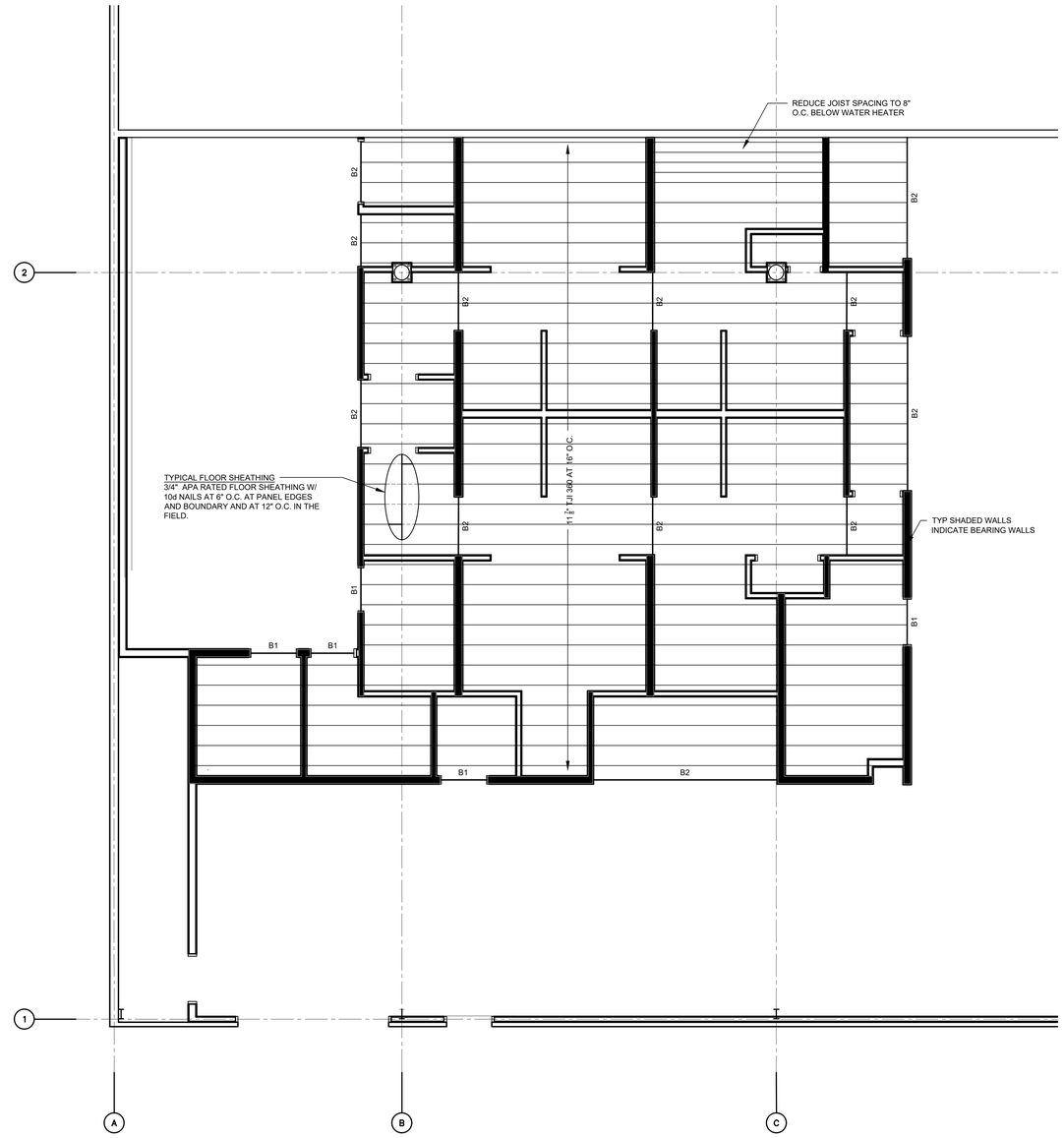

Loft Framing Plan
1/4"=1'-0"

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JOB NO.: IF23-284 | PROJECT MANAGER: KBB | CAD OPERATOR: KBB

FROST Structural Engineering
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Idaho Falls, ID 83401
phone: 208.227.8404
fax: 208.227.8405
contact@frststructural.com

LOFT FRAMING PLAN

A104

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LICENSED ARCHITECT
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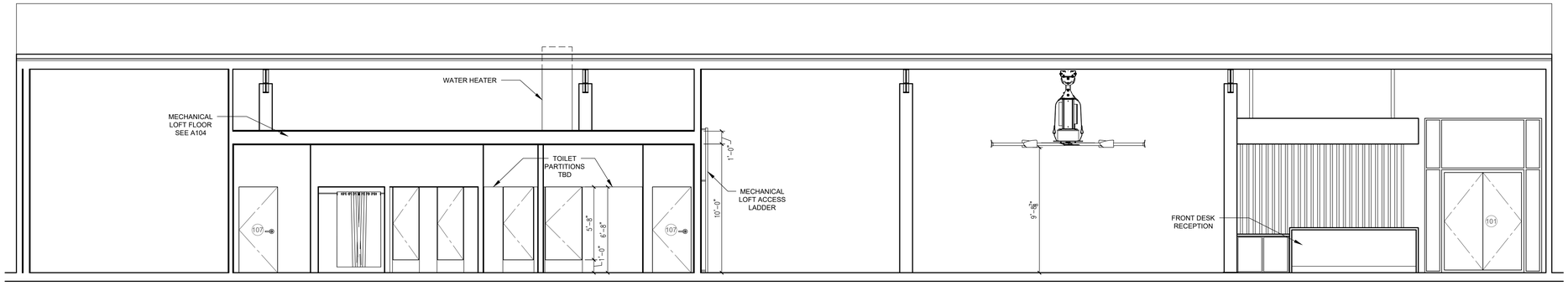
(B-0123)
STATE OF WYOMING



Section A
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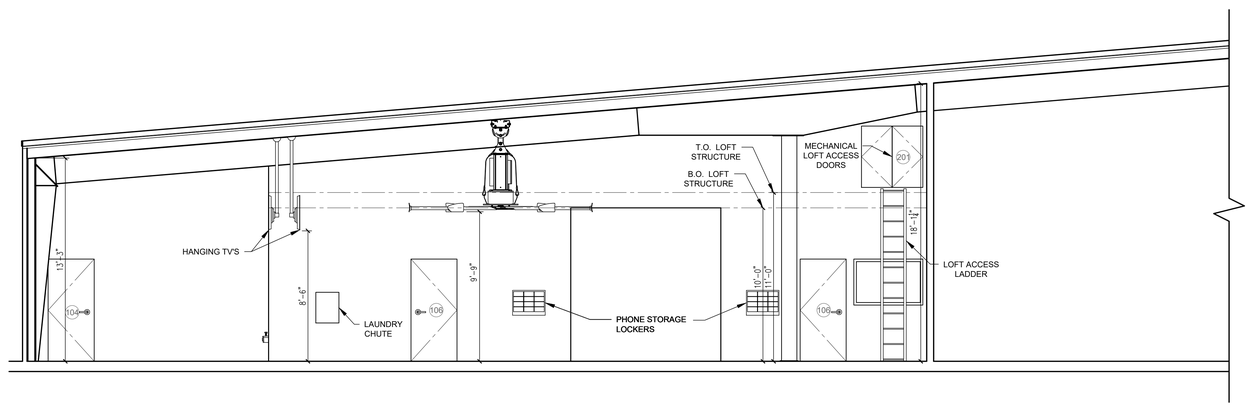

Section B
1/2"=1'-0"

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BUILDING SECTIONS

A301

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208.384.0585
645 West 25th Street
Idaho Falls, ID 83402
208.523.2862
www.musgrovepa.com
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Professional Engineer
JASON BIRD
EXP. 6/30/2023
WYOMING

MECHANICAL ABBREVIATIONS

A/C or AC	AIR CONDITIONING	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	KWH	KILOWATT HOUR
AHU	AIR HANDLING UNIT		
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS	LAT	LEAVING AIR TEMPERATURE
		LAV	LAVATORY
BTU	BRITISH THERMAL UNITS	LEED	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN
BTUH	BTUS PER HOUR	LWT	LEAVING WATER TEMPERATURE
CA	COMBUSTION AIR	MAX	MAXIMUM
CC	COOLING COIL	MCA	MINIMUM CIRCUIT AMPS
CFM	AIR FLOW RATE (CUBIC FEET PER MINUTE)	MOCP	MAXIMUM OVERCURRENT PROTECTION
CHWR	CHILLED WATER RETURN	MIN	MINIMUM
CHWS	CHILLED WATER SUPPLY		
CLG	CEILING	NC	NOISE CRITERIA
CW	COLD WATER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
		NTS	NOT TO SCALE
DEG or °	DEGREE		
DIA or Ø	DIAMETER	OSA	OUTSIDE AIR
DB	DRY BULB		
		PD	PRESSURE DROP
EA	EXHAUST AIR	PH or Ø	PHASE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
EER	ENERGY EFFICIENCY RATIO		
ESP	EXTERNAL STATIC PRESSURE	RA	RETURN AIR
EWT	ENTERING WATER TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
		RTU	ROOFTOP UNIT
FCO	FLOOR CLEANOUT		
FD	FIRE DAMPER	SA	SUPPLY AIR
FLA	FULL LOAD AMPS	SEER	SEASONAL ENERGY EFFICIENCY RATIO
FLR	FLOOR	SFD	COMBINATION SMOKE/FIRE DAMPER
FPM	FEET PER MINUTE	SP	STATIC PRESSURE
FT	FEET	SYM	SYMBOL
GA	GAUGE	T & P	TEMPERATURE AND PRESSURE
GCO	GRADE CLEANOUT	TEMP	TEMPERATURE
GPM	WATER FLOW RATE (GALLONS PER MINUTE)	TYP	TYPICAL
HC	HEATING COIL	UMC	UNIFORM MECHANICAL CODE
HP	HORSE POWER	UPC	UNIFORM PLUMBING CODE
HVAC	HEATING, VENTILATING, AIR CONDITIONING	URL	URINAL
HW	HOT WATER		
HWR	HOT WATER RETURN	VTR	VENT THROUGH ROOF
HWS	HOT WATER SUPPLY	V	VOLTS
IBC	INTERNATIONAL BUILDING CODE	W/	WITH
IEEC	INTERNATIONAL ENERGY CONSERVATION CODE	WB	WET-BULB
IFC	INTERNATIONAL FIRE CODE	WC	WATER CLOSET
IFGC	INTERNATIONAL FUEL GAS CODE	WCO	WALL CLEANOUT
IMC	INTERNATIONAL MECHANICAL CODE	WH	WATER HEATER
IPC	INTERNATIONAL PLUMBING CODE		

NOTE: THIS IS A STANDARD LIST OF COMMONLY USED MECHANICAL ABBREVIATIONS. SOME OF THE ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.

MECHANICAL GENERAL NOTES

1. ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC) LATEST EDITION, AND ALL LOCAL & STATE CODES.
2. ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ADOPTED PLUMBING CODE, AND ALL LOCAL & STATE CODES.
3. ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
4. MECHANICAL CONTRACTORS SHALL RECEIVE PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER BEFORE MAKING CUTS THROUGH ANY STRUCTURAL MEMBER.
5. MECHANICAL CONTRACTORS SHALL COORDINATE INSTALLATION WITH CONSTRUCTION SUPERVISOR AND WITH ALL OTHER TRADES TO AVOID CONFLICTS.
6. THE MECHANICAL CONTRACTORS SHALL VERIFY MOTOR VOLTAGES WITH THE ELECTRICAL DRAWINGS BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.
7. SEE MECHANICAL SCHEDULE SHEET FOR SCHEDULED CAPACITIES OF ALL MECHANICAL EQUIPMENT AND MATERIALS SPECIFIED.
8. DOMESTIC WATER SERVICE IS PROVIDED WITH A DOUBLE CHECK BACKFLOW PREVENTER.
9. ALL MECHANICAL EQUIPMENT TO BE PROPOSED MUST BE ON THE APPROVED LIST PRIOR TO SUBMITTALS. ALL APPROVED MANUFACTURERS MUST BE CAPABLE OF MEETING THE REQUIREMENTS OF THE SPECIFIED EQUIPMENT.
10. RUNOUT AND HOOKUP SIZES TO INDIVIDUAL PLUMBING FIXTURE CAN BE FOUND ON THE PLUMBING FIXTURE SCHEDULE.
11. PROVIDE REMOTE CEILING ACCESS BALANCE DAMPERS WITH CONCEALED CHROME PLATE COVERS FOR BALANCE DAMPERS LOCATED ABOVE HARD CEILINGS.
12. PAINT ALL VTR'S, FLUES, EXHAUST CAPS, AND OTHER MECHANICAL ITEMS ON THE ROOF TO MATCH THE ROOF COLOR.
13. INSULATED FLEXIBLE DUCTWORK MAY BE USED FOR RUNOUTS TO GRILLES AND DIFFUSERS, IN LENGTHS OF 6'-0" OR LESS.
14. MAINTAIN MINIMUM OF 10'-0" DISTANCE BETWEEN ALL FRESH AIR INTAKES AND EXHAUST OR GAS FLUE DISCHARGES.
15. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL BACKFLOW DEVICES TO BE INSPECTED BY A CERTIFIED BACKFLOW TECHNICIAN BEFORE THE USE OF THE BUILDING POTABLE WATER SYSTEM.
16. LOCATE ACCESS HATCHES SO AS TO PROVIDE OPTIMUM SERVICEABILITY TO EQUIPMENT AND/OR VALVING. SEE ARCHITECTURAL SPECIFICATION FOR TYPE AND COLOR. COORDINATE LOCATION WITH STRUCTURAL & LIGHTING.
17. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
18. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR VERIFICATION OF EXISTING JOB CONDITIONS PRIOR TO BID. NO ADDITIONAL COST SHALL BE AWARDED TO THE SUCCESSFUL CONTRACTOR (OR THEIR SUBCONTRACTORS) AFTER BIDS HAVE BEEN SUBMITTED AND CONTRACTS AWARDED FOR FAILURE TO VERIFY EXISTING FIELD CONDITIONS. DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION FOR ALTERNATIVE METHODS OF INSTALLATION PRIOR TO THE BIDDING OF THIS PROJECT.
19. UNLESS OTHERWISE NOTED ALL EXISTING MECHANICAL EQUIPMENT, PIPING, ETC, TO BE REMOVED SHALL BE DISPOSED OF BY THE CONTRACTOR UNDER THIS CONTRACT. THE OWNER SHALL RETAIN THE RIGHT TO KEEP ANY REMOVED ITEMS.
20. ALL DOMESTIC COLD AND HOT WATER LINES IN THE AREA OF WORK WHICH ARE NO LONGER IN USE DUE TO THIS PROJECT SHALL BE REMOVED BACK TO THE MAINS AND CAPPED.
21. HOLES IN EXISTING WALL OR FLOORS SHALL BE PATCHED TO MATCH EXISTING WHERE PIPING, DUCTWORK, ETC. WERE REMOVED OR ADDED DURING THIS PROJECT.
22. DAMAGE TO THE EXISTING FACILITY DURING THE CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.

MECHANICAL AND PLUMBING DRAWINGS LEGEND

FLEXIBLE DUCTWORK	THREE WAY CONTROL VALVE
DUCTWORK	TWO WAY CONTROL VALVE
DUCTWORK BREAK	PRESSURE REDUCING VALVE
DUCTWORK OR PIPING RISE	GATE VALVE
CONCENTRIC SQUARE TO ROUND TRANSITION	REDUCER
MOTORIZED DAMPER	GLOBE VALVE
MANUAL VOLUME DAMPER	BALL VALVE
SPIN-IN FITTING W/ AIR EXTRACTOR AND HAND DAMPER	BUTTERFLY VALVE
HIGH EFFICIENCY FITTING W/ HAND DAMPER	BALANCE VALVE
SWITCH	CHECK VALVE
THERMOSTAT	FCO FLOOR CLEANOUT
HUMIDISTAT	WCO WALL CLEANOUT
TEMPERATURE SENSOR	GCO GRADE CLEANOUT
CARBON DIOXIDE SENSOR	WATER HAMMER ARRESTOR
CARBON MONOXIDE SENSOR	FLOOR DRAIN
NITROGEN DIOXIDE SENSOR	FLOOR SINK
DUCT SMOKE DETECTOR	GAS PRESSURE REGULATOR W/ GAS COCK
SFD COMBINATION SMOKE/FIRE DAMPER	PRESSURE RELIEF VALVE
FD FIRE DAMPER	VENT-THROUGH-ROOF
SD SMOKE DAMPER	VENT
EQUIPMENT CALLOUT	SOIL, WASTE, OR SANITARY SEWER
TURNING VANES	AW ACID WASTE LINE
INTAKE OR EXHAUST	AV ACID VENT LINE
DIRECTION OF AIRFLOW	SD STORM DRAIN
SUPPLY DIFFUSER	RD ROOF DRAIN LINE
RETURN GRILLE	OD OVERFLOW DRAIN LINE
EXHAUST GRILLE	CD CONDENSATE DRAIN LINE
FLOOR GRILLE	DOMESTIC COLD WATER (CW)
CEILING EXHAUST FAN	DOMESTIC HOT WATER (HW)
TEMPERATURE GAUGE	DOMESTIC HOT WATER RETURN (HWR)
PRESSURE GAUGE (LIQUID FILLED W/ ISOLATION VALVE)	TW TEMPERED WATER (TW)
TS TEMPERATURE SENSOR (DUCT OR PIPING)	MPG MEDIUM PRESSURE NATURAL GAS
FS FLOW SWITCH	G LOW PRESSURE NATURAL GAS
STAINLESS STEEL BRAIDED FLEX CONNECTION	F FIRE SPRINKLER LINE
ELASTOMETRIC FLEX CONNECTOR	GWS GEOTHERMAL WATER SUPPLY
SUCTION DIFFUSER	GWR GEOTHERMAL WATER RETURN
Y TYPE STRAINER (1 1/2" OR LARGER PROVIDED W/ BLOW DOWN VALVE)	CWS CHILLED WATER SUPPLY
FLOW DIRECTION	CWR CHILLED WATER RETURN
DEMOLITION / EQUIPMENT TO BE REMOVED	CS CONDENSER WATER SUPPLY
NEW TO EXISTING CONNECTION POINT	CR CONDENSER WATER RETURN
(E) EXISTING	HWS HEATING WATER SUPPLY
(F) FUTURE	HWR HEATING WATER RETURN
(N) NEW	L LIQUID REFRIGERANT LINE
REDUCED PRESSURE BACKFLOW PREVENTER	S SUCTION REFRIGERANT LINE
DOUBLE CHECK BACKFLOW PREVENTER	SLOPE PIPE IN DIRECTION OF ARROW
UNION	PIPE ANCHOR
AIR VENT	PIPE GUIDE
TRIPLE DUTY VALVE	CAP

NOTE: THIS IS A LIST OF COMMONLY USED MECHANICAL AND PLUMBING SYMBOLS. SOME OF THE SYMBOLS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.

ENERGY CODE COMPLIANCE

A. COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE IS REQUIRED FOR THIS PROJECT. THESE NOTES COVER MANDATORY REQUIREMENTS OF THE CODE. ADDITIONAL REQUIREMENTS ARE NOTED ON THE DRAWINGS AND IN THE SPECIFICATIONS.

B. MINIMUM REQUIREMENTS FOR SUPPLY AND RETURN DUCTWORK INSULATION:

1. R-6: DUCTS LOCATED IN UNCONDITIONED SPACES (SPACE NEITHER HEATED NOR COOLED SUCH AS ABOVE CEILING SPACES, WALL SPACES, DUCT CHASES, SOFFITS, ATTICS, CRAWL SPACES, UNHEATED BASEMENTS, AND UNHEATED GARAGES).
2. R-12: DUCTS LOCATED OUTSIDE OF THE BUILDING'S INSULATION ENVELOPE (SUCH AS ABOVE THE ATTIC INSULATION).

TYPICAL INSULATION THICKNESS REQUIRED TO MEET THESE REQUIREMENTS:

1. DUCT WRAP:
   R-6 = 1-1/2"
   R-12 = 4"
2. DUCT LINER:
   R-6 = 1-1/2"
   R-12 = 3"

C. CONTRACTOR SHALL VERIFY WITH THE MANUFACTURER, THE R-VALUES OF THE ACTUAL INSULATION USED. R-VALUES SHALL BE INSTALLED VALUES.

D. WHERE DUCTS USED FOR COOLING ARE EXTERNALLY INSULATED, THE INSULATION SHALL BE COVERED WITH A VAPOR RETARDER HAVING A MAXIMUM PERMEANCE OF 0.05 PERM OR ALUMINUM FOIL HAVING A MINIMUM THICKNESS OF 2 MILS. INSULATION HAVING A PERMEANCE OF 0.05 PERMS OR LESS SHALL NOT BE REQUIRED TO BE COVERED. ALL JOINTS AND SEAMS SHALL BE SEALED TO MAINTAIN THE CONTINUITY OF THE VAPOR RETARDER.

E. ALL DUCT JOINTS, SEAMS, AND CONNECTIONS SHALL BE FASTENED AND SEALED WITH WELDS, GASKETS, ADHESIVES, MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPES. TAPES AND MASTICS SHALL BE LISTED AND LABELED PER UL181A OR UL181B. DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS. DUCT CONNECTIONS TO FLANGES OR EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED.

F. MINIMUM REQUIREMENTS (THICKNESS) FOR PIPING INSULATION SHALL BE AS FOLLOWS:

FLUID	NOMINAL PIPE DIAMETER 1/2" TO < 1 1/2"	1 1/2" TO < 4"	4" AND ABOVE
1. REFRIGERANT	SEE SPECIFICATIONS		

THE ABOVE INSULATION IS BASED ON HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU-INCH/HOUR-FT2-°F.

G. DOMESTIC HOT WATER PIPING SYSTEMS SHALL BE INSULATED WITH 1" INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU-INCH/HOUR-FT2-°F.

H. DOMESTIC WATER HEATERS WHICH ARE NOT PROVIDED WITH INTEGRAL HEAT TRAPS AND SERVE NONCIRCULATING SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING AT THE WATER HEATER.

I. DOMESTIC HOT WATER SYSTEMS WITH RECIRCULATION PUMPS OR ELECTRIC HEAT TRACE SHALL BE CONTROLLED WITH 7-DAY TIME CLOCKS.

J. AN OPERATING AND MAINTENANCE MANUAL SHALL BE PROVIDED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. THE O&M MANUAL SHALL CONTAIN THE FOLLOWING INFORMATION AS A MINIMUM:

1. EQUIPMENT CAPACITY (INPUT & OUTPUT).
2. EQUIPMENT OPERATING AND MAINTENANCE INSTRUCTIONS.
3. CONTROL SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCES.
4. CONTROL SYSTEM SETPOINTS SHALL BE SHOWN ON CONTROL DRAWINGS, AT CONTROL DEVICES, OR IN PROGRAMMING COMMENT ON DDC SYSTEMS.
5. A COMPLETE WRITTEN NARRATIVE ON HOW EACH MECHANICAL SYSTEM IS INTENDED TO OPERATE.

MUSGROVE ENGINEERING, PA

234 S. WHISPERWOOD WAY BOISE, IDAHO 83709

Zone Summary

PROJECT: *Athletic Club* | Design Conditions | Winter: -30 | Summer: 95

COMPUTED BY: *JD* | DATE: 26-Jun-23 | CHK BY: JR

	Zone Reference	FLOOR SQ. FT.	Heating Load BTUH	Heating Load kW	Sensible Cooling Load BTUH	Total Cooling Load BTUH	NOMINAL TON (12000-BTUH/TON)	SQ. FT PER NOMINAL TON	NUMBER OF PEOPLE	OSA	EXHAUST	Unit Selection Size TONS
1	Pool Room	625	21,013	6	4,909	4,909	0.4	1527.7	0	375	0	
2	Fire Riser Room	110	6,916	2	1,789	1,789	0.1	737.8	0	8	0	
3	Locker Rooms	1310	25,871	8	7,822	7,822	0.7	2009.7	0	0	328	
4	Office	42	829	0	531	812	0.1	620.9	1	9	0	
5	Breakroom	100	1,975	1	1,439	2,280	0.2	526.3	3	26	0	
6	Small Work-Out	710	94,603	28	34,093	51,479	4.3	165.5	29	778	0	
7	Large Work-Out	3850	128,184	38	62,600	109,361	9.1	422.5	39	1264	0	
	Total Loads =	6747	279,392	82	113,184	178,453	14.9	454	72	2461	328	

Energy Compliance Calculations *(Not Equipment Schedule)*

Equipment is selected based on next available size

Load calculations based on ASHRAE CLTD/CLF - Cooling Load Temperature Difference/Cooling Load Factor Methods

COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: Athletic Club
Location: Jackson, Wyoming
Climate Zone: 7
Project Type: New Construction

Construction Site: | Owner/Agent: Athletic Club | Designer/Contractor:

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Mechanical Systems List

Quantity System Type & Description

1 6-ton (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 132 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE
Cooling: 1 each - Single Package DX Unit, Capacity = 67 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 11.00 EER, Required Efficiency = 11.00 EER
Proposed Part Load Efficiency = 15.00 IEER, Required Part Load Efficiency = 14.60 IEER
Fan System: 6-ton -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 2200 CFM, 1.4 motor nameplate hp, 1.00 fan energy index

1 DOAS (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 230 kBtu/h
Proposed Efficiency = 81.00% Et, Required Efficiency: 81.00 % Et
Cooling: 1 each - Single Package DX Unit, Capacity = 65 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 11.00 EER, Required Efficiency = 11.00 EER
Proposed Part Load Efficiency = 15.00 IEER, Required Part Load Efficiency = 14.60 IEER
Fan System: DOAS -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 3 Exhaust, Constant Volume, 2925 CFM, 2.0 motor nameplate hp, 1.00 fan energy index
FAN 2 Supply, Constant Volume, 2560 CFM, 3.0 motor nameplate hp, 1.00 fan energy index

1 DH (Single Zone):
Cooling: 1 each - Split System, Capacity = 27 kBtu/h, Air-Cooled Condenser, Unknown Economizer
Proposed Efficiency = 13.40 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: DH -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 4 Supply, Constant Volume, 950 CFM, 1.0 motor nameplate hp, 1.00 fan energy index

1 DF (Single Zone):
Heating: 1 each - Duct Furnace, Gas, Capacity = 100 kBtu/h
Proposed Efficiency = 80.00% Ec, Required Efficiency: 80.00 % Ec

Project Title: Athletic Club | Report date: 06/24/23
Data filename: | Page 1 of 11

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Jake David | Jake David | 06/24/23
Name - Title | Signature | Date

Project Title: Athletic Club | Report date: 06/24/23
Data filename: | Page 2 of 11

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CD

05.26.2023
DRAWN BY | JD
CHECKED BY | JR
REVISIONS

Jackson, WY
The Athletic Club at Jackson Hole

MECHANCIAL
COVER SHEET

M000

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Professional Engineer
JASON BIRKS
Date 05/26/2023
WYOMING

SECTION 15100 – MECHANICAL GENERAL PROVISIONS

PART 1 – GENERAL

1.1 SCOPE:
A. General:
1. The Bidding Requirements, Contract Requirements, and the General Requirements of these specifications shall govern all parts of the work
B. Work Included:
1. Install work in accordance with these specifications and the accompanying plans. Furnish all labor, material, and equipment together with all incidental items not specifically shown or specified which are required by good practice to provide the complete mechanical systems as described.
2. The HVAC Contractor(s) and all sub-tier Contractors shall provide installed equipment cut sheets and purchase orders required for utility rebates.
C. Coordination and Site Visits:
1. This section of the work requires examination of and reference to all architectural, structural, and electrical drawings for construction conditions that may affect the work. Inspect the building site and existing facilities for verification of existing conditions. Base all measurements from established benchmarks. Any discrepancy between actual measurements and those indicated, which prevents following good practice in the letter of the drawings and specifications, shall be reported to the Architect/Engineer, and work halted until instructions are received from the Architect/Engineer.

1.2 CODES, PERMITS, FEES:
A. Install all work in accordance with applicable codes and standards. Obtain all required permits; pay all required fees including utility connections or extensions, in connection with this portion of the construction. Obtain all required certificates of inspections for the work.

PART 2 – PRODUCTS

2.1 MATERIALS AND WORKMANSHIP:
A. Materials:
1. All materials and equipment shall be of first quality, new, full size and weight, standard in every respect, and suitable for the space required. Use the same manufacturer for products of similar class or service, such as valves, pumps, controls, and air handlers. Protect all materials against loss, theft, or damage before and after installation.
2. Furnish equipment that will operate under all conditions of load without any sound or vibration that is objectionable in the opinion of the Architect/Engineer. Vibration or noise considered objectionable will be corrected by the Subcontractor at his expense.
3. Furnish and install all necessary foundations, supports, pads, bases, and piers required for all materials and equipment furnished under this contract.
4. Provide all required fire stopping at piping and duct penetrations of fire rated walls, floors, ceilings, and roofs. Fire stopping shall be Dow Corning Fire Stop Sealant 2000 or Fire Stop Foam 2001, or approved equal.
B. Workmanship:
1. All materials and equipment shall be installed in a neat and workmanlike manner by competent specialists for each sub trade. Work shall be installed to the satisfaction of the Architect/Engineer. Unsatisfactory work removed and reinstalled to his satisfaction at no extra cost to the Owner.
2. Provide all cutting and patching necessary to install the work specified in this section. Patching shall match adjacent surfaces. No structural members shall be cut without the approval of the Architect/Engineer. Provide all sleeves and inserts required before the floors and walls are built.
3. Locate all equipment that must be serviced in fully accessible positions. Provide clearance for removal of replacement parts and components, and with necessary couplings or flanges to remove the component for maintenance.

2.2 SUBMITTALS AND SUBSTITUTIONS:
A. Prebid Approval:
1. Manufacturer's trade names and catalog numbers stated herein are intended to indicate the quality of equipment or materials desired. All manufacturers not specifically listed require prior approval. Submit catalog data, including specifications, of the proposed equipment to the Architect/Engineer for his approval at least 10 calendar days prior to bid opening. Notice of such approvals will be published in an addendum. Approval of listed alternate equipment manufacturers is for bidding only. Final approval is to be based on requirements of the plans and specifications.
B. Submittals:
1. Within thirty days after award of this contract, provide six copies of a complete list of all materials and equipment proposed for this project. List shall contain make, type, manufacturer's name, and trade designation of all materials and equipment. Submittal shall also include manufacturer's complete specification for each item, including capacities, ratings, etc., and dimensions as required to check space requirements. Provide six copies of all submittals. The scheduled equipment is the basis of design for capacity, weights, physical size, etc. Alternate manufacturers shall not exceed the weight or physical size. Any changes to the Architectural, Structural, Mechanical, Electrical, and Controls systems due to alternate manufactures shall be the responsibility of the Contractor and Supplier.
2. Approval of submittals shall not relieve the contractor from responsibility for deviations from the plans or specifications, unless he has, in writing, called the Architect's /Engineer's attention to deviations at the time of submission, and obtained his written approval. Approval of submittals does not relieve the contractor from responsibility for errors in shop drawings or literature.
C. Equipment Requiring Submittals
1. Rooftop A/C Units
2. DOAS Units
3. De-humidification Units
4. Condensing Units
5. Exhaust Fans
6. Grilles, Registers, Diffusers
7. Flexible Ductwork
8. Plumbing Fixtures and Trim

PART 3 EXECUTION

3.1 ACCESSIBILITY & SAFETY
A. Accessibility:
1. All equipment which must be serviced or operated shall be located in fully accessible position. Minor changes from the drawings may be made to allow for better accessibility. All changes shall be approved prior to actual installation.
2. Access panels shall be provided if required for accessibility. Subcontractor shall furnish the required panels to the General Contractor and the required location for all access panels. Panels shall be installed by the General Contractor.
B. Safety:
1. Subcontractor shall provide guards for all belt drives and rotating machinery. No water piping shall run immediately over or within a 3-foot plan view clearance of any electrical panel or motor starter. Where piping must be located within these zones, install piping inside a conduit to prevent water access to electrical equipment.

3.2 COORDINATION:
A. Coordinate all work with the various trades involved to provide a complete and satisfactory installation. The exact details of piping, ductwork, and equipment are not shown. No additional compensation will be made for offsets or relocation required in coordination with other trades.
B. Alterations required due to improper supervision by the subcontractor shall be made at no extra cost, to the satisfaction of the Architect/Engineer.

3.3 ELECTRICAL:
A. Electric motors required for equipment specified in this section shall be provided and installed by this subcontractor. Motor starters, disconnects, relays, pilot lights, etc., are in general, to be furnished and installed by the Electrical Contractor.
B. Starters, relays, controls, etc., which are factory assembled into packaged equipment shall be furnished by the Mechanical Contractor under this section of the specifications.
C. All motors shall be provided with adequate starting and protective equipment as specified or required. Motor capacity shall be sufficient to operate driven device under all conditions of operation and load without overload. Minimum horsepower shall be as specified.

3.4 EXCAVATION & BACKFILL:
A. Excavate trenches required for underground piping to proper elevation and grade. Provide trenches with solid bottoms to allow support of piping along entire length with excavation at bells as required for jointing and inspection. Provide repairing of finished surfaces, and all required shoring, bracing, pumping, and protection for safety of persons and property. Observe all Local or State Safety Codes. Verify that elevations of existing utilities will allow for proper grading of piping connecting to existing utilities.
B. Excavation and Backfill shall be in accordance with the requirements of Division 2 - Sitework, of these specifications.

3.5 IDENTIFICATION AND CODING:
A. Painting:
1. All painting of mechanical equipment, accessories, ductwork, and piping shall be furnished and applied under the Architectural section of these specifications. All painting shall be completed before any identification markings are applied.
B. Equipment:
1. Identify all equipment with a black Formica label, with white reveal when engraved. Lettering to be 3/16 inch high minimum. In general, identify equipment as to area served in addition to title and code number of the equipment as taken from the plans.
C. Piping:
1. Identify all piping as to the service of the pipe and the direction of flow. The letters shall be 1/2 inch high on piping 1-1/4 inches or smaller, 3/4 inch high on piping 1-1/2 to two inches, 1-1/4 inches high on piping up to six inches, and 2-1/2 inches high on 8 inch piping or larger. Flow arrows shall be at least six inches long. The letters and flow arrows shall be made by precut stencils or old base paint, one inch high and black, or factory fabricated plastic pipe markers. Piping shall be identified at 25 foot maximum intervals, on long continuous lines; adjacent to each item of equipment; on each riser and junction, and on both sides of all wall and floor penetrations. Underground piping shall be identified with bright colored continuously printed plastic tape of not less than 6" wide by 4 mil thick, manufactured for direct burial service. Install directly above all buried pipe, 6 to 8 inches below finished grade. All piping shall be labeled per the Uniform Plumbing Code, latest edition.

3.6 TESTING:
A. Piping:
1. All plumbing piping (drainage, water, gas) shall be tested in accordance with the requirements of the Idaho State Plumbing Code, latest edition. Other piping systems shall be tested hydrostatically, to 1.5 times the operating pressure, but not less than 100 psi, for a minimum period of two hours. If the test pressure falls more than 5 percent during the test period, the leak shall be located, repaired, and the test repeated.
2. Piping shall be tested before insulation has been installed. Delicate control mechanisms shall be removed during tests to prevent shock damage. The use of chemicals or compounds to stop leaks shall not be permitted.
3. A test report shall be submitted for each piping system test. Test report forms are part of Specifications Section 15200, or are available from the Engineer.
4. Smoke Test: A smoke test shall be performed on the waste and vent system before building occupancy. After all fixtures are permanently connected and traps are filled with water, fill entire drainage and vent system with smoke under pressure of 1-3 kPa (1 inch of water) with a smoke machine. If leaks are detected, they shall be repaired and the smoke test shall be performed again until no leaks are found.
B. Systems:
1. All systems, including heating, ventilating, air conditioning, and plumbing systems, shall be tested at the completion of the building to establish that the systems operate as specified and required. Testing shall be performed after air and water balancing is completed.
2. All controls shall be calibrated accurately and all equipment shall be adjusted for satisfactory operation. Excessive vibration or noise from any system shall be corrected.
3. The air conditioning system shall be tested for satisfactory operation when the outside air temperature reaches 60°F or warmer. All other systems shall be tested at building completion. All tests shall be performed in the presence of the Architect/Engineer or his representative.

