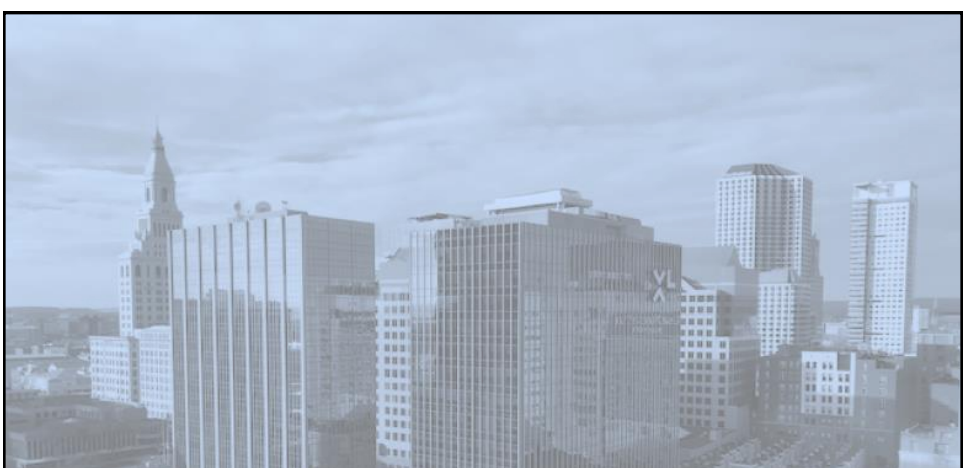
2020 Connecticut State Building and Fire Codes

Find the most current schedule at
https://portal.ct.gov/DASCodeChange

Completed: 2020 Amendments Drafted and Code Change Proposals Received

- 6/30/19 Committees/Work Groups Review
- 8/31/19 Final Drafts Developed
- 10/31/19 Drafts Reviewed
- 11/13/19 Codes and Standards Drafts Approval
- 2/29/20 Public Comment Period
- 5/31/20 Legislative Review/Approval
- 10/1/20 Code Takes Effect



Residential Code Series: Plumbing, Mechanical and Radon

Fall 2019 Career Development Series

Presenter; Bill Lussier, OEDM

DAS Office of Education and Data Management

Residential Code Series: Plumbing, Mechanical and Radon

PART ONE

Plan Review

3

Plan Review Objectives Plumbing, Mechanical and Radon

At the conclusion of this plan review section, participants should be able to:

1. Determine construction documents needed
2. Evaluate calculations of heat gain and heat loss
3. Verify that equipment chosen meets requirements
4. Evaluate compliance for proposed installation of gas meter and piping based on drawings
5. Evaluate potable water supply system for installation
6. Evaluate DWV system based on drawings
7. Develop a list for inspection and testing
8. Evaluate Radon system installation drawings or narrative

4

IRC Plan Review
Plumbing, HVAC, Radon

- What is the intent of the code
- R101.3 Intent
  - Minimum requirements
  - Safeguard public safety
  - Insure structural strength
  - Provide
    - Means of egress
    - Sanitation
    - Light and ventilation
    - Energy conservation
    - Safety from fire (occupants and firefighters)

5

IRC Plan Review
Plumbing, HVAC, Radon

- Part1
- What you should be getting for Construction Documents
- ***R106.1***
  - Two or more sets
  - Design Professional where required
    - *Exception*: BO authorized to waive certain documents and data

6

IRC Plan Review
Plumbing, HVAC, Radon

- R106.1.1 Information on construction documents
  - Suitable material
  - Electronic media (where approved by BO)
  - Sufficient clarity
  - Nature and extent of the work
  - Conforms to provisions of code
- Manufacturer's installation instructions
  - Available on job site

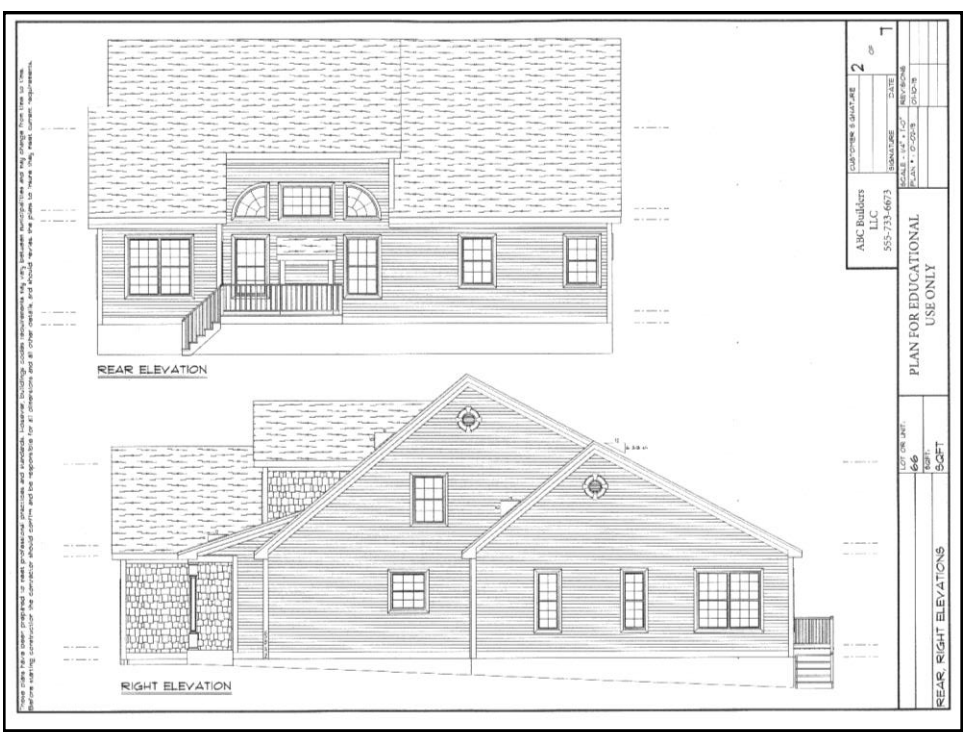
7

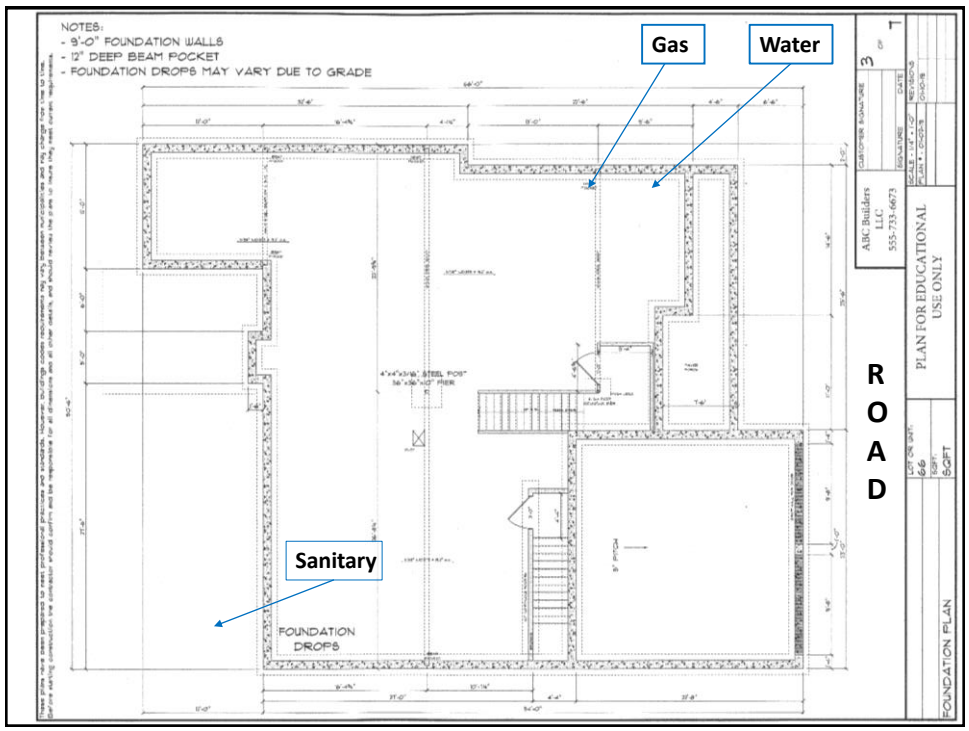
IRC Plan Review
Plumbing, HVAC, Radon

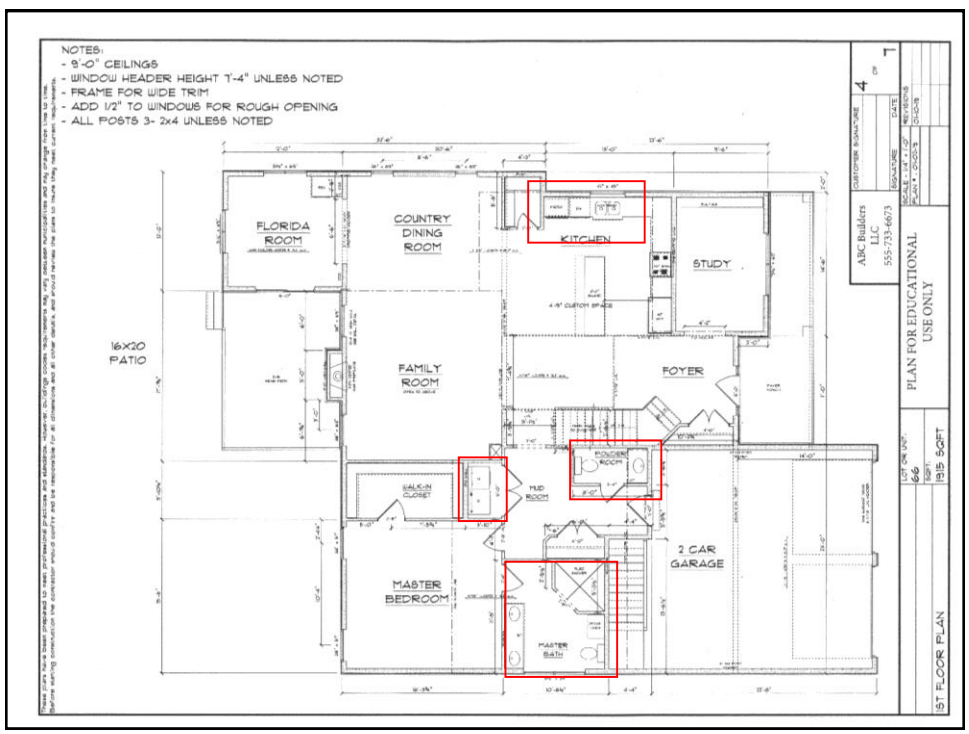
- What was submitted for this project
  - 7 pages of drawings
  - Heat loss/gain calculation based on ACCA Manual J and D
  - REScheck compliance certificate with checklist
  - We are looking at Empirically designed systems

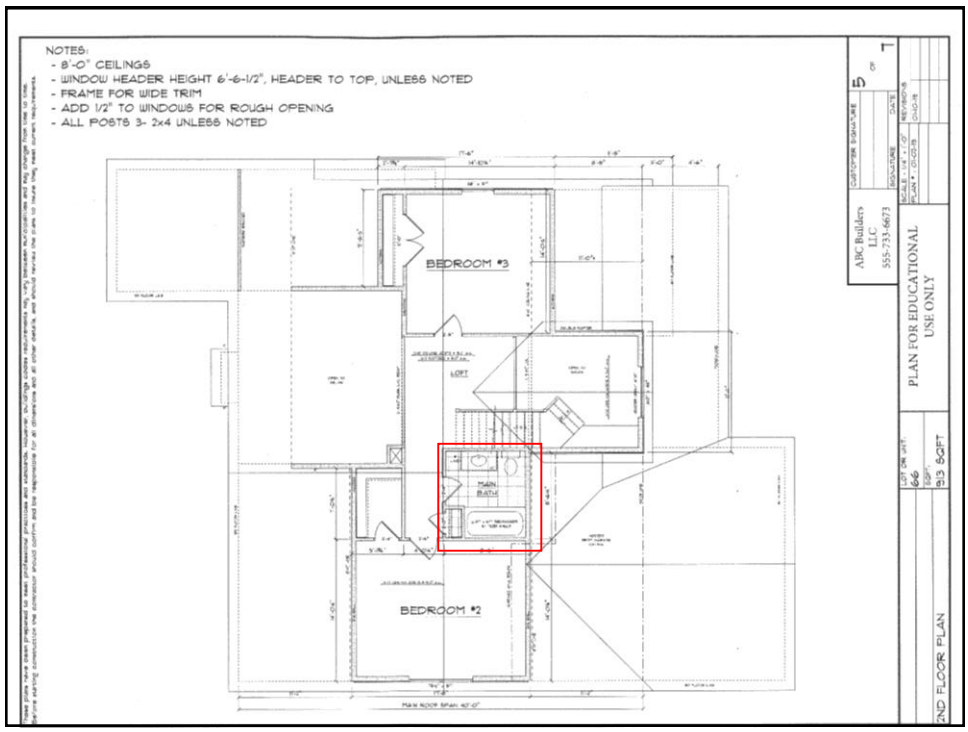
8

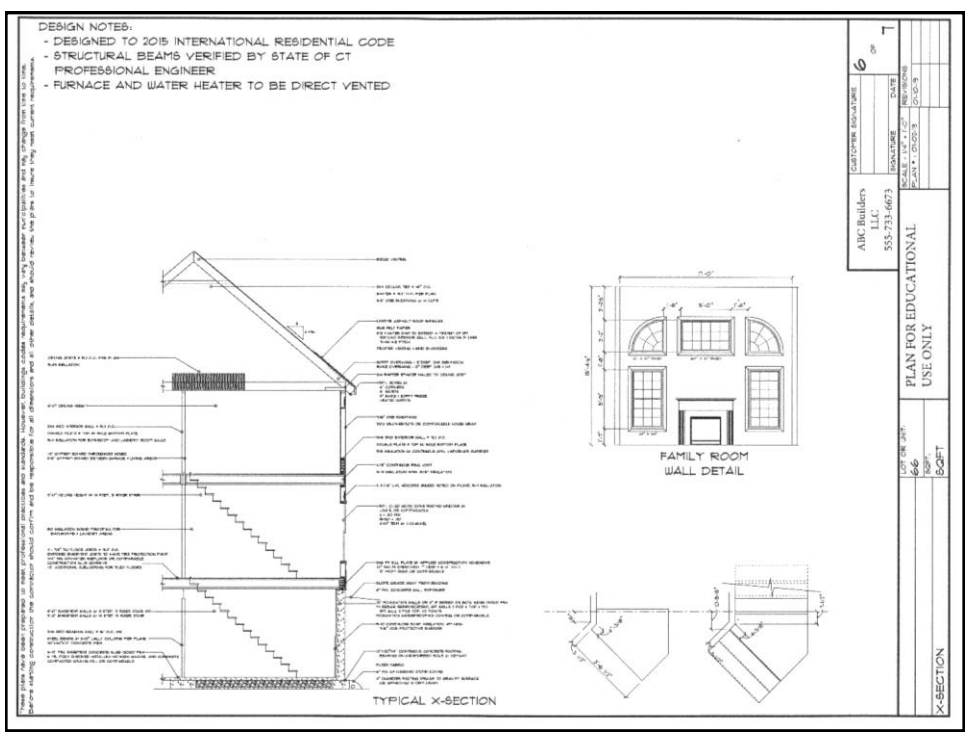

FRONT ELEVATION
LEFT ELEVATION
ABC Builders
LLC
555-733-6673
PLAN FOR EDUCATIONAL
USE ONLY
FRONT, LEFT ELEVATION
LOT OR UNIT:
66
SQFT:
2828 SQFT
1 OF 1

