

# TERRA

## Education III

4 & 5 June 2018 | Colloque " Perspectives pour le développement de l'enseignement sur les architectures de terre " | Colloquium " Perspectives for the development of education on earthen architectures " | Grenoble, France

### PROGRAMME



#### Adresse | Address

Amphi Nord / Bâtiment A / UFR PhiTEM  
126 rue de la piscine / 38400 Saint-Martin d'Hères

8.30 | 9.00 ▶

Accueil des participants et mise en place des posters  
Reception of participants and poster setting

9.00 | 09.45 ▶

**Introduction et discours d'ouverture | Introduction and opening speeches**

THEME  
PEDAGOGIES INNOVANTES |  
INNOVATIVE PEDAGOGIES

MODÉRATEUR | MODERATOR :  
**CAMILLA MILETO**, Universitat  
Politècnica de València, Spain

09.45 | 09.50 ▶

**Introduction du thème par le modérateur | Theme introduction by the moderator**

09.50 | 10.05 ▶ **Integration of Research, Practice and Education in Teaching Earth Architecture in China**

JUN MU ; WEI JIANG ; TIEGANG  
ZHOU ; ZENGFEI LIANG ;  
ZHONGQI REN

10.05 | 10.20 ▶ **Transmission de la méthode VerSus "from Vernacular to Sustainable" aux étudiants et enseignants d'architecture : retour d'expérience**

NURIA SANCHEZ MUÑOZ ;  
SEBASTIEN MORISET ; SAVERIO  
MECCA ; LETIZIA DIPASQUALE ;  
MADDALENA ACHENZA ;  
CAMILLA MILETO ; FERNANDO  
VEGAS LOPEZ-MANZANARES ;  
MARIANA CORREIA ; GILBERTO  
CARLOS

10.20 | 10.35 ▶ **Shifting the Possible: Training Outcomes for Earth Structures**

ROWLAND KEABLE & MARIA  
BROWN

10.35 | 11.05 ▶ **Pause café | Coffee break**

Librairie | bookshop

11.05 | 11.20 ▶ **Amàco, l'atelier matières à construire – Bilan 2012-2018**

MARION BISIAUX ; LAETITIA  
FONTAINE ; ROMAIN ANGER

11.20 | 11.35 ▶ **ElémenTerre, ouvrir les possibles sur la matière**

NATHALIE SABATIER & ALBA  
RIVERO OLMOS

11.35 | 11.50 ▶ **Training for the seismic retrofitting of earthen buildings in Peru**

BENJAMIN MARCUS ; CLAUDIA  
CANCINO ; JUAN CARLOS  
MENENDEZ ; JUAN CARLOS  
MELLADO ; PAULO B. LOURENÇO  
DANIEL TORREALVA ; FEDERICA  
GRECO ; RAFAEL AGUILAR

11.50 | 12.05 ▶ **Learning from seismic structural behavior of traditional adobe dwellings**

FRANCISCO JAVIER SORIA  
LOPEZ & LUIS FERNANDO  
GUERRERO BACA

12.05 | 12.30 ▶ **Discussion**

12.30 | 14.00 ▶ **Pause déjeuner | Lunch break**

Librairie | bookshop 12.30 | 13.00

THEME  
INITIATIVES PUBLIQUES,  
SENSIBILISATION & EDUCATION  
INFORMELLE | PUBLIC  
INITIATIVES, SENSITIZATION &  
INFORMAL EDUCATION

MODÉRATEUR | MODERATOR :  
**CLAUDIA CANCINO**, The Getty  
Conservation Institute, USA

14.00 | 14.05 ▶

**Introduction du thème par le modérateur | Theme introduction by the moderator**

14.05 | 14.20 ▶ **Conservation Machaqa: un nouveau sens pour la conservation du patrimoine**  
ANDRÉ ANINAT & CRISTIAN  
HEINSEN

14.20 | 14.35 ▶ **Introduction of the Earthen Architecture Association and general activities in the field of education and research of earthen structures in the Czech Republic**

