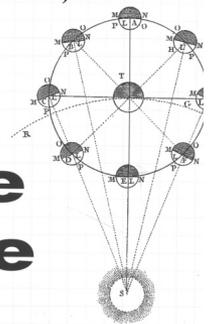


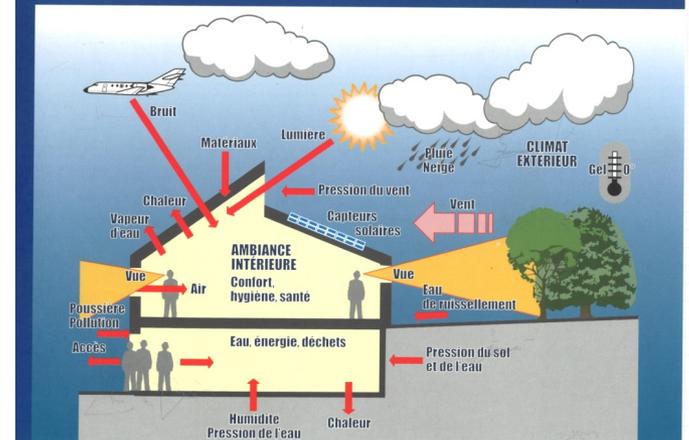
# L'approche BioClimatique

## Guide de l'architecture bioclimatique

Alain Liébard et André De Herde



Cours fondamental : Tome 4 Construire avec le développement durable



***L'approche bioclimatique - Actualiser le concept pour un bâtiment frugal***

*Le 29 Septembre 2017 - LOPERHET*

*Journée technique du Réseau Breton Bâtiment Durable*

*Ordre des Architectes – Réseau Breton Bâtiment Durable - Energence*

# 1/ Bioclimatisme, c'est quoi ?

- Le bioclimatisme, mouvement venu des Etats Unis d'Amérique ?
- Architecture vernaculaire et bioclimatisme

# 2/ Proposition d'une petite méthode de travail

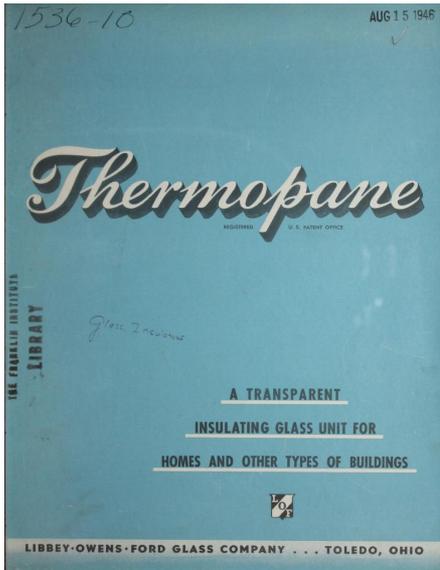
- Schéma du maître d'œuvre
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# 3/ Pour conclure

- Donner du sens
- Le futur ... architecture Passive ...

# 1/ Bioclimatisme, c'est quoi ?

## Le bioclimatisme, mouvement venu des Etats Unis d'Amérique ?



### Thermopane TECHNICAL DATA

LEFT and ABOVE are shown coveless and edge views of double Thermopane. Dotted area indicates putty used in setting.

RIGHT and BELOW are sketches of triple Thermopane whose extra pane of glass and air space increase the unit's insulating value.

#### HEAT LOSS TRANSMISSION

Thermopane units provide a high resistance to heat flow, varying with the number of panes and the thickness of the air space used. In summer the low heat transmission coefficient reduces the load on air conditioning systems. In winter it saves heat. The greater efficiency of Thermopane makes it possible to incorporate larger windows in houses and keep the cost of fuel constant. For example, a house could have 114 square feet of Thermopane instead of 62 square feet of single glazing and not lose any more heat. Thermopane permits the influx of solar heat in exterior glazing of buildings without a prohibitive compensating loss from conduction.

#### HEAT TRANSMISSION DATA

Based on 4° outside, 70° inside, 15 mph outside, 25 mph inside.

Number of Panes	Thickness of Panes	U Values	
		1/2" Air Space	1/2" Air Space
2 (Double Thermopane— one air space)	3/8"	.62	.57
3 (Triple Thermopane— two air spaces)	3/4"	.57	.53
	3/8"	.42	.37
	3/4"	.39	.35

Notes: U for single 1/2" thick glass=1.14, R=0.88  
U for single 3/4" thick glass=1.07, R=0.94

#### SASH INFORMATION

Standard double hung arc casement wood sash are usually 1 3/8" thick and do not have sufficient rabbet width to accommodate the standard Thermopane unit manufactured with two lights of 3/8" glass and 1/2" air space.