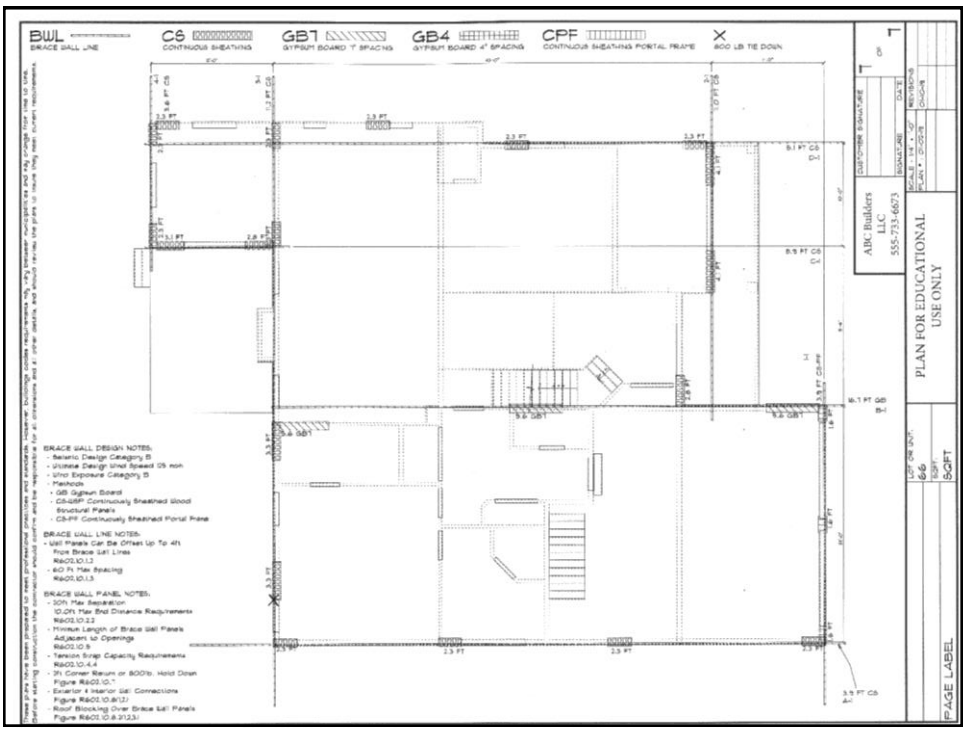

REAR ELEVATION
RIGHT ELEVATION
ABC Builders
LLC
555-733-6673
PLAN FOR EDUCATIONAL
USE ONLY
REAR, RIGHT ELEVATIONS
LOT OR UNIT:
66
SQFT:
SQFT
2 OF 1


NOTES:
- 9'-0" FOUNDATION WALLS
- 12" DEEP BEAM POCKET
- FOUNDATION DROPS MAY VARY DUE TO GRADE
Gas
Water
Sanitary
FOUNDATION DROPS
ROAD
ABC Builders LLC 555-733-6673
PLAN FOR EDUCATIONAL USE ONLY
FOUNDATION PLAN


NOTES:
- 9'-0" CEILINGS
- WINDOW HEADER HEIGHT 7'-4" UNLESS NOTED
- FRAME FOR WIDE TRIM
- ADD 1/2" TO WINDOWS FOR ROUGH OPENING
- ALL POSTS 3- 2x4 UNLESS NOTED
FLORIDA ROOM
COUNTRY DINING ROOM
KITCHEN
STUDY
16X20 PATIO
FAMILY ROOM
FOYER
WALK-IN CLOSET
MUD ROOM
LAUNDRY ROOM
2 CAR GARAGE
MASTER BEDROOM
MASTER BATH
ABC Builders LLC 555-733-6673
PLAN FOR EDUCATIONAL USE ONLY
1ST FLOOR PLAN


NOTES:
- 8'-0" CEILINGS
- WINDOW HEADER HEIGHT 6'-6-1/2", HEADER TO TOP, UNLESS NOTED
- FRAME FOR WIDE TRIM
- ADD 1/2" TO WINDOWS FOR ROUGH OPENING
- ALL POSTS 3- 2x4 UNLESS NOTED
BEDROOM #3
LOFT
MAIN BATH
BEDROOM #2
ABC Builders LLC 555-733-6673
PLAN FOR EDUCATIONAL USE ONLY
2ND FLOOR PLAN
913 SQFT


DESIGN NOTES:
- DESIGNED TO 2015 INTERNATIONAL RESIDENTIAL CODE
- STRUCTURAL BEAMS VERIFIED BY STATE OF CT PROFESSIONAL ENGINEER
- FURNACE AND WATER HEATER TO BE DIRECT VENTED
TYPICAL X-SECTION
FAMILY ROOM WALL DETAIL
ABC Builders LLC 555-733-6673
PLAN FOR EDUCATIONAL USE ONLY
X-SECTION
84FT



IRC Plan Review
Plumbing, HVAC, Radon

- PLUMBING

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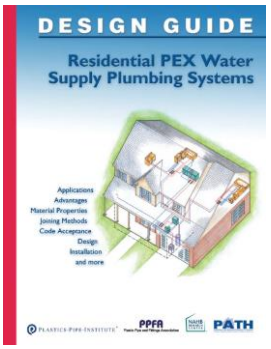
IRC Plan Review
Plumbing, HVAC, Radon



https://www.huduser.gov/portal/publications/pex_design_guide.pdf

- IRC Appendix P
- IPC Appendix E
- Code Check 8th Edition
- Table P2903.1 Flow Rate and Flow Pressure
- Table 2903.2 flow rates and consumption for fixtures and fittings
- Tables 2903.6 and Table P2903.6(1)

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IRC Plan Review
Plumbing, HVAC, Radon

- Plumbing water distribution system
  - Type of piping materials, ie. Pex, Copper
  - Well or City water
  - Street pressure
  - Piping diagram with pipe sizes
  - Water supply fixture unit values and flow rates from table P2903.6 & Table P2903.6(1)
  - Any special fixture requirements

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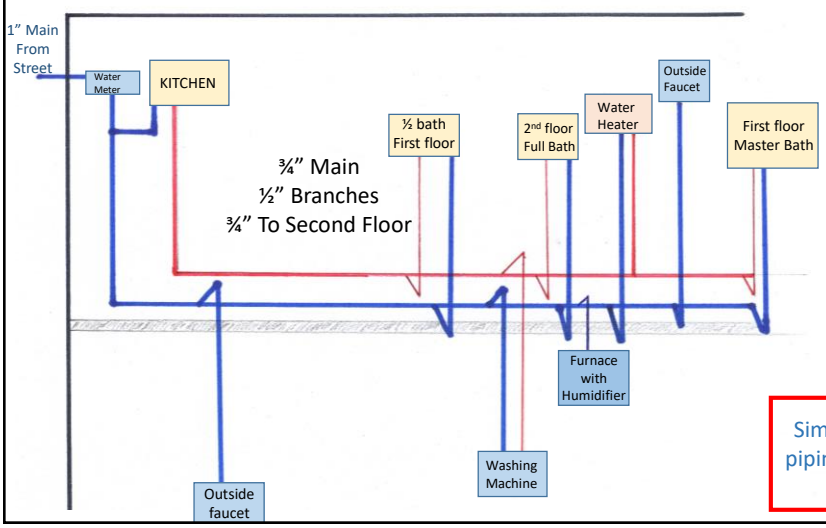
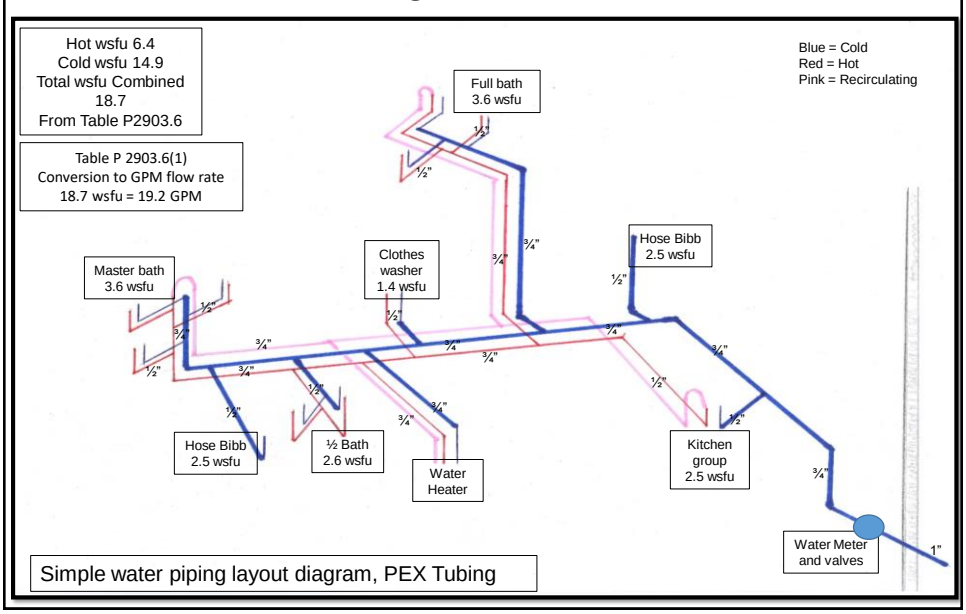
IRC Plan Review
Plumbing, HVAC, Radon



IRC Plan Review
Plumbing, HVAC, Radon



IRC Plan Review
Plumbing, HVAC, Radon

TABLE P2903.6
WATER-SUPPLY FIXTURE-UNIT VALUES FOR VARIOUS PLUMBING FIXTURES AND FIXTURE GROUPS

TYPE OF FIXTURES OR GROUP OF FIXTURES	WATER-SUPPLY FIXTURE-UNIT VALUE (w.s.f.u.)		
	Hot	Cold	Combined
Bathtub (with/without overhead shower head)	1.0	1.0	1.4
Clothes washer	1.0	1.0	1.4
Dishwasher	1.4	—	1.4
Full-bath group with bathtub (with/without shower head) or shower stall	1.5	2.7	3.6
Half-bath group (water closet and lavatory)	0.5	2.5	2.6
Hose bibb (sillcock)[a]	—	2.5	2.5
Kitchen group (dishwasher and sink with or without food-waste disposer)	1.9	1.0	2.5
Kitchen sink	1.0	1.0	1.4
Laundry group (clothes washer standpipe and laundry tub)	1.8	1.8	2.5
Laundry tub	1.0	1.0	1.4
Lavatory	0.5	0.5	0.7
Shower stall	1.0	1.0	1.4
Water closet (tank type)	—	2.2	2.2

For SI: 1 gallon per minute = 3.785 L/m.
a. The fixture unit value 2.5 assumes a flow demand of 2.5 gpm, such as for an individual lawn sprinkler device. If a hose bibb or sill cock will be required to furnish a greater flow, the equivalent fixture-unit value may be obtained from this table or Table P2903.6(1).

