

APPLICATION OF FRIENDS OF LAFAYETTE HOUSE, INC.
413 Lafayette Road, Portsmouth, NH
Map 230, Lot 23A

APPLICANT'S NARRATIVE

I. **THE PROPERTY:**

The applicant, Friends of Lafayette House, Inc. is a 501(c) (3) non-profit organization owns the property located at 413 Lafayette Road, Portsmouth, New Hampshire which currently houses 12 adult developmentally disabled residents (the, "Property"). Two (2) house managers, Julie and Dennis Barratt also reside at the property in a 300 square foot caretaker living quarters. In addition to the caretaker quarters, the property consists of 13 bedrooms, 8 bathrooms, a kitchen, living room and dining room. It is considered a "residential care facility" under the ordinance, which use is not permitted in this zone.

The Property is approximately .76 acres in size, has 8 parking spaces and is situated off Lafayette Road in the SRB zoning district. An overview of the Property is shown on the attached map. The property is unique in that it has frontage on Andrew Jarvis Drive, but an address on Lafayette Road, where it is accessible via a deeded easement.

The Friends of Lafayette House provides housing and associated programming for developmentally disabled adults and has provided such services on this site since 2017, when it acquired the property from Great Bay Services, which provided these housing services to the disabled population on this site since 1984. Many of the current clients have resided here for more than ten years. The need for such services on the seacoast, and in New Hampshire in general, is acute given the relatively low level of government funding devoted to them. Accordingly, it falls to privately funded non-profit organizations to provide the bulk of these desperately needed services.

The property has capacity for 12 clients, and that number will not be increased. The house managers live on-site Monday through Friday in separate living quarters. A respite shift of caretakers takes over for the weekend and presently occupies the house managers' living space. The proposal before the Board is to construct a 598-foot addition to the building to create a completely separate caretaker apartment for the weekend respite staff. This will make the living arrangements much easier and more desirable for the house managers and staff. Except for rare events, such as weather events or personal emergencies, it is not anticipated that the existing caretaker living quarters and the proposed new apartment will be occupied at the same time. In other words, the actual residential density on the site will not increase.

Because the current group home use, which falls within the definition of a “residential care facility” in the ordinance, is not permitted in the SRB, the applicant needs a variance from 10.331 and/or 10.334 to enlarge or expand the non-conforming use.

II. THE VARIANCES:

The Applicant believes all criteria necessary to grant the requested variances are met.

Granting the requested variances will not be contrary to the spirit and intent of the ordinance nor will it be contrary to the public interest. The “public interest” and “spirit and intent” requirements are considered together pursuant to Malachy Glen Associates v. Chichester, 152 NH 102 (2007). The test for whether or not granting a variance would be contrary to the public interest or contrary to the spirit and intent of the ordinance is whether or not the variance being granted would substantially alter the characteristics of the neighborhood or threaten the health, safety and welfare of the public.

The essential characteristics of the neighborhood would not be altered by this project. The existing facility, housing up to 12 clients, already exists on this site harmoniously with the surrounding residential properties, Portsmouth High School and the nearby houses of worship. The current use has existed on site for almost forty years.

Were the variances to be granted, there would be no change in the essential characteristics of the neighborhood, nor would any public health, safety or welfare be threatened.

Substantial justice would be done by granting the variance. Whether or not substantial justice will be done by granting a variance requires the Board to conduct a balancing test. If the loss to the applicant from denying the variance is not outweighed by some benefit to the general public, it is an injustice. Here, the loss to the applicant greatly exceeds any benefit to the public by requiring strict compliance with the ordinance. The non-conforming use already exists at the site and has for nearly forty years and any proposed expansion to the physical, built environment would require variance relief. The proposed expansion is very modest, and is necessary to assure the continued successful operation of the applicant’s very important service to the community.

There are special conditions associated with the property which prevent the proper enjoyment of the property under the strict terms of the zoning ordinance and thus constitute unnecessary hardship. The lot in question is larger than the

residential lots in its neighborhood, is in close proximity with municipal and religious institutional uses, and has been the site of the residential care facility use since 1984. It has frontage on Andrew Jarvis Drive but a Lafayette Road address, where it has access via a deeded easement.

The use is a reasonable use. The use already exists on the site and is not being expanded in any significant way.

There is no fair and substantial relationship between the purpose of the ordinance as it is applied to this particular property. The existing use is not permitted in the SRB zone. However, it has existed on this site since 1984. The minor proposed expansion of the building will not in any material way increase the nonconformity of the use.

Accordingly, the proposed use requested here would not in any way frustrate the purpose of the ordinance and there is no fair and substantial relationship between the purpose of the ordinances and their application to this property.

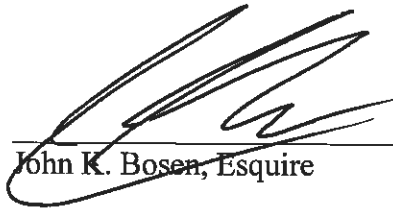
II. **Conclusion.**

For the foregoing reasons, the applicant respectfully requests the Board grant the variances as requested and advertised.

Respectfully submitted,

Dated: December 22, 2023

By:



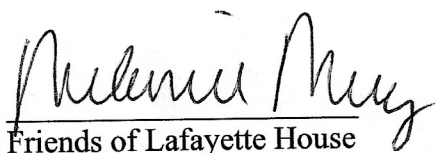
John K. Bosen, Esquire

Letter of Authorization

Friends of Lafayette House, 400 Little Harbor Road, Suite 1104, Portsmouth, NH 03801, owner of property located in Portsmouth, NH, known as Tax Map 230, Lot 23A, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, and Bosen & Associates, 266 Middle Street, Portsmouth, NH 03801, to act on my behalf concerning the previously mentioned property. The parcel is located at 413 Lafayette Road in Portsmouth, NH.

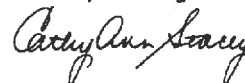
We hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Witness



Friends of Lafayette House

12/20/23
Date



LCHIP	ROA474216	25.00
TRANSFER TAX	RO093549	2,884.00
RECORDING		14.00
SURCHARGE		2.00

Ganz Law Office

Box 62



WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS that **Community Home Solutions, Inc., a New Hampshire corporation**, of 14 New Zealand Road, Seabrook, New Hampshire 03874, for consideration paid, grant to **Friends of Lafayette House, a New Hampshire non-profit corporation**, with a mailing address of PO Box 4545, Portsmouth, New Hampshire 03802, with warranty covenants, the following:

A certain parcel of land, together with the buildings and improvements thereon, situate in Portsmouth, County of Rockingham and State of New Hampshire, identified as Lot 2 on subdivision plan entitled "Plan of Land of J. Philip McCaffery for Great Bay School and Training Center, by Richard P. Millette & Associates", dated December 1981, with Revision I dated January 7, 1982, and recorded in the Rockingham County Registry of Deeds as Plan No. D- 10590 (the "Premises"), as more particularly bounded and described as follows:

Beginning at a point which is 155 feet distant from the Southwest corner of land now or formerly of Lester A. and Priscilla M. Pettis, on a bearing S 79° 23' 39" E from Lafayette Road and from said point of beginning, and being at the Southerly side of Lot 3 on aforesaid plan; thence running S 79° 23' 39" E a distance of 154.32 feet to a point at land now or formerly of Church of Jesus Christ of Latter Day Saints; thence running South by said Church land S 22° 05' 21" W a distance of 179.22 feet to land now or formerly of the City of Portsmouth; thence running S 88° 21' 21"W a distance of 183.14 feet to Lot 1 on said Plan; thence running N 21° 15' 21" E a distance of 187.72 feet to a point at a right of way in common of fifty (50) feet in width; thence running S 79° 23' 39" E a distance of twenty (20) feet to a point; thence running N 21° 15' 21" E, a distance of 30.53 feet to the point of beginning.

There is granted herewith a fifty (50) foot easement right of way as shown on said Plan, extending from Lot 2 to Lafayette Road. This right of way shall run with the land, for all purposes of vehicular and pedestrian passage, for the benefit of Lot 1, Lot 2 and Lot 3 on said Plan, and also for the benefit of land abutting this right of way to the North, now or formerly owned by Lester A. Pettis and Priscilla M. Pettis.

Premises are conveyed subject to the terms of an Option Agreement, a Notice of which is recorded in Rockingham County Registry of Deeds at Book 5879, Page 1258.

Said conveyance is subject to the mortgage to the Newburyport Five Cents Savings Bank dated December 14, 2017 and recorded at Book 5879, Page 120, the Assignment of Rents to the Newburyport Five Cents Savings Bank dated December 14, 2017 and recorded at Book 5879, Page 1247 and a UCC-1 Financing Statement dated December 14, 2017 and recorded at Book 5888, Page 630.

The grantee herein has assumed the financial obligations to Newburyport Five Cents Savings Bank.

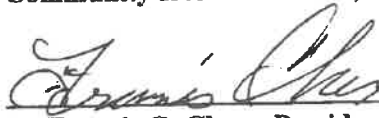
Subject to all rights, restrictions and easements of record.

This is not homestead property of Grantor.

Meaning and intending to describe the same premises conveyed to Grantor by deed of Great Bay Services, Inc. dated December 14, 2017 and recorded in the Rockingham County Registry of Deeds at Book 5879, Page 1225.

Executed this 10th day of December, 2019.

Community Home Solutions, Inc.



By Francis G. Chase, President

Witness


**STATE OF NEW HAMPSHIRE
ROCKINGHAM, SS.**

December 10, 2019

Then appeared the above-named **Francis G. Chase**, duly authorized President of **Community Home Solutions, Inc.**, known to me or satisfactorily proven through proof of identification (i.e. his driver's license) to be the individual who executed the foregoing instrument, and acknowledged same to be his voluntary act and deed.

Before me,

**Mary Keohan Ganz, Justice of the Peace
State of New Hampshire
My Commission Expires: August 28, 2024**



**Mary Keohan Ganz - Justice of the Peace
My Commission Expires: 08/28/2024**

#8784-A/BF

413 LAFAYETTE RD

Location 413 LAFAYETTE RD

Mblu 0230/ 023A/ 0000/ /

Acct# 35469

Owner FRIENDS OF LAFAYETTE
HOUSE

PBN

Assessment \$884,100

Appraisal \$884,100

PID 35469

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$450,500	\$433,600	\$884,100

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$450,500	\$433,600	\$884,100

Owner of Record

Owner FRIENDS OF LAFAYETTE HOUSE
Co-Owner
Address 400 LITTLE HARBOR RD STE 1104
 PORTSMOUTH, NH 03801

Sale Price \$192,266
Certificate
Book & Page 6065/669
Sale Date 12/10/2019
Instrument 36

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
FRIENDS OF LAFAYETTE HOUSE	\$192,266		6065/669	36	12/10/2019
COMMUNITY HOME SOLUTIONS INC	\$200,000		5879/1225	36	12/14/2017
GREAT BAY SCH	\$0		2406/1040		02/05/1982

Building Information

Building 1 : Section 1

Year Built: 1983
Living Area: 6,070
Replacement Cost: \$648,033
Building Percent Good: 68
Replacement Cost
Less Depreciation: \$440,700

Building Attributes	
Field	Description
Style:	Apartments
Model	Commercial
Grade	C

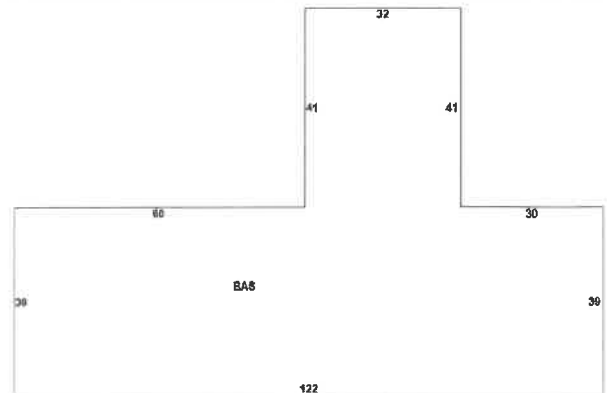
Stories:	1
Occupancy	4.00
Residential Units	
Exterior Wall 1	Clapboard
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Inlaid Sht Gds
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	Central
Bldg Use	BOARDING HS MDL-94
Total Rooms	
Total Bedrms	
Total Baths	
Kitchen Grd	
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	8.00

Building Photo



(<https://images.vgsi.com/photos2/PortsmouthNHPhotos/A00V01\07\04.JPG>)

Building Layout



(ParcelSketch.ashx?pid=35469&bid=35469)

Building Sub-Areas (sq ft) **Legend**

% Corn Wall	
1st Floor Use:	
Class	

Code	Description	Gross Area	Living Area
BAS	First Floor	6,070	6,070
		6,070	6,070

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
SPR1	SPRINKLERS-WET	6070.00 S.F.	\$7,200	1

Land

Land Use

Use Code 9300
Description CHARTBL 94
Zone SRB
Neighborhood 302
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 0.76
Frontage
Depth
Assessed Value \$433,600
Appraised Value \$433,600

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			1800.00 S.F.	\$1,600	1
SHD1	SHED FRAME			80.00 S.F.	\$500	1
SHD1	SHED FRAME			80.00 S.F.	\$500	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2021	\$450,500	\$433,600	\$884,100
2020	\$450,500	\$433,600	\$884,100
2019	\$501,900	\$433,600	\$935,500

Assessment			
Valuation Year	Improvements	Land	Total
2021	\$450,500	\$433,600	\$884,100
2020	\$450,500	\$433,600	\$884,100
2019	\$501,900	\$433,600	\$935,500

JUN 11 8 AM '82
00377



JACK COPELAND
BK 2251 PG 0015

THEOPHILUS & ELEANOR
SYMPHERS
BK 2204 PG 1905

N/F SCREVEN MEMORIAL BAPTIST CHURCH
BK 2271 PG 986

LAFAYETTE ROAD
EDGE OF PAVEMENT
GRANITE CURB
SIDEWALK
249.34' N 21°5'21"E

LOT 1
AREA=31620 s.f.
= 0.73 ac.
= 0.29 Ha.

N/F LESTER & PRISCILLA
PETTIS
RCRD BK 226 PG 48

LOT 3
AREA=30,473 sf.
= 0.70 ac.
= 0.28 Ha.

LOT 2
AREA=33,119 s.f.
= 0.76 ac.
= 0.31 Ha.

PROPERTY IS LOCATED IN THE SR2 ZONE

N/F CHURCH OF JESUS CHRIST OF
LATTER DAY SAINTS
RCRD BK 1524 PG 248

ALUMNI DRIVE
EDGE OF PAVEMENT
GRANITE CURB

D-10590

N/F HARLAN & JEAN WILLIS
RCRD BK 228 PG 20

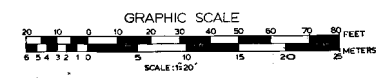
PORTSMOUTH PLANNING BOARD
Edw. Clark 1-8-82

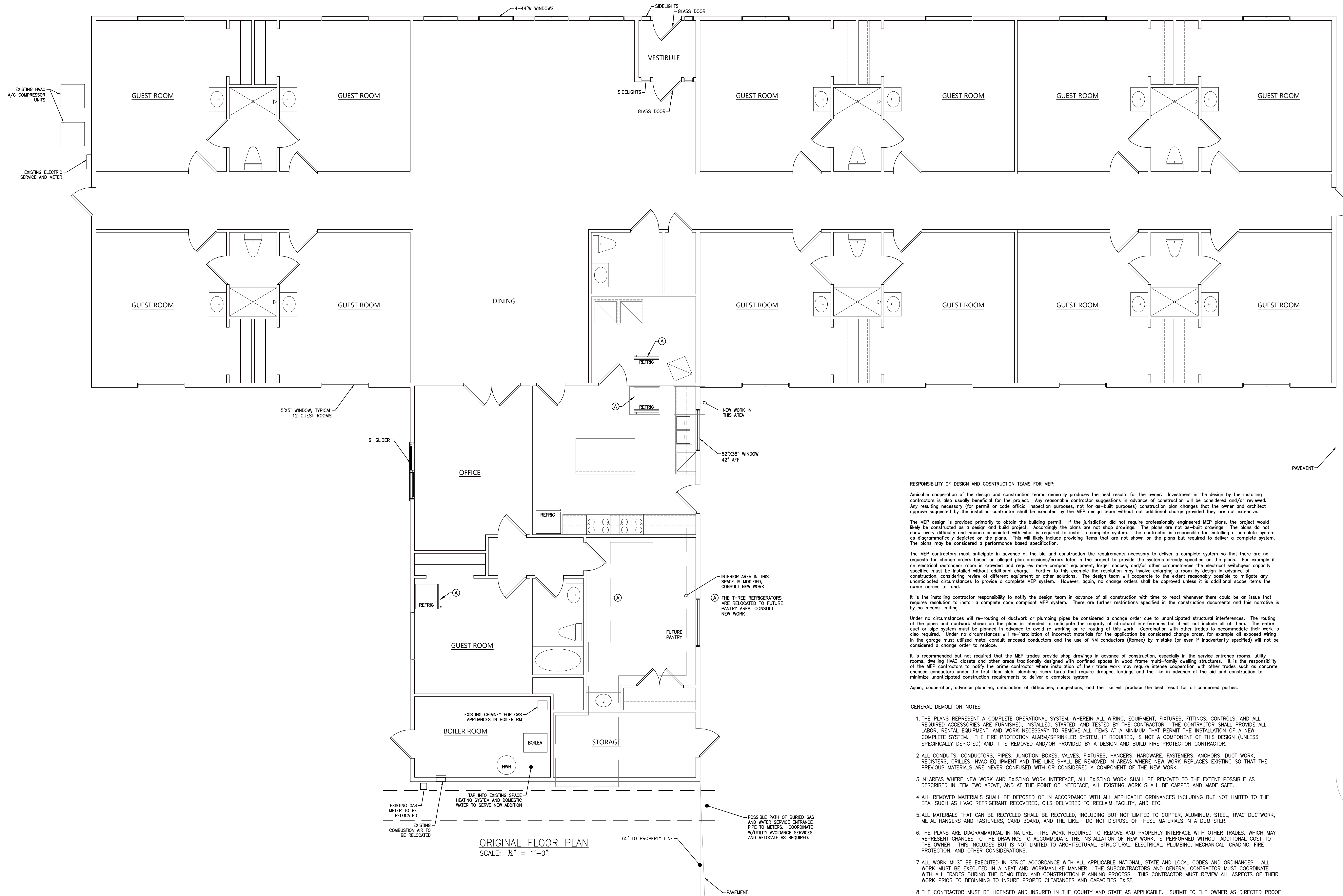


SUBDIVISION
PLAN OF LAND
OF
J. PHILIP McCAFFERY
FOR
GREAT BAY SCHOOL AND
TRAINING CENTER

LAFAYETTE RD.
COUNTY OF ROCKINGHAM
PORTSMOUTH, NH
DEC. 1981

RICHARD P. MILLETTE AND ASSOCIATES
JEREMIAH HART HOUSE THE HILL
PORTSMOUTH, NH NEW HAMPSHIRE
TELEPHONE: (603) 431-2222





RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS FOR MEP:

Amicable cooperation of the design and construction teams generally produces the best results for the owner. Investment in the design by the installing contractors is also usually beneficial for the project. Any reasonable contractor suggestions in advance of construction will be considered and/or reviewed. Any resulting necessary (for permit or code official inspection purposes, not for as-built purposes) construction plan changes that the owner and architect approve suggested by the installing contractor shall be executed by the MEP design team without additional charge provided they are not extensive.

The MEP design is provided primarily to obtain the building permit. If the jurisdiction did not require professionally engineered MEP plans, the project would likely be constructed as a design and build project. Accordingly, the plans are not shop drawings. The plans are not as-built drawings. The plans do not show every difficulty and nuance associated with what is required to install a complete system. The contractor is responsible for installing a complete system as diagrammatically depicted on the plans. This will likely include providing items that are not shown on the plans but required to deliver a complete system. The plans may be considered a performance based specification.

