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HVAC Notes

HEATING VENTILATING AND AIR CONDITIONING SPECIFICATION

Provide all labour, material, equipment, and contractor's services necessary for complete installation of all work indicated in drawings or spelled out in the contract documents, in full conformity with requirements of Wisconsin building code and of all authorities having jurisdiction.

Secure permits, licenses, and certificates. Pay all fees and charges for all work installed certifying compliance with local codes and governing authorities. Deliver certificates to building owner prior to the commencement of work.

Contractor bidding this job shall visit and inspect the job site prior to submitting his bid. Contractor shall coordinate the site visit with building owner/architect. Contractor shall ask Architect/owner any questions he may have pertaining to building standards and existing conditions that may prohibit the proper installation of his work as per plans and specifications.

The removal and relocation of certain existing work may be necessary for performance of the general work. Contractor surveying the site shall provide all necessary changes required based on existing conditions for proper installation of new work and include all the materials and required work in his bid price. No allowance will be made for failure to do so. Coordinate timetable for all construction operations with building owner.

Materials and workmanship, unless otherwise noted, shall be in accordance with building standards. All materials and equipment shall be new unless otherwise noted.

All duct work and piping is shown as design intent and does not show all offsets, drops and rises of runs. Contractor shall allow in his bid price for drops and rises of duct work and piping to avoid obstructions.

Install all work to be readily accessible for operation, maintenance and repair. Minor deviations from the drawings may be made to accomplish this, but length which involve extra cost shall not be made without approval.

The contractor shall keep all equipment and materials and all parts of the building, exterior spaces and adjacent street, sidewalks and pavements, free from materials and debris resulting from the execution of this work. Excess materials and debris will not be permitted to accumulate either on the interior or the exterior. Provide for legal removal and disposal of all and debris from the building and site. Seal openings around ducts and piping through partitions, walls, floors and slabs (not in shafts) with mineral wool or other non-combustible materials and finish as determined by architect or existing building standards.

Provide all necessary flashing and counter flashing to maintain the waterproof integrity of this building as required by the installation or removal of pipes, ducts, conduits, and equipment. Provide sleeves for duct and piping and provide escutcheons. Contractor to follow manufacturer's recommendations and building standards for proper installation of equipment.

Contractor to coordinate all floor, wall, and slab penetrations, and exact location support all ceiling-mounted equipment, ductwork and piping. Provide sufficient space for framing in the ceiling. Minimum clearances between overhead construction does not permit fastening of supports and equipment, provide additional restraints. For room-mounted equipment, provide appropriate keeping pads. Contractor shall furnish and install all equipment, ductwork, interconnecting piping, and fittings, insulation, interlock and controls. Contractor is responsible for field conditions and field coordination with other trades.

Equipment shall be handled and installed by the contractor. Contractor shall provide and install all interconnecting piping, refrigerant charge and control wiring as required for a complete and operable installation. This contractor is to assume complete responsibility for handling, installation and all piping connections as required.

This contractor shall provide and assume complete responsibility for start-up and 24-hour/day service with a response time not to exceed 4 hours. Provide a quote for maintenance on a quarterly basis (4 maintenance inspections a year) for a period of one year for all HVAC equipment including pre-purchased equipment as if said pre-purchased equipment were purchased by this contractor.

Contractor to handle all maintenance requests for the right operation of this system and update the drawings and specifications as required. Equipment exposed to natural elements shall be of welded or soldered construction and shall receive one (1) coat of primer and two (2) coats of paint.

This one year maintenance contract shall include, but is not limited to the following work:

1. Check lines for leakage of refrigerant/water.
2. Replace lines if necessary.
3. Lubricate compressors.
4. Check operation of thermostats.
5. Replace return air filters.
6. Clean condenser coils.
7. Check for loose electrical connections.
8. Check controls.
9. Check for noise and vibration.
10. Check for any damage during operation.
11. Check current (ampere) draw of all motors.
12. Check operation on condensate drain system.
13. Check and adjust fan belt tension (If applicable).
14. Check air temperature across evaporator.

A maintenance report that shall be forwarded to the owner's facilities operation manager/team/company.

Guarantee: Contractor shall furnish a written guarantee to replace or repair promptly, and assume full responsibility of all expenses incurred for any workmanship and/or equipment in which defects occur within one year from date of acceptance by owner.

Provide 2-color engraved nameplates (fastened with epoxy cement) on all major equipment items indicating unit number.

Submit: Submit coordinated shop drawings and equipment cuts for all equipment, diffusers/registers, automatic control diagrams, ductwork layout, piping layout, and sheet metal construction standards for review and approval prior to purchase, fabrication and installation.

All ductwork and equipment layout shall be submitted on a scale 1/4"=1'-0" drawings, and shall be coordinated and signed by all trades.