TABLE P2903.6(1)
CONVERSIONS FROM WATER SUPPLY FIXTURE UNIT TO GALLON PER MINUTE FLOW RATES

SUPPLY SYSTEMS PREDOMINANTLY FOR FLUSH TANKS			SUPPLY SYSTEMS PREDOMINANTLY FOR FLUSHOMETER VALVES		
Load	Demand		Load	Demand	
(Water supply fixture units)	(Gallons per minute)	(Cubic feet per minute)	(Water supply fixture units)	(Gallons per minute)	(Cubic feet per minute)
1	3.0	0.04104	—	—	—
2	5.0	0.0684	—	—	—
3	6.5	0.86892	—	—	—
4	8.0	1.06944	—	—	—
5	9.4	1.256592	5	15.0	2.0052
6	10.7	1.430376	6	17.4	2.326032
7	11.8	1.577424	7	19.8	2.646364
8	12.8	1.711104	8	22.2	2.967696
9	13.7	1.831416	9	24.6	3.288528
10	14.6	1.951728	10	27.0	3.60936
11	15.4	2.058672	11	27.8	3.716304
12	16.0	2.13888	12	28.6	3.823248
13	16.5	2.20572	13	29.4	3.930192
14	17.0	2.27256	14	30.2	4.037136
15	17.5	2.3394	15	31.0	4.14408
16	18.0	2.90624	16	31.8	4.241024
17	18.4	2.459712	17	32.6	4.357968
18	18.8	2.513184	18	33.4	4.464912
19	19.2	2.566656	19	34.2	4.571856
20	19.6	2.620128	20	35.0	4.6788

(continued)

IRC Plan Review
Plumbing, HVAC, Radon

- Water supply fixture unit values from Table P2903.6

Fixtures	Water supply fixture unit values		
	Hot	Cold	Combined
2 Full Baths	3	5.4	7.2
1 Half Bath	.5	2.5	2.6
2 Hose Bibbs	0	5.0	5.0
Clothes washer	1	1	1.4
Kitchen group	1.9	1	2.5
Total	6.4	14.9	18.7

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IRC Plan Review
Plumbing, HVAC, Radon

- 18.7 WSFU from table P2903.6

Table AP201.1
MINIMUM SIZE OF WATER METERS, MAINS AND DISTRIBUTION PIPING BASED ON WATER SUPPLY FIXTURE UNIT VALUES

METER AND SERVICE PIPE (inches)	DISTRIBUTION PIPE (inches)	MAXIMUM DEVELOPMENT LENGTH (feet)									
Pressure Range Over 60		40	60	80	100	150	200	250	300	400	500
3/4	1/2[a]	3	3	3	2.5	2	1.5	1.5	1	1	0.5
3/4	3/4	9.5	9.5	9.5	9.5	7.5	6	5	4.5	3.5	3
3/4	1	32	32	32	32	32	24	19.5	15.5	11.5	9.5
1	1	32	32	32	32	32	28	28	17	12	9.5
3/4	1 1/4	32	32	32	32	32	32	32	32	32	30
1	1 1/4	80	80	80	80	80	80	69	60	46	36
1 1/2	1 1/4	80	80	80	80	80	80	76	65	50	38
1	1 1/2	87	87	87	87	87	87	87	87	87	84
1 1/2	1 1/2	151	151	151	151	151	151	151	144	114	94
2	1 1/2	151	151	151	151	151	151	151	151	118	97
1	2	87	87	87	87	87	87	87	87	87	87
1 1/2	2	275	275	275	275	275	275	275	275	275	252
2	2	365	368	368	368	368	368	368	368	318	273
2	2 1/2	533	533	533	533	533	533	533	533	533	533

For SI: 1 inch = 25.4, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa.

IRC Plan Review
Plumbing, HVAC, Radon

- Water Heater
- Information not part of original submittal documents
  - Navien Model NPE-240A Tankless water heater
  - 83 page installation Manual
  - 19,900-199,900 BTU/H
  - Built in hot water recirculation pump (Demand Recirculating System)

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IRC Plan Review
Plumbing, HVAC, Radon

- R2905 Heated water distribution systems >
  - N1103.5.1.1 Circulating hot water system (circulation pump)
  - N1103.5.1.2 Heat Trace Systems (control for in use)
  - N1103.5.2 Demand recirculation systems
  - No specific length of recirculating hot water piping mentioned in IRC

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IRC Plan Review
Plumbing, HVAC, Radon

- Insulation values for Service hot water systems N1103.5.3
  - Circulation Systems R-3
  - Heat Trace R-3
  - Demand Recirculation, Not required
- Required
  - ¾" and larger
  - Outside conditioned space
  - Water heater to manifold
  - Under floor slab
  - Buried

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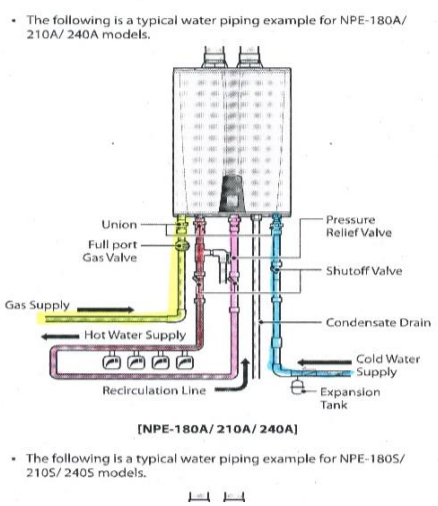
IRC Plan Review
Plumbing, HVAC, Radon



- Diagram from Navien installation manual for hot water recirculating piping

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IRC Plan Review
Plumbing, HVAC, Radon

Navien comfort flow illustration
Demand recirculation system

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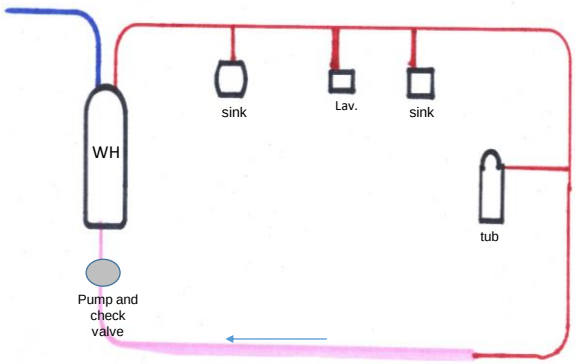
IRC Plan Review
Plumbing, HVAC, Radon

- Simple Recirculating system
- N1103.5.1
  - Requires pump,
  - Dedicated return pipe,
  - Control to start pump on demand,
  - Stop pump at preset temp,
  - Stop pump when no demand



Simple recirculating system

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IRC Plan Review
Plumbing, HVAC, Radon

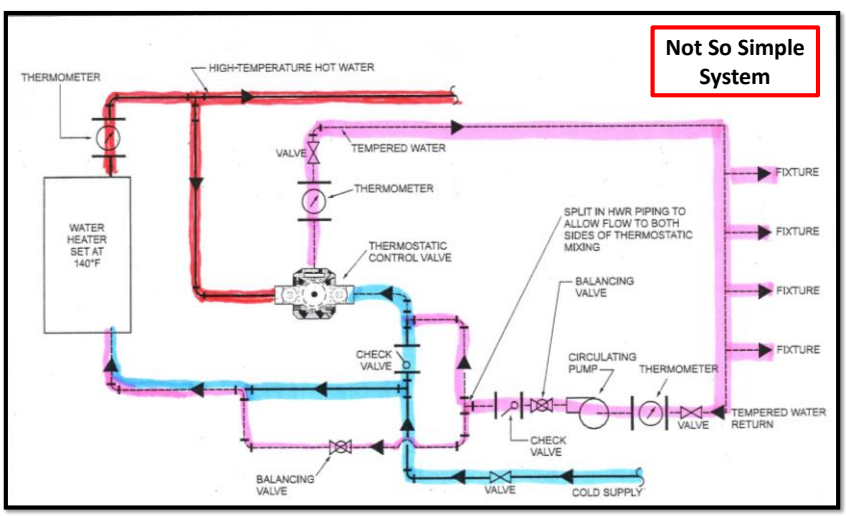

Fig. 607.2.3(1) Proper Recirculation Return with thermostatic control valve

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IRC Plan Review
Plumbing, HVAC, Radon

- DWV plumbing installation documents
  - Type of piping material
  - Type of water heater and manufacturer
  - Any special appliances or fixtures
  - Diagram of piping

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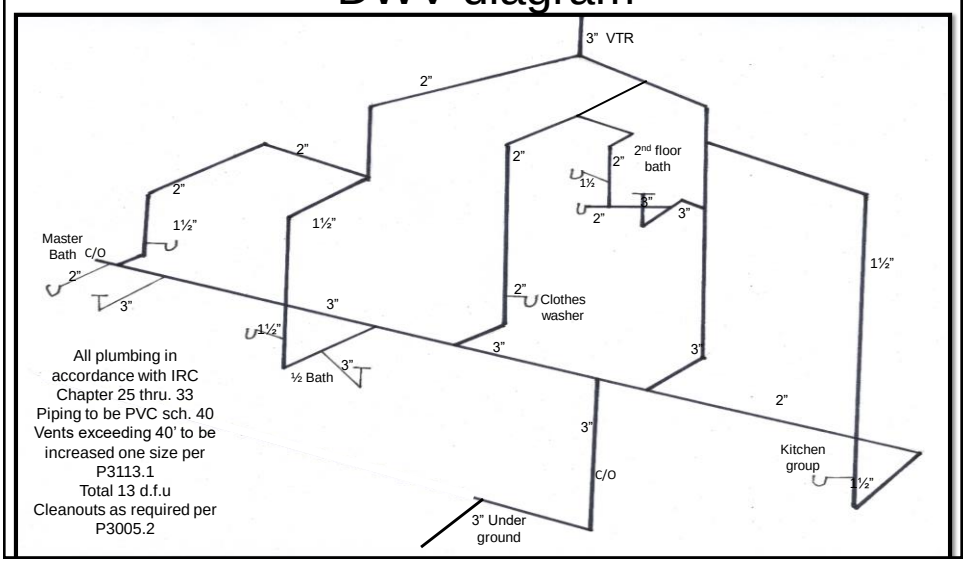
IRC Plan Review
Plumbing, HVAC, Radon

DWV diagram



IRC Plan Review
Plumbing, HVAC, Radon

Drainage Fixture Unit (d.f.u.) values Table 3004.1	
Type of fixture or group	**d.f.u. values**
2.5 Bath groups	9
Clothes washer	2
Kitchen group	2
Total	13

Using tables P3005.4.1 and table 3005.4.2, piping shown on diagram is adequate

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IRC Plan Review
Plumbing, HVAC, Radon

- GAS PIPING

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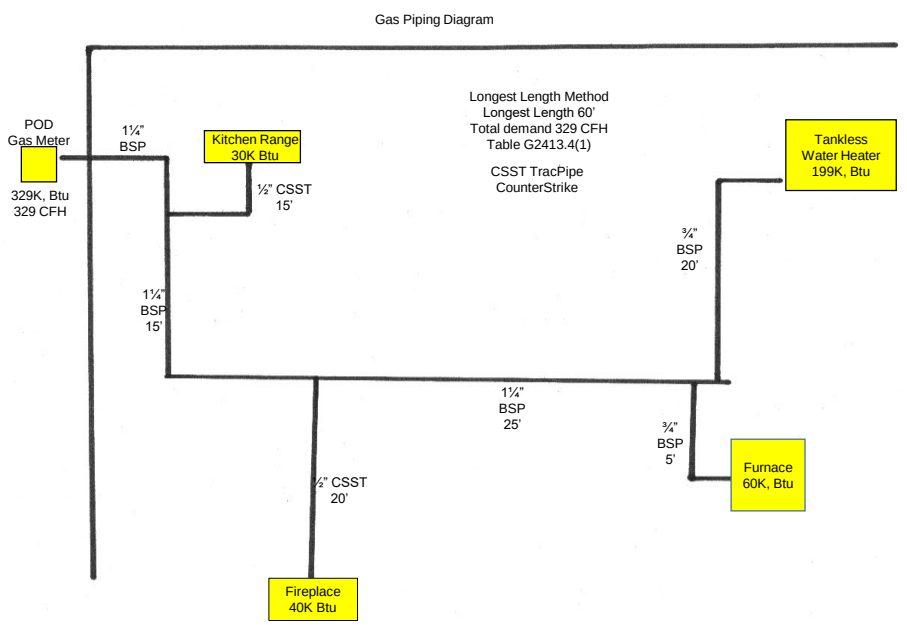
IRC Plan Review
Plumbing, HVAC, Radon

- Gas piping, Chapter 24
- Black steel pipe and TracPipe Counter Strike CSST
- Maximum demand 329 CFH
- Longest length method

35



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IRC Plan Review
Plumbing, HVAC, Radon

- HVAC

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IRC Plan Review
Plumbing, HVAC, Radon

- HVAC
- ACCA Manual D & J calculations for duct systems and load calculations
- Building loads calculated with ACCA Manual J
- Systems/methods used to comply with Energy Code
- IRC Chapter 11 or IECC

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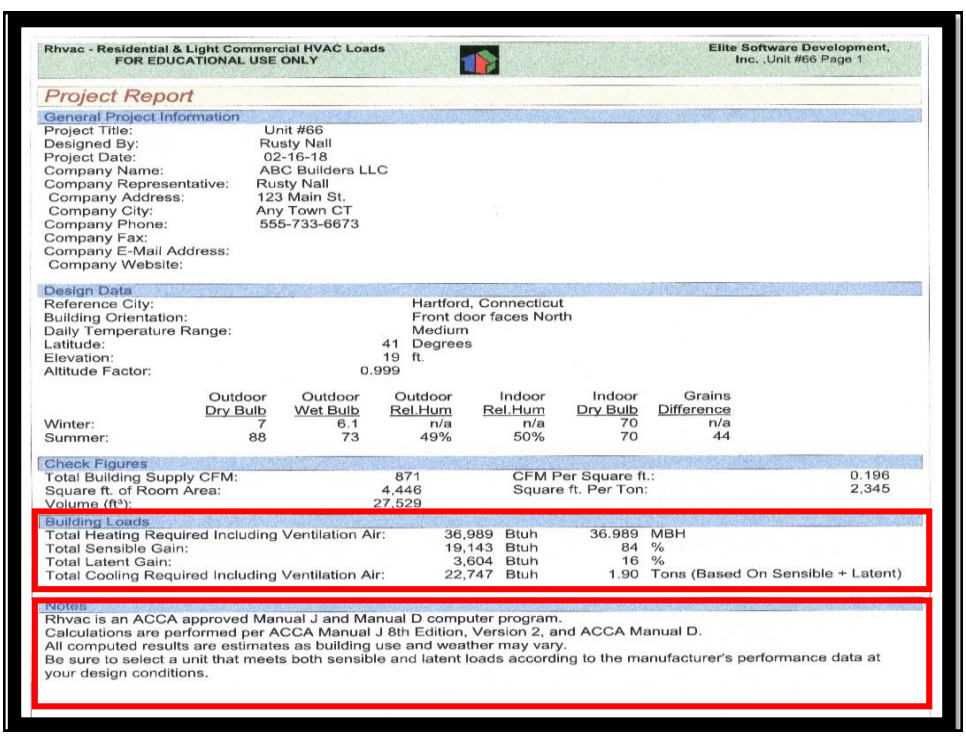
IRC Plan Review
Plumbing, HVAC, Radon