The MEP contractors must anticipate in advance of the bid and construction the requirements necessary to deliver a complete system so that there are no requests for change orders based on alleged plan omissions/errors later in the project to provide the systems already specified on the plans. For example if an electrical switchgear room is crowded and requires more compact equipment, larger spaces, and/or other circumstances the electrical switchgear capacity specified must be installed without additional charge. Further to this example the resolution may involve enlarging a room by design in advance of construction, considering review of different equipment or other solutions. The design team will cooperate to the extent reasonably possible to mitigate any unanticipated circumstances to provide a complete MEP system. However, again, no change orders shall be approved unless it is additional scope items the owner agrees to fund.

It is the installing contractor responsibility to notify the design team in advance of all construction with time to react whenever there could be an issue that requires resolution to install a complete code compliant MEP system. There are further restrictions specified in the construction documents and this narrative is by no means limiting.

Under no circumstances will re-routing of ductwork or plumbing pipes be considered a change order due to unanticipated structural interferences. The routing of the pipes and ductwork shown on the plans is intended to anticipate the majority of structural interferences but it will not include all of them. The entire duct or pipe system must be planned in advance to avoid re-working or re-routing of this work. Coordination with other trades to accommodate their work is also required. Under no circumstances will re-installation of incorrect materials for the application be considered change order, for example all exposed wiring in the garage must utilize metal conduit enclosed conductors and the use of NM conductors (Romex) by mistake (or even if inadvertently specified) will not be considered a change order to replace.

It is recommended but not required that the MEP trades provide shop drawings in advance of construction, especially in the service entrance rooms, utility rooms, dwelling HVAC closets and other areas traditionally designed with confined spaces in wood frame multi-family dwelling structures. It is the responsibility of the MEP contractors to notify the prime contractor where installation of their trade work may require intense cooperation with other trades such as concrete enclosed conductors under the first floor slab, plumbing risers turns that require dropped footings and the like in advance of the bid and construction to minimize unanticipated construction requirements to deliver a complete system.

Again, cooperation, advance planning, anticipation of difficulties, suggestions, and the like will produce the best result for all concerned parties.

- GENERAL DEMOLITION NOTES**
1. THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL LABOR, RENTAL EQUIPMENT, AND WORK NECESSARY TO REMOVE ALL ITEMS AT A MINIMUM THAT PERMIT THE INSTALLATION OF A NEW COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS DESIGN (UNLESS SPECIFICALLY DEPICTED) AND IT IS REMOVED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.
 2. ALL CONDUITS, CONDUCTORS, PIPES, JUNCTION BOXES, VALVES, FIXTURES, HANGERS, HARDWARE, FASTENERS, ANCHORS, DUCT WORK, REGISTER, GRILLES, HVAC EQUIPMENT AND THE LIKE SHALL BE REMOVED IN AREAS WHERE NEW WORK REPLACES EXISTING SO THAT THE PREVIOUS MATERIALS ARE NEVER CONFUSED WITH OR CONSIDERED A COMPONENT OF THE NEW WORK.
 3. IN AREAS WHERE NEW WORK AND EXISTING WORK INTERFACE, ALL EXISTING WORK SHALL BE REMOVED TO THE EXTENT POSSIBLE AS DESCRIBED IN ITEM TWO ABOVE, AND AT THE POINT OF INTERFACE, ALL EXISTING WORK SHALL BE CAPPED AND MADE SAFE.
 4. ALL REMOVED MATERIALS SHALL BE DEPOSED OF IN ACCORDANCE WITH ALL APPLICABLE ORDINANCES INCLUDING BUT NOT LIMITED TO THE EPA, SUCH AS HVAC REFRIGERANT RECOVERED, OILS DELIVERED TO RECLAIM FACILITY, AND ETC.
 5. ALL MATERIALS THAT CAN BE RECYCLED SHALL BE RECYCLED, INCLUDING BUT NOT LIMITED TO COPPER, ALUMINUM, STEEL, HVAC DUCTWORK, METAL HANGERS AND FASTENERS, CARD BOARD, AND THE LIKE. DO NOT DISPOSE OF THESE MATERIALS IN A DUMPSTER.
 6. THE PLANS ARE DIAGRAMMATICAL IN NATURE. THE WORK REQUIRED TO REMOVE AND PROPERLY INTERFACE WITH OTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF NEW WORK, IS PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.
 7. ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK MUST BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE DEMOLITION AND CONSTRUCTION PLANNING PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO BEGINNING TO INSURE PROPER CLEARANCES AND CAPACITIES EXIST.
 8. THE CONTRACTOR MUST BE LICENSED AND INSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND INSURED TOO.
 9. SINCE THE PLANS ARE DIAGRAMMATICAL IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE DEMOLITION IN COMPLEX OR COULD AFFECT OTHER ASPECTS OF THE WORK OR THAT MAY INCLUDE SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE.
 10. THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATICAL WORK DEPICTED HEREIN. FURTHER, THE CONTRACTOR WARRANTS THAT, IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES, THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.
 11. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO BE UTILIZED ON THIS PROJECT ONLY.
 12. THE PLANS INDICATE QUANTITIES ON THE PLANS TO ENHANCE THE UNDERSTANDING OF THE DESIGN CONCEPT. THE QUANTITIES ARE RELIABLE, BUT NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE CORRECT QUANTITIES OF ITEMS REQUIRED TO REMOVE AND DELIVER A COMPLETE FUNCTIONING BUILDING.
 13. THIS PROJECT MAY HAVE AREAS OF AN UNUSUAL INTENSE MEP COORDINATION REQUIREMENT, AND IT IS THE RESPONSIBILITY OF THE MEP TRADES TO INSURE THAT ALL ASPECTS OF THE WORK ARE PROPERLY REMOVED AND PROVIDED TO DELIVER A COMPLETE AND FUNCTIONING MEP SYSTEM.
 14. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.

THIS DIAGRAMMATIC DESIGN IS NON TRANSFERABLE, AND REPRESENTS A COMPLETE SYSTEM.

OWNER: ...

DESIGNED BY: RSM/JWC DATE: 10/10/2022

DRAWN BY: LFG/DMC CHECKED BY: RSM/JWC

SCALE: AS NOTED

SHEET IDENTIFICATION

A-1

REVISIONS

FLOOR PLAN

PROJECT: LAFAYETTE HOUSE
PORTSMOUTH, NEW HAMPSHIRE

ARCHITECT: ...

PROJECT ENGINEER: ...

CONSULTING ENGINEER: ...

SINCE 1960
800 BUNNING FLD, SUITE 100, FAYETTEVILLE, VA 22039-2723
P: 703.887.0477 F: 703.887.0425 www.scoteng.com

SCOT ENGINEERING

INTERNATIONAL GROUND SOURCE HEAT PUMP ASSOCIATION

IGSHPA

THE ASSOCIATION OF ENERGY ENGINEERS

CEE

JOSHUA W. CHAPMAN P.E. LEED AP, PRINCIPAL

PROJ. 2021-1228-0001

MECHANICAL - HVAC EXPERT

EVERY TRADE IS OBLIGATED TO COMPLY WITH ALL ASPECTS OF ALL PLAN SHEETS. THAT IS FOR EXAMPLE, WHERE A REQUIREMENT ON THE PLUMBING PLANS IS SHOWN ON THE ARCHITECTURAL PLANS, THE PLUMBER MUST COMPLY WITH THAT REQUIREMENT, EVEN IF IT IS NOT SHOWN ON THE PLUMBING PLANS.

CONSTRUCTION ADMINISTRATION REQUIREMENTS:

This section applies to the construction documents. This section concerns execution of the work more so than code compliance and accordingly is not completely applicable to jurisdictional plan review. Construction administration must be organized and this plan sheet is devoted to provide instruction for the contractor to properly apply this process with the engineer of record and design team. Please abide by the submittal format exactly and submit the products grouped as requested. Please issue requests for information (RFI) in accordance with the instructions on this plan sheet. RFIs and submittals out of compliance with this plan sheet may be returned requiring a corrected format. Please do not take this construction document requirement lightly.

It is in our best interest that the trade contractors are successful (profitable), after of course the primary goal of providing a code compliant design that guards the best interests of the public and the owner. It is difficult if there is an adversarial relationship between trade contractors and design team members. Please consider this specification an attempt to prevent wasted resources, which in addition to the protecting the public is a pledge engineers are expected to honor. This is a positive proactive specification intended to avoid mistakes, which will make the entire project more successful.

Please be reminded that the plans function as a complete design. It is not acceptable to accept only portions of the plans. All components of the construction documents must be executed and accepted to provide for a complete installation. It is completely unacceptable to consider the plans as containing optional scope items, where contractors, owners, and the like decide to omit aspects of our plan requirements.

Please be reminded that the mechanical, electrical and plumbing plans are not shop drawings. The mechanical, electrical, and plumbing plans were produced primarily to earn a building permit. If building permit requirements did not require mechanical, electrical, and plumbing plans signed and sealed by a state licensed professional engineer, the project most likely would have become a mechanical, electrical and plumbing contractor design and build project (and these plans would not exist).

Please be reminded from extensive notes listed on the leading plans sheets for mechanical, electrical, and plumbing trades clearly indicate that this is a difficult project for the architectural, structural, mechanical, plumbing and electrical trades to coordinate and interface properly. To state the difficulty even more plainly and understandably, please consider that the plans require that:

1. If the mechanical, electrical, and plumbing trades bid this project they are representing that the equipment is thoroughly researched, priced, taken-off examined, otherwise and proposed in their bid fits. That is the equipment is spatially compatible with all other trades, inclusive of codes required, service required, otherwise, and required clearances for service and safety are all provided and accommodated.
2. If a lack of extensive pre-bid research or post bid proper advance planning and coordination (that is a requirement of the construction documents without exception) seems to be prevented as judged by the mechanical, electrical, or plumbing engineer of record than the trade contractors shall be required to provide shop drawings at no additional cost to the owner. Further, the questions and issues that may arise during the shop drawing production process that are directed to the mechanical, electrical, or plumbing engineer judged to be counter-productive, a nuisance, "fishing for change orders", and the like then answers by the design team shall be issued as the RFIs are inappropriate and unsuitable; returned unanswered.
3. There are often chases, wall cavities, and the like that are large enough to accommodate multiple trades and are shown on each trade plan in the same chase, wall cavity and the like. However, if the trades do not plan ahead (coordinate), the first trade field personnel on the project may install their work in a chase, wall cavity, and the like inefficiently such that the other trade(s) cannot install their work. A frequent example might be a wall cavity with both a vertical pipe and a vertical 3.25 inch deep HVAC duct specifically designed to be installed in between wall studs, and the plumber arrived first and installed the pipe such that the HVAC duct cannot be installed without re-cutting the pipe. This pipe must be relocated without exception. Substantial portions of the HVAC and electrical work cannot be installed until the shingles are on the roof of a building and it is protected from rain entering the building while under construction. The plumbing trade is not restricted in this way. Accordingly we often see pipes that could have been installed on the edge of a chase or wall cavity installed right in the middle as if there did not have to accommodate any other trades which of course is not often true. Often this important planning ahead and coordination is omitted against the very strong objection of the design team, and then an RFI is submitted claiming the plumbing pipe is in the way of the HVAC duct and the plans require more attention. This is not acceptable, and RFIs of this nature shall be considered counter-productive. A counter-productive RFI will be returned not answered and may require additional time to resolve. The answer to the RFI in this example will likely be to relocate the pipe.
4. The mechanical and plumbing plans are frequently reviewed by licensed master HVAC mechanics and master plumbers to ensure that the wall cavities, chases, and the like include the required space to install both trades with some extensive coordination that is required by the construction team. Please consider this before submitting RFIs and other inquires when the answer is likely indicative of a failure to coordinate prior to installing mechanical, electrical and plumbing work.
5. **Attention electricians:** Research the sizes of the switchgear, panels, fire pump controllers and the like so that the spaces allotted on the plans are adequate to install the equipment your bid includes. Switchgear sizes vary widely in size, and we generally utilize the smaller more compact equipment which may cost more. The design team is often under pressure to minimize space devoted to non-revenue producing floor space such as but not limited to switchgear rooms, panel enclosures, and the like. Coordinate with the plumber and the mechanical contractor to ensure that they do not install a panel in a position that interferes with your work. The mechanical, electrical, and plumbing design team of record sometimes experiences claims by the contractors that the switchgear does not fit. If the project is bid, we consider this representation by the contractor that the electrical equipment is spatially compatible with all trades. If the switchgear is submitted, upon it is considered representation by the contractor that the switchgear is spatially compatible with all trades. Plan changes after permit as a result of failure to research and plan ahead will be considered an additional service.
6. In general the plans require a complete and functional system. The trade contractors are expected to install a complete and functioning system without exception.

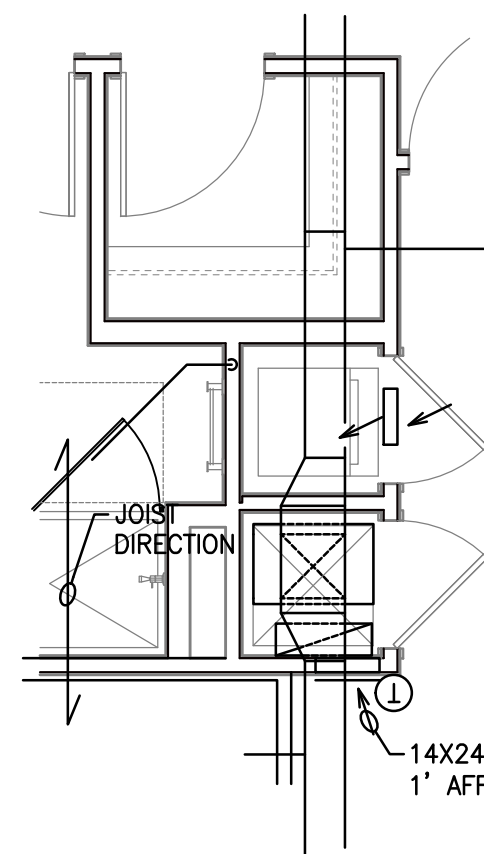
REQUESTS FOR INFORMATION HEREINAFTER REFERRED TO AS AN RFI REQUIREMENTS:

1. The RFI applicable to the trade shall be signed by the trade contractor. Often questions that most trade contractors would know are submitted as an RFI from a non-trade entity. The trade contractor is judged sometimes by the RFI. If the design team receives questions that the trade contractor should know and did not answer for the non-trade entity, it reflects poorly on the trade contractor. If the non-trade entity wishes to ask a trade question and receive a design team answer, it should be submitted with the trade contractor answer so that the design team may confirm or deny the trade contractor response. An example might be "why do we need an electric heater in a utility space below a dwelling", and the trade answer may be "to keep plumbing trap from freezing". Then the design team would confirm the RFI quickly. An RFI not reviewed by a trade contractor may be returned without an answer.
2. An RFI that changes the plans design slightly to reduce the cost of the project, but not compromise it, will be reviewed.
3. The RFI shall always contain a thoroughly thought through recommendation/proposed solution for the design team to review. For example, a correctly phrased RFI may read: "The ductwork shown on the plans interferes with a structural beam, by two inches. Is it acceptable to increase the width of the HVAC duct and reduce the depth to accommodate the beam with smooth transitions? An RFI that the design team may return for a proposed contractor solution to be reviewed may read: the ductwork shown on the plans interferes with a structural beam, please provide a new design. This process will expedite construction administration and reduce schedule interruptions.
4. RFI answers that result in a plan change shall be acceptable if conveyed as a sketch, narrative, or as otherwise requires the least documentation while allowing the contractors to continue construction. Drafting RFI answers is an as-built plan maintenance requirement which is an obligation of the construction team, not the design team.
5. When a duct size is changed in accordance with the "Duct-U-lator", for example a 14x10 to 18x8 with smooth transitions, this does not require an RFI.

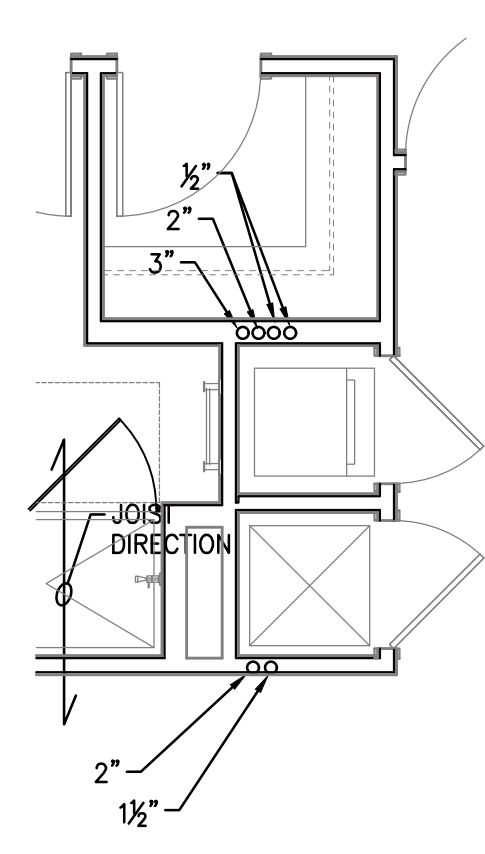
6. The answer to some common HVAC RFIs we receive is "no" for these questions:

- 6.1. The return grille is shown as low, can it be installed high above the door of the mechanical closet?
- 6.2. The return grille is shown ducted to the return air plenum and air handler, can this be deleted and make the mechanical closet a return plenum?
- 6.3. The outside air duct which brings in fresh air to each dwelling air handler may be unnecessary, can it be deleted?
- 6.4. Is ductboard acceptable when it is concealed and not able to be accessed completely for cleaning and thorough inspection?

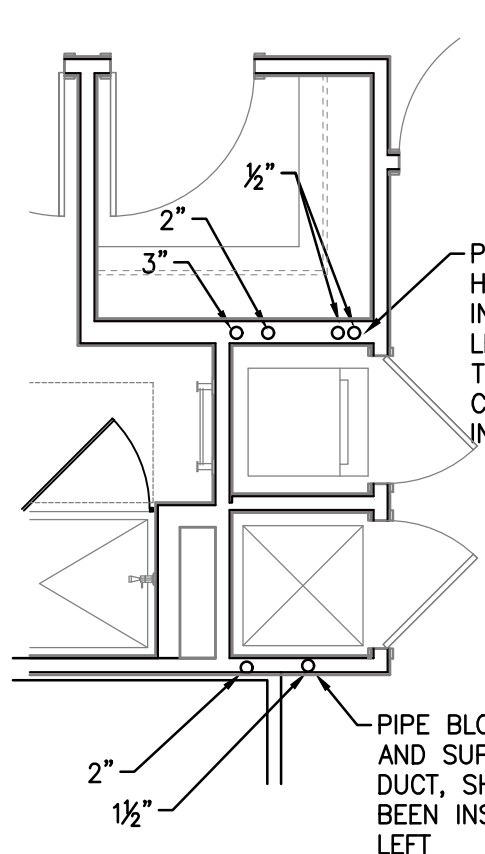
ALL RFIS MUST BE WRITTEN BY THE MECHANICAL, ELECTRICAL AND PLUMBING TRADESMAN, OR WRITTEN BY OTHERS AND SIGNED BY THE MECHANICAL, ELECTRICAL AND PLUMBING TRADESMAN. TRADESMAN MUST ACCEPT THIS RESPONSIBILITY SERIOUSLY. RFIS THAT APPEAR SIGNED BY TRADESMAN THAT WERE QUESTIONS THE TRADESMAN WOULD NORMALLY KNOW, AND NOT SERIOUSLY REVIEWED WILL BE RETURNED.
ALL RFIS MUST INCLUDE A PROPOSED NO COST RESOLUTION OR THEY WILL BE REJECTED.