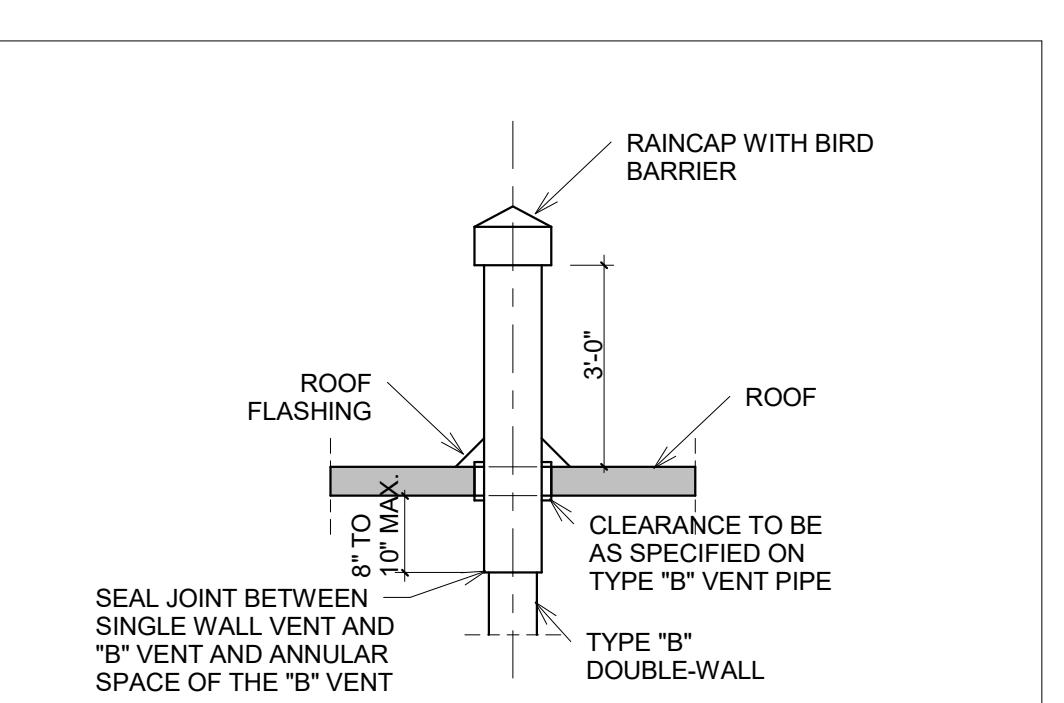
Show dimensions shall be in inches of all existing and new equipment, existing work and new work.

Submit reproducible "as-built" record drawings for building files at completion of the project, to include ductwork, piping, and equipment drawings. Scale 1/4"=1'-0".

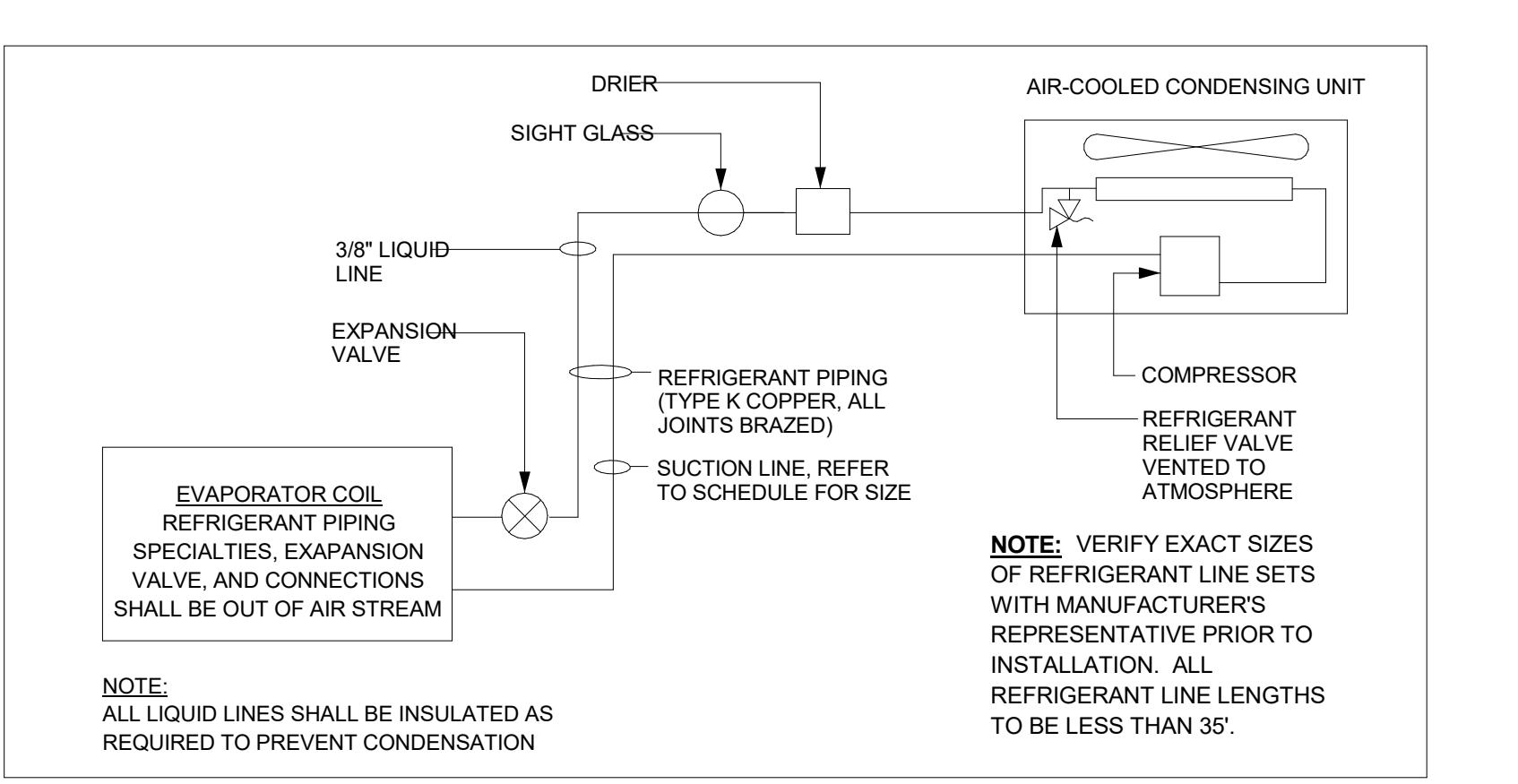
HVAC Notes

12" = 1'-0"