3.7 BALANCING:
A. Scope:
1. Prior to final acceptance by the Owners, all air systems shall be balanced to deliver the quantities as specified or directed. The air balance shall be performed by an independent balancing firm specializing in testing, adjusting, and balancing, and is certified by the Testing, Adjusting, and Balancing Bureau (TABB), and the National Environmental Balancing Bureau (NEBB). Total system balance shall be in accordance with TABB.
2. Balance contractor's main office shall be located within 50 miles from the project site. Approved balance contractors are Evolve Engineering, NWESI, Building Systems Technologies, and Blue-Sky Commissioning. All other contractors must receive prior approval from the Engineer, in writing, before bidding the project.
B. Air Balancing
1. Balancing of the air system shall consist of :
a. Adjust all air volumes, including outside air, to the quantities shown, with allowable variation of plus 10, minus 10 percent.
b. Record all system, outside air, zone, diffuser, grille, and register C.F.M. Use volume control devices to regulate air quantities only to the extent that adjustments do not create objectionable air motion or sound levels. Balancing Engineer shall work with the Contractor to set the CFM quantities for zone dampers or zone damper/heaters.
c. Test and record all system static pressures, inlet and discharge, on all packaged units, fans, and terminal units. Vary total system air quantities by adjustment of fan speeds. Provide drive changes as necessary. Vary branch air quantities by damper regulation.
d. Test and record motor full load amps and nameplate amps.
e. Test and record entering and leaving temperatures at all coils.
f. Adjust all automatically operated dampers, in cooperation with the Mechanical Contractor, to the required settings. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions within specified tolerances. Where modulating dampers or economizers are provided, take measurements at full return air, minimum outside air, and 100 percent outside air mode of operation.
g. Adjust diffusers and grilles for proper deflection, throw, and coverage. Eliminate drafts and excessive noise where possible.
h. Mark final positions of all balance dampers with a red felt pen.
i. Air systems shall be balanced in accordance with standard procedures and recognized practices of the Associated Air Balance Council, and the Testing, Adjusting, and Balancing Bureau.

3.8 CLEANING AND ADJUSTING:
A. Thoroughly clean all parts of the system at the completion of the work. Flush all water circulating systems with fresh water and then drain. Clean all strainers and refill system. Install new, clean air filters in all systems. Adjust all devices for proper operation and lubricate all equipment as required. Repaint any painted surface that has been damaged.
B. All potable water systems shall be flushed and disinfected after tests are completed. Disinfection shall be in accordance with local municipal and State Plumbing Inspector's criteria. In lieu of such criteria, the following procedure shall be followed for disinfection:
1. Completely flush system. Add alkali or acid (hydrochloric) to bring water ph level to between 7.4 and 7.6.
2. Inject chlorine (liquid, powder, tablet, or gas) throughout the system to obtain 50 to 80 mg/L residual.
3. Bleed water from outlets to ensure distribution, and test for residual at a minimum of 15 percent of the outlets.
4. Maintain disinfection in system for 24 hours.
5. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
6. Flush disinfectant from system until residual is equal to that of incoming water, or 1.0 mg/L.
7. Take samples no sooner than 24 hours after flushing, from 10 percent of the outlets and the incoming water.

3.9 PROJECT CLOSEOUT:
A. Operations & Maintenance Manual:
The Contractor shall provide an operations and maintenance manual at least thirty days prior to completion of work. The manual shall be of the three ring binder type, entitled "Operations and Maintenance Manual", with the job name and year of completion also included. The manual shall include, as a minimum:
1. Maintenance instructions for all equipment, including lubrication requirements.
2. Equipment suppliers names, addresses, and telephone numbers.
3. Equipment catalog cuts, ratings tables, model numbers, serial numbers, and accessories.
4. Parts numbers for all replaceable parts.
5. All systems balance report as hereinbefore specified.
6. Control diagram or drawing and operation sequence.
7. Valve tagging chart as hereinbefore specified.
8. Filter chart listing unit callout, size of filters, and quantity of filters.
9. Guarantee letter as specified below.
10. Any additional information required to enable the Owner to properly maintain the building mechanical system.
11. After approval of the Operations and Maintenance Manual by the Architect/Engineer, the Contractor shall furnish two copies of the manual to the Owner.
B. Mechanical System Training Period:
1. After the mechanical system is completely installed and operational, the mechanical contractor shall provide a minimum of 2 hours training and instruction time for the building Owner or his representative. During this period, the contractor shall instruct the Owner in the operation and maintenance of all parts of the mechanical system, using the O & M manual where applicable.
C. As-Built Drawings:
1. Provide two sets of blue-line mechanical drawings showing the work as it was actually installed. The drawings shall indicate all departures from the contract drawings, and shall locate all underground utility lines with dimensions from established building lines. Make all notations neat and legible, with red indelible pencil. At the completion of the work, these as-built drawings shall be signed and dated by the Mechanical Contractor, and returned to the Architect/Engineer.
D. Guarantee:
1. All work furnished under this section shall be guaranteed in writing to be free from defective work or materials for a period of one year after acceptance of the contract. All repairs or replacements because of defective materials or workmanship or noncompliance with code shall be provided without additional cost to the Owner. Contractor shall furnish a letter indicating above guarantee with space for date of acceptance and expiration of guarantee. Letter shall be included in O & M Manual.

END OF SECTION 15100

SECTION 15200 – PLUMBING

PART 1 – GENERAL

1.1 SCOPE:
A. This section covers the work necessary for the plumbing system, complete. The Mechanical General Provisions, Section 15100 are to be included as a part of this section of the specifications.

1.2 CODES:
A. The plumbing system shall be installed in accordance with the Idaho State Plumbing Code, latest edition, International Fuel Gas Code, latest edition; and all local and State Codes.

1.3 FIXTURES & EQUIPMENT:
A. General:
1. Plumbing fixtures and equipment shall be as listed on the drawings. In addition to those specifically listed, the following manufacturers are approved for bidding only. All other manufacturers require prior approval. Final approval for installation is based on submittal data furnished:
a Tank Type Water Closets: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Gerber, and Sloan.
b Flush Valve Water Closets: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Gerber, and Sloan.
c Urinals: American Standard, Kohler, Eljer, Mansfield, Toto, Zurn, Briggs, Sloan, and Gerber.
d Vitreous China Sinks: American Standard, Kohler, Eljer, Zurn, Mansfield, Crane, Gerber, and Sloan.
e Stainless Steel Sinks: Elkay, Just.
f Faucets: American Standard, Kohler, Chicago Faucets, Delta, Moen, Gerberit, Gerber, CHG Encore Sanguard, Zurn Aquaspec, Symmonds, Sloan, & AMTC.
g Valves and Trim: T&S Brass, Dearborn Brass, Brasscraft, Profio.
h Flush Valves: Sloan, Delany, Delta and Zurn. Moen (sensor-operated only), & AMT.
i Carriers and Drainage Products: Jay R. Smith, Josam (Blucher-Josam), Zurn, Wade, Watts, MIFAB, Sioux Chief, Neenah Foundry, Sun Drainage.
j Toilet Seats: Bemis, Church, Plumbtech, Zurn, American Standard, & Kohler.
k Mixing Valves: Symmonds, Leonard, Powers, Watts, Wilkins, Lawler, Stingray, Acorn Controls.
l Fiberglass Acrylic Fixtures: Best Bath, Intersan, MAXX, Fiat, Aquatic, Aquaglass.
m Drinking Fountains/ Electric Water Coolers: Haws, Murdock, Oasis, Stern Williams, Halsey Taylor.
n Safety Fixtures and Safety Mixing Valves: Haws, Gaurdian, Acorn, Bradley, Chicago Faucets, Encon.
o Security Fixtures: Acorn, Bradley, Willoughby.
p Terrazo/ Acrylic Washfountains: Bradley, Acorn, Intersan.
q Service Sinks: Fiat, Acorn, Stern Williams, Mustee.
r Water Heaters: Rheem, A.O. Smith, PVI, State, Bradford-White, American, Heat Transfer-Phoenix, Rinnai, Bock.
s Backflow Preventers: Watts, Conbraco, Apollo, Wilkins.
t Hose Bibbs: Josam, Zurn, JR Smith
u Trench Drains: J.R. Smith, ABT, Strongwell Polycast, ACO, Zurn, NDS, Wade, Jensen, Dura Trench.
v Utility Sinks: Fiat, Profio, Mustee.

2.2 Plumbing Fixture Standards
All plumbing fixtures shall meet or exceed the following standards:
a ANSI A112.6.1 - Supports for Off-the Floor Plumbing Fixtures for Public Use.
b ANSI A112.18.1 - Finished and Rough Brass Plumbing Fixture Fittings.
c ANSI A112.19.1 - Enameled Cast Iron Plumbing Fixtures.
d ANSI A112.19.2 - Vitreous China Plumbing Fixtures.
e ANSI A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use).
f ANSI A112.19.4 - Porcelain Enameled Formed Steel Plumbing Fixtures.
g ANSI A112.19.5 - Trim for Water-Closet Bowls, Tanks, and Urinals.
h ANSI Z124.1 - Gel-Coated Glass-Fiber Reinforced Polyester Resin Bathtub Units.
i ANSI Z124.2 - Gel-Coated Glass-Fiber Reinforced Polyester Resin Shower Receptors and Shower Units.
j ANSI Z358.1 - Emergency Eye Wash and Shower Equipment.
k ARI 1010 - Drinking Fountains and Self-Contained Mechanically Refrigerated Drinking Water Coolers.
l IAWS/IASSE 1001 - Atmospheric Vacuum Breaker
m ANSI/ASSE 1012 - Backflow Preventers with Immediate Atmospheric Vent.
n ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.
o ANSI/ASSE 1013 - Backflow Preventers, Reduced Pressure Principle.
p ANSI/ASSE 1015 - Backflow Preventers, Double Check Principle
q ANSI/ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.
r IAWS/ASSE 1020 - Pressure Vacuum Breaker
s AWWA C511 - 1-92 - Hose Connection, Double Check
t ANSI A112.21.1 - Floor Drains.
u ANSI A112.21.2 - Roof Drains.
v ANSI A112.26.1 - Water Hammer Arresters.
w PDI WH-201 - Water Hammer Arresters.
x ANSI/AWWA C606 - Grooved and Shouldered Joints

PART 2 - PRODUCTS

2.1 PLUMBING FIXTURES & TRIM:
A. All plumbing fixtures shall be provided complete with all required trim for a complete and operational system. All exposed trim shall be chrome plated. All piping penetrations through finished walls shall be provided with chrome escutcheons. All plumbing fixtures shall be caulked and sealed to surrounding surfaces. All sink traps shall be provided with a clean out plug in the bottom of the trap. Inform exposed pipe, valves, and fixture trim, including trim behind all casework doors, shall be chrome plated. Each fixture shall be provided with stop valves and the stop valves shall be quarter-turn brass ball type. All fixtures and trim must be lead free. All floor drains and floor sinks shall be provided with trap primers.(PPP, or Zurn as needed for appropriate use. Provide ball valve type shut-off valve upstream of all trap primer valves).

2.2 PIPING AND FITTINGS:
A. General:
1. Underground sanitary sewer and storm drain lines shall be installed at 1/4" per foot slope, unless otherwise indicated. If such slope is not possible due to existing inverts, approval shall be obtained from the Architect/Engineer and the authority having jurisdiction before any piping is installed at a lesser slope.
2. Connections between piping of dissimilar materials shall be made with dielectric waterway fittings only.
3. Provide standard manufactured water hammer arresters at all flush valves. Size and locate per manufacturers recommendations. Provide access panels for access to all water hammer arresters.
B. Domestic Hot and Cold Water:
1. Piping inside building above slab or above grade in crawl space shall be ASTM B88, Type "L"; hard drawn copper. Fittings shall be ANSI/ASME B16.23 cast brass, or ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASTM B32 solder, Grade 95-5, lead free.
2. Piping underground within 5 feet of the building line or below floor slab, smaller than 4 inches, shall be ASTM B88, Type "K"; hard drawn or soft annealed copper. Fittings shall be ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASTM B32 solder, Grade 95-5, lead free. No joints shall be installed beneath concrete floor slabs. Underground copper piping shall be provided with a polyethylene jacket, ANSI/AWWA C105, or shall be wrapped with double layer, half-lapped, 10 mil polyethylene tape.
3. Trap Primer Piping (below floor or concealed only) - 1/2" type K hard drawn copper, wrapped as indicated above.
4. Piping underground beyond 5 feet from building line shall be Schedule 40 PVC, ASTM D1785 or D2241. Fittings shall be PVC, ANSI/ASTM D2466. Joints shall be solvent weld, ASTM D2855, or gasketed, ASTM F477. Piping shall be rated for not less than 150 psig pressure.
C. Sanitary Sewer and Vent:
1. Piping and fittings shall be Schedule 40 PVC-DWV (cellular core), per ASTM F1488 and ASTM F891, solvent welded per solvent manufacturer's instructions, or ABS Schedule 40 piping and fittings per either ASTM D2661 or ASTM F628 with solvent cement conforming to ASTM D2235. All sewer risers (2 story or more) shall be service weight cast iron, no-hub or single-hub, ASTM A74. All piping penetrations through fire rated walls, floors, or ceilings, and all piping located above ceilings used as return air plenums shall also be cast iron or galvanized steel, ASTM A53. Underground PVC-DWV piping shall be installed per ASTM D-2321.
2. Piping and fittings beyond 5 feet from the building line shall be PVC, ASTM D3033 or D3034, SDR 35. Joints shall be ASTM F477 with elastomeric gaskets. Underground piping shall be installed per ASTM D-2321.
3. All 90 degree waste tee elbows shall be per the latest issue of the Idaho State Plumbing Code, latest edition.
4. All exposed vent piping located in occupied areas or rooms, is to be cast iron with cast iron fittings.
5. Cleanouts shall be provided at each horizontal drainage pipe at its upper terminal, and each run of piping which is more than 100 feet, and shall be provided for each 100 feet developed length, or fraction thereof of such piping. An additional clean out shall be provided for each aggregate horizontal change of direction exceeding one hundred thirty-five degrees, per applicable plumbing code. This shall be provided regardless of what is shown on the drawings.
6. All floor drains, floor sinks, and hub drains shall be installed with a trap primer. Reference the Plumbing Fixture Schedule, on the plans, for type.
7. All vents through roof (VTR's) shall be extended at least 1 foot above the roof surface, or to the top of the closest adjacent parapet wall, whichever is greatest.
D. Natural Gas:
1. Piping shall be Schedule 40 black steel pipe, ASTM A53. Exposed fittings 2 inches and smaller shall be ANSI/ASME B16.3, screwed, black malleable iron.
2. Fittings larger than 2 inches and all underground fittings shall be Schedule 40 steel butt-welded type. Underground piping shall be provided with a polyethylene jacket, ANSI/AWWA C105, or shall be wrapped with double layer, half-lapped, 10 mil polyethylene tape.
3. All exterior piping exposed to the weather shall be coated with a rust inhibitor - Rustoleum #966 Pro-Guard Primer - red or gray color - or approved equal.
E. Condensate Drain Piping:
1. Exterior to building, or located in plenum: Piping shall be Type L hard drawn copper, ASTM B88 with solder joints. Copper piping shall not be used on 90% condensing type equipment.
2. Interior: Piping shall by Type L hard drawn copper, ASTM B88, with solder joints, grade 95TA, or shall be Schedule 40 PVC. Copper piping shall not be used on 90% condensing type equipment. Provide a neoprene or rubber gasket at all copper piping support hangers to inhibit corrosion.
F. Hanger and Supports:
1. Pipe hangers shall be provided to adequately support all piping systems. Hangers shall be vertically adjustable to provide for proper pitch and drainage. Hangers shall allow for expansion and contraction of the piping system. Reference "General Regulations" of the latest edition of the Idaho State Plumbing Code.
2. Hangers for pipe sizes 1/2 to 6 inches shall be adjustable clevis type, or unistrut saddles with all-thread hanger rod.
3. Hangers for hot pipe, sizes 6 inches and over shall be adjustable steel yoke, cast iron roll, double hanger type.
4. Vertical pipes shall be supported with steel riser clamps. Spacing interval requirements per "General Regulations" of the latest edition of the Idaho State Plumbing Code.
5. All insulated piping shall be provided with minimum 18 gauge galvanized insulation shields, 12 inches long, and oversized hangers. Pipe sizes 2 inches and over shall also be provided with 12 inch long calcium silicate insulating blocks between the piping and the galvanized insulation shield.
6. Hanger rod sizing and spacing for pipe shall be as follows:

Pipe Size	Minimum Rod Diameter	Maximum Spacing
To 1-1/4 inches	3/8 inch	6.5 feet
To 2 inches	3/8 inch	10 feet To 3
Inches	1/2 inch	10 feet
To 6 inches	5/8 inch	10 feet
8 to 12 inches	7/8 inch	12 feet
PVC & ABS (all sizes)	3/8 inch	4 feet
Cast Iron Hor-Hub	5/8 inch	5 feet and at joints

7. Provide hangers within 12 inches of each horizontal elbow.
8. Provide hangers with minimum 1-1/2 inches vertical adjustment.

2.3 INSULATION:
A. General:
1. All insulation shall have composite fire and smoke hazard ratings, as tested by ASTM E-84, NFPA 255, and UL 723, not exceeding:

Flame Spread	25
Smoke Developed	50

B. Piping:
1. All domestic, potable & non-potable, hot and cold water lines and rain drains shall be insulated with preformed insulation.
a Fiberglass insulation with a vapor barrier jacket. Insulation shall have a conductivity not exceeding 0.28 Btu-inch/hour-sq. ft.-°F. Laps and butt joints shall be sealed with pressure sensitive joint sealing tape of the same finish as the insulation jacket to provide a continuous vapor seal. Fittings and valves shall be insulated with PVC fitting covers and fiberglass insulation insers, or with hydraulic setting insulating cement and four ounce canvas jacket with vapor barrier adhesive.
b Alternate material for Cross-Linked Polyethylene Tubing (PEX). One piece preformed flexible elastomeric closed cell foam with built-in vapor barrier. Seal laps and butt joints with moisture resistant adhesive to provide a continuous vapor barrier. Insulation shall have a conductivity rating not exceeding 0.27 Btu-inch/hour-sq. ft.-°F.
Insulation thickness shall be as follows:

System	Pipe Sizes ¼" and above
Domestic Cold Water (pot. & non-pot.)	½"
Domestic Hot Water & Recirc. (pot. & non-pot.)	1"
Roof Drain Piping	½"
Overflow Drain Piping	½"

2. Roof and overflow drain sumps shall be insulated with 1/2" thick fiberglass with a vapor barrier, extending 2" onto adjacent insulation.
3. Insulation shall be installed in strict accordance with manufacturer's instructions.
4. Insulation shall be continuous through penetrations.
5. All insulation shall be installed in a neat and workmanlike manner.

2.4 VALVES AND STRAINERS:
A. Ball Valves:
1. Valves 2-inches and smaller shall be cast brass body, chrome-plated brass ball, teflon seats, and lever handle, 600 psi CWP. Valves shall comply with MSS SP-110. Valves over 2-inches shall be ductile iron or cast steel body, chrome plated steel ball, teflon seats, and lever handle. Victaulic series 726, Anvil Gruvlok, Grinnell, or Shurjoint ball valves are acceptable if grooved piping is used.
B. Check Valves:
1. Valves 2-inches and smaller shall be bronze body Y-pattern, ASTM B-62, swing check, bronze disc, 200 psi WOG. Valves shall comply with MSS SP-80. Valves, over 2-inches shall be iron body, ASTM A-126, bronze trim, swing check, renewable disc and seat. Valves shall comply with MSS SP-71.
2. Swing check valves with outside lever and spring (not center guided) is to be used on sewage ejector or storm-water sump pumps.
C. Pressure Reducing Valves:
1. Valves 2-inches and smaller shall be bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer, and single union end.
D. Strainers:
1. Strainers shall be cast steel body, Y-pattern, 20-mesh stainless screen.

PART 3 - EXECUTION

3.1 WORKMANSHIP:
A. General:
1. Install all piping, fixtures, equipment, and accessories as shown, and in strict accordance with the plumbing laws, rules, and regulations of the State and/or City. All work shall be done in a neat and orderly fashion, and left in a condition satisfactory to the Architect/Engineer.
B. Piping:
1. All piping shall be run parallel or perpendicular to established building lines. Install piping so as to allow for expansion. Waste and vent piping occurring above floor slab shall be installed true and plumb. Extend vents at least 1 foot above roof, or to the top of the closest adjacent parapet wall, whichever is greater, and provide watertight flashing sleeves. Excavation and backfill shall be in accordance with Section 15100 of these specifications.
C. Fixtures:
1. Install fixtures true and plumb with building walls. Caulk all plumbing fixtures at joints along walls, countertops, and other interior surfaces. Locate fixtures as shown and per manufacturer's instructions. Furnish all required trim for fixtures to provide a complete and workable installation.

3.2 TESTS:
A. General:
1. All piping, fixtures, and equipment shall be inspected and approved before concealing or covering. All work shall be tested as required by Section 15100 of these specifications, and shall be leak proof before inspection is requested. All tests shall be repeated if required by those making the inspection.
2. All potable water systems shall be flushed and disinfected in accordance with Section 15100 of these specifications. Following disinfection, system shall be flushed and water sampled to show compliance with requirements of public health authority having jurisdiction. If tested water does not meet requirements, disinfecting shall be repeated until water quality meets requirements.
B. Fixtures and Equipment:
1. Fill all plumbing fixtures with water and check for leaks or retarded flow. Repair as required. Adjust each piece of plumbing equipment as required to insure proper functioning. Leave all fixtures and equipment in first class operating condition.
2. The Plumbing Contractor is responsible for all backflow devices to be inspected by a certified backflow technician before the use of the building potable water system.

END OF SECTION 15200

SECTION 15300 – HEATING, VENTILATING, AND AIR CONDITIONING

PART 1 – GENERAL

1.1 SCOPE:
A. This section covers the work necessary for the heating, ventilating, and air conditioning system, complete. The Mechanical General Provisions, Section 15100, is to be included as a part of this section of the specifications.

1.2 CODES & STANDARDS
A. The heating, ventilating, and air conditioning system shall be installed in accordance with the latest edition of the following codes and standards:
1. International Mechanical Code (IMC)
2. International Building Code (IBC)
3. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
4. National Fire Protection Association (NFPA)
5. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

PART 2 – PRODUCTS

2.1 AIR HANDLING UNITS AND APPURENANCES:
A. See plans for requirements.

2.2 EXHAUST FANS
A. See plans for requirements.

2.3 AIR DISTRIBUTION
A. Ductwork:
1. Low pressure ductwork shall be fabricated from galvanized sheet metal, unless otherwise indicated. Construction requirements shall be in accordance with SMACNA HVAC Duct Construction Standards, metal and flexible, latest edition. All sheet metal ductwork shall be sealed with McGill United Sheet Duct Sealer or equal, in accordance with the International Energy Compliance Code, latest edition. Low pressure ductwork shall be constructed to the following SMACNA static pressure standards:
a Supply air ductwork = 2" W.G.
2. Low pressure ductwork located exposed in exposed ceiling areas, shall be spiral type ductwork with a "paint-grip" finish, on both ductwork and associated fittings that can be painted.
a Joints: 0" to 20" diameter, interior slip coupling beaded at center, fastened to duct with screws and with sealing compound applied continuously around joint between assembling and after fastening. Sealing compound shall be applied in an even and professional manner.
b Joints 22" - 72" diameter, use 3-piece, gasketed, flanged joints consisting of 2 internal flanges (with integral mastic sealant) split to accommodate minor differences in duct diameter, and one external closure band designed to compress gasketing between internal flanges. Manufacturer shall be Ductmate, Spiralmate or equal.
c All takeoff or branch entrances shall be by means of factory-fabricated fittings. Field taps shall not be allowed.
3. Low pressure ductwork which is exposed or located in mechanical rooms shall be fabricated from galvanized sheet metal. Construction requirements shall be in accordance with SMACNA HVAC Duct Construction Standards, metal and flexible, latest edition.
4. Low or medium pressure, round or rectangular insulated ductwork shall have a minimum 1" insulation, & perforated metal lining, & shall be McGill Acoustl-X27, Metaltec, or equal.
5. Type - 1 Kitchen Hood exhaust ductwork shall be fabricated from minimum 16 gauge welded steel, and shall be constructed in strict accordance with the latest edition of the International Mechanical Code.
6. Type - 2 Kitchen Hood exhaust ductwork shall be fabricated from aluminum sheet metal, in accordance with SMACNA Standards.
7. Ductwork penetrating protective elements of fire-rated corridor walls, with no common corridor, shall be constructed of minimum 26 gauge galvanized steel.
8. Exterior exposed ductwork shall be fabricated from galvanized sheets. All joints and seams shall be standing-seam type with sealing mastic to provide watertight construction. All ductwork shall be internally insulated as hereinbefore specified. All exposed surfaces shall be primed and painted two coats of exterior enamel paint, color as selected by the Architect.
9. Shower and locker room exhaust ductwork shall be constructed of galvanized sheet metal, in accordance with SMACNA standards.
10. Flexible ducts shall be listed per UL-181 standard as Class 1 flexible air duct and complying with NFPA Standards 90A and 90B. Ducts shall be insulated with a minimum R-5 value, and shall have a maximum vapor transmission value of .05 perms. Ducts shall be factory made with and composed of a CPE liner duct permanently bonded to spring steel wire helix. Duct shall be GREENGUARD tested and certified, carry a ten-year warranty for the labor to replace the duct should there be a factory defect. Low permeability outer jacket shall have a conductivity rating not exceeding 0.27 Btu-inch/hour-sq. ft.-°F.
Insulation thickness shall be as follows:

System	Pipe Sizes ¼" and above
Domestic Cold Water (pot. & non-pot.)	½"
Domestic Hot Water & Recirc. (pot. & non-pot.)	1"
Roof Drain Piping	½"
Overflow Drain Piping	½"

2. Roof and overflow drain sumps shall be insulated with 1/2" thick fiberglass with a vapor barrier, extending 2" onto adjacent insulation.
3. Insulation shall be installed in strict accordance with manufacturer's instructions.
4. Insulation shall be continuous through penetrations.
5. All insulation shall be installed in a neat and workmanlike manner.

B. Duct Accessories:
1. Turning vanes shall be installed in all rectangular or square elbows. Vanes shall be installed in vane side rails. Vanes shall be single wall vanes, and be fabricated and installed per SMACNA standards.
2. Volume dampers shall be fabricated from galvanized steel in accordance with SMACNA standards. Dampers shall have a continuous galvanized steel shaft on ducts 13" diameter or larger, with damper regulators and end bearings. Dampers located above inaccessible ceilings (hard ceilings) shall be furnished with concealed ceiling damper regulators. Dampers shall be pressure rated equal to the design duct pressure rating.
3. Flexible connections shall be provided at all rotating fan equipment. Connections shall be of fire, water, and weather resistant material.
4. Fire dampers shall be UL-labeled with frame, locking assembly, accordion style folded blades, and fusible link. Dampers shall be Style B with blades around outside of the air stream. Provide duct inspection door at each fire damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a steel frame with gasket around periphery, and a hinged panel. Belimo operators/actuators only.
5. Combination smoke and fire dampers are to be fusible link type with factory sleeve and electric operator located exterior to duct 120 V. operator to be spring return, fail closed with 212 degrees F link and UL label. Provide duct inspection door at each damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a steel frame with gasket around periphery, and a hinged panel. Belimo operators/actuators only.
6. A plastic flex elbow support by Flexible Technologies Inc., Titus Fl

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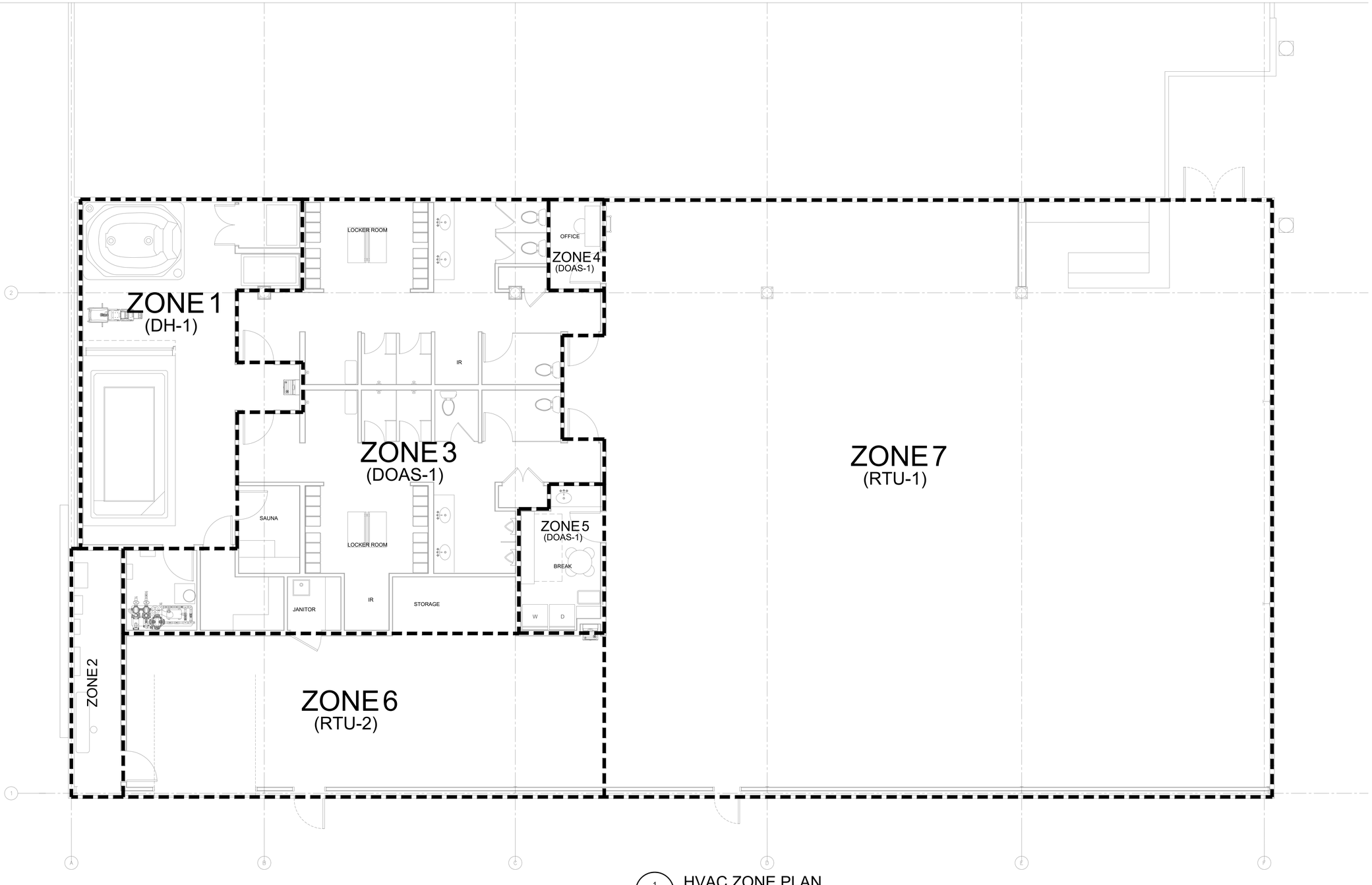

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M001
HVAC ZONE PLAN
1/4"=1'-0"

Jackson, WY
The Athletic Club at Jackson Hole

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05.26.2023
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REVISIONS

HVAC ZONE PLAN

M002

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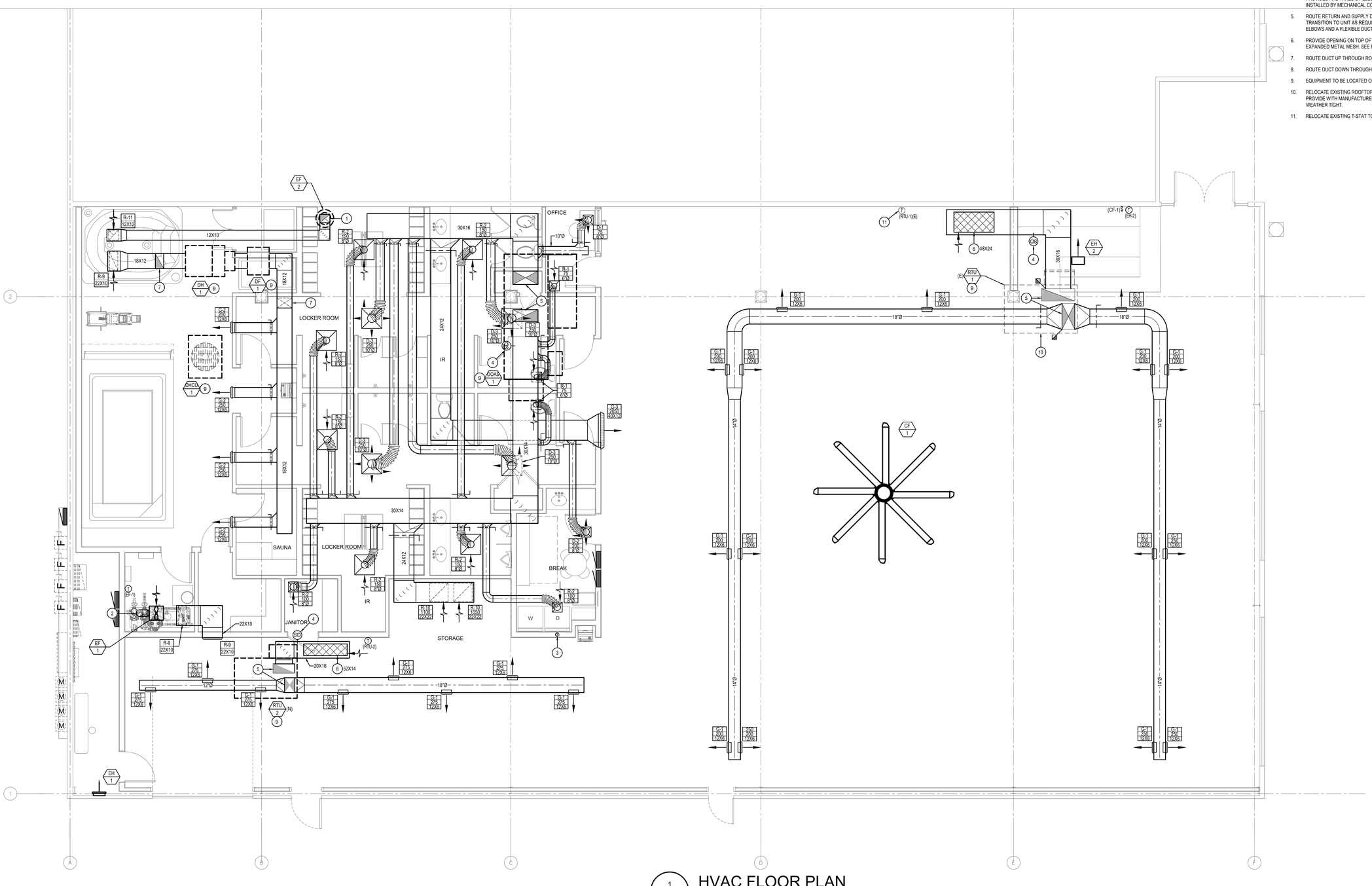
KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. ROUTE EXHAUST DUCT UP THROUGH ROOF TO FAN OUTLET. TRANSITION TO FAN OPENING AND PROVIDE FLEXIBLE CONNECTION AT FAN.
2. ROUTE EXHAUST DUCT UP THROUGH ROOF TERMINATE WITH FACTORY ROOF CAP.
3. ROUTE 4" DRYER EXHAUST DUCT UP THROUGH ROOF AND TERMINATE WITH ROOF CAP. SEE DETAIL FOR REQUIREMENTS.
4. SMOKE DUCT DETECTOR IN RETURN DUCT SHALL SHUT DOWN UNIT UPON DETECTION OF SMOKE. SMOKE DETECTOR SHALL BE PROVIDED AND WIRED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR.
5. ROUTE RETURN AND SUPPLY DUCTS UP THROUGH ROOF AND TRANSITION TO UNIT AS REQUIRED. PROVIDE TURNING VANES IN ELBOWS AND A FLEXIBLE DUCT CONNECTION AT UNIT.
6. PROVIDE OPENING ON TOP OF DUCT. COVER OPENING WITH EXPANDED METAL MESH. SEE PLAN FOR REQUIRED SIZE.
7. ROUTE DUCT UP THROUGH ROOF.
8. ROUTE DUCT DOWN THROUGH ROOF.
9. EQUIPMENT TO BE LOCATED ON ROOF.
10. RELOCATE EXISTING ROOFTOP UNIT TO THIS LOCATION. PROVIDE WITH MANUFACTURERS CURB. SEAL EXISTING CURB WEATHER TIGHT.
11. RELOCATE EXISTING T-STAT TO THIS LOCATION.