When Thermopane is used in any movable wood sash, slightly heavier construction is needed because of both added thickness and weight. Wood sash details are available upon request.

Most standard steel sash will accommodate standard Thermopane units.

A rabbet width of 3/8" or 1" is required in either wood or steel sash.

#### THERMOPANE WARRANTY

For a period of five (5) years from date of shipment from our factory, we warrant that under normal conditions, material obstruction of vision resulting from film formation, or dust collection between the interior glass surfaces of Thermopane, will not occur.

This warranty will be void unless Thermopane is installed in accordance with our installation instructions, or if any cutting, fitting, or nipping of edges or corners, is done, accidentally or otherwise, after shipment from our factory, or if the unit is damaged in handling, installation or otherwise.

Our maximum liability under these warranties shall be the delivery of replacement lights of Thermopane to the railroad shipping point nearest the place of installation.

These warranties do not apply when Thermopane is used in railroad cars or other vehicles.

LIBBEY-OWENS-FORD GLASS CO.



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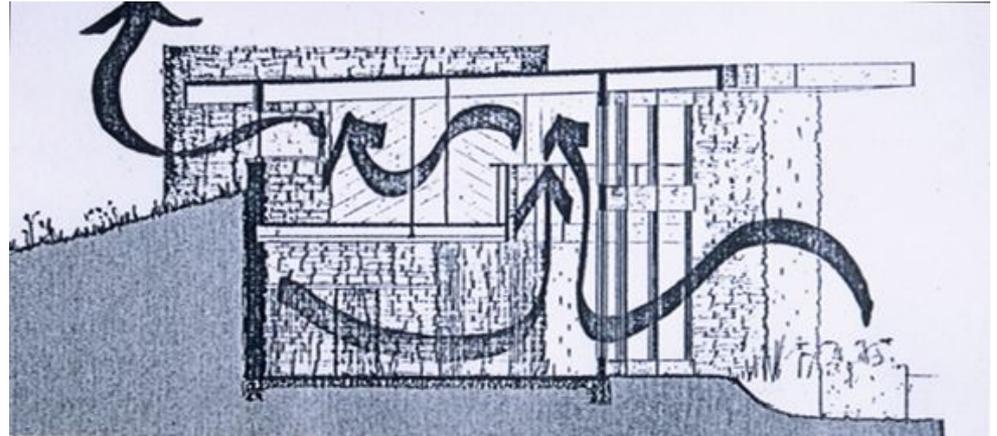
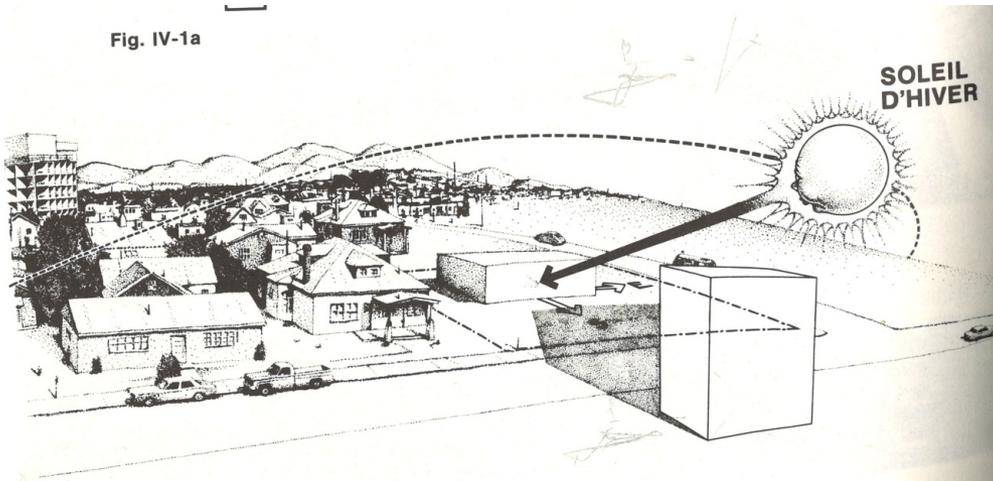
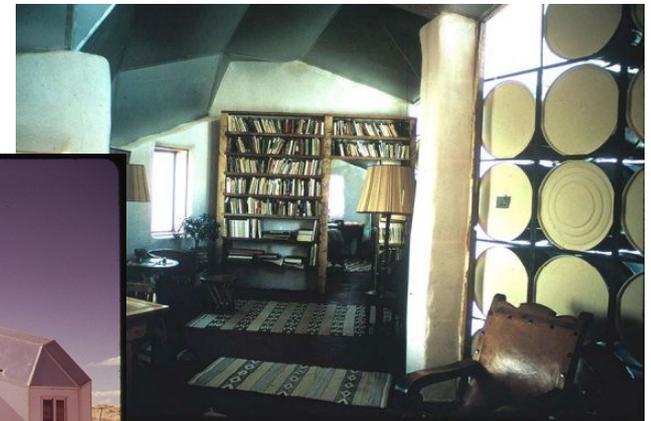


