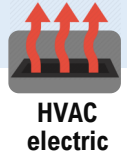




ENERGIE ABC HYBRID INC.

ALL ELECTRIC

forced-air central heating control



3-FLEX cuts all electric central heating cost by 20%*

New 3-FLEX controller with game-changing electric furnace staging control raises efficiency, comfort and economy to a new level.

DRAWBACKS of STANDARD HVAC ELECTRIC HEATING

Most HVAC thermostats limit furnace heat control up to 2 stages.

With only 15 to 30% of total electric furnace capacity typically required to maintain daytime setpoint for most of the winter, a call for aux. heat often culminates in short-cycling of the heating system. Compromising not only efficiency, comfort, heating and maintenance cost. It also shortens heat pump service life as excessive cycling and thermal stress take its toll.

3-FLEX UNLOCKS THE FULL POTENTIAL OF ELECTRIC HEATING

3-FLEX increases thermostat aux. heat staging capacity to 6 stages using constant setpoint differential, delay staging. Now when paired with a heat pump a call for aux. heat activates measured electric furnace heat to assist the up to 3 times more efficient heat pump in maintaining thermostat setpoint, without skipping a beat!



Fig.1 3-FLEX add-on controller enhances house thermostat aux. heat control capabilities.

UNPARALLELED EFFICIENCY and COMFORT (fig.2)

Paired with a with heat pump, cold air influx (cold blow) during defrost and colder winter days can make the house feel cold and uncomfortable.

By adding a temperature sensor between heat pump coil and furnace, on-demand, measured electric furnace heat keeps supply air comfortable at all times, without a thermostat call for aux. heat!

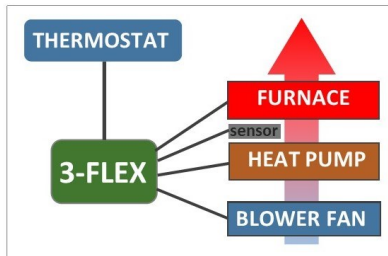


Fig.2 3-FLEX all electric heat control block diagram. (also works with heat pump coil installed after furnace)

ADDED SAFETY and PROTECTION

The 3-FLEX controller includes a solid state airflow sensor that in case of blower fan malfunction or airflow blockage prevents electric furnace overheating and compressor damage by disabling both heating appliances and raise an alarm.

ELECTRIC HEATING CONTROL OPTIONS

Time-line diagram (fig.3) plots electric furnace staging sequence as function of **building heat-load** and steadily falling outdoor temperatures. Dotted lines represent alternative control options.

3-FLEX heat control: dynamic delay staging adjusts furnace heat by tracking changing building heat load conditions. Quickly upstaging heat-supply when raising thermostat setpoint, gradually downstaging it again after reaching setpoint. Exerting maximum efficiency and comfort with continuous even heat, without requiring sensors!

single stage: Turns on all heating elements each time the thermostat calls for heat. Making it inefficient, uncomfortable and uneconomical.

outdoor reset: Stages heating elements based on outdoor temperature. Unable to track changing indoor heat-load conditions this results in under or overheating.

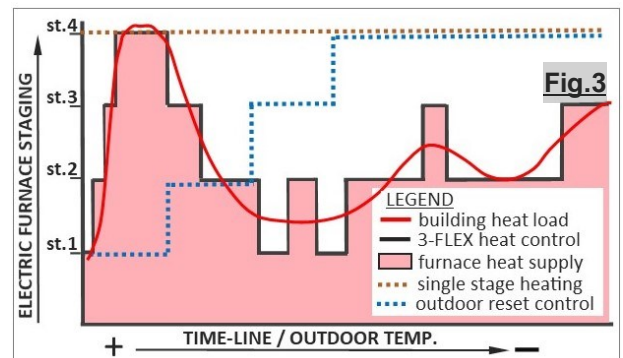


Fig.3 Starting with a sharp increase in heat-load demand when raising thermostat setpoint. Time-line diagram fig.3 compares innovative 3-FLEX staging control with existing furnace heat control methods.

BALANCING HEAT LOSSES with HEAT GAINS (fig.4)

A heating system is most efficient and comfortable when furnace heat-supply and building heat-load are balanced.