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HVAC FLOOR PLAN

1/4"=1'-0"

Jackson, WY

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HVAC FLOOR PLAN

M100

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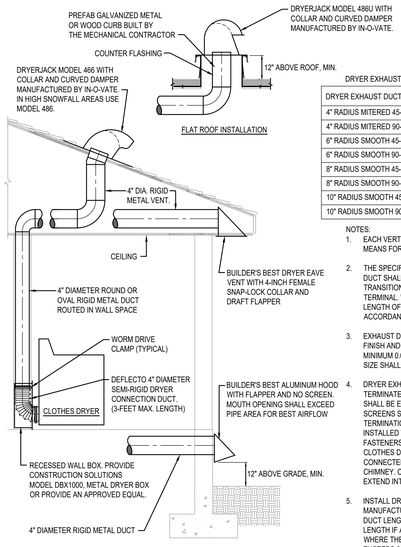
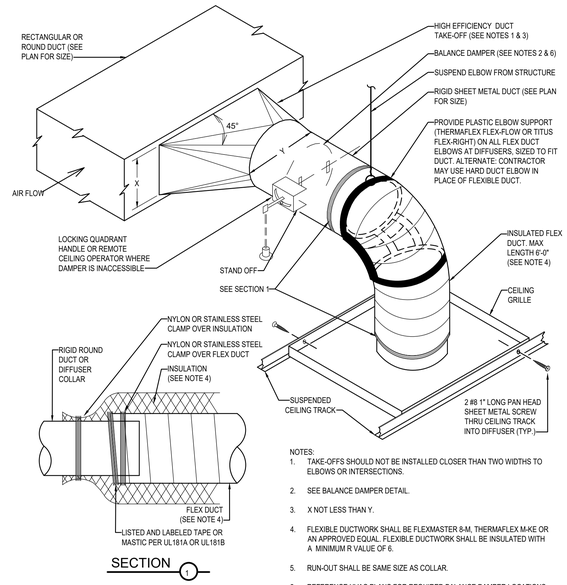


TABLE 504.6.4.1
DRYER EXHAUST DUCT FITTING EQUIVALENT LENGTH

DRYER EXHAUST DUCT FITTING TYPE	EQUIVALENT LENGTH
4" RADIUS MITERED 45-DEGREE ELBOW	2 FEET 6 INCHES
4" RADIUS MITERED 90-DEGREE ELBOW	5 FEET
6" RADIUS SMOOTH 45-DEGREE ELBOW	1 FEET
6" RADIUS SMOOTH 90-DEGREE ELBOW	1 FEET 9 INCHES
8" RADIUS SMOOTH 45-DEGREE ELBOW	1 FEET
8" RADIUS SMOOTH 90-DEGREE ELBOW	1 FEET 7 INCHES
10" RADIUS SMOOTH 45-DEGREE ELBOW	9 INCHES
10" RADIUS SMOOTH 90-DEGREE ELBOW	1 FEET 6 INCHES

NOTES:
1. EACH VERTICAL RISER SHALL BE PROVIDED WITH A MEANS FOR CLEANOUT.
2. THE SPECIFIED MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE 35 FEET FROM THE CONNECTION TO THE TRANSITION DUCT FROM THE DRYER TO THE OUTLET TERMINAL. WHERE FITTINGS ARE USED, THE MAXIMUM LENGTH OF EXHAUST DUCT SHALL BE REDUCED IN ACCORDANCE WITH TABLE 504.6.4.1.
3. EXHAUST DUCTS SHALL HAVE A SMOOTH INTERIOR FINISH AND SHALL BE CONSTRUCTED OF METAL A MINIMUM 0.016 INCH (0.4 MM) THICK. THE EXHAUST DUCT SIZE SHALL BE 4-INCHES IN DIAMETER.
4. DRYER EXHAUST DUCTS FOR CLOTHES DRYERS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING AND SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. DUCTS SHALL NOT BE CONNECTED OR INSTALLED WITH SHEET METAL SCREWS OR OTHER FASTENERS THAT WILL OBSTRUCT THE EXHAUST FLOW. CLOTHES DRYER EXHAUST DUCTS SHALL NOT BE CONNECTED TO A VENT CONNECTOR, VENT OR CHIMNEY. CLOTHES DRYER EXHAUST DUCTS SHALL NOT EXTEND INTO OR THROUGH DUCTS OR PLENUMS.
5. INSTALL DRYER VENT TERMINATION PER THE MANUFACTURER'S RECOMMENDATIONS. THE EXHAUST DUCT LENGTH CAN EXCEED THE 35-FEET SPECIFIED LENGTH IF APPROVED BY THE DRYER MANUFACTURER. WHERE THE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE EXHAUST DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL OR TAG.
6. DRYER DUCTS LOCATED IN UNHEATED SPACES, SUCH AS ATTICS, CRAWL SPACES, UNHEATED BASEMENTS, AND UNHEATED GARAGES OR IN AREAS ABOVE UNHEATED OR EXTERIOR CONDITIONS, SHALL BE INSULATED. SEE SPECIFICATIONS FOR INSULATION R-VALUE REQUIREMENTS.

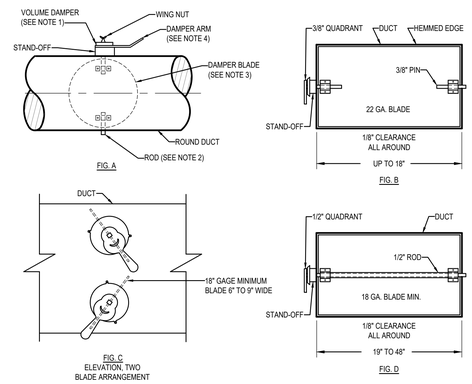
1 CLOTHES DRYER INSTALLATION DETAIL
NOT TO SCALE (SEE PLAN FOR OUTLET TYPE)



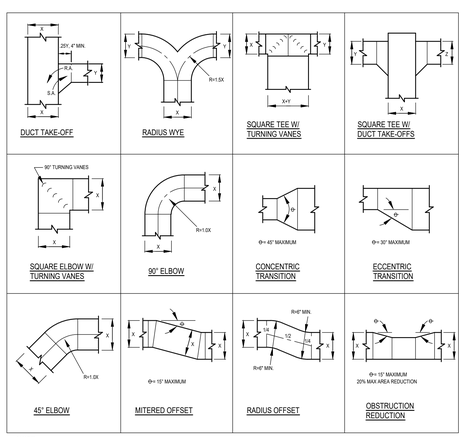
NOTES:
1. TAKE-OFFS SHOULD NOT BE INSTALLED CLOSER THAN TWO WIDTHS TO ELBOWS OR INTERSECTIONS.
2. SEE BALANCE DAMPER DETAIL.
3. X NOT LESS THAN Y.
4. FLEXIBLE DUCTWORK SHALL BE FLEXMASTER 8-M, THERMAFLEX M-KE OR AN APPROVED EQUAL. FLEXIBLE DUCTWORK SHALL BE INSULATED WITH A MINIMUM R VALUE OF 6.
5. RUN-OUT SHALL BE SAME SIZE AS COLLAR.
6. REFERENCE HVAC PLANS FOR REQUIRED BALANCE DAMPER LOCATIONS.

2 HIGH EFFICIENCY TAKE-OFF DETAIL
NOT TO SCALE

NOTES:
1. FOR TAKE-OFFS LARGER THAN 12" DIAMETER, USE A FACTORY MANUFACTURED DAMPER. LOUVERS & DAMPERS, INC. MODEL CD-600 WITH A LOCKING HAND QUADRANT OR EQUAL.
2. ROD CONTINUOUS ON 2" W.G. CLASS AND ON ALL DAMPERS OVER 12" DIAMETER.
3. BLADE 22 GAGE MIN., BUT NOT LESS THAN TWO GAGES MORE THAN THE DUCT GAGE.
4. PROVIDE REMOTE CEILING OPERATOR WHERE DAMPER IS INACCESSIBLE.
5. FOR DUCTS OVER 12" HIGH USE MULTIPLE BLADE DAMPERS (SEE FIG. C).
6. ALTERNATE MANUFACTURERS INCLUDE: AMERICAN WARMING, SAFE-AIR/DOWCO, J&J, LOUVERS & DAMPERS, RUSKIN, NAILOR, ARROW UNITED, POTTORFF, & CESCO.
7. PROVIDE STAND-OFF FOR DAMPER ARMS LOCATED W/EXTERNAL INSULATION.

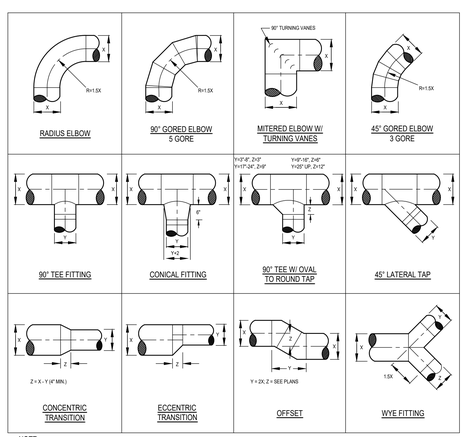


3 BALANCE DAMPER DETAIL
NOT TO SCALE



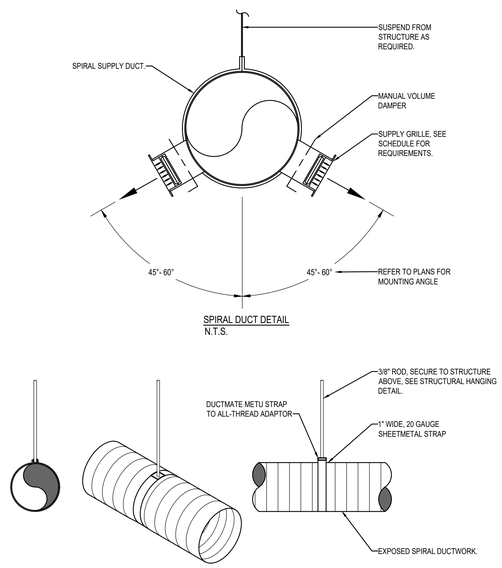
NOTE:
1. ALL DUCTWORK TRANSITIONS SHALL BE CONSTRUCTED AND INSTALLED TO SMACNA, SPECIFICATIONS AND THE ABOVE NOTED STANDARDS. ANY DEVIATIONS SHALL BE COORDINATED WITH THE ENGINEER.

4 RECTANGULAR DUCT FITTING DETAILS
NOT TO SCALE



NOTE:
1. ALL DUCTWORK TRANSITIONS SHALL BE CONSTRUCTED AND INSTALLED TO SMACNA, SPECIFICATIONS, AND THE ABOVE NOTED STANDARDS. ANY DEVIATIONS SHALL BE COORDINATED WITH THE ENGINEER.

5 ROUND DUCT FITTING DETAILS
NOT TO SCALE



6 EXPOSED SPIRAL DUCT SUPPORT DETAIL
NOT TO SCALE

Jackson, WY
The Athletic Club at Jackson Hole

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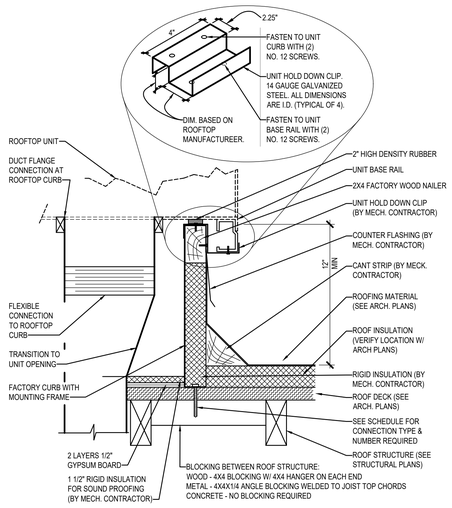
HVAC DETAILS

M200



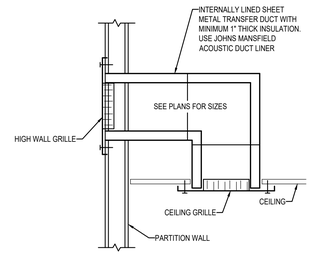
CURB TO ROOF CONNECTION SCHEDULE

NOMINAL ROOFTOP UNIT CAPACITY	MAX. WEIGHTS	TOTAL LATERAL FORCE (Fp)	NO. & TYPE OF CONNECTION (EQUALLY SPACED)		
			ROOF STRUCTURE TYPE		
			METAL	WOOD	CONCRETE
3-6 TONS	750 LBS	810 LBS	(4) 1/2" LAG BOLT	(4) 1/2" LAG BOLT	(4) 3/8" EXPANSION BOLT

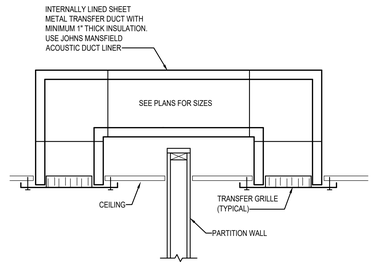
COMPLIES WITH THE INTERNATIONAL BUILDING CODE

1 ROOFTOP UNIT - MOUNTING DETAIL

NOT TO SCALE



OPTION 1



OPTION 2

2 TRANSFER DUCT DETAIL

NOT TO SCALE

MUSGROVE ENGINEERING, P.A.
234 S. Whisperwood Way
Boise, ID 83709
208.384.0585
645 West 25th Street
Idaho Falls, ID 83402
208.523.2862
www.musgrovepa.com
Project No. 23-100

HOYT architects
Jackson Wyoming
hoytarchitects.design
307.733.9955

Professional Engineer
JASON RICHARDS
EXP. 6/30/2023
WYOMING

Jackson, WY
The Athletic Club at Jackson Hole

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M201

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Professional Engineer
JASON BIRD
12247
Date 05/26/2023
WYOMING

DEDICATED OUTSIDE AIR SYSTEM (DOAS) SCHEDULE

SYMBOL	AREA SERVED	SUPPLY FAN				RETURN / EXHAUST FAN				WHEEL PERFORMANCE SUMMER DESIGN (°F)						WHEEL PERFORMANCE WINTER DESIGN (°F)						COOLING W/ SUMMER WHEEL CONDITIONS		GAS HEATING		UNIT ELECTRICAL			MIN. SEER EER	OPER. WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
										SUPPLY				EXHAUST		SUPPLY				EXHAUST													
		CFM	ESP	HP	DRIVE	CFM	ESP	HP	DRIVE	EDB	EWB	LDB	EDB	EWB		EDB	EWB	LDB	EDB	EWB		TOTAL MBH	SENSIBLE MBH	INPUT MBH	OUTPUT MBH	MCA	MOCP	V/Ø				
DOAS-1	LOCKER ROOM	3075	1.0	3.0	DIR.	2925	1.0	2.0	DIR.	95.0	58.2	81.7	75.0	61.5		-30.0	-30.4	33.0	72.0	54.3		65.1	65.1	230	184	41.4	50	208/3	---	3500	GREENHECK RVE-40-36D-5I-G-A1	1 , 2 , 3 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: AAON, MAMMOTH, ADDISON, AND DAIKIN.
2. PROVIDE WITH MANUFACTURER'S CONTROLLER.
3. PROVIDE UNIT WITH 24" ROOF CURB, FLUE EXTENDER, HAIL GUARDS, HIGH ALTITUDE KIT, SINGLE POINT POWER CONNECTION, ELECTRICAL CONNECTION THROUGH THE BOTTOM OF THE CURB KIT, NEMA 3R DISCONNECT SWITCH, HINGED ACCESS PANELS, LOW AMBIENT CONTROLS, EXHAUST ONLY FROST PREVENTION CONTROLS, MOTOR STARTERS, 2" 30% FILTERS IN EACH AIR STREAM, DX COOLING WITH INVERTER COMPRESSOR(S), STAINLESS STEEL HEAT EXCHANGER WITH 7 YEAR WARRANTY, MODULATING GAS VALVE, VIBRATION ISOLATION ON EACH FAN, INTAKE AND EXHAUST WEATHER HOODS, DISCHARGE AIR TEMPERATURE SENSOR, AND UL APPROVAL LISTING.
4. MAXIMUM "A-WEIGHTED" SUPPLY AIR SOUND RATINGS FOR UNITS 2-18 TONS = 95 DB @ 125 HZ, 90 DB @ 250 HZ, PER ARI STANDARDS 270 & 370.

PACKAGED AIR CONDITIONING SCHEDULE

SYMBOL	AREA SERVED	NOM. TONS	SUPPLY FAN						GAS HEATING CAPACITY		RTU ELECTRICAL			ELECTRICAL POWER EXHAUST				OSA CFM	MIN. SEER	OPER. WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	ESP	BRAKE HP	DRIVE	TOTAL MBH	SENS. MBH	INPUT MBH	OUTPUT MBH	MCA	MOCP	V/Ø	STATIC	MCA	MOCP	V/Ø					
RTU-1	LARGE GYM	--	--	--	--	--	--	--	250	--	--	--	--	--	--	--	--	0	--	--	EXISTING	--
RTU-2	SMALL GYM	6	2200	0.50"	1.37	DIRECT ECM	66.8	59.0	132/ 105.6	105.6/ 84.5	28	45	208/3	0.25"	8	14.4	208/3	0	11.0 EER (15 IEER)	1,100	CARRIER 48FCFM07 STANDARD EFFICIENCY	1 , 2 , 3 , 4 , 5

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: TRANE, AAON, LENNOX, DAIKIN, AND YORK.
2. PROVIDE UNIT WITH SEVEN-DAY PROGRAMMABLE AUTO-CHANGEOVER WITH 5 DEGREE DEADBAND, ADAPTIVE INTELLIGENT AUTOMATIC START/ CONTROL, 3 STAGE HEAT, 2 STAGE COOLING THERMOSTAT HONEYWELL VISIONPRO MODEL TH8321R1001 WITH ECONOMIZER FAULT DETECTION. THERMOSTAT SHALL BE POWERED BY A 24VAC WIRE CONNECTION.
3. PROVIDE UNIT WITH MANUFACTURER'S 24" ROOF CURB, MICROMETL WELDED SPRING ISOLATION CURB (SEE DETAIL FOR SEISMIC RESTRAINTS), SEE ROOFTOP UNIT DETAIL FOR MIN. PROVIDE WITH STAINLESS STEEL HEAT EXCHANGERS. PROVIDE WITH 2" PLEATED MERV 8 FILTER AND FILTER RACK WITH 4 EXTRA SETS. PROVIDE AND FIELD INSTALL HAIL GUARDS, FLUE EXTENDER, HIGH ALTITUDE KIT, THRU-THE-BOTTOM OF CURB ELECTRICAL CONNECTION KIT.
4. MAXIMUM "A-WEIGHTED" SUPPLY AIR SOUND RATINGS FOR UNITS 2-18 TONS = 95 DB @ 125 HZ, 90 DB @ 250 HZ, PER ARI STANDARDS 270 & 370.
5. PROVIDE WITH CONSTANT FLOW - MICROMETL GEAR DRIVEN INTEGRATED DRY BULB ECONOMIZER WITH BELIMO LOGIC ACTUATORS, MICROMETL CENTRIFUGAL POWER EXHAUST WITH WIRING HARNESS AND JADE CONTROLLER (USE JADE ONLY FOR STANDALONE TSTAT). ELECTRICAL CONTRACTOR TO PROVIDE THE POWER CONNECTION BETWEEN RTU AND THE POWER EXHAUST AND PROVIDE FUSED DISCONNECT AS REQUIRED.

LARGE DIAMETER CEILING FAN SCHEDULE

SYMBOL	AREA SERVED	BLOWER			ELECTRICAL		OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
		FAN DIAMETER	CFM	MAX RPM	AMPS	V/Ø			
CF-1	GYM	14 FT	---	56	10 A	120/1	100	BIG ASS FAN MODEL ESSENCE	1 , 2 , 3

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: MACROAIR, GREENHECK.
2. PROVIDE WITH 10 TEC AIRFOIL BLADES, DIRECT DRIVE MOTOR, FULLY ADJUSTABLE SPEED CONTROLLER, 10 YEAR WARRANTY, DOWN ROD, AND GUIDEWIRES.
3. PROVIDE WITH LED WALL CONTROLS.

ELECTRIC HEATER SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	FAN			ELECTRICAL				MANUFACTURER AND MODEL	REMARKS
			CFM	RPM	HP	KW	STEPS	V/Ø	AMPS		
EH-1	RISER ROOM	SURFACE MOUNTED	245	1400	1/8	2	---	208/1	9.6	QMARK MODEL AWH	1 , 2 , 3
EH-2	FRONT DESK	TOE-KICK	100	1400	---	1.1	---	120/1	9.2	QMARK MODEL QTS	1 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: BRASCH, QMARK, INDEECO, OUELLET, AND CHROMALOX.
2. MOUNT BOTTOM OF HEATER 24" ABOVE FINISH FLOOR.
3. PROVIDE UNIT WITH AN INTEGRAL THERMOSTAT. THERMOSTAT SHALL BE COVERED WITH A TAMPER-PROOF ACCESS COVER.
4. PROVIDE UNIT WITH A REMOTE WALL MOUNTED LINE-VOLTAGE THERMOSTAT.

DEHUMIDIFICATION UNIT SCHEDULE

SYMBOL	AREA SERVED	SUPPLY FAN			INDOOR CONDITIONS		DH UNIT ELECTRICAL DATA			EVAPORATOR (COOLING)			AIR COOLED CONDENSER				FILTERS		OSA CFM	DH OPERATING WEIGHT (LBS)	DHCU OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
		CFM	ESP	HP	DB	RH	V/Ø	MCA	MOCP	TOTAL MBH	SENSIBLE MBH	MOISTURE REMOVAL (LB/HR)	AMBIENT TEMP (°F)	MCA	MOCP	V/Ø	RETURN AIR (MERV/DEPTH)	OUTSIDE AIR (MERV/DEPTH)					
DH-1 , DHCU-1	POOL ROOM	950	1.0	1	84.0	55%	14	20	208/3	27	14.1	11.8	95	4.1	15	208/3	8 / 2"	8 / 2"	375	705	275	DESERT AIRE INDOOR UNIT MODEL LC02 DESERT AIRE OUTDOOR UNIT MODEL RCSS024C	1 , 2 , 3 , 4 , 5

NOTES:

1. APPROVED ALTERNATE MANUFACTURERS: DCA, DECTRON
2. EXTERNAL STATIC PRESSURE (ESP) DOES NOT INCLUDE THE COILS, FILTERS, OR OTHER INTERNAL AIR HANDLER LOSSES. UNIT SELECTED AT AN ELEVATION OF 6800 FEET ABOVE SEA LEVEL.
3. PROVIDE DEHUMIDIFICATION UNIT WITH MANUFACTURER'S STAND ALONE CONTROL SYSTEM (W/ SUPPLY AND RETURN AIR TEMPERATURE SENSORS, OUTDOOR AIR TEMPERATURE SENSOR, RELATIVE HUMIDITY SENSOR, AND AIRFLOW SENSOR) (MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL SENSORS INCLUDING ALL REQUIRED CONDUIT AND BACKBOXES IF REQUIRED). SINGLE POINT INDOOR AND SINGLE POINT OUTDOOR ELECTRICAL CONNECTION, AND FACTORY START-UP. PROVIDE WITH OUTSIDE AIR HOOD AND FILTERS. SEE PLANS FOR ADDITIONAL REQUIREMENTS.
4. UNITS SHALL RUN CONTINUOUS 24 HOURS PER DAY / 7 DAYS A WEEK.

DIFFUSER SCHEDULE

SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
R-1 CFM 6"Ø	6X6	6"Ø	0 - 90	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
R-2 CFM 8"Ø	9X9	8"Ø	90 - 200	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
R-3 CFM 10"Ø	12X12	10"Ø	200 - 350	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
R-4 CFM 12"Ø	15X15	12"Ø	300 - 500	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
R-5 CFM 14"Ø	15X15	14"Ø	400 - 650	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
R-6 CFM 16"Ø	18X18	16"Ø	600 - 900	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
R-7 CFM 21"Ø	21X21	21X21	900 - 1400	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8

REMARKS:

1. ALTERNATE MANUFACTURERS: ANEMOSTAT, J&J REGISTER, NAILOR, METAL-AIRE, TUTTLE & BAILEY, KRUEGER, PRICE, AND UNITED ENERTECH.
2. SIZES BASED ON TITUS MODEL TDC SERIES.
3. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
4. ALL DIFFUSERS LOCATED IN LAY-IN CEILING AREAS SHALL BE BORDER TYPE 3 AND BE MOUNTED IN MANUFACTURER PROVIDED 24"x24" PANELS. ALL DIFFUSERS LOCATED IN HARD CEILING AREAS SHALL BE BORDER TYPE 6 (BEVELED) SURFACE MOUNTED. SEE ARCHITECTURAL PLANS FOR LOCATIONS OF VARIOUS CEILING TYPES.
5. SEE HVAC FLOOR PLANS FOR DIRECTIONAL THROW REQUIREMENTS FOR EACH DIFFUSER.
6. ALL OF THE DIFFUSERS SHOWN IN THIS SCHEDULE MAY NOT BE USED. REFERENCE THE HVAC PLAN FOR DIFFUSER CALL-OUTS AND THE QUANTITY OF EACH SIZE REQUIRED.
7. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
8. COLOR TO BE SELECTED BY ARCHITECT.

SUPPLY GRILLE SCHEDULE

SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
S-1 CFM 8"Ø	12X6	12X6	0-275	1 , 2 , 3 , 4
S-2 CFM 8"Ø	12X6	12X6	0-350	1 , 3 , 4 , 5
S-3 CFM 8"Ø	40X12	40X12	950-2100	1 , 3 , 4 , 5

REMARKS:

1. APPROVED MANUFACTURERS: ANEMOSTAT, J&J REGISTER, TUTTLE & BAILEY, NAILOR, METAL-AIRE, KRUEGER, PRICE, AND UNITED ENERTECH.
2. CURVE SPIRAL DUCT MOUNTED GRILLE, SIZES BASED ON TITUS MODEL S300FL. DOUBLE DEFLECTION, 3/4" BLADE SPACING, INDIVIDUALLY ADJUSTABLE BLADES, AIR EXTRACTOR, WHITE FINISH AND GRILLE SHALL MATCH CURVE OF DUCTWORK.
3. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
4. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
5. WALL GRILLE SIZES BASED ON TITUS MODEL 272F, DOUBLE DEFLECTION ADJUSTABLE BLADES, 3/4" SPACING, WHITE FINISH.

RETURN & EXHAUST GRILLE SCHEDULE

SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
R-1 6"Ø	8X8	6"Ø	0-80	1 , 2 , 3 , 4 , 5 , 6 , 7
R-2 8"Ø	10X10	8"Ø	80-180	1 , 2 , 3 , 4 , 5 , 6 , 7
R-3 10"Ø	12X12	10"Ø	180-300	1 , 2 , 3 , 4 , 5 , 6 , 7
R-4 6"Ø	22X10	6"Ø	0-80	1 , 2 , 3 , 4 , 5 , 6 , 7
R-5 8"Ø	22X10	8"Ø	80-180	1 , 2 , 3 , 4 , 5 , 6 , 7
R-6 10"Ø	22X10	10"Ø	180-300	1 , 2 , 3 , 4 , 5 , 6 , 7
R-7 12"Ø	22X22	12"Ø	300-500	1 , 2 , 3 , 4 , 5 , 6 , 7
R-8 14"Ø	22X22	14"Ø	500-750	1 , 2 , 3 , 4 , 5 , 6 , 7
R-9 22X10	22X10	22X10	500-1100	1 , 2 , 3 , 4 , 5 , 6 , 7
R-10 22X22	22X22	22X22	1100-2000	1 , 2 , 3 , 4 , 5 , 6 , 7
R-11 12X12	12X12	12X12	275-725	1 , 2 , 3 , 4 , 5 , 6 , 7

REMARKS:

1. ALTNERNATE MANUFACTURERS: ANEMOSTAT, CARNES, PRICE, NAILOR, METAL-AIRE, TUTTLE & BAILEY, KRUEGER, J&J REGISTER, AND UNITED ENERTECH.
2. SIZES BASED ON TITUS MODEL 50F, ALUMINUM EGGCRATE RETURN GRILLE, 1/2" x 1/2" x 1" SPACING (SINGLE CORE). PROVIDE SQUARE TO ROUND TRANSITION (WHERE ROUND RUN-OUT INDICATED).
3. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
4. ALL GRILLES LOCATED IN LAY-IN CEILING AREAS SHALL HAVE BORDER #3, UNLESS OTHERWISE INDICATED. ALL GRILLES LOCATED IN HARD CEILING AREAS SHALL HAVE BORDER #1, UNLESS OTHERWISE INDICATED. REFER TO ANDHITECTURAL PLANS FOR LOCATIONS OF VARIOUS CEILING TYPES. SHEET METAL DUCTWORK VISIBLE BEHIND GRILLE SHALL BE PAINTED FLAT BLACK.
5. ALL OF THE GRILLES SHOWN IN THIS SCHEDULE MAY NOT BE USED. REFERENCE THE HVAC PLAN FOR GRILLE CALL-OUTS AND THE QUANTITY OF EACH SIZE REQUIRED.
6. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
7. COLOR TO BE SELECTED BY ARCHITECT.

EXHAUST FAN SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	BLOWER				ELECTRICAL		MAXIMUM SONES	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	ESP	MAXIMUM RPM	DRIVE	HP/W	V/Ø				
EF-1	PUMP ROOM	CEILING CABINET	100	.375	1075	DIRECT	46.5 W	115/1	2.5	15	COOK MODEL GC-148	1 , 2 , 4
EF-2	POOL ROOM	UPBLAST	500	.375	1725	DIRECT	1/4 HP	115/1	9.7	30	COOK MODEL 100R17DEC	1 , 3 , 5

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: ACME, GREENHECK, PENNBARRY, TWIN CITY FAN COMPANY, AND SOLER & PALAU.
2. PROVIDE UNIT WITH MANUFACTURER'S STEEL ROOF JACK (SLOPED ROOF) EQUAL TO COOK MODEL RJ (W/ INTEGRAL BIRD SCREEN, FLASHING FLANGE AND BLACK EPOXY FINISH). BACKDRAFT DAMPER, OUTLET FLEX DUCT CONNECTION, STANDARD PLUG DISCONNECT, PRE-WIRED FAN SPEED CONTROLLER, THERMAL OVERLOAD PROTECTION, HANGING VIBRATION ISOLATORS, AND WHITE ALUMINUM GRILLE.
3. PROVIDE UNIT WITH MANUFACTURER'S ROOF CURB W/ DAMPER TRAY AND BACKDRAFT DAMPER, THERMAL OVERLOAD PROTECTION (120 VOLT ONLY), PRE-WIRED NEMA 3R ELECTRICAL DISCONNECT SWITCH, AND INTEGRAL BIRD SCREEN.
4. CONTROL FAN WITH HEAT RISE T-STAT.
5. FAN TO RUN CONTINUOUSLY.

DUCT FURNACE SCHEDULE (OUTDOOR)

SYMBOL	AREA SERVED	UNIT TYPE	FUEL	CFM	ELECTRICAL		GAS HEATING		THERMAL EFFICIENCY	MANUFACTURER AND MODEL	REMARKS
					AMPS	V/Ø	INPUT (MBH)	OUTPUT (MBH)			
DF-1	POOL ROOM	ROOFTOP, GRAVITY VENTED	NG	950	0.5	115/1	100	72.8	80%	STERLING MODEL PV10AB	1 , 2

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: REZNOR, HASTINGS, TRANE.
2. PROVIDE UNIT WITH 409 STAINLESS STEEL HEAT EXCHANGER AND BURNERS, ELECTRONIC MODULATION WITH DUCTSTAT AND REMOTE TEMPERATURE SELECTION, AND SPARK-IGNITED INTERMITTENT SAFETY PILOT WITH ELECTRONIC FLAME SUPERVISION AND TIMED LOCKOUT.

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HVAC SCHEDULES

M300

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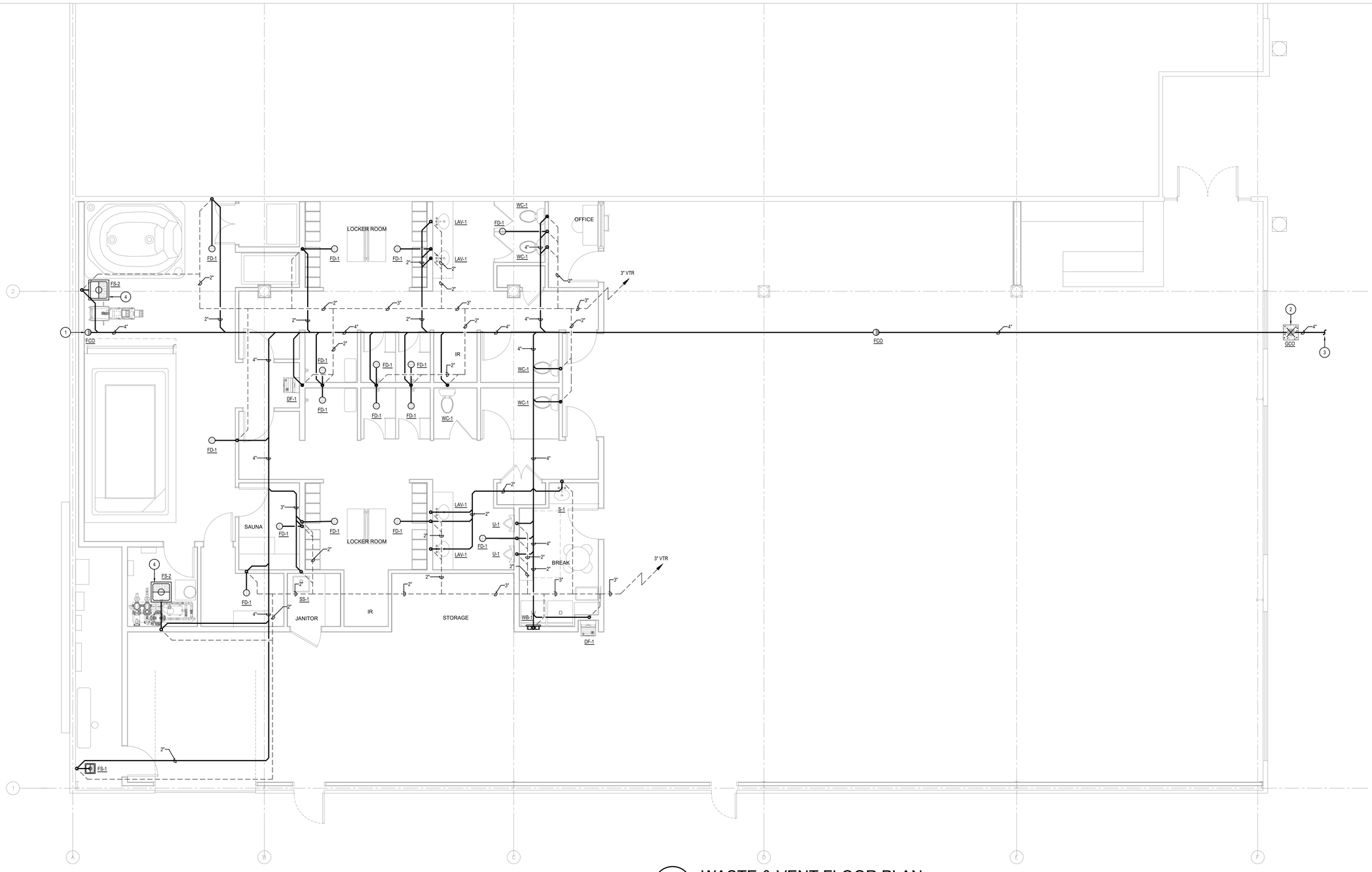
Professional Engineer
JASON BIRKY
EXP. 6/30/2023
WYOMING

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. STARTING INVERT ELEVATION AT FCO SHALL BE 18" BELOW FINISHED FLOOR (BFF).
2. THE WASTE LINE INVERT ELEVATION AT THIS LOCATION IS 48-INCHES BELOW FINISH FLOOR (BFF). THIS INVERT ELEVATION IS BASED ON A STARTING POINT OF 18-INCHES BFF WITH A LINE SLOPE OF 1/4" PER FOOT. SEE CIVIL SITE PLAN FOR CONTINUATION.
3. SEE CIVIL PLAN FOR CONTINUATION.
4. COORDINATE WITH POOL CONTRACTOR ON EXACT LOCATION OF DRAIN.



