2025 Renovations / Additions

Architects designing small additions (residential or commercial) for buildings prepare the permit documents showing only the new addition or renovations – architectural drawings don't usually show enough information to perform the code (FECC 103.2) required calculations for HVAC design and energy calculations. Renovations and small additions usually are served by an existing hvac system – in most cases new duct work serving the new addition or renovation is connected to the existing hvac system – and in some cases, with larger additions, the addition may also be served by a new dedicated hvac system.

Information showing the geometry and building envelope component make up is required for all rooms served by the hvac system – whether the rooms are new, existing, or renovated. Most small additions served by an existing hvac system will require a field sketch of the existing building showing the geometry and envelope component materials. All rooms served by the existing hvac system (new and existing) require a room by room heat load calculation to determine if the existing equipment capacity will meet the new demand associated with combining both the existing rooms with the new / renovated rooms. This heat load calculation will also determine the room by room air balance for the building – there will be a shift in airflow that affects every room served by the hvac system – so a correctly designed hvac system for small additions or renovations served from an existing hvac system requires a full energy study of the building.

The existing residential "kit" is used by the builder / building owner / or hvac contractor to provide this code required site information – the architect's drawings are combined with the "kit" information to make up the entire hvac "thermal zone" (thermal zone = all rooms that are served by the hvac system). The kit provides both a sample sketch and a sample building questionnaire, sketch up your building on the graph paper provided (match the same information format shown on the sample drawing) and complete the questionnaire form for each phase of construction showing the envelope component materials for your particular building.

Our building codes effective 12/31/2023 require this math be performed to ensure the building owner has a properly designed hvac system, codes no longer allow the hvac contractor to simply "guess" that the existing hvac equipment capacity will meet the new calculated demands. See the Florida study available from the FSEC http://www.fsec.ucf.edu/en/publications/html/FSEC-PF-328-97/ showing that about 60% of the hvac contractor's grossly oversize hvac equipment. Some hvac contractors performed no math at all, the few that did perform heat loads padded the math with unreasonable allowances, and only a very few hvac contractors actually performed the heat loads properly (ACCA Manuals J,D,S,T,ZR, and Adequate Exposure Diversity).