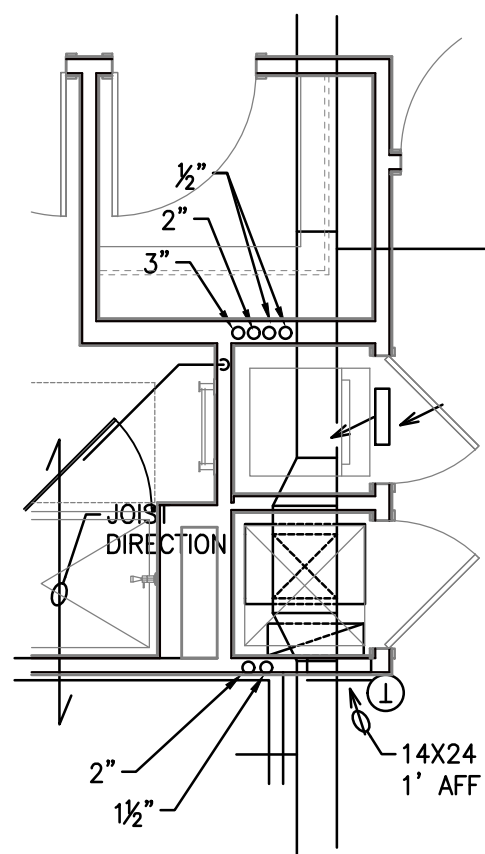
HVAC PLANS, ABBREVIATED SCALE: NO SCALE



PLUMBING PLANS, ABBREVIATED SCALE: NO SCALE



AS MAY BE INSTALLED WITHOUT COORDINATION WHICH RESULTS IN RFI SCALE: NO SCALE



HVAC & PLUMBING PLANS, ABBREVIATED SCALE: NO SCALE

WHAT SHOULD BE INSTALLED

The incorrect plumbing work installed blocks the HVAC work from being installed. When this happens our offices may receive an RFI. Our answer is to relocate the pipes as per plan. This example is crystal clear, but often there is 3' of wall space to install half a dozen vertical pipes (which can easily be installed on one stud bay), and a vertical HVAC duct 12" wide in the other stud bay. If the plans are design the plumbing and mechanical work may clash, but it is possible to install the work without violating the design concept, as the plans are conceptual. This construction document sheet is an attempt to graphically portray how important it is to plan ahead when working with conceptual plans. Otherwise contractor shop drawings, which are expensive may become a requirement.

EXAMPLES OF WHAT WE ARE TRYING TO AVOID, PLAN AHEAD

PLANS SHOWN ON THIS SHEET ARE EXAMPLES OF MEP PLANS AND ARE NOT TO BE USED AS FLOOR PLANS, BUT TO ENCOURAGE COORDINATION AND PLANNING. THIS SAME PLAN SHEET IS USED ON EVERY JOB.

CONTRACTORS, PLEASE DO NOT IGNORE THIS PLAN SHEET. IT IS PINACLE TO THE SUCCESS OF THIS PROJECT.

Submission of product data proposed by the contractor for use on the project (Submittals) REQUIREMENTS:

General: All submittals must identify the Project name and trade contractor that is submitting the equipment for review. Equipment submitted must be compatible, functional and a proper application. Equipment submitted shall be spatially compatible, do not submit the equipment if it will not fit in the space allotted. The construction team is usually more experienced than the design team in the area of spatial compatibility of various mechanical, electrical, and plumbing equipment. Any deviations from the plans must be noted in the submittal. Any type of approval by the design team relies on the contractor submitting a code compliant and construction document compliant item. Plan deviations submitted shall be clearly identified and only approved if specifically referred and addressed in the engineering submittal review. Quantities and finishes will generally not be reviewed. The engineering submittal review is a double check to hopefully discover a contractor misinterpretation of the construction documents. While this process is reliable, it is not guaranteed. The obligation of providing a correct product is always the responsibility of the contractor, regardless of whether an engineer submittal review approval was issued.

The outline below may include additional product specifications in addition to submittal format and minimum information requirements:

1. Submit the mechanical items in groups (a through l) as outlined exactly herein below:
 - a. Each HVAC equipment submitted including, but not limited to, compressor bearing equipment, air handling units, furnaces, electric heaters, fans and ductless split systems shall be submitted separately and at the beginning include a schedule sheet that includes the equipment designation on plan, the nominal capacity, and the equipment model. Do not submit HVAC equipment data sheets that can be hundreds of pages long with installation instructions and etc with each equipment model not designated or designated for example on page 44 of 241, 61 of 241, 128 of 241 and etc. For HVAC ARI matched equipment such as a heat pump and air handler, include them both in one submittal.

- Primary HVAC equipment for dwellings and common areas, which is comprised primarily of the compressor bearing equipment complete with central fan system and all accessories associated with the primary equipment. All equipment shall be identified, such as for example lobby, dwelling A2, and etc.
- Refrigeration plans, including pipe sizes that are determined by installed length, not equipment connection sizes.
- Thermostats for all equipment, including adequate stages for heat with dual stage compressor heat pump applications, auto-change-over from heat to cool as specified and required programming.
- Electric heaters, with each heater thoroughly identified. All heaters submitted are considered as represented by the contractor to be a proper application, such as ceiling cavity heaters rated for confined spaces, unit heaters with adequate space beneath them, and etc. All heaters are required to be suitable as primary sources of heat.
- Ductless split systems
- Fire protection dampers including the radiation dampers, curtain fire dampers and fire smoke dampers if applicable. Note that the radiation dampers shall be compatible with the UL floor/ceiling assembly such as for example UL 521, 586 and etc. Note UL555 is not a recognized UL floor/ceiling assembly rating, but rather a standard rating applied to fire protection dampers irrespective of the installation application.
- Ductwork accessories that include at a minimum; louvers, insulation, dampers, flex duct equipment connections, insulation, tape, duct sealing products and etc. Ductwork insulation shall not be permitted to be internal to the ductwork.
- Ductwork that includes metal rigid duct and construction methods
- Flexible air duct and flexible duct connector
- Registers, grilles and diffusers for both dwellings and common areas. Commercial areas always must receive non-residential/commercial products which include mitered, not stamped frames, adjustable supply air blades, individually made return/exhaust blades in register or grille, not an integral stamping of frame, and screw driver operated volume control devices. Linear diffusers shall never utilize face mounted screws for mounting, include concealed fasteners.
- Fire stopping, note it is not acceptable to install multiple conduits, ducts, and especially round items through a single penetration. Provide neatly cut, drilled or otherwise holes through rated assemblies (do not use a hammer).
- Miscellaneous, which can include supports, identification and etc.

2. Submit the electrical equipment in groups (a through h) as outlined herein below:
 - a. Switchgear that includes a shop drawing with a floor plan layout, demonstrating that all equipment is spatially compatible, accounting for required clearances especially. If a shop drawing is not submitted the design team will interpret this as the contractor representing that equipment submitted will fit (spatially compatible with all trades and all coordination is completed). The submittal must include AC ratings and the electrical contractor is responsible for providing the minimum AC rated equipment as specified on the plans or as required by the utility company, generally whichever is greater unless approved in writing from the engineer of record. This includes meter centers, main distribution panels, large disconnects, and fuse, circuit breaker panels, Automatic Transfer Switches. However, certain aspects of this may be split into multiple submittal data if convenient for the electrical contractor.
 - b. Circuit breakers, which must be coordinated with their equipment electrical ratings served. The capacity and quantity of branch circuit breakers, fuse and the like will not be reviewed.
 - c. Conduits, supports, junction boxes, pull boxes and conductor encasing/protective equipment, etc.
 - d. Switches and receptacles, lighting control panel etc.
 - e. Conductors (wires)
 - f. Lighting: The submittal must clearly identify the light fixture and correlate to the light fixture schedule in the construction documents. All light fixtures for a particular building must be submitted together (clubhouse, apartment building, or townhouse). Separate submittals for different building types is acceptable. Submittal MUST indicate the following for each fixture or it may be rejected: socket/amp type, wattage, voltage, IC rated, Airtight, if LED - is the driver integral or remote, if low voltage - is the transformer integral or remote, wet/damp rating, fire rated if applicable. Submittal package to comply with International Energy Conservation Code.
 - g. Fire stopping
 - h. Miscellaneous

3. Submit the plumbing equipment in groups (a through j) as outlined herein below:
 - a. Pumps: domestic booster, sump type, including controls.
 - b. Pumps: sump type, sewage ejector, sewage grinder, including controls.
 - c. Plumbing fixtures, not reviewed for appearance or finishes.
 - d. Plumbing piping (differentiate what is to be used above vs below grade)
 - e. Hot water heaters (DO NOT USE GRAVITY DIRECT VENT, only power direct vent [tank or tankless], electric or electric heat pump are acceptable).
 - f. Backflow preventers, Check valves, ball valves, backwater valves, etc
 - g. Separators: Oil, Sand, or Grease, including traffic rated cover if applicable
 - h. Drains: including roof, floor, interior, exterior, trench at garage entrances, emergency and etc.
 - i. Fire stopping
 - j. Miscellaneous

Other non-MEP product submissions that should be issued to the MEP engineer of record for review include but are not limited to:

1. Fireplaces, gas or electric. All gas fired fireplaces shall be direct vent without exception.
2. Appliances, especially dryers to confirm vent lengths and gas fired ranges with gas input rating.
3. Elevators if applicable, inclusive of especially the electrical requirements and environmental conditions to be maintained in the shaft and elevator machine room. If the elevator shaft is to be conditioned, it must be insulated where walls or roof separate the cab travel from the exterior (not an inside wall).
4. Fire Pumps, Jockey Pumps, Fire Pump/Jockey Controllers for electrical coordination.
5. Commercial Kitchen Equipment & appliances if applicable.

Product data submitted for use on this project which is out of compliance with the above written requirements shall likely be returned for further work before it is reviewed. This especially includes the format. If the electric heaters are submitted with the louvers, for example, it may be returned as not reviewed. Then the louvers would need to be included with duct accessories.

PROJECT COMMISSIONING

Mechanical, HVAC:
All HVAC systems with moving parts shall be installed and started up in strict accordance with the published installation and start up instructions published by the manufacturer and documented in writing accordingly.

Split system and package HVAC systems capacity five tons and less, provide a single start-up and installation page that includes but may not be limited to the information listed below:

System information:

1. System designation on the plans
2. Dwelling (each, so if 200 dwellings, here are 200 of these reports minimum, list unit number with level it is on) served, or common area served (such as leasing, club or etc.).
3. Equipment model numbers, air handler, furnace, compressor section, furnace coil, auxiliary heat as applicable minimum. Also, list thermostat model.
4. Date of installation, date of start-up, and person(s) starting up the equipment.
5. Size and approximate installed length of refrigeration piping.
6. Confirm that return air conveyance system is ducted from grille to air handler.
7. Confirm that outside air intake duct (where natural ventilation is not used) includes a volume damper and motorized damper interlocked with the air handler and if applicable carbon dioxide sensor.
8. Confirm that all rated assemblies inside the mechanical closet are protected.

System operation:

1. Confirm that the air handler is set to 400 cfm per ton, do not leave the factory 3 ton air handler setting for a 1.5 ton system.
2. Confirm that the outside air (that is ducted to return plenum) is balanced to 30 cfm for one bedroom, 45 cfm for two bedroom and 60 cfm for a three bedroom dwelling.
3. Confirm that all wall caps serving the dwelling seal tightly, and operate correctly
4. Confirm that the refrigeration pipes have been leak tested
5. Record weight and type of refrigerant used to charge the system.
6. Record the ambient conditions and record the interior conditions prior to start up
7. Record the inlet return air temperature and relative humidity
8. Record the supply air discharge temperature at the refrigeration coil discharge.
9. Record the supply air temperature out of the supply outlets in the occupied space.
10. Record the amps of the blower fan and compressor
11. Record the refrigeration pressures and temperatures with the return air and supply air temperatures, plus outdoor temperatures.
12. Record the space temperatures, relative humidity and thermostat setting after a week of operation. Record any room temperatures that are more than 4°F different than the thermostat setting.

Note the system information and start up documentation prescribed herein above is by no means limiting. The equipment manufacturer may require further work and this shall all be recorded. Any system results (measurements) that are outside of the parameters published by the equipment manufacturer shall be corrected by adjustment or system modifications as may be required without cost to the owner, prime contractor or the like.

Submit all the system information and start-up operation on a single sheet of paper or pdf for all dwellings. These will be checked for repeatability by the building management/ownership or the engineer by selecting a few dwellings or common area systems at random and checking them for the same information specified above. Should a significant discrepancy exist, then all equipment will be re-commissioned as directed by the engineer without additional charge to the owner, prime contractor or the like. Then the process shall begin again.

Any deviation from this specification for commissioning shall be considered a violation of the construction documents.

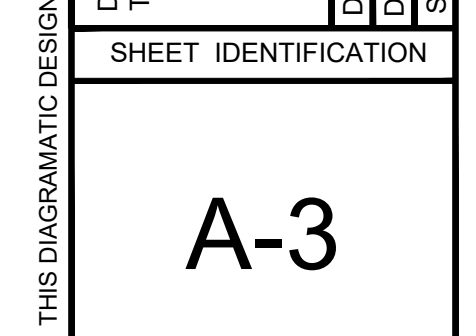
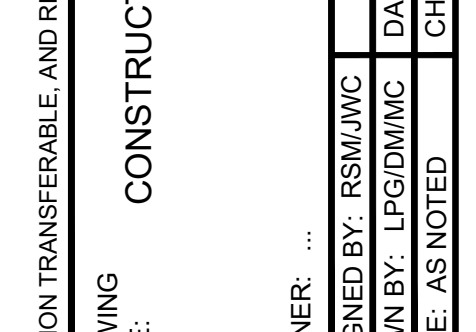
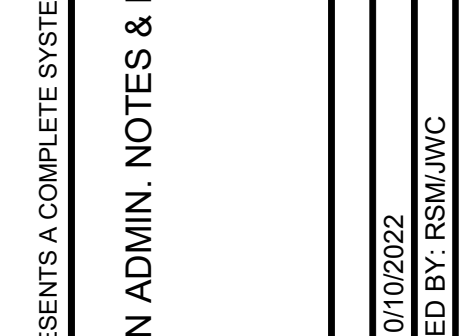
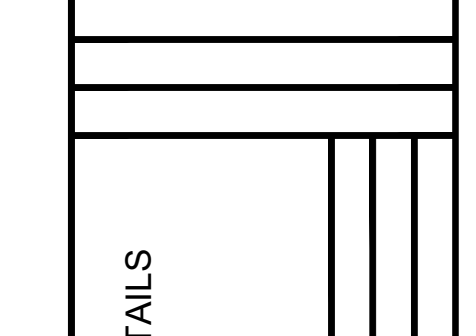
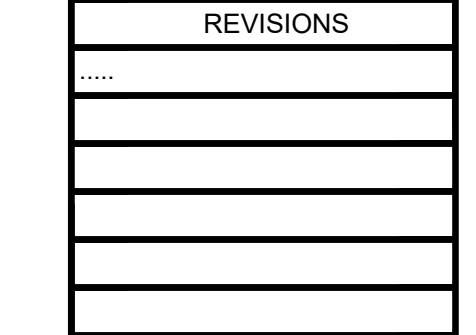
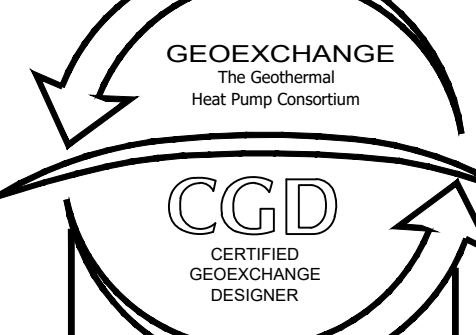
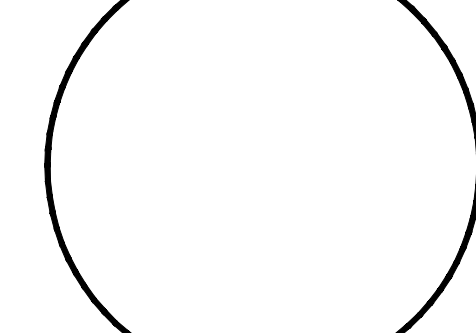
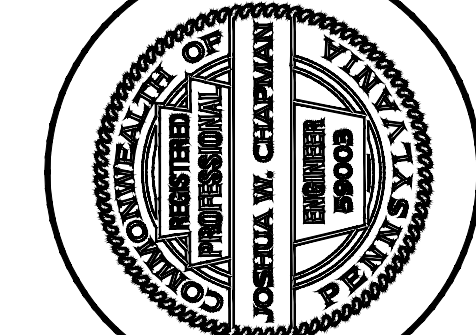
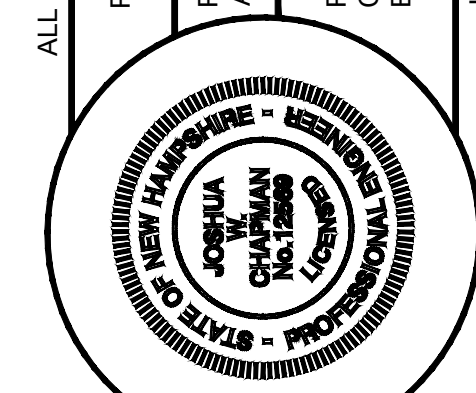
PLANS SHOWN ON THIS SHEET ARE EXAMPLES OF MEP PLANS AND ARE NOT TO BE USED AS FLOOR PLANS, BUT TO ENCOURAGE COORDINATION AND PLANNING. THIS SAME PLAN SHEET IS USED ON EVERY JOB.

THIS PROJECT IS NOT A DESIGN AND BUILD PROJECT FOR HVAC (MECHANICAL), PLUMBING, AND ELECTRICAL AS OTHERWISE THIS PLAN SHEET WOULD BE OMITTED. THIS PROJECT IS A DESIGN AND BUILD FOR FIRE PROTECTION (SPRINKLER/SUPPRESSION AND ALARM) AS MANDATED BY CODE. ALL OTHER ASPECTS OF THE PROJECT SUCH AS AUDIO, SECURITY, ALARM, VIDEO, CABLE, TELEPHONE AND THE LIKE RELATED TO MEP TRADES THAT DO NOT REQUIRE PLANS TO BE SUBMITTED FOR PERMIT ARE NOT PART OF THIS PLAN SET AND ARE DESIGN AND BUILD BY OTHERS.

ALL DIMENSIONS, SIZES AND CAPACITIES MUST BE FIELD AND CODE VERIFIED.

PROJECT: LAFAYETTE HOUSE
PORTSMOUTH, NEW HAMPSHIRE

PROJECT ARCHITECT:
PROJECT CONSULTING ENGINEER:



JOSHUA W. CHAPMAN P.E. LEED AP, PRINCIPAL

SCOT ENGINEERING SINCE 1980
8000 BURNING TREE COURT, SUITE 100 FARMERSVILLE, VA 22039-2723
PH: 703.982.4477 FAX: 703.982.4422 email: info@scoteng.com

CONSTRUCTION ADMIN. NOTES & DETAILS

DESIGNED BY: RSM/JWC DATE: 10/10/2022
DRAWN BY: DGD/MCM CHECKED BY: RSM/JWC
SCALE: AS NOTED

SHEET IDENTIFICATION

A-3

THIS DIAGRAMATIC DESIGN IS NON TRANSFERABLE AND REPRESENTS A COMPLETE SYSTEM.

