

DOLLARTON HIGHWAY I PROJECT SUMMARY

CLIENT: My House Design/Build Team
15356 Fraser Highway
Surrey, BC V4R 3P5

PROJECT: Dollarton Highway North – North Vancouver, BC
BUILDING TYPE: Custom Single-Family Home
BUILDING SIZE: 3,000 sq. ft.

HIGHLIGHTS:

- ✓ Load Calculations
- ✓ Evaluation & Recommendations
- ✓ 2-Line AutoCAD design

“As a project manager in residential construction, I’ve seen the process challenges that can arise in constructing custom new homes. That’s why; it is great knowing there is a service like Home Performance Design from Ecolighten to support the coordination of HVAC sub-trades and proper integration of mechanical solutions into our residential projects.”

Chris Guilbert / Project Manager – My House

BACKGROUND:

- Ecolighten became involved in this major renovation project to address concerns of unbalanced heating and cooling throughout the home.
- Homeowner identified hot spots in the summer -- predominantly the top floor, and cold spots in the winter, particularly the slab-on grade room adjacent to the kitchen and master bedroom.
- First challenge was to modify duct and piping to create more balanced distribution of the heating and cooling.
- Second challenge was to reroute the ducting in a manner to avoid or minimize drops as they were now through the middle of the ceiling.

SOLUTIONS & OUTCOMES:



DISCOVERY

- Ecolighten engaged with Builder, Project Manager, HVAC Contractors and Homeowner onsite to understand project needs and imperatives.
- Discussed the feasibility to retain any existing duct and new duct routing.

CALCULATIONS

- A detailed room-by-room load calculation was performed for the house.
- Ecolighten specifically targeted unbalanced rooms for analysis in effort to identify design solutions and recommendations that were simple and not cost prohibitive to achieve.
- Calculations showed that the existing duct design, distribution and installation could not meet several of the rooms need for heating and cooling. Undersized existing heat pump contributed to the lack of cooling in the summer.

RECOMMENDATIONS

- Ecolighten presented a summary of the load calculations with comment.
- A written report identified which parts of the ducting to adapt, add to and remove. Also, detailed the sizes and routing.
- A site visit was complete to walk-through and explain the recommendations and answer questions.
- Ecolighten ensured that all information provided to the sheet metal tradesmen was complete and thorough to ensure optimal installation without compromising comfort.

DESIGN

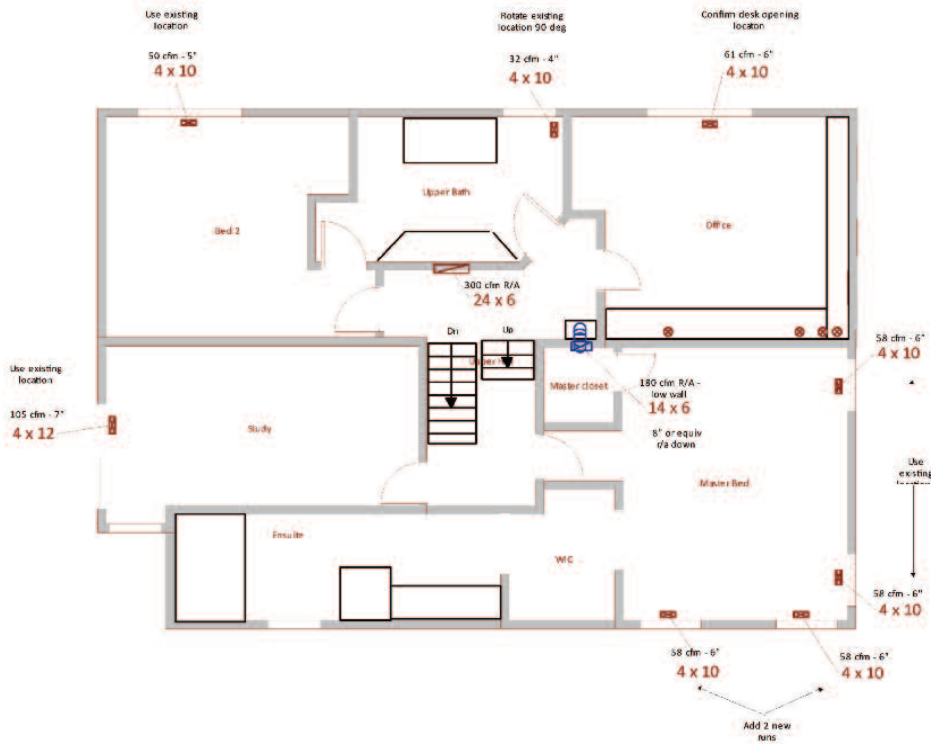
- Existing furnace required a change in location which required new ducting to tie all together.
- Ecolighten in consultation with Builder, HVAC contractor, and Project Manager drafted a 2-Line autoCAD duct redesign that coordinated all duct routing, piping and terminations. (see illustration table below).
- Duct design reflected a less obtrusive path and proper sizing.
- Air distribution designed for 1385 cfm (cooling mode for comfort, approx. 350cfm per ton).

