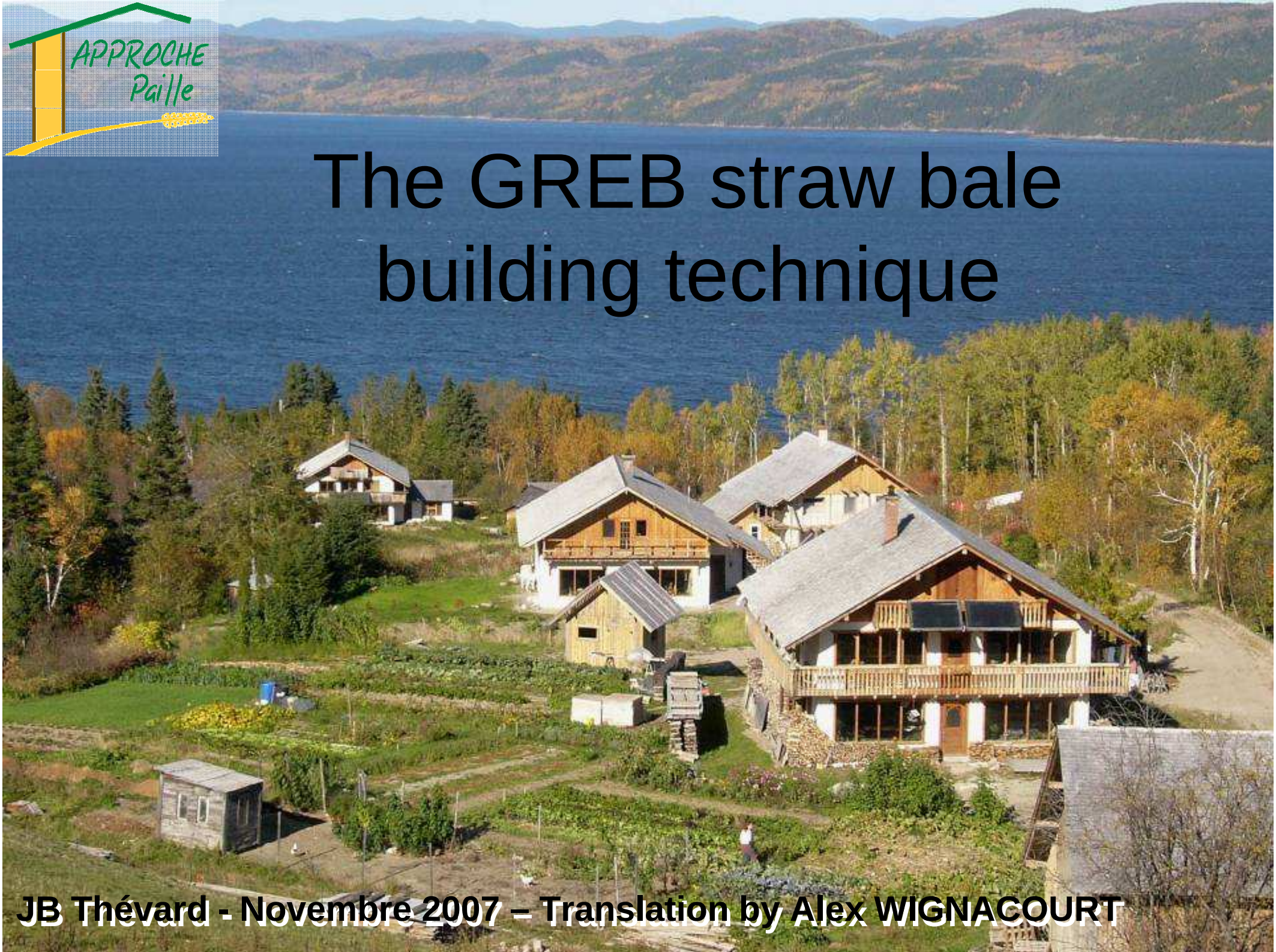
The GREB straw bale building technique



JB Thévard - Novembre 2007 – Translation by Alex WIGNACOURT

The idea :
A complete construction system using 4 composites

1-Wood / timber frame

3- Steel Links

2-Straw

4-Aerated mixed concrete (light wood based mortar)

1- WOOD – timber frame

A unique section : 100 x 40 mm
(« 2 » x « 4 »)