ZDENĚK VEJPUSTEK ; IVANA  
ŽABIČKOVÁ ; JAN RŮŽIČKA

14.35 | 14.50 ▶ **Diffuser les connaissances de construction en banco durable**

PROSPER ZOMBRE ; ALEXANDER  
JACOBY ; MARIA CALZADILLA

14.50 | 15.05 ▶ **Discussion**

15.05 | 15.35 ▶ **Pause | Break**  
Librairie | bookshop

15.35 | 15.50 ▶ **Integral technical training for women in northern Nicaragua.**

AMANDA CENTENO ; HELEN  
SHEARS ; FATIMA MEDINA  
Présenté par / Presented by  
ANDREEA DANI

15.50 | 16.05 ▶ **Chile : education and earthquakes. Knowledge transfer as a response to the seismic condition**

AMANDA RIVERA VIDAL

Mardi | Tuesday

2 05.06

9.00 | 12.30 ▶

Amphi Nord, Bâtiment A,  
UFR PhiTEM, Université  
Grenoble Alpes

**16.05 | 16.20 ▶ A Citizen Science Approach to build a knowledgebase on earth constructions in the Weinviertel region, Austria**  
THOMAS SCHAUPPENLEHNER ;  
RENATE EDER ; KIM RESSAR ;  
HUBERT FEIGLSTORFER ;  
ROLAND MEINGAST ; FRANZ  
OTTNER

**16.20 | 16.35 ▶ L'enseignement de l'architecture en terre dans l'Université Nationale de Tucumán en Argentine. Education formelle et non formelle**  
MIRTA EUFEMIA SOSA & STELLA  
MARIS LATINA

**16.35 | 17.00 ▶ Discussion**

**17.00 | 17.30 ▶**  
Clôture | Closure

#### Activité annexe | Side activity

**18.30 ▶ 21.00**

Visite du prototype Terra Nostra, immeuble d'habitation en bois et terre crue | Départ collectif en tram depuis le colloque (25 min.)  
Visit of the Terra Nostra Prototype, apartment building made of timber & raw earth | Collective departure by tram from the colloquium site (25 min.)

Adresse | Address:

La Bifurk, 2 rue Gustave Flaubert,  
Grenoble.

THEME  
PROGRAMMES FORMELS &  
CERTIFICATION | FORMAL  
PROGRAMMES & CERTIFICATION

MODÉRATEUR | MODERATOR :  
**LUC VAN NIEUWENHUYZE**,  
Asterre, France

**09.00 | 09.05 ▶**  
Introduction du thème par le  
modérateur | Theme introduction  
by the moderator

**09.05 | 09.20 ▶ Education, awareness and dissemination. The activities carried out within the framework of the UNESCO Chair 'Earthen architecture, constructive cultures and sustainable development' at UPV (Spain)**  
CAMILLA MILETO & LIDIA GARCIA-SORIANO

**09.20 | 09.35 ▶ Amélioration & appropriation d'une technique d'architecture de Terre comme modèle de transmission des connaissances à travers de multiples sphères d'action, depuis l'université, la pratique professionnelle, le master et jusqu'à son insertion dans la communauté. Cas Université ITESO à Guadalajara, Mexique**  
ANTONIO PENAGOS ARENAS

**09.35 | 09.50 ▶ Continuité du Programme d'Architecture de Terre de l'Université Nationale de Colombie : un défi pour le troisième cycle**  
JENNY VARGAS

**09.50 | 10.05 ▶ Grounded Materials ou de la matière ancrée : Retour sur une expérience pédagogique zurichoise**  
ALICE HERTZOG ; SASHA CISAR ;  
CORALIE BRUMAUD ; MARIETTE  
MOEVUS ; ANOUCHKA KACZMAREK  
; GUILLAUME HABERT

**10.05 | 10.20 ▶ The challenges of higher education on earth building we face today**  
BRITTA WOLFF & STEPHAN  
JÖRCHEL