- HVAC
- M1401.3
- Sizing per ACCA Manual S
- Duct systems ACCA Manual D/Chapter 16 IRC
- Building loads calculated per ACCA Manual J or
- Other approved calculation methodologies

39



Rhvac - Residential & Light Commercial HVAC Loads
FOR EDUCATIONAL USE ONLY

Elite Software Development, Inc. ,Unit #66 Page 1

Project Report

General Project Information

Project Title:	Unit #66
Designed By:	Rusty Nail
Project Date:	02-16-18
Company Name:	ABC Builders LLC
Company Representative:	Rusty Nail
Company Address:	123 Main St.
Company City:	Any Town CT
Company Phone:	555-733-6673
Company Fax:	
Company E-Mail Address:	
Company Website:	

Design Data

Reference City:	Hartford, Connecticut	
Building Orientation:	Front door faces North	
Daily Temperature Range:	Medium	
Latitude:	41	Degrees
Elevation:	19	ft.
Altitude Factor:	0.999	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	7	6.1	n/a	n/a	70	n/a
Summer:	88	73	49%	50%	70	44

Check Figures

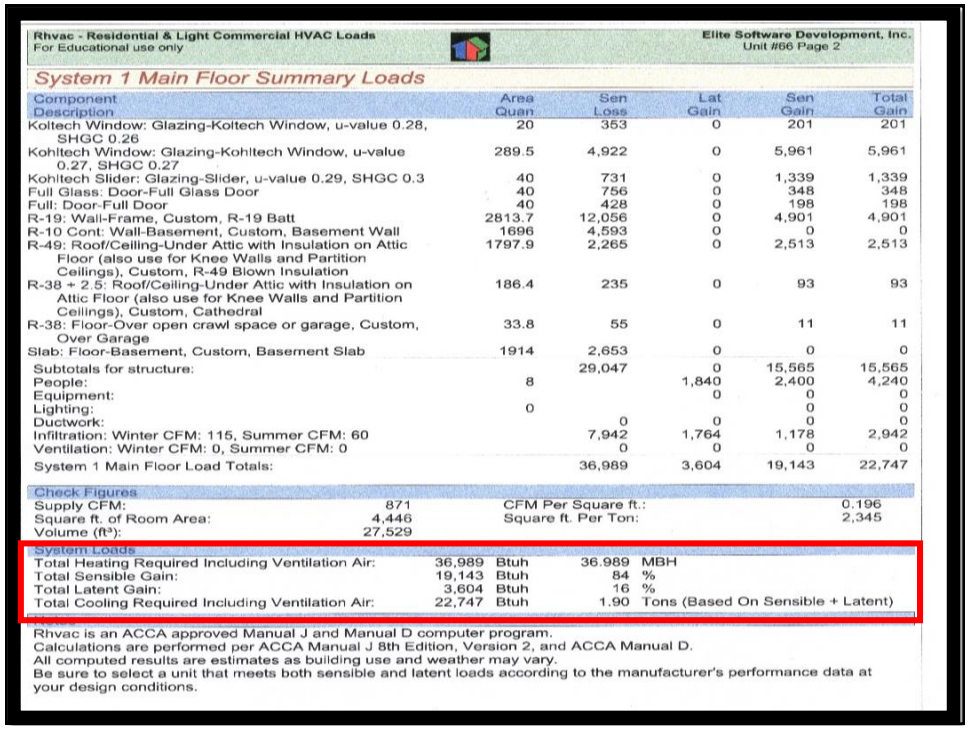
Total Building Supply CFM:	871	CFM Per Square ft.:	0.196
Square ft. of Room Area:	4,446	Square ft. Per Ton:	2,345
Volume (ft³):	27,529		

Building Loads

Total Heating Required Including Ventilation Air:	36,989 Btuh	36.989	MBH
Total Sensible Gain:	19,143 Btuh	84	%
Total Latent Gain:	3,604 Btuh	16	%
Total Cooling Required Including Ventilation Air:	22,747 Btuh	1.90	Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.



Rhvac - Residential & Light Commercial HVAC Loads
For Educational use only

Elite Software Development, Inc.
Unit #66 Page 2

System 1 Main Floor Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Koltech Window: Glazing-Koltech Window, u-value 0.28, SHGC 0.26	20	353	0	201	201
Kohltech Window: Glazing-Kohltech Window, u-value 0.27, SHGC 0.27	289.5	4,922	0	5,961	5,961
Kohltech Slider: Glazing-Slider, u-value 0.29, SHGC 0.3	40	731	0	1,339	1,339
Full Glass: Door-Full Glass Door	40	756	0	348	348
Full: Door-Full Door	40	428	0	198	198
R-19: Wall-Frame, Custom, R-19 Batt	2813.7	12,056	0	4,901	4,901
R-10 Cont: Wall-Basement, Custom, Basement Wall	1696	4,593	0	0	0
R-49: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Custom, R-49 Blown Insulation	1797.9	2,265	0	2,513	2,513
R-38 + 2.5: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Custom, Cathedral	186.4	235	0	93	93
R-38: Floor-Over open crawl space or garage, Custom, Over Garage	33.8	55	0	11	11
Slab: Floor-Basement, Custom, Basement Slab	1914	2,653	0	0	0
Subtotals for structure:		29,047	0	15,565	15,565
People:	8		1,840	2,400	4,240
Equipment:			0	0	0
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 115, Summer CFM: 60		7,942	1,764	1,178	2,942
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
System 1 Main Floor Load Totals:		36,989	3,604	19,143	22,747

Check Figures

Supply CFM:	871	CFM Per Square ft.:	0.196
Square ft. of Room Area:	4,446	Square ft. Per Ton:	2,345
Volume (ft³):	27,529		

System Loads

Total Heating Required Including Ventilation Air:	36,989 Btuh	36.989	MBH
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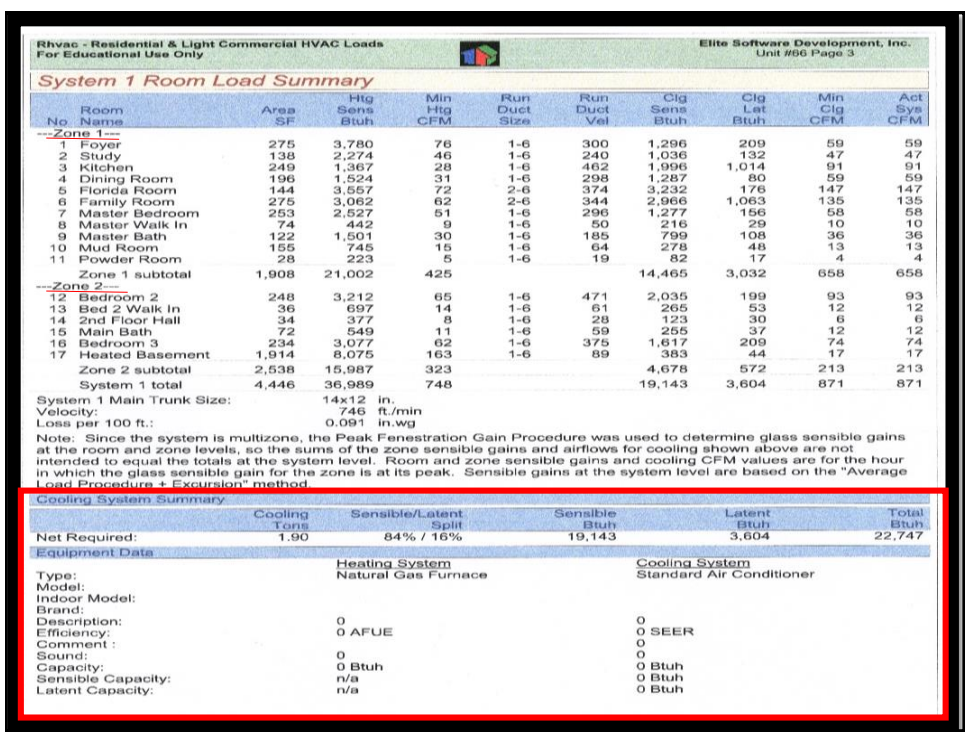
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.



Rhvac - Residential & Light Commercial HVAC Loads
For Educational Use Only

Elite Software Development, Inc.
Unit #66 Page 3

System 1 Room Load Summary

Room No	Name	Area SF	Htg Sens Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Act Sys CFM
---Zone 1---										
1	Foyer	275	3,780	76	1-6	300	1,296	209	59	59
2	Study	138	2,274	46	1-6	240	1,036	132	47	47
3	Kitchen	249	1,367	28	1-6	462	1,996	1,014	91	91
4	Dining Room	196	1,524	31	1-6	298	1,287	80	59	59
5	Florida Room	144	3,557	72	2-6	374	3,232	176	147	147
6	Family Room	275	3,062	62	2-6	344	2,966	1,063	135	135
7	Master Bedroom	253	2,527	51	1-6	296	1,277	156	58	58
8	Master Walk In	74	442	9	1-6	50	216	29	10	10
9	Master Bath	122	1,501	30	1-6	185	799	108	36	36
10	Mud Room	155	745	15	1-6	64	278	48	13	13
11	Powder Room	28	223	5	1-6	19	82	17	4	4
	Zone 1 subtotal	1,908	21,002	425			14,465	3,032	658	658
---Zone 2---										
12	Bedroom 2	248	3,212	65	1-6	471	2,035	199	93	93
13	Bed 2 Walk In	36	697	14	1-6	61	265	53	12	12
14	2nd Floor Hall	34	377	8	1-6	28	123	30	6	6
15	Main Bath	72	549	11	1-6	59	255	37	12	12
16	Bedroom 3	234	3,077	62	1-6	375	1,617	209	74	74
17	Heated Basement	1,914	8,075	163	1-6	89	383	44	17	17
	Zone 2 subtotal	2,538	15,987	323			4,678	572	213	213
	System 1 total	4,446	36,989	748			19,143	3,604	871	871

System 1 Main Trunk Size: 14x12 in.
Velocity: 746 ft./min
Loss per 100 ft.: 0.091 in.wg

Note: Since the system is multizone, the Peak Fenestration Gain Procedure was used to determine glass sensible gains at the room and zone levels, so the sums of the zone sensible gains and airflows for cooling shown above are not intended to equal the totals at the system level. Room and zone sensible gains and cooling CFM values are for the hour in which the glass sensible gain for the zone is at its peak. Sensible gains at the system level are based on the "Average Load Procedure + Excursion" method.

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.90	84% / 16%	19,143	3,604	22,747

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Description:	0	0
Efficiency:	0 AFUE	0 SEER
Comment :		0
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

REScheck Software Version 4.6.5

Compliance Certificate

Project Unit #* OEDM Heights

Energy Code: 2015 IECC
Location: Hartford
Construction Type: Single-family
Project Type: New Construction
Orientation: Bldg. faces 0 deg. from North
Conditioned Floor Area: 4,743 ft2
Glazing Area 7%
Climate Zone: 5 (5792 HDD)
Permit Date:
Permit Number:

Construction Site: x

Owner/Agent:

Designer/Contractor:
William James, RO
PLTP Group, Inc.
450 Columbus Blvd.
Hartford, CT, 06062
(860)713-5522
OEDM@ct.gov

Compliance: Passes using UA trade-off

Compliance: **3.8% Better Than Code** Maximum UA: **469** Your UA: **451**

The % Better or Worse Than Code Index reflects how close to compliance the house is based on code trade-off rules. It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
Floor 1: All-Wood Joist/Truss:Over Outside Air	27	38.0	0.0	0.026	1
Ceiling 1: Raised or Energy Truss	1,926	25.0	24.0	0.020	37
Ceiling 2: Raised or Energy Truss	89	38.0	2.5	0.024	2
Wall 1: Wood Frame, 24" o .c. Orientation: Front	843	19.0	0.0	0.059	43
Window 1: Vinyl/Fiberglass Frame:Double Pane with Low-E Orientation: Front	56			0.270	15
Door 1: Solid Orientation: Front	61			0.170	10
Wall 2: Wood Frame, 24" o .c. Orientation: Back	843	19.0	0.0	0.059	43
Window 2: Vinyl/Fiberglass Frame:Double Pane with Low-E Orientation: Back	114			0.270	31
Wall 3: Wood Frame, 24" o .c. Orientation: Left side	727	19.0	0.0	0.059	37
Window 3: Vinyl/Fiberglass Frame:Double Pane with Low-E Orientation: Left side	56			0.270	15
Window 5: Vinyl/Fiberglass Frame:Double Pane with Low-E Orientation: Left side	41			0.290	12

Project Title: Unit #* OEDM Heights
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IRC Plan Review
Plumbing, HVAC, Radon

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
Wall 4: Wood Frame, 24" o .c. Orientation: Right side	727	19.0	0.0	0.059	38
Window 4: Vinyl/Fiberglass Frame:Double Pane with Low-E Orientation: Right side	78			0.270	21
Wall 5: Solid Concrete or Masonry:Interior Insulation Orientation: Front	455	0.0	10.0	0.077	35
Wall 6: Solid Concrete or Masonry:Interior Insulation Orientation: Back	455	0.0	10.0	0.077	35
Wall 7: Solid Concrete or Masonry:Interior Insulation Orientation: Left side	495	0.0	10.0	0.077	38
Wall 8: Solid Concrete or Masonry:Interior Insulation Orientation: Right side	495	0.0	10.0	0.077	38

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2015 IECC requirements in RES*check* Version 4.6.5 and to comply with the mandatory requirements listed in the RES*check* Inspection Checklist.