IGSHPA International Ground Source Heat Pump Association

THE ASSOCIATION of Energy Engineers

GEOTHERMAL HVAC EXPERT

ELECTRICAL SYMBOL LEGEND

- ALL ITEMS SHOWN MAY NOT APPEAR ON DRAWINGS.
- PER ADA REQUIREMENTS, ALL CONTROL DEVICES MUST BE A MINIMUM OF 15" AFF. TO WITHIN 48" AFF. FOR REACHING ACCESSIBILITY.
- HEIGHTS ARE GIVEN FROM THE FINISHED FLOOR. VERIFY THICKNESS OF FLOORING ASSEMBLY WITH ARCHITECTURAL PLANS PRIOR TO ROUGH-IN.
- JUNCTION BOX, +15' A.F.F. TO THE BOTTOM OF BOX
 - JUNCTION BOX, ABOVE IN CEILING
 - JUNCTION BOX, FLUSH IN FLOOR
 - ⊕ DUPLEX CONVENIENCE OUTLET, +15' A.F.F. TO THE CENTER OF THE BOTTOM OUTLET.
 - ⊕ DUPLEX CONVENIENCE OUTLET, MOUNT 8" ABOVE TOP OF COUNTER OR +46" A.F.F. TO THE CENTER OF THE TOP OUTLET, WHERE SHOWN UNDER A COUNTER TOP OVERHANG OF LESS THAN 6"; OUTLET NOT TO BE MORE THAN 12" BELOW COUNTER TO CENTER OF OUTLET. FOR A COUNTER TOP OVERHANG OF GREATER THAN 6", MOUNT RECEPTACLE AT 15" A.F.F. TO CENTER OF THE BOTTOM OUTLET.
 - ⊕ LEVITON 15832 TAMPER-PROOF COMBINATION USB/DUPLEX RECEPTACLE MOUNTED +15' A.F.F. TO THE CENTER OF BOTTOM OUTLET. OR AS NOTED
 - ⊕ DUPLEX CONVENIENCE OUTLET, HALF HOT, HALF SWITCHED, +15' A.F.F. TO THE CENTER OF BOTTOM OUTLET. OR AS NOTED
 - SINGLE OUTLET WITH PLUG CONFIGURATION AS INDICATED ON PLANS, +15' A.F.F. TO THE CENTER OF OUTLET OR AS NOTED
 - ⊕ QUADPLEX CONVENIENCE OUTLET, +15' A.F.F. TO THE CENTER OF THE BOTTOM OUTLET OR AS NOTED
 - ⊕ DUPLEX FLUSH MOUNTED POP-UP, SPILL-PROOF COUNTERTOP RECEPTACLE AS MANUFACTURED BY LEV ELECTRIC (SPUR20 FINISH) TO BE SELECTED BY OWNER/ARCHITECT. DEVICE REQUIRED AN UNDER COUNTER RECEPTACLE FOR A PLUG-IN CONNECTION.
 - ⊕ DUPLEX OUTLET FLOOR BOX, PEDESTAL MOUNTED
 - ⊕ DUPLEX OUTLET CEILING MOUNTED
 - ⊕ DUPLEX FLUSH FLOOR BOX WITH 3/4" CONDUIT TO NEAREST WALL
 - ⊕ CABLE TV OUTLET, +15' A.F.F. TO MIDDLE OF BOX OR AS NOTED
 - ⊕ COMBINATION VOICE/DATA/CABLE TV OUTLET UNDER ONE COVER PLATE AND SINGLE GANG BOX, +15' A.F.F. TO MIDDLE OF BOX OR AS NOTED
 - ⊕ MOTOR STARTER
 - ⊕ CONTROL DEVICE AS INDICATED
 - CM = CARBON MONOXIDE DETECTOR WITH INTEGRAL ALARM CR = ENTRY SYSTEM CARD READER IC = TENANT INTERCOM SYSTEM
 - DISCONNECT SWITCH- 30/3 INDICATES 30 AMP RATED 3-POLE
 - DISCONNECT SWITCH- 100/3/70 INDICATES 100 AMP RATED 3-POLE SWITCH WITH 70 AMP FUSES
 - MOTOR, H.P. AS INDICATED
 - Δ OUTLET WITH 1" TO NEAREST ACCESSIBLE CEILING, +15' A.F.F. TO MIDDLE OF BOX OR AS NOTED FOR COMPUTER WIRING BY OTHERS
 - ▲ VOICE/DATA OUTLET WITH 1" TO NEAREST ACCESSIBLE CEILING, +15' A.F.F. TO MIDDLE OF BOX OR AS NOTED
 - ▲ VOICE/DATA OUTLET WITH 1" TO NEAREST ACCESSIBLE CEILING, +48" A.F.F. TO TOP OF BOX OR AS NOTED.
 - ⊕ VOICE/DATA FLUSH FLOOR OUTLET WITH 1" EMPTY CONDUIT TO NEAREST WALL
- LETTERS INDICATE PANEL BOARD DESIGNATION WHERE REQUIRED FOR ACCESSIBILITY, TOP BREAKER NOT TO EXCEED 48" A.F.F.
- ⊕ PUSH-BUTTON STATION-SINGLE BUTTON, +46" A.F.F. TO THE CENTER OF THE BUTTON OR AS NOTED
 - ⊕ START/STOP PUSH-BUTTON, +46" A.F.F. TO THE CENTER OF THE TOP BUTTON OR AS NOTED
 - ⊕ BUZZER OUTLET, +84" OR AS NOTED
 - 2'X4' LIGHTING FIXTURE RECESSED WHEN POSSIBLE
 - 2'X4' LIGHTING FIXTURE RECESSED WHEN POSSIBLE
 - LIGHTING FIXTURE SURFACE STRIP (C) TUBE
 - LIGHTING FIXTURE SURFACE STRIP (D) TUBE
 - LIGHT FIXTURE RECESSED MOUNTED WHEN POSSIBLE 2'X2' SHOWN
 - ⊕ SURFACE MOUNTED CEILING LIGHT
 - ⊕ WALL MOUNTED LIGHT, IF FIXTURE MOUNTING PROTRUDES MORE THAN 4" IN DEPTH FROM WALL, MOUNT AT 80" A.F.F. TO BOTTOM OF FIXTURE.
 - DECORATIVE CHANDELIER/PENDANT
 - RECESSED DOWNLIGHT LIGHT W/FRAME-IN KIT TO MATCH CEILING RATINGS
 - ⊕ EXIT LIGHT FIXTURE, SHADED PORTION INDICATES FACE WITH DIRECTIONAL ARROWS AS INDICATED
 - ⊕ EMERGENCY LIGHTING UNIT
 - ⊕ EMERGENCY LIGHTING REMOTE HEADS
 - ⊕ SINGLE POLE TOGGLE SWITCH +46" A.F.F. TO THE CENTER OF THE CONTROL OR AS NOTED. SUBSCRIPTS INDICATE THE FOLLOWING:
 - 2 - DOUBLE POLE P - PILOT LIGHT, RED
 - 3 - THREE WAY R - REMOTE CONTROL SWITCH
 - 4 - FOR WAY M - MOTOR SWITCH
 - K - KEY OPERATED I - ILLUMINATED
 - T - ROTARY TIMER 0-2 HR
 - ⊕ DIMMER SLID STATE +46" A.F.F. TO THE CENTER OF THE CONTROL OR AS NOTED
 - CONDUIT & WIRE CONCEALED UNDERGROUND OR IN CONCRETE SLAB OR UNDER FLOOR - 3/4" C. 2 # 12 DR AS NOTED
 - CONDUIT & WIRE CONCEALED IN WALL PARTITIONS OR CEILING SPACE ABOVE - 3/4" C. 2 # 12 DR AS NOTED
 - ||| STRIKES INDICATE QUANTITY OF #12 A.W.G.
 - ⊕ LINE VOLTAGE THERMOSTAT SUPPLIED AND INSTALLED BY HVAC CONTRACTOR. WIRED BY ELECTRICAL. THERMOSTAT TO BE MOUNTED AT A MAXIMUM OF 48" AFF. TO TOP OF CONTROLS.
 - SUBSCRIPTS AT SIDE OF OUTLET
 - WP - WEATHER PROOF RT - RAIN TIGHT
 - GF - GROUND FAULT PROTECTION DE - DUAL ELEMENT
 - IG - ISOLATED GROUND TD - TIME DELAY
 - HCR - HVAC & REFRIGERATION H - MOUNT HORIZONTAL
 - EQUIP RATED CKT BRKR
 - 12 THE NUMBER 12 INDICATES THE CIRCUIT NUMBER THAT POWERS THE ELECTRICAL DEVICE, IT MAY NOT REQUIRE A HOME RUN
 - ⊕ THE "P" IS THE PANEL DESIGNATION AND THE NUMBER "12" IS THE CIRCUIT ON PANEL "P" - IF THE PANEL DESIGNATION IS ABSENT IT IS WIRED TO THE LOCAL PANEL IN THE DWELLING
 - ⊕ DWELLING UNIT SMOKE DETECTOR 120V WITH BATTERY BACK-UP- SINGLE STATION UNIT - ALL IN EACH SEPARATE DWELLING TO BE WIRED TOGETHER TO SOUND ONE ALARM. DO NOT WIRE TO BUILDING ADDRESSABLE FIRE ALARM SYSTEM.
 - ⊕ DWELLING UNIT COMBINATION SMOKE/CARBON MONOXIDE DETECTOR 120V WITH BATTERY BACK-UP, SINGLE STATION UNIT, ALL IN EACH SEPARATE DWELLING TO BE WIRED TOGETHER TO SOUND ONE ALARM. DO NOT WIRE TO BUILDING ADDRESSABLE FIRE ALARM SYSTEM.

ELECTRICAL NOTES:

- ALL ELECTRICAL WORK TO BE INSTALLED IN ACCORDANCE WITH THE GOVERNING EDITION OF THE NATIONAL ELECTRICAL CODE AND ANY OTHER LOCAL AUTHORITIES HAVING JURISDICTION.
 - ALL ELECTRICAL MATERIALS AND EQUIPMENT FOR THE PROJECT SHALL BE NEW AND U.L. OR EQUALLY APPROVED.
 - PROVIDE ALL NECESSARY PERMITS, INSPECTIONS AND LICENSES AND PAY ALL REQUIRED FEES.
 - SUBMIT TO THE OWNER CERTIFICATES OF INSPECTION IN DUPLICATE FROM APPROVED INSPECTION AGENCY UPON COMPLETION.
 - ON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE ENTIRELY FREE FROM GROUNDS, SHORT CIRCUITS, OPEN, OVERLOADS, AND IMPROPER VOLTAGES AND THOROUGH TESTS SHALL BE MADE. FURNISH ALL LABOR, MATERIAL AND INSTRUMENTS.
 - PRIOR TO FINAL ACCEPTANCE OF THE WORK, THE WRITTEN STATEMENT TO THE OWNER GUARANTEEING ALL EQUIPMENT AND SYSTEMS AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE. UPON WRITTEN NOTICE AND AT NO EXPENSE TO THE OWNER, PROMPTLY REPAIR ALL DEFECTIVE MATERIAL.
 - PROVIDE NEATLY TYPED SCHEDULES OUTLINING CIRCUIT CONTROL FOR ALL PANEL BOARDS.
 - CONTRACT DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, THEREFORE, THE CONTRACTOR SHALL APPLY FOR DETAILED INFORMATION REGARDING THE LOCATION OF ALL EQUIPMENT BEFORE ROUGH-IN AS THE FINAL LOCATION MAY DIFFER FROM THAT SHOWN ON THE DRAWINGS. OUTLETS, ETC., IMPROPERLY PLACED BECAUSE OF FAILURE TO OBTAIN THIS INFORMATION SHALL BE RELOCATED AND REINSTALLED WITHOUT ADDITIONAL CHARGE.
 - WIRE ALL FIXTURES, DEVICES, ETC., TO RESPECTIVE PANELS AND CONTROLS AS SHOWN ON THE PLANS. IN SYMBOL FORM, BRANCH CIRCUIT WIRING IS NOT COMPLETELY SHOWN ON DRAWINGS. CONTRACTOR IS RESPONSIBLE TO WIRE ALL DEVICES AS CIRCUITED SYMBOLICALLY.
 - ALL WIRE AND CABLE SHALL BE COPPER 75% RATED, 600 VOLT INSULATION, TYPE THW, THHN OR THWN, WIRE SIZE #10 AND SMALLER SHALL BE SOLID, #8 AND LARGER SHALL BE STRANDED. MINIMUM SIZE WIRE FOR 20A GROUND AND POWER CIRCUITS SHALL BE #12 AWG ON CIRCUIT LENGTHS OF UP TO 100 FEET, ON CIRCUIT LENGTHS 100 TO 200 FEET, #10 AWG SHALL BE INSTALLED TO THE CENTER CIRCUIT LOAD AND #12 TO THE OTHER CIRCUIT LOADS. WIRE REQUIRED DUE TO VOLTAGE DROP, FOR 15A LIGHTING AND POWER CIRCUITS, #14 AWG WIRE MAY BE INSTALLED. CONTRACTOR MAY USE ALUMINUM WIRE AND CABLE ON THE SECONDARY SIDE OF THE UTILITY COMPANY TRANSFORMERS AND ON THE PRIMARY SIDE OF PANEL BOARDS IF 75% LUGS ARE USED, IMPACT IS 60A OR GREATER, AND INSTALLED IN COMPLIANCE WITH THE N.E.C. ALUMINUM WIRE SIZES ARE INDICATED ON PLANS WHERE ALLOWABLE.
 - IN REFERENCE TO NOTE #10, ELECTRICAL CONTRACTOR MAY USE ARMORED CLAD CABLE TYPE "AC" AND METAL CLAD CABLE TYPE "MC" WITH BUILDING CONSTRUCTION TYPE I AND TYPE II WHERE ALLOWABLE BY NOTE #1. NONMETALLIC SHEATHED CABLE TYPE "NM-C" MAY BE USED WITH BUILDING CONSTRUCTION TYPE V WHERE ALLOWABLE BY NOTE #1.
 - VERIFY ALL DOOR SWINGS PRIOR TO SWITCH ROUGH-IN.
 - VERIFY ALL CEILING CONSTRUCTION INCLUDING METHOD AND TYPE OF BUILDING INSULATION BEFORE ORDERING FIXTURES AND PROVIDE FIXTURES COMPATIBLE WITH CEILING CONSTRUCTION, INCLUDING BUILDING INSULATION METHODS (I/C OR NON I/C RATED) AS REQUIRED.
 - PROVIDE ALL LIGHTING FIXTURES RECESSED IN A CEILING WHICH HAVE A FIRE RESISTIVE RATING OF ONE HOUR OR MORE WITH A BOX ENCLOSURE WHICH HAS A FIRE RATING EQUAL TO THAT OF THE CEILING. THE SPACE FROM THE FIXTURE TO THE ENCLOSURE SHALL BE A MINIMUM OF 1" FOR FLUORESCENT AND 3" FOR INCANDESCENT FIXTURES.
 - ELECTRICAL CONTRACTOR TO SECURE SHOP DRAWINGS FROM OTHER SUBCONTRACTORS AND VERIFY EXACT ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE WIRED. THIS IS TO BE DONE BEFORE ELECTRICAL CONTRACTOR ROUGH-IN FOR SUBJECT EQUIPMENT. IF DISCREPANCIES ARE NOTED BETWEEN THE ELECTRICAL CONTRACTOR DRAWINGS AND OTHER CONTRACTOR SHOP DRAWINGS, ELECTRICAL CONTRACTOR IS TO NOTIFY ENGINEER AT ONCE. FAILURE BY THE ELECTRICAL CONTRACTOR TO PERFORM THIS DUTY WILL NOT RELIEVE HIM OF THE RESPONSIBILITY TO CORRECT WRITING DEFICIENCIES AT HIS EXPENSE.
 - PROVIDE ALL WIRING, CONNECTIONS AND DEVICES, ETC., NECESSARY TO COMPLY WITH THE GROUNDING REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND AS SHOWN ON THE DRAWINGS. ALL EXPOSED NON-CURRENT CARRYING METALLIC PARTS OF THE ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, GROUNDING CONDUCTORS OF NONMETALLIC COVERED CABLE AND NEUTRAL CONDUCTOR OF THE WIRING SYSTEM SHALL BE GROUNDED.
 - ALL WIRING, UNLESS SPECIFICALLY SPECIFIED OTHERWISE, IS TO BE INSTALLED IN THE CONSTRUCTION IN A CONCEALED MANNER.
 - CONTRACTOR TO PROPERLY SEAL ALL FIRE RATED WALL/CEILING PENETRATIONS.
- GENERAL CONSTRUCTION NOTES**
- THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR, AND SUPERVISION TO DELIVER A COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS SYSTEM UNLESS SPECIFICALLY DEPICTED; AND IT IS PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.
 - THE PLANS ARE DIAGRAMMATIC IN NATURE. THE WORK REQUIRED TO PROPERLY INTERFACE WITH OTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF THIS WORK, IS PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER; THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.
 - ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK MUST BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE CONSTRUCTION PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO INSTALLATION TO ENSURE PROPER CLEARANCES AND CAPACITIES EXIST.
 - THE CONTRACTOR MUST BE LICENSED AND ENSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND ENSURED TO.
 - SINCE THE PLANS ARE DIAGRAMMATIC IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE THE CONTRACTOR INTENDS TO INSTALL WORK THAT INCLUDES SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE.
 - THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATIC CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES. THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.
 - THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECURITIES TO BE UTILIZED ON THIS PROJECT ONLY.
 - WHERE THE CONTRACTOR FURNISHES CERTAIN MODELS OR PROTOTYPES OF DESIGN SPECIFIED ON THE DRAWINGS, SPECIFIED DATA IS NOT NECESSARY. SIMPLY NOTIFY THE OWNER IN WRITING THAT THE SUBMITTED ITEM WILL BE USED AND PROCEED WITH THE WORK. IF EQUAL DEVIATIONS FROM THE SPECIFIED PRODUCT ARE UTILIZED, THE PRODUCT MUST BE SUBMITTED TO THE OWNER FOR APPROVAL. IT IS THE INTENT OF THE DESIGN TO MAKE A COMPETITIVE BID. EQUAL PRODUCTS WILL BE CONSIDERED AS SUBMITTED.
 - ALL SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH INDUSTRY ACCEPTED STANDARDS AND CODE REQUIREMENTS. ALL ELECTRICAL PHASES FOR THREE PHASE SERVICE SHALL BE BALANCED. AIR DISTRIBUTION SYSTEMS SHALL BE BALANCED, AND ALL OTHER APPLICABLE MEP SYSTEMS SHALL BE PROPERLY COMMISSIONED AND BALANCED.
 - ALL MEP SYSTEMS SHALL PROVIDE FOR NO POOLING OF WATER TO THE EXTENT POSSIBLE. THE SAFE PANS, TRAP PANS AND CONDENSER PANS SHALL ALL SLOPE TO AVOID POOLING OF WATER. IT IS ACCEPTABLE TO HAVE A 1/8" DEPTH POOL OF WATER IN CONDENSATE PANS DURING COOLING OPERATION.
 - ALL ACCESS PANELS SHALL BE LABELED BY THE TRADE THAT RECEIVES THE BENEFIT OF THE ACCESS PANEL. THE BUILDER PROVIDES MANY ACCESS DOORS FOR PLUMBING CLEANOUTS OR FIRE BARRIERS, BUT THE CONTRACTOR SHALL PROVIDE THE LABEL. THE LABEL SHALL BE WITH 3/8" HEIGHT LETTERS IN NON CARBONAD OR PAPER TYPE MATERIAL, PERMANENTLY AFFIXED TO THE ACCESS DOOR. DUCT ACCESS DOORS INSTALLED IN DUCTWORK SHALL BE MADE AND LABELED BY THE HVAC CONTRACTOR.
 - THE FIRE DAMPERS THAT PENETRATE THE CEILING ON THE DISCHARGE OF THE AIR HANDLER SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS PUBLISHED BY THE MANUFACTURER. SUBMIT THE ILLUSTRATION OF THE INSTALLATION OF THE INSTRUCTIONS PRIOR TO CONSTRUCTION AND THAT WILL SUFFICE AS THE DETAIL. THE DAMPER SHALL BE INSTALLED IN A SLEEVE WITH SIX INCHES OF THE PLANE OF THE CEILING AT A MINIMUM, COMPLETE WITH A DUCT ACCESS DOOR.
 - THE PLANS INDICATE QUANTITIES ON THE PLANS TO ENHANCE THE UNDERSTANDING OF THE DESIGN CONCEPT. THE QUANTITIES ARE RELIABLE, BUT NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE CORRECT QUANTITIES OF ITEMS REQUIRED TO DELIVER A COMPLETE FUNCTIONING BUILDING.
 - THIS PROJECT HAS AN UNUSUAL INTENSE MEP COORDINATION REQUIREMENT, AND IT IS THE RESPONSIBILITY OF THE MEP TRADES TO ENSURE THAT ALL ASPECTS OF THE WORK ARE PROVIDED TO DELIVER A COMPLETE AND FUNCTIONING MEP SYSTEM.
 - WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.

RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS FOR MEP:

AMICABLE COOPERATION OF THE DESIGN AND CONSTRUCTION TEAMS GENERALLY PRODUCES THE BEST RESULTS FOR THE OWNER. INVESTMENT IN THE DESIGN BY THE INSTALLING CONTRACTORS IS ALSO USUALLY BENEFICIAL FOR THE PROJECT. ANY REASONABLE CONTRACTOR SUGGESTIONS IN ADVANCE OF CONSTRUCTION WHICH ARE NOT AS-BUILT DRAWINGS, BUT ARE CONSIDERED NECESSARY FOR PERMIT OR CODE OFFICIAL INSPECTION PURPOSES, NOT FOR AS-BUILT PURPOSES) CONSTRUCTION PLAN CHANGES THAT THE OWNER AND ARCHITECT APPROVE SUGGESTED BY THE INSTALLING CONTRACTOR SHALL BE EXECUTED BY THE MEP DESIGN TEAM WITHOUT BUT ADDITIONAL CHARGE PROVIDED THEY ARE NOT EXTENSIVE.

THE MEP DESIGN IS PROVIDED PRIMARILY TO OBTAIN THE BUILDING PERMIT. IF THE JURISDICTION DID NOT REQUIRE PROFESSIONALLY ENGINEERED MEP PLANS, THE PROJECT WOULD LIKELY BE CONSTRUCTED AS A DESIGN AND BUILD PROJECT. ACCORDINGLY THE PLANS ARE NOT SHOP DRAWINGS. THE PLANS ARE NOT AS-BUILT DRAWINGS. THE PLANS DO NOT SHOW EVERY DIFFICULTY AND NUANCE ASSOCIATED WITH WHAT IS REQUIRED TO INSTALL A COMPLETE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A COMPLETE SYSTEM AS DIAGRAMMATICALLY DEPICTED ON THE PLANS. THIS WILL LIKELY INCLUDE PROVIDING ITEMS THAT ARE NOT SHOWN ON THE PLANS BUT REQUIRED TO DELIVER A COMPLETE SYSTEM. THE PLANS MAY BE CONSIDERED A PERFORMANCE BASED SPECIFICATION.

THE MEP CONTRACTORS MUST ANTICIPATE IN ADVANCE OF THE BID AND CONSTRUCTION THE REQUIREMENTS NECESSARY TO DELIVER A COMPLETE SYSTEM SO THAT THERE ARE NO REQUESTS FOR CHANGE ORDERS BASED ON ALLEGED PLAN OMISSIONS/ERRORS LATER IN THE PROJECT TO PROVIDE THE SYSTEMS ALREADY SPECIFIED ON THE PLANS. FOR EXAMPLE IF AN ELECTRICAL SWITCHGEAR ROOM IS CROWDED AND REQUIRES MORE COMPACT EQUIPMENT, LARGER SPACES, AND/OR OTHER CIRCUMSTANCES THE ELECTRICAL SWITCHGEAR CAPACITY SPECIFIED MUST BE INSTALLED WITHOUT ADDITIONAL CHARGE. FURTHER TO THIS EXAMPLE THE RESOLUTION MAY INVOLVE ENLARGING A ROOM BY DESIGN IN ADVANCE OF CONSTRUCTION, CONSIDERING REVIEW OF DIFFERENT EQUIPMENT OR OTHER SOLUTIONS. THE DESIGN TEAM WILL COOPERATE TO THE EXTENT REASONABLY POSSIBLE TO MITIGATE ANY UNANTICIPATED CIRCUMSTANCES TO PROVIDE A COMPLETE MEP SYSTEM. HOWEVER, AGAIN, NO CHANGE ORDERS SHALL BE APPROVED UNLESS IT IS ADDITIONAL SCOPE ITEMS THE OWNER AGREES TO FUND.

IT IS THE INSTALLING CONTRACTOR RESPONSIBILITY TO NOTIFY THE DESIGN TEAM IN ADVANCE OF ALL CONSTRUCTION WITH TIME TO REACT WHENEVER THERE COULD BE AN ISSUE THAT REQUIRES RESOLUTION TO INSTALL A COMPLETE CODE COMPLIANT MEP SYSTEM. THERE ARE FURTHER RESTRICTIONS SPECIFIED IN THE CONSTRUCTION DOCUMENTS AND THIS NARRATIVE IS BY NO MEANS LIMITING.

UNDER NO CIRCUMSTANCES WILL RE-ROUTING OF DUCTWORK OR PLUMBING PIPES BE CONSIDERED A CHANGE ORDER DUE TO UNANTICIPATED STRUCTURAL INTERFERENCES. THE ROUTING OF THE PIPES AND DUCTWORK SHOWN ON THE PLANS IS INTENDED TO ANTICIPATE THE MAJORITY OF STRUCTURAL INTERFERENCES BUT IT WILL NOT INCLUDE ALL OF THEM. THE ENTIRE DUCT OR PIPE SYSTEM MUST BE PLANNED IN ADVANCE TO AVOID RE-WORKING OR RE-ROUTING OF THIS WORK. COORDINATION WITH OTHER TRADES TO ACCOMMODATE THEIR WORK UNDER NO CIRCUMSTANCES WILL RE-INSTALLATION OF INCORRECT MATERIALS FOR THE APPLICATION BE CONSIDERED CHANGE ORDER, FOR EXAMPLE ALL EXPOSED WIRING IN THE GARAGE MUST UTILIZED METAL CONDUIT ENCASED UNDER THE FIRST FLOOR SLAB. PLUMBING RISERS TURNING THAT REQUIRE DROPPED FEETINGS AND THE LIKE IN ADVANCE OF THE BID AND CONSTRUCTION TO MINIMIZE UNANTICIPATED CONSTRUCTION REQUIREMENTS TO DELIVER A COMPLETE SYSTEM.

IT IS RECOMMENDED BUT NOT REQUIRED THAT THE MEP TRADES PROVIDE SHOP DRAWINGS IN ADVANCE OF CONSTRUCTION, ESPECIALLY IN THE SERVICE ENTRANCE ROOMS, UTILITY ROOMS, DWELLING HVAC CLOSETS AND OTHER AREAS TRADITIONALLY DESIGNED WITH CONFINED SPACES IN WOOD FRAME MULTI-FAMILY DWELLING STRUCTURES. IT IS THE RESPONSIBILITY OF THE MEP CONTRACTORS TO NOTIFY THE PRIME CONTRACTOR WHERE INSTALLATION OF THEIR TRADE WORK MAY REQUIRE INTENSE COOPERATION WITH OTHER TRADES SUCH AS CONCRETE ENCASED CONDUITORS UNDER THE FIRST FLOOR SLAB. PLUMBING RISERS TURNING THAT REQUIRE DROPPED FEETINGS AND THE LIKE IN ADVANCE OF THE BID AND CONSTRUCTION TO MINIMIZE UNANTICIPATED CONSTRUCTION REQUIREMENTS TO DELIVER A COMPLETE SYSTEM.

AGAIN, COOPERATION, ADVANCE PLANNING, ANTICIPATION OF DIFFICULTIES, SUGGESTIONS, AND THE LIKE WILL PRODUCE THE BEST RESULT FOR ALL CONCERNED PARTIES.

ELECTRICAL DEMOLITION AND ALTERATIONS

- THE ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ALL ELECTRICAL EQUIPMENT AND WIRING NO LONGER REQUIRED. HE SHALL CUT ALL EXISTING CONDUIT WHICH WILL NOT BE COVERED OR HIDDEN BY THE NEW CONSTRUCTION BACK TO THE CONCRETE CEILING AND FLOOR SLABS. THIS CONTRACTOR, IF FEASIBLE MAY UTILIZE ANY EXISTING CONDUIT, OUTLET BOXES OR JOINTION BOXES THAT DO NOT INTERFERE WITH THE NEW CONSTRUCTION. ALL EXISTING WIRING ON NOT BEING UTILIZED SHALL BE REMOVED BACK TO THE POINTS OF CONNECTION.
- ANY WIRING THAT IS TO REMAIN, WHICH RUNS THROUGH AREAS OF WORK SHALL REMAIN OPERATIONAL. IF ANY WORK INTERFERES WITH THE CONSTRUCTION, IT SHALL BE REROUTED AND REWORKED AS REQUIRED TO SATISFY THE NEW CONDITIONS.
- IF ANY EXISTING ELECTRICAL EQUIPMENT IS TO REMAIN FOR THE OPERATION OF SYSTEMS IN OTHER AREAS OF THE BUILDING, IT SHALL BE RELOCATED AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT.
- ANY INTERRUPTION OF BUILDING SERVICES TO ANY SECTION OF THE BUILDING SUCH AS ELECTRIC LIGHT AND POWER, FIRE ALARM SYSTEM, TELEPHONE SYSTEM AND THE LIKE SHALL BE SCHEDULED. THE ARCHITECT SHALL APPROVE ALL SCHEDULES BEFORE ANY INTERRUPTIONS ARE PERMITTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME WORK NECESSARY TO MEET THIS REQUIREMENT. IF INTERRUPTIONS MUST OCCUR DURING NORMAL HOURS AT THE BUILDING, THE ELECTRICAL CONTRACTOR SHALL, AT HIS EXPENSE, PROVIDE TEMPORARY SERVICES AS REQUIRED TO PERMIT THE NORMAL FUNCTIONING OF ALL FACILITIES DURING INTERRUPTION.
- THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE OF WORK AND BECOME THOROUGHLY FAMILIAR WITH ALL CONDITIONS BEFORE SUBMITTING BID. NO EXTRA COMPENSATION WILL BE PAID FOR EXTRA WORK, WHICH MAY ARISE BECAUSE OF FAILURE TO DO SO.
- IT SHOULD BE NOTED THAT THE NEW CONSTRUCTION IS TO BE CONNECTED TO AND INSTALLED IN EXISTING FACILITIES AND THE DRAWINGS GENERALLY SHOW ONLY THE NEW WORK THAT IS REQUIRED. UNLESS SPECIFICALLY INDICATED, AS TO OVERCOME ALL OBSTRUCTIONS AND DIFFICULTIES AT THE SITE, ALL SUCH WORK SHALL BE DONE IN FULL COOPERATION WITH THE ARCHITECT, WHO SHALL DECIDE AT THE SITE HOW SUCH WORK SHALL BE DONE.
- CONTRACTOR SHALL CHECK THE CONDITION OF ALL PANELBOARDS, CIRCUIT BREAKERS, AND WIRING TO REMAIN AND INFORM ARCHITECT OF ANY FAULTY EQUIPMENT. CONTRACTOR TO PROVIDE NEATLY TYPED PANEL SCHEDULE LISTING ALL NEW AND USED CIRCUITS.

NEC LOAD CALCULATIONS

Lafayette House Renovations
Existing Service: 400A, 120/240V 1-phase 3-wire

EXISTING LOADS:
GENERAL LOADS
LIGHTING & RECEIPTS (6200R2 @ 3W/R2) 18,600 VA
EXISTING GENERAL LOADS SUBTOTAL 18,600 VA

SPECIAL LOADS
ELECTRIC RANGES/OVENS (2@9000W) 18,000 VA
ELECTRIC CLOTHES DRYER 5,000 VA
SMALL APPLIANCE (2@1500W) 3,000 VA
REFRIGERATOR (3@1100W) 3,300 VA
CLOTHES WASHER 1,500 VA
DISHWASHER 1,200 VA
EXISTING SPECIAL LOADS SUBTOTAL 30,000 VA

HVAC LOADS
5.0 TON AC COMPRESSOR (1.9kW/ton) 9,500 VA
5.0 TON AC COMPRESSOR (1.9kW/ton) 9,500 VA
AIR HANDLERS (2@1100W) 2,200 VA
EXISTING HVAC LOADS SUBTOTAL 21,200 VA

NEW LOADS:
GENERAL LOADS
LIGHTING & RECEIPTS (570R2 @ 3W/R2) 1,710 VA
NEW GENERAL LOADS SUBTOTAL 1,710 VA

SPECIAL LOADS
ELECTRIC RANGE/OVEN 8,000 VA
ELECTRIC CLOTHES DRYER 5,000 VA
SMALL APPLIANCE (2@1500W) 3,000 VA
CLOTHES WASHER 1,500 VA
DISHWASHER 1,200 VA
REFRIGERATOR 3,300 VA
DISPOSAL 1,000 VA
NEW SPECIAL LOADS SUBTOTAL 20,800 VA

HVAC LOADS
2.0 TON DUCTLESS MINI SPLIT (1.9kW/ton) 3,800 VA
NEW HVAC LOADS SUBTOTAL 3,800 VA

COMBINED DWELLING LOAD PER NEC TABLE 220-30(4)
First 10kW@100% + Remaining @40% + HVAC @100% + Backup Heat @65%
Existing + New General Loads 20,310 VA
Existing + New Special Loads 50,800 VA
Existing + New HVAC Loads 25,000 VA
FIRST 10KW 10,000 VA
REMAINING @40% 24,444 VA
HVAC @100% 25,000 VA
COMBINED TOTAL LOAD 59,444 VA
CURRENT @240V/1 247.7 A

PANEL DEMAND LOAD CALCULATIONS

Lafayette House Renovations
Existing Panel "PP1" - 200A, 120/240V 1-phase with new dwelling sub-panel "A"

EXISTING PANEL "PP1" LOADS:
5.0 TON AC COMPRESSOR (1.9kW/ton) 9,500 VA
5.0 TON AC COMPRESSOR (1.9kW/ton) 9,500 VA
AIR HANDLERS (2@1100W) 2,200 VA
TOTAL EXISTING PANEL LOAD 21,200 VA

NEW DWELLING SUB-PANEL "A" LOADS:
GENERAL LOADS
LIGHTING & RECEIPTS (570R2 @ 3W/R2) 1,710 VA
NEW GENERAL LOADS SUBTOTAL 1,710 VA

SPECIAL LOADS
ELECTRIC RANGE/OVEN 8,000 VA
ELECTRIC CLOTHES DRYER 5,000 VA
SMALL APPLIANCE (2@1500W) 3,000 VA
CLOTHES WASHER 1,500 VA
DISHWASHER 1,200 VA
REFRIGERATOR 3,300 VA
DISPOSAL 1,000 VA
NEW SPECIAL LOADS SUBTOTAL 20,800 VA

HVAC LOADS
2.0 TON DUCTLESS MINI SPLIT (1.9kW/ton) 3,800 VA
NEW HVAC LOADS SUBTOTAL 3,800 VA

NEW DWELLING LOAD PER NEC TABLE 220-30(4)
First 10kW@100% + Remaining @40% + HVAC @100% + Backup Heat @65%
FIRST 10KW 10,000 VA
REMAINING @40% 12,510 VA
HVAC @100% 3,800 VA
TOTAL NEW DWELLING SUB-PANEL LOAD 26,310 VA
CURRENT AT 240V/1 109.6 A

COMBINED PANEL LOAD
EXISTING PANEL "PP1" LOAD 21,200 VA
NEW DWELLING SUB-PANEL "A" LOAD 26,310 VA
TOTAL NEW PANEL "PP1" LOAD 47,510 VA
CURRENT AT 240V/1 198.9 A

Therefore sub-panel "A" shall be rated for 125A.
Therefore the existing 200A panel "PP1" can be used.

Therefore the existing 400A service is sufficient.

PANEL PP1 - HOUSE POWER PANEL

200A MLO		240/120V 1-phase 3-wire						SERIES RATED 22,000 AIC										
LOCATION	A	B	LTG	REC	MIS	WIRE	CKT	BRKR	PHASE	BRKR	CKT	WIRE	MIS	REC	LTG	A	B	LOCATION
AHU							1	15/2	A	50/2	2							AC COMPRESSOR
---							3	---	B	---	4							AC COMPRESSOR
AHU							5	15/2	A	50/2	6							AC COMPRESSOR
---							7	---	B	---	8							EXISTING EQUIPT
---							9	20/1	A	20/1	10							EXISTING EQUIPT
EXISTING EQUIPT							11	125/2	B	15/1	12							EXISTING EQUIPT
NEW PANEL "A"	13,580	14,670					15	---	A	---	14							
---							17	---	B	---	16							
---							19	---	B	---	20							
---							21	---	A	---	22							
---							23	---	B	---	24							
---							25	---	A	---	26							
---							27	---	B	---	28							
---							29	---	A	---	30							
---							33	---	B	---	34							
---							35	---	A	---	36							
---							37	---	B	---	40							
---							39	---	A	---								
CONN LOAD:	13,580	14,670														0	0	
FDR AMPS: 240/1																		

Existing circuits & equipment to remain. See Panel Demand Load Calculations.

PANEL PP2 - HOUSE LIGHTING & RECEIPTS PANEL

200A MLO		240/120V 1-phase 3-wire						SERIES RATED 22,000 AIC										
LOCATION	A	B	LTG	REC	MIS	WIRE	CKT	BRKR	PHASE	BRKR	CKT	WIRE	MIS	REC	LTG	A	B	LOCATION
EXISTING EQUIPT							1	20/1	A									

1. SECTION 15100 - BASIC MECHANICAL REQUIREMENTS

PLUMBING SPECIFICATIONS Section 15400 - Plumbing

A. THE WORK OF EACH OF THE MECHANICAL SECTIONS INCLUDES FURNISHING AND INSTALLING THE MATERIAL, EQUIPMENT AND SYSTEMS COMPLETE AS SPECIFIED AND/OR INDICATED ON THE DRAWINGS. THE MECHANICAL INSTALLATIONS, WHEN FINISHED, SHALL BE COMPLETE AND COORDINATED, READY FOR SATISFACTORY SERVICE.

ALL WORK UNDER THIS CONTRACT SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE MUNICIPAL, STATE, COUNTY, NFPA AND 2009 ICC CODES THAT GOVERN EACH PARTICULAR TRADE.

B. THE CONTRACTOR SHALL MAKE APPLICATIONS AND PAY ALL CHARGES FOR ALL NECESSARY PERMITS, LICENSES AND INSPECTIONS AS REQUIRED UNDER THE ABOVE CODES. UPON COMPLETION OF THE WORK, THE CUSTOMARY CERTIFICATIONS OF APPROVAL SHALL BE FURNISHED.

C. NO MATERIALS OR EQUIPMENT SHALL BE USED IN THE WORK UNTIL APPROVED. BEFORE SUBMISSION OF THE SHOP DRAWINGS, AND NOT MORE THAN THIRTY (30) DAYS AFTER AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A COMPLETE LIST OF MATERIALS AND EQUIPMENT WHICH HE INTENDS TO FURNISH, GIVING MANUFACTURER AND CATALOG NUMBERS. A COMPLETE LIST OF PROPOSED SUBCONTRACTORS SHALL ALSO BE SUBMITTED.

D. THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS AND SHALL INSPECT THE EXISTING CONDITIONS OF THE SITE. FAILURE TO COMPLY WITH THIS REQUIREMENT WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLYING WITH THE INTENT OF THE CONTRACT DOCUMENTS.

E. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE PLUMBING INSTALLATIONS. DETAILS OF PROPOSED REPAIRS DUE TO ACTUAL FIELD CONDITIONS OR OTHER CAUSES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION. REWORKING OF COMPLETED ITEMS DUE TO IMPROPER FIELD COORDINATION SHALL BE AT THE CONTRACTOR'S EXPENSE.

F. PROVIDE SUFFICIENT ACCESS AND CLEARANCE FOR ALL ITEMS OF EQUIPMENT REQUIRING SERVICING AND MAINTENANCE, SUCH AS VALVES, CONTROLS, DRAINS, VENTS, SWITCHES, FILTERS, TRAPS, AND MAJOR ITEMS OF EQUIPMENT.

G. THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A RECORD AND INFORMATION BOOKLET. THE BOOKLET SHALL BE BOUND IN A THREE-RING LOOSE-LEAF BINDER. PROVIDE THE FOLLOWING DATA IN THE BOOKLET:

- CATALOG DATA ON EACH PIECE OF EQUIPMENT FURNISHED.
- APPROVED SHOP DRAWINGS ON EACH PIECE OF EQUIPMENT FURNISHED.
- MAINTENANCE, OPERATION AND LUBRICATION INSTRUCTION ON EACH PIECE OF EQUIPMENT FURNISHED.
- MANUFACTURER'S AND CONTRACTOR'S WARRANTIES.
- COMMISSIONING REPORTS.
- SCHEDULE/DESCRIPTION OF ALL SERVICE WORK/MAINTENANCE INSPECTIONS REQUIRED BY PARAGRAPHS D.P AND Q OF THIS SECTION.

I. THE ENTIRE NEW PLUMBING SYSTEM SHALL BE TESTED HYDROSTATICALLY BEFORE INSULATION COVERING IS APPLIED AND PROVIDED TIGHT UNDER THE FOLLOWING GAUGE PRESSURES:

SANITARY AND STORM WATER PIPING.....AS SPECIFIED BELOW
DOMESTIC WATER.....100 PSI
FIRE PROTECTION.....150 PSI

J. ALL SOIL, WASTE AND VENT PIPING SHALL BE TESTED BY THE CONTRACTOR. THE ENTIRE NEW DRAINAGE SYSTEM AND VENTING SYSTEM SHALL HAVE ALL NECESSARY OPENINGS PLUGGED AND FILLED WITH WATER TO THE LEVEL OF TEN (10) FEET ABOVE THE MAIN OR BRANCH BEING TESTED. THE SYSTEM SHALL BE TESTED WITH WATER FOR THIRTY (30) MINUTES WITHOUT SHOWING A DROP GREATER THAN FOUR (4) INCHES.

NOTE: IF ANY CODE OR AUTHORITY REQUIRES TESTING WHICH IS DIFFERENT THAN THE TEST LISTED ABOVE, THE MORE STRINGENT TEST SHALL BE PERFORMED.

K. UPON COMPLETION OF THE PLUMBING INSTALLATIONS, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS OF THE PLUMBING CONTRACT DRAWINGS WHICH SHALL BE LEGIBLY MARKED IN RED PENCIL TO SHOW ANY CHANGES AND DEPARTURES OF THE INSTALLATION AS COMPARED WITH THE ORIGINAL DESIGN. THEY SHALL BE SUITABLE FOR USE IN PREPARATION OF RECORD DRAWINGS.

L. ALL PIPING AND VALVE SYSTEMS SHALL BE IDENTIFIED WITH LABELS AND TAGS. MATERIALS SHALL BE MANUFACTURED BY SETON NAME PLATE CORPORATION.

M. ALL NEW PLUMBING INSTALLATIONS, INCLUDING ALL MATERIALS AND LABOR SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF OWNER ACCEPTANCE. THE ABOVE SHALL NOT IN ANY WAY VOID OR ABROGATE EQUIPMENT MANUFACTURER'S GUARANTEE OR WARRANTY. CERTIFICATES OF GUARANTEE SHALL BE DELIVERED TO THE OWNER.

N. CONTRACTOR SHALL ALSO PROVIDE ONE (1) YEAR FREE SERVICE TO KEEP THE EQUIPMENT IN OPERATING CONDITION. THIS SERVICE SHALL BE PROVIDED PER THE FOLLOWING SCHEDULE AND RENDERED UPON REQUEST WHEN NOTIFIED OF ANY EQUIPMENT MALFUNCTION.

O. IN ADDITION TO THE FIRST YEAR WARRANTY PERIOD, THE CONTRACTOR SHALL PROVIDE, AT NO ADDITIONAL COST TO THE OWNER, A MINIMUM OF FOUR (4) SERVICE CALLS AND MAINTENANCE INSPECTIONS PER BUILDING. A COMPLETE OUTLINE OF THE REQUIRED MAINTENANCE AND THE PREPARED SCHEDULE SHALL BE INCLUDED IN THE RECORD AND INFORMATION BOOKLET DETAILED IN SECTION 15100. BASIC MECHANICAL REQUIREMENTS, PARAGRAPH I, FOR REVIEW AND ACCEPTANCE BY THE OWNER/REPRESENTATIVE AND ENGINEER. THE INSPECTIONS ARE TO BE PERFORMED AT THREE (3) MONTH INTERVALS FOR A TOTAL OF FOUR (4) SERVICE CALLS AND INSPECTIONS DURING THE FIRST YEAR WARRANTY PERIOD (THREE (3) TIMES DURING THE YEAR PLUS THE ORIGINAL SYSTEM STARTUP COMMISSIONING).

THE SERVICE WORK AND INSPECTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- CLEAN DRAIN PANS AND DRAIN LINES;
- CHECK AND TIGHTEN ALL ELECTRICAL CONNECTIONS;
- INSPECT AND CLEAN ALL WATER STRAINERS;
- CHECK OPERATING PRESSURES;
- INSPECT ALL CONTROLS FOR CORRECT OPERATION AND CALIBRATE AS REQUIRED;
- PERFORM ALL MAINTENANCE AS OUTLINED IN THE EQUIPMENT MANUFACTURERS OPERATION AND MAINTENANCE MANUALS.

UPON COMPLETION OF EACH SCHEDULED INSPECTION, THE CONTRACTOR SHALL DELIVER TO THE BUILDING OWNER/OWNER'S REPRESENTATIVE WITHIN FORTY-EIGHT (48) HOURS OF COMPLETION, TWO (2) COPIES OF THE COMPLETED INSPECTION REPORT FOR RECORD PURPOSES.

P. THE PLUMBING OR SERVICE CONTRACTOR SHALL, AT THE NINTH MONTH, ADVISE THE OWNER OF THE TERMINATION DATE OF THE ABOVE SERVICE. THIS CONTRACTOR SHALL ALSO PROVIDE THE OWNER WITH A DETAILED PROPOSAL, REFLECTING ANNUAL ESCALATION, FOR THE CONTINUATION OF THE SERVICE AND INSPECTIONS DESCRIBED ABOVE.

2. SECTION 15200 - BASIC MECHANICAL PIPING MATERIAL & METHODS

A. PROVIDE ALL LABOR AND MATERIALS NECESSARY TO FURNISH AND INSTALL ALL PIPING SYSTEMS ON THE PROJECT, INCLUDING INTERIOR STORM, SANITARY, SANITARY VENT, DOMESTIC WATER, CONDENSATE DRAINAGE, HEATING WATER AND NATURAL GAS PIPING SYSTEMS.

B. PROVIDE DIELECTRIC COUPLINGS WHERE NON-FERROUS METAL PIPING IS JOINED TO FERROUS METAL PIPING. THE GASKET MATERIAL SHALL BE CAPABLE OF WITHSTANDING THE TEMPERATURES AND PRESSURES WITHIN THE PIPING SYSTEM IN WHICH INSTALLED. SUBMIT DIELECTRIC COUPLING AND GASKET MATERIAL FOR APPROVAL.

SECTION 15250 - MECHANICAL INSULATION

A. ALL DOMESTIC WATER PIPING SYSTEMS SHALL BE INSULATED WITH CLOSED CELL FOAM INSULATION FOR HOT WATER HEATING APPLICATIONS PER IECC AND AS REQUIRED TO PREVENT CONDENSATION.

B. ALL HYDRON/MECHANICAL PIPING WITH FLUID TEMPS ABOVE 105F OR BELOW 55F MUST BE INSULATED WITH R-4 MINIMUM.

3. SECTION 15300 - FIRE PROTECTION

PROVIDE INTUMESCENT FITTINGS WHERE PVC PIPING PENETRATES FIRE RATED PARTITIONS. FIRE PROTECTION SYSTEM BY DESIGN AND BUILD SPRINKLER CONTRACTOR.

4. SECTION 15400 - PLUMBING

C. All hangers for copper piping shall be copper clad, split ring swivel type, having rods with machine threads and threaded copper clad ceiling flange. Cast iron and steel piping supports shall be similar without copper clad and prime paint finish. Hangers for plastic piping shall be plastic.

D. Provide dielectric couplings where non-ferrous metal piping is joined to ferrous metal piping. The gasket material shall be capable of withstanding the temperatures and pressures within the piping system in which installed. Submit dielectric coupling and gasket material for approval.

A. The work covered by this section of the specifications consists of furnishing all labor, equipment and materials in connection with the rough-in, final setting and connections to all plumbing fixtures. The contractor shall carefully review the conditions at the site and all of the contract drawings to determine the extent of the plumbing work required.

B. All plumbing fixtures shall be complete in every detail with all trimmings and connections. All fixtures shall be designed to prevent the back flow of polluted water or waste into the water supply system.

C. The dwelling water heaters shall be manufactured by BRADFORD WHITE, GAS FIRED, 40 GPM INPUT, 40 GALLON MODEL, REGENT 4055A. A complete heater shall be rated as indicated on drawings and be listed by Underwriters' Laboratories. Heater shall have integral heat traps. Tank shall be factory fired with glass lining with 150 psi working pressure and equipped with extruded high density magnesium anode at 1/8" relief valve. The controls shall include a thermostat and a high temperature cutoff. The jacket shall provide full size control compartments for performance of service and maintenance thru front panel openings and enclose the tank with insulation. The drain valve shall be baked enamel finish. Heater shall have a three (3) year limited warranty for commercial installation, as outlined in the written warranty. Fully illustrated instruction manual shall be included. Refer to drawings for size, capacity and voltage.

D. Potable water systems shall be disinfect prior to use. The method to be followed shall be that prescribed by the Health Authority and code requirements.

GENERAL CONSTRUCTION NOTES

1. THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR, AND SUPERVISION TO DELIVER A COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS DESIGN UNLESS SPECIFICALLY DEPICTED AND IT IS PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.

2. THE PLANS ARE DIAGRAMMATICAL IN NATURE. THE WORK REQUIRED TO PROPERLY INTERFACE WITH OTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF THIS WORK, IS THE RESPONSIBILITY OF THE CONTRACTOR. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.

3. ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK EXECUTED IN A NEW AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE CONSTRUCTION PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO INSTALLATION TO INSURE PROPER CLEARANCES AND CAPACITIES EXIST.

4. THE CONTRACTOR MUST BE LICENSED AND INSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND INSURED TOID.

5. SINCE THE PLANS ARE DIAGRAMMATICAL IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE THE CONTRACTOR INTENDS TO INSTALL WORK THAT INCLUDES SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE.

6. THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATICAL WORK DEPICTED HEREIN. FURTHER, THE CONTRACTOR WARRANTS THAT, IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES, THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.

7. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO BE UTILIZED ON THIS PROJECT ONLY.

8. WHERE THE CONTRACTOR FURNISHES CERTAIN MODELS OR PROTOTYPES OF DESIGN SPECIFIED ON THE DRAWINGS, SUBMITTAL DATA IS NOT NECESSARY. SIMPLY NOTIFY THE OWNER IN WRITING THAT THE SPECIFIED ITEM WILL BE USED AND PROCEED WITH THE WORK. IF EQUAL DEVIATIONS FROM THE SPECIFIED PRODUCT ARE UTILIZED, THE PRODUCT DATA MUST BE SUBMITTED TO THE OWNER FOR APPROVAL. IT IS THE INTENT OF THE DESIGN TO MAKE A COMPETITIVE BID. EQUAL PRODUCTS WILL BE CONSIDERED AS SUBMITTER.

9. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.

RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS FOR MEP

AMICABLE COOPERATION OF THE DESIGN AND CONSTRUCTION TEAMS GENERALLY PRODUCES THE BEST RESULTS FOR THE OWNER. INVESTMENT IN THE DESIGN BY THE INSTALLING CONTRACTORS IS ALSO USUALLY BENEFICIAL FOR THE PROJECT. ANY REASONABLE CONTRACTOR SUGGESTIONS IN ADVANCE OF CONSTRUCTION WILL BE CONSIDERED AND/OR REVIEWED. ANY RESULTING NECESSARY FOR PERMIT OR CODE OFFICIAL INSPECTION PURPOSES, NOT FOR AS-BUILT PURPOSES) CONSTRUCTION PLAN CHANGES THAT THE OWNER AND ARCHITECT APPROVE SUGGESTED BY THE INSTALLING CONTRACTOR SHALL BE EXECUTED BY THE MEP DESIGN TEAM AS NECESSARY.

THE MEP DESIGN IS PROVIDED PRIMARILY TO OBTAIN THE BUILDING PERMIT. THE PLANS ARE NOT SHOP DRAWINGS. THE PLANS ARE NOT AS-BUILT DRAWINGS. THE PLANS DO NOT SHOW EVERY DIFFICULTY AND NUANCE ASSOCIATED WITH WHAT IS REQUIRED TO INSTALL A COMPLETE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A COMPLETE SYSTEM AS DIAGRAMMATICALY DEPICTED ON THE PLANS. THIS WILL INCLUDE PROVIDING ITEMS THAT ARE NOT SHOWN ON THE PLANS BUT REQUIRED TO DELIVER A COMPLETE SYSTEM. THE PLANS MAY BE CONSIDERED A PERFORMANCE BASED SPECIFICATION.

THIS PROJECT IS DESIGN BUILD. THE MEP CONTRACTORS MUST ANTICIPATE IN ADVANCE OF THE BID AND CONSTRUCTION THE REQUIREMENTS NECESSARY TO DELIVER A COMPLETE SYSTEM. THE DESIGN TEAM WILL COOPERATE TO THE EXTENT REASONABLY POSSIBLE TO MITIGATE ANY UNANTICIPATED CIRCUMSTANCES TO PROVIDE A COMPLETE MEP SYSTEM. HOWEVER, NO CHANGE ORDERS SHALL BE APPROVED UNLESS IT IS ADDITIONAL SCOPE ITEMS THE OWNER AGREES TO FUND.

IT IS THE INSTALLING CONTRACTOR RESPONSIBILITY TO NOTIFY THE DESIGN TEAM IN ADVANCE OF ALL CONSTRUCTION WITH TIME TO REACT WHENEVER THERE COULD BE AN ISSUE THAT REQUIRES RESOLUTION TO INSTALL A COMPLETE CODE COMPLIANT MEP SYSTEM. THERE ARE FURTHER RESTRICTIONS SPECIFIED IN THE CONSTRUCTION DOCUMENTS AND THIS NARRATIVE IS BY NO MEANS LIMITING.

UNDER NO CIRCUMSTANCES WILL RE-ROUTING OF DUCTWORK OR PLUMBING PIPES BE CONSIDERED A CHANGE ORDER DUE TO UNANTICIPATED STRUCTURAL INTERFERENCES. THE ROUTING OF THE PIPES AND DUCTWORK SHOWN ON THE PLANS IS INTENDED TO ANTICIPATE THE MAJORITY OF STRUCTURAL INTERFERENCES BUT IT WILL NOT INCLUDE ALL OF THEM. THE ENTIRE DUCT OR PIPE SYSTEM MUST BE PLANNED IN ADVANCE TO AVOID RE-WORKING OR RE-ROUTING OF THIS WORK. COORDINATION WITH OTHER TRADES TO ACCOMMODATE THEIR WORK IS ALSO REQUIRED. UNDER NO CIRCUMSTANCES WILL RE-INSTALLATION OF INCORRECT MATERIALS FOR THE APPLICATION BE CONSIDERED CHANGE ORDER, FOR EXAMPLE ALL EXPOSED PIPING IN THE GARAGE MUST UTILIZED METAL CONDUIT ENCASED CONDUCTORS AND THE USE OF NM CONDUCTORS (ROMEX) BY MISTAKE OR EVEN IF INADVERTENTLY SPECIFIED WILL NOT BE CONSIDERED A CHANGE ORDER TO REPLACE.

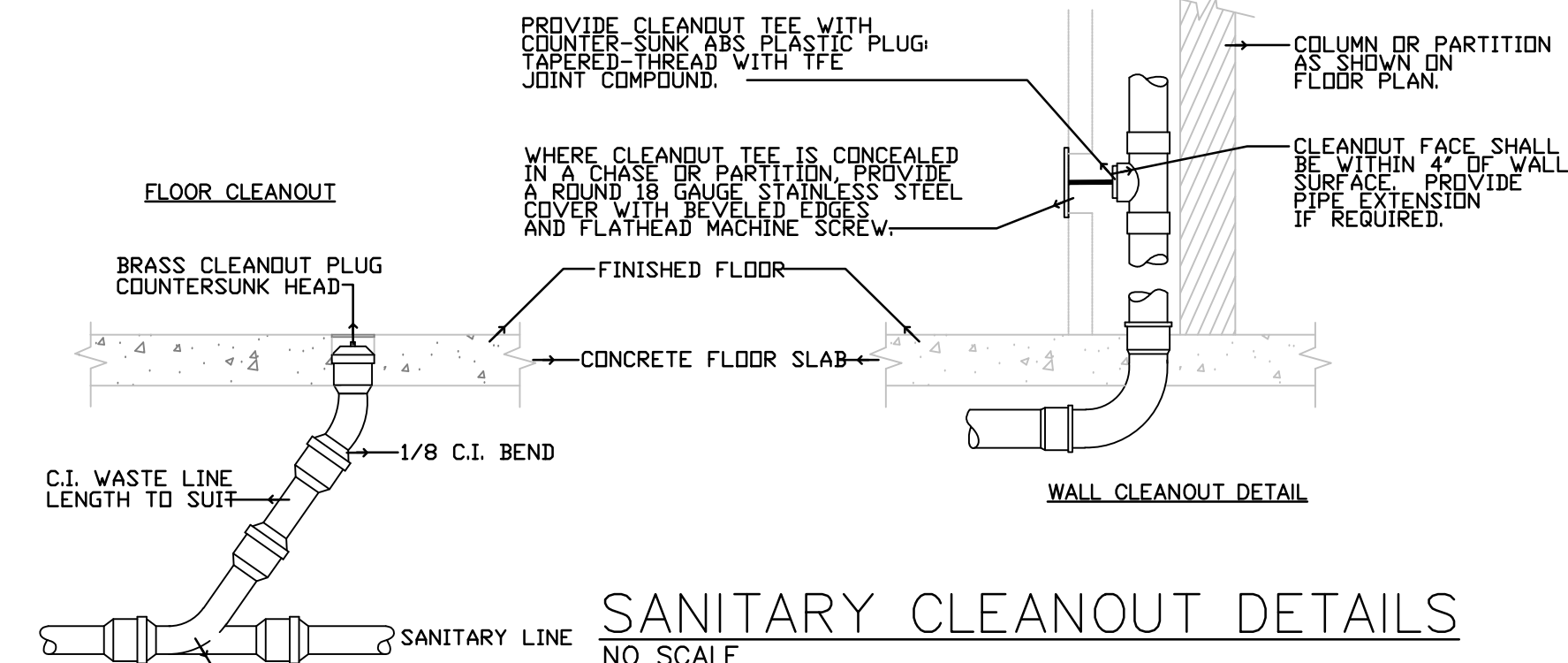
IT IS RECOMMENDED BUT NOT REQUIRED THAT THE MEP TRADES PROVIDE SHOP DRAWINGS IN ADVANCE OF CONSTRUCTION, ESPECIALLY IN THE SERVICE ENTRANCE ROOMS, UTILITY ROOMS, DWELLING HVAC CLOSETS AND OTHER AREAS TRADITIONALLY DESIGNED WITH CONFINED SPACES IN WOOD FRAME MULTI-FAMILY DWELLING STRUCTURES. IT IS THE RESPONSIBILITY OF THE MEP CONTRACTORS TO NOTIFY THE PRIME CONTRACTOR WHERE INSTALLATION OF THEIR TRADE WORK MAY REQUIRE INTENSE COOPERATION WITH OTHER TRADES SUCH AS CONCRETE ENCASED CONDUCTORS UNDER THE FIRST FLOOR SLAB. PLUMBING RISERS TURNS THAT REQUIRE DROPPED FOOTINGS AND THE LIKE IN ADVANCE OF THE BID AND CONSTRUCTION TO MINIMIZE UNANTICIPATED CONSTRUCTION REQUIREMENTS TO DELIVER A COMPLETE SYSTEM. AGAIN, COOPERATION, ADVANCE PLANNING, ANTICIPATION OF DIFFICULTIES, SUGGESTIONS, AND THE LIKE WILL PRODUCE THE BEST RESULT FOR ALL CONCERNED PARTIES.