**10.20 | 10.35 ▶ Discussion**

**10.35 | 11.05 ▶ Pause café | Coffee break**  
Librairie | bookshop

**11.05 | 11.20 ▶ La formation de chef de chantier pour consolider le cycle de construction**  
MAURICIO GANDUGLIA

**11.20 | 11.35 ▶ ACVET, construire en terre au Congo**  
ALEXANDRE DOULINE & FAUSTIN  
MOMA KONGOLO

**11.35 | 11.50 ▶ Teaching of Earth Construction as a Technical Vocation in a Nigerian Polytechnic**  
THEOPHILUS SHITTU & MICHAEL  
AJUFOH

**11.50 | 12.05 ▶ L'architecture de terre dans le Pré-Rif marocain**  
ABDERRAFI LAHBABI

**12.05 | 12.30 ▶ Discussion**

**12.30 | 14.00 ▶ Pause déjeuner | Lunch break**  
Librairie | bookshop 12.30 | 13.00

Mardi | Tuesday

2 05.06

14.00 | 17.30 ▶

Amphi Nord, Bâtiment A,  
UFR PhiTEM, Université  
Grenoble Alpes

THEME  
RENFORCEMENT DES  
INSTITUTIONS, DES  
COMMUNAUTÉS & DES RESEAUX  
| REINFORCEMENT OF  
INSTITUTIONS, COMMUNITIES &  
NETWORKS

MODÉRATEUR | MODERATOR :  
**DAVID GANDREAU**, Ecole  
Nationale Supérieure d'Architecture  
de Grenoble, France

14.00 | 14.05 ▶

**Introduction du thème par le  
modérateur | Theme introduction  
by the moderator**

14.05 | 14.20 ▶ **L'institut des villes  
de Sao Paulo : quand le  
mouvement social et l'université  
se rencontrent**

TIARAJU PABLO D'ANDREA  
& PEDRO FIORI ARANTES

14.20 | 14.35 ▶ **Rooted  
Sustainability of Yazd Earthen  
Architecture : Challenges of the  
Present and Future**

SEYED MOHAMMAD HOSSEIN  
AYATOLLAHI ; FATEMEH  
MALEKZADEH ; ARMAN  
SEDIGHIAN ; MEHDI GHASEMI ;  
AMIR SAEED PAKSERESHT

14.35 | 14.50 ▶ **Dynamiques  
universitaires et stratégies autour  
des patrimoines en terre en  
Arménie et France**

SUZANNE MONNOT & EMMA  
HARUTYUNYAN

14.50 | 15.05 ▶ **Des actions  
croissantes en faveur de la  
construction en terre à l'Ensa de  
Toulouse**

ISABELLE VERVICH-FORTUNÉ

15.05 | 15.20 ▶ **Discussion**

15.20 | 15.50 ▶ **Pause | Break**

Librairie | bookshop

15.50 | 16.05 ▶ **The university  
work of the World Heritage City  
Project, intervention models for  
the rescue and preventive  
conservation of earth-based  
architecture**

SEBASTIÁN ASTUDILLO CORDERO ;  
MARÍA CECILIA ACHIG-BALAREZO ;  
GABRIELA BARSALLO CHAVEZ ;  
FAUSTO CARDOSO MARTINEZ

16.05 | 16.20 ▶ **Earth and loof ah  
shells. An educational  
experimentation**

MADDALENA ACHENZA

16.20 | 16.35 ▶ **Enseigner la  
construction soutenable en terre à  
l'UGA. "projet IDEX Formation :  
e-CoLoS !"**

DOMINIQUE DAUDON ; FLORENCE  
JOUSSELLIN ; JEAN-MARTIAL  
COHARD ; YANNICK SIEFFERT ;  
LAURENT OXARANGO ; THIERRY  
JOFFROY ; BAKONIRINA  
RAKOTOMAMONY ; PHILIPPE  
GARNIER ; STAN BORKOWSKI ;  
NICOLAS BONNEFOND ; REMI  
PINCENT ; PIERRE BILLET ;  
EMMANUEL GODDE ; PHILIPPE  
GUEGUEN ; GILLES DEBIZET ;  
THOMAS JAY-ALLEMAND ; GÉRALD  
HIVIN ; MAGALI AUPICON ; MARCO  
IMPERADORI ; GRAZIANO  
SALVALAI ; GABRIELE MASERA,  
GIOVANNI DOTELLI ; FRANCESCO  
CALVETTI ; LAETITIA FONTAINE,  
MARTIN POINTET ; PHILIPPE  
BIGUENET ; FREDERIC BATTOIS ;  
OLIVIER BERARD ; GILLES  
ESCALA ; NADEGE MASNADA

