A sociocratic adventure...
I think there are good reasons for believing that the modern age is over. Today many things indicate that we are moving towards a transition period where it seems that something is going to go away and something else is painfully being born. It's as if something was crumbling, is corrupt, exhausted from the inside, while something else, still indistinct, out of the rubble. »

Vaclav Havel, Philadelphia 1994

The approach of the building’s performance can’t be seen only from a technical perspective. A true reflection on the role of the user must be born in order to make this approach appropriate.

A new governance design and project management should be implemented.
When we must face new challenges, it is necessary to recover the "taste of the future" (cf. Guillebaud) and the "Taste of Others" (see Elena Lasida)

As actors and partners of cities in movement, we must find ways of governance together to meet these new challenges and enjoy it. For this it must have a taste of future!

**Taste of the future, 3 main ideas:**

1. **The great bifurcation**: awareness of the dizzy depth of the rupture history and anthropology that we are going through.
2. **Refusal of "thought grumpy"**: rejection of nostalgia lasting fearful just like Lot's wife.
3. **Think different**: try again to explore, for his own light, learn to criticize the present.

« In the ocean of ideas, it is necessary to fish in deep water »
La Cité de l’environnement

A sociocratic adventure...

La Cité de l’environnement: standard: BEPOS

1ère opération de bureaux énergie positive en France

Ecole des ponts et chaussées Standard Bepos

1ère opération de logements passifs en France

1ère bâtiment d’état énergie positive en France

Système Modulife Standard Passif cqfd

01/02/2013
Ancestral practice of decision-making: a process which reassures
La Cité de l’environnement: A sociocratic adventure...

In front of the challenges: the illegibility!

THPE, RT 2012, Minergie, BBC, BBC effetnergie, B-bio, Passiv-House, Energie 0, Bepos,....
Sociocracy: a way of governance

« When you have a hammer in the head, you see all problems as nails! »

-The sociocracy (power of a group) stimulates human relationships by providing consent as a form of decision-making: the common good.

-In sociocracy, the majority can’t impose his choice to a minority.

-The truth is not arising from the confrontation of ideas but from adding the point of view.

« An organization will adopt ethical behavior when it allow its members to openly discuss its decisions in light of the common good » (what does that mean).
Sociocracy: a way of governance

« The way of consent determination promotes the common good »

United by a common vision, we share the desire to give meaning to our work by new social and economic matters, as well as relational sides to advance environmental issues

- Interactive area between the various economic actors
- Creating places communitised
- Establishment of a charter of life
- Internal training for staff at the CNV (Non Violent Communication)
- Creation of a circle of decisioner & referents
- Integration of rule 3 X 1/3 of profits (redistribution, investment, training)
Sociocraty: a way of governance

La Cité de l’environnement
A sociocratic adventure......
The City of the Environment is the result of a project initiated in 2005 by the POLE SOLERE, a group of French professional experts in environmental quality of building, eager, to turn of the century, in a sustainable way to rethink the relationship of human regarding his environment through his art of building and its art of living in the building. This idea of "build together" a city showcase innovative know-how as responsible builders, was born gradually City of the Environment, where the "living together" with extend meaning, both within the outside the city, the constructive choices retained in respecting the environment.

The community centre named PÔLE SOLERE

(Energy Renewable and Environmental Solution)

Founder members:
MCP Ingénierie, Atelier Thierry Roche, Atelier LD, Bastide Bondoux

Associates members:
Tribu, Enertech, Medieco, Betrec
The City of the Environment is a result of a project initiated in 2005 by the POLE SOLERIE, a group of experts in the environmental quality of buildings. At the turn of the century, the group was eager to rethink the relationship, in a sustainable way, of humans regard for their environment through art of buildings and the art living in the building.

From this idea of "build together," a city showcase and innovative know how of responsible builders, the City of the Environment was gradually born, where "living together" has an extended meaning, both within and outside the city, as well as the construction choices selected with respect to the environment.