Fig. IV-1a



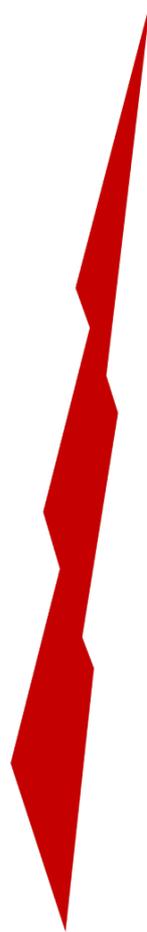
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## 1/ Bioclimatisme, c'est quoi ?

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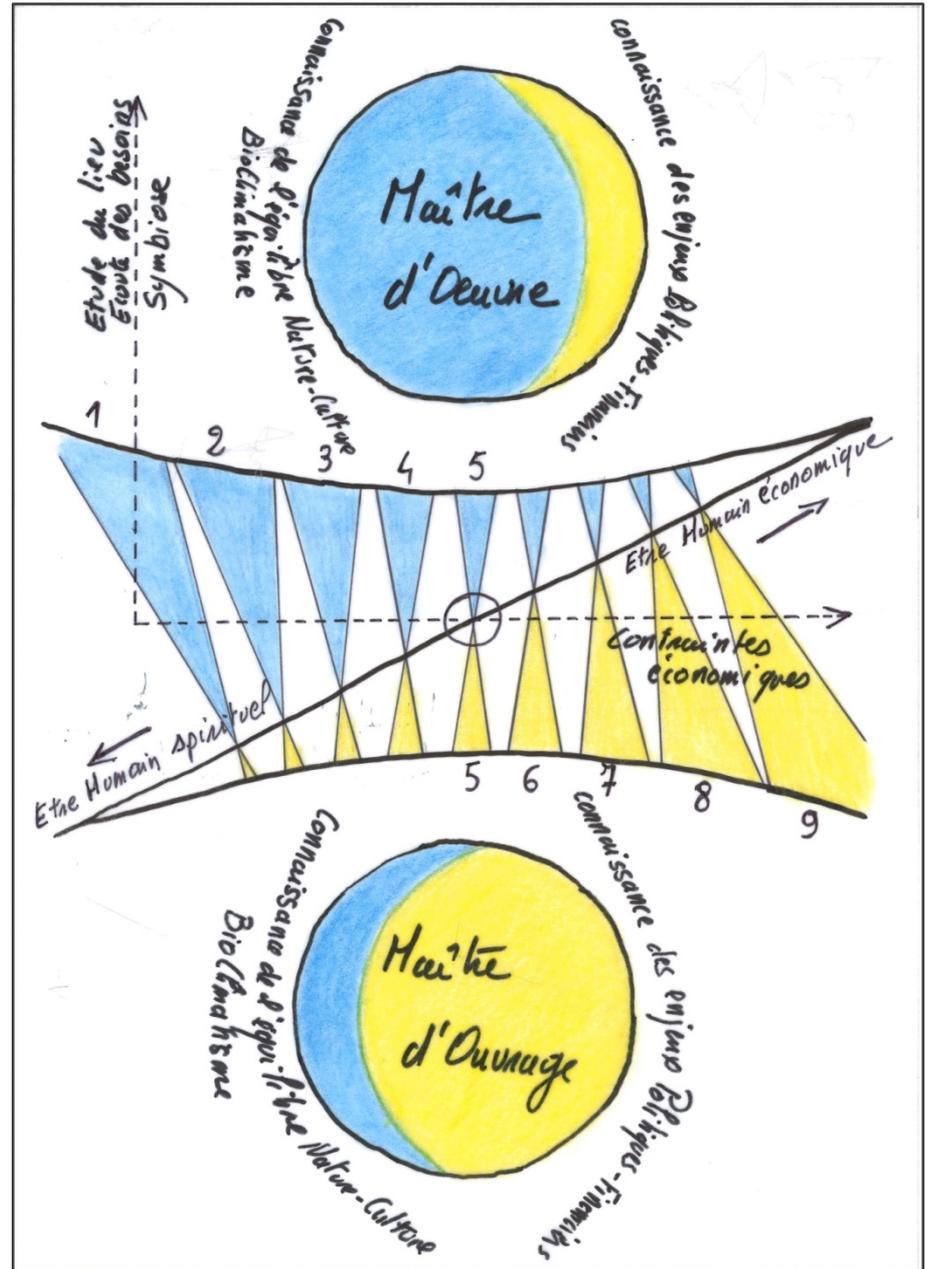
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## 2/ Proposition d'une petite méthode de travail