The upper rail section with one floor

The double light timber frame

The lower section :
sill plate fixed on the foundations

1- Wooden frame details

A corner post wich gives strong resistance

A window with lintel and sill

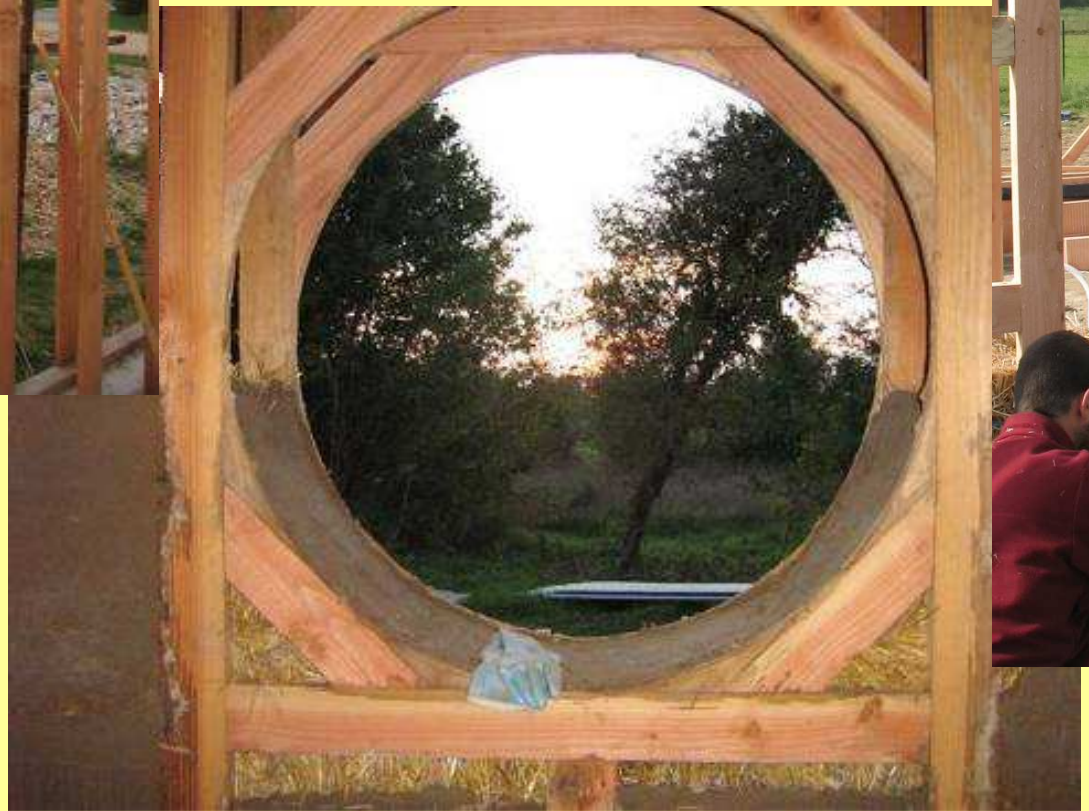
The floor joists

1- Special details

For roller blinds

The structural column,
made of 8 posts assembled

Bow window



2- STRAW

A large « tunnel » for strawbales without any thermal loss

Strawbales

With different sizes, slipped inside the double frame

3- METAL LINKS

Screws
(wood/wood)

Nails
(Mortar/wood/straw)

Metal links
(wood/straw/wood)

4- AERATED MIXED CONCRETE WITH WOOD CHIPS

The composition come from research based on « bois cordé »

Greb recipie :

4 parts of wood chips
3 parts of sand
1 part of calcic lime
1 part of grey cement

Process :

Mortar run between strawbales and formworks
Formworks screwed on the posts (inside and oustide)
Strawbales lawers

4-AERATED LIGHT WOOD MORTAR

Wood mortar run by hand or with vibratile strut

Vincent and his special mortar container

RESULTS I – Non ended constructions

Boiron extension (73)

Dennu House(85)

Victors House and storage place(31)

Fleureau House, (45)

RESULTS II – Non ended constructions

Surville House (17)

Davière House (61)

Wignacourt House (62)

Tamata House (Espagne)

Technical informations

Quantity of wood needed : 0,02 m^3/m^2 of structural wall
Quantity of mortar needed : 10 m^3 / 100m^2 of structural wall

Costs : 12 to 15 €/m^2 of structural wall

(estimates)
Permeability of the wall similar to massive wood
Thermal conductivity of the mortar λ = 0,4 W/m.K
Thermal capacity ρC = 330 $Wh/m^3.K$