PLUMBING FIXTURE SCHEDULE						
ITEM	FIXTURE	ROUGH-IN PIPE SIZES				REMARKS
		C.W.	H.W.	SAN.	VENT	
WC	WATER CLOSET	1/2"	-	3"	1 1/2"	INTEGRAL FLOOR MOUNTED, TANK TYPE
LAV	COUNTERTOP LAVATORY	1/2"	1/2"	1 1/4"	1 1/4"	*P*
TUB	TUB/SHOWER	1/2"	1/2"	1 1/2"	1 1/4"	*P*
SHWR	SHOWER	1/2"	1/2"	1 1/2"	1 1/4"	*P*
KS	SINGLE COMPARTMENT SINK	1/2"	1/2"	1 1/2"	1 1/4"	*P* WITH GARBAGE DISPOSAL
KD	DOUBLE COMPARTMENT SINK	1/2"	1/2"	1 1/2"	1 1/4"	*P* WITH GARBAGE DISPOSAL
WA	WASHING MACHINE	1/2"	1/2"	2"	2"	*P* WITH DDU-CLOZ VALVE
LT	LAUNDRY TUB	1/2"	1/2"	1 1/2"	1 1/4"	*P*
TUB	SPA TUB	1/2"	1/2"	2"	1 1/2"	*P*
MR	JANITOR'S MOP SINK	3/4"	3/4"	3"	2"	*P*

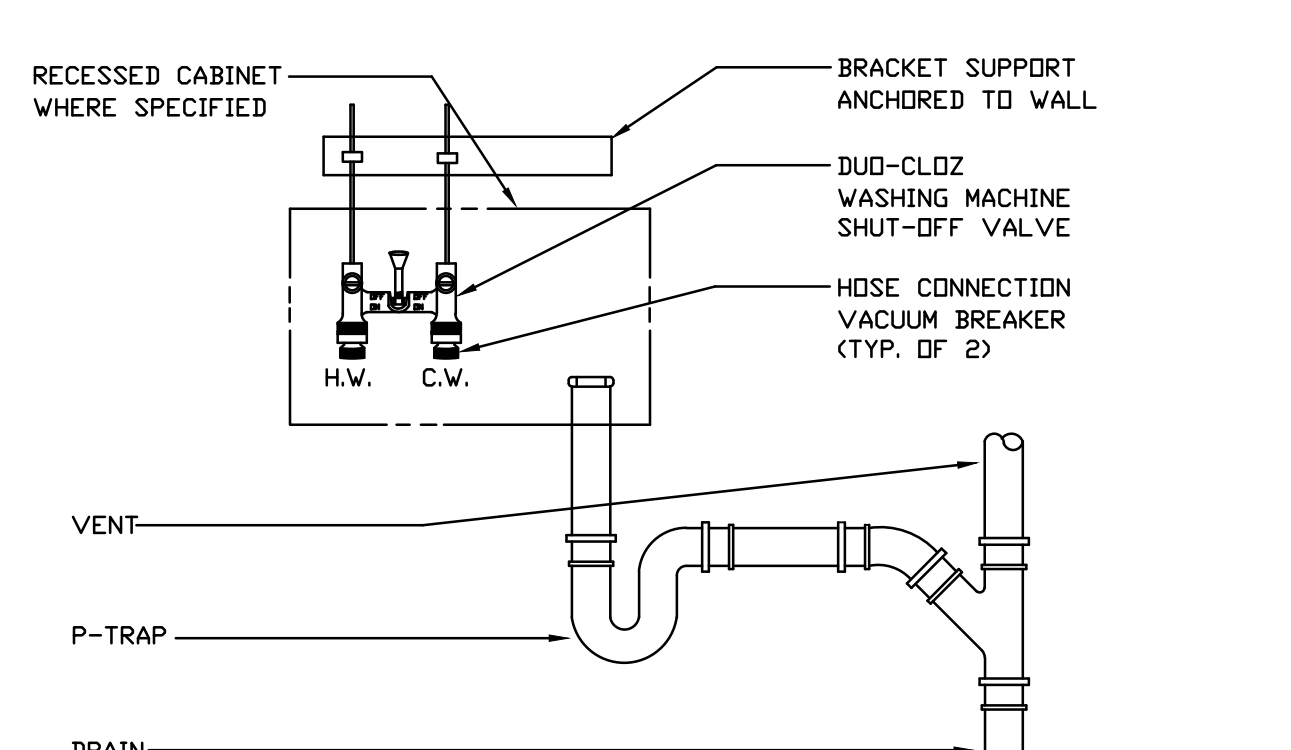
PLUMBING LEGEND & SYMBOL LIST			
(ALL ITEMS SHOWN MAY NOT APPEAR ON DRAWING)			
ACD ACCESS DOOR	LT LAUNDRY TUB	MC MECHANICAL CONTRACTOR	APR AIR PIPING
ADR AUTO DRAINER	MH MANHOLE	MOP RECEPTOR	DOMESTIC HOT WATER
AP ACCESS PANEL	MR MOP RECEPTOR	PRESSURE GAUGE	DOMESTIC WATER REGR.
BPS BED PAN SANITIZER	PRV PRESSURE REDUCING VALVE	RWC RAINWATER CONDUCTOR	FIRE PROTECTION
BT BATH TUB	RWC RAINWATER CONDUCTOR	SHWR SHOWER	GAS
CB CATCH BASIN	SP SPRINKLER	SS CORRUGATED METAL PIPE	NITROGEN OXIDE
CD CAST IRON	SS SPRINKLER	STK STACK	OXYGEN
CMP CORRUGATED METAL PIPE	SS SPRINKLER	TMR THERMOMETER	SANITARY SEWER
CO CLEANOUT	STK STACK	UR URINAL	STORM SEWER
CS CUP SINK	TMR THERMOMETER	V VENT	VACUUM
CW COLD WATER	UR URINAL	VACUUM BREAKER	VACUUM
DN DRINKING FOUNTAIN	V VENT	VTR VENT THRU ROOF	VACUUM BREAKER
DL DOOR LOUVER	VB VACUUM BREAKER	WA WASHING MACHINE	VENT
DN DOWN	VTR VENT THRU ROOF	WC WASHING MACHINE	ANGLE VALVE
DR DRYER	WA WASHING MACHINE	WCS WASHING MACHINE	AUTOMATIC AIR VALVE
EL ELECTRICAL CONTRACTOR	WC WASHING MACHINE	WCS WASHING MACHINE	AUTO THREE-WAY VALVE
FAI FRESH AIR INTAKE	WCS WASHING MACHINE	WCS WASHING MACHINE	AUTO TWO-WAY VALVE
FD FLOOR DRAIN	WCS WASHING MACHINE	WCS WASHING MACHINE	BALANCING VALVE
FHC FIRE HOSE CABINET	WCS WASHING MACHINE	WCS WASHING MACHINE	CHECK VALVE
FHR FIRE HOSE REACK	WCS WASHING MACHINE	WCS WASHING MACHINE	GATE VALVE
FX FIRE EXTINGUISHER	WCS WASHING MACHINE	WCS WASHING MACHINE	GLOBE VALVE
GB GREASE INTERCEPTOR	WCS WASHING MACHINE	WCS WASHING MACHINE	PLUG OR BALL VALVE
HB HOSE	WCS WASHING MACHINE	WCS WASHING MACHINE	PRESSURE REDUCING VALVE
HW HOT WATER	WCS WASHING MACHINE	WCS WASHING MACHINE	
HWR HOT WATER REGR.	WCS WASHING MACHINE	WCS WASHING MACHINE	
JC JANITOR'S CLOSET	WCS WASHING MACHINE	WCS WASHING MACHINE	
LAV LAVATORY	WCS WASHING MACHINE	WCS WASHING MACHINE	

PIPING MATERIAL SCHEDULE					
SYSTEM	SYMBOL	PIPE	FITTING	JOINT	REMARKS
SANITARY WASTE & VENT, (UNDERGROUND)	SAN SW	PVC FOAM CORE ASTM D 2665, ASTM F 1488, ASTM F 891	PVC, ASTM D 2665, ASTM F 1866	PVC SOLVENT SEALER, PURPLE PRIMER ASTM F 656, CEMENT ASTM D 2564, CSA B137.3 CSA B181.2 OR CSA B182.1	PVC PIPING SYSTEM: SOLID-WALL PVC PIPE ASTM D 2665, & FITTINGS MADE TO ASTM D3311 DRAIN, WASTE & VENT PATTERNS. VERTICAL STACK ALLOWED INSIDE DWELLING UNITS.
SANITARY WASTE & VENT, STORM DRAINAGE (ABOVE-GROUND)	SAN SW	PVC FOAM CORE ASTM D 2665, ASTM F 1488, ASTM F 891	PVC, ASTM D 2665, ASTM F 1866	PVC SOLVENT SEALER, PURPLE PRIMER ASTM F 656, CEMENT ASTM D 2564, CSA B137.3 CSA B181.2 OR CSA B182.1	PVC PIPING SYSTEM: SOLID-WALL PVC PIPE ASTM D 2665, & FITTINGS MADE TO ASTM D3311 DRAIN, WASTE & VENT PATTERNS. VERTICAL STACK ALLOWED INSIDE DWELLING UNITS.
DOMESTIC COLD WATER, HOT WATER SUPPLY & RETURN (ABOVE-GROUND)	CW HW	CPVC, ASTM D 2846, ASTM F 441, ASTM F 442 CSA B137.6	CPVC ASSE 1061, ASTM D2846, ASTM F 437, ASTM F 438, ASTM F 439, CSA B137.6	CPVC SOLVENT SEALER; ASTM F493	CPVC PIPING SYSTEM: ASTM D2846 SDR 11, PIPE AND SOCKET FITTINGS, ALLOWED INSIDE DWELLING UNITS.
NATURAL GAS (IF APPLICABLE)	G	BLACK STEEL PIPE, ASTM A53 GRADE B, TYPE S SEAMLESS SCHEDULE 40	BLACK MALLEABLE IRON THREADED FITTINGS	THREADED USING AMERICAN STANDARD FOR PIPE THREADS, ANSI B2.1 WITH THREAD SEALANT OR TEFLON TAPE MATERIAL, ESPECIALLY LISTED COMPATIBLE WITH SYSTEM CONTENTS, PIPE MATERIALS, AND OPERATING CONDITIONS.	SCHEDULE 40 BLACK STEEL PIPING;

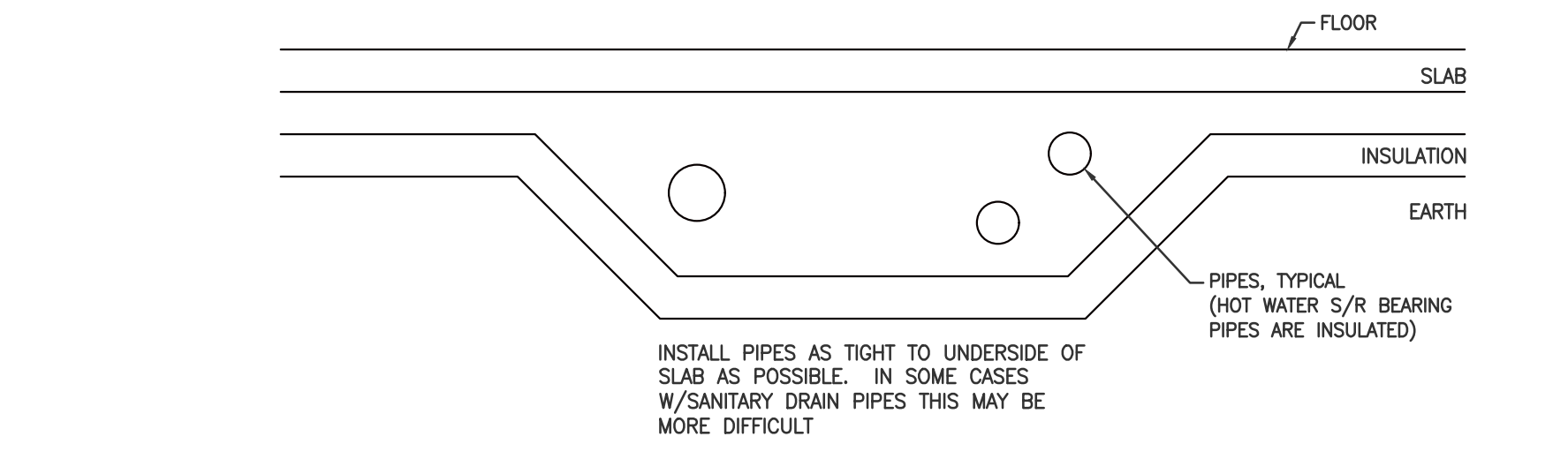
- NOTES:
- SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - CONTACT BETWEEN DISSIMILAR METALS SHALL BE MADE WITH DIELECTRIC COUPLINGS OR DIELECTRIC FLANGES. CONTACT BETWEEN FERROUS AND BOLTS AND BRONZE OR COPPER FLANGES SHALL BE ELECTRICALLY INSULATED WITH NON-METALLIC WASHERS. PROVIDE UNION CONNECTIONS TO ALL PNEUMATICALLY OPERATED EQUIPMENT.
 - INSTALLATION, INCLUDING SUPPORT SPACING, COMPENSATION FOR EXPANSION AND CONTRACTION, AND JOINING SHALL BE IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - JOINTS AND CONNECTIONS SHALL BE PERMANENT AND GAS AND WATER TIGHT. JOINTING SHALL BE TYPES SPECIFIED FOR SERVICE INDICATED. JOINTS AND CONNECTIONS SHALL MEET REQUIREMENTS OF MANUFACTURER'S BEST RECOMMENDED PRACTICE. ALL TRANSITIONS BETWEEN DIFFERENT PIPING MATERIALS SHALL BE USING APPROVED ADAPTERS. ADAPTERS FOR TRANSITIONS BETWEEN TWO TYPES OF PIPING MATERIALS SHALL BE MANUFACTURED FOR PURPOSE INTENDED.
 - ALL FLOOR DRAINS AND/OR PRODUCTS CONNECTED TO SPECIAL DRAINAGE SYSTEM MUST BE COORDINATED FOR CORROSION RESISTANCE, SIZE AND CONNECTION COMPATIBILITY PRIOR TO ORDERING ANY MATERIAL.



SANITARY CLEANOUT DETAILS
NO SCALE
NOTES:
1) FLOOR CLEANOUTS NOT TO BE LOCATED IN CARPETED AREA.
2) PROVIDE WALL CLEANOUTS (VCD) WHERE SHOWN ON PLANS AND IN SANITARY BRANCHES NOT SERVED BY A FLOOR CLEANOUT. CONSULT LOCAL CODES FOR OTHER VCD REQUIREMENTS.



WASHING MACHINE CONNECTION
NO SCALE
NOTE:
REFER TO FLOOR PLANS FOR PIPE SIZES.



UNDER SLAB PIPE DETAIL
SCALE: N.T.S.

CODES		PLUMBING SHEET INDEX	
2015 MC	P-1 PLUMBING NOTES & LEGEND	P-1	PLUMBING NOTES & LEGEND
2015 BC	P-2 PLUMBING DETAILS & RISERS	P-2	PLUMBING DETAILS & RISERS
2015 PC	P-3 FLOOR PLAN	P-3	FLOOR PLAN
2015 BC			
2017 NEC			

ALL DIMENSIONS, SIZES AND CAPACITIES MUST BE FIELD AND CODE VERIFIED.

PROJECT: LAFAYETTE HOUSE
PORTSMOUTH, NEW HAMPSHIRE

ARCHITECT: [Logo]
PROJECT ENGINEER: [Logo]

SCOT ENGINEERING
SINCE 1980
8000 BARNARD FCB COURSE SUITE 100 FARMERS ST. FARMER, VA 22039-2723
PH: 540-897-7222 FAX: 540-897-7223

JOSHUA W. CHAPMAN, P.E., LEED AP, PRINCIPAL

THE ASSOCIATION OF ENERGY ENGINEERS
IGSHA
International Ground Source Heat Pump Association

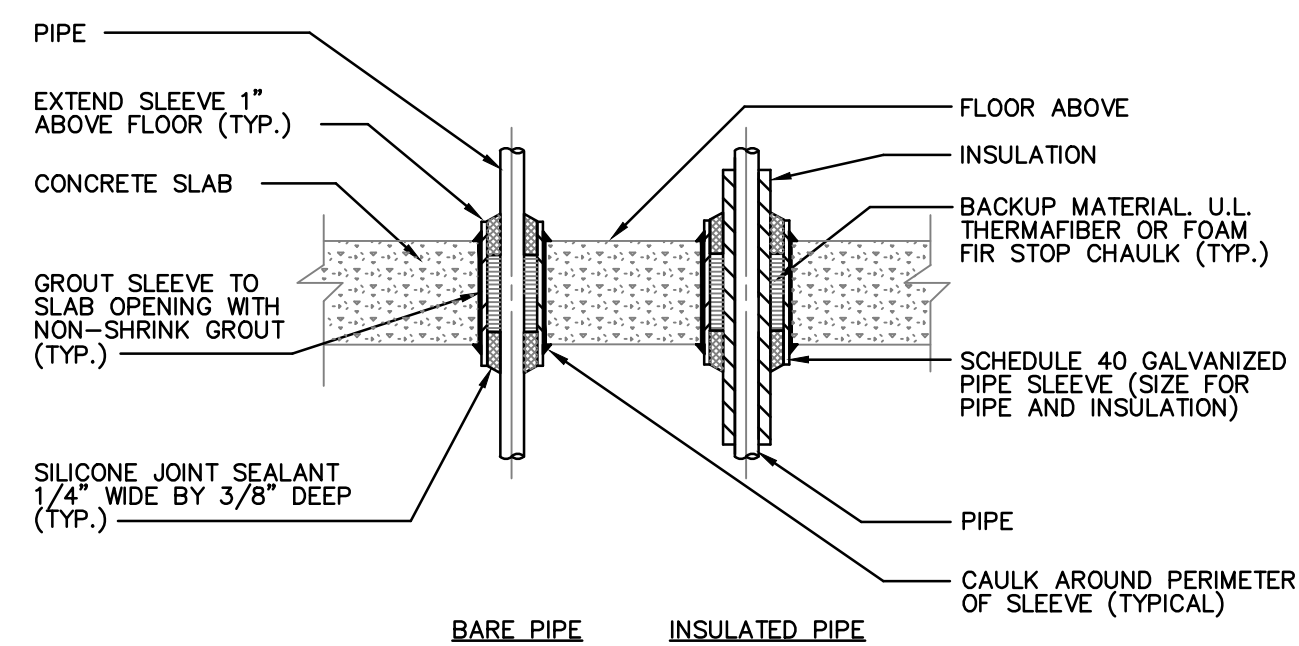
NEW HAMPSHIRE PROFESSIONAL SEAL
JOSHUA W. CHAPMAN, P.E., LEED AP, PRINCIPAL

REVISIONS

PLUMBING NOTES & LEGEND

DRAWING TITLE: PLUMBING NOTES & LEGEND
OWNER: [Logo]
DESIGNED BY: RSM/JWC
DRAWN BY: DPG/DMC
DATE: 10/10/2022
SCALE: AS NOTED
CHECKED BY: RSM/JWC