Relation Maître d'Œuvre – Maître d'Ouvrage

Adaptation du *Schéma du maître d'œuvre*,  
de Le Corbusier.

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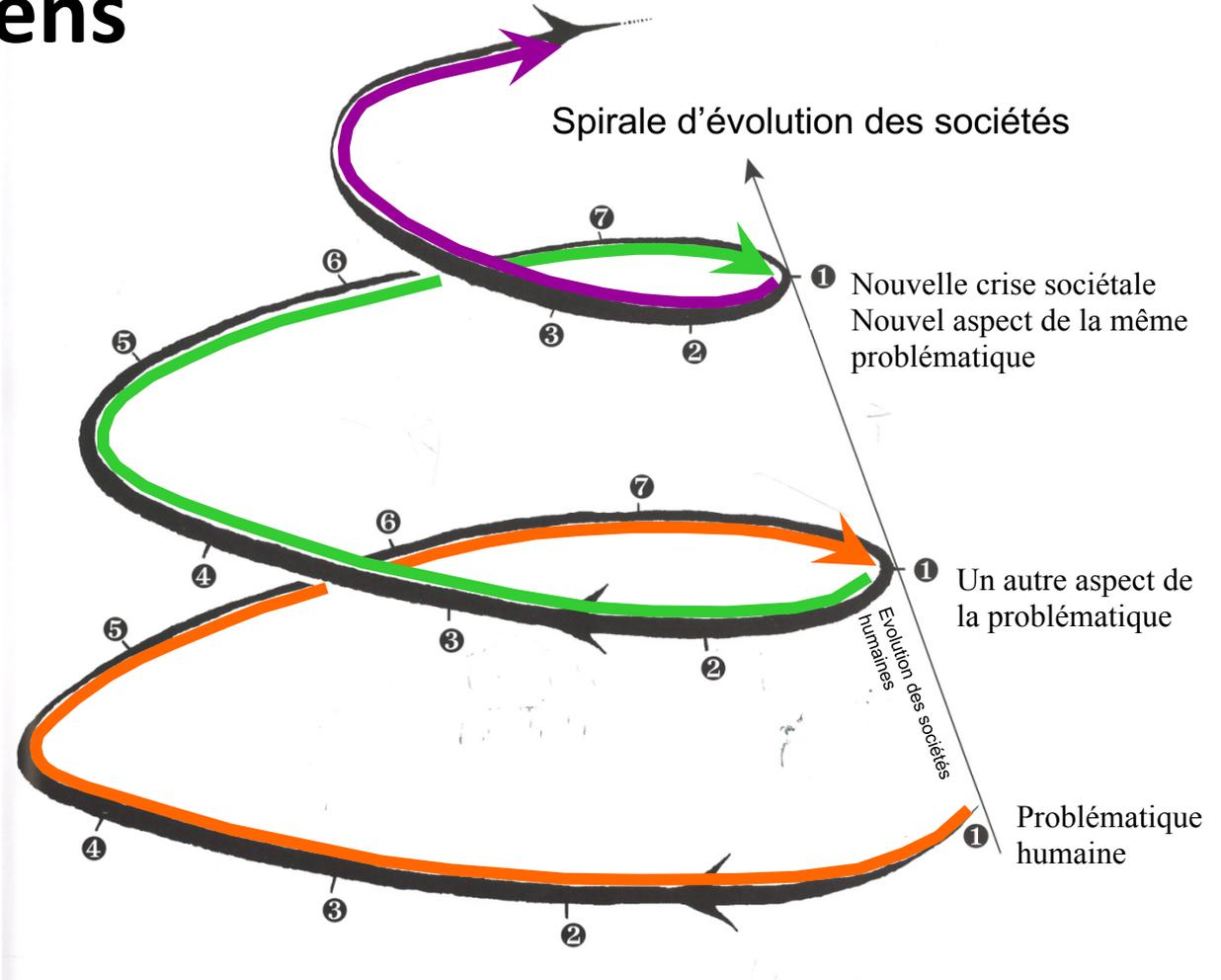
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# Donner du sens