Ventilation & Air distribution schedule												
Level	Number	Name	Area	Max occupancy	Ventilation Air	Specified Lighting Load per area	Specified Power Load per area	Heating Supply Air	Cooling Supply Air	Heating Return Air	Cooling Return Air	Exhaust Air
1st Floor	5	Bed room 1	114 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	180 CFM	110 CFM	180 CFM	110 CFM	
1st Floor	9	Bedroom 2	128 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	110 CFM	70 CFM	110 CFM	50 CFM	
1st Floor	12	Toilet 3 & 6	54 SF	0	0 CFM	0.00 W/ft ²	0 CFM					
1st Floor	13	Bed room 6	143 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	120 CFM	140 CFM	120 CFM	140 CFM	
1st Floor	14	1/2 Corridor	168 SF	0	0 CFM	1.00 W/ft ²	0.75 W/ft ²	130 CFM	110 CFM	130 CFM	110 CFM	
1st Floor	15	Bed room 5	117 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	140 CFM	100 CFM	140 CFM	100 CFM	
1st Floor	16	Bed room 4	136 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	220 CFM	130 CFM	220 CFM	130 CFM	
1st Floor	CLOS 7	Toilet 1	37 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM		0 CFM		50 CFM
1st Floor	CLOS 8	Toilet 2	37 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM		0 CFM		50 CFM
1st Floor	CLOS 9	Toilet 5	40 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM		0 CFM		50 CFM
1st Floor	CLOS 10	Toilet 4	35 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM		0 CFM		50 CFM
1st Floor	11	Bedroom 3	120 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	90 CFM	90 CFM	90 CFM	110 CFM	
2nd Floor												
2nd Floor	18	Bedroom 7	99 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	120 CFM	110 CFM	120 CFM	110 CFM	
2nd Floor	20	Bedroom 8	99 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	100 CFM	100 CFM	110 CFM	110 CFM	
2nd Floor	22	Toilet 7	38 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM		0 CFM		50 CFM
2nd Floor	23	Toilet 8	38 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM		0 CFM		50 CFM
2nd Floor	25	Storage	65 SF	0	0 CFM	1.00 W/ft ²	0.75 W/ft ²	100 CFM	100 CFM	170 CFM	170 CFM	
2nd Floor	CLOS 5	Living	226 SF	8	60 CFM	1.00 W/ft ²	0.75 W/ft ²	270 CFM	280 CFM	270 CFM	280 CFM	
2nd Floor	CLOS 6	Dining 1	409 SF	18	135 CFM	1.00 W/ft ²	0.75 W/ft ²	240 CFM	550 CFM	240 CFM	550 CFM	
2nd Floor	CLOS 12	Toilet storage	37 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM		0 CFM		50 CFM
2nd Floor	2	Patio	286 SF	0.930651	7 CFM	1.00 W/ft ²	1.30 W/ft ²					
Basement	10	Basement	347 SF	1,128029	8 CFM	1.00 W/ft ²	1.30 W/ft ²					1780 CFM
				Grand total: 22								



④ Flue Termination NTS



⑤ Refrigeration Detail NTS

Ducting & air distribution work:
Except as noted, all ductwork and other sheet metal work shall be in accordance with latest edition of sheet metal and air conditioning contractor's national association, Inc. (SMACNA), "duct manual and sheet metal construction for ventilating and air conditioning systems, section 1 - low velocity systems". Metal gauge as per SMACNA recommended guidelines.

All ductwork shall be galvanized sheet unless otherwise noted:
Minimum ductwork static pressure construction shall be 2 in. w.c. All ducts shall be seal class 'a'. Duct flange systems shall be bolted at corners, with corner inserts, if sheet metal is used, not clamped and integral stiffeners.

If galvanized ductwork is to be used, it must be of the same thickness as the ductwork. Ducts shall be sealed at all joints. Ducts shall be insulated with flexible duct material while not exceeding 0.1 per 100 feet static pressure to ensure a relatively quiet system.

Note criteria for the above applications that shall not exceed 30.

Duct connections to air terminals may be made with flexible duct such that the length of the flex ducts does not exceed 6'.

Volume dampers, galvanized sheet, per SMACNA "low velocity manual", except provide bearing at one end of damper rod and quadrant, with lever and locks crew at another end. For insulated ducts, quadrants mounted on collar to clear insulation, install with levers accessible. Balancing dampers shall be the opposed blade type.

Access doors: insulate or un-insulated, same as duct.

Provide minimum access door on main duct & location where fire dampers are installed. Access door shall be enough of duct cleaning & damper servicing.

All access doors to be hinged and sealed as per IMC sealing requirements.