Brian; 04/12/2012
■ **Owner:** For Home
■ **Location:** Saint-Priest (69)
■ **Operation:** Office buildings
  Shon : 4499 m²
  Atrium & relaxation: 600m²
  Delivery date: Septembre 2009
  Cost of works project : 2205 HT/m² shon (avec pv)
  Positive energy all purpose building *(all purpose)*

■ **Project Management:**
  **Architect:** Atelier Thierry Roche & Associés
  **Engineering Fluid:** Cabinet Sidler
  **Engineering High Quality Environmental:** Tribu
  **Economical Engineering Office:** Betrec
  **Health:** Medieco (Suzanne Déoux)
A center of excellence dedicated to environmental technologies

The City of the Environment, a bioclimatic office building, provides positive energy, brings together planners, architects, consultants and planners, and is recognized for the environmental quality in the planning.

- 28 companies, 225 employees.

Areas of expertise:
- engineering
- training
- real Estate

Beyond its exemplary environmental quality, the building was designed to promote exchanges between its occupants and create a true state of mind "City of the Environment."
La Cité de l’environnement
Un Bâtiment performant...

Atelier Thierry Roche & Associés - Architectes et Urbanistes
A global vision of the environment

- An energy strategy
  From 4 themes:
  - A building meets the criteria of the label Passivhaus: a need to lower heating 15kwh/m²/an (CG67: 144kwh/m²/an)
  - Of energy efficient systems that lead to a redistribution of the energy bill.
    Production exceeds consumption.

- Health Approach
  From 3 themes:
  - Air quality (ventilation)
  - Low VOC materials, elimination of formaldehyde
  - Quality of lighting scenes, sound and color.

- A creative and rational approach to management
  Limitation of charges:
  - Water management: rainwater for garden and health (waterless urinals)
  - Sharing space or equipment
  - Establishment of a governance and management decision
La Cité de l’environnement

Succesfull building...

The envelope:

Optimization of the envelope, directions and glass surfaces
Atrium treated as a thermal buffer unheated
- Implementation of performance materials and glass
- EXTERNAL insulation: expanded polystyrene 200 mm
- ATRIUM Interior insulation: mineral wool 40 mm
- INSULATION ROOF OFFICE: 2 layers of polyurethane foam 120mm or 240 mm. A thickness of 40 mm of asphalt perlite to support complex
- ATRIUM ROOF INSULATION: 2 layers of 90 mm or 180 mm mineral wool
- BASEMENT INSULATION: projection of rock wool on the underside thickness 140 mm

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>COMPOSITION</th>
<th>U (W/m².K)</th>
<th>R² (m².K/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaking wall</td>
<td>Concrete with isolation</td>
<td>0.19</td>
<td>0.56</td>
</tr>
<tr>
<td>Ceiling</td>
<td>Expanded polystyrene</td>
<td>0.17</td>
<td>0.56</td>
</tr>
<tr>
<td>Floor</td>
<td>Rock wool</td>
<td>0.34</td>
<td>0.24</td>
</tr>
<tr>
<td>Exterior windows</td>
<td>Triple glazing</td>
<td>0.9</td>
<td>0.85</td>
</tr>
<tr>
<td>Exterior windows</td>
<td>Double glazing</td>
<td>2.6</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Choc des matériaux et principes constructifs

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling</td>
<td>Concrete</td>
</tr>
<tr>
<td>Facades</td>
<td>CLT + RGE RME</td>
</tr>
<tr>
<td>Roof</td>
<td>Recycled steel and steel</td>
</tr>
</tbody>
</table>
Heat:

- Heat pump brine / water (87kW) horizontal geothermal reversible sensors feeding a low temperature floor.
  - Surface geothermal horizontal: network crosslinked polyethylene tubes, 1700 m2 on 2 sheets of sensors (-60 et -120 cm)
  - Network performance heating rated:
    - WINTER: COP = 5,2
    - SUMMER: COP = 5,8

- Insulation on heating systems
- Circulation with variable flow
- Management by GTB

Ventilation:

- Offices: comfort double flow ventilation with:
  - Heat recovery from exhaust air by high-efficiency rotary heat exchanger (heat exchanger efficiency of 80%)
  - Speed variation
  - High level of filtration (G4 et F7 at blowing, F7 on return)
  - Preheating of fresh air by water coil (blowing at 18 °c in the office)
  - Loss of ventilation outside the hours of occupation of the offices
  - Modulation speed manual tray by using the GTB
  - Breakdown of meeting rooms and training subservient to the presence (or off)

- Coffee/lunch area: comfort ventilation of clock with air intake on atrium
- Basement: mechanical ventilation on detection of CO
Management of summer comfort:

- **lower the needs:**
  - Architectural optimization and architectural improvements to outsource specific charges
  - Minimization of the internal:
    - Lighting performance of detection
    - Clippings watches
    - Performance equipment
  - Effective sun protection with automatic front south

- **Passive and active measures:**
  - At night ventilation by opening windows
  - Underfloor cooling and ceiling fans
  - Conditioning point to local server and training room (chiller condensing air)

Water management

- **Reducing the need:**
  - Cold water only (except for local cleaning, showers and cafeteria)
  - Rate limiting of self-regulated type moussers
  - Waterless urinals
  - Limiting surfaces requiring sprinkler
  - Reusing rainwater roof to supply toilet and automatic watering (underground tanks of 30,000 liters of water)
An efficient lighting

A highly efficient lighting (6w/m²) based on:
- Differentiation between office and field work task (200/400 lux)
  gradation auto = f (natural light)
- Of T5 + electronic ballast
- A work light with LBC
- Piezoelectric wireless switches (sana batteries)
- Blocks back to very low power (0.5w)
- Presence detection in all common areas

Several colorful animations are available for events

« Downlight » in the cafeteria

Lighting of the handrail by LEDs
Specific electricity

- **The Office:**
  - The widespread use of laptops that can go from 400 kWh/year to 20 kWh/year per machine
  - The removal of corrugated centralized networks (which operate permanently under load and low efficiency) by UPS in each office

- **Servers:**
  - Can represent up to 50-60% of consumption of a building they shared high performance and low power
  - Sharing of Internet access via optical fiber shared by 28 companies

- **Auxiliary equipment:**
  - Sharing of coffee areas (sharing of fridges, coffee makers, microwaves..)
  - Sharing of some equipment reprographic
La Cité de l’environnement:
The Systems...

Energy Production:

Photovoltaïc production:
- 153 m² of semi-transparent modules -15 kWp
- 1250 m² of photovoltaic polycrystalline type - 148kwc

Estimated production:
- 146 000Kwh/year

A POSITIVE Energy building!

Needs low estimate: 88.850 kWh/year
Needs high estimate: 189.700 kWh/year

The building can produce 63% more energy than the occupants needs...if occupants incorporate the concept of energy restraint. Some people do...and it works!
But it can also consume 30% more and be a building with negative energy! Contrary to what it is said, the technic can not do everything!!
Today we know that it is possible to build a positive energy building, but it’s success depends mainly on controlling electricity consumption...the heater is not a problem. But with no changes of the habit, it will remain an illusion unless very expensive.
Governance as a sociocratic management mode brings a real context. It enables us to put the cursor in the right place between the performance issues but also of use, health quality, and quality of social ties...
It is above all the inhabitant who must be sustainable!
Circle of the Garden

- Organization for actions to be done
- Inventory and purchase of tools
- Garden planning, selection of planting
- Setting up a maintenance plan
- Maintenance of the garden: cleaning, munter/mulching(?), amend
- Watering trees
- Compost
The building has a BMS to monitor and record many consumer index. These data are regularly analyzed and communicated to users of the city in order to inform and manage collective action.

**Observation year 2011:**
- **Actual consumption**: 168,958 kWh (the estimated range of departure)
- **Production**: production 40% lower compared to the estimation.