Carbon emissions = - 1,8 tonnes/100m^2 of structural wall
(without transport)

Ended constructions

Surville House
(17)

Delaroue House
(88)

Fleureau House
(45)

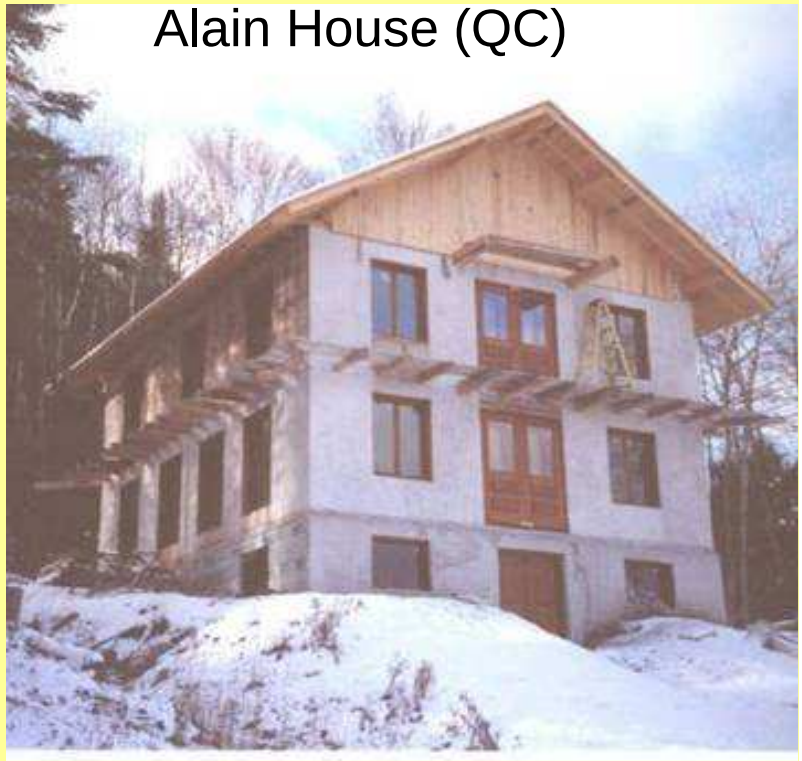
Thévard-Gilbert House
(QC)

Ended constructions

Déry House (Qc)

Brossamain Extension (45)

Alain House (QC)



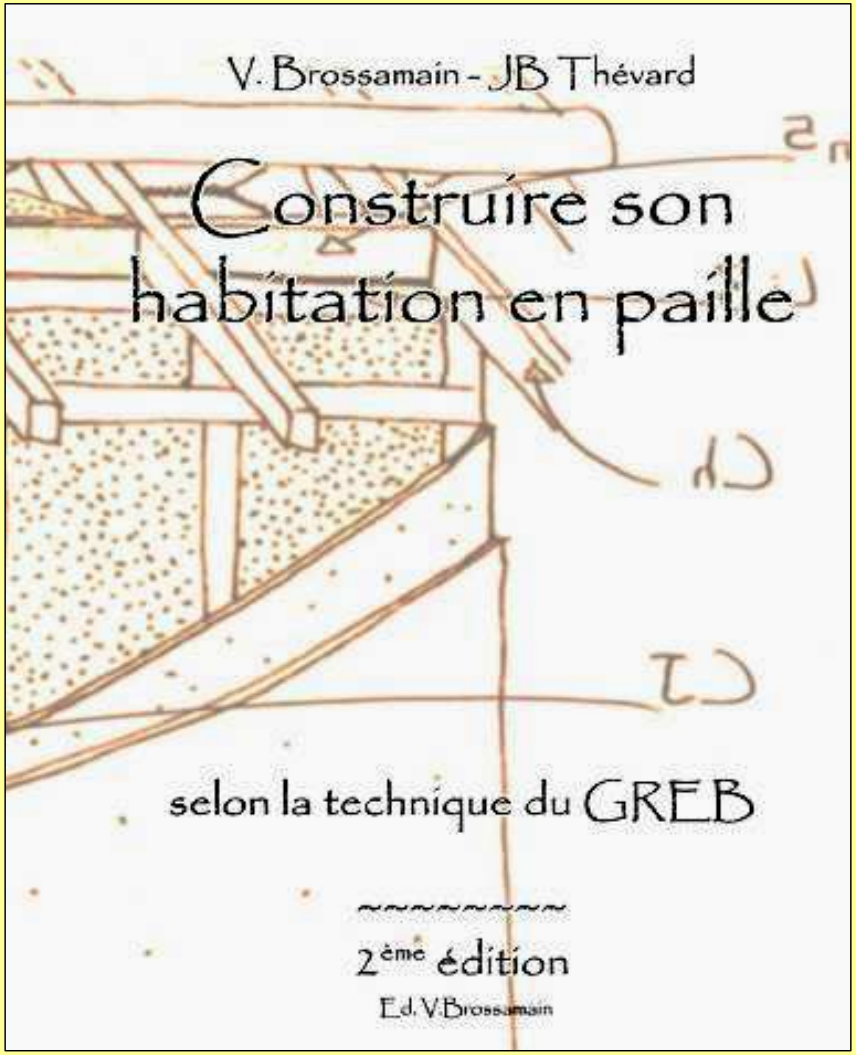
GREB constructions with modified elements