Flexible connections: neoprene coated fabric, 30 oz. Per sq. ft. With sewed and cemented seams, like vent fabrics. Provide flexible connections between all equipment and rigid ductwork.

Turning vanes: galvanized steel, small double thickness vanes with minimum 2" inside radius.

Thermal and sound insulation:

All materials of insulation shall be of the kind and quality as manufactured by armstrong, certain-teed, johns-manville, knauf, owens-corning and pittsburgh. All material and any equipment specified shall be thoroughly tested and approved prior to applying the insulation and method of application shall be as follows: the insulation shall be applied and is to meet or exceed r-value and b requirements.

Thermal and sound insulation application and material:

1. All supply and return air plenums located within the upper level ceiling cavities and in ducts of exterior locations, and in all other areas where ductwork is exposed, they shall be wrapped with two-inch (2") thick, three-quarter pound (3/4 lb.) density glass fiber with a reinforced foil / kraft (FO) vapor retarder facing.
2. All furnace return air plenums and ductwork approximately ten feet (10') away from furnace inlet shall be lined with one-half inch (1/2") thick, three-pound (3 lb.) density glass fibre sound insulation. The insulation shall have a black pigmented high velocity (+4000 rpm) facing set to the air stream side. Lined sizes are not indicated on drawings.

3. All refrigerant suction lines shall be covered with three-eighth inch (3/8") thick closed cell insulation.

Registers & grilles:

All terminals (registers and grilles) shall be sized based on the following criteria:

- Supplies — near ceiling 500 to 600 fpm velocity
- Returns — high 600 to

FYF LLC.

Owner: FYF LLC,
43 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno Solutions

Plumbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX, 76302
roberto@zenteno.net | 832.449.9278



Desapex

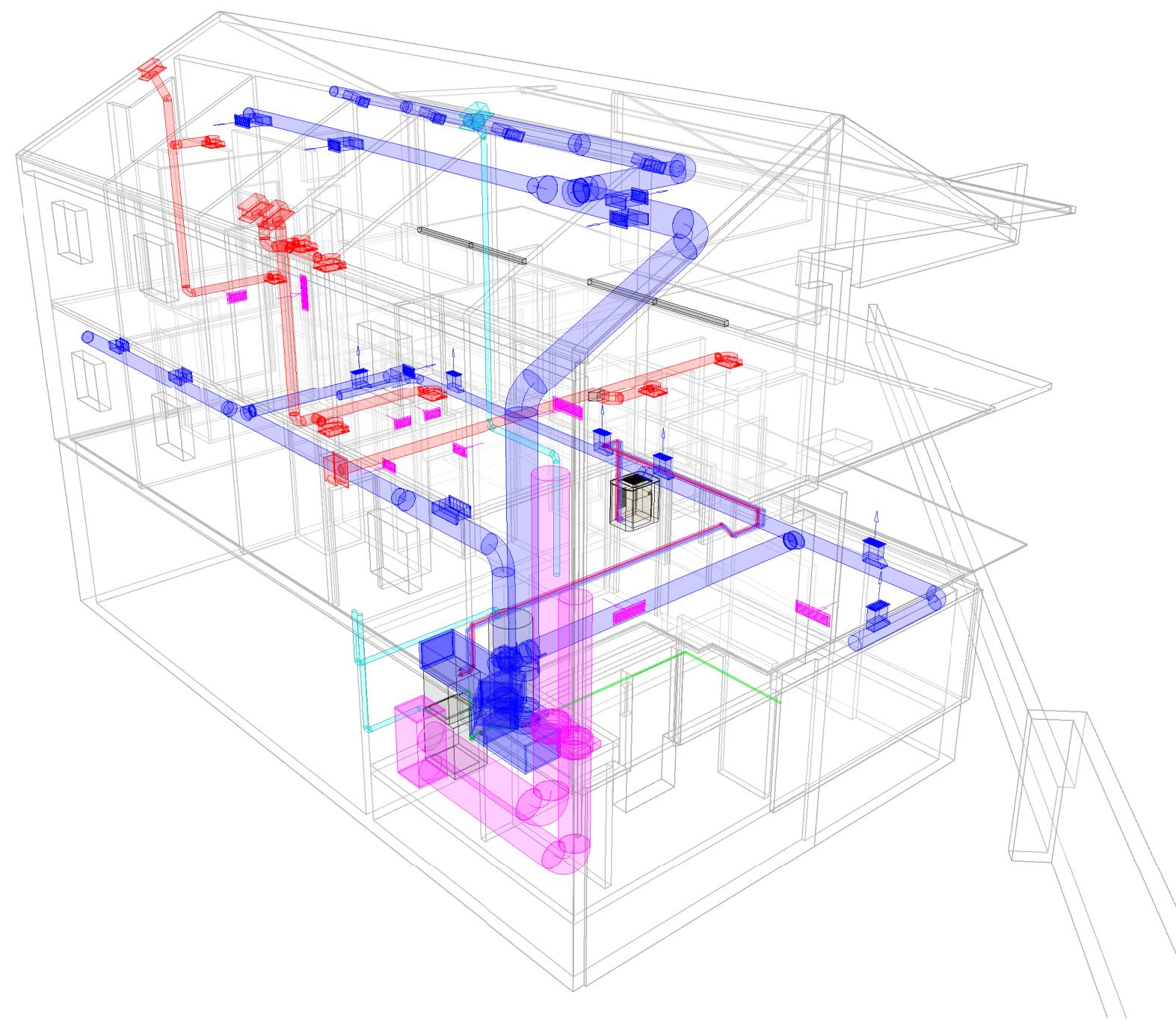
#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com