1 / P100 WASTE & VENT FLOOR PLAN
1/4"=1'-0"

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PLUMBING WASTE & VENT FLOOR PLAN

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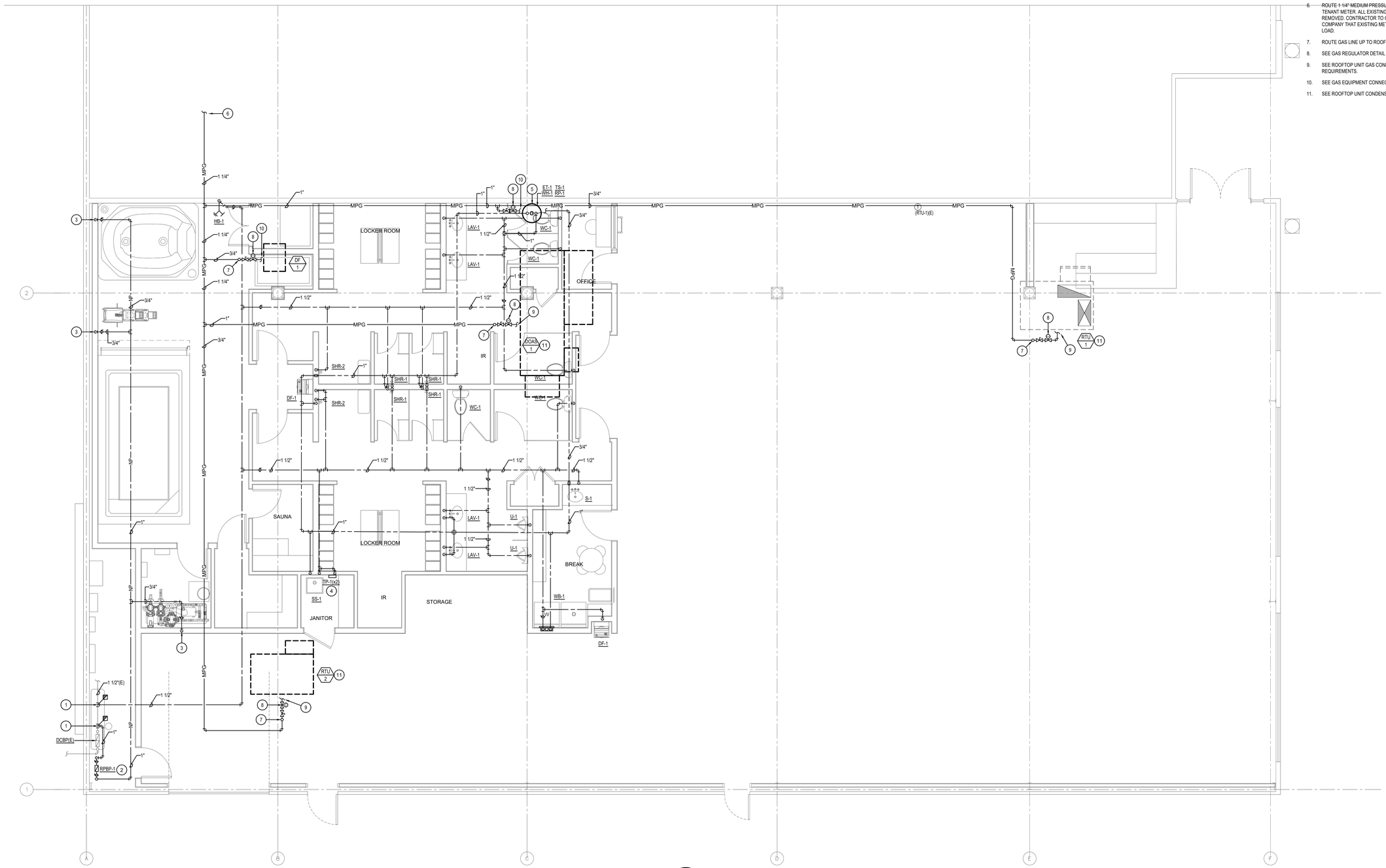
12-24-23
Date 05/26/2023
WYOMING

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. CONNECT NEW COLD WATER LINE TO EXISTING COLD WATER LINE. CONTRACTOR TO VERIFY EXACT LOCATION.
2. SEE POINT OF USE RPBP DETAIL FOR ADDITIONAL REQUIREMENTS.
3. ROUTE 3/4" NON-POTABLE COLD WATER LINE DOWN WALL. COORDINATE WITH POOL CONTRACTOR FOR FINAL CONNECTION.
4. SEE TRAP PRIMER DETAIL FOR REQUIREMENTS.
5. WATER HEATER TO BE INSTALLED UP ON LOFT. SEE WATER HEATER DETAIL FOR ADDITIONAL REQUIREMENTS.
6. ROUTE 1-1/4" MEDIUM PRESSURE GAS LINE BACK TO EXISTING TENANT METER. ALL EXISTING GAS PIPING TO TENANT TO BE REMOVED. CONTRACTOR TO COORDINATE WITH LOCAL GAS COMPANY THAT EXISTING METER IS SUFFICIENT FOR NEW GAS LOAD.
7. ROUTE GAS LINE UP TO ROOF.
8. SEE GAS REGULATOR DETAIL FOR REQUIREMENTS.
9. SEE ROOFTOP UNIT GAS CONNECTION DETAIL FOR REQUIREMENTS.
10. SEE GAS EQUIPMENT CONNECTION DETAIL FOR REQUIREMENTS.
11. SEE ROOFTOP UNIT CONDENSATE DETAIL FOR REQUIREMENTS.



1 / P101 WASTE & VENT FLOOR PLAN
1/4"=1'-0"

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PLUMBING WATER & GAS FLOOR PLAN

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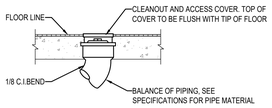
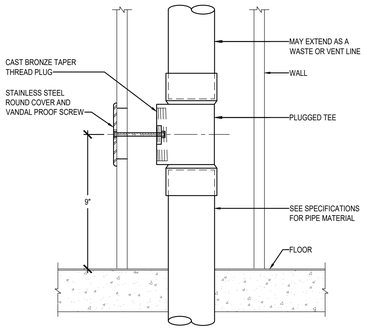
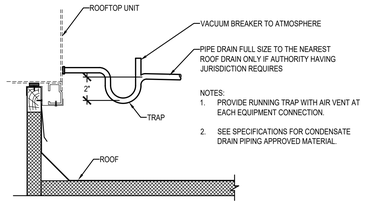


NOTE:
1. CLEANOUTS SHALL BE PROVIDED AT EACH HORIZONTAL DRAINAGE PIPE AT ITS UPPER TERMINAL, AND EACH RUN OF PIPING WHICH IS MORE THAN 100 FEET, AND SHALL BE PROVIDED FOR EACH 100 FEET DEVELOPED LENGTH, OR FRACTION THEREOF OF SUCH PIPING. AN ADDITIONAL CLEANOUT SHALL BE PROVIDED FOR EACH AGGREGATE HORIZONTAL CHANGE OF DIRECTION EXCEEDING ONE HUNDRED THIRTY-FIVE DEGREES, PER APPLICABLE PLUMBING CODE. THIS SHALL BE PROVIDED REGARDLESS OF WHAT IS SHOWN ON THE DRAWINGS.

1 FLOOR CLEANOUT (FCO) DETAIL
NOT TO SCALE



2 WALL CLEANOUT (WCO) DETAIL
NOT TO SCALE

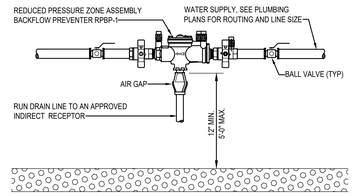


NOTES:
1. PROVIDE RUNNING TRAP WITH AIR VENT AT EACH EQUIPMENT CONNECTION.
2. SEE SPECIFICATIONS FOR CONDENSATE DRAIN PIPING APPROVED MATERIAL.

APPROVED PIPE SUPPORT SYSTEMS:
- MIRO MODEL 1.5 WITH SPACERS
- ADVANCED SUPPORT PRODUCTS
- VERSABLOCK BY FREEDOM INC.

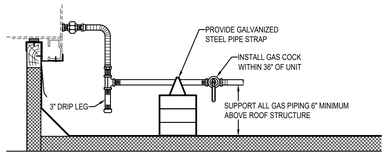
PIPE SUPPORT REQUIREMENTS	
SIZE OF PIPE	SUPPORT REQUIRED
1/2"	6' O.C.
3/4" - 1"	8' O.C.
1-1/4" OR LARGER	10' O.C.

3 ROOFTOP UNIT - CONDENSATE DRAIN DETAIL
NOT TO SCALE



4 REDUCED PRESSURE BACKFLOW PREVENTER (RPBP)
NOT TO SCALE

NOTES:
1. INSTALL FLEX CONNECTION AT ALL ROOF TOP UNITS WHICH HAVE SPRING ISOLATION CURBS (36" MAXIMUM).
2. INSTALL SOLID PIPE CONNECTION TO ALL ROOF TOP UNITS WHICH DO NOT HAVE SPRING ISOLATION CURBS.
3. PAINT PIPE WITH RUST RESISTANT PRIMER, RED OR GRAY. SHERWIN WILLIAMS PRO INDUSTRIAL DTM OR APPROVED EQUAL.

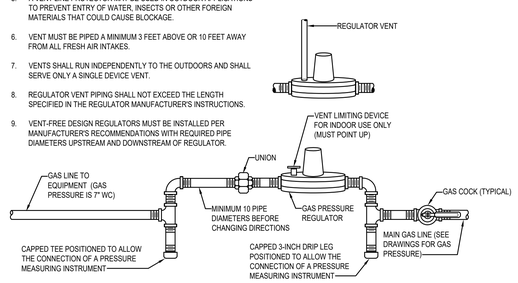


APPROVED PIPE SUPPORT SYSTEMS:
- MIRO MODEL 1.5 WITH SPACERS
- ADVANCED SUPPORT PRODUCTS
- VERSABLOCK BY FREEDOM INC

PIPE SUPPORT REQUIREMENTS	
SIZE OF PIPE	SUPPORT REQUIRED
1/2"	6' O.C.
3/4" - 1"	8' O.C.
1-1/4" OR LARGER	10' O.C.

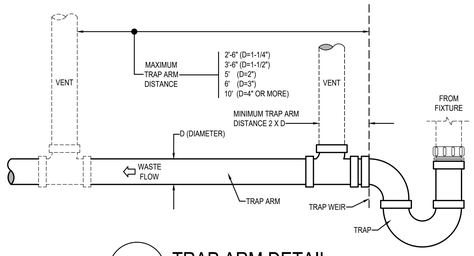
5 ROOFTOP UNIT - GAS PIPING DETAIL
NOT TO SCALE

NOTES:
1. VENT REGULATORS PER MANUFACTURER'S AND LOCAL GAS COMPANY'S REQUIREMENTS.
2. DO NOT REDUCE THE VENT PIPE SIZE FROM THE REGULATOR.
3. TO LIMIT THE CONSEQUENCES OF RAIN, SNOW OR DEBRIS GETTING INTO THE VENT, ALWAYS TURN THE OUTLET OF THE VENT DOWN AND ABOVE POTENTIAL WATER OR SNOW LINES.
4. PROVIDE A BUG SCREEN ON THE VENT OUTLET TO DETER INSECTS FROM NESTING IN THE LINE. NEVER PAINT OVER THE BUG SCREEN.
5. A VENT LINE PROTECTOR MAY BE USED IN OUTDOOR APPLICATIONS TO PREVENT ENTRY OF WATER, INSECTS OR OTHER FOREIGN MATERIALS THAT COULD CAUSE BLOCKAGE.
6. VENT MUST BE PIPED A MINIMUM 3 FEET ABOVE OR 10 FEET AWAY FROM ALL FRESH AIR INTAKES.
7. VENTS SHALL RUN INDEPENDENTLY TO THE OUTDOORS AND SHALL SERVE ONLY A SINGLE DEVICE VENT.
8. REGULATOR VENT PIPING SHALL NOT EXCEED THE LENGTH SPECIFIED IN THE REGULATOR MANUFACTURER'S INSTRUCTIONS.
9. VENT-FREE DESIGN REGULATORS MUST BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS WITH REQUIRED PIPE DIAMETERS UPSTREAM AND DOWNSTREAM OF REGULATOR.



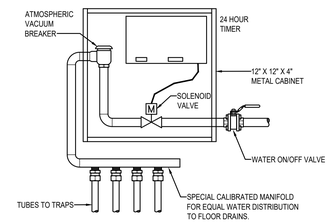
6 GAS PRESSURE REGULATOR DETAIL
NOT TO SCALE

NOTES:
1. MAINTAIN ONE-FOURTH (1/4) INCH PER FOOT SLOPE.
2. THE DEVELOPED LENGTH BETWEEN THE TRAP OF A WATER CLOSET OR SIMILAR FIXTURE (MEASURED FROM THE TOP OF THE CLOSET FLANGE TO THE INNER EDGE OF THE VENT) AND IT'S VENT SHALL NOT EXCEED SIX (6) FEET.
3. ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ADOPTED PLUMBING CODE, AND ALL LOCAL AND STATE CODES.



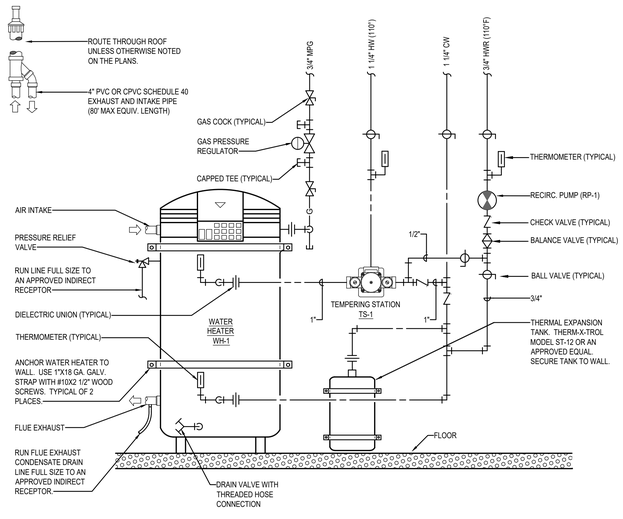
7 TRAP ARM DETAIL
NOT TO SCALE

TAILPIECE PRIMER NOTES:
1. THE ELECTONIC TRAP PRIMER IS DESIGNED TO PRIME FOUR FLOOR DRAIN TRAPS.
2. UNIT MUST BE INSTALLED PLUMB AND MUST BE INSTALLED WITH ACCESS.
3. THE PRIMING ASSEMBLY MUST BE MOUNTED ABOVE THE FINISHED FLOOR. THE PRIMING VALVE MAKEUP LINE TO FLOOR DRAIN SHALL BE A MINIMUM OF 12" OFF THE FINISHED FLOOR BEFORE A 90° ELBOW CAN BE INSTALLED.
4. CONNECT A FRESH WATER LINE TO THE 3/4" NPT INLET BALL VALVE.
5. CONNECT APPROPRIATELY SIZED (3/8" OR 1/2" ID) COPPER SUPPLY LINES TO THE MANIFOLD.
6. ALL WIRING MUST BE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL CODES.
7. TRAP PRIMER SHALL BE PRECISION PLUMBING PRODUCTS MODEL PTS-4 OR AN APPROVED EQUAL.

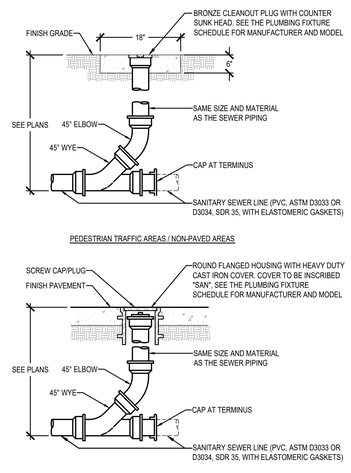


8 TRAP PRIMER CONNECTION DETAIL
NOT TO SCALE

NOTE:
1. PIPING SHALL BE INSTALLED SUCH THAT WATER HEATER CAN BE REPLACED WITHOUT ANY OBSTRUCTIONS FROM INSTALLED PIPING.



9 HIGH EFFICIENCY WATER HEATER & TEMPERING STATION PIPNG DETAIL
NOT TO SCALE



10 GRADE CLEANOUT (GCO) DETAIL
NOT TO SCALE

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PLUMBING DETAILS

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12-24-23
Date 07/28/2023
WYOMING

GAS SIZING CHART

SYMBOL	INPUT (MBH)	RUNOUT SIZE (2PSI) (INCHES)	EQUIPMENT CONNECTION SIZES (7" WC) (INCHES)
RTU-1(E)	250	3/4	3/4
RTU-2	132	3/4	3/4
DOAS-1	250	3/4	3/4
DF-1	100	3/4	3/4
WH-1	199	3/4	3/4
TOTAL	1181	EQUIVALENT LENGTH = 375 FT PRESSURE = 2 PSI MAIN SIZE = 1 1/4"Ø	

NOTE: GAS SIZES TO EQUIPMENT ARE AS NOTED IN SCHEDULE ABOVE. ROUTE NOTED (2PSI) GAS LINE TO GAS EQUIPMENT. PROVIDE GAS COCK AND PRESSURE REGULATOR (2 PSI-7" WC) SIZED FOR GAS LOAD AT EACH PIECE OF EQUIPMENT. VENT TO ATMOSPHERE PER MANUFACTURERS RECOMMENDATIONS. ROUTE NOTED (7" WC) GAS LINE TO GAS FIRED EQUIPMENT WITH GAS COCK AND FLEX CONNECTOR AT UNIT. SEE GAS CONNECTION DETAILS.

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE DESCRIPTION	CONNECTION SIZE					MANUFACTURER / MODEL NUMBER / DESCRIPTION / ADDITIONAL COMMENTS
		WASTE	VENT	TRAP	CW	HW	
DF-1	DRINKING FOUNTAIN WITH BOTTLE FILLING STATION (INTERIOR SINGLE BUBBLER) (ELECTRIC WATER COOLER) (ADA COMPLIANT)	1 1/2	1 1/2	1 1/2	1/2	--	ELKAY MODEL LZS8WSLP (FILTERED) MODEL EZSG8WSLK (NON-FILTERED) SINGLE ADA COOLER WITH BOTTLE FILLING STATION FURNISHED WITH FLEXI-GUARD SAFETY BUBBLER. BUBBLER ACTIVATED BY PUSHBAR. BOTTLE FILLER ACTIVATED BY ELECTRONIC SENSOR WITH AUTOMATIC 30-SECOND SHUT-OFF TIMER. 115 VOLT, 5.0 AMPS, 60 HERTZ. PROVIDE WITH JAY R. SMITH 0830 FLOOR MOUNTED SUPPORT CARRIER. OPTION - CANE APRON.
ET-1	EXPANSION TANK	--	--	--	3/4	--	AMTROL THERM-X-TROL ST-12, OR APPROVED EQUAL, NON-ASME SERIES THERMAL EXPANSION ABSORBER, ANTI-MICROBIAL LINER, AND 5 YEAR WARRANTY.
FCO	FLOOR CLEANOUT	SEE PLANS	--	--	--	--	JAY R. SMITH 4020 SERIES WITH ADJUSTABLE, ROUND NICKEL BRONZE TOP AND ABS PLUG.
FD-1	FLOOR DRAIN (PVC BODY) (CONCRETE FLOOR)	2	2	2	--	--	SIOUX CHIEF SERIES NUMBER 832-2PNR, POST- CONSTRUCTION LEVELING FLOOR DRAIN, NO-HUB OUTLET, 6-1/2" ROUND, ADJUSTABLE NICKEL BRONZE STRAINER AND TRAP PRIMER PORT. INSTALL TOP OF DRAIN 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
FS-1	FLOOR SINK (6" DEEP) (HALF GRATE, FOOT TRAFFIC RATED)	2	2	2	--	--	JAY R. SMITH FIGURE NUMBER 3100Y-12, CAST IRON RECEPTOR, ALUMINUM DOME STRAINER, NICKEL BRONZE GRATE, AND TRAP PRIMER. INSTALL TOP OF SINK 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
FS-2	FLOOR SINK (HALF GRATE) (24" DEEP) (FOOT TRAFFIC RATED)	4	2	4	--	--	JAY R. SMITH FIGURE NUMBER 9812-880-CB24, FIBER GLASS CATCH BASIN, 24"X24"X24", GALVANIZED STEEL GRATE. PROVIDE WITH 4" SIDE DISCHARGE ADAPTER, STAINLESS STEEL FRAME AND TRASH BUCKET. CONTRACTOR TO PROVIDE P-TRAP ASSEMBLY.
GCO	GRADE CLEANOUT (NON-PAVED AREAS)	SEE PLANS	--	--	--	--	JAY R. SMITH 4220 SERIES, ROUND EXTRA HEAVY DUTY CAST IRON TOP. FURNISH WITH WITH ABS PLUG. COVER TO BE INSCRIBED "SAN".
GCO	GRADE CLEANOUT (PAVED AREAS) (VEHICULAR TRAFFIC)	SEE PLANS	--	--	--	--	JAY R. SMITH 4250 SERIES, ROUND FLANGED HOUSING WITH HEAVY DUTY CAST IRON COVER. FURNISH WITH ABS PLUG. COVER TO BE INSCRIBED "SAN".
HB-1	HOSE BIBB (INTERIOR)	--	--	--	3/4	--	WOODFORD MODEL 26 - EXPOSED STYLE WITH 3/4" INLET, AND CHROME PLATED. PROVIDE WITH METAL WHEEL HANDLE AND WOODFORD MODEL 50HF BACKFLOW PREVENTER.
LAV-1	LAVATORY (COUNTERTOP / CABINET MOUNTED) (ADA COMPLIANT)	1 1/2	1 1/2	1 1/4	1/2	1/2	KOHLER PENNINGTON MODEL K-2196-4 VITREOUS CHINA, COUNTERTOP-MOUNTED SINK WITH HOLES ON 4" CENTERS, AND GRID STRAINER. KOHLER CORALAIS MODEL K-15198-4RA, 4-1/2" LONG, SINGLE LEVER FAUCET WITH 0.5 GPM AERATOR. PROVIDE WITH PIPING INSULATION, TRUEBRO LAV GUARD, PLUMBEREX HANDI-SHIELD, OR EQUAL.
RP-1	RECIRCULATION PUMP (HOT WATER RETURN SYSTEM) (SMALL SYSTEM)	--	--	--	--	3/4	BELL AND GOSSETT BRONZE MODEL NBF-10SILW, 115 VOLT, 0.46 AMPS, 55 WATTS, AND SHALL PROVIDE 4 GPM AT 7 FEET HEAD. INCLUDE 7-DAY PROGRAMMABLE ELECTRONIC TIME CLOCK WITH BATTERY BACKUP, INTERMATIC MODEL GM40AVE-RD89. APPROVED ALTERNATE: ARMSTRONG, TACO, GRUNDFOS.
RPBP-1	REDUCED PRESSURE BACKFLOW PREVENTER	INDIRECT			--	--	WATTS SERIES LF009 LEAD-FREE REDUCED PRESSURE ZONE ASSEMBLY WITH QUARTER-TURN BALL VALVES, STRAINER, AND AIR GAP. CAST COPPER BODY CONSTRUCTION - 1/2" THRU 2". PROVIDE SERIES 957 FOR SIZES 2 1/2" THRU 10". SEE NOTE __.
S-1	SINK - SINGLE COMPARTMENT (17" X 20" X 6 1/2") (ADA COMPLIANT)	2	1 1/2	1 1/2	1/2	1/2	ELKAY LUSTERTONE MODEL LRAD172065: 6-1/2" DEEP, STAINLESS STEEL SINK. PROVIDE AND INSTALL ELKAY MODEL LK3001CR SINGLE LEVER CHROME FAUCET WITH SWING SPOUT AND HOSE SPRAY, ELKAY MODEL LK35 STAINLESS STEEL STRAINER BASKET AND TAILPIECE.
SHR-1	SHOWER (36" X 37" X 80") (INSERT STYLE) (PUBLIC STANDARD)	2	1 1/2	2	1/2	1/2	BEST BATH SYSTEMS MODEL LCS3636CP, ONE PIECE, FIBERGLASS SHOWER WITH 5" THRESHOLD (CLASSIC TILE FINISH). MODULE SHALL BE CONSTRUCTED OF GELCOAT/FIBERGLASS WITH FULL INTEGRAL PLYWOOD BACKING IN THE WALLS AND FLOOR FOR STRENGTH AND CUSTOMIZED INSTALLATION OF ACCESSORIES. PROVIDE AND INSTALL SIOUX CHIEF MODEL 827-2B CAULKLESS BRASS DRAIN WITH STAINLESS STEEL STRAINER, MOEN MODEL 8375 PRESSURE BALANCING VALVE WITH 1/4" TURN STOPS, ADJUSTABLE TEMPERATURE LIMIT STOP, VANDAL RESISTANT HEAD, ARM AND FLANGE. POLISHED CHROME FINISH. PROVIDE STAINLESS STEEL CURTAIN ROD AND WEIGHTED SHOWER CURTAIN.
SHR-2	SHOWER (63" X 37" X 79") (INSERT STYLE - ROLL-IN) (ADA COMPLIANT)	2	1 1/2	2	1/2	1/2	BEST BATH SYSTEMS MODEL LCS6337A79B, ONE PIECE, FIBERGLASS SHOWER WITH 3/4" BEVELED THRESHOLD (CLASSIC TILE FINISH). MODULE SHALL BE CONSTRUCTED OF GELCOAT/FIBERGLASS WITH FULL INTEGRAL PLYWOOD BACKING IN ALL THE WALLS FOR STRENGTH AND CUSTOMIZED INSTALLATION OF ACCESSORIES. ADA MINIMUM INSIDE DIMENSIONS OF 60" X 30" FOR ROLL-IN SHOWERS. THE 3/4" BEVELED THRESHOLD ELIMINATES THE NEED TO RECESS FLOOR FOR ADA COMPLIANCE IF A 1/4" MINIMUM FLOORING IS USED. ACCESSORIES: (1) 25" S.S. GRAB BAR, (1) 32"X16" PHENOLIC SLAB, ADA COMPLIANT, SWING-DOWN SEAT WITH LEGS, (1) SURFACE-MOUNTED SOAP DISH, (1) SIOUX CHIEF MODEL 827-2B CAULKLESS BRASS DRAIN WITH STAINLESS STEEL STRAINER, (1) TWS COLLAPSIBLE "T" SHAPED WATER RETAINER. PROVIDE MOEN MODEL 8346 HAND-HELD SHOWER SYSTEM, PRESSURE BALANCING VALVE WITH 1/4" TURN STOPS, ADJUSTABLE TEMPERATURE LIMIT STOP, HAND-HELD SHOWER HEAD, 69" DOUBLE SWIVEL HOSE ASSEMBLY, 30" SLIDE BAR, VACUUM BREAKER, DROP ELL. PROVIDE STAINLESS STEEL CURTAIN ROD AND WEIGHTED SHOWER CURTAIN.
SS-1	SERVICE SINK (24" X 24" X 10") (FLOOR MOUNTED)	3	2	3	1/2	1/2	ACORN TERRAZZO-WARE MODEL TRH-242410: PROVIDE AND INSTALL WITH MODEL KFC CHROME UTILITY FAUCET, STAINLESS STEEL BUMPER GUARD, DRAIN GASKET, 36" HOSE AND WALL HANGER, MOP HANGER, AND (2) STAINLESS STEEL WALL GUARDS. MOUNT FAUCET 36" AFF.
TS-1	TEMPERING STATION	--	--	--	--	1 1/2	SYMMONS TEMPCONTROL MODEL NO. 7-1000 WITH ROUGH BRONZE FINISH, WALL MOUNTED. PROVIDE WITH TEMPERATURE GAUGE ON OUTLET.
TP-1	TRAP PRIMER (ELECTRONIC OPERATED) (4 TRAPS)	--	--	--	3/4"	--	PRECISION PLUMBING PRODUCTS MODEL PTS-12 ELECTRONIC TRAP PRIMING ASSEMBLY WITH ATMOSPHERIC VACUUM BREAKER, 24-HR ADJUSTABLE TIMER, MANUAL OVERRIDE SWITCH AND 120V SOLENOID VALVE.
WB-1	WALL BOX (SUPPLY/DRAIN FOR WASHING MACHINE)	2	1 1/2	2	1/2	1/2	OATEY FIREMASTER MODEL 38478 WITH FACEPLATE, ADJUSTABLE METAL SUPPORT BRACKETS, AND WATER HAMMER ARRESTORS. FIRE RATED, OR APPROVED EQUAL.
WC-1	WATER CLOSET (17-1/2" SEAT HEIGHT) (FLUSH TANK) (FLOOR MOUNTED) (COMFORT HEIGHT / ADA)	4	2	INT.	1/2	--	KOHLER CIMARRON MODEL K-5310 (LEFT LEVER) / K-5310-RA (RIGHT LEVER), FLOOR MOUNTED, GRAVITY FLUSH TANK WITH ELONGATED BOWL, 1.28 GPF. KOHLER LUSTRA MODEL K-4650 ELONGATED, OPEN FRONT SEAT WITH CHECK HINGE AND NO COVER.
WCO	WALL CLEANOUT	SEE PLANS	--	--	--	--	JAY R. SMITH 4472T SERIES WITH CAST BRONZE TAPER THREAD PLUG, STAINLESS STEEL ROUND COVER, AND A STAINLESS STEEL VANDAL PROOF SCREW.
WH-1	WATER HEATER (NOMINAL 100 GALLON) (NATURAL GAS - HIGH EFFICIENCY)	--	--	--	SEE PLANS	SEE PLANS	BRADFORD WHITE MODEL EF-100T-199E-3N. 199 MBH INPUT, 110V/1Ø, 1.8 AMPS, 28" DIAMETER, 78" TALL WITH SIDE CONNECTIONS. PROVIDE WITH PVC CONCENTRIC INTAKE/VENT KIT AND SEISMIC STRAP. PROVIDE WATER HEATER WITH HEAT TRAP.

NOTES:

1. ALL ADA COMPLIANT FIXTURES MUST COMPLY WITH ICC/ANSI A117.1. SEE ARCHITECTURAL PLANS FOR HANDICAPPED FIXTURE DESIGNATIONS, LOCATIONS, CLEARANCES, AND MOUNTING HEIGHTS.
2. ALL EXPOSED HW PIPING, CW PIPING, AND DRAIN LINES BENEATH ALL LAVATORIES AND ALL ADA COMPLIANT SINKS MUST BE INSULATED TO PREVENT INJURY. REFER TO ARCHITECTURAL PLANS. INSULATE WITH MOLDED CLOSED CELL VINYL INSULATION - TRUEBRO, PLUMBEREX, OR EQUAL.
3. PROVIDE P-TRAP PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS (NOT ALL TRAP PRIMERS ARE INDICATED ON PLANS - REFERENCE DETAILS FOR ADDITIONAL INFORMATION). PROVIDE A BALL TYPE SHUT-OFF VALVE UPSTREAM OF PRIMER VALVE. SEE SPECIFICATIONS.
4. SEE SPECIFICATIONS FOR ALTERNATE APPROVED MANUFACTURERS.
5. HIGH EFFICIENCY WATER HEATERS: PROVIDE WITH CONDENSATE NEUTRALIZATION KIT BY JJM BOILER WORKS MODEL JM (OR EQUAL), SIZED PER EQUIPMENT CAPACITY.
6. BACKFLOW PREVENTION: THIS BUILDING IS PROVIDED WITH A BACKFLOW PREVENTION DEVICE ON THE MAIN WATER SERVICE AND REDUCED PRESSURE BACKFLOW PREVENTION ON THE FOLLOWING PIECES OF EQUIPMENT:
   --POOL MAKE-UP

Jackson, WY
The Athletic Club at Jackson Hole

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CD

05.26.2023
DRAWN BY | JD
CHECKED BY | JR
REVISIONS

PLUMBING SCHEDULES

P300

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ELECTRICAL LEGEND - LIGHTING

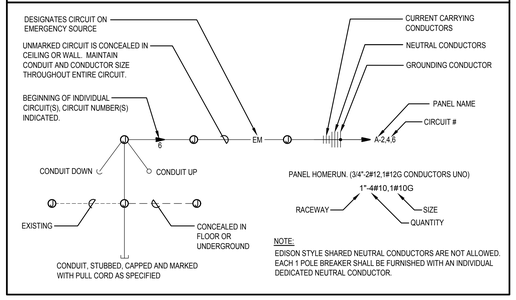
REFERENCE FIXTURE SCHEDULE FOR MOUNTING TYPE, MOUNTING HEIGHT, AND FIXTURE TYPE.

- DOUBLE FACE EXIT SIGN, CEILING MOUNTED, PROVIDE UNSWITCHED CONDUCTOR.
- WALL MOUNTED DOUBLE FACE EXIT SIGN PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
- SINGLE FACE EXIT SIGN, CEILING MOUNTED PROVIDE UNSWITCHED CONDUCTOR.
- WALL MOUNTED SINGLE FACE EXIT SIGN PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
- ARROW INDICATES DIRECTION TO BE SHOWN ON SIGN.
- 1'X1' LIGHT FIXTURE.
- 1'X1' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- TRACK LIGHT
- 1'X4' LIGHT FIXTURE.
- 1'X4' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- 2'X4' LIGHT FIXTURE.
- 2'X4' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- 2'X2' LIGHT FIXTURE.
- 2'X2' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- DIRECT/INDIRECT LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH.
- DIRECT/INDIRECT LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR
- STRIP LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH.
- STRIP LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR
- WALL MOUNTED LIGHT FIXTURE.
- WALL MOUNTED LIGHT FIXTURE. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- RECESSED LIGHT FIXTURE
- RECESSED LIGHT FIXTURE. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- ROUND LIGHT FIXTURE
- ROUND EMERGENCY LIGHT FIXTURE. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- WALL MOUNTED LIGHT FIXTURE.
- WALL MOUNTED EMERGENCY LIGHT FIXTURE. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- POLE LIGHT 1 HEAD WITH POLE
- TIME CLOCK
- PHOTO CONTROL CELL LOCATED 12" ABOVE ROOF FACING NORTH.
- OCCUPANCY SENSOR. PROVIDE RELAYS AND POWER PACKS AS REQUIRED.
- LED DRIVER
- EMERGENCY EGRESS LIGHTING WITH OUT FIXTURE HEADS. CONNECT TO AN UNSWITCHED CONDUCTOR.
- EMERGENCY EGRESS LIGHTING. CONNECT TO AN UNSWITCHED CONDUCTOR.
- WALL MOUNTED SINGLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING. PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
- CEILING MOUNTED. SINGLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING. PROVIDE UNSWITCHED CONDUCTOR.
- CEILING MOUNTED. DOUBLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING. PROVIDE UNSWITCHED CONDUCTOR.
- XXX — INDICATES FIXTURE TYPE. REFER TO FIXTURE SCHEDULE.
- EXTERIOR WALL PACK
- EMERGENCY EXTERIOR WALL PACK. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR

DEVICES

- S — SWITCH, TYPE AS INDICATED. +46"AFF
  - 2 DOUBLE POLE
  - 3 3-WAY
  - 4 4-WAY
  - K KEYED
  - P PILOT LIGHT
  - D DIMMER
  - HP HORSEPOWER RATED
  - TO THERMAL OVERLOAD
  - LV LOW VOLTAGE
  - OS OCCUPANCY SENSOR
  - OR LOW VOLTAGE, MOMENTARY OVERRIDE
  - VS VACANCY SENSOR
  - a SUPERSCRIPT INDICATES LIGHTS TO BE SWITCHED TOGETHER
- SS — DUAL LEVEL SWITCHING, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.
- S_{DL} — DUAL LEVEL SWITCHING WITH OCCUPANCY SENSOR, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.
- S_{DL} — OCCUPANCY SENSOR WITH MANUAL DIMMING, SET FOR 50% AUTOMATIC ON, AUTOMATIC OFF, WITH MANUAL DIMMING.
- SINGLE CONVENIENCE OUTLET, +18" AFF UNO
- FLOOR MOUNT SINGLE CONVENIENCE OUTLET
- DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
- FLOOR MOUNT DUPLEX CONVENIENCE OUTLET
- EMERGENCY DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
- SWITCHED DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
- FLOOR MOUNTED SWITCHED DUPLEX CONVENIENCE OUTLET
- USB DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
- USB FOURPLEX CONVENIENCE OUTLET, +18" AFF UNO
- FOURPLEX CONVENIENCE OUTLET. +18"AFF UNO
- FLOOR MOUNT FOURPLEX CONVENIENCE OUTLET
- CONNECTION POINT TO EQUIPMENT SPECIFIED. ELECTRICAL CONTRACTOR TO SUPPLY RACEWAY AND CONDUCTORS AND MAKE FINAL CONNECTION TO EQUIPMENT UNDER THIS SECTION. UNO
- FLOOR MOUNTED CONNECTION POINT, SEE NOTE ABOVE FOR REQUIREMENTS
- FLOOR MOUNTED JUNCTION BOX
- JUNCTION BOX
- WALL MOUNTED PUSH BUTTON, MOUNT AT SWITCH HEIGHT UNO
- HC — WALL MOUNTED PUSH BUTTON, HANDICAPPED MOUNT AT SWITCH HEIGHT UNO
- WALL MOUNTED PUSH BUTTON, MOUNT AT SWITCH HEIGHT UNO
- MOTOR STARTER/CONTACTOR, SIZE/POLES NEMA 1 UNO AS INDICATED
- COMBINATION STARTER AND DISCONNECT, SIZE/POLES, STARTER SIZE AS INDICATED, NEMA 1 UNO
- F — FUSED DISCONNECT SWITCH, SIZE/POLES, FUSE SIZES AS INDICATED, NEMA 1 UNO
- NON-FUSED DISCONNECT SIZE/ POLES AS INDICATED, NEMA 1 UNO
- T (unit #) — THERMOSTAT, +46" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS. UNO COORDINATE WITH DIVISION 15.
- H (unit #) — HUMIDISTAT, +46" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS.
- POWER POLE - DUAL CHANNEL
- REB — RECESSED ENTERTAINMENT BOX
- T — TRANSFORMER
- PANELBOARD. SEE SCHEDULE FOR TYPE.
- EQUIPMENT CABINET, SURFACE MOUNTED
- EQUIPMENT CABINET FLUSH MOUNTED
- SURFACE MULTI-OUTLET RACEWAY
- # / # — MECHANICAL EQUIPMENT CALL OUT
- # — KITCHEN EQUIPMENT CALLOUT

CIRCUITING SYMBOLS



NOTE:
EDISON STYLE SHARED NEUTRAL CONDUCTORS ARE NOT ALLOWED. EACH 1 POLE BREAKER SHALL BE FURNISHED WITH AN INDIVIDUAL DEDICATED NEUTRAL CONDUCTOR.