Name - Title _____ Signature _____ Date _____

IRC Plan Review
Plumbing, HVAC, Radon

RES*check* Software Version 4.6.5

Inspection Checklist

Energy Code: 2015 IECC

Requirements: 0.0% were addressed directly in the RES*check* software

Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [PR1][1]	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [PR3][1]	Construction drawings and documentation demonstrate energy code compliance for lighting and mechanical systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
302.1, 403.7 [PR2][2]	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr_____ Cooling: Btu/hr_____	Heating: Btu/hr_____ Cooling: Btu/hr_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Foundation Inspection	Complies?	Comments/Assumptions
303.2.1 [FO11][2]	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.9 [FO12][2]	Snow- and ice-melting system controls installed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.3.4 [FR1][1]	Door U-factor.	U-_____	U-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.1.1, 402.3.1, 402.3.3, 402.5 [FR2][1]	Glazing U-factor (area-weighted average).	U-_____	U-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.3 [FR4][1]	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.1 [FR23][1]	Air barrier and thermal barrier installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.3 [FR20][1]	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.5 [FR16][2]	IC-rated recessed lighting fixtures sealed at housing/interior finish and labeled to indicate ≤2.0 cfm leakage at 75 Pa.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.1 [FR12][1]	Supply and return ducts in attics insulated >= R-8 where duct is >= 3 inches in diameter and >= R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated >= R-6 for diameter >= 3 inches and R-4.2 for < 3 inches in diameter.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.5 [FR15][3]	Building cavities are not used as ducts or plenums.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4 [FR17][2]	HVAC piping conveying fluids above 105 °F or chilled fluids below 55 °F are insulated to ≥R-3.	R-_____	R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4.1 [FR24][1]	Protection of insulation on HVAC piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.3 [FR18][2]	Hot water pipes are insulated to ≥R-3.	R-_____	R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.6 [FR19][2]	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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IRC Plan Review
Plumbing, HVAC, Radon

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1 [IN13][2]	All installed insulation is labeled or the installed R-values provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.6 [IN1][1]	Floor insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2, 402.2.7 [IN2][1]	Floor insulation installed per manufacturer's instructions and in substantial contact with the underside of the subfloor, or floor framing cavity insulation is in contact with the top side of sheathing, or continuous insulation is installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.5, 402.2.6 [IN3][1]	Wall insulation R-value. If this is a mass wall with at least ½ of the wall insulation on the wall exterior, the exterior insulation requirement applies (FR10).	R-____ ☐ Wood ☐ Mass ☐ Steel	R-____ ☐ Wood ☐ Mass ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2 [IN4][1]	Wall insulation is installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.2.2, 402.2.6 [FI1][1]	Ceiling insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.1.1, 303.2 [FI2][1]	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft².			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.3 [FI22][2]	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.4 [FI3][1]	Attic access hatch and door insulation ≥R-value of the adjacent assembly.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.2 [FI17][1]	Blower door test @ 50 Pa. <=5 ach in Climate Zones 1-2, and <=3 ach in Climate Zones 3-8.	ACH 50 =____	ACH 50 =____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.4 [FI4][1]	Duct tightness test result of <=4 cfm/100 ft2 across the system or <=3 cfm/100 ft2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing inspection.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.3 [FI27][1]	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Postconstruction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2.1 [FI24][1]	Air handler leakage designated by manufacturer at <=2% of design air flow.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.1 [FI9][2]	Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.2 [FI10][2]	Heat pump thermostat installed on heat pumps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1 [FI11][2]	Circulating service hot water systems have automatic or accessible manual controls.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6.1 [FI25][3]	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2 [FI26][3]	Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.1 [FI28][3]	Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermos-syphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls automatically turn off the pump when water is in circulation loop is at set-point temperature and no demand for hot water exists.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.2 [FI29][3] ?	Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.2 [FI30][3]	Water distribution systems that have recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe have a demand recirculation water system. Pumps have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to 104°F.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.4 [FI31][3]	Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units < 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units < 2 psi for individual units connected to three or more showers.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1 [FI6][1]	75% of lamps in permanent fixtures or 75% of permanent fixtures have high efficacy lamps. Does not apply to low-voltage lighting.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1.[illegible] [FI23][3] ?	Fuel gas lighting systems have no continuous pilot light.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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Project Title: Unit #* OEDM Heights
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Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
401.3 [FI7][2]	Compliance certificate posted.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
303.3 [FI18][3]	Manufacturer manuals for mechanical and water heating systems have been provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

2015 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	19.00
Below-Grade Wall	0.00
Floor	38.00
Ceiling / Roof	49.00
Ductwork (unconditioned spaces):	

Glass & Door Rating	U-Factor	SHGC
Window	0.27	0.29
Door	0.17	

Heating & Cooling Equipment	Efficiency
Heating System:	
Cooling System:	
Water Heater:	

Name: Date:
Comments

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IRC Plan Review
Plumbing, HVAC, Radon

- RADON CONTROL

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IRC Plan Review
Plumbing, HVAC, Radon

- Radon piping
- Appendix F
- New construction shall comply with AF104
  - Exception: If it complies with AF103

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IRC Plan Review
Plumbing, HVAC, Radon

- AF 104 requirements
- 6-mil soil gas retarder (plastic)
- 3” Tee fitting (under plastic)
- Gravel between ¼” and 2” (around the fitting, under the plastic)
- Filter fabric (around the gravel, which is around the fitting, which is under the gravel)
- In a hole, min. 8” deep by 24” in diameter
- All of the above attached to a 3” pipe, (which)
- Runs up through conditioned space
- Terminates min. 12” above roof
- 10’ from any window or opening
- Not less than 2’ below

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IRC Plan Review
Plumbing, HVAC, Radon

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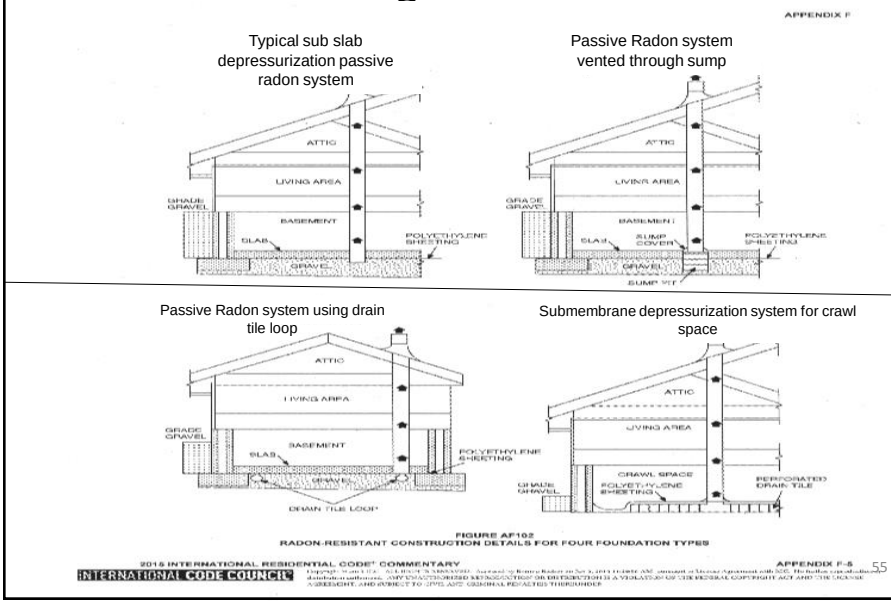
Plumbing, HVAC, Radon



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IRC Plan Review
Plumbing, HVAC, Radon

- PLAN REVIEW RECORD

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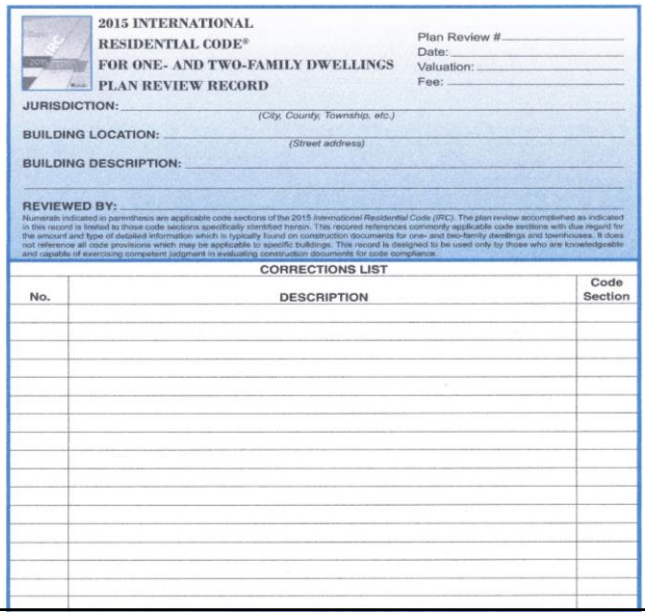
IRC Plan Review
Plumbing, HVAC, Radon



2015 INTERNATIONAL
RESIDENTIAL CODE®
FOR ONE- AND TWO-FAMILY DWELLINGS
PLAN REVIEW RECORD

Plan Review #
Date:
Valuation:
Fee:

JURISDICTION: _____
(City, County, Township, etc.)

BUILDING LOCATION: _____
(Street address)

BUILDING DESCRIPTION: _____

REVIEWED BY: _____

Numerals indicated in parenthesis are applicable code sections of the 2015 *International Residential Code (IRC)*. The plan review accomplished as indicated in this record is limited to those code sections specifically identified herein. This record references commonly applicable code sections with due regard for the amount and type of detailed information which is typically found on construction documents for one- and two-family dwellings and townhouses. It does not reference all code provisions which may be applicable to specific buildings. This record is designed to be used only by those who are knowledgeable and capable of exercising competent judgment in evaluating construction documents for code compliance.

CORRECTIONS LIST

No.	DESCRIPTION	Code Section

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IRC Plan Review
Plumbing, HVAC, Radon

MECHANICAL (Chapters 12-23)

- VIF Appliance labeling *(M1302, M1303)*
- VIF Appliance access *(M1305, M1401)*
- VIF Appliance installation *(M1307)*
- √ Heating and cooling equipment; load calculations *(Chapter 14)*
- VIF Exhaust systems *(Chapter 15)*
- VIF Duct systems *(Chapter 16)*
- Combustion air *(Chapter 17)*
- VIF Chimney and vent location and terminations *(Chapters 10 and 18)*
- N/A Special equipment *(Chapter 19)*
- √ VIF Boilers/water heaters *(Chapter 20)*
- N/A Hydronic piping *(Chapter 21)*
- N/A Special piping and storage systems *(Chapter 22)*
- N/A Solar thermal energy systems *(Chapter 23)*
- N/A Penetrations of fire-resistance rated assemblies *(R302.4, R302.5)*

FUEL GAS (Chapter 24)

- Application *(G2401.1)*
- General regulations *(G2404)*
- VIF Appliance location *(G2406)*
- Air requirements *(G2407)*
- VIF Installation *(G2408)*
- VIF Clearances *(G2409)*
- VIF Electrical and electrical bonding *(G2410, G2411)*
- √ VIF Pipe sizing *(G2413)*
- √ VIF Piping materials *(G2414)*

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IRC Plan Review
Plumbing, HVAC, Radon

FUEL GAS (cont'd)

____ Piping installation *(G2415 and G2419)*	VIF Venting *(G2425 - G2429)*
VIF Piping support *(G2418 and G2424)*	VIF Misc appliances *(G2423, G2430 - G2454)*
VIF Valves, controls, connections *(G2420, G2421 and G2422)*	

PLUMBING (Chapters 25-33)

√ VIF Water service location and depth *(P2603, P2604)*	N/A Freezing protection *(P2904.2.3)*
VIF Sanitary and storm sewer location and depth *(P2603, P2604)*	N/A Sprinkler coverage *(P2904.2.4)*
VIF Piping support *(Table P2605.1)*	N/A Piping materials *(P2904.3)*
VIF Listed plastic materials *(P2609)*	N/A Flow rates *(P2904.4.1, P2904.4.2)*
VIF Plumbing fixtures *(Chapter 27)*	N/A Water supply capacity *(P2904.5.2)*
√ VIF Water heater size and location *(Chapter 28)*	N/A Pipe sizing *(P2904.6)*
√ VIF Water supply and distribution system-design and calculations *(Chapter 29)*	√ VIF Drain, waste and vent pipe sizing and riser diagram *(P3004, P3005, Chapter 31)*
N/A Dwelling unit fire sprinkler systems *(P2904)*	N/A Sumps and ejectors *(P3007)*
N/A NFPA 13D system *(P2904.1)*	N/A Backwater valves *(P3008)*
N/A Temperature rating *(P2904.2.1, P2904.2.2)*	VIF Fixture traps *(P3201)*
	VIF Storm drainage *(Chapter 33)*
	N/A Penetrations of fire-resistance rated assemblies *(R302.4, R302.5)*

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IRC Plan Review
Plumbing, HVAC, Radon

PASSIVE RADON GAS CONTROLS (Appendix F)

√ Provisions adopted *(R102.5)*	√ VIF Compliance with Appendix F verified

PATIO COVERS (Appendix H)

____ Provisions adopted *(R102.5)*	____ Compliance with Appendix H verified

PRIVATE SEWAGE DISPOSAL (Appendix I)

Contact Health department

____ Provisions adopted *(R102.5)*	____ Compliance with Appendix I verified

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IRC Plan Review
Plumbing, HVAC, Radon

Please find the plan review for the proposed work listed above. Building Code sections identified, referenced in the **2015 International Residential Code** (IRC) portion of the **2018 State Building Code** (SBC) with **2018 amendments**.