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① Basement - RCP

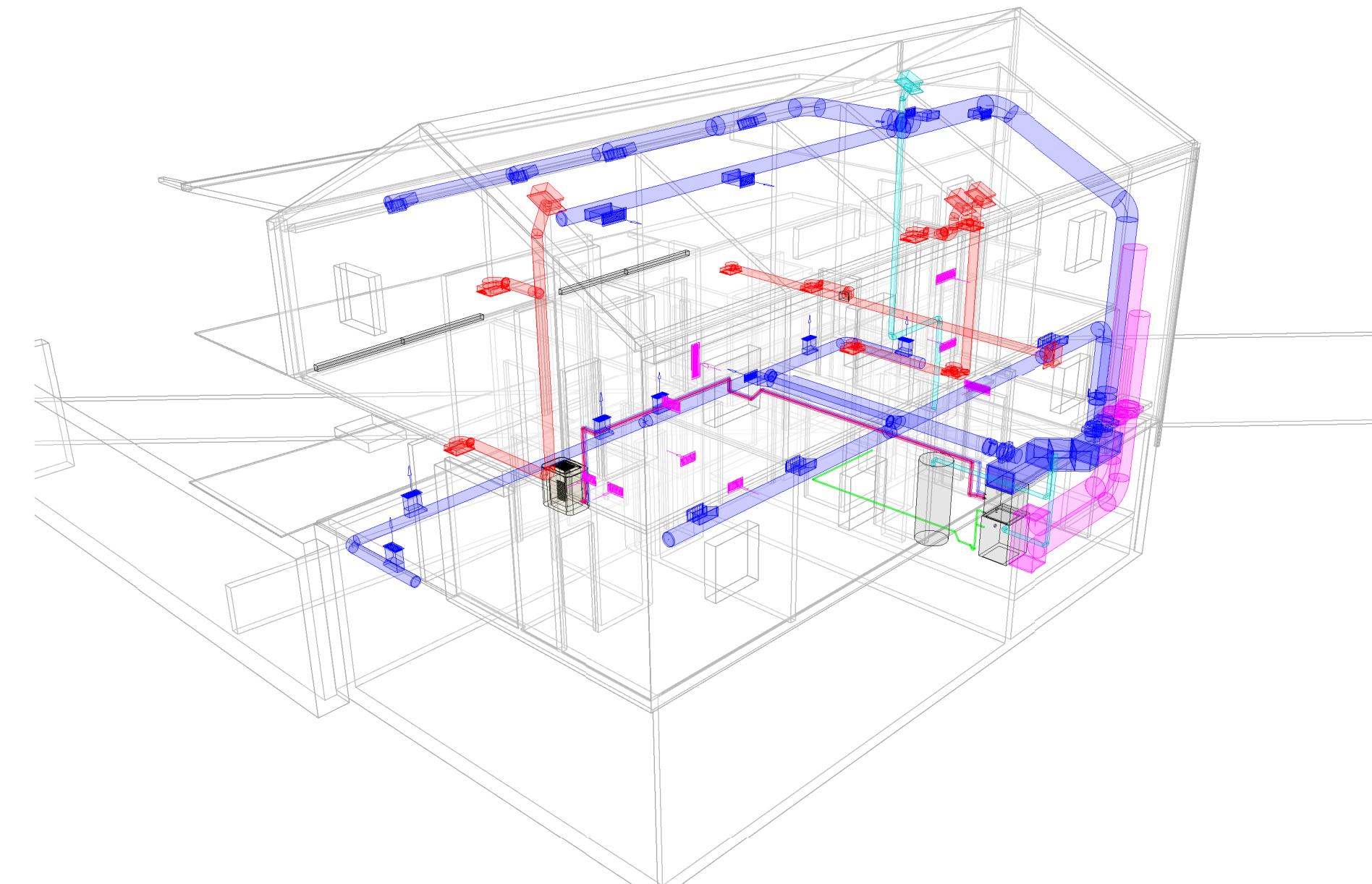
$1/4'' = 1'-0''$



③ Perspective 1

② Roof Plan

$1/4'' = 1'-0''$



④ Perspective 2

HVAC Basement & Roof plan
Lake Geneva | Enter address here



open^{ing}design

Architect: OpeningDesign
312 W. Lakeside St. | Madison, WI 53715
hello@openingdesign.com | 773-425-6456

Date

05.03.2017
05.22.2017

Description

Issue for Permit
Issue for Bid

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FYF LLC.