ONE LINE

- DELTA WYE TRANSFORMER UNO
- # / PANEL NAME / VOLTAGE / PHASE — PANEL BOARD, SEE SCHEDULE FOR TYPE AND SIZE
- ##A / #P — CIRCUIT BREAKER, SIZE AND POLES INDICATED
- ##A — FUSE, SIZE AND TYPE INDICATED, PROVIDE FUSE FOR EACH POLE
- ##A / #P — INTERRUPTER SWITCH, SIZE AND POLES INDICATED
- ##A / #P — FUSED SWITCH, SIZE/POLES AND FUSE SIZE INDICATED
- ##A / #P — DRAW OUT CIRCUIT BREAKER, SIZE AND POLES INDICATED
- ###A / #P — INDIVIDUAL BREAKER WITH SHUNT TRIP, SIZE AND POLES INDICATED. NEMA 1 UNO
- ###A / #P — INDIVIDUAL BREAKER, SIZE AND POLES INDICATED. NEMA 1 UNO
- GFP — GROUND FAULT PROTECTION
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSION
- LSIGR — ADJUSTABLE BREAKER SETTINGS (PER SPECIFICATIONS):
  - 'L'-LONG TIME
  - 'S'-SHORT TIME
  - 'I'-INSTANTANEOUS
  - 'G'-GROUND FAULT
  - 'R'-ENERGY REDUCING MAINTENANCE SWITCH W/STATUS INDICATOR
- GROUND
- ST — SHUNT TRIP COIL
- M — MOTOR
- 100A / 3P — DISCONNECT SWITCH, SIZE AND POLES INDICATED. NEMA 1 UNO
- OVERHEAD SERVICE DROP
- ###A/3P — GENERATOR SET, MAIN BREAKER SIZE INDICATED
- AUTOMATIC TRANSFER SWITCH (ATS)
- M — METER AND BASE
- N — NEUTRAL
- T — DRY TYPE TRANSFORMER
- PAD MOUNT TRANSFORMER

SECURITY

- CCTV CAMERA POWER SUPPLY
- CCTV SYSTEM POWER SUPPLY
- ADJUSTABLE CAMERA (PAN/TILT/ZOOM)
- FIXED CAMERA
- CAMERA IN OUTDOOR HOUSING
- ADJUSTABLE CAMERA (PAN/TILT/ZOOM) IN OUTDOOR HOUSING
- C — CCTV OUTLET, +18" UNO
- C — CEILING MOUNTED CCTV OUTLET
- K — SECURITY SYSTEM KEYPAD CONTROLLER COORDINATE BOX SIZE AND MUDRING WITH VENDOR
- CR — CARD READER
- M — CEILING MOUNTED MOTION SENSOR
- M 80" — WALL MOUNTED MOTION SENSOR, MOUNTING HEIGHT INDICATED
- PANIC BUTTON - MOUNTED UNDER COUNTER

NOTE:	THIS IS A STANDARD LIST OF COMMONLY USED ELECTRICAL SYMBOLS. SOME OF THE SYMBOLS SHOWN MAY NOT HAVE BEEN USED IN THIS DRAWING PACKAGE.

ELECTRICAL GENERAL NOTES

A. THESE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE; THEREFORE, THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL EQUIPMENT AND DEVICE LOCATIONS WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DIVISIONS PRIOR TO ROUGH-IN. REFER TO AND COORDINATE WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL WORK THAT IS REQUIRED BY THE ELECTRICAL CONTRACTOR.

B. ALL CONDUIT AND JUNCTION BOXES ARE TO BE CONCEALED UNLESS LOCATED WITHIN DEDICATED ELECTRICAL OR MECHANICAL ROOMS. USE OF SURFACE MOUNTED RACEWAYS IN ALL OTHER SPACES MUST BE APPROVED BY THE ARCHITECT FOR EACH LOCATION. WHERE SURFACE RACEWAYS ARE APPROVED, UTILIZE WIREMOLD, OR APPROVED EQUAL, SURFACE MOUNTED RACEWAYS PAINTED TO MATCH SURROUNDING WALLS.

C. REFER TO ARCHITECTURAL ELEVATIONS FOR OUTLET HEIGHTS WHERE THE SPECIFIC OUTLET HEIGHT IS NOT INDICATED. REFER TO THE ELECTRICAL LEGEND FOR THE DEFAULT OUTLET HEIGHT WHEN NOT INDICATED ON ELEVATIONS OR ON AT THE DEVICES.

D. PROVIDE PULL-LINE IN ALL EMPTY CONDUITS.

E. TERMINATE ALL LOW-VOLTAGE CONDUITS WITH INSULATED THROAT BUSHING.

F. MECHANICAL EQUIPMENT INDICATED IS SHOWN IN AN APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

DEMO:

G. THE ELECTRICAL DEMOLITION DRAWING(S) PROVIDED ARE INTENDED TO ASSIST THE ELECTRICAL CONTRACTOR IN ESTABLISHING AREAS REQUIRING DISCONNECTION, REMOVAL, OR RELOCATION OF ELECTRICAL EQUIPMENT, OUTLETS, WIRING, DEVICES, FIXTURES, ETC. AND MAY NOT INDICATE ALL DEVICES OR THE FULL EXTENT OF DEMOLITION AND RECONNECTION WHICH MAY BE REQUIRED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS THAT WILL BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID.

H. ALL ELECTRICAL DEVICES AND WALLS INDICATED ON THE ELECTRICAL DEMOLITION DRAWING(S) ARE TO REMAIN UNLESS OTHERWISE NOTED.

COMMUNICATIONS

- JUNCTION BOX FOR FUTURE TELEPHONE/DATA OUTLET. MOUNT AT 18" A.F.F. UNO. PROVIDE SINGLE-GANG MUD RING WITH BLANK COVER PLATE. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE.
- #D,#T — TELEPHONE/DATA OUTLET. MOUNT AT 18" A.F.F. UNO. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING. INSTALL QUANTITY OF DATA (#D) AND TELEPHONE (#T) CABLES INDICATED TO THE NEAREST DATA RACK. PROVIDE (2) DATA CABLES IF A CABLE QUANTITY IS NOT INDICATED.
- FLOOR MOUNTED BOX FOR FUTURE TELEPHONE/DATA OUTLET. JUNCTION BOX WITH SINGLE-GANG MUD RING. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. PROVIDE BLANK COVER PLATE.
- #D,#T — FLOOR MOUNTED TELEPHONE/DATA OUTLET. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING. INSTALL QUANTITY OF DATA (#D) AND TELEPHONE (#T) CABLES INDICATED TO THE NEAREST DATA RACK. PROVIDE (2) DATA CABLES IF A CABLE QUANTITY IS NOT INDICATED.
- IC — INTERCOM SYSTEM CALL BUTTON. +46" UNO.
- SP — CEILING MOUNTED SPEAKER WITH BACKBOX
- SP — WALL MOUNTED SPEAKER, WITH BACKBOX +80" UNO
- LV — VOLUME CONTROL, +46" UNO
- TV — TELEVISION OUTLET, +18" AFF UNO. PROVIDE 1-1/4" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE
- TV — CEILING MOUNTED TELEVISION OUTLET
- TTB — TELEPHONE TERMINAL BOARD
- CT-XX — CABLE TRAY, 4" DEEP, WIRE BASKET STYLE. "XX" INDICATES WIDTH PROVIDE ALL FITTINGS AND SUPPORT HARDWARE REQUIRED

ELECTRICAL ABBREVIATIONS

A	AMPERES
AC	6" ABOVE BACKSPLASH
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AF	AMP FRAME
AIC	AMPS INTERRUPTING CAPACITY
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BD	BOTTOM OF DECK
BS	BOTTOM OF STRUCTURE
C	CEILING MOUNTED
C	CONDUIT
CB	CIRCUIT BREAKER
CF	COMPACT FLUORESCENT
CKT	CIRCUIT
CO	CONDUIT ONLY. PROVIDE PULL-LINE
CT	CURRENT TRANSFORMER
CTL	CONTROL
DC	DIRECT CURRENT
(D)	DEMOLITION
DEMO	DEMOLITION
DET	DETAIL
DTT	DOUBLE TWIN TUBE
E	EMERGENCY
(E)	EXISTING
EC	ELECTRICAL CONTRACTOR
EL	EMERGENCY LIGHT
F	FUSE
(F)	FUTURE
FACP	FIRE ALARM CONTROL PANEL
G/GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING, VENTILATION, & AIR CONDITIONING
IG	ISOLATED GROUND
IPCO	IDAHO POWER COMPANY
J-BOX	JUNCTION BOX
KA	KILOAMP
KVA	KILO VOLT-AMP
KW	KILOWATT
KWH	KILOWATT HOUR
LCP	LIGHTING CONTROL PANEL
MB	MAIN BREAKER
MBR	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
MMC	MODULAR METERING CONTER
MH	METAL HALIDE
MSB	MAIN SWITCH BOARD
MTG	MOUNTING
N	NEUTRAL
(N)	NEW
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OH	OVERHEAD
OS	OCCUPANCY SENSOR
P	POLES
PC	PHOTO-CONTROL
PVC	POLYVINYL CHLORIDE
PWR	POWER
RE:	REFERENCE
REC	RECEPTACLE
(R)	RELOCATED
SF	SQUARE FEET
TBD	TO BE DETERMINED
TDR	TIME DELAY RELAY
TK	TOE KICK
TSP	TWISTED SHIELDED PAIR
TRT	TRIPLE TUBE
TTB	TELEPHONE TERMINAL BOARD
(TYP.)	TYPICAL
UC	UNDERCABINET
UG	UNDERGROUND
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT-AMPERE
W	WATT
WG	WIRE GUARD
WP	WEATHER PROOF/NEMA 3R

PROVIDED/ PROVIDE BY INSTALLED/ INSTALL	PROVIDE AND INSTALL / PROVIDED AND INSTALLED BY / PROVIDE AND INSTALL

NOTE: THIS IS A STANDARD LIST OF COMMONLY USED ELECTRICAL ABBREVIATIONS. SOME OF THE ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.

ELECTRICAL SPECIFICATIONS

A. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCALLY ADOPTED ELECTRICAL CODE, ALL LOCAL CODES, AND TO THE FULL ACCEPTANCE OF THE AUTHORITY HAVING JURISDICTION.

B. OBTAIN ALL PERMITS, COORDINATE, FURNISH, INSTALL, CONNECT AND TEST ALL ELECTRICAL EQUIPMENT REQUIRED FOR ALL THE SYSTEMS INSTALLED UNDER THIS CONTRACT TO INSURE COMPLETE AND FULLY OPERATIONAL SYSTEMS.

C. CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF AS-BUILT DRAWINGS. AS-BUILT SET OF DRAWINGS SHALL BE UPDATED DAILY AND SHALL DOCUMENT THE ACTUAL INSTALLED CONDITION OF THE ENTIRE ELECTRICAL INSTALLATION. AS-BUILT SET OF DRAWINGS SHALL BE AVAILABLE AT ALL TIMES ON THE SITE FOR INSPECTION BY CODE OFFICIALS, OWNER, ARCHITECT, AND ENGINEER.

D. PROTECT ALL EXISTING WORK FROM DAMAGE DURING CONSTRUCTION.

E. DESIGN IS BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS TO DETERMINE STATUS OF ACTUAL CONDITIONS AS THEY RELATE TO THE SCOPE OF WORK AS SHOWN ON THESE PLANS.

F. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES.

G. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL ELECTRICAL EQUIPMENT AND DEVICES WITH THE ARCHITECTURAL ELEVATIONS AND DETAILS PRIOR TO ROUGH-IN.

H. DEMOLITION WORK IS A PART OF THIS PROJECT. SEE DRAWINGS FOR EXISTING ELECTRICAL DEVICES TO BE REMOVED. REMOVE ASSOCIATED BOXES, RACEWAYS AND CONDUCTORS BACK TO SOURCE, AND MAKE SAFE.

I. ALL MATERIALS AND EQUIPMENT FURNISHED TO THE PROJECT SHALL BE NEW AND SHALL BEAR THE LISTING LABEL OF A NATIONALLY RECOGNIZED TESTING LAB AS DEFINED BY OSHA.

J. ALL ELECTRICAL DEVICES AND TERMINALS SHALL BE RATED 75°C MINIMUM.

K. ALL CONDUCTORS SHALL BE STRANDED COPPER, 600 VOLT RATED. INSULATION TYPE SHALL BE THHN/THWN, FULLY COLOR CODED WITH GAUGE, TYPE AND MANUFACTURER MARKED EVERY 24" ALONG. CONDUCTOR COLOR CODE SHALL BE AS FOLLOWS:

208Y/120 VOLT SYSTEM		480Y/277 VOLT SYSTEM	
PHASE A	- BLACK	PHASE A	- BROWN
PHASE B	- RED	PHASE B	- ORANGE
PHASE C	- BLUE	PHASE C	- YELLOW
NEUTRAL	- WHITE	NEUTRAL	- GRAY
GROUND	- GREEN	GROUND	- GREEN

L. MINIMUM SIZE WIRE FOR POWER AND LIGHTING CIRCUITS SHALL BE #12 AWG. ALL POWER AND LIGHTING CONDUCTORS SHALL BE ROUTED IN 3/4" CONDUIT MINIMUM.

M. EMT OR MC TYPE CABLE IS ALLOWED WHEN CONCEALED IN INTERIOR SPACES. MC TYPE CABLE IS NOT ALLOWED FOR HOMERUNS.

N. MAKE ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

O. ALL EQUIPMENT, SWITCHING DEVICES AND PANELS SHALL BE MOUNTED SO AS TO BE ACCESSIBLE AND SHALL BE MOUNTED PLUMB AND SQUARE WITH WALLS.

P. DEVICES AND RACEWAYS PENETRATING FIRE RATED WALLS AND FLOORS SHALL BE SEALED WITH FIRE RESISTIVE MATERIAL, COMPATIBLE WITH CONSTRUCTION PENETRATED, TO MAINTAIN RATING OF THE WALL. SEALANT SYSTEM SHALL BE A U.L. APPROVED SYSTEM AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

Q. FURNISH AND INSTALL PULL CORD IN ALL EMPTY CONDUITS.

R. ALL JUNCTION BOX COVERS WITH POWER WIRING SHALL HAVE THE PANEL AND CIRCUIT LABELED ON THE OUTSIDE SURFACE. ALL LABELS FOR EXPOSED JUNCTION BOXES IN "FINISHED AREAS" SHALL BE LABELED UTILIZING SELF ADHESIVE LABELS PRODUCED BY A MECHANICAL LABELING MACHINE. LABELS FOR JUNCTION BOX COVERS IN CONCEALED LOCATIONS SHALL CONSIST OF THE INFORMATION BEING NEATLY HANDWRITTEN ON THE OUTSIDE SURFACE OF THE COVER WITH A PERMANENT STYLE MARKER.

S. CLEARLY LABEL ALL ACCESSIBLE CONDUIT STUBS WITH SYSTEM NAME AND LOCATION (ROOM NUMBER) WHERE THE OTHER END OF THE CONDUIT TERMINATES. USE INDELIBLE INK. THE LABELS SHALL BE LOCATED ON THE CONDUIT IN A POSITION THAT CAN BE EASILY READ.

T. ALL 1 POLE BREAKER CIRCUITS SHALL HAVE AN INDEPENDENT NEUTRAL CONDUCTOR. NO EDISON STYLE SHARED NEUTRAL CONDUCTORS ARE ALLOWED.

U. ALL CONDUCTORS IN ELECTRICAL PANELS, CABINETS AND EQUIPMENT SHALL BE NEATLY TRAINED AND LACED.

V. THE CONTRACTOR SHALL PROVIDE UPDATED CIRCUIT PANEL DIRECTORIES FOR ALL PANELS. DIRECTORIES SHALL BE TYPED.

W. PROVIDE ELECTRICAL SUBMITTALS FOR EQUIPMENT SHOWN AS REQUIRED BY DIVISION 1 SPECIFICATIONS.

X. ELECTRICAL CONTRACTOR SHALL OBTAIN THE AVAILABLE FAULT CURRENT VALUE FROM THE LOCAL UTILITY OR THE ONE-LINE DIAGRAM AND LABEL THE MAIN BREAKER WITH THAT VALUE.

Y. SWITCH AND RECEPTACLE LABELING: IDENTIFY PANELBOARD AND CIRCUIT NUMBER FROM WHICH DEVICES ARE SERVED. USE MACHINE PRINTED LABEL AND 1/8" TEXT. INSTALL ON THE OUTSIDE OF THE FACEPLATE FOR RECEPTACLES AND INSIDE THE FACEPLATE FOR SWITCHES.

Jackson, WY
The Athletic Club at Jackson Hole

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CD

06.26.2023
DRAWN BY | AH
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REVISIONS

COVER SHEET

E000

COM*check* Software Version COMcheckWeb
Interior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: The Athletic Club At Jackson Hole
Project Type: Alteration

Construction Site:
980 WEST BROADWAY #8-#9
Jackson, Wyoming 83001

Owner/Agent:

Designer/Contractor:
Allen Halversen
Musgrove Engineering
645 West 25th Street
Idaho Falls, Idaho 83402
208-523-2862
allenh@musgrovepa.com

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Gymnasium	7054	0.76	5361
		Total Allowed Watts =	5361

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Gymnasium (7054 sq.ft.)				
LED: A1: LED Panel 70W:	1	53	69	3657
LED: B1: LED Linear 17W:	1	10	16	160
LED: B2: LED Panel 33W:	1	9	25	225
LED: B3: LED Panel 40W:	1	5	40	200
LED: B4: LED Panel 54W:	1	2	49	98
LED: C1: LED Panel 20W:	1	14	19	266
LED: D1: LED Panel 33W:	1	4	32	128
LED: F1: LED Panel 40W:	1	8	40	320
LED: G1/G2: LED A Lamp 6W:	1	42	3	139
			Total Proposed Watts =	5193

ALLEN HALVERSEN - PE

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

ALLEN HALVERSEN - PE — Name - Title
Signature
06/26/23 — Date

Project Title: The Athletic Club At Jackson Hole — Report date: 06/26/23
Data filename:
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COM*check* Software Version COMcheckWeb
Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: The Athletic Club At Jackson Hole
Project Type: Alteration
Exterior Lighting Zone 2 (Light industrial area with limited nighttime use (LZ2))

Construction Site:
980 WEST BROADWAY #8-#9
Jackson, Wyoming 83001

Owner/Agent:

Designer/Contractor:
Allen Halversen
Musgrove Engineering
645 West 25th Street
Idaho Falls, Idaho 83402
208-523-2862
allenh@musgrovepa.com

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Exterior Door (Pedestrian and vehicular entrances and exits)	6 ft of door	14	Yes	84
		Total Tradable Watts (a) =		84
		Total Allowed Watts =		84
		Total Allowed Supplemental Watts (b) =		400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Exterior Door (Pedestrian and vehicular entrances and exits, 6 ft of door width): Tradable Wattage				
LED: X1E: LED Panel 19W:	1	2	18	36
			Total Tradable Proposed Watts =	36

Exterior Lighting PASSES

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

ALLEN HALVERSEN - PE — Name - Title
Signature
06/26/23 — Date

Project Title: The Athletic Club At Jackson Hole — Report date: 06/26/23
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LIGHTING COMPLIANCE

E001

260500 COMMON WORK RESULTS FOR ELECTRICAL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Supporting Devices for Electrical Components
2. Electrical Demolition
3. Cutting and Patching For Electrical Construction
4. Touchup Painting

1.2 REFERENCES

A. ASTM International (ASTM) Publications:
1. A53 "Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless"

B. American Welding Society (AWS) Publications:
1. D1.1 "Structural Welding Code - Steel"
a. National Fire Protection Association (NFPA) Publications:
2. 70 "National Electric Code"

C. National Electrical Manufacturers Association (NEMA) Publications:
1. 250 "Enclosures for Electrical Equipment (1000 Volts Maximum)"

1.3 SUBMITTALS

A. Shop Drawings:
1. Prepare submittal for each item of equipment and attach written approval to each indicating that the specifications have been complied with and that shop drawings are correct.
2. Submittal shall be reviewed and otherwise before the contractor has reviewed the shop drawings. The contractor shall stamp all drawings with a statement that he has reviewed all shop drawings and that they conform to the intent of the drawings and specifications.

B. Submittals shall contain:
1. The first section of the manual shall contain:
a. Names, addresses, and telephone numbers of Electrical Engineer, General Contractor, and any other contractors involved.
2. Date of submission and dates of any previous submissions.
3. Project Title and Number
4. Contract identification.
5. The names of Contractor, Supplier, and Manufacturer.
6. Identification of the product, with the Specification Section number.
7. Field dimensions, clearly identified as such.
8. Relation to adjacent or critical features of the Work or materials.
9. Applicable standards, such as ASTM or Federal Specification numbers.
10. Identification of deviations from Contract Documents.
11. Identification of revisions on resubmittals.
12. An 8"x3" space for Engineer's and Contractor~s stamps.
13. Contractor stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of the Contract Documents.
14. Submittals shall be furnished on the following equipment:
a. Disconnect Switches
b. Panelboards
c. Overcurrent Protective Devices
d. Motor Starters
e. Light Fixtures
f. Light Dimmers
g. Site lighting
h. Motion Sensors
i. Receptacles
j. Switches
k. TMGB Grounding Busbar
l. Roof and Gutter De-icing
m. Fire Alarm System

C. O & M Manuals:
1. Provide 3 copies of O & M manual with data for all equipment furnished. Submittals shall be furnished on the following equipment:
a. Disconnect Switches
b. Panelboards
c. Overcurrent Protective Devices
d. Motor Starters
e. Light Fixtures
f. Light Dimmers
g. Site lighting
h. Motion Sensors
i. Receptacles
j. Switches
k. TMGB Grounding Busbar
l. Roof and Gutter De-icing
m. Fire Alarm System
2. Provide one copy of contractor's written warranty in each manual.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

C. All work to be in accordance with latest requirements of the N.E.C. and all other applicable codes and regulations of authorities having jurisdiction over the work.

1.5 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.
1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.

C. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces. Access doors and panels are specified in Section 083100 - "Access Doors."

D. Coordinate all work with Division 21, 22, & 23. Electrical Contractor shall provide all wiring and final connection to all line voltage thermostats. Thermostat provided and installed by Division 23.

E. All electrical drawings are to be read in conjunction with the project specifications and all other related contract drawings.

F. The contractor shall examine the site and observe the conditions under which the work will be done or other circumstances which will affect the contemplated work. No allowance will be made subsequently in the connection for any error or negligence on the contractor's part.

G. The contractor shall verify exact location, size and extent of all existing utilities, obstructions and/or other conditions which may affect the proposed work under the project. The contractor shall take every precaution to prevent damage to existing work and shall repair any damage as a result of this work.

H. The contractor shall verify all door swings in the field and mount switches on knob side of doors or as approved by the engineer.

I. The contractor shall carefully examine all contract drawings/specifications and be responsible for the proper fittings of materials and equipment at each location as indicated without substantial alteration. The drawings are generally diagrammatic and because of the small scale of the drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. Furnishing such fittings that are required to meet such conditions shall be furnished and installed at no cost.

PART 2 PRODUCTS

2.1 SUPPORTING DEVICES

A. Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.

B. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.

C. Slotted-Steel Channel Supports: Flange edges turned toward web, and 9/16-inch diameter slotted holes at a maximum of 2 inches o.c., in webs.
1. Channel Thickness: Selected to suit structural loading.
2. Fittings and Accessories: Products of the same manufacturer as channel supports.

D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

E. Pipe Sleeves: ASTM A53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

F. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.

G. Expansion Anchors: Carbon-steel wedge or sleeve type.

H. Toggle Bolts: All-steel springhead type.

2.2 TOUCHUP PAINT

A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.

B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

PART 3 EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.

B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

D. Right of Way: Give to raceways and piping systems installed at a required slope.

E. Coordinate work with other trades and install conduit and boxes to clear embedded ducts, openings, etc. and all structural features.

F. Unless otherwise noted, mounting heights, as shown, are from finished floor to top of panelboard and to centerline of other equipment. Coordinate all mounting heights with contract drawings, local code requirements, and all A.D.A. requirements.
1. Toggle (wrap) switch: 4'-0".
2. Enclosed circuit breaker: 5'-0"
3. Disconnect (safety) switch: 5'-0".
4. Motor starter: 5'-0".
5. Panelboard: 6'-0"

3.2 ELECTRICAL SUPPORTING DEVICE APPLICATION

A. Damp Locations, Pool Equipment Rooms, Storage Rooms and Outdoors: Hot-dip galvanized materials or nonmetallic, U-channel system components.

B. Dry Locations: Steel materials.

C. Support Clamps for PVC Raceways: Click-type clamp system.

D. Selection of Supports: Comply with manufacturer's written instructions.

E. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four; minimum of 200-lb design load.

3.3 SUPPORT INSTALLATION

A. Install support devices to securely and permanently fasten and support electrical components.

B. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.

C. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.

D. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.

E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.

F. Install 1/4-inch- diameter or larger threaded steel hanger rods, unless otherwise indicated.

G. Spring-steel fasteners specifically designed for supporting single conduits or tubing may be used instead of malleable-iron hangers for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits exclusively in dry locations and for support of single runs of raceways fastened to structural members in ceilings and for fastening raceways to slotted channel and angle supports.

H. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.

I. Simultaneously install vertical conductor supports with conductors.

J. Separately support cast boxes that are threaded to raceways and used for fixture support. Support sheet-metal boxes directly from the building structure or by bar hangers. If bar hangers are used, attach bar to raceways on opposite sides of the box and support the raceway with an approved fastener not more than 24 inches from the box.

K. Install metal-channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength.

L. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

M. Securely fasten electrical items and their supports to the building structure, unless otherwise indicated. Perform fastening according to the following unless other fastening methods are indicated:
1. Wood: Fasten with wood screws or screw-type nails.
2. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
3. New Concrete: Concrete inserts with machine screws and bolts.
4. Existing Concrete: Expansion bolts.
5. Steel: Welded threaded studs or spring-tension clamps on steel.
a. Field Welding: Comply with AWS D1.1.
6. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or other items.
7. Light Steel: Sheet-metal screws.
8. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

3.4 FIRESTOPPING

A. Apply firestopping to cable and raceway penetrations of fire-rated floor and wall assemblies to achieve fire-resistance rating of the assembly. Firestopping materials and installation requirements are specified in Section 078400 - "Firestopping."

3.5 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.

B. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.6 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work, including the following:
1. Supporting devices for electrical components.
2. Electrical demolition.
3. Cutting and patching for electrical construction.
4. Touchup painting.

3.7 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touch up paint.

3.8 CLEANING AND PROTECTION

A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.

B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION 260500

260503 RACEWAYS

PART 1 GENERAL

1.1 DESCRIPTION

A. Includes But Not Limited To -
1. Quality of material and installation procedures for all conduit and fittings used on Project, except as excluded below.

B. Related Work Specified Elsewhere -
1. See Sections relating to power and lighting systems for additional requirements.

PART 2 **PRODUCTS**

2.1 MATERIAL

A. Conduit -
1. 3/4 inch minimum on home runs unless indicated otherwise and use restricted as indicated by product.
2. Galvanized rigid steel (Type RMC) -
3. May be used in all areas.
4. Galvanized Intermediate Metallic Conduit (Type IMC) -
5. May be used in indoor locations not in contact with earth.
6. Galvanized Electrical Metallic Tubing (Type EMT) -
7. May be used in indoor dry locations where it is -
a. Not subject to damage.
b. Not in contact with earth.
c. Not in concrete slab on grade.
8. Schedule 40 Rigid Polyvinyl Chloride (PVC) (Type RNC) 3/4 inch minimum -
9. May be used -
10. Underground.
11. In or below concrete
12. Flexible Metal Conduit (Type FMC). 1/2 inch minimum
13. Use in indoor final connections to -
14. Mechanical equipment, not to exceed 36 inches.
15. Recessed fluorescent lighting fixtures, not to exceed 72 inches with ground wire.
16. FMC shall not be used in wet locations.
17. Liquid-Tight Flexible Metal Conduit (LFMC) -
18. Use in outdoor final connections to mechanical equipment, not to exceed 36 inches.
19. Type MC where concealed behind covered wall systems.
20. Type MC shall not be used exposed or above lay-in ceiling systems.
21. NM cable shall not be used on this project.

B. Fittings -
1. Compression or set-screw steel housing type for EMT, flexible steel, and liquid-tight flexible steel conduits.
2. PVC.
3. All fittings shall be PVC type. Use PVC adapters at all boxes.
4. Brush apply PVC cement.
5. All PVC components, (conduit, fittings, cement) shall be from same Manufacturer.
6. Wiremold Surface Metal Raceway -
7. Surface Metal Raceway (Wiremold) shall be installed where shown on the drawings.
8. All fittings and devices shall be as supplied by Wiremold - specifically designed for the use intended.
9. No "homemade" fittings shall be allowed.

C. Use of the following is prohibited on this project:
1. Aluminum conduit.
2. Electrical non-metallic tubing.
3. Steel or aluminum, indoor, outdoor type fittings.
4. Malleable iron or cast set-screw fittings.
5. Spray (aerosol) PVC cement.
6. PVC 90 degree bends.

PART 3 EXECUTION

3.1 INSTALLATION

A. Conceal raceways within ceilings, walls and floors except where exposed raceways are specifically permitted. Exposed raceways are allowed on mezzanine level and fan rooms.

B. Keep raceway runs a minimum distance of six inches from hot water pipes.

C. Support conduit and boxes in an approved manner by -
1. Expansion shields in concrete or solid masonry.
2. Toggle bolts on hollow masonry units.
3. Machine screws on metal.
4. Metal screws on metal.

D. Secure conduit with approved supports within three feet of every bend, outlet box, junction box, gutter, panel, fitting, etc. Do not space supports further apart than ten feet.

E. Cap conduit ends during construction.

F. Clean or replace conduits in which water or foreign matter have accumulated.

G. Install grounding type insulated bushings on each end of conduit 1-1/4 inch and larger.

H. Install grounding conductor in PVC conduit.

I. Bending of PVC shall be by hot box bender and for PVC two inches in diameter and larger, expanding plugs.

J. Install conduits into the bottom of panels with adequate space between all conduits to install lockouts and bushings.

K. The following are prohibited -
1. Use of wooden plugs inserted in concrete or masonry units as base for fastening conduits, tubing, boxes, cabinets, or other equipment.
2. Installation of conduit or tubing which has been crushed or deformed.
3. Inches for bending PVC conduit.

L. All 90 degree bends in power and communications conduit systems shall be rigid steel conduit. No PVC 90 degree bends from floor slab up to first outlet box allowed.

M. Run two 3/4 inch spare conduits from each panel to ceiling access area and cap so no foreign matter will enter conduit while not in use.

N. Run conduit in concrete slabs under but encased in slab. Conduits shall have outside diameter less than 1/3 slab thickness. See Division 03 for additional conduit emplacement requirements.

END OF SECTION 260503

260505 MOUNTING HEIGHTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to work of this section.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 INSTALLATION

A. Unless otherwise indicated, mount center of outlets or boxes at following heights above finish floor-

Receptacles	18"
Telephones (desk type)	18"
Telephones (wall type)	5'10"
Computer Outlet	18"
Switches - Toggle	4' 0" to top
Wall-Mounted Exit Lights	7' 0" or as shown
Wall-Mounted Emergency Lights	7' 0" or as shown
Thermostats	4' 0" to top
Distribution Panels	6' 0" to top
Condensing Unit Disconnects	5' 0" or even with top of unit
Motor Disconnects	5' 0" to top
Telephone Board	6' 0" to top
TV Outlet	6' 0" to top
Paging System	
Volume Controls	4' 0" to top
Wall Speakers	7' 6" to top-where shown
Pushbutton	4' 0"
Fire Alarm System	
Manual Pull Station	4' 0"
Alarm Devices	7' 0"
Other Equipment	As shown on drawings

B. Refer special conditions to Architect and locate outlet under his direction.

END OF SECTION 260505

260519 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.2 REFERENCES

A. National Electrical Manufacturer's Association (NEMA) Publications:
1. WC 26 "Binational Wire and Cable Packaging Standard"
2. WC 70 "Nonshielded Power Cables Rated 2000 Volts or less for the Distribution of Electrical Energy"

B. National Fire Protection Association (NFPA) Publications:
1. 70 "National Electric Code"

C. Underwriter's Laboratories, Inc. (UL) Publications:
1. 486A "Standard For Wire Connectors and Soldering Lugs for Use with Copper Conductors"
2. 486B "Standard for Wire Connectors for Use With Aluminum Conductors"

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.
1. Field Test Reports: Indicate and interpret test results for compliance with performance requirements

1.4 QUALITY ASSURANCE

A. Listing and Labeling: Provide wires and cables specified in this Section that are listed and labeled.
1. The Terms "Listed" and "Labeled": As defined in NFPA 70, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

B. Comply with NFPA 70.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver wires and cables according to NEMA WC 26.

1.6 COORDINATION

A. Coordinate layout and installation of cables with other installations.

B. Revise locations and elevations from those indicated, as required to suit field conditions and as approved by Owner's Representative.