SOLUTIONS

- Homeowner decided to upgrade existing furnace and heat pump a York Affinity™ Series high-efficiency furnace (97.7% AFUE) and four (4) ton heat pump.
- A minimum 4" pleated air filter with Merv 10 or higher rating.
- Increased distribution to several rooms in the home for greater comfort year round.
- Provided a general spec with best practices language for HVAC Contractor to adhere to.

UPSTAIRS DESIGN

Level 3

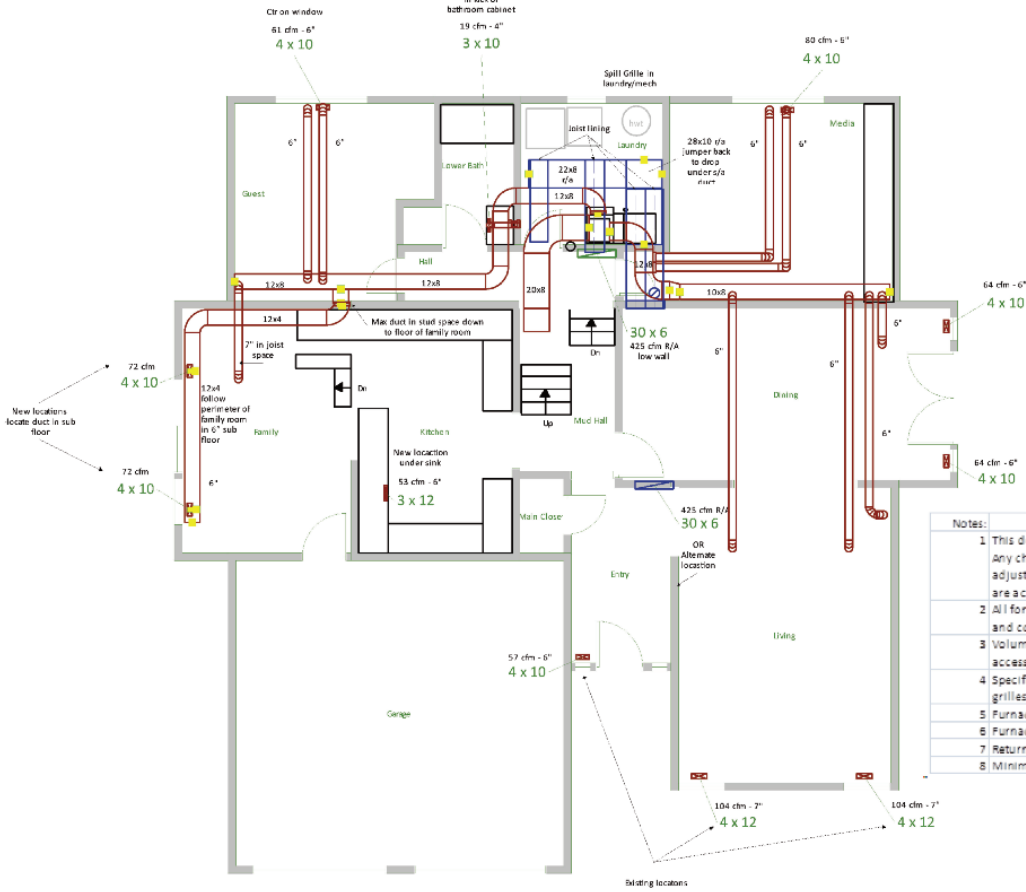


This design is based on a York YP9C080C16MP10C gas furnace and a 4 ton heat pump. Air distribution designed for 1385 cfm (cooling mode for comfort, approx 350 cfm per ton).

Notes:	
1	This design is a calculated guideline for planning and installation purposes. Any changes from this design may negatively affect performance. Any duct adjustments at the discretion of the installer. PROVIDING all deliverables are achieved in each room.
2	All forced-air cooling sheet metal to be sealed with duct mastic at every joint and connection and shall be insulated with standard foil-back duct wrap.