This study shows that many small additions can easily be served by the existing hvac equipment capacity because the existing hvac equipment is already oversized – and it's a simple task of adding new ducts for the addition / renovation and performing a whole building air flow balance that meet the new heat load demands.
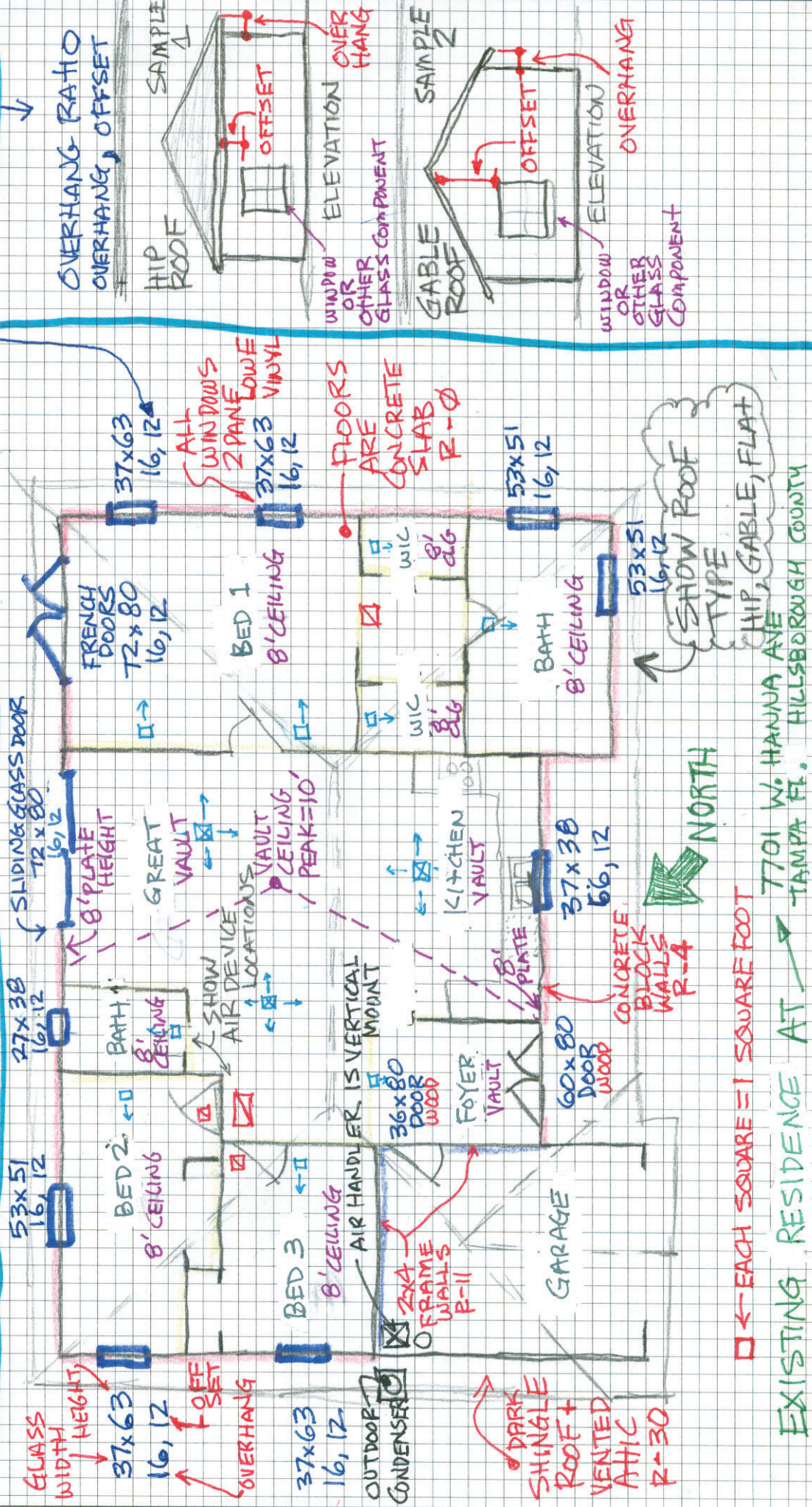
SAMPLE

NOTES:
1) SHOW CEILING HEIGHTS FOR EACH ROOM
2) SHOW WIDTH AND HEIGHT OF EACH GLASS COMPONENT (WINDOWS, SLIDING GLASS DOORS, FRENCH DOORS)
3) DRAW EACH ROOM TO SCALE, ROOM NAME, AND SHOW ROOF TYPE (HIP, GABLE, FLAT)
4) IDENTIFY EACH BUILDING ENVELOPE COMPONENT TYPE AND ADDED INSULATION "R" VALUE
5) SHOW COMPASS ORIENTATION, LIST ADDRESS + PERMIT JURISDICTION
6) LIST OVERHANG PROJECTION RATIO FOR EACH GLASS COMPONENT — (2) NUMBERS
7) COMPLETE   Residential Information Form   HOME SKETCH — EMAIL TO
   + LIST CONDITIONED AREA   NEILEHVACDESIGNS.COM