PART 2 PRODUCTS

2.1 BUILDING WIRES AND CABLES

A. Approved Manufacturers:
1. American Insulated Wire Corp.; Leviton Manufacturing Co. (800-365-2462)
2. Carol Cable Co., Inc. (401-728-7000)
3. Southwire Company (800-444-1700)
4. Alcan Cable Division of Alcan Aluminum Corporation (770-392-2368)

B. UL-listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified in Part 3 "Wire and Insulation Applications" Article

C. Rubber Insulation Material: Comply with NEMA WC 70.

D. Thermoplastic Insulation Material: Comply with NEMA WC 70.

E. Cross-Linked Polyethylene Insulation Material: Comply with NEMA WC 70.

F. Ethylene Propylene Rubber Insulation Material: Comply with NEMA WC 70.

G. Conductor Material: Copper.

H. Stranding: Solid conductor for No. 10 AWG and smaller; stranded conductor for larger than No. 10 AWG.

2.2 CONNECTORS AND SPLICES

A. Approved Manufacturers:
1. AMP Incorporated (800-522-6752)
2. General Signal, O-Z/Gedney Unit (203-584-0571)
3. Square D Co., a Division of Groupe Schneider (888-778-2733)
4. Alcan Cable Division of Alcan Aluminum Corporation (770-392-2368)

B. UL-listed, factory-fabricated wiring connectors of size, ampacity rating, material, type, and class for application and service indicated. Comply with Project's installation requirements and as specified in Part 3 "Wire and Insulation Applications" Article

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRE AND INSULATION APPLICATIONS

A. Horizontal Branch Circuits: Type THHN/THWN, in raceway.

B. Vertical Branch Circuits: Type THHN/THWN in raceway.

3.3 INSTALLATION

A. Install wires and cables as indicated, according to manufacturer's written instructions and NECA's "Standard of Installation."

B. Pull Conductors: Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Install exposed cables, parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

E. Support cables according to Section 260500 - "Common Work Results for Electrical."

F. Seal around cables penetrating fire-rated elements.

G. Identify wires and cables according to Section 260553 "Identification for Electrical Systems."

3.4 CONNECTIONS

A. Conductor Splices: Keep to minimum.

B. Install splices and taps that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.

C. Use splice and tap connectors compatible with conductor material.

D. Use oxide inhibitor in each splice and tap connector for aluminum conductors.

E. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

F. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer.

G. Tighten connections to comply with torque values recommended by manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.5 FIELD QUALITY CONTROL

A. Testing: On installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
1. Perform megger and continuity tests on all conductors.

B. Correct malfunctioning conductors and cables at Project site, where possible, and retest to demonstrate compliance; otherwise, remove conductor and replace with new units and retest.

END OF SECTION 260519

260526 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Grounding of Electrical Systems and Equipment.
2. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.2 REFERENCES

A. ASTM International (ASTM) Publications:
1. B3 "Standard Specification for Soft or Annealed Copper Wire"
2. B8 "Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft"
3. B33 "Standard Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes"

B. Institute of Electrical and Electronics Engineers, Inc. (IEEE) Publications:
1. C2 "ABC C2 Eighth Interim Collection of the National Electrical Safety Code ®"
2. 81 "Instrumentation and Measurement"
3. 837 "Substations"

C. National Fire Protection Association (NFPA) Publications:
1. 70 "National Electric Code"
2. 780 "Standard for the Installation of Lightning Protection Systems"

D. Underwriter's Laboratories, Inc. (UL) Publications:
1. 96 "Standard for Lightning Protection Components"
2. 467 "Grounding and Bonding Equipment"
3. 486A "Standard For Wire Connectors and Soldering Lugs for Use with Copper Conductors"

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
1. Comply with UL 467.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Approved Manufacturers:
1. Grounding Conductors, Cables, Connectors, and Rods:
a. Chance/Hubbell (573-682-5521).
b. Copperweld Corp. (931-433-7177)
c. Thomas & Betts, Electrical (800-816-7809)

2.2 GROUNDING CONDUCTORS

A. For insulated conductors, comply with Section 260519 - "Low-Voltage Electrical Power Conductors and Cables."

B. Material: Copper.

C. Equipment Grounding Conductors: Insulated with green-colored insulation.

D. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.

E. Bare Copper Conductors: Comply with the following:
1. Solid Conductors: ASTM B3
2. Assembly of Stranded Conductors: ASTM B8
3. Tinned Conductors: ASTM B33.

F. Copper Bonding Conductors: As follows:
1. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG copper conductor, 1/4 inch in diameter.
2. Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.
3. Bonding Jumper: Flexible braid, 2-inch-wide copper conductors, terminated with copper ferrules, 1-5/8 inches wide and 1/16 inch thick.
4. Bonding Strap: Solid copper flat-foil or stranded copper, braided copper conductors, terminated with copper ferrules, 1-5/8 inches wide and 1/16 inch thick.

G. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

H. Equipment Ground Conductor (Green) shall be included with all circuit conductors where shown. In addition, provide a neutral conductor where applicable.

2.3 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467, listed for use for specific types, sizes, and combinations of conductors and connected items.

B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.

PART 3 EXECUTION

3.1 APPLICATION

A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and other earth materials.

B. In raceways, use insulated equipment grounding conductors.

C. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.

D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
1. Use insulated spacer; space 1 inch from wall and support from wall 6 inches above finished floor, unless otherwise indicated.
2. At doors, route the bus up to the top of the door frame, across the top of the doorway, and down to the specified height above the floor.

3.2 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.

B. Install equipment grounding conductors in all feeders and circuits.

C. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate equipment grounding conductor. Isolate equipment grounding conductor from raceway and from panelboard grounding terminals. Terminate all equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.

D. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.

E. Signal and Communication Systems: For telephone, alarm, voice and data, and other communication systems, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch tin-plated busbar.
2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connections for outdoor locations, unless a disconnect-type connection is required, then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.

3.4 CONNECTIONS

A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in galvanic series.
2. Make up threaded joints with clean, bare metal at points of contact.
3. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

B. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.

C. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate raceway with a bushing and install a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.

D. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

E. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

F. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

END OF SECTION 260526

260553 IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Electrical identification materials and devices required to comply with ANSI C2, NFPA 70, OSHA standards, and authorities having jurisdiction.

1.2 REFERENCES

A. American National Standards Institute (ANSI) Publications:

B. National Fire Protection Association (NFPA) Publications:
1. 70 "National Electric Code"

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections:
1. Product Data: For each electrical identification product indicated.

1.4 QUALITY ASSURANCE

A. Comply with ANSI C2.

B. Comply with NFPA 70.

C. Comply with ANSI A13.1 and NFPA 70 for color-coding.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Approved Manufacturers:
1. Brady USA, Inc. (800-541-1686)
2. Panduit corp. (800-777-3300)
3. Seton Identification Products (800-571-2596)

2.2 RACEWAY AND CABLE LABELS

A. Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
1. Color: Black letters on orange field.
2. Legend: Indicates voltage

B. Pretensioned, Wraparound Plastic Sleeves: Flexible, preprinted, color-coded, acrylic band sized to suit the diameter of the line it identifies and arranged to stay in place by pretensioned gripping action when placed in position.

C. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

D. Underground-Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape.
1. Printed legend indicating type of underground line.

E. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

F. Aluminum, Wraparound Marker Bands: Bands cut from 0.014-inch thick aluminum sheet, with stamped or embossed legend, and fitted with slots or ears for permanently securing around wire or cable jacket or around groups of conductors.

G. Plastic(ized Card-Stock Tags: Vinyl cloth with preprinted and field-printed legends. Orange background, unless otherwise indicated, with eyelet for fastener.

H. Aluminum-Faced, Card-Stock Tags: Weather-resistant, 16-point minimum card stock faced on both sides with embossable aluminum sheet, 0.002 inch thick, laminated with moisture-resistant acrylic adhesive; punched for fasteners, and preprinted with legends to suit each application.

2.3 NAMEPLATES AND SIGNS

A. Safety Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145.

B. Engraved Plastic Nameplates and Signs: Engraving stock, melamine plastic laminate, minimum 1/16 inch thick for signs up to 20 sq. in. and 1/8 inch thick for larger sizes.
1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.

C. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for the application. 1/4-inch grommets in corners for mounting.

D. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing, and with colors, legend, and size required for the application. 1/4-inch grommets in corners for mounting.

E. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32, stainless-steel machine screws with nuts and flat and lock washers.

2.4 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Cable Ties: Fungus-inert, self-extinguishing, one-piece, self-locking, Type 6/6 nylon cable ties.
1. Minimum Width: 3/16 inch.
2. Tensile Strength: 50 lb minimum.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: According to color-coding.

PART 3 EXECUTION

3.1 INSTALLATION

A. Identification Materials and Devices: Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations with corresponding designations in the Contract Documents or with those required by codes and standards. Use consistent designations throughout Project.

C. Sequence of Work: If identification is applied to surfaces that have received a finish, install identification after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before applying.

E. Caution Labels for Indoor Boxes and Enclosures for Power and Lighting: Install pressure-sensitive, self-adhesive labels identifying system voltage with black letters on orange background. Install on exterior of door or cover.

F. Circuit Identification Labels on Boxes: Install labels externally.
1. Exposed Boxes: Pressure-sensitive, self-adhesive plastic label on cover.
2. Concealed Boxes: Plasticized card-stock tags.
3. Labeling Legend: Permanent, waterproof listing of panel and circuit number or equivalent.

G. Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous underground plastic line marker located directly above line at 6 to 8 inches below finished grade. Where width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches overall, use a single line marker. Install line marker for underground wiring, both direct-buried cables and cables in raceway.

H. Secondary Service, Feeder, and Branch-Circuit Conductors: Color-code throughout the secondary electrical system.
1. Wire color code:
a. Color-code for 208/120V system shall be as follows:
1) Phase A: Black
2) Phase B: Red
3) Phase C: Blue
4) Neutral: White
5) Ground: Green
2. Factory apply color the entire length of conductors, except the following field-applied, color-coding methods may be used instead of factory-coded wire for sizes larger than No. 10 AWG:
a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Use 1-inch wide tape in colors specified. Adjust tape bands to avoid obscuring cable identification markings.
b. Colored cable ties applied in groups of three ties of specified color to each wire at each terminal or splice point starting 3 inches from the terminal and spaced 3 inches apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.

I. Power-Circuit Identification: Metal tags or aluminum, wraparound marker bands for cables, feeders, and power circuits in vaults, pull and junction boxes, manholes, and switchboard rooms.
1. Legend: 1-inch-high steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
2. Tag Fasteners: Nylon cable ties.
3. Band Fasteners: Integral ears.

J. Apply identification to conductors as follows:
1. Conductors to Be Extended in the Future: Indicate source and circuit numbers.
2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color-coding to identify circuits' voltage and phase.
3. Feeder Circuits in Pull Boxes and Junction Boxes in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color-coding, or cable marking tape.

K. Apply warning, caution, and instruction signs as follows:
1. Warnings, Cautions, and Instructions: Install to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.
2. Emergency Operation: Install engraved laminated signs with white legend on red background with minimum 3/8-inch high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.

L. Equipment Identification Labels: Engraved plastic laminate. Install on each unit of equipment, including central or master unit of each system. This includes power, lighting, communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Unless otherwise indicated, provide a single line of text with 1/2 inch high lettering on 1-1/2-inch high label; where two lines

265100 INTERIOR LIGHTING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Interior Lighting Fixtures
2. Exit Signs
3. Emergency Lighting Units
4. Accessories

1.2 REFERENCES

A. American National Standards Institute (ANSI) Publications:
1. C82.4 "Ballasts for High – Intensity – Discharge and Low Pressure Sodium Lamps (Multiple-Supply Type)"

B. Institute of Electrical and Electronics Engineers, Inc. (IEEE) Publications:
1. C62.41 "Surge Voltages in Low-Voltage AC Power Circuits"

C. National Fire Protection Association (NFPA) Publications:
1. NFPA 70 "National Electric Code"
2. NFPA 101 "Life Safety Code®"

D. Underwriter's Laboratories, Inc. (UL) Publications:
1. 486A "Standard For Wire Connectors and Soldering Lugs for Use with Copper Conductors"
2. 486B "Standard for Wire Connectors for Use with Aluminum Conductors"
3. 924 "Emergency Lighting and Power Equipment"

1.3 PRIOR APPROVAL

A. General:
1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Engineer and are specifically approved by the Engineer, in writing, 10 days prior to close of bidding.
2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections:
1. For each type of lighting fixture indicated, arranged in order of fixture designation. Include data on features, accessories, and the following:
a. Dimensions of fixture.
b. Photometric data or laboratory tests for fixtures and lamps for photometric performance.
c. Emergency lighting unit battery and charger.
d. Photometric data.
2. Dimming Ballast Compatibility Certificates: Signed by manufacturer of ballast certifying that ballasts are compatible with dimming systems and equipment with which they are used.
3. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.
4. Maintenance Data: For lighting fixtures to include in maintenance manuals specified in Division 01.

1.5 QUALITY ASSURANCE

A. Fixtures, Emergency Lighting Units, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

B. Comply with NFPA 70.

C. NFPA 101 Compliance: Comply with visibility and luminance requirements for exit signs.

1.6 COORDINATION

A. Fixtures, Mounting Hardware, and Trim: Coordinate layout and installation of lighting fixtures with ceiling system and other construction.

1.7 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra materials described in Division 01 Section that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

PART 2 PRODUCTS

2.1 FIXTURES AND FIXTURE COMPONENTS, GENERAL

A. Approved Manufacturers:
1. Subject to compliance with requirements, provide the products indicated for each designation in Lighting Fixture Schedule as shown on drawings.
2. All alternate light fixture packages shall be submitted a minimum of 10 days prior to bid for approval.

B. Metal Parts: Free from burrs, sharp corners, and edges.

C. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.

D. Doors, Frames, and Other Internal Access: Smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in operating position.

E. Reflecting Surfaces: Minimum reflectance as follows, unless otherwise indicated:
1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.
4. Laminated Silver Metallized Film: 90 percent.

F. Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic or annealed crystal glass, unless otherwise indicated.
1. Plastic: High resistance to yellowing and other changes due to aging, exposure to heat, and ultraviolet radiation.
2. Lens Thickness: 0.125 inch minimum, unless greater thickness is indicated.

2.2 LED LIGHTING FIXTURES

A. General Requirements:
1. See lighting fixtures schedule for specifications.

2.3 EXIT SIGNS

A. General Requirements: Comply with UL 924 and the following:
1. Sign Colors and Lettering Size: Comply with authorities having jurisdiction.

B. Internally Lighted Signs: As follows:
1. Lamps for AC Operation: Light-emitting diodes, 70,000 hours minimum rated lamp life.

C. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
1. Battery: Sealed, maintenance-free, nickel-cadmium type with special warranty.
2. Charger: Fully automatic, solid-state type with sealed transfer relay.
3. Operation: Relay automatically energizes lamp from unit when circuit voltage drops to 80 percent of nominal or below. When normal voltage is restored, relay disconnects lamp, and battery is automatically recharged and floated on charger.

2.4 EMERGENCY LIGHTING UNITS

A. General Requirements: Self-contained units. Comply with UL 924. Units include the following features:
1. Battery: Sealed, maintenance-free, lead-acid type with minimum 10-year nominal life and special warranty.
2. Charger: Fully automatic, solid-state type with sealed transfer relay.
3. Operation: Relay automatically turns lamp on when supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps, and battery is automatically recharged and floated on charger.
4. Integral Time-Delay Relay: Arranged to hold unit on for fixed interval after restoring power after an outage. Provides adequate time delay to permit high-intensity-discharge lamps to restrike and develop adequate output.

2.5 FIXTURE SUPPORT COMPONENTS

A. Comply with Section 260500 "Common Work Results for Electrical".

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fitting and ceiling canopy. Finish same as fixture.

C. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy arranged to mount a single fixture. Finish same as fixture.

D. Rod Hangers: 3/16-inch- minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking type plug.

F. Aircraft Cable Support: Use cable, anchorages, and intermediate supports recommended by fixture manufacturer.

2.6 FINISHES

A. Fixtures: Manufacturer's standard, unless otherwise indicated.
1. Paint Finish: Applied over corrosion-resistant treatment or primer, free of defects.
2. Metallic Finish: Corrosion resistant
3. Colors as indicated in Light Fixture Schedule.

2.7 LAMPS

A. Approved Manufacturers:
1. LED
a. See lighting fixture Schedule

B. Color Temperature and Minimum Color-Rendering Index: 4000 K and 85 CRI, unless otherwise indicated.

PART 3 EXECUTION

3.1 INSTALLATION

A. Fixtures: Set level, plumb, and square with ceiling and walls, and secure according to manufacturer's written instructions and approved submittal materials. Install lamps in each fixture.

B. Support for Fixtures in or on Grid-Type Suspended Ceilings:
1. Recessed lighting fixtures shall be supported independently from the suspended ceiling system. Number 9 gauge galvanized steel wire or approved type hangers from the overhead building structures shall be provided for fixture support.

3.2 LIGHT FIXTURE ATTACHMENT

A. Light fixtures (all types) shall be mechanically attached to grid per NEC 410-16 (two per fixture unless independently supported):
1. Surface-mounted fixtures shall be attached to grid.
2. Pendant-hung fixtures shall be directly supported from structure with 9-gauge wire (or approved alternative).
3. Rigid lay-in or can light fixtures:
a. <10 lbs. - one wire to structure (may be slack).
b. 10 to 56 lbs. - two wires from housing to structure (may be slack).
c. >57 lbs. - supported directly to structure by approved method.

3.3 CONNECTIONS

A. Ground Equipment:
1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Advance Notice: Give dates and times for field tests.

C. Provide instruments to make and record test results.

D. Tests: As follows:
1. Verify normal operation of each fixture after installation.
2. Emergency Lighting: Interrupt electrical supply to demonstrate proper operation.

3. Verify normal transfer to battery source and retransfer to normal.
4. Report results in writing.

E. Malfunctioning Fixtures and Components: Replace or repair, then retest. Repeat procedure until units operate properly.

F. Corrosive Fixtures: Replace during warranty period.

3.5 CLEANING AND ADJUSTING

A. Clean fixtures internally and externally after installation. Use methods and materials recommended by manufacturer.

B. Adjust airiable fixtures to provide required light intensities.

END OF SECTION 265100

270533 CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes conduit and tubing, surface raceways, wire ways, outlet boxes, pull and junction boxes, and hand holes.

1.2 REFERENCES

A. American National Standards Institute:
1. ANSI C80 1 - Rigid Steel Conduit, Zinc Coated
2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated

B. National Electrical Manufacturers Association:
1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum)
2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies
3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports
4. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports

1.3 SYSTEM DESCRIPTION:

A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.

B. Concealed Dry Locations: Provide electrical metallic tubing and nonmetallic conduit. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas.

C. Exposed Dry Locations: Provide electrical metallic tubing and nonmetallic conduit. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas.

1.4 DESIGN REQUIREMENTS

A. Minimum Raceway Size: 3/4 inch unless otherwise specified.

1.5 PRIOR APPROVAL

A. General:
1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Engineer and are specifically approved by the Engineer, in writing, 10 days prior to close of bidding.
2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.6 SUBMITTALS

A. Product Data: Submit for the following:
1. Electrical metallic tubing
2. Surface raceway
3. Floor boxes

B. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

1.8 COORDINATION

A. Coordinate installation of outlet boxes for equipment connected under Section 260533.

B. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

PART 2 PRODUCTS

2.1 ELECTRICAL METALLIC TUBING (EMT)

A. Product Description: ANSI C80.3, galvanized tubing.

B. Fittings and Conduit Bodies: NEMA FB 1, steel compression type.

2.2 SURFACE METAL RACEWAY

A. Manufacturers:
1. Carlon Electrical Products
2. Hubbell Wiring Devices
3. Thomas & Betts Corp.
4. Walker Systems Inc.
5. The Wiremold Co.

B. Product Description: Sheet metal channel with fitted cover, suitable for use as surface metal raceway.

2.3 OUTLET BOXES

A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch male fixture studs where required.
2. Concrete Ceiling Boxes: Concrete type.

B. Wall Plates for Finished Areas: As specified in Section 262726.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

3.2 EXISTING WORK

A. Remove exposed abandoned raceway. Cut raceway flush with walls and floors, and patch surfaces.

B. Remove concealed abandoned raceway to its source.

C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.

D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.

E. Extend existing raceway and box installations using materials and methods as specified.

F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

3.3 INSTALLATION

A. Install Work in accordance with standards.

B. Identify raceway and boxes in accordance with Section 260553.

C. Arrange raceway and boxes to maintain headroom and present neat appearance.

3.4 INSTALLATION - RACEWAY

A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.

B. Arrange raceway supports to prevent misalignment during wiring installation.

C. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

D. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports.

E. Do not attach raceway to ceiling support wires or other piping systems.

F. Construct wire way supports from steel channel specified in Section 260529.

G. Route exposed raceway parallel and perpendicular to walls.

H. Route raceway installed above accessible ceilings parallel and perpendicular to walls.

I. Maintain clearance between raceway and piping for maintenance purposes.

J. Maintain 12-inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.

K. Cut conduit square using saw or pipe cutter; de-burr cut ends.

L. Bring conduit to shoulder of fitting; fasten securely.

M. Install no more than equivalent of three 90-degree bends between boxes. Install conduit bodies to make sharp changes in direction, as around beams.

3.5 INTERFACE WITH OTHER PRODUCTS

A. Install conduit to preserve fire resistance rating of partitions and other elements.

3.6 CLEANING

A. Clean interior of boxes to remove dust, debris, and other material.

B. Clean exposed surfaces and restore finish.

END OF SECTION 270533

SECTION 25500 – RF SURVEY FOR EMERGENCY RESPONDER RADIO ANTENNA REPEATER

PART 1 - GENERAL

1.1 SUMMARY

A. The purpose of this specification is to establish the requirements and standards for initial survey for public safety radio signal strength per NFPA and IFC.

B. Survey should be performed after the building is substantially completed, and prior to start of installation of electrical wiring.

C. Conduct a survey using a RF Spectrum Analyzer, a calibrated, system-compatible radio or another suitable instrument with traceable certificate of calibration to analyze the RF signal strength of Emergency Responder Radio Signal into the building and determine if amplification of the signal is needed. Both inbound and outbound signal strength shall be determined, measured, calculated and documented as required by code.

1.2 SURVEY CRITERIA IF REQUIRED

A. The required Public Safety Radio Signal Level inside the Owner's facility must be determined per code, ordinance or AHJ.

B. Survey shall be performed by an FCC licensed technician holding a current GROL license. Honeywell Fire have distributors that meet these requirements.

1.3 REGULATIONS

A. Codes, regulations and standards referenced in the Section are:
1. NFPA 1 – The National Fire Code (including Annex O from 2009)
2. NFPA 70 – The National Electrical Code
3. IFC 510, Emergency Responder Radio Coverage
4. NFPA 101, Life Safety Code, the Chris Building Code, and Local Code and Building Authority requirements.
5. NFPA 72 National Fire Alarm Code
6. FCC 47 CFR Private Land Mobile Radio
7. 90.219 Services-Use of Signal Boosters
8. ICC International Fire Code, Code and Commentary
9. Local or State Promulgated Fire Code
10. ICC "Accessible with Disabilities Act"
11. FCC Bulletin 65 Standards "Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields"
12. NFPA Codes 70, 72, 101 and Part 101
13. NFPA 1221 2016 Edition
14. International Building Code 2012 / 2015 / 2018
15. UL 2524

1.4 DEFINITIONS

A. Definitions:
1. Bi-Directional Amplifier BDA: Device used to amplify band-selective or multi-band RF signals in the uplink, to the base station and in the downlink from the base station to subscriber devices for enhancement signals and improved coverage
2. Emergency Responder Radio Coverage System: A two-way radio communication system installed to assure he effective operation of radio communications systems for fire, emergency medical services, or law enforcement agencies within a building or structure. A system used by firefighters, police, and other emergency services personnel.
3. FCC: Federal Communications Commission
4. OET 65 Standards: FCC's Bulletin 65 provides Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields
5. Public Safety Responder: Public Safety or First Responder agencies that are charged with the responsibility of responding to emergency situations. These include, but are not limited to law enforcement departments, fire departments, and emergency medical companies.
6. RSSI: Received signal strength indicator RSSI is a measurement of the power present in a received radio signal.
7. BER: Bit Error Rate is the number of bit errors per unit time
8. GROL - FCC General Radio Operators License
9. ERRCES- Emergency Responder Radio Coverage Enhancement System
10. DAS-Distributed Antenna System

1.5 EXECUTION

A. Testing Procedures
1. Minimum Signal Strength: For testing system signal strength and quality, the testing shall be based on the. -95dBm nominal signal at 100%.
2. Signal Source: A Calibrated Handheld Radio shall be used as basis for signal measurements or other method approved by AHJ.
3. Testing should be based on a minimum of 20 grid locations per floor OR maximum of 1000 SQ.ft. areas if the floor exceeds 32,000 Sq. Ft. Also, testing should include all critical areas per NFPA. See 1.02 of this specification and NFPA 72 2013 or NFPA 1221 2016. OR per any method determined by the AHJ, local code or ordinance
4. A minimum signal strength of -95 dBm shall be provided throughout the coverage area for both uplink and downlink by the Local Fire Department.
a. RSSI measurement only

1.6 SURVEY SUBMITTALS

A. Submit testing data for each level of the building.
1. An RF measurement drawing of each floor of the building which indicates relative RF field strength for each frequency band of interest must be submitted.
2. The drawing should indicate clearly the areas that have passed or failed based on the above parameters.

END OF SECTION 26 5500

SECTION 285000 – EMERGENCY RADIO COMMUNICATION

PART 1 - GENERAL

1.1 SUMMARY

A. General:
1. Provide an in-building radio signal amplification system to provide complete coverage in the building for the public safety agencies as required by the local AHJ (Authority Having Jurisdiction). System users shall receive and transmit radio signals from their portable radio units within the building. This shall be accomplished utilizing the following components:
a. Bi Directional Amplifiers (Signal Boosters)
b. Coaxial Cable
c. Antennas
d. Cable taps
e. Connectors
f. Power dividers
g. Other components and interconnecting circuitry as required
2. The system shall comply with the requirements of UL2524 in-building 2-Way Emergency Radio Communication Enhancement Systems, NFPA 72 2013 Edition, NFPA 1221 2016 Edition and IFC 2015, as referenced.
2. The entire system shall be installed to the satisfaction of the Fire Department, the Building Department and all other agencies and authorities having jurisdiction (AHJ).
3. The work in this section shall include the responsibility for all permit requirements with the AHJ. Where filings require engineer's signature, documents shall be submitted for his review and signature. This responsibility shall include furnishing of required quantities of floor plans, descriptive notes and/or specifications, wiring diagrams, shop drawings and amendment forms.
4. Upon completion of the work, the emergency radio communication enhancement system will be required as to permit a Certificate of Occupancy to be obtained in a timely manner
5. Any permits necessary for the installation of the work shall be obtained prior to the commencement of the work. All permit costs and inspection fees shall be included.
6. The in-building emergency radio communication enhancement system shall use a UL2524, NFPA 72, NFPA 1221 and IFC 2016 compliant GAMEWELL-FCI signal booster or approved equal.

1.2 DESIGN REQUIREMENTS

A. In-building emergency radio communication enhancement systems for emergency responders are an integral component of the life safety equipment of a building or structure. The primary function is to provide reliable emergency responder communications at the required signal strength within the specified areas.

B. Critical Areas such as emergency command center, fire pump room, exit stairs, exit passageways, elevator lobbies, standpipe cabinets, sprinkler sectional valve locations and similar critical areas shall be provided with 100% floor area radio coverage.

C. General building areas shall be provided with 95% radio coverage, or as specified by AHJ.

D. The in-building emergency radio communication enhancement systems must provide the following signal strengths:
1. Downlink - Minimum signal strength of -95 dBm throughout the coverage area.
2. Uplink - Minimum signal strength of -95 dBm received at the AHJ Radio System.
3. DR As otherwise required by the AHJ.
4. The system shall be complete with all components and wiring required for compliance with all applicable codes and standards in the AHJ having jurisdiction.
5. An approved manufacturer or a qualified and approved vendor shall supply, test and determine locations of components which are required for proper operation as well as to supply, install, test and certify the performance of the complete system. Vendor qualifications must be acceptable to the AHJ.
6. Design shall include iBwave software-simulated radio propagation modeling with heat maps showing predicted signal coverage levels within the building. The iBWave design shall be done by iBWave certified personnel.
7. All tests shall be conducted, documented, and signed by a person in possession of an FCC General Radio Telephone Operators License. All testing personnel shall be certified and authorized by the signal booster manufacturer in the installation and operation of their equipment. Personnel qualifications must be acceptable to the AHJ.
8. The system design shall be based on the GAMEWELL-FCI line of Public Safety Signal Boosters UL2524, NFPA 72, NFPA 1221, IFC and FCC certified to establish standards of quality for materials and performance. The

naming of a specific manufacturer or a catalog number does not waiver any requirement or performance of individual components described in the specifications.
9. Assembly and installation of all components of the Emergency Responder Radio Communication Enhancement System shall comply with all applicable sections of the National Electrical Code.
10. Survivability from attack by fire shall meet requirements of NFPA 72, NFPA 1221, IFC or as required by the local jurisdiction.
11. The system must comply with all applicable sections of the FCC rules. Signal booster shall have FCC certification prior to installation.
12. Antenna isolation shall be maintained between the donor antenna and all inside antennas (D.A.S.) to a minimum of 20dB under all operating conditions

PART 2 - PRODUCTS

2.1 TECHNICAL SPECIFICATIONS AND PERFORMANCE REQUIREMENTS

A. The system specified shall be based upon GAMEWELL-FCI line of Public Safety UL2524, NFPA72, NFPA 1221, IFC compliant signal boosters

B. The signal booster shall be a Class B Public Safety type as designated by the FCC or as required by the AHJ.

C. The secondary power supplies, battery chargers and system monitoring shall be fully compliant with NFPA 72, NFPA 1221 and IFC. The signal booster shall have both the primary and the secondary power supplies within a waterproof, type-4 approved enclosure.

D. All signal boosters and other active system components must have FCC certification prior to installation. The equipment FCC ID must be shown on the product datasheets and technical submittals. The ID must also be displayed on the product as required by the FCC.

E. The signal booster shall be pre-set by the equipment manufacturer for the frequencies specified by the AHJ. Field tuning of RF filters and duplexers is not allowed.

F. UHF and VHF signal boosters shall be band selective type with a maximum 3dB channel bandwidth of 200KHz (Fc +/- 100KHz) per band. Non-selective wide-band signal boosters shall not be accepted, unless required to cover multiple channels within the same band.

G. Signal Boosters shall have oscillation suppression circuitry to protect the public safety radio system in case of system malfunction or other causes. The oscillation suppression circuit shall not disable the system operation. Systems that automatically disable the signal booster upon oscillation detection shall not be allowed.

H. Signal Boosters shall have uplink noise suppression function to eliminate uplink noise while in standby (i.e. no radio transmission from within a building). Systems that produce any measurable level of uplink noise while in standby shall not be allowed.

I. Signal Booster gain shall be rated at minimum of 60dB and the gain shall be adjustable in a minimum of 30dB range. System gain shall be set and documented at the time of the final system test.

J. Maximum Propagation delay of the signal booster system shall be 14µs (microseconds) or as specified by AHJ.

K. The signal booster system shall include built-in automatic supervision of malfunctions of the signal booster and battery system as per NFPA 1221 NFPA 72 and IFC. Non-OEM equipment addons and modifications to comply with this specification shall not be allowed.

L. A dedicated super-level monitoring panel shall be provided within the emergency command center next to the fire alarm panel / annunciator or other location as designated by AHJ to annunciate the status of all signal booster locations. The monitoring panel shall provide visual and labeled indication of the following for each signal booster:
1. Normal AC power
2. Signal booster trouble
3. Antenna Failure
4. Loss of normal AC power
5. Failure of battery charger
6. Low battery capacity

M. If signal booster is supervised by a GAMEWELL-FCI fire alarm panel, the signal booster system shall include a compatible OEM built-in GAMEWELL-FCI addressable monitoring module if signal booster is supervised by other brand FACP, the signal booster shall be Honeywell branded model with universal normally open relays for connection to external monitoring modules.

N. External filters, duplexers, power supplies or other non-OEM additions or modifications of the original equipment shall not be allowed. All duplexers shall be built-in and FCC certified with the signal booster as a complete and fully integrated FCC-certified and UL-Listed unit.

O. All signal booster components shall be contained in a type-4 approved waterproof enclosure. All enclosures shall be painted red with external labeling as required by the AHJ.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

A. Installation of all components of the Emergency Responder Communication Enhancement System shall comply with all applicable sections of the National Electrical Code NFPA-70, NFPA-72, NFPA 1221, IFC or as required by the local AHJ.

B. At least 2 independent and reliable power supplies shall be provided as specified in NFPA 72, NFPA 1221 and IFC.

C. The primary power source shall be supplied from a dedicated twenty (20) ampere branch circuit and comply with NFPA-70 National Electrical Code, NFPA 72 and NFPA 1221 2016 edition.
1. The signal booster shall be equipped with a secondary source of power. The secondary source of power shall be a battery system with a dedicated battery charger powered by a separate, dedicated twenty (20) ampere branch circuit. The secondary power supply shall power on automatically when the primary power source is lost. The secondary source of power shall be capable of operating the emergency responder radio coverage enhancement system for a period of at least 24 hours. The battery system shall automatically charge in the presence of external power input. Battery charger and all other electronic components must be fully enclosed in a waterproof Type-4 approved enclosure. Batteries shall be enclosed in a separate, vented Type-3R approved enclosure. External UPS (Uninterruptable Power Supplies) are not acceptable.

D. RF Coaxial Cable shall be a listed, CMP plenum. Non-plenum cable can be used when installed in a metallic raceway. The cable classification shall be clearly marked on the outer surface of the cable regular intervals.

E. Acceptance and Test Procedures
1. Acceptance testing for an in-building radio system is required upon completion of installation.
2. The coverage testing shall be done in accordance with NFPA 72, NFPA 1221, IFC and as required by the local AHJ.
3. All tests shall be conducted, documented, and signed by a person in possession of a current FCC General Radio Operator License.
4. Submit record along with system diagrams, iBWave design, equipment specifications, user manuals, RF link budget calculations, battery backup calculation and other design data shall be submitted upon completion of the project, and as required by the AHJ.

END OF SECTION 28 5000

267000 ROOF AND GUTTER DE-ICING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes a UL Listed, CSA Certified and FM Approved roof and gutter de-icing heat tracing system consisting of self-regulating heating cable, connection kits and electronic controller.

1.2 SYSTEM DESCRIPTION

A. System for roof and gutter de-icing with ambient and moisture sensing control, monitoring, integrated ground-fault circuit protection and Building Management System (BMS) communication capabilities.

1.3 SUBMITTALS

A. Product Data
1. Heating cable data sheet
2. UL, CSA, FM approval certificates for roof and gutter de-icing
3. Roof and gutter de-icing design guide
4. System control panel operation manual
5. System installation details
6. Connection kits and accessories data sheet
7. Controller/Power Panel data sheet
8. Controller/Power Panel wiring diagram

1.4 QUALITY ASSURANCE

A. Manufacturers' Qualifications
1. Manufacturer to show minimum of thirty (30) years' experience in manufacturing electric self-regulating heating cables.
2. Manufacturer will be ISO-9001 registered
3. Manufacturer to provide products consistent with IEEE 515.1 and CSA 22.2 No 130-03 requirements

B. Installer Qualifications
1. System installer shall have complete understanding of product and product literature from manufacturer or authorized representative prior to installation. Electrical connections shall be performed by a licensed electrician.

C. Regulatory Requirements and Approvals
1. The system (heating cable, connection kits, and controller) shall be UL Listed, CSA Certified and FM Approved for roof and gutter de-icing.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a Nationally Recognized Testing Laboratory (NRTL), and marked for intended use.

1.5 DELIVERY, STORAGE AND HANDLING

A. General Requirements: Deliver, store and handle products to prevent their deterioration or damage due to moisture, temperature changes, contaminates or other causes.

B. Delivery and Acceptance Requirements: Deliver products to site in original, unopened containers or packages with intact and legible manufacturers' labels identifying the following:
1. Product and Manufacturer
2. Length/Quantity
3. Lot Number
4. Installation and Operation Manual
5. MSDS (if applicable)

C. Storage and Handling Requirements
1. Store the heating cable in a clean, dry location with a temperature range 0oF (-18oC) to 140oF (60oC).
2. Protect the heating cable from mechanical damage.