Comment me protéger de mon environnement ?



# la connaissance actuelle : architecture Passive PHI

**Passif :**  
C'est une **conservation minutieuse de l'énergie** qui permet de **garder au chaud**

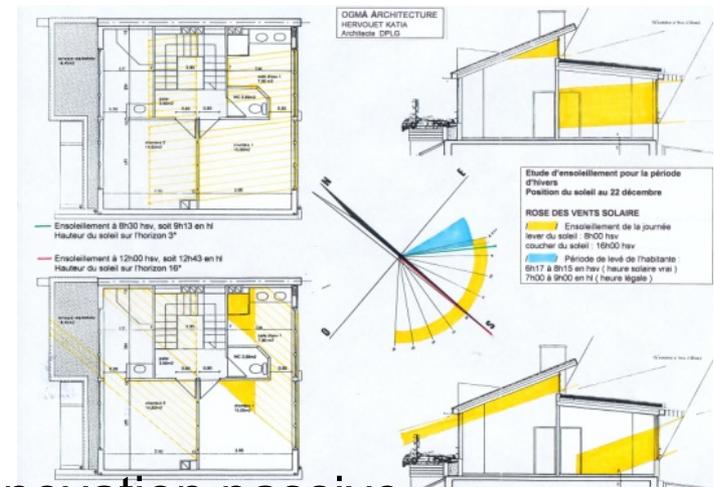
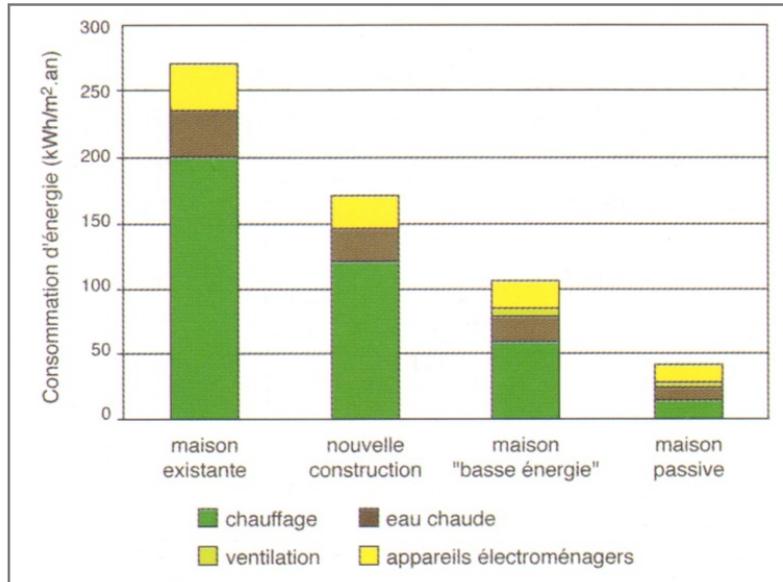


**Actif :**  
C'est un **apport continu d'énergie** qui permet de **garder au chaud**.



Bâtiment neuf passif

Répartition des consommations estimées à une température de consigne de 20°C.



Rénovation passive

*Le Futur ...*

3/ Pour conclure

Constuction

**Biologi(e)(s)**

**Passif**

**Climat**

**Frugal**

?!

*Faisons le, ensemble*

A photograph of a wooden slat fence, likely made of light-colored wood, with the text "Merci de votre attention." overlaid in the center. The fence consists of vertical slats and horizontal rails, creating a grid-like pattern. The text is in a bold, black, sans-serif font.

**Merci de votre  
attention.**