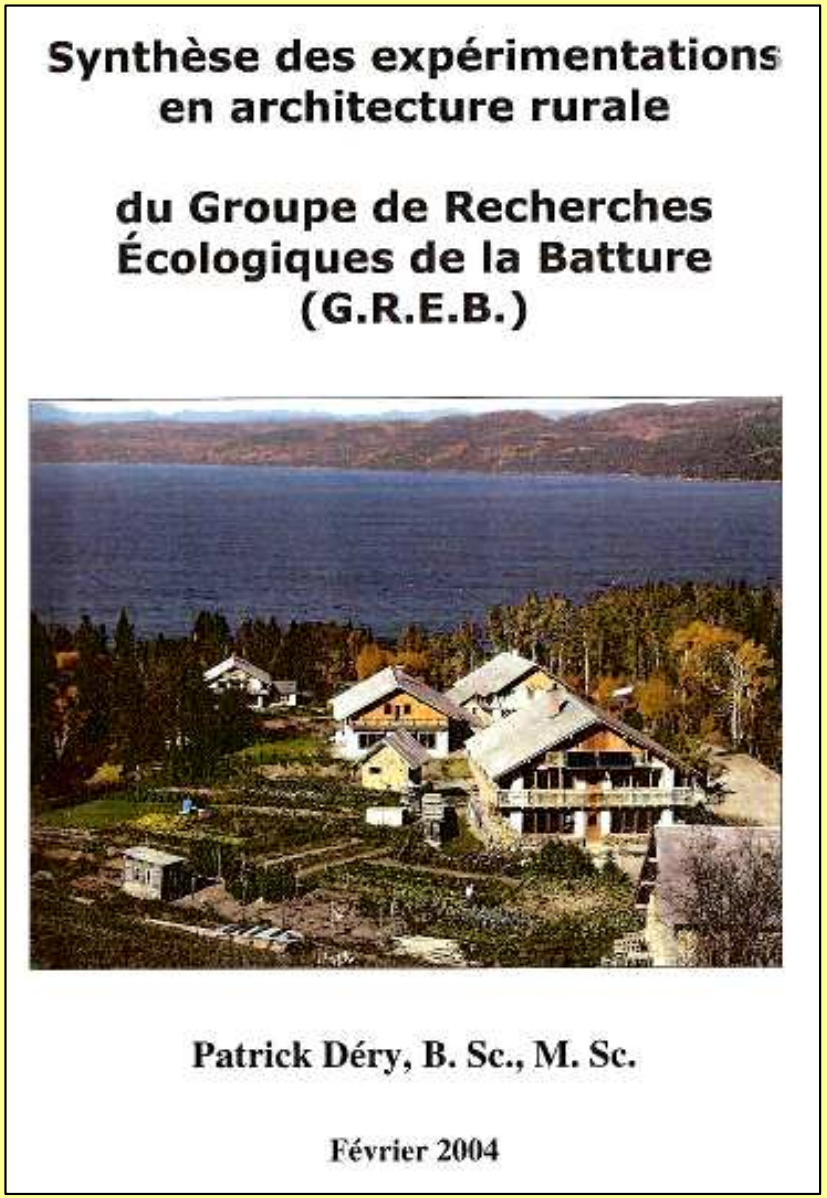
Les Amanins School (26)
BE Gaujard

arros-Pabois House
(16)

Balocco House(84)
BE Bainier

Two books available on the GREB
Straw bale technique





APPROCHE-Paille association

Key elements for 2007 :

8 training cessions (2 days)
4 trainers
97 trainees
30 construction places

APPROCHE-Paille
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