Divided in heat gains and losses a combination of structural internal and external factors determine how much the heating system needs to contribute meet building heat load demand.

While outdoor temperature is a dominant factor, sun radiation indoor activities, windspeed and sudden changes in thermostat settings can quickly change the building heat-load profile.

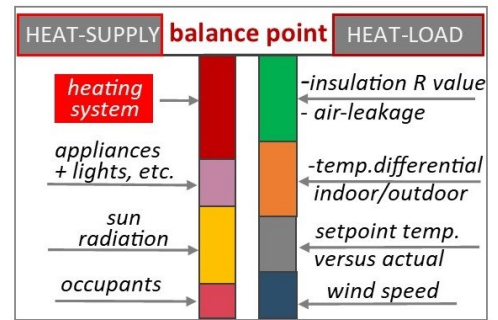
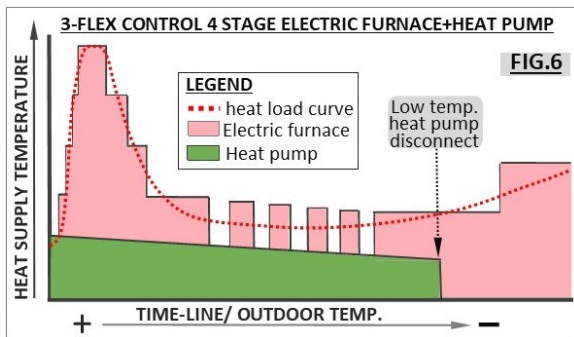
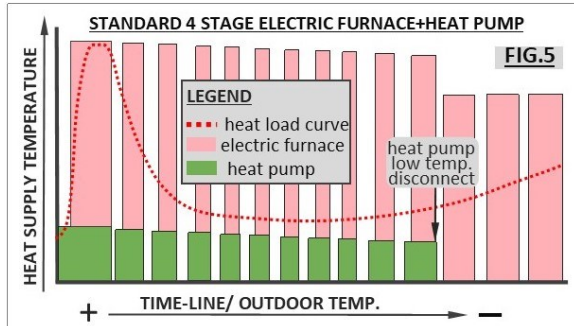


Fig.4 building heat load and supply are determined by internal and external factors



HEATING CONTROL COMPARISON

Starting with a surge in building heat-load demand when raising the house thermostat to daytime set point, time-line diagrams fig.5/6 illustrate the differences between STANDARD and 3-FLEX control staged furnace heat.

STANDARD control (fig.5)

Standard HVAC electric heating is intermittent and erratic. Unable to regulate heat supply in lockstep with changing heat-load conditions it cycles between heat pump, electric furnace and no heat. When around -10°C the heat pump cuts out and on-off electric furnace heat takes over.

3-FLEX control (fig.6)

A combination of uninterrupted heat pump and measured electric furnace heat perfectly balances heat-supply in lockstep with changing heat-load conditions. When at a preset low temperature point the heat pump cuts-out and the electric furnace steps-up to fill the gap.

TESTIMONIALS

“well worth the investment”
J. Cling, Ile Bizard ,QC

“works better than ever ”
M. Ajamada, Baie D’Urfe ,QC

“much more comfortable”
R. Chang, Baie D’Urfe ,QC

“great job, works perfectly”
R. James, Pt. Claire, QC



Home expert Jon Eakes:

3-FLEX delivers on comfort and savings.

(listen to Jon Saturdays 9-10am on CJAD 800 AM)

3-FLEX FEATURES and BENEFITS

- Reliable, proven, solid state technology in use since 2011.
- Perfectly suited for new and existing electric furnace installations.
- Only 1 indoor supply-air temperature sensor required.
- Transparent to all house thermostat commands.
- Adaptive variable delay staging for fast heat recovery.
- Optional load manager limits furnace current draw on distribution panel.
- Signal splitting creates 2 additional thermostat control wires.
- Programmable blower fan on/off delay improves efficiency and comfort.
- 3-FLEX also works with dual-heat, hydronic and multi-zone central heating.
- Warranty: 3-FLEX controller 3 years parts and labour.

HOW TO ORDER

With brand name and model # of existing electric furnace in hand please contact us by phone or Email for budgetary pricing and recommended installer in your area.



ENERGIE ABC HYBRIDE INC.

for more information
and free estimate

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