**Analysis:**
- **A solar cell production** due to lower number of malfunctions of the inverters. Defects identified by the late start of the non-contract monitoring installation
- **The goal of « positive energy for all purposes »** was not achieved, largely due to the problems of solar cells and geothermal setting
- **The building achieved the « BEPOS »** in the regulatory sense: the production REC offsets consumption related to heating, ventilation, air conditioning and lighting.
- **The total consumption** of primary energy all purpose have been around 168,958 kWh of final energy, or 46,9 kWh/m² of floor space, of primary energy: 121kwh-ep/m² floor space that is the level of what became the level of label « Passive » German.

*The establishment of appropriate internal communication will achieve the goal of all positive energy use this year 2012*
La Cité de l’environnement

After 1 year of use...

CITE DE L’ENVIRONNEMENT - Bilan des performances énergétiques


Consommations énergétiques totales:

Sur la période d’analyse: 1264 kWh

Compositions de la facture énergétique globale sur la période d’analyse

Sur l’année écoulée: en euros kWh (objectif 1455kWh/an)

Historique du bilan énergétique sur les mois précédents

Consommations d'électricité des éclairages, des services et inutiles

Identification des plateaux de bureaux:

Consommations des parties privatives en fonction des heures d'occupation (27/6 17h)

01/02/2013
Atelier Thierry Roche & Associés - Architectes et Urbanistes
La Cité de l’environnement:  
After 1 year of use...

About the use:

- Need for users to understand the building is to find the right moves.
- The problem of travel time still the order of the day (45 minutes by tram from Lyon).
- The set temperatures of 19°C was the subject of negotiations to move in some areas to 20°C.
- Technical problems related to automation to solve (lights).
- Need to set up « watchman » to technical problems.
- Very good understanding of space and light.
- Real quality of life in the building.
- Image enhancement « City of Environment ».
- Numerous animations giving the impression of a lively building.

The end goal for 2012 is to realize the establishment of the sociocratic governance, achieve the performance « positive energy all-purpose » and to conduct a survey on the social and economic life of the building.
La Cité de l’environnement: The Cité in pictures...

15,000 visitors at the Cité within a year...
La Cité de l’environnement:
The Cité in pictures ...
constructive process with low environmental impact

Objective:
answer in terms of cost, quality, reliability and time, new energy challenges, environmental and health buildings from conception to end of life. This constructive process, breaking with the current codes, the result of a connection between design and production, is part of a comprehensive approach (structures, enclosures, equipment, finishes, maintenance, recycling) to design and manufacture locally to all elements and components constituting a two-dimensional or three-dimensional building, then Finally assemble them dry in a simple and rapid on-site.

Gilbert Goutheraud gives rise to MODULIFE
- Atelier Thierry ROCHE et associés. Thierry ROCHE
- ENERTECH - Olivier SIDLER
- TRIBU - Karine LAPRAY
- BASTIDE BONDOUX
- Atelier LD – Didier LARUE
- SINCE Studio. Matthieu ROCHAS
- MEDIECO - Suzanne DÉOUX
The Cité de l’environnement: a state of mind!

- The « Cité », more than a place, is a spirit, a new approach where research and development are combined with openness, connection, networking and training.

- The values we share can be summarized in: ethics, consistency, credibility and faith in the future.

- This requires an eco-learning behavior where all citizens meet there together and the promotion of collective intelligence sharing « the taste for future ». This is a place for personal development of employees, companies, skills that is part of an economic reality by redefining its performance criteria.

- It has now become a reference, even more an institution. It is therefore necessary to ensure the sustainability and spirit of its purpose.

- The Architecture of the « Cité » shows that: bridges that links people, groups, places of exchange, a light that comes into the ceiling and illuminates the scene community! The architecture is simple, non manered. It is true: it expresses a true taste for future: how to anticipate, how to project ourselves, on a happy way, to cross on the other side, move towards new modes of governance.
La Cité de l’environnement: The actors of the Cité...