Owner: FYF LLC,
43 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno Solutions

Plumbing Designer: Zenteno Solutions
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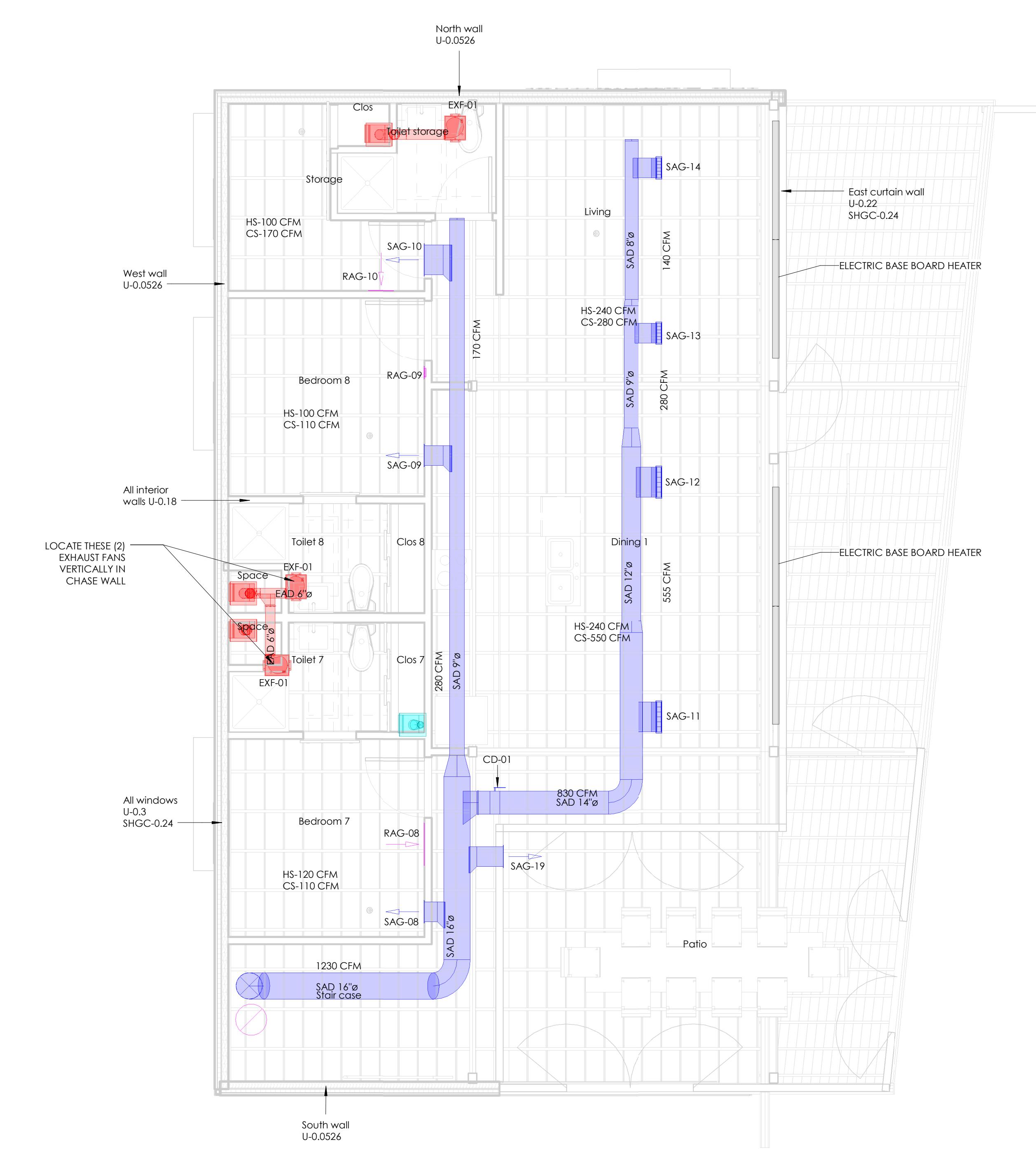
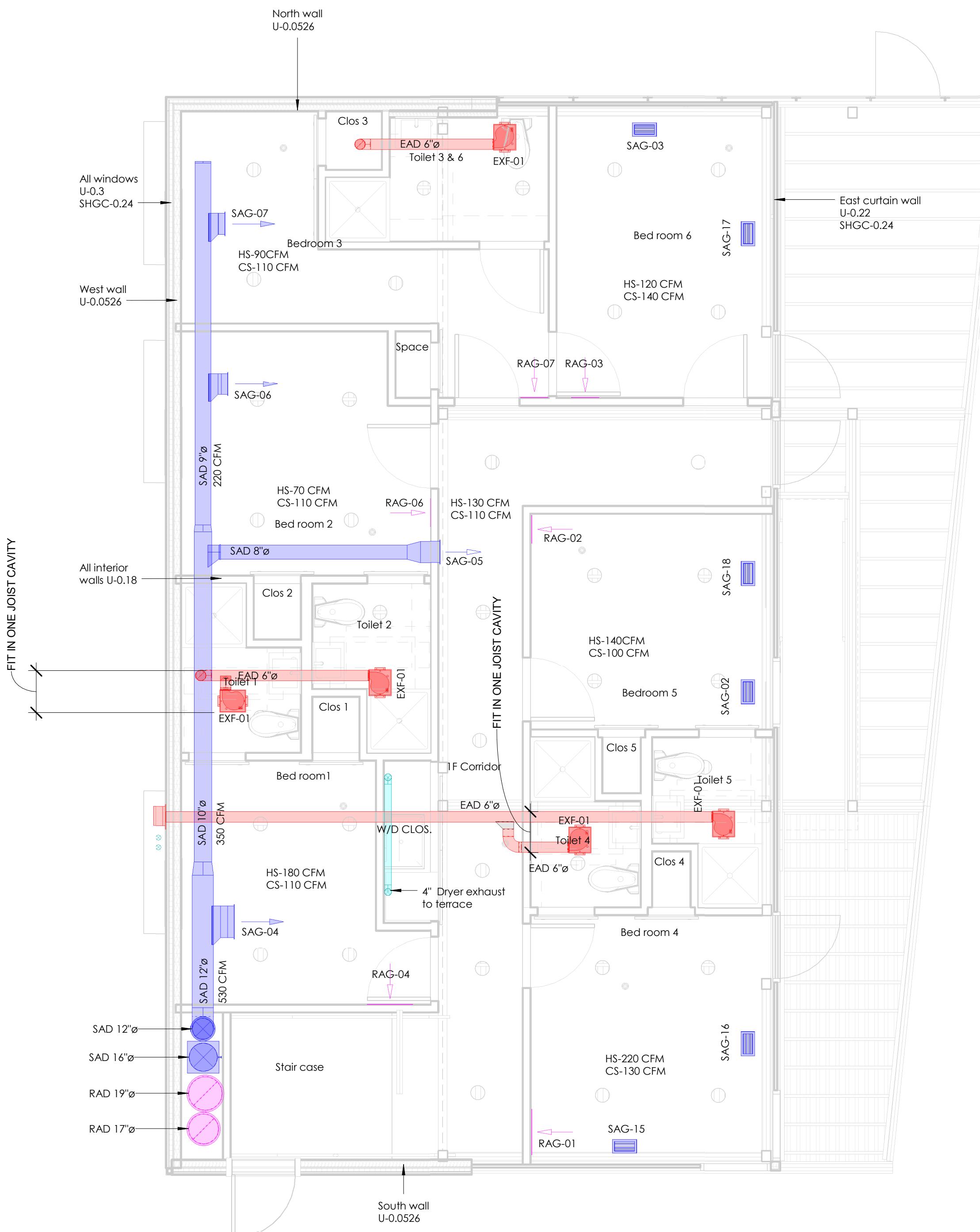