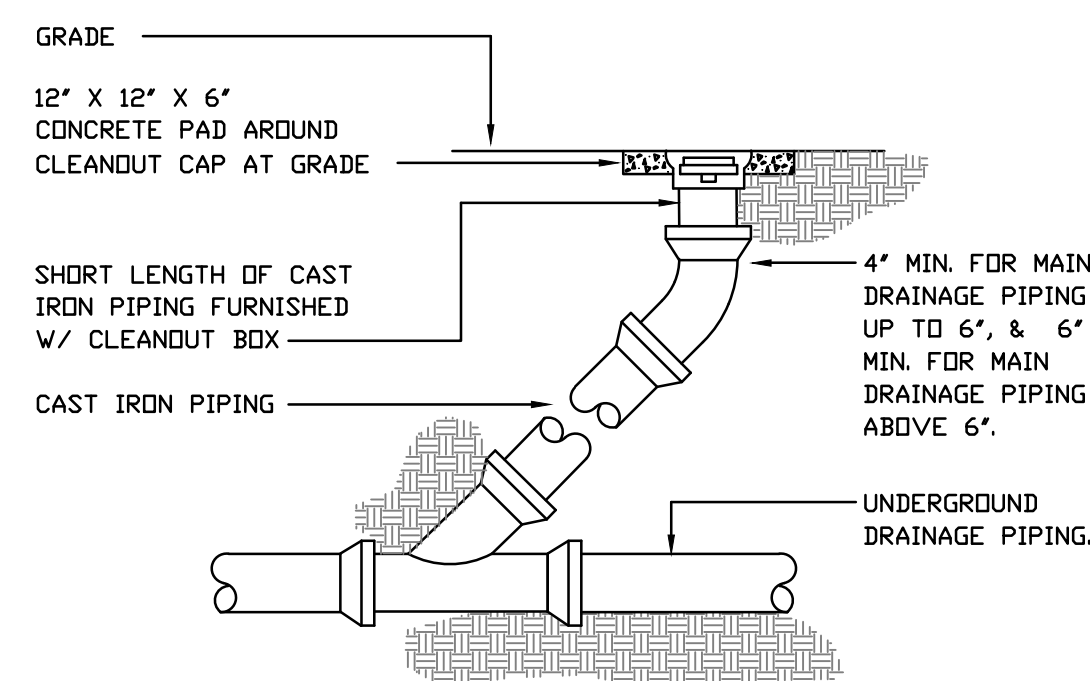
SHEET IDENTIFICATION
P-1



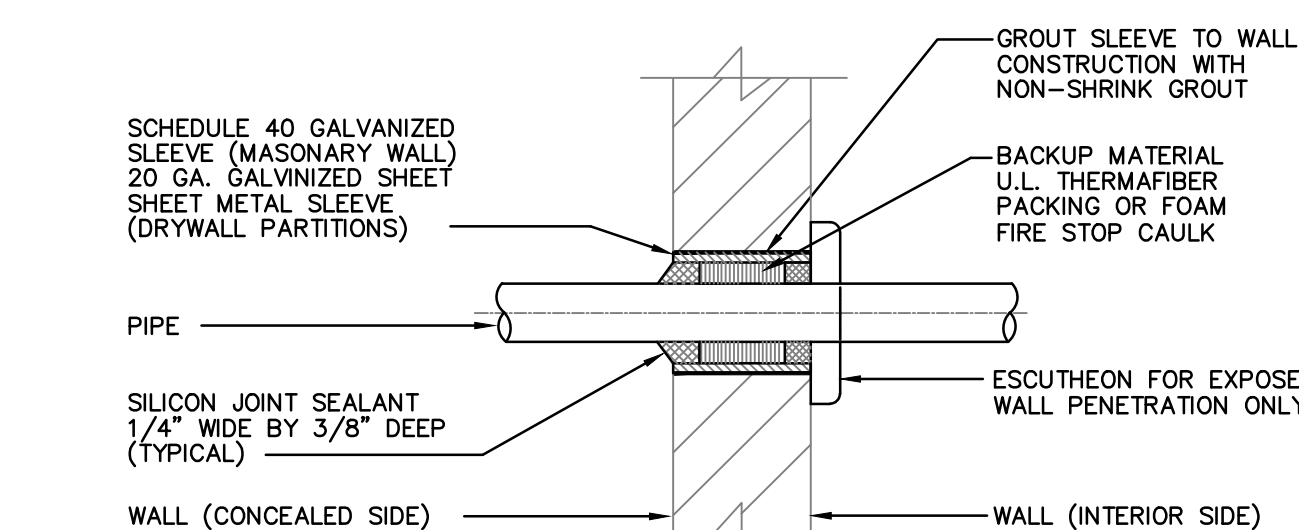
PIPE SLEEVE THRU CONCRETE SLAB DETAIL
NO SCALE

NOTES

- 1) AT THE CONTRACTOR'S OPTION A U.L. LISTED/APPROVED FIRE STOP PIPE SLEEVE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL.
- 2) GALVANIZED SLEEVE SHALL BE CAST INTO NEW CONCRETE WALL POURS.



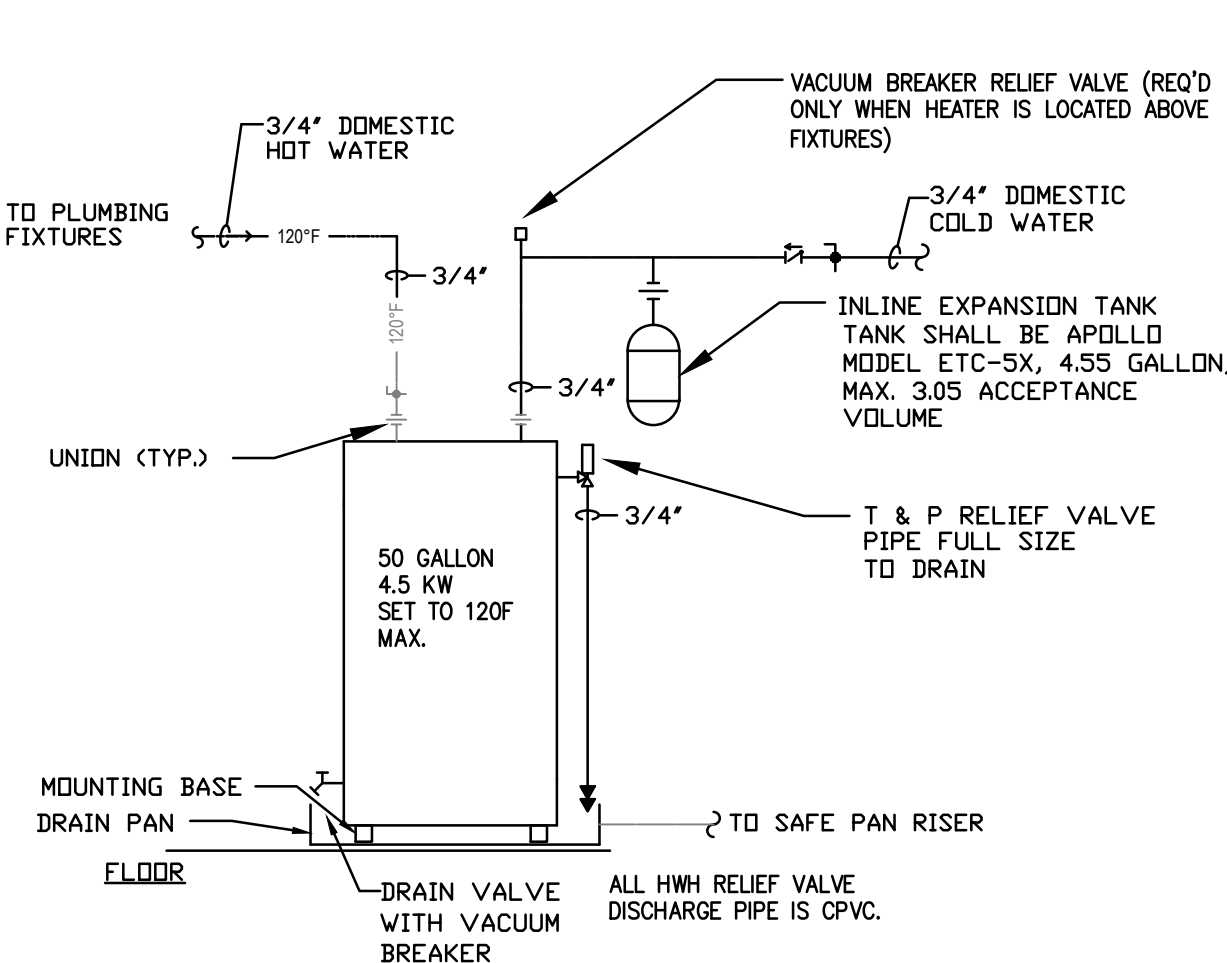
EXTERIOR CLEANOUT DETAIL
NO SCALE



PIPE SLEEVE FOR BARE PIPE THRU WALL DETAIL
NO SCALE

NOTES

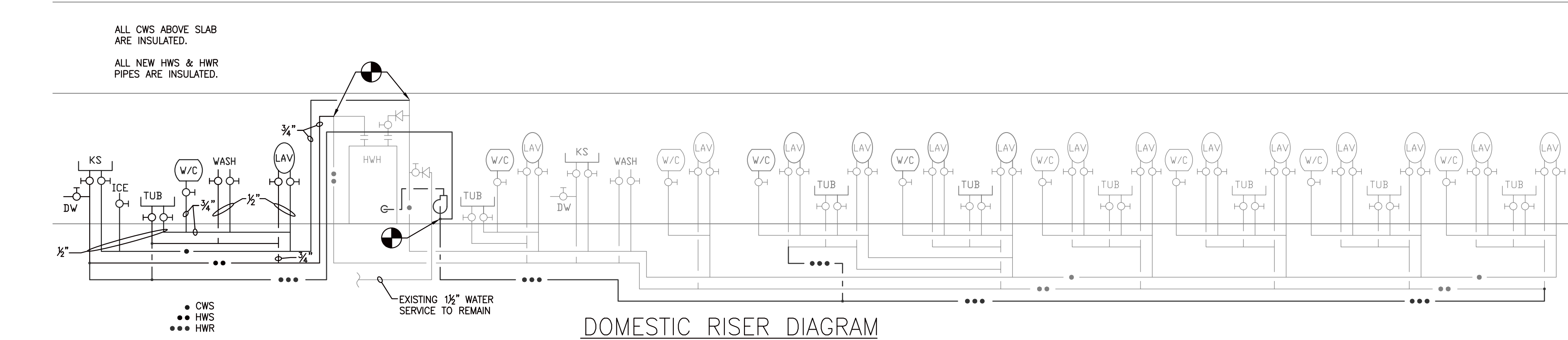
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- 2) GALVANIZED SLEEVE SHALL BE CAST INTO NEW CONCRETE WALL POURS.



ELECTRIC WATER HEATER PIPING SCHEMATIC
NO SCALE - Dwelling HWHs

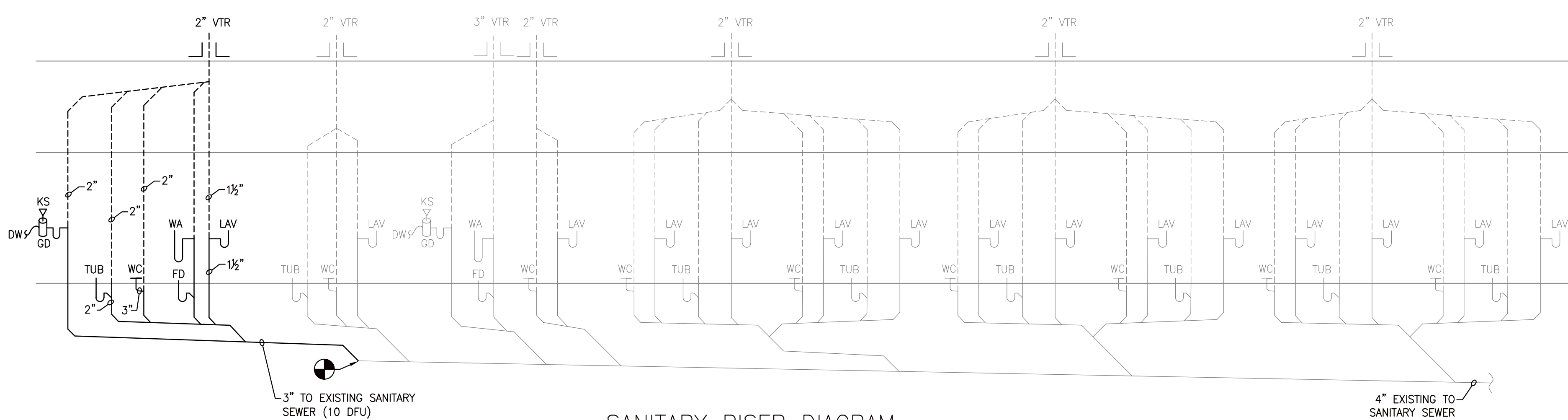
NOTE:

- 1) DRAIN PAN BELOW ELEC WATER HEATER SHALL BE 26\"/>



DOMESTIC RISER DIAGRAM
N.T.S.

WORK SHOWN IN BOLD IS NEW CONSTRUCTION.
WORK SHOWN IN LIGHT GRAY IS EXISTING TO REMAIN.

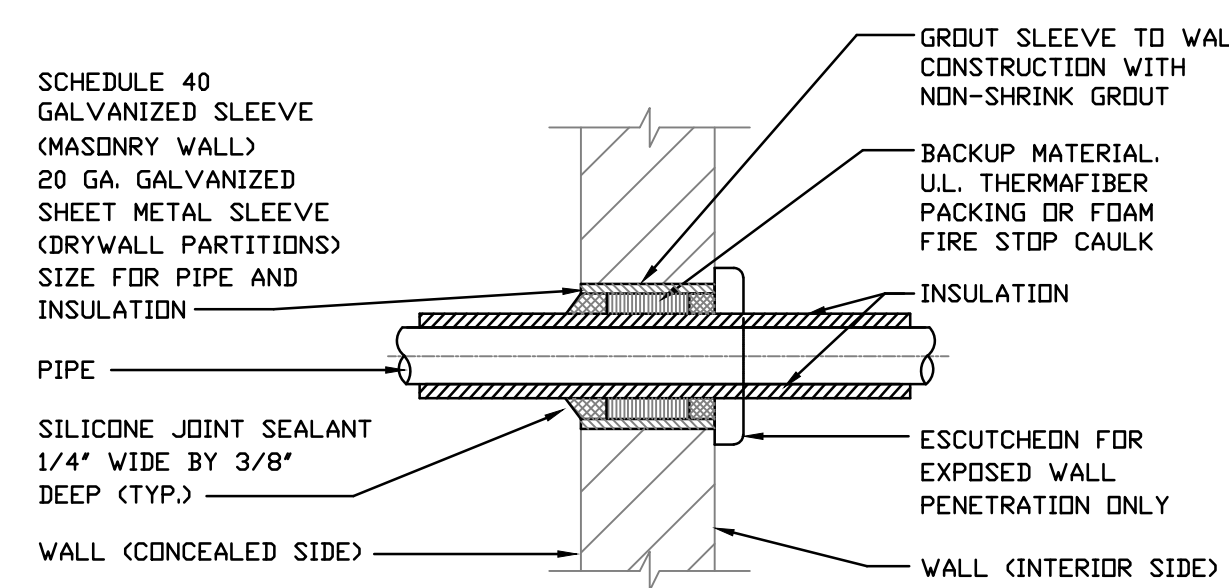


SANITARY RISER DIAGRAM
N.T.S.

4\"/>

GENERAL DEMOLITION NOTES

1. THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL LABOR, RENTAL EQUIPMENT, AND WORK NECESSARY TO REMOVE ALL ITEMS AT A MINIMUM THAT PERMIT THE INSTALLATION OF A NEW COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS DESIGN (UNLESS SPECIFICALLY DEPICTED) AND IT IS REMOVED AND/OR PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.
2. ALL CONDUITS, CONDUCTORS, PIPES, JUNCTION BOXES, VALVES, FIXTURES, HANGERS, HARDWARE, FASTENERS, ANCHORS, DUCT WORK, REGISTERS, GRILLES, HVAC EQUIPMENT AND THE LIKE SHALL BE REMOVED IN AREAS WHERE NEW WORK REPLACES EXISTING SO THAT THE PREVIOUS MATERIALS ARE NEVER CONFUSED WITH OR CONSIDERED A COMPONENT OF THE NEW WORK.
3. IN AREAS WHERE NEW WORK AND EXISTING WORK INTERFACE, ALL EXISTING WORK SHALL BE REMOVED TO THE EXTENT POSSIBLE AS DESCRIBED IN ITEM TWO ABOVE, AND AT THE POINT OF INTERFACE, ALL EXISTING WORK SHALL BE CAPPED AND MADE SAFE.
4. ALL REMOVED MATERIALS SHALL BE DEPOSED OF IN ACCORDANCE WITH ALL APPLICABLE ORDINANCES INCLUDING BUT NOT LIMITED TO THE EPA, SUCH AS HVAC REFRIGERANT RECOVERED, OILS DELIVERED TO RECLAIM FACILITY, AND ETC.
5. ALL MATERIALS THAT CAN BE RECYCLED SHALL BE RECYCLED, INCLUDING BUT NOT LIMITED TO COPPER, ALUMINUM, STEEL, HVAC DUCTWORK, METAL HANGERS AND FASTENERS, GARD BOARD, AND THE LIKE. DO NOT DISPOSE OF THESE MATERIALS IN A DUMPSTER.
6. THE PLANS ARE DIAGRAMMATICAL IN NATURE. THE WORK REQUIRED TO REMOVE AND PROPERLY INTERFACE WITH OTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF NEW WORK, IS PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.
7. ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK MUST BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE DEMOLITION AND CONSTRUCTION PLANNING PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO BEGINNING TO INSURE PROPER CLEARANCES AND CAPACITIES EXIST.
8. THE CONTRACTOR MUST BE LICENSED AND INSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND INSURED TOO.
9. SINCE THE PLANS ARE DIAGRAMMATICAL IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE DEMOLITION IN COMPLEX OR COULD AFFECT OTHER ASPECTS OF THE WORK OR THAT MAY INCLUDE SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUDING OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE.
10. THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATICAL WORK DEPICTED HEREIN. FURTHER, THE CONTRACTOR WARRANTS THAT, IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES, THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.
11. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO BE UTILIZED ON THIS PROJECT ONLY.
12. THE PLANS INDICATE QUANTITIES ON THE PLANS TO ENHANCE THE UNDERSTANDING OF THE DESIGN CONCEPT. THE QUANTITIES ARE RELIABLE, BUT NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE CORRECT QUANTITIES OF ITEMS REQUIRED TO REMOVE AND DELIVER A COMPLETE FUNCTIONING BUILDING.
13. THIS PROJECT MAY HAVE AREAS OF AN UNUSUAL INTENSE MEP COORDINATION REQUIREMENT, AND IT IS THE RESPONSIBILITY OF THE MEP TRADES TO INSURE THAT ALL ASPECTS OF THE WORK ARE PROPERLY REMOVED AND PROVIDED TO DELIVER A COMPLETE AND FUNCTIONING MEP SYSTEM.
14. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.



PIPE SLEEVE FOR INSULATED PIPE THRU WALL DETAIL
NO SCALE

NOTES

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- 2) GALVANIZED SLEEVE SHALL BE CAST INTO NEW CONCRETE WALL POURS.

ALL DIMENSIONS, SIZES AND CAPACITIES MUST BE FIELD AND CODE VERIFIED.
PROJECT: LAFAYETTE HOUSE
PORTSMOUTH, NEW HAMPSHIRE
ARCHITECT: JOSHUA W. CHAPMAN P.E., LEED AP, PRINCIPAL
SCOT ENGINEERING
CONSULTING ENGINEER
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8000 BURNING TREE COURT, SUITE 100, FARMINGTON, VT 05040-2723
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THIS DIAGRAMMATIC DESIGN IS NON TRANSFERABLE AND REPRESENTS A COMPLETE SYSTEM.

DESIGNED BY: RSM/JWC DATE: 10/10/2022
DRAWN BY: DPG/DMMIC
SCALE: AS NOTED CHECKED BY: RSM/JWC

OWNER: ...
TITLE: PLUMBING DETAILS & RISERS

SHEET IDENTIFICATION

P-2

THE ASSOCIATION of Energy Engineers
IGSHPA
International Ground Source Heat Pump Association

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