1er pôle de compétences environnementale dédié au secteur du bâtiment en France

Les résidents de la Cité de l’Environnement peuvent rédiger ensemble ou séparément et de manière concrète à tout projet de bâtiment environnemental (habitat collectif d’individuel, terrain, industriel) que ce soit dans les domaines du conseil, des études, de la conception, de l’architecture, du design, de la construction, etc.

**Architecture, Urbanisme et Design**

- **Atelier Thierry Roche & Associés Architectes et Urbanistes** s’investit depuis 1974 dans une démarche environnementale et durable forte pour mieux composer qualité de vie et des bâtiments. 
  www.atelierthierryroche.fr

- **Atelier LD** conçoit avec une approche environnementale singulière, des aménagements extérieurs : écologiques, espaces publics, parcs et jardins, tout en mettant en avant les aspects techniques. www.atelierld.com

- **Cabinet de Design et Architecture d'intérieurs respectueux de l'humain et de son environnement**. SHAC Studio propose de créer un lien sérénant et équilibré entre l’âme d’un espace, son image et sa réception publique. www.shacstudio.com

**Promotion, construction et rénovation de logements**

- **Gecia Rhône-Alpes** développe pour la Chaudière ses marques : Maisons France Confort, Maisons Edison et Caesar – une expertise globale des métiers de la construction de maisons individuelles. www.gecia.fr


- **Promoteur constructeur depuis 15 ans**, à la tête de 11 petites maisons, il propose des solutions de qualité, esthétiques, simples et respectueuses de l’environnement grâce à 3 filiales spécialisées : MCP Francer, MCP ingénierie et MCP Promotion. www.groupemcp.com

- **1er rénovateur énergétique en France, Renov' - conduit la vocation énergétique d’un logement de A à Z, du diagnostic initial jusqu’à la réalisation de 16% des travaux. www.renovr.com

- **DEMIES CALADOISES** est spécialiste de la construction de maisons individuelles en Rhône-Alpes, Bourgogne depuis 1975. www.demiescaladoises.com

- **ECOVIA** est l’organisme référent en France en matière d’aide à la promotion de la qualité de la maison individuelle dans le secteur neuf et existant. www.maisonsconcertée.com

- **Conception, fabrication et commercialisation de la lambris, 1er ébéniste du bord de l’habitat rassemblant toutes les solutions de réalisation, écologique et écologique d’un logement. www.lamisontontelatelle.com

**Énergies renouvelables**

- **Le cluster Rhône-Alpes Eco-énergies** est un réseau de 210 acteurs publics et privés qui contribuent au développement des énergies renouvelables en Rhône-Alpes. www.eoenalpes-cluster.fr

- **Conception, fabrication et commercialisation de Turbines Eolien, éoliennes innovants, économiquement performants, développant efficacement les chutes de vitesse à une meilleure productivité et capacité d’intégration dans tous les milieux. www.alena-energie.com

**Bureaux d’études et conseil**

- **alternaty’m**

  - **Consultant auprès des industriels du bâtiment pour le développement de leurs produits en vue des futures réglementations** et pour la détermination de critères d’évaluation et d’attribution de performances énergétiques globales. www.alternaty.com

- **TRIBU**

  - **Cabinet spécialisé dans les Audits énergétiques et environnementaux** (AEIS) préconisant des mesures (à la maison, au bureau, dans les lieux d’habitation, les bâtiments, les bilans Carbone, diagnostics énergétiques, thermographiques, AEIS, etc.) d’optimisation des performances énergétiques. www.tribu-conseil-energie.fr

- **Betrec**


- **USAT CONTRÔLE** fournit les solutions les plus adaptées aux besoins de ses clients en termes de diagnostic, de performance énergétique, de contrôle de perméabilité à l’air, de diagnostic thermique, de bilan énergétique et de conseil en économie et en écologie. www.usat.fr

**Promotion, construction et rénovation de logements**

- **PROMOGLU**, vis à promouvoir la maîtrise énergétique dans l’immobilier grâce à la mise en place de formations et de diagnostic de performance énergétique globale. www.promoグル.fr
La Cité de l’environnement:

Thanks for your attention!