1.6 WARRANTY

A. Extended Warranty
1. Manufacturer shall provide ten (10) year limited warranty for GM-2X heating cables and components. Provide one (1) year warranty for all heat trace controllers.
2. Contractor shall submit to owner results of installation tests required by the manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

A. Contract Documents are based on manufacturer and products named below to establish a standard of quality.

B. Basis of Design
1. Basis of Design Product Selections
a. Manufacturer
1) Manufacturers shall have more than thirty (30) years' experience with manufacture & installation self-regulating heating cables.
2) Manufacturer shall provide UL, CSA, FM approval certificates for roof and gutter de-icing
3) Manufacturer shall be nVent, LLC, located at: 7433 Harwin Drive, Houston, TX 77036 9435 Tel: (800) 545-6258 nVent.com
b. Roof and Gutter De-icing System
1) RAYCHEM Ice8top self-regulating heating cable with polyolefin (-X) outer jacket
2) RAYCHEM FTC connection kits
3) GF-PRO snowicing melting controller
4) RCU-4 remote control at each GF-PRO

2.2 PRODUCTS, GENERAL

A. Single Source Responsibility: Furnish heat tracing system for roof and gutter de-icing from a single manufacturer.

B. The system (heating cable, connection kits, and controller) shall be UL Listed, CSA Certified and FM Approved for roof and gutter de-icing. No parts of the system may be substituted or exchanged.

2.3 PRODUCTS

A. Self-Regulating Heating Cable
1. Heating cable shall be RAYCHEM Ice8top self-regulating heating cable manufactured by nVent
2. The heating cable shall consist of a continuous core of conductive polymer that is radiation cross-linked, extruded between two (2) 16 AWG nickel-plated copper bus wires that varies its power output in response to temperature changes.
3. The heating cable shall have a modified polyolefin inner jacket and a tinned-copper braid to provide a ground path and enhance the cables ruggedness.
4. The heating cable shall have a Polyolefin (X) outer jacket.
5. The heating cable shall have a self-regulating factor of at least 75 percent. The self-regulating factor is defined as the percent reduction of the heating cable power output going from a 0°F to 85oF roof temperature.
6. The heating cable shall operate on line voltages of 208 volts.
7. The heating cable power output shall be 12 watts at 32°F in air.
8. The heating cable shall be UL Listed, CSA Certified and FM Approved system.
9. The outer jacket of the heating cable shall have the following markings:
a. Heating cable model number
b. Agency listings
c. Meter mark
d. Lot/Batch ID

B. Heating Cable Connection Kits
1. Heating cable connection kits shall be RAYCHEM FTC connection Manufacturer shall provide power connection, splicefree and end seal kits compatible with selected heating cable.
2. Connection kits shall be rated NEMA 4X to prevent water ingress and corrosion. All components shall be UV stabilized.
3. Connection kits shall be UL Listed, CSA Certified and FM Approved.

C. Heating Cable Installation Accessories
1. Roof clips – Used to secure Ice8top heating cables to roofs and gutters. The clips may be attached with mechanical fasteners (screws or nails) on shake roofs or using adhesive on smooth surface roofing. (PTM Catalog Number: GMK-RC)
2. Downspout Hangers – Used to provide mechanical protection and strain relief to the Ice8top heating cable as it goes over sharp edges and to hold the heating cable in place at the top of downspouts. (PTM Catalog Number: GMK-RANG)

D. Control Methodology [Select one option]
1. [Option 1] Single Circuit Control
a. Single circuit snowice melting controller shall be GF-PRO with RCU-4 remote controller.

2.4 SYSTEM LISTING

A. The system (heating cable, connection kits, and controller) shall be UL Listed, CSA Certified and FM Approved for roof and gutter de-icing.

B. The roof and gutter de-icing system shall have a design, installation and operating manual.

PART 3 EXECUTION

3.1 INSTALLERS

A. Acceptable Installers
1. Subject to compliance with requirements of Contract Documents, installer shall be familiar with installing heat-trace cable and equipment

3.2 INSTALLATION

A. Comply with manufacturer's recommendations in the Ice8top System Installation and Operation Manual (H56067).

B. Install and secure the heating cable in accordance with the Ice8top System Installation and Operation Manual (H56067).

C. Install electric heating cable according to the drawings and the manufacturer's instructions. The installer shall be responsible for providing a complete functional system, installed in accordance with applicable national and local requirements.

D. Grounding of controller shall be equipment according to Section 26 05 26 "Grounding and Bonding for Electrical Systems."

E. Connection of all electrical wiring shall be according to Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

A. Start-up of system shall be performed by factory technician or factory representative per the owner's requirements.

B. Field Testing and Inspections
1. The system shall be commissioned in accordance to the XL-Trace Installation and Operation manual.
2. The heating cable circuit integrity shall be tested using a 2500 Vdc megohmmeter at the following intervals below. Minimum acceptable insulation resistance shall be 1000 megohms or greater.
a. Before installing the heating cable
b. After heating cable has been installed onto the pipe
c. After installing connection kits
d. After the thermal insulation is installed onto the pipe
e. Prior to initial start-up (commissioning)
f. As part of the regular system maintenance
3. All commissioning results will be recorded and presented to the owner.

3.4 MAINTENANCE

A. Maintenance Service
1. Comply with manufacturer's recommendations in IceStop System Installation and Operation Manual.

END OF SECTION 267000

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Professional Engineer Ing. Electrical
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Date 06/26/2023
WYOMING

Jackson, WY
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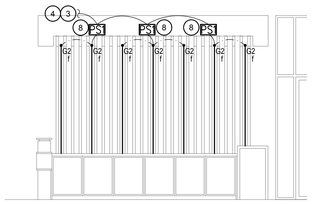
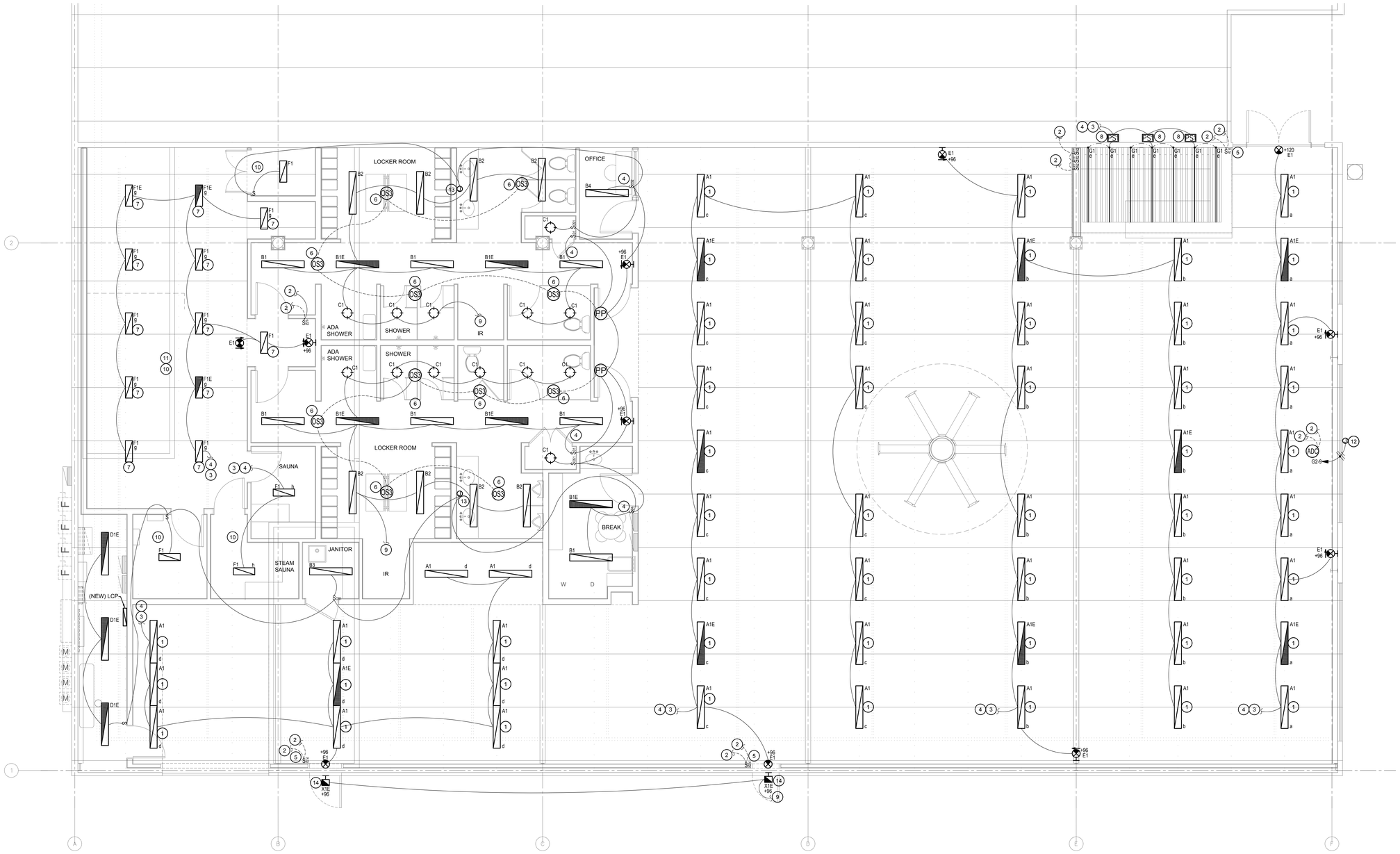


CHECK-IN FRONT LIGHTING ELEVATION
1/4"=1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. NOTED FIXTURE TO BE INSTALLED VIA AIRCRAFT CABLE FROM CEILING STRINGER AT A HEIGHT OF 132" ABOVE FINISHED FLOOR.
2. ELECTRICAL CONTRACTOR TO DAISY CHAIN CAT5E CABLE BETWEEN ALL NLIGHT ENABLED EQUIPMENT AND NLIGHT LIGHTING CONTROL PANEL. SEE SHEET E600 FOR MORE INFORMATION.
3. CIRCUIT TO BE CONNECTED TO LIGHTING CONTROL PANEL. SEE SHEET E600 FOR MORE INFORMATION.
4. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL 0-10V DIMMING WIRES FROM DIMMING SWITCH OR LIGHTING CONTROL PANEL TO ALL LIGHT FIXTURES IN THIS LIGHTING ZONE.
5. NOTED OVERRIDE SWITCH TO BE PROGRAMMED TO TURN LIGHTS ON OR OFF AFTER BUSINESS HOURS AND DISABLED DURING BUSINESS HOURS. VERIFY CONTROL PROGRAMMING WITH OWNER.
6. INSTALL HIGH HUMIDITY DUAL TECHNOLOGY CEILING MOUNT SMALL MOTION OCCUPANCY SENSOR AND CONNECT WITH LOW VOLTAGE CABLE AS RECOMMENDED BY THE MANUFACTURER. SEE SHEET E600 FOR MORE INFORMATION.
7. NOTED FIXTURE TO BE INSTALLED AT A HEIGHT OF 90" OR MORE ABOVE THE MAXIMUM WATER LEVEL AND POWERED BY A GFCI PROTECTED CIRCUIT PER NEC 680.43(B)1.
8. SEE FIXTURE SCHEDULE FOR LOW VOLTAGE LIGHTING POWER SUPPLY INFORMATION.
9. CONNECT TO EXISTING EXTERIOR LIGHTING CIRCUIT.
10. ELECTRICAL EQUIPMENT IN THIS ROOM TO BE RATED NEMA 4X FOR HUMID CORROSIVE ENVIRONMENTS.
11. ALL ELECTRICAL EQUIPMENT IN THIS ROOM TO COMPLY WITH NEC SECTIONS (680.40 - 680.49).
12. POWER FOR EXTERIOR SIGNAGE. ELECTRICAL CONTRACTOR TO VERIFY HEIGHT AND LOCATION OF JUNCTION BOX PRIOR TO INSTALLATION.
13. ELECTRICAL CONTRACTOR TO COORDINATE HEIGHT AND LOCATION OF JUNCTION BOX FOR MIRROR LIGHT WITH MIRROR DOCUMENTATION PRIOR TO INSTALLATION.
14. ELECTRICAL CONTRACTOR TO VERIFY THAT NO EXTERIOR EMERGENCY FIXTURE IS CURRENTLY INSTALLED BEFORE ORDERING AND INSTALLING NEW EXTERIOR EMERGENCY FIXTURE SHOWN ON PLANS.



LIGHTING PLAN
1/4"=1'-0"

Jackson Hole
Jackson, WY
The Athletic Club at Jackson Hole

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LIGHTING PLAN

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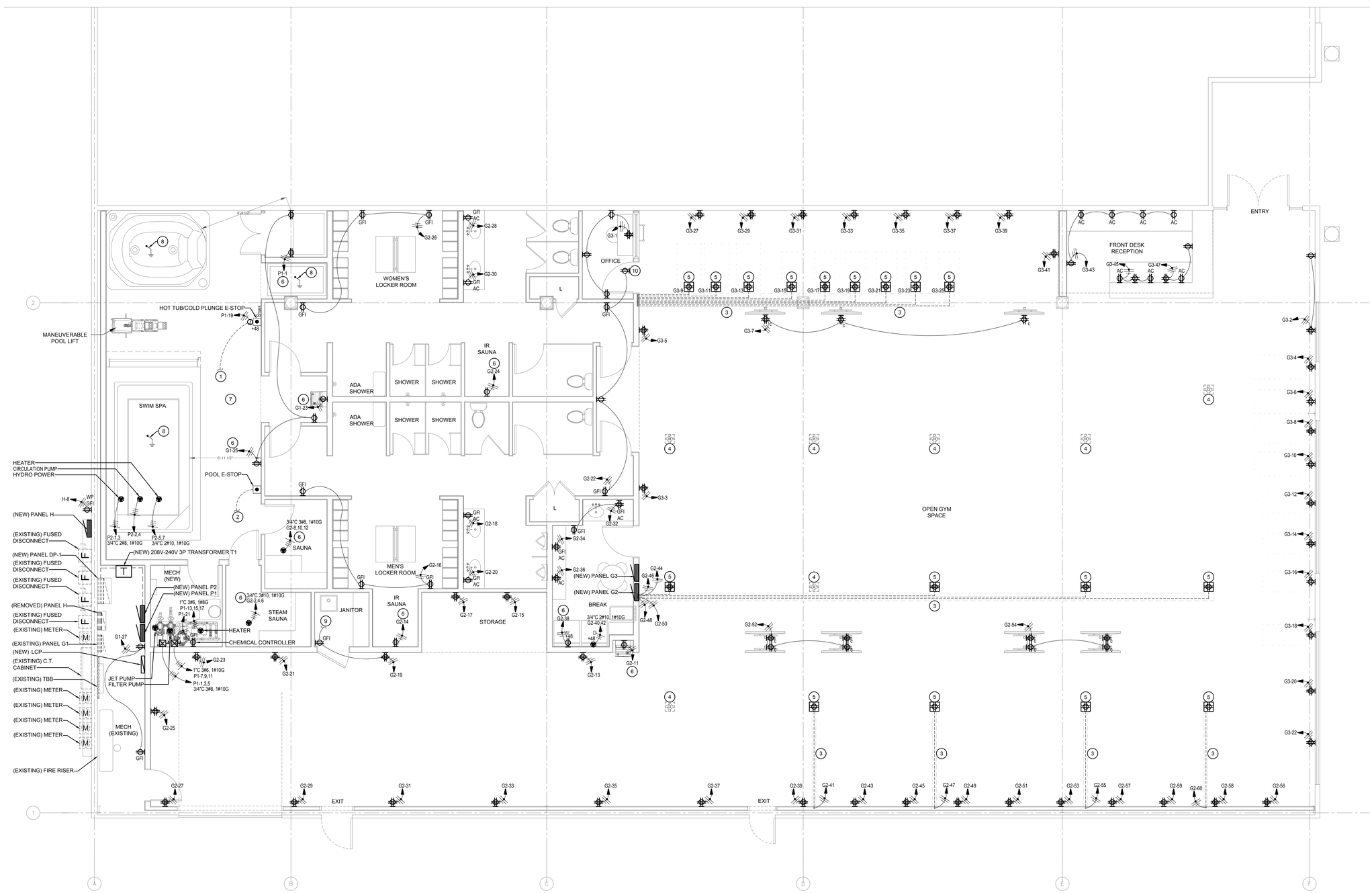
Professional Engineering Firm Authorization No. 12278
Date 06/26/2023
WYOMING

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. 3/4"C FROM EMERGENCY STOP BUTTON TO PANEL P1 SHUNT TRIP BREAKER FOR CONTROLS.
2. 3/4"C FROM EMERGENCY STOP BUTTON TO PANEL P2 SHUNT TRIP BREAKER FOR CONTROLS.
3. GENERAL CONTRACTOR TO SAW CUT EXISTING CONCRETE FOR NEW POWER AND DATA CONDUITS, CONDUCTOR, AND FLOOR BOXES.
4. APPROXIMATE LOCATION OF EXISTING POWER FLOOR BOX. ELECTRICAL CONTRACTOR TO FIELD VERIFY FLOOR BOX CIRCUIT. IF NO CIRCUIT IS PRESENT, ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW HOME RUN BACK TO PANEL G3.
5. APPROXIMATE LOCATION OF NEW POWER/DATA FLOOR BOX. VERIFY LOCATION WITH GYM EQUIPMENT REPRESENTATIVE AND OWNER PRIOR TO INSTALLATION. SEE SHEET E600 FOR FLOOR BOX ROUGH-IN DETAIL.
6. NOTED CIRCUIT TO BE CONNECTED TO GFCI BREAKER.
7. ALL ELECTRICAL EQUIPMENT IN THIS ROOM TO COMPLY WITH NEC SECTIONS (680.40 - 680.49).
8. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL 1#8 AWG COPPER BONDING CONDUCTOR PER NEC 680.43 (E).
9. TO TRAP PRIMER. SEE SHEET E300 FOR MORE INFORMATION.
10. NOTED CONVENIENCE RECEPTACLE TO BE LOCATED IN LOFT AREA NOT SHOWN.



POWER PLAN
1/4"=1'-0"

The Athletic Club at Jackson Hole

Jackson, WY

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POWER PLAN

E200

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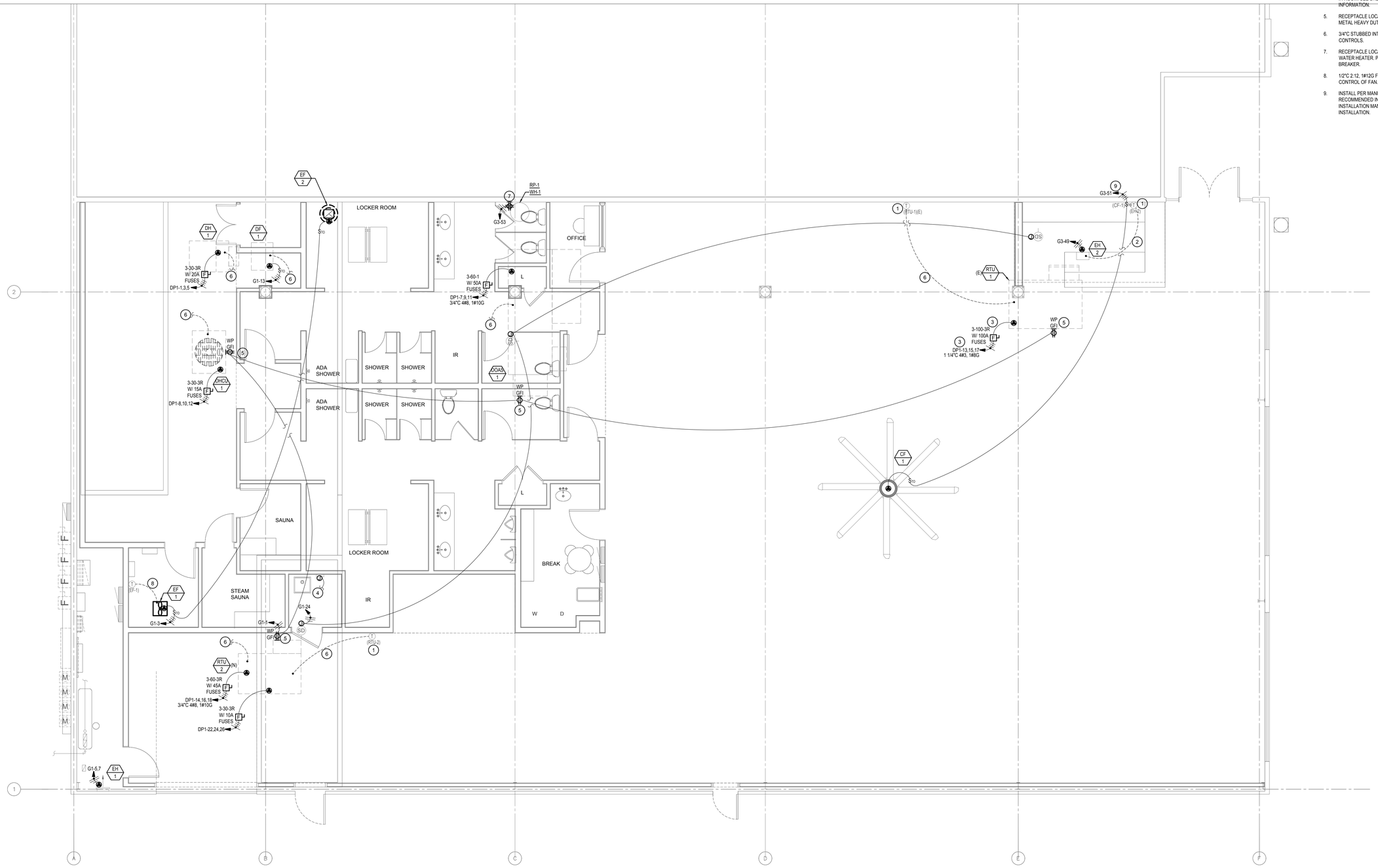
Professional Engineering Firm
Mark Musgrove
Number
12278
Date
06/30/2023
WYOMING

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. SEE SHEET E600 FOR THERMOSTAT ROUGH-IN DETAIL.
2. 3/4"C FOR CONTROLS.
3. EXISTING RELOCATED RTU WITH UNKNOWN ELECTRICAL REQUIREMENTS. ELECTRICAL CONTRACTOR TO FIELD VERIFY EQUIPMENT ELECTRICAL REQUIREMENTS AND ADJUST FUSES, CONDUIT, AND CONDUCTOR SIZES AS NEEDED.
4. CONNECT TRAP PRIMER TO POWER CIRCUIT IN ROOM. SEE SHEET E200 FOR CIRCUIT INFORMATION.
5. RECEPTACLE LOCATED ON ROOF. PROVIDE METAL HEAVY DUTY IN-USE RATED COVER.
6. 3/4"C STUBBED INTO BUILDING FOR CONTROLS.
7. RECEPTACLE LOCATED ON MEZZANINE FOR WATER HEATER. PROTECTED BY GFCI BREAKER.
8. 1/2"C 2:12, 1#12G FOR THERMOSTAT CONTROL OF FAN.
9. INSTALL PER MANUFACTURERS RECOMMENDED INSTALLATION. READ INSTALLATION MANUAL PRIOR TO INSTALLATION.



MECHANICAL POWER PLAN

1/4"=1'-0"

Jackson, WY

The Athletic Club at Jackson Hole

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CD

06.26.2023
DRAWN BY | AH
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REVISIONS

MECHANICAL POWER PL/

E300

MUSGROVE ENGINEERING, P.A.
234 S. Whisperwood Way
Boise, ID 83709
208.384.0585
645 West 25th Street
Idaho Falls, ID 83402
208.523.2862
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Project No. 23-129

HOYT architects
Jackson Wyoming
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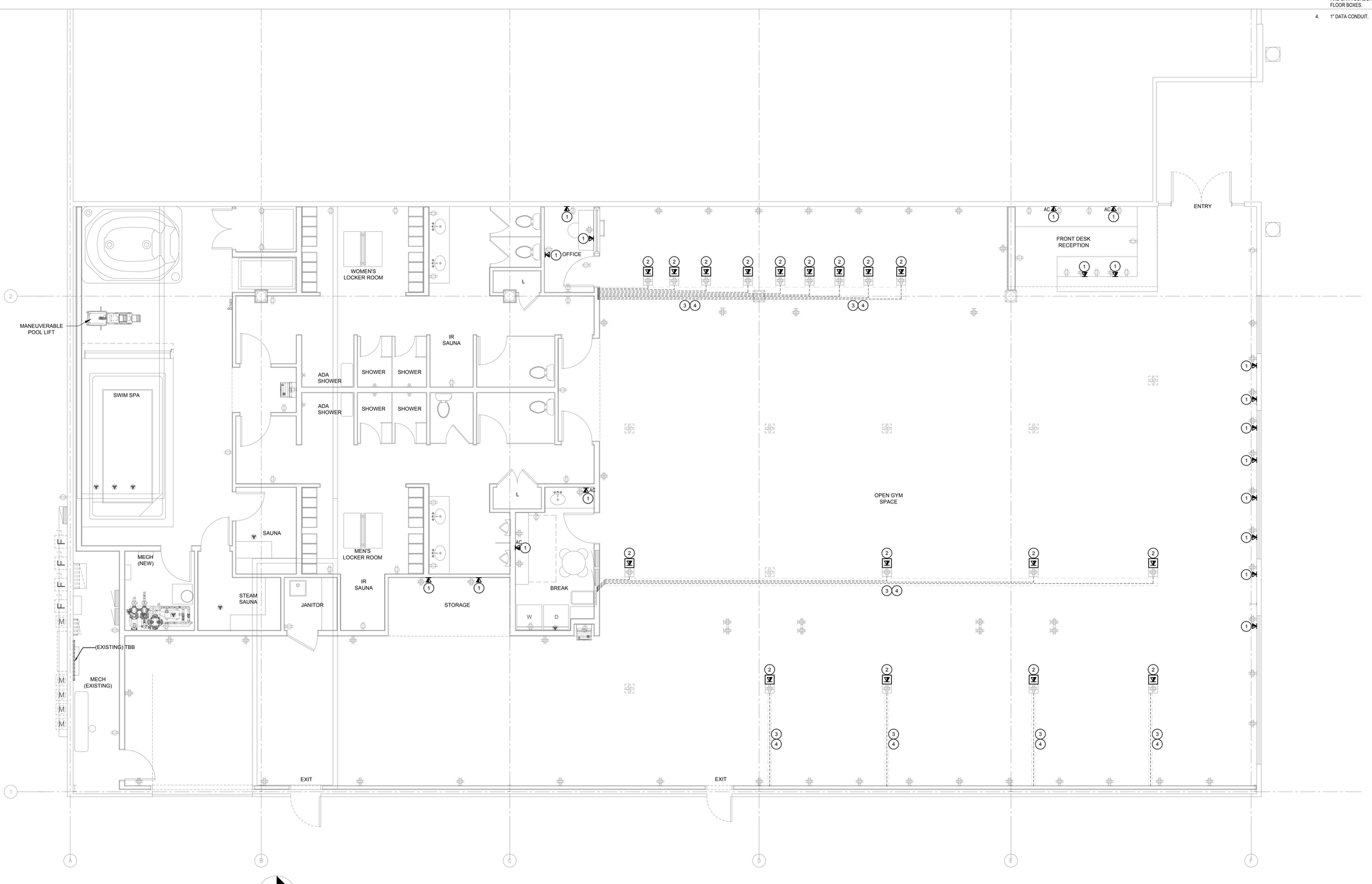
Professional Engineering Firm Authorization No. 12278
Matthew Nathan Bailey
06/30/2023
Date
WYOMING

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. SEE SHEET E600 FOR DATA/COMM ROUGH-IN DETAIL.
2. APPROXIMATE LOCATION OF NEW POWER/DATA FLOOR BOX. VERIFY LOCATION WITH GYM EQUIPMENT REPRESENTATIVE AND OWNER PRIOR TO INSTALLATION. SEE SHEET E600 FOR FLOOR BOX ROUGH-IN DETAIL.
3. GENERAL CONTRACTOR TO SAW CUT EXISTING CONCRETE FOR NEW POWER AND DATA CONDUITS, CONDUCTOR, AND FLOOR BOXES.
4. 1" DATA CONDUIT.



SPECIAL SYSTEMS PLAN
1/4"=1'-0"

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SPECIAL SYSTEMS PLAI

E400

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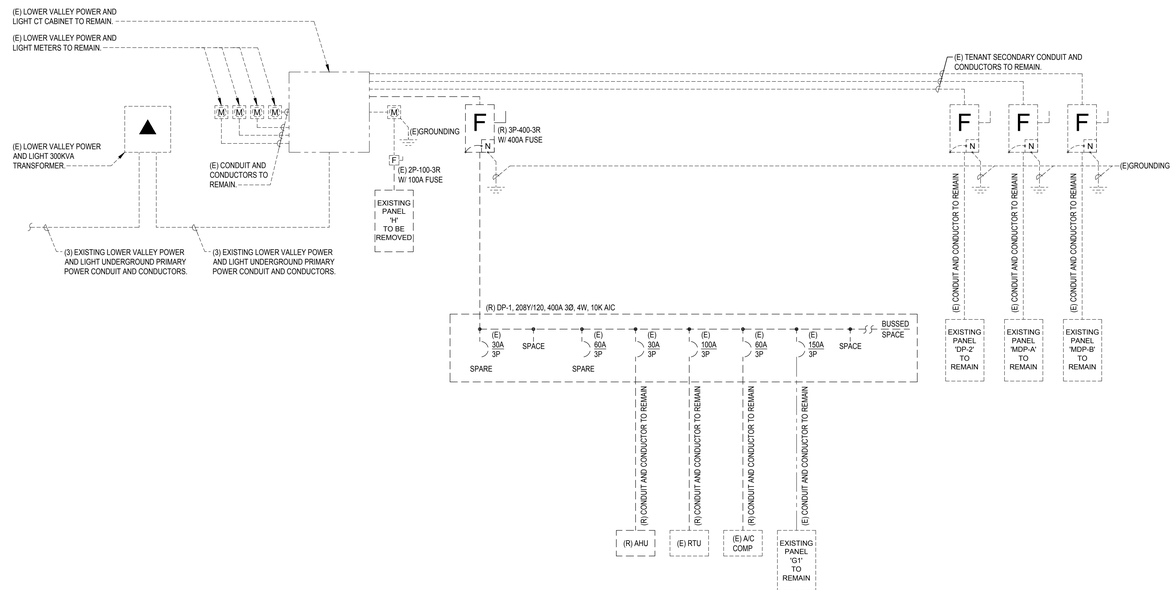
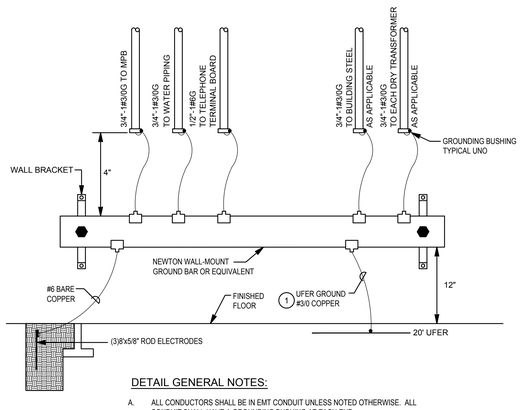


EXISTING SINGLE-LINE

NTS



DETAIL GENERAL NOTES:

A. ALL CONDUCTORS SHALL BE IN EMT CONDUIT UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL HAVE A GROUNDING BUSHING AT EACH END.

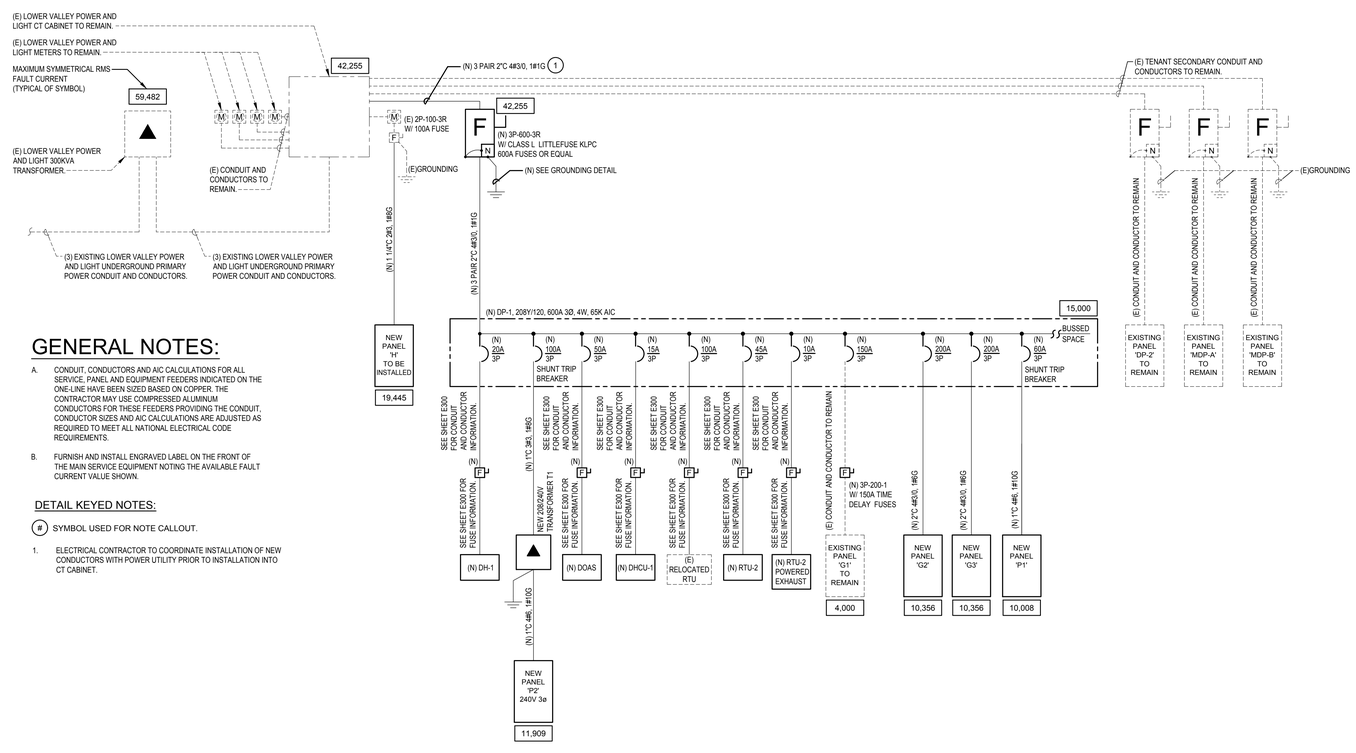
B. ALL CONNECTIONS SHALL BE EXOTHERMIC WELD, LISTED PRESSURE CONNECTORS, LISTED CLAMPS OR OTHER LISTED MEANS.

C. PROVIDE BONDING OF GAS PIPING PER NEC 250.104(B)(1).

DETAIL KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. UFER GROUND TO BE 20' OF #3/0 AWG COPPER OR 1/2" MINIMUM DIAMETER STEEL REINFORCING BAR PER 250.52.



GENERAL NOTES:

A. CONDUIT, CONDUCTORS AND AIC CALCULATIONS FOR ALL SERVICE, PANEL AND EQUIPMENT FEEDERS INDICATED ON THE ONE-LINE HAVE BEEN SIZED BASED ON COPPER. THE CONTRACTOR MAY USE COMPRESSED ALUMINUM CONDUCTORS FOR THESE FEEDERS PROVIDING THE CONDUIT, CONDUCTOR SIZES AND AIC CALCULATIONS ARE ADJUSTED AS REQUIRED TO MEET ALL NATIONAL ELECTRICAL CODE REQUIREMENTS.

B. FURNISH AND INSTALL ENGRAVED LABEL ON THE FRONT OF THE MAIN SERVICE EQUIPMENT NOTING THE AVAILABLE FAULT CURRENT VALUE SHOWN.

DETAIL KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. ELECTRICAL CONTRACTOR TO COORDINATE INSTALLATION OF NEW CONDUCTORS WITH POWER UTILITY PRIOR TO INSTALLATION INTO CT CABINET.

