All Seasons
CLIMATE COMFORT

Heating
Air Conditioning
Applied Systems
Refrigeration

Env Workshop Nov 2014 – DAB Topics

TOP SECRET
SECRET
INTERNAL USE ONLY
PUBLIC

1) Phase out R22

Regulation in Belgium quite complicated with 3 different Regions :

In the 3 Regions : use of R22 prohibit from 01/01/2015

But with some differences :

- **Flemish Region :** from 01/01/2015, R22 units may still operate up to the moment a problem occurs on refrigerant circuit (than : recovery R22 + unit change or drop in)
- **Walloon Region :** from 01/01/2015, R22 units may still operate up to the moment a problem occurs on refrigerant circuit (than : recovery R22 + unit change or drop in) and after 30/05/2015, units may operate only if no leakage established in 2013 and 2014 (reference = logbook)
- **Brussels Region :** from 01/01/2015 , R22 units may NOT more operate → solutions : recovery R22 + unit change or drop in

Opportunity : The Phase out of R22 has to boost the units replacement

Barrier : Drop in R22 (by R422) / COP lower, no support DENV

Noise regulation more strict compare to several years ago

Not always watercooled chillers (screw inverter) available

A lot of units are oversize due to heat gains reduction in buildings

(insulation works, less internal load, …)

2) Phase out R22

Replacement of R22 units = a lot of scrap units brought to the market

Opportunity : increase of amount of units recycled to support the DAB recycling plan (119,3 ton for 2014)

Barrier : price of scrap metal (copper, aluminium, steel, …)

hard competition of scrap merchants

no control of the authorities (no manpower) concerning :

- the recovery of refrigerant on scrap unts
- the certification of scrap merchants

3) Subsidies for low energy consumption systems

Subsidies are given in the different Regions to promote the low energy products : heat pump units, solar panels, photovolatic panels, …

Trend : specifical certification for the Company and for the engineers to ensure the quality of the installation (QUEST & CONSTRUCTION QUALITY and RESCert)

Opportunity : Subsidies can be a good sales support of heatpump units, Daikin Altherma units, Rotex products, … towards end users

Barriers : No long term vision on the subsidies (no real continuity)

Differences between the 3 Regions

4) Energy performance of buildings

New build – market

EPBD (Energy Performence of Building Directive)

EPBD (Flanders):
2014/2015: E60 – K40 + Renewable energy
2016/2017: E50 – K40
2018/2019: E40 – K40
2020: E35 – K40
2021: E30 – K40

E-value or Ew-level = building primary energy consumption per year (kWh/m²/year)

K-level = bulding thermal insulation level

Example :
2011: 6% HP
Gas boiler + (PV (solar)) cheapest option
E60/E54 mostly reached by isolation level (+- E45 possible)
Increasing focus on HP (E50: 33%, E40: 50%, <E20: 75%)
2011: 6% solar
No relation with E-level

EPB (Wallonia):
2014: Ew80 – K35
Increasing focus on HP

Gas boiler (no PV or soalr)
SHW: small (integrated) boiler

EPB (Brussels):
2014: E70 – K40
2015: Eprimaire < 45 kWh/m²/yr

Current proposals from real estate promoters

Matexi – E46:
WHCB + rad/UFH chauff sol
Ventilation D (cross ventilation)

Hyboma – E30 (BEN):
K25 – K30
WHCB + radiators
PV
Ventilation C

Revive – E30 (BEN):
K < K20
HP + UFH underfloor heatong
Ventilation D

Revive – E40:
K < K30
HP + UFH
Ventilation D

Huyzentruyt – E40:
K30
WHCB + rad/UFH
PV
Ventilation C+

PV : Photovoltaic
HP = Heat Pump
SHW = solar hot water
WHCB = wall gas boiler
UFH = under floor heating
Ventilation C = mechanical extraction
Ventilation D = cross flow

EPBD simulation

Naam	U/R	K	E	NE	Ventil.	Oververh.	HE
Rotex Gaswandketel rad	✓	✓ 31	✗ 65	✓ 51	✓	✓	✗
Rotex Gaswandketel rad + Solaris x 4	✓	✓ 31	✓ 56	✓ 51	✓	✓	✓
Rotex Gaswandketel vvw	✓	✓ 31	✗ 63	✓ 51	✓	✓	✗
Rotex Gaswandketel vvw + Solaris x 4	✓	✓ 31	✓ 55	✓ 51	✓	✓	✓
Daikin Integrated	✓	✓ 31	✓ 54	✓ 51	✓	✓	✓
Daikin Wall mounted	✓	✓ 31	✓ 59	✓ 51	✓	✓	✓
Daikin Monobloc	✓	✓ 31	✓ 59	✓ 51	✓	✓	✓
Rotex HPSU compact (no BUH)	✓	✓ 31	✓ 46	✓ 51	✓	✓	✗
Daikin GSHP	✓	✓ 31	✓ 50	✓ 51	✓	✓	✓

E-level becomes 50 in CY 2016

- Daikin integrated with K 31 is not enough to cope E50 => because of electrical heater
- Rotex HPSU Compact is enough to get E50 => no electrical heater

E-level becomes 40 in CY 2018

- Rotex HPSU Compact + solaris will come under E 40
- Altherma Integrated will request additional measures, lower K level, othere renewable energy applications

EPBD simulation

Naam	U/R	K	E	NE	Ventil.	Oververh.	HE
Rotex Gaswandketel rad	✓	✓ 31	✗ 65	✓ 51	✓	✓	✗
Rotex Gaswandketel rad + Solaris x 4	✓	✓ 31	✓ 56	✓ 51	✓	✓	✓
Rotex Gaswandketel vvw	✓	✓ 31	✗ 63	✓ 51	✓	✓	✗
Rotex Gaswandketel vvw + Solaris x 4	✓	✓ 31	✓ 55	✓ 51	✓	✓	✓
Daikin Integrated	✓	✓ 31	✓ 54	✓ 51	✓	✓	✓
Daikin Wall mounted	✓	✓ 31	✓ 59	✓ 51	✓	✓	✓
Daikin Monobloc	✓	✓ 31	✓ 59	✓ 51	✓	✓	✓
Rotex HPSU compact (no BUH)	✓	✓ 31	✓ 46	✓ 51	✓	✓	✗
Daikin GSHP	✓	✓ 31	✓ 50	✓ 51	✓	✓	✓

HE = Renewable energy ?

- Flemish request
- For heat pump SPF 4 needed (calculated via own methodology, is an SCOP , not conform Ecodesign)
  - Air/air => 4,01 at +2° C outdoor /20° C indoor
  - Air/water => 3,71 at +2° C outdoor / 35° C water temp with floorheating will result in SPF 4

SPF = seasonal performance factor
SCOP = seasonal coefficient of performance