OVERHANG RATIO
OVERHANG, OFFSET

HIP ROOF

SAMPLE 1
ELEVATION   OVERHANG
OFFSET

WINDOW OR OTHER GLASS COMPONENT

SAMPLE 2
GABLE ROOF
OFFSET   OVERHANG
ELEVATION
WINDOW OR OTHER GLASS COMPONENT

37x63   16,12
ALL WINDOWS 2 PANE LOW-e VINYL
37x63   16,12
FLOORS ARE CONCRETE SLAB R-0
53x51   16,12

BED 1   8' CEILING
WIC   8' BLG
WIC   8' BLG
BATH   8' CEILING
53x51   16,12

FRENCH DOORS 72x80   16,12

8' PLATE HEIGHT
GREAT   VAULT
VAULT CEILING, PEAK=10'
KITCHEN   VAULT
37x38   66,12
SHOW ROOF TYPE HIP, GABLE, FLAT

SLIDING GLASS DOOR 72x80   16,12
SHOW AIR DEVICE LOCATIONS
VERTICAL MOUNT

NORTH

CONCRETE BLOCK WALLS R-4

8' PLATE
FOYER VAULT
60x80 DOOR WOOD

← EACH SQUARE = 1 SQUARE FOOT

27x38   16,12
BATH   8' CEILING
36x80 DOOR WOOD
AIR HANDLER IS VERTICAL MOUNT
2x4 FRAME WALLS R-11
OUTDOOR CONDENSER

53x51   16,12
BED 2   8' CEILING

BED 3   8' CEILING
GARAGE

37x63   16,12
OFFSET   OVERHANG
37x63   16,12

GLASS WIDTH   HEIGHT
OVERHANG
DARK SHINGLE ROOF + VENTED ATTIC R-30

← EACH SQUARE = 1 SQUARE FOOT

EXISTING RESIDENCE AT → 7701 W. HANNA AVE TAMPA FL. HILLSBOROUGH COUNTY

2025 ENERGY AND HVAC INFORMATION FORM / BUILDING ENVELOPE AND SYSTEM(S) DATA

INFO REQUIRED

PROVIDE THIS FORM AND COPYRIGHT FREE PDF PERMIT READY ARCHITECTURAL DRAWINGS INCLUDING: SITE PLAN or NORTH ARROW, SCALED BUILDING FLOOR PLAN AND ROOM NAMES, ELEVATIONS, WALL SECTION, CONDITIONED LIVING AREA SQUARE FEET FOR EACH BUILDING LEVEL, GARAGE AREA SQUARE FEET, STRUCTURAL FLOOR FRAMING PLANS FOR MULTI-LEVEL BUILDINGS. SHOW OUTDOOR HVAC EQUIPMENT AND AIR HANDLER LOCATIONS ON DRAWINGS.

EXISTING BUILDING : PROVIDE YEAR OF CONSTRUCTION, DUCT SKETCH OF SYSTEM(s), SHOW SUPPLY, RETURN, EXHAUST, AND HVAC EQUIPMENT MODEL #'s. WHEN BUILDING DRAWINGS ARE NOT AVAILABLE, VISIT OUR WEBSITE FOR A SAMPLE SKETCH SHOWING DATA REQUIRED. USE **NOTES** SECTION AT FORM BOTTOM FOR ADDITIONAL INFORMATION.

HVAC DESIGN

OUR HVAC CAD DESIGN PROVIDED INCLUDES ACCA MANUALS AND ENERGY CODE CALCULATIONS BASED ON VALUES REQUIRED TO PASS THE ENERGY CODE. FECC BASELINE "RECOMMENDED" VALUES WILL BE USED WHEN FORM DATA IS NOT SELECTED OR DATA IS NOT SHOWN ON PERMIT DRAWINGS. DESIGN ASSUMPTIONS: BLOWER DOOR TEST SCORE OF 5.0 (ACH50) USED UNLESS NOTED BELOW; 55 GALLON MAXIMUM STORAGE WATER HEATER(S); MASTIC SEALED R8 DUCTS EXTERIOR / R6 DUCTS INTERIOR; SEMI-TIGHT BUILDING ENVELOPE CONSTRUCTION PRACTICE; MECHANICAL VENTILATION AIR; COLOR ABSORPTANCE FACTORS: WHITE .30, LIGHT .35, MEDIUM .45, DARK .65; VENTED ATTIC VENT RATE 1/300; AND PROGRAMMABLE THERMOSTAT. DURING CONSTRUCTION BUILDER MUST MEET OR EXCEED ENVELOPE COMPONENT VALUES AND EQUIPMENT EFFICIENCIES SHOWN ON THE ENERGY FORM(s).