1. Comply with Public Act No. 16-45 *AN ACT CONCERNING CONCRETE FOUNDATIONS* by submitting the concrete producer and installer at time of issuance of a Certificate of Occupancy so that it can be filed for the required time.
2. Comply with " whole house mechanical ventilation" in accordance with section M 1507.3 — R 303.4
3. Comply with window fall protection — R 312.2
4. Comply with minimum horizontal reinforcement in concrete basement walls — Table R 404.1.2 (1)
5. Comply with fire protection of floors with either ½"drywall, 5/8"plywood or compliance with the exceptions R 501.3
6. Comply with taping of plywood seams of roof sheathing prior to underlayment application — R 905.1.1
7. Comply with attic access weather-stripped and insulated — N 1102.2.4
8. Comply with Insulation & fenestration requirements by component — Table N 1102.1.1
9. Comply with Blower Door testing of dwelling to verify as having an air leakage rate of **not exceeding 3 air changes** per hour in Climate Zone 5 — Amended N 1102.4.1.2
10. Comply with duct leakage testing — N 1103.2.2
11. Comply with insulation of hot water piping w/ R3 — N 1103.4.2
12. Comply with makeup air where kitchen hoods exhaust 400 CFM, see exception — M 1503.4
13. Comply with GFCI protection of kitchen dishwasher circuit — Added E 3902.6
14. Comply with Arc Fault Circuit Interrupter Protection of Branch circuits located in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas and similar rooms — E 3902.12
15. Comply with AFCI to be readily accessible — E 3902.14
16. Comply with Appendix F Radon mitigation preparation — Amended AF 101.1

IRC Plan Review
Plumbing, HVAC, Radon

- Make your own personal plan review record
- Use Code Check books
- Go to internet
- ~~Collusion~~ collaboration with ~~Russians~~ other Building Officials

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IRC Plan Review
Plumbing, HVAC, Radon

PART TWO

INSPECTIONS

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IRC Plan Review
Plumbing, HVAC, Radon

- At the conclusion of this plan review section, participants should be able to:

1. Inspect installed furnace and Air Conditioning system for compliance of sizing, efficiencies, venting, combustion air, controls, manufacturer's installation requirements
2. Witness testing and installation of gas piping system
3. Witness potable water system testing and inspect installation
4. Witness testing of DWV system and verify installation matches drawing
5. Verify Radon system compliance with Appendix F

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IRC Plan Review
Plumbing, HVAC, Radon

PLUMBING INSPECTION

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IRC Inspection
Plumbing, HVAC, Radon

- ICC Plan review sheet as checklist
- Your personal checklist
- REScheck checklist for mechanical
- Use pre-inspection check lists for contractors
- Whatever way works for you, *and*
  - Covers what you need to look at
  - Provides permanent record of inspection
  - Can be used to inform permit holder of any discrepancies

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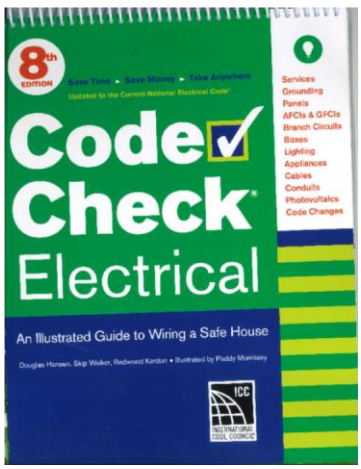
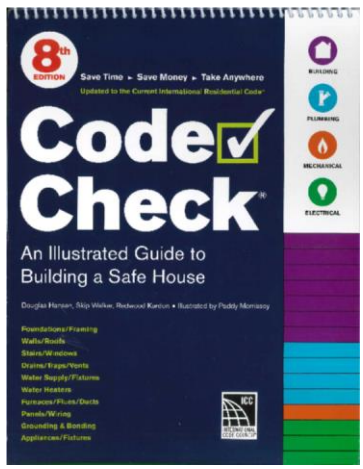
IRC Inspection
Plumbing, HVAC, Radon





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IRC Inspection
Plumbing, HVAC, Radon

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Inspection Checklist
Residential Plumbing Final
July 2016

This Inspection Checklist reflects code requirements of the 2015 International Residential Code (IRC), 2015 Uniform Plumbing Code (UPC), 2014 National Electrical Code (NEC), and the 2015 International Fire Code (IFC).

Please verify the following before calling for a plumbing final inspection.

Permits and Plans

- ☐ Job address is posted in a visible location. (R319.1)
- ☐ Permit and approved plans are on site and accessible to the inspector. (UPC 104.4.6)
- ☐ Permit information is correct (address, permit number, scope of work etc.
- ☐ Confirm on OTC (over the counter) and E-permits only, that all plumbing fixtures are included.
- ☐ When a separate sewer or septic permit is required, confirm that it has been signed off by the authority having jurisdiction.
- ☐ Water service and storm drainage system has been inspected and signed off.
- ☐ Review the notes from the previous plumbing inspections. Common notes might be that an air admittance valve has been installed which will require a grill to be installed at the location, or that shock arresters need to be installed at the final.
- ☐ When an irrigation system is installed check to see that a backflow prevention device has been properly installed and signed off by the AHJ.
- ☐ It is required to have adequate backflow prevention when the building has a fire sprinkler system unless an approved combination system is used per standards. (UPC 603.5.14) A RPBP (reduced pressure backflow preventer) or an air-gap is required when there is a water supply to a hydronic heat boiler.(603.5.10) If a backflow device such as an RPBP or DCVA is within the job site, verify that it has been tested and signed off. (UPC 603.2)

Plumbing Vents

- ☐ Plumbing vents shall extend at least 6" above the roof and to be 10' away or 3' above windows that open. When doing a walk through, look down on the roof below and check for test plugs left in the vent pipes. (UPC 906)

Hosebibs

- ☐ All hosebibs shall have non-removable vacuum breakers of a self-draining type. Exterior hosebibs to have integral vacuum breakers and to be frostproof and caulked and secured at exterior walls. (UPC 312.8 & 603.5.7)
- ☐ Check water pressure at any hose bib to verify that it is 80 psi or less. If it is greater than 80 psi, a pressure-reducing valve is required. (UPC 608.2)

Electric Water Heaters

- ☐ See Construction Tip Sheet 7, Water Heaters, for additional information.
- ☐ If a gas water heater has been installed which doesn't include any plumbing pipe modifications, it is a mechanical inspection and will be covered on the Residential Mechanical Final Checklist. If an electric water heater has been

GENERAL INFORMATION:

- This checklist is intended for use to prepare for an inspection. This is only a general list and is not intended to address all possible conditions.
- Additional information can be obtained from your local participating jurisdiction.

Page 1 of 3

- Example of pre-inspection check list for contractors or home owners

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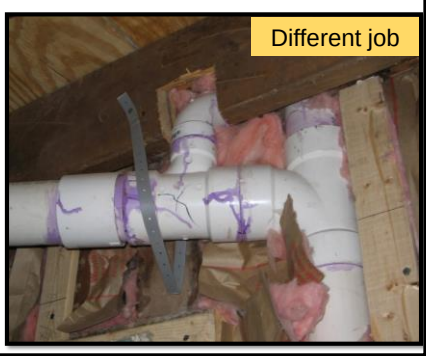
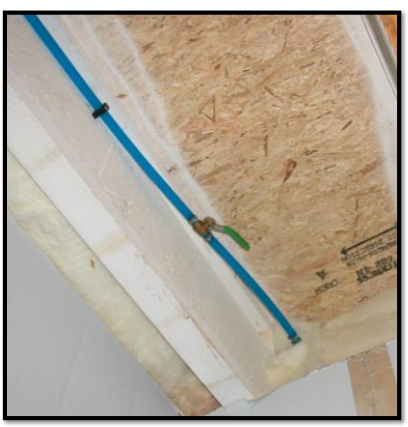
IRC Inspection
Plumbing, HVAC, Radon

- Rough Plumbing Inspection
  - Water main entering building and test
  - Testing building sewer
  - Testing of water and DWV systems
  - Proper sizes of DWV mains, branches and vents
  - Pipe size
  - Valves
  - Hangers
  - Proper fittings
  - Location of cleanouts
  - Shower liner test
  - Pipe insulation



IRC Inspection
Plumbing, HVAC, Radon



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IRC Inspection
Plumbing, HVAC, Radon

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IRC Inspection
Plumbing, HVAC, Radon

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IRC Inspection
Plumbing, HVAC, Radon

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IRC Inspection
Plumbing, HVAC, Radon

IRC Inspection
Plumbing, HVAC, Radon

- 2 x 10 max bored hole 3 1/16”
- No prescribed fix
- R104.1.1 Alternative materials, design and methods
- BO may approve alternative such as engineered fix

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IRC Inspection
Plumbing, HVAC, Radon

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IRC Inspection
Plumbing, HVAC, Radon

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IRC Inspection
Plumbing, HVAC, Radon

Master bath shower area

Almost finished master bath shower area

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IRC Inspection
Plumbing, HVAC, Radon

- Shower
- Early stages of construction

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IRC Inspection
Plumbing, HVAC, Radon

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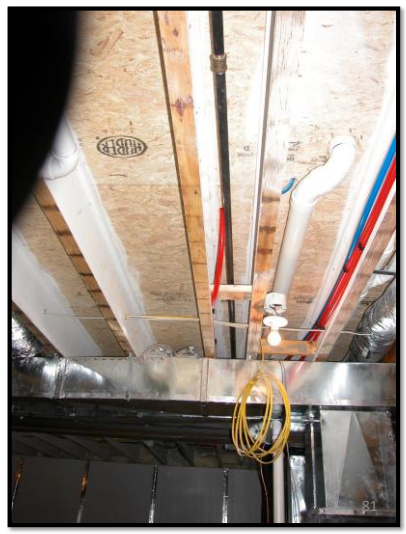
IRC Inspection
Plumbing, HVAC, Radon



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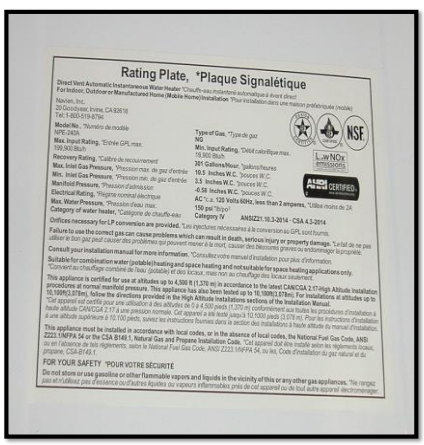
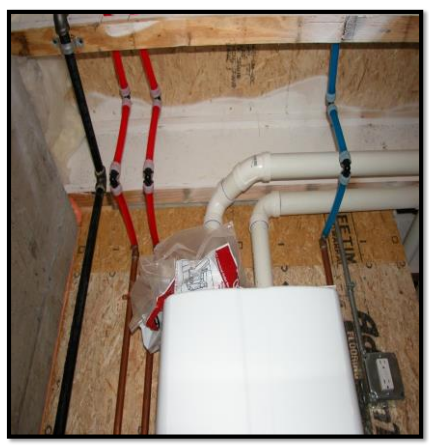
IRC Inspection
Plumbing, HVAC, Radon

Water Heater





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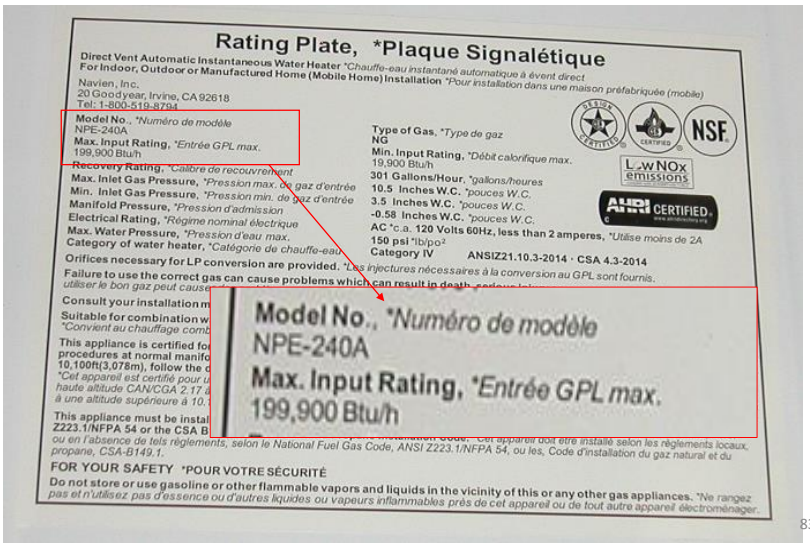
IRC Inspection
Plumbing, HVAC, Radon



83

IRC Inspection
Plumbing, HVAC, Radon

- Check venting of water heater
- pitch and length
- Relief valve piping
- Condensate disposal

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IRC Inspection
Plumbing, HVAC, Radon