REWORKED SINGLE-LINE

NTS

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SINGLE-LINE DIAGRAMS

E500

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Professional Engineering License (Seal) Matthew Musgrove 12278 Date 06/26/2023 WYOMING

PANEL: H (TO BE REPLACED)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 125A | WITH 125A | MLO | MOUNTING: SURFACE
BASIS OF DESIGN PANEL TYPE: | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 10000 AIC

CKT NOTES:
1.EXISTING BREAKER

REMARKS:

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	SPACE		1	0.0	-- 1	1			40 2	0.0		1	PARKING LOT LIGHTS	2
3	UNKNOWN		1	0.0	50 2		1		** *	0.0			***	4
5	***			0.0	** *			0	20 1	0.0		1	PARKING LOT LIGHT CONTROLS	6
7	UNKNOWN		1	0.0	50 2	1			20 1	0.0		1	SPARE	8
9	***			0.0	** *		0		- 1	0.0			SPACE	10
11	SPARE			0.0	- 1			0	- 1	0.0			SPACE	12
13	SPARE			0.0	- 1	0			- 1	0.0		-	SPACE	14
15	SPARE			0.0	- 1		0		- 1	0.0			SPACE	16
17	SPARE			0.0	- 1			0	- 1	0.0			SPACE	18
19	SPARE			0.0	- 1	0			- 1	0.0			SPACE	20
21	SPARE			0.0	- 1		0		- 1	0.0			SPACE	22
23	SPARE			0.0	- 1			0	- 1	0.0			SPACE	24
25	SPARE			0.0	- 1	0			- 1	0.0			SPACE	26
27	SPARE			0.0	- 1		0		- 1	0.0			SPACE	28
29	SPARE			0.0	- 1			0	- 1	0.0			SPACE	30
						2.0	1.0	0.0	VA					
						0.0	0.0	0.0	AMPS					3 TOTAL VA

PANEL: H (NEW)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 125A | WITH 125A | MLO | MOUNTING: SURFACE
BASIS OF DESIGN PANEL TYPE: PANEL BOARD | NEMA ENCLOSURE TYPE: 3R | PANEL AIC RATING: 22000

CKT NOTES:
1. RED HANDLE, LOCKABLE BREAKER

REMARKS:

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	UNKNOWN			0.0	50 2	0			40 2	0.0			PARKING LOT LIGHTS	2
3	***			0.0	** *		0		** *	0.0			***	4
5	UNKNOWN			0.0	50 2			0	20 1	0.0			PARKING LOT LIGHT CONTROLS	6
7	***			0.0	** *	180			20 1	1.5	180		RECEPT - SERVICE	8
9	SPARE			0.0	20 1		0		20 1	0.0		1	FUTURE EMERGENCY RESPONDER RADIO	10
11	SPARE			0.0	20 1			0	20 1	0.0		1	FUTURE EMERGENCY RESPONDER RADIO	12
13	SPARE			0.0	20 1	0			20 1	0.0		1	FUTURE FIRE ALARM CONTROL PANEL	14
15	SPARE			0.0	20 1		0		20 1	0.0			SPARE	16
17	SPARE			0.0	20 1			0	20 1	0.0			SPARE	18
19	SPARE			0.0	20 1	0			20 1	0.0			SPARE	20
21	SPARE			0.0	20 1		0		20 1	0.0			SPARE	22
23	SPARE			0.0	20 1			0	20 1	0.0			SPARE	24
25	SPARE			0.0	20 1	0			20 1	0.0			SPARE	26
27	SPARE			0.0	20 1		0		20 1	0.0			SPARE	28
29	SPARE			0.0	20 1			0	20 1	0.0			SPARE	30
						180.0	0.0	0.0	VA					
						1.5	0.0	0.0	AMPS					180 TOTAL VA

DISTRIBUTION BOARD 'DP1'

FEEDER	VOLTAGE	CONNECTED LOAD (KVA) LIGHTING	RECEP	MOTORS	KITCHEN	HVAC	ELEC HEAT	WATER HEAT	MISC	EXIST	TOTAL CONNECTED LOAD KVA	AMPS	TOTAL DEMAND LOAD KVA	AMPS
G1	120/208Y		1.9	0.7			2.4				5.0	13.8	5.0	13.8
G2	120/208Y	6.5	19.6				27.0				53.1	147.6	50.0	138.8
G3	120/208Y		15.4	1.7			1.1				18.2	50.7	15.5	43.1
P1	120/208Y			5.1			8.0		2.9		16.0	44.5	16.0	44.5
P2	120/208Y			10.8			2.9				13.7	38.0	13.7	38.0
DP1	120/208Y					54.0					54.0	150.0	54.0	150.0
SUB TOTAL		6.5	36.9	18.4	0.0	54.0	41.3	0.0	2.9	0.0	160.0	444.5	148.2	428.1

PANEL: DP-1 (EXISTING)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 400A | WITH 400A | MLO | MOUNTING: SURFACE
BASIS OF DESIGN PANEL TYPE: PANEL BOARD | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 10000 AIC

CKT NOTES:
1. EXISTING BREAKER

REMARKS:

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	SPARE	1		0.0	30 3	0			- 3	0.0			SPACE	2
3	***			0.0	** *		0		- *	0.0			***	4
5	***			0.0	** *			0	- *	0.0			***	6
7	SPARE	1		0.0	60 3	0			30 3	0.0		1	SPARE	8
9	***			0.0	** *		0		** *	0.0			***	10
11	***			0.0	** *			0	** *	0.0			***	12
13	ROOFTOP UNIT (EXISTING)	1		0.0	100 3	0			60 3	0.0		1	SPARE	14
15	***			0.0	** *		0		** *	0.0			***	16
17	***			0.0	** *			0	** *	0.0			***	18
19	PANEL G1 (E)	1		0.0	150 3	0			- 3	0.0			SPACE	20
21	***			0.0	** *		0		- *	0.0			***	22
23	***			0.0	** *			0	- *	0.0			***	24
25	SPACE			0.0	- 3	0			- 3	0.0			SPACE	26
27	***			0.0	- *		0		- *	0.0			***	28
29	***			0.0	- *			0	- *	0.0			***	30
31	SPACE			0.0	- 3	0			- 3	0.0			SPACE	32
33	***			0.0	- *		0		- *	0.0			***	34
35	***			0.0	- *			0	- *	0.0			***	36
37	SPACE			0.0	- 3	0			- 3	0.0			SPACE	38
39	***			0.0	- *		0		- *	0.0			***	40
41	***			0.0	- *			0	- *	0.0			***	42
						0.0	0.0	0.0	VA					
						0.0	0.0	0.0	AMPS					0 TOTAL VA

PANEL: DP1 (NEW)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 600A | WITH 600A | MLO | MOUNTING: SURFACE
BASIS OF DESIGN PANEL TYPE: PANEL BOARD | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 65000

CKT NOTES:

REMARKS:

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	DH-1 (N)		1345	11.2	20 3	8194.995			100 3	38.0	6840		PANEL P2	2
3	***		1345	11.2	** *		5304.995		- *	38.0	3960		***	4
5	***		1345	11.2	** *			4224.995	- *	38.0	2880		***	6
7	DOAS-1		3977.3	33.1	50 3	4371.234			30 3	3.3	394		DHCU-1 (N)	8
9	***		3977.3	33.1	** *		4371.234		** *	3.3	394		***	10
11	***		3977.3	33.1	** *			4371.234	** *	3.3	394		***	12
13	ROOFTOP UNIT (RELOCATED)		9607.1	80.0	100 3	12297.1			45 3	22.4	2690		RTU-2 (N)	14
15	***		9607.1	80.0	** *		12297.1		** *	22.4	2690		***	16
17	***		9607.1	80.0	** *			12297.1	** *	22.4	2690		***	18
19	PANEL G1 (E)		2339.2	14.1	150 3	3107.769			10 3	6.4	769		RTU-2 POWERED EXHAUST (N)	20
21	***		1106	14.1	** *		1874.569		** *	6.4	769		***	22
23	***		1619.2	14.1	** *			2387.769	** *	6.4	769		***	24
25	PANEL G2 (N)		18082	156.8	200 3	18081.51			50 3	0.0			SPARE	26
27	***		19492	156.8	** *		19491.51		** *	0.0			***	28
29	***		18932	156.8	** *			18931.51	** *	0.0			***	30
31	PANEL G3 (N)		7404	50.6	200 3	7404			50 3	0.0			SPARE	32
33	***		5880	50.6	** *		5880		** *	0.0			***	34
35	***		4960	50.6	** *			4960	** *	0.0			***	36
37	PANEL P1 (N)		6805.3	55.6	60 3	6805.262			50 3	0.0			SPARE	38
39	***		7505.3	55.6	** *		7505.262		** *	0.0			***	40
41	***		5705.3	55.6	** *			5705.262	** *	0.0			***	42
						60251.9	56724.7	52877.9	VA					
						502.1	472.7	440.6	AMPS					169854 TOTAL VA

PANEL: P1 (NEW)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 100A | WITH 100A | MLO | MOUNTING: SURFACE
BASIS OF DESIGN PANEL TYPE: LOAD CENTER | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 22000

CKT NOTES:
1. GFCI FOR PERSONNEL PROTECTION (5mA)

REMARKS:
THIS PANEL TO BE PROTECTED BY A SHUNT TRIP BREAKER.

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	HOT TUB JET PUMP (208V)	1	1321	11.0	40 3	1920.977			20 1	5.0	600	1	RECEPT - COLD PLUNGE	2
3	***		1321	11.0	** *		1320.977		20 1	0.0			SPARE	4
5	***		1321	11.0	** *			1320.977	20 1	0.0			SPARE	6
7	HOT TUB FILTER PUMP (208V)	1	384.28	3.2	15 3	384.2843			20 1	0.0			SPARE	8
9	***		384.28	3.2	** *		384.2843		20 1	0.0			SPARE	10
11	***		384.28	3.2	** *			384.2843	20 1	0.0			SPARE	12
13	HOT TUB HEATER (208V)	1	4000	33.3	50 3	4000			20 1	0.0			SPARE	14
15	***		4000	33.3	** *		4000		20 1	0.0			SPARE	16
17	***		4000	0.0	** *			4000	20 1	0.0			SPARE	18
19	POWER - HOT TUB EMERGENCY STOP	1	500	4.2	20 1	500			20 1	0.0			SPARE	20
21	RECEPT - HOT TUB CHEM CONTROLLER	1	1800	15.0	20 1		1800		20 1	0.0			SPARE	22
23	SPARE			0.0	20 1			0	20 1	0.0			SPARE	24
25	SPARE			0.0	20 1	0			20 1	0.0			SPARE	26
27	SPARE			0.0	20 1		0		20 1	0.0			SPARE	28
29	SPARE			0.0	20 1			0	20 1	0.0			SPARE	30
						6805.3	7505.3	5705.3	VA					
						56.7	62.5	47.5	AMPS					20016 TOTAL VA

PANEL: P2 (NEW)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 240 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 100A | WITH 100A | MLO | MOUNTING: SURFACE
BASIS OF DESIGN PANEL TYPE: LOAD CENTER | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 22000

CKT NOTES:
1. GFCI FOR PERSONNEL PROTECTION (5mA)

REMARKS:
THIS PANEL TO BE PROTECTED BY A SHUNT TRIP BREAKER.

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	HYDRO POWER (240V)	1	3000	25.0	35 2	3960			15 2	8.0	960	1	CIRCULATION PUMP (240V)	2
3	***		3000	25.0	** *		3960		** *	8.0	960		***	4
5	HEATER (240V)	1	2880	24.0	30 2			2880	20 1	0.0			SPARE	6
7	***		2880	24.0	** *	2880			20 1	0.0			SPARE	8
9	SPARE			0.0	20 1		0		20 1	0.0			SPARE	10
11	SPARE			0.0	20 1			0	20 1	0.0			SPARE	12
13	SPARE			0.0	20 1	0			20 1	0.0			SPARE	14
15	SPARE			0.0	20 1		0		20 1	0.0			SPARE	16
17	SPARE			0.0	20 1			0	20 1	0.0			SPARE	18
19	SPARE			0.0	25 1	0			20 1	0.0			SPARE	20
						6840.0	3960.0	2880.0	VA					
						57.0	33.0	24.0	AMPS					13680 TOTAL VA

PANEL: G1 (EXISTING)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 150A | WITH 150A | MLO | MOUNTING: SURFACE
BASIS OF DESIGN PANEL TYPE: | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 10000 AIC

CKT NOTES:
1. EXISTING BREAKER.

REMARKS:

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	RECEPTS - ROOF	1		0.0	20 1	0			60 2	0.0		1	UNKNOWN	2
3	UNKNOWN	1		0.0	20 1		0		** *	0.0		1	***	4
5	UNKNOWN	1		0.0	20 1			0	60 2	0.0		1	UNKNOWN	6
7	UNKNOWN	1		0.0	20 1	0			** *	0.0		1	***	8
9	UNKNOWN	1		0.0	20 1		0		60 2	0.0		1	UNKNOWN	10
11	UNKNOWN	1		0.0	20 1			0	** *	0.0		1	***	12
13	RECEPTS - STORE ROOM OUTLETS	1		0.0	20 1	0			20 1	0.0		1	UNKNOWN	14
15	UNKNOWN	1		0.0	20 1		0		20 1	0.0		1	UNKNOWN	16
17	UNKNOWN	1		0.0	20 1			0	15 1	0.0		1	UNKNOWN	18
19	UNKNOWN	1		0.0	50 2	0			30 2	0.0		1	HEATER	20
21	***			0.0	** *		0		** *	0.0		1	***	22
23	SPACE			0.0	- 1			0	- 1	0.0			SPACE	24
25	SPACE			0.0	- 1	0			- 1	0.0			SPACE	26
27	SPACE			0.0	- 1		0		- 1	0.0			SPACE	28
29	SPACE			0.0	- 1			0	- 1	0.0			SPACE	30
						0.0	0.0	0.0	VA					
						0.0	0.0	0.0	AMPS					0 TOTAL VA

PANEL: G1 (REWORKED)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 150A | WITH 150A | MLO | MOUNTING: SURFACE
BASIS OF DESIGN PANEL TYPE: | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 10000 AIC

CKT NOTES:
1. GFCI FOR PERSONNEL PROTECTION (5mA)
2. EXISTING BREAKER.
3. NEW BREAKER.
4. SHUNT TRIP BREAKER
5. RED HANDLE, LOCKABLE BREAKER.

REMARKS:
IF BREAKER LISTED AS "UNKNOWN" HAS NO LOAD, NOTED BREAKER CAN BE REUSED INSTEAD OF BUYING A NEW BREAKER WHERE APLICABLE.

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	RECEPTS - ROOF AND SERVICE	2	720	6.0	20 1	720			60 2	0.0		2	UNKNOWN	2
3	EF-1 PUMP RM EF-2 POOL RM	2	746	6.2	20 1		746		** *	0.0			***	4
5	ELECTRC HEATER - RISER RM	3	1019.2	9.8	20 2			1019.2	60 2	0.0		2	UNKNOWN	6
7	***		1019.2	9.8	** *	1019.2			** *	0.0			***	8
9	UNKNOWN	2		0.0	20 1		0		60 2	0.0		2	UNKNOWN	10
11	UNKNOWN	2		0.0	20 1			0	** *	0.0			***	12
13	DUCT FURNACE	2	60	0.5	20 1	60			20 1	0.0		2	UNKNOWN	14
15	UNKNOWN	2		0.0	20 1		0		20 1	0.0		2	UNKNOWN	16
17	UNKNOWN	2		0.0	20 1			0	15 1	0.0		2	UNKNOWN	18
19	UNKNOWN	2		0.0	50 2	0			30 2	0.0		2	HEATER	20
21	***			0.0	** *		0		** *	0.0			***	22
23	RECEPT - POOL DRINKING FOUNTAIN	1.3	500	4.2	- 1			600	20 1	0.8	100	3,5	DUCT SMOKE DETECTORS	24
25	RECEPT - POOL ROOM RECEPTS	1.3	540	4.5	- 1	540			- 1	0.0			SPACE	26
27	RECEPT - ELECTRC RM	3	360	3.0	- 1		360		- 1	0.0			SPACE	28
29	SPACE			0.0	- 1			0	- 1	0.0			SPACE	30
						2339.2	1106.0	1619.2	VA					
						19.5	9.2	13.5	AMPS					5064 TOTAL VA

PANEL: G2 (NEW)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 200A | WITH 200A | MLO | MOUNTING: FLUSH
BASIS OF DESIGN PANEL TYPE: PANEL BOARD | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 22000

CKT NOTES:
1. GFCI FOR PERSONNEL PROTECTION (5mA)
2. ELECTRICAL CONTRACTOR TO VERIFY EQUIPMENT ELECTRICAL REQUIREMENTS PRIOR TO ORDERING BREAKER.

REMARKS:

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	LIGHTING - OPEN GYM ZONES A/B		1750	14.6	20 1	4391.955			30 3	22.0	2642	1,2	STEAM SAUNA	2
3	LIGHTING - OPEN GYM ZONES C/D		1890	15.8	20 1		4531.955		** *	22.0	2642		***	4
5	LIGHTING - OPEN GYM ZONES E/F/G/H	1	910	7.6	20 1			3551.955	** *	22.0	2642		***	6
7	LIGHTING - LOCKER		986	8.2	20 1	5789.554			50 3	40.0	4804	1,2	SAUNA	8
9	LIGHTING - SIGNAGE		1000	8.3	20 1		5803.554		** *	40.0	4804		***	10
11	RECEPTS - GYM DRINKING FOUNTAIN	1	1000	8.3	20 1			5803.554	** *	40.0	4804		***	12
13	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1	1860			20 1	12.5	1500	1	RECEPTS - MENS LOCKER RM IR HEATER	14
15	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		900		20 1	4.5	540		RECEPTS - MENS LOCKER RM WALLS	16
17	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1			540	20 1	1.5	180		RECEPTS - MENS LOCKER RM COUNTER	18
19	RECEPTS - GYM EQUIPMENT RECEPT		540	4.5	25 1	720			20 1	1.5	180		RECEPTS - MENS LOCKER RM COUNTER	20
21	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		1080		20 1	6.0	720		RECEPTS -RESTROOMS ENTRY LOFT	22
23	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1			1860	20 1	12.5	1500	1	RECEPTS - WOMENS LOCKER RM IR HEATER	24
25	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1	900			20 1	4.5	540		RECEPTS - WOMENS LOCKER RM WALLS	26
27	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		540		20 1	1.5	180		RECEPTS - WOMENS LOCKER RM COUNTER	28
29	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1			540	20 1	1.5	180		RECEPTS - WOMENS LOCKER RM COUNTER	30
31	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1	900			20 1	4.5	540		RECEPTS - BREAKROOM COUNTER	32
33	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		540		20 1	1.5	180		RECEPTS - BREAKROOM COUNTER	34
35	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1			540	20 1	1.5	180		RECEPTS - BREAKROOM COUNTER	36
37	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1	1360			20 1	8.3	1000	1	RECEPTS - BREAKROOM WASHER	38
39	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		2856		30 2	13.7	2496		RECEPTS - BREAKROOM DRYER	40
41	RECEPTS - GYM EQUIPMENT FB RECEPT		360	3.0	20 1			2856	** *	0.0	2496		***	42
43	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1	720			20 1	3.0	360		RECEPTS - GYM EQUIPMENT FB RECEPT	44
45	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		720		20 1	3.0	360		RECEPTS - GYM EQUIPMENT FB RECEPT	46
47	RECEPTS - GYM EQUIPMENT FB RECEPT		360	3.0	20 1			720	20 1	3.0	360		RECEPTS - GYM EQUIPMENT FB RECEPT	48
49	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1	720			20 1	3.0	360		RECEPTS - GYM EQUIPMENT FB RECEPT	50
51	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		1800		20 1	12.0	1440		RECEPTS - GYM TV RECEPT	52
53	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1			1800	20 1	12.0	1440		RECEPTS - GYM TV RECEPT	54
55	RECEPTS - GYM EQUIPMENT FB RECEPT		360	3.0	20 1	720			20 1	3.0	360		RECEPTS - GYM EQUIPMENT RECEPT	56
57	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		720		20 1	3.0	360		RECEPTS - GYM EQUIPMENT RECEPT	58
59	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1			720	20 1	3.0	360		RECEPTS - GYM EQUIPMENT FB RECEPT	60
						18081.5	19491.5	18931.5	VA					
						150.7	162.4	157.8	AMPS					56505 TOTAL VA

PANEL: G3 (NEW)

PROJECT: THE ATHLETIC CLUP AT JACKSON HOLE

VOLTAGE: 208 / 120 V | 3 PH | 4 WIRE | AMPERE RATING: 200A | WITH 200A | MLO | MOUNTING: FLUSH
BASIS OF DESIGN PANEL TYPE: PANEL BOARD | NEMA ENCLOSURE TYPE: 1 | PANEL AIC RATING: 22000

CKT NOTES:
1. GFCI FOR PERSONNEL PROTECTION (5mA)

REMARKS:

CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	LOAD (VA) A	B	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	RECPTS - OFFICE		900	7.5	20 1	1440			20 1	4.5	540		RECEPTS - GYM EQUIPMENT RECEPT	2
3	RECEPTS - GYM EQUIPMENT RECEPT		360	3.0	20 1		720		20 1	3.0	360		RECEPTS - GYM EQUIPMENT RECEPT	4
5	RECEPTS - GYM EQUIPMENT RECEPT

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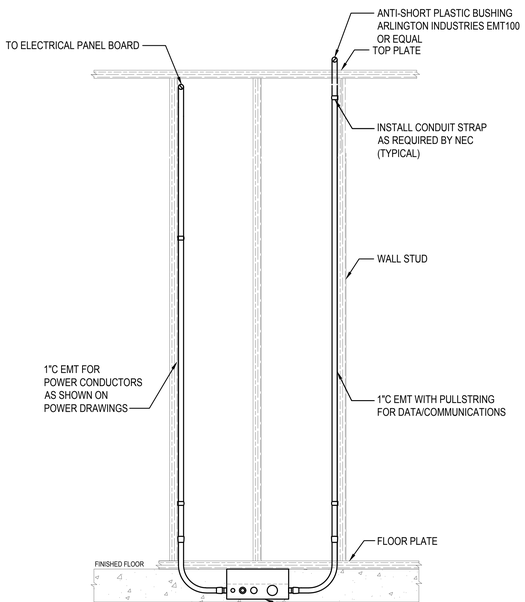
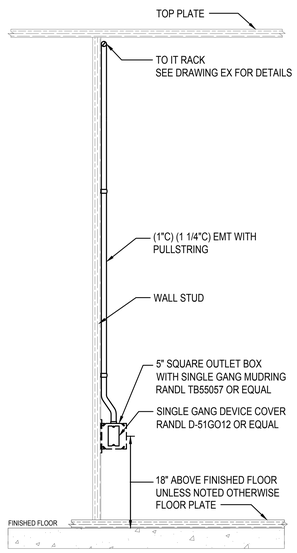
Professional Engineering (Electrical)
Matthew Nathan Bailey
12278
06/30/2023
WYOMING



ELECTRICAL CONTRACTOR RESPONSIBLE FOR
INSTALLATION OF DATA/TELEPHONE ROUGH-IN
TYPICAL DETAIL - ACTUAL INSTALLATION MAY VARY

POWER/DATA FLOOR BOX ROUGH-IN DETAIL

1" = 1'-0"



ELECTRICAL CONTRACTOR RESPONSIBLE FOR
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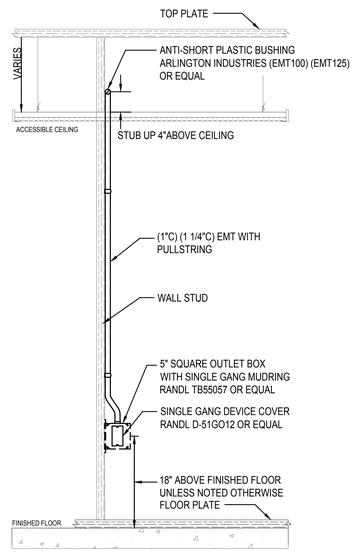
TYPICAL DETAIL - ACTUAL INSTALLATION MAY VARY

DATA/TELEPHONE ROUGH-IN DETAIL

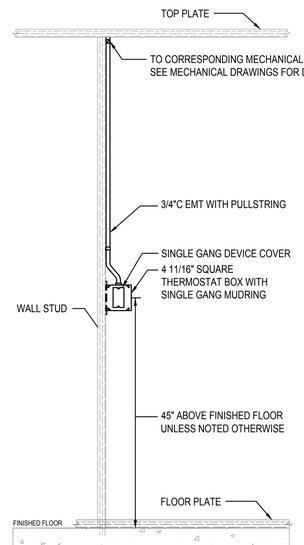
1" = 1'-0"



ELECTRICAL CONTRACTOR RESPONSIBLE FOR
INSTALLATION OF DATA/TELEPHONE ROUGH-IN
TYPICAL DETAIL - ACTUAL INSTALLATION MAY VARY

DATA/TELEPHONE ROUGH-IN DETAIL

1" = 1'-0"

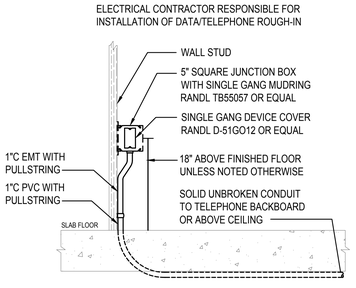


ELECTRICAL CONTRACTOR RESPONSIBLE FOR
INSTALLATION OF THERMOSTAT BOX ROUGH-IN
TYPICAL DETAIL - ACTUAL INSTALLATION MAY VARY

THERMOSTAT ROUGH-IN DETAIL

T (unit-#)

1" = 1'-0"



TYPICAL DETAIL - ACTUAL INSTALLATION MAY VARY

DATA/TELEPHONE FLOOR FEED ROUGH-IN DETAIL

1" = 1'-0"

Jackson, WY
The Athletic Club at Jackson Hole

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06.26.2023
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ELECTRICAL DETAILS

E600

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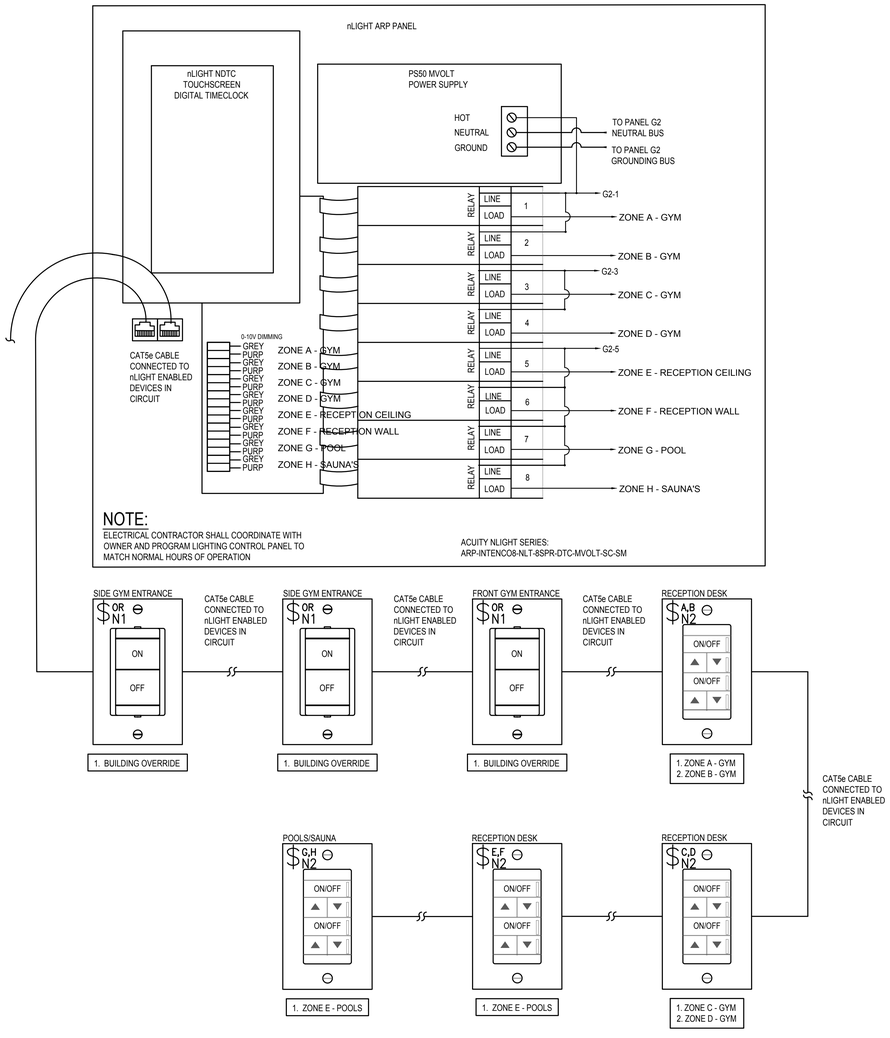

NEW LIGHTING CONTROL PANEL

NTS

LIGHTING FIXTURE SCHEDULE (23-100)

TYPE	DESCRIPTION	MTG.	LAMPS	WATTS	MFG. & CATALOG NUMBER	OR EQUAL BY	NOTES
A1	SUSPENDED LED DIRECT/INDIRECT FIXTURE 8000 LUMENS, 70% UP/ 30% DOWN FINISH BY OWNER	AIRCRAFT	LED 4000K	70	LITHONIA NO. BRM9L-LSL-X-MSL4-80CRI-40K-ID2000LMF-70/30-MIN1-ZT-120-SCT-MOUNTING-SUSPENSION-COLOR	LIGHTOLIER METALUX H.E. WILLIAMS	1
A1E	SUSPENDED LED DIRECT/INDIRECT FIXTURE 8000 LUMENS, 70% UP/ 30% DOWN FINISH BY OWNER	AIRCRAFT	LED 4000K	70	LITHONIA NO. BRM9L-LSL-X-MSL4-80CRI-40K-ID2000LMF-70/30-MIN1-ZT-120-SCT-E10WLCP-MOUNTING-SUSPENSION-COLOR	LIGHTOLIER METALUX H.E. WILLIAMS	1
B1	4' WRAP LED FIXTURE 2000 LUMENS FINISH BY OWNER	SURFACE	LED 4000K	16	LITHONIA NO. BLWP4-20L-PDSMT-GZ1-LP840	LIGHTOLIER METALUX H.E. WILLIAMS	1
B1E	4' WRAP LED FIXTURE 2000 LUMENS, EM SELF DIAGNOSTIC BATTERY PACK FINISH BY OWNER	SURFACE	LED 4000K	16	LITHONIA NO. BLWP4-20L-PDSMT-GZ1-LP840-E10WLCP	LIGHTOLIER METALUX H.E. WILLIAMS	1
B2	4' WRAP LED FIXTURE 3000 LUMENS FINISH BY OWNER	SURFACE	LED 4000K	25	LITHONIA NO. BLWP4-30L-PDSMT-GZ1-LP840	LIGHTOLIER METALUX H.E. WILLIAMS	1
B3	4' WRAP LED FIXTURE 4800 LUMENS FINISH BY OWNER	SURFACE	LED 4000K	40	LITHONIA NO. BLWP4-48L-PDSMT-GZ1-LP840	LIGHTOLIER METALUX H.E. WILLIAMS	1
B4	4' WRAP LED FIXTURE 6000 LUMENS FINISH BY OWNER	SURFACE	LED 4000K	49	LITHONIA NO. BLWP4-60L-PDSMT-GZ1-LP840	LIGHTOLIER METALUX H.E. WILLIAMS	1
C1	8" LED DOWNLIGHT 1620 LUMENS, 0-10V DIMMING WHITE FINISH	RECESSED	LED 4000K	20	LITHONIA NO. WF8-LED-30K40K50K-MVOLT-90CRI-MW	LIGHTOLIER METALUX H.E. WILLIAMS	1
D1	4' LINEAR LED FIXTURE 5000 LUMENS, ROUND DIFFUSE LENS MVOLT, 0-10V DIMMING, WHITE FINISH	SURFACE	LED 4000K	35	LITHONIA NO. CLX-L48-5000LM-SEF-RDL-MVOLT-GZ10-40K-80CRI-WH	LIGHTOLIER METALUX H.E. WILLIAMS	1
E1	EXIT SIGN WITH TWIN LED LAMP HEADS GREEN OR RED EXIT LED	SURFACE	LED	1	LITHONIA NO. EXRG-EL-M6	LIGHTOLIER METALUX H.E. WILLIAMS	1
F1	NEMA 4X RATED LED FIXTURE 4000 LUMENS, 0-10V DIMMING MOUNTING BY OWNER	TBD	LED 4000K	40	LITHONIA NO. DMW2-L24-4000LM-PCL-WD-120-GZ10-40K-80CRI-MOUNTING	LIGHTOLIER METALUX H.E. WILLIAMS	1
F1E	NEMA 4X RATED LED FIXTURE 4000 LUMENS, 0-10V DIMMING MOUNTING	TBD	LED 4000K	40	LITHONIA NO. DMW2-L24-4000LM-PCL-WD-120-GZ10-40K-80CRI-MOUNTING-E10WCP	LIGHTOLIER METALUX H.E. WILLIAMS	1
G1	SUSPENDED LED STRIP LIGHT WITH ALUMINUM HOUSING COLOR TEMP BY OWNER. DIRECT VIEW LED STRIP	SUSPENDED	LED	4.3W/FT	KELVIX NO. 228-I-XX-DK-COLOR TEMP-SWH-SP-FINISH-ULV	LIGHTOLIER METALUX H.E. WILLIAMS	1
G2	SURFACE MOUNT LED TAPE LIGHT WITH ALUMINUM HOUSING COLOR TEMP BY OWNER. DIRECT VIEW LED STRIP	SURFACE	LED	2.6W/FT	KELVIX NO. CHANNEL: CH-S11-LENGTH-LENS-CP-EC LED TAPE: DL-COLOR TEMP-24V POWER SUPPLY: ULVXXX	LIGHTOLIER METALUX H.E. WILLIAMS	1
X1E	EXTERIOR WALL SCONCE 1200 LUMENS COLOR BY ARCHITECT	SURFACE	LED 4000K	18	LITHONIA NO. WDGE2-LED-P1-30K-80CRI-VVV-MVOLT-XXXX	LIGHTOLIER METALUX H.E. WILLIAMS	1

LIGHTING FIXTURE SCHEDULE NOTES:

1 SUBSTITUTIONS WILL BE ALLOWED IF SUBMITTED PRIOR TO BID DATE BY THE GREATER OF: 7 BUSINESS DAYS OR THE TIME PERIOD SPECIFIED BY DIVISION 1 SPECIFICATIONS, AND IF DEEMED EQUAL BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING SUBSTITUTED FIXTURES MEET OR EXCEED THE SPECIFICATIONS OF THE FIXTURES SPECIFIED.

SWITCH AND OCCUPANCY SENSOR LEGEND

$OS1 OCCUPANCY SENSOR – WALL MOUNT, DUAL TECHNOLOGY, 120–277V, SINGLE POLE, MULTI–WAY
SENSOR SWITCH WSXA–MWO–PDT–XX OR EQUAL

$OS2 OCCUPANCY SENSOR – WALL MOUNT, DUAL TECHNOLOGY, DIMMING, 120–277V, SINGLE POLE, MULTI–WAY
SENSOR SWITCH WSXA–MWO–PDT–D–XX OR EQUAL

OS3 OCCUPANCY SENSOR – CEILING MOUNT, DUAL TECHNOLOGY, LOW VOLTAGE, SMALL MOTION
SENSOR SWITCH CM–PDT–9–LT OR EQUAL

PP1 POWER PACK – 120 VOLT, 15 VDC
SENSOR SWITCH PP20 OR EQUAL

$D DIMMING SWITCH – WALL MOUNT, 120/277V INPUT, 120/277V OUTPUT,LED, ON/OFF/DIMMER SWITCH, COLOR BY OWNER
SYNERGY ISD–BC–120/277V–XX

XX=VERIFY COLOR WITH ARCHITECT PRIOR TO ORDER

EQUAL PRODUCTS FROM WATTSTOPER, LUTRON, LEGRAND, AND EATON WILL BE ACCEPTED

NETWORKED SWITCH AND OCCUPANCY SENSOR LEGEND

ADC AUTOMATIC DIMMING PHOTOCELL CONTROL– NLIGHT NETWORK BUS
NLIGHT NCM–ADCX–RJB OR EQUAL TO

$N1 DIMMING SWITCH – WALL MOUNT, ON/OFF, SINGLE CHANNEL, COLOR BY OWNER
nLIGHT nPODM–X

$N2 DIMMING SWITCH – WALL MOUNT, ON/OFF, DIM UP/DOWN, TWO CHANNELS, COLOR BY OWNER
nLIGHT nPODM–2P–DX–X

Jackson, WY
The Athletic Club at Jackson Hole

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06.26.2023
DRAWN BY | AH
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REVISIONS

LIGHTING DETAILS

E700