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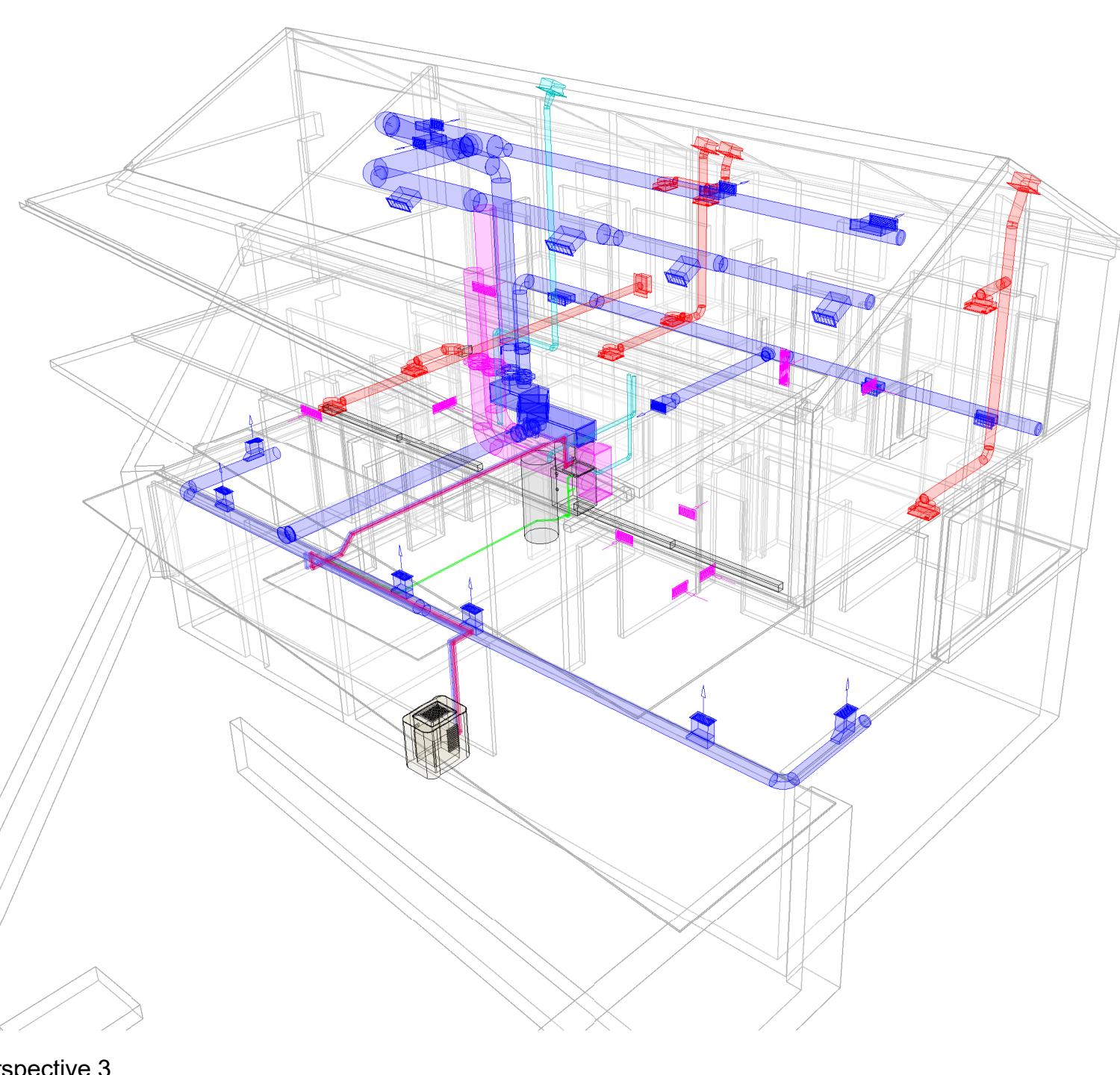
#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com