Water Heater

IRC Inspection
Plumbing, HVAC, Radon

- Completed water heater
- Set to 120 degrees
- Condensate piping installed

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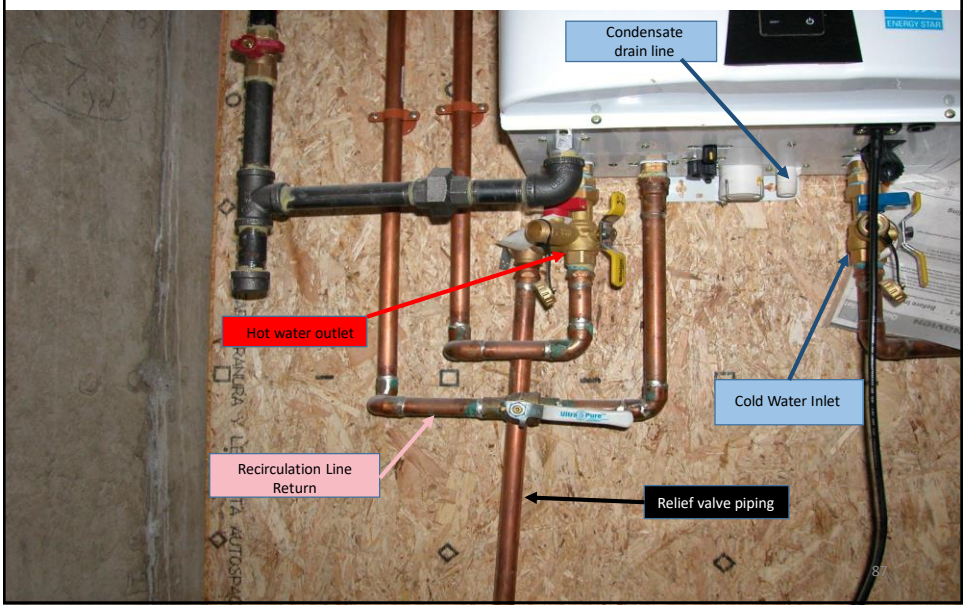
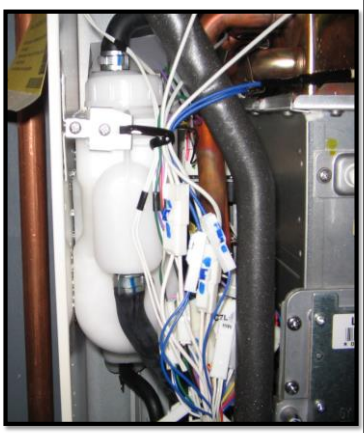
IRC Inspection
Plumbing, HVAC, Radon



IRC Inspection
Plumbing, HVAC, Radon



Noritz tankless with condensate neutralizer with No Recirculating line.

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IRC Inspection
Plumbing, HVAC, Radon

- Final Plumbing Inspection
  - Hot water temperature at tub/shower
  - General hot water temperature
  - Fixtures properly installed/caulked
  - DWV water and gas tightness

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IRC Inspection
Plumbing, HVAC, Radon

GAS PIPING INSPECTION

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IRC Inspection
Plumbing, HVAC, Radon

- Gas Piping

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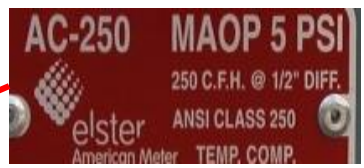

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IRC Inspection
Plumbing, HVAC, Radon

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IRC Inspection
Plumbing, HVAC, Radon

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IRC Inspection
Plumbing, HVAC, Radon

- Witness air test G2417.4.1
- Verify all openings capped or plugged
- Verify pipe sizes and appliance connections G2413
- Verify water heater make and model
- Verify metal hangers
- Protection of CSST
- Check venting if completed
- Is additional CSST bonding required G2411

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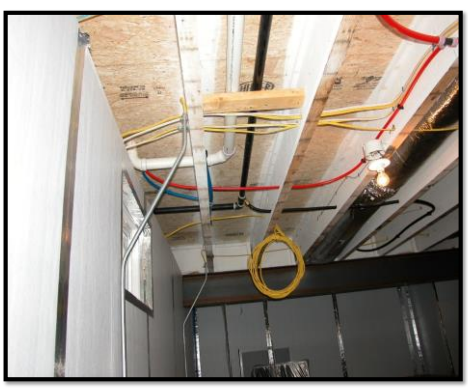
IRC Inspection
Plumbing, HVAC, Radon



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IRC Inspection
Plumbing, HVAC, Radon

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IRC Inspection
Plumbing, HVAC, Radon

Ventless Gas Fireplace

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IRC Inspection
Plumbing, HVAC, Radon

Fireplace bump out

Gas outlet for kitchen range

99

IRC Inspection
Plumbing, HVAC, Radon

- Final inspection
- Verify <u>all</u> attached appliances are functioning
- Appliances in attic have proper access

100

IRC Inspection
Plumbing, HVAC, Radon

RADON INSPECTION

101

IRC Inspection
Plumbing, HVAC, Radon

Basement

No change since rough, only basement and attic visible

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IRC Inspection
Plumbing, HVAC, Radon

103

IRC Inspection
Plumbing, HVAC, Radon

104

IRC Inspection
Plumbing, HVAC, Radon

HVAC ROUGH INSPECTION

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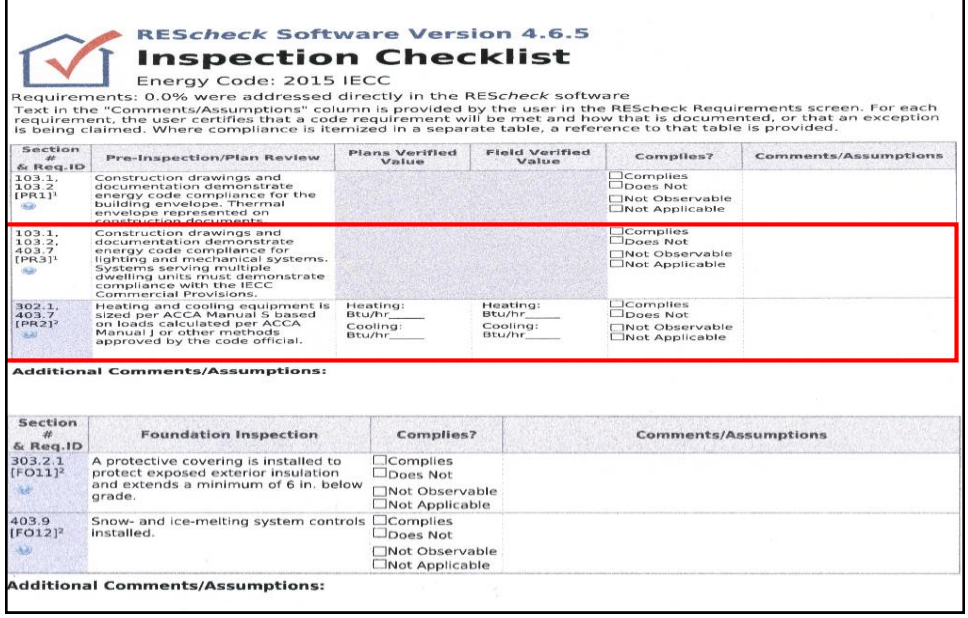
IRC Inspection
Plumbing, HVAC, Radon



RES*check* Software Version 4.6.5

Inspection Checklist

Energy Code: 2015 IECC

Requirements: 0.0% were addressed directly in the RES*check* software
Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2, [PR1]¹	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [PR3]¹	Construction drawings and documentation demonstrate energy code compliance for lighting and mechanical systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
302.1, 403.7 [PR2]²	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr_____ Cooling: Btu/hr_____	Heating: Btu/hr_____ Cooling: Btu/hr_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Foundation Inspection	Complies?	Comments/Assumptions
303.2.1 [FO11]²	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.9 [FO12]²	Snow- and ice-melting system controls installed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

IRC Inspection
Plumbing, HVAC, Radon

- Work from REScheck check list and HVAC load sheet, plan review record or other check list
- verify
- Equipment make and model
- Instructions are with equipment
- Mechanical piping properly installed and insulated

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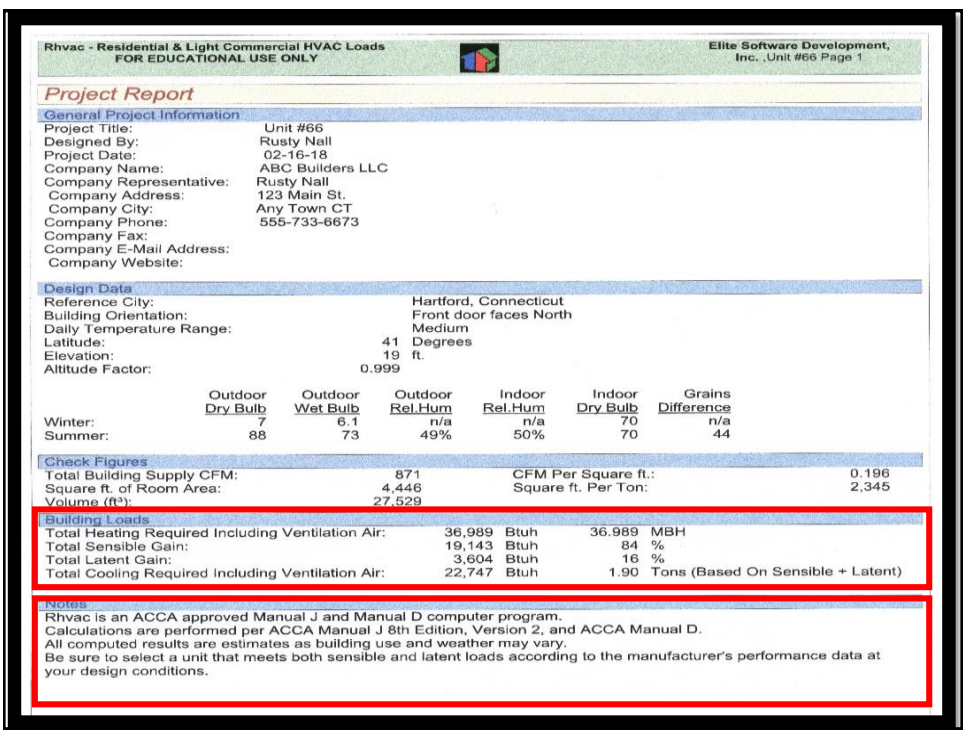

Rhvac - Residential & Light Commercial HVAC Loads
FOR EDUCATIONAL USE ONLY

Elite Software Development, Inc. ,Unit #66 Page 1

Project Report

General Project Information

Project Title:	Unit #66
Designed By:	Rusty Nail
Project Date:	02-16-18
Company Name:	ABC Builders LLC
Company Representative:	Rusty Nail
Company Address:	123 Main St.
Company City:	Any Town CT
Company Phone:	555-733-6673
Company Fax:	
Company E-Mail Address:	
Company Website:	

Design Data

Reference City:	Hartford, Connecticut	
Building Orientation:	Front door faces North	
Daily Temperature Range:	Medium	
Latitude:	41	Degrees
Elevation:	19	ft.
Altitude Factor:	0.999	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	7	6.1	n/a	n/a	70	n/a
Summer:	88	73	49%	50%	70	44

Check Figures

Total Building Supply CFM:	871	CFM Per Square ft.:	0.196
Square ft. of Room Area:	4,446	Square ft. Per Ton:	2,345
Volume (ft³):	27,529		

Building Loads

Total Heating Required Including Ventilation Air:	36,989 Btuh	36.989	MBH
Total Sensible Gain:	19,143 Btuh	84	%
Total Latent Gain:	3,604 Btuh	16	%
Total Cooling Required Including Ventilation Air:	22,747 Btuh	1.90	Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Rhvac - Residential & Light Commercial HVAC Loads
For Educational use only

Elite Software Development, Inc.
Unit #66 Page 2

System 1 Main Floor Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Koltech Window: Glazing-Koltech Window, u-value 0.28, SHGC 0.26	20	353	0	201	201
Kohltech Window: Glazing-Kohltech Window, u-value 0.27, SHGC 0.27	289.5	4,922	0	5,961	5,961
Kohltech Slider: Glazing-Slider, u-value 0.29, SHGC 0.3	40	731	0	1,339	1,339
Full Glass: Door-Full Glass Door	40	756	0	348	348
Full: Door-Full Door	40	428	0	198	198
R-19: Wall-Frame, Custom, R-19 Batt	2813.7	12,056	0	4,901	4,901
R-10 Cont: Wall-Basement, Custom, Basement Wall	1696	4,593	0	0	0
R-49: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Custom, R-49 Blown Insulation	1797.9	2,265	0	2,513	2,513
R-38 + 2.5: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Custom, Cathedral	186.4	235	0	93	93
R-38: Floor-Over open crawl space or garage, Custom, Over Garage	33.8	55	0	11	11
Slab: Floor-Basement, Custom, Basement Slab	1914	2,653	0	0	0
Subtotals for structure:		29,047	0	15,565	15,565
People:	8		1,840	2,400	4,240
Equipment:			0	0	0
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 115, Summer CFM: 60		7,942	1,764	1,178	2,942
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
System 1 Main Floor Load Totals:		36,989	3,604	19,143	22,747

Check Figures

Supply CFM:	871	CFM Per Square ft.:	0.196
Square ft. of Room Area:	4,446	Square ft. Per Ton:	2,345
Volume (ft³):	27,529		

System Loads

Total Heating Required Including Ventilation Air:	36,989 Btuh	36.989	MBH
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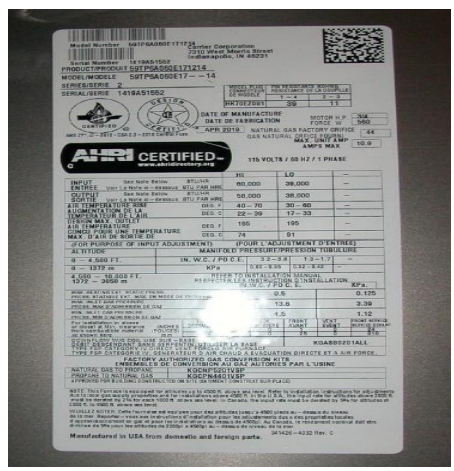
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