3	Volume dampers shall be installed at each trunk duct and branch run, and be accessible for balancing purposes.
4	Specific grill types are not yet determined but are assumed to be standard floor grilles and standard return registers.
5	Furnace do have combustion air from outside.
6	Furnace to be placed on 4x4 isolation pads.
7	Return air drop elbow to be complete with turning vanes.
8	Minimum 4" pleated air filter with Merv 10 or higher rating.

MAIN FLOOR DESIGN:

Level 2

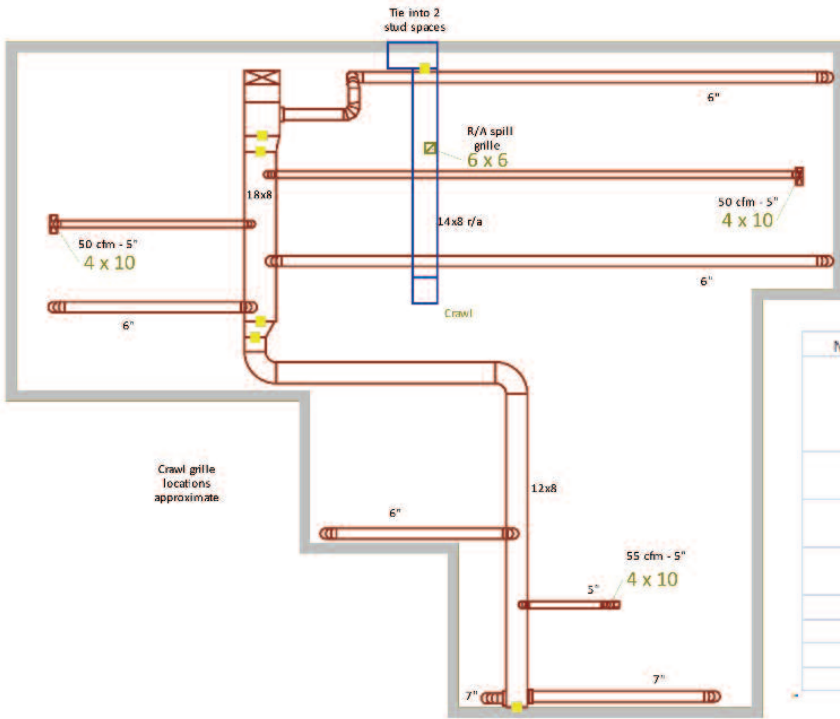


This design is based on a York YP9C080C16MP12C gas furnace and a 4 ton heat pump. Air distribution designed for 1385 cfm (cooling mode for comfort, approx 350cfm per ton).

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 - 8 Minimum 4" pleated air filter with Merv 10 or higher rating.

BASEMENT DESIGN:

Level 1



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ALL SERVICES ABOVE PROVIDED BY:

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