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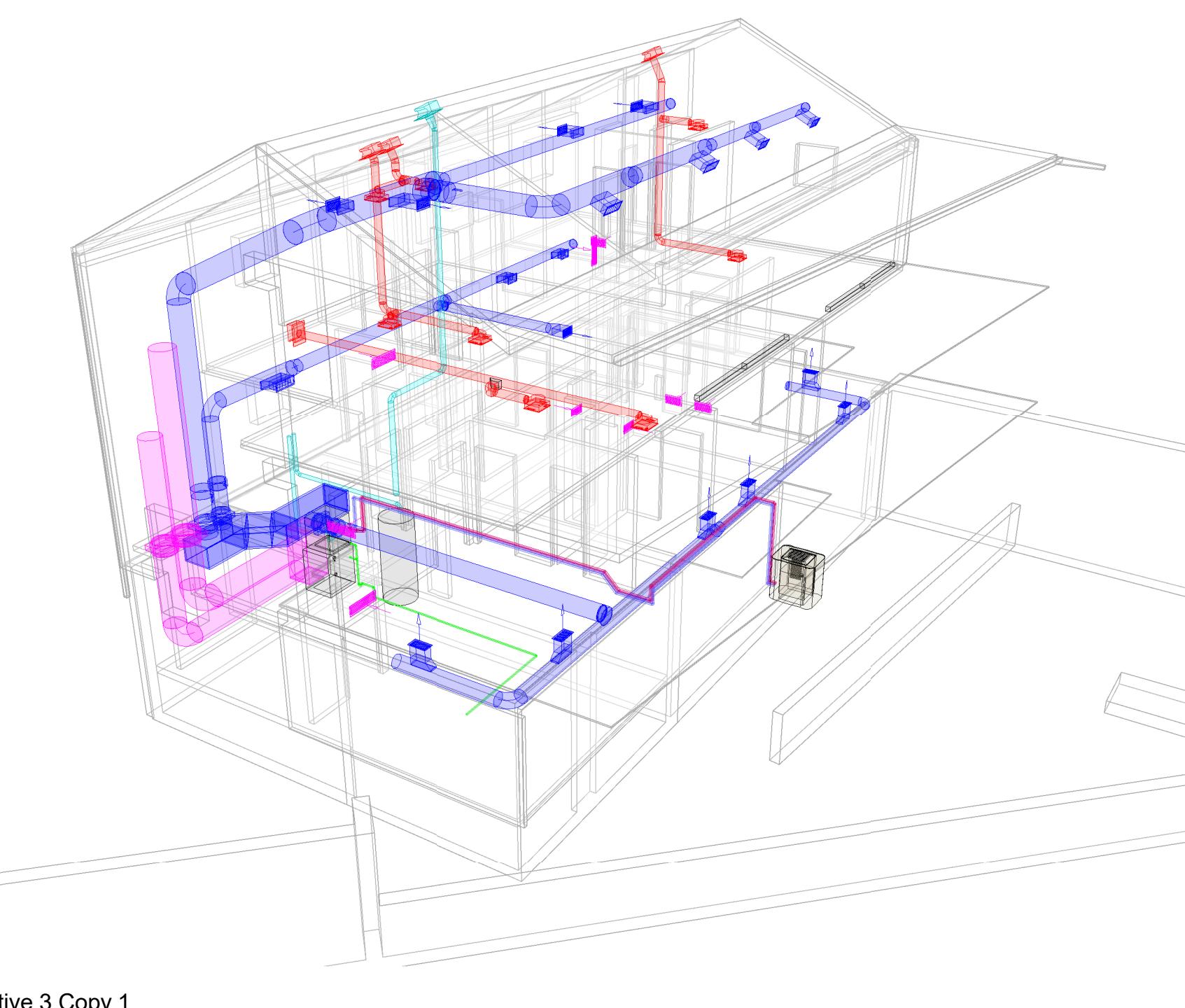
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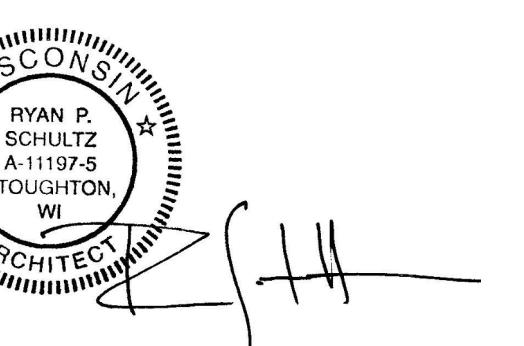
① 1st Floor - RCP
1/4" = 1'-0"



② 2nd Floor - RCP
1/4" = 1'-0"



HVAC 1st & 2nd Floor plan
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Date
05.03.2017
05.22.2017

Description
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