IRC Inspection
Plumbing, HVAC, Radon



Furnace Label

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IRC Inspection
Plumbing, HVAC, Radon

A/C coil information

Dryer, Water heater,
Furnace vents

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Rhvac - Residential & Light Commercial HVAC Loads
For Educational Use Only

Elite Software Development, Inc.
Unit #66 Page 3

System 1 Room Load Summary

Room No	Name	Area SF	Htg Sens Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Act Sys CFM
---Zone 1---										
1	Foyer	275	3,780	76	1-6	300	1,296	209	59	59
2	Study	138	2,274	46	1-6	240	1,036	132	47	47
3	Kitchen	249	1,367	28	1-6	462	1,996	1,014	91	91
4	Dining Room	196	1,524	31	1-6	298	1,287	80	59	59
5	Florida Room	144	3,557	72	2-6	374	3,232	176	147	147
6	Family Room	275	3,062	62	2-6	344	2,966	1,063	135	135
7	Master Bedroom	253	2,527	51	1-6	296	1,277	156	58	58
8	Master Walk In	74	442	9	1-6	50	216	29	10	10
9	Master Bath	122	1,501	30	1-6	185	799	108	36	36
10	Mud Room	155	745	15	1-6	64	278	48	13	13
11	Powder Room	28	223	5	1-6	19	82	17	4	4
	Zone 1 subtotal	1,908	21,002	425			14,465	3,032	658	658
---Zone 2---										
12	Bedroom 2	248	3,212	65	1-6	471	2,035	199	93	93
13	Bed 2 Walk In	36	697	14	1-6	61	265	53	12	12
14	2nd Floor Hall	34	377	8	1-6	28	123	30	6	6
15	Main Bath	72	549	11	1-6	59	255	37	12	12
16	Bedroom 3	234	3,077	62	1-6	375	1,617	209	74	74
17	Heated Basement	1,914	8,075	163	1-6	89	383	44	17	17
	Zone 2 subtotal	2,538	15,987	323			4,678	572	213	213
	System 1 total	4,446	36,989	748			19,143	3,604	871	871

System 1 Main Trunk Size: 14x12 in.
Velocity: 746 ft./min
Loss per 100 ft.: 0.091 in.wg

Note: Since the system is multizone, the Peak Fenestration Gain Procedure was used to determine glass sensible gains at the room and zone levels, so the sums of the zone sensible gains and airflows for cooling shown above are not intended to equal the totals at the system level. Room and zone sensible gains and cooling CFM values are for the hour in which the glass sensible gain for the zone is at its peak. Sensible gains at the system level are based on the "Average Load Procedure + Excursion" method.

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.90	84% / 16%	19,143	3,604	22,747

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Description:	0	0
Efficiency:	0 AFUE	0 SEER
Comment :		0
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

IRC Inspection
Plumbing, HVAC, Radon

112

IRC Inspection
Plumbing, HVAC, Radon

Typical duct floor termination

1 of 2 exhaust fans with programmable CFM exhaust

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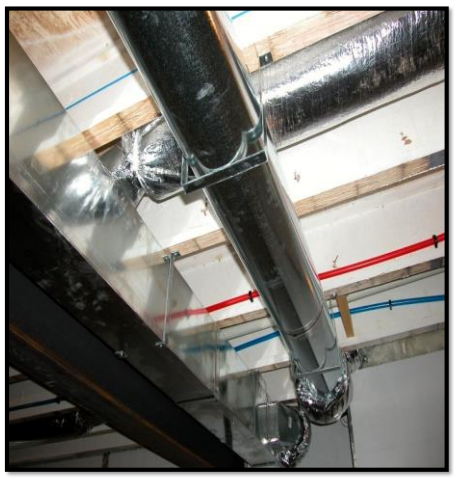
IRC Inspection
Plumbing, HVAC, Radon



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Return air duct built into wall for second and first floor

Looking up at basement ceiling, flex duct and furnace venting

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- Honeywell HZ311 zone damper/ thermostat control center (cover off)

Cover on

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First and second floor zone dampers

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- M1305.1.4.1 Ground Clearance
- Concrete slab or other approved material
- 3” clearance from ground

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Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.2.2, 402.2.6 [FI1][1]	Ceiling insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.1.1, 303.2 [FI2][1]	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft².			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.3 [FI22][2]	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.4 [FI3][1]	Attic access hatch and door insulation ≥R-value of the adjacent assembly.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.2 [FI17][1]	Blower door test @ 50 Pa. <=5 ach in Climate Zones 1-2, and <=3 ach in Climate Zones 3-8.	ACH 50 =____	ACH 50 =____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.4 [FI4][1]	Duct tightness test result of <=4 cfm/100 ft2 across the system or <=3 cfm/100 ft2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing inspection.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.3 [FI27][1]	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Postconstruction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2.1 [FI24][1]	Air handler leakage designated by manufacturer at <=2% of design air flow.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.1 [FI9][2]	Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.2 [FI10][2]	Heat pump thermostat installed on heat pumps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1 [FI11][2]	Circulating service hot water systems have automatic or accessible manual controls.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Unit #* Castle Heights
Data filename: C:\Carrier Group, Inc\HVAC, Heat Loss, ResCheck\ResCheck\Carrier Group, Inc\Castle Heights\66.rck

Report date: 01/10/19
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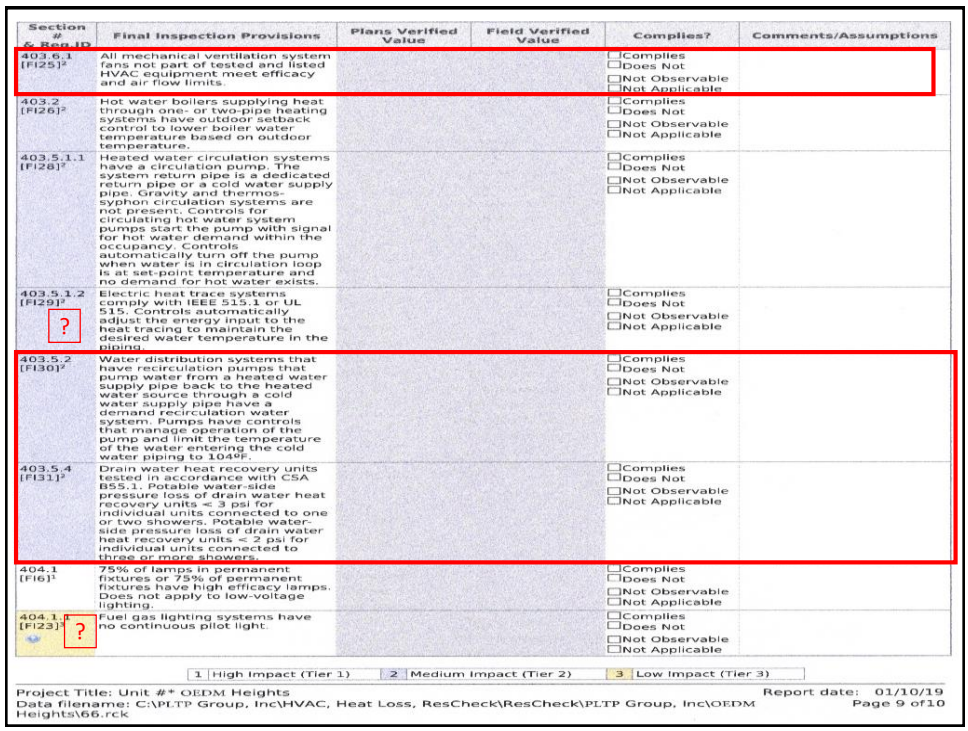

Section # & Reg ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6.1 [FI25]	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2 [FI26]	Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.1 [FI28]	Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermos-syphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls automatically turn off the pump when water is in circulation loop is at set-point temperature and no demand for hot water exists.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.2 [FI29] ?	Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.2 [FI30]	Water distribution systems that have recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe have a demand recirculation water system. Pumps have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to 104°F.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.4 [FI31]	Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units < 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units < 2 psi for individual units connected to three or more showers.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1 [FI6]	75% of lamps in permanent fixtures or 75% of permanent fixtures have high efficacy lamps. Does not apply to low-voltage lighting.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1.[illegible] [FI23] ?	Fuel gas lighting systems have no continuous pilot light.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Unit #* OEDM Heights
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TABLE N1103.6.1 (R403.6.1)
MECHANICAL VENTILATION SYSTEM FAN EFFICACY

FAN LOCATION	AIR FLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY (CFM/WATT)	AIR FLOW RATE MAXIMUM (CFM)
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	2.8 cfm/watt	Any
Bathroom, utility room	10	1.4 cfm/watt	< 90
Bathroom, utility room	90	2.8 cfm/watt	Any

or SI: 1 cubic foot per minute = 28.3 L/min.

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Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
401.3 [FI7][2]	Compliance certificate posted.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
303.3 [FI18][3]	Manufacturer manuals for mechanical and water heating systems have been provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

2015 IECC Energy Efficiency Certificate

Insulation Rating	R-Value	
Above-Grade Wall	19.00	
Below-Grade Wall	0.00	
Floor	38.00	
Ceiling / Roof	49.00	
Ductwork (unconditioned spaces):	_____	
Glass & Door Rating	**U-Factor**	**SHGC**
Window	0.27	0.29
Door	0.17	
Heating & Cooling Equipment	**Efficiency**	
Heating System:_____	_____	
Cooling System:_____	_____	
Water Heater:_____	_____	

Name: _____ Date: _____

Comments

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M1502 Clothes dryer exhaust

- Dryer exhaust duct
  - Metal
  - Exhausted to outdoors
  - Minimum 28 gage, 4”
  - Sealed per M1601.4.1
  - Terminate 3’ from openings
- M1502.4.4
  - UL 705 Power Ventilators allowed
- All joints taped M1601.4.1
  - UL181B Listed
  - Permanent label or tag> 35’

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Plumbing, HVAC, Radon

Duct for second floor bath fan

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Plumbing, HVAC, Radon

Bath exhaust used as part of ventilation system

Normal ½ Bath exhaust

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Plumbing, HVAC, Radon

Exhaust opening for Range hood

M1503.4 This unit < 400CFM
No additional makeup air required

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Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.3.4 [FR1][1]	Door U-factor.	U-_____	U-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.1.1, 402.3.1, 402.3.3, 402.5 [FR2][1]	Glazing U-factor (area-weighted average).	U-_____	U-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.3 [FR4][1]	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.1 [FR23][1]	Air barrier and thermal barrier installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.3 [FR20][1]	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.5 [FR16][2]	IC-rated recessed lighting fixtures sealed at housing/interior finish and labeled to indicate ≤2.0 cfm leakage at 75 Pa.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.1 [FR12][1]	Supply and return ducts in attics insulated >= R-8 where duct is >= 3 inches in diameter and >= R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated >= R-6 for diameter >= 3 inches and R-4.2 for < 3 inches in diameter.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.5 [FR15][3]	Building cavities are not used as ducts or plenums.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4 [FR17][2]	HVAC piping conveying fluids above 105 °F or chilled fluids below 55 °F are insulated to ≥R-3.	R-_____	R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4.1 [FR24][1]	Protection of insulation on HVAC piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.3 [FR18][2]	Hot water pipes are insulated to ≥R-3.	R-_____	R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.6 [FR19][2]	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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Plumbing, HVAC, Radon

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
401.3 [FI7][2]	Compliance certificate posted.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
303.3 [FI18][3]	Manufacturer manuals for mechanical and water heating systems have been provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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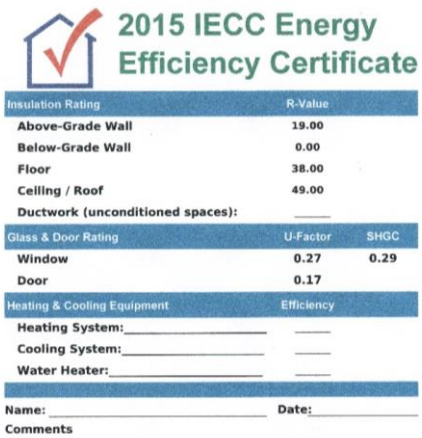

2015 IECC Energy Efficiency Certificate

Insulation Rating	R-Value	
Above-Grade Wall	19.00	
Below-Grade Wall	0.00	
Floor	38.00	
Ceiling / Roof	49.00	
Ductwork (unconditioned spaces):	____	
Glass & Door Rating	**U-Factor**	**SHGC**
Window	0.27	0.29
Door	0.17	
Heating & Cooling Equipment	**Efficiency**	
Heating System:_____	____	
Cooling System:_____	____	
Water Heater:_____	____	

Name: _____ Date: _____

Comments

- Compliance certificate posted N1101.14
- Approved location

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Any Questions?

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Residential Code Series: Plumbing, Mechanical and Radon

- Thank You:
- Johnny Carrier P.E. (Carrier Group, Inc.) for Plans and documents used in this presentation

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Residential Code Series: Plumbing, Mechanical and Radon

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Use of OEDM Training Materials

Use of Office of Education and Data Management (OEDM) training materials must be approved in writing by the State of Connecticut, Department of Administrative Services' Office of Communications. In approving of such use, the State of Connecticut assumes no liability associated with such use, including, but not limited to, the user's dissemination of any inaccurate information or interpretation in connection with its use of these training materials. Use of the training materials is at the sole risk of the user, and the State's approval of the use does not constitute an endorsement of the user or its intended use.

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