CLIENT

COMPANY NAME:	
CONTACT PERSON:	
CONTACT PHONE:	
CONTACT E MAIL:	
BUILDER NAME:	

PROJECT

NAME:	
*ADDRESS:	
CITY:	
*COUNTY:	
*PERMIT OFFICE:	

SITE DIRECTION FRONT DOOR FACES:

N	NE	E	SE	S	SW	W	NW	FLOOD ZONE BFE =	FEET

WINDOWS AND DOORS

ENVELOPE COMPONENT	FRAME MATERIAL			GLASS PANES		GLASS COATING			IMPACT		NFRC RATED	
	METAL	WOOD	VINYL	SINGLE	DOUBLE	CLEAR	TINT	LOW E	YES	NO	U VALUE	SHGC
1												
2												
3												
4												
5												
6												
7												
8												
9												
FECC BASELINE GLASS VALUES:		VINYL			DOUBLE		LOW E			NO	0.4	0.25

FLOORS

ENVELOPE COMPONENT	% TILE	% WOOD	% CARPET	INSULATION "R"	FECC BASELINE VALUES
1					SLAB ON GRADE = NO INSUL.
2					RAISED FLOORS = R-13 INSUL.
3					

WALLS

ENVELOPE COMPONENT	COLOR CHART	EXTERIOR COLOR			INSULATION LOCATION			INSUL. "R"	FECC BASELINE VALUES
		LIGHT	MEDIUM	DARK	INTERIOR	EXTERIOR	CORE FILL		
1									FRAME = R-13 INSUL.
2									BLOCK CONTINUOUS = R-6
3									CUSTOM EXTERIOR COLOR
4									ABSORPTANCE FACTORS
5									WALL:_____ ROOF:_____

ROOFS

ENVELOPE COMPONENT	SLOPE PITCH(S)	EXTERIOR COLOR				ROOF COVER MATERIAL						FECC BASELINE VALUES
		WHITE	LIGHT	MEDIUM	DARK	SHINGLE	METAL	BARREL TILE	FLAT TILE	MEMBRANE	OTHER	
1												ON ROOF DECK = R-38
2												SINGLE ASSEMBLY = R-38
3												

CEILINGS

ENVELOPE COMPONENT	TRUSS MATERIAL		INSULATION LOCATION		INSULATION TYPE			INSUL. "R"	FECC BASELINE VALUES
	WOOD	METAL	AT CEILING	AT ROOF	BATT	BLOWN	FOAM		
1									CEILINGS = R-38 INSUL.
2									ATTIC KNEE WALL = R-38 INSUL.
3									ROOF DECK = R-38 INSUL.
4									ATTIC BREAK WALL = R-38 INSUL.

BUILDING SYSTEMS

WATER HEATER FUEL			WATER HEATER LOCATION				TANK TYPE		STORAGE TANK	EFFICIENCY	FECC BASELINE VALUES
ELECTRIC	NATURAL GAS	PROPANE	GARAGE	INTERIOR	ATTIC	EXTERIOR	TANKLESS	TANK	GALLONS (55 MAX)	EF or UEF	
											ELECTRIC / GAS = .92 EF

HVAC SYSTEM(S)	OUTSIDE EQUIP. LOCATION			AIR HANDLER LOCATION				FECC BASELINE VALUES
	ON GRADE	RAISED > BFE	ROOF	GARAGE	INTERIOR	ATTIC	EXTERIOR	
1								
2								ENERGY CALC'S DETERMINE EFFICIENCIES REQUIRED
3								ACCA CALC'S DETERMINE EQUIPMENT AND DUCT SIZING
4								

CREDIT

VENTED ATTIC	COOL ROOF	CEILING FAN	THERMOSTAT(S)	DUCT TEST	WATER HEATER	R-8 DUCTS	VERIFIED ENVELOPE TEST
RADIANT BARRIER	REFLECTANCE > 4%	BEDS + PRIM. LIVING	PROGRAMMABLE	4% MAX LEAK	HEAT PUMP	(REQ. 402 METHOD)	BLOWER DOOR ACH50 SCORE

NOTES

PLACE ENERGY FORM SIGNATURE INSIDE BOX BELOW

SAVE COMPLETED FORM, THEN MAIL TO: NEIL@HVACDESIGNS.COM   NEIL (813) 885 2258