16.35 | 17.00 ▶ **Discussion**

17.00 | 17.30 ▶

**Discours de clôture | Closing  
speeches**

#### Activité annexe | Side activity

18.00 ▶ 19.30

Anniversaire de la maison 24h &  
Lancement du projet e-CoLoS! |  
Départ collectif à pied depuis le  
colloque (10 min.)  
Visit of the 24h House & e-CoLoS!  
Project Launch | Collective departure  
by foot from the seminar site (10 min.)

Adresse | Address:

Campus Universitaire, 588-652  
Avenue Centrale, 38400 Saint-Martin-  
d'Hères



organisé dans le cadre des activités de la Chaire  
UNESCO, architecture de terre, et du programme  
WHEAP de l'UNESCO | organized in the framework of  
the activities of the UNESCO Chair, earthen architecture,  
and the UNESCO's WHEAP program

# **Integral technical training for women in northern Nicaragua.**

Association of Women Builders of Condega, Nicaragua / AMCC - MesoAmeri-Kaab Network.

## **SUMMARY:**

The Association of Women Builders of Condega is an autonomous organization with 30 years' experience in technical training and women's rights. Their work centres on promoting change to be able to face personal, social and institutional challenges and prejudices for women with a focus on integral education.

Situations such as Hurricane Mitch, revealed their ability to find opportunities in challenging situations, leading a reconstruction process of housing for women in the municipality. Since then AMCC started concentrating on "young women's capacity building" because everyday life revealed that material, political and cultural conditions were lacking to be able to discover and put into practise a new kind of power: inclusive, liberating, creative, personal, that stimulated research and critical thinking.

With time, the need for a larger and better located site, meant that the AMCC got involved in working towards reviving the local traditional of earth building, consolidating its own self-build skills and incorporating other practices rooted in culture and exchange. This aims to transform the connection between production and the consumer, deteriorated in the globalised capitalist economy. This capitalist system, which promotes individualism and consumerism, is the manifestation of an interconnected system of oppression and exclusion that exploits and abuses natural and human resources.

In its new strategic planning process, 2018 - 22, AMCC projects its technological and ecological youth centre, a space for women trained in rights, using clean and appropriate technologies, promoting itself as being inclusive, diverse, investigative and democratic, highlighting the ancestral values of women's creativity and legacy.

## **1. INTRODUCTION**

This document describes the experience of the Association of Women Builders of Condega (AMCC), from when it began with its first self-build experience, to the consolidation of the Women's Technical Training School, as it is today.

The questioning of traditional gender roles, empowering women and promoting environmentally friendly practices applies to all aspects of life including building sustainable habitats. Many organisations work together in this field, and to do this, in 2017, AMCC joined a Mesoamerican network.

The MesoAmeri-Kaab Network (MAK Network) is a platform composed of thirty civil organizations, education and training centres from Mexico, Honduras, El Salvador, Guatemala and Nicaragua. They share the need to asses and revive the ancestral

constructive cultures that over centuries have proved to be autonomous and sustainable, and they are working on the theme of social habitat production.

As a member of this network and a group of women committed to defending their basic rights, the AMCC was encouraged to share its story.

## **2. HISTORY**

The Association of Women Builders of Condega mission and vision are as follows:

Mission:

- AMCC is an autonomous women's organization, with 30 years of experience in technical training and women's rights.
- It provides integral education in a safe environment, on its own site with space to experiment, providing conditions for the development of young people and adults' capacity building and the promotion of environmentally friendly practice.

Vision:

- AMCC is a space for women trained in rights, built of clean and appropriate technologies, which promotes an inclusive, diverse, investigative and democratic culture.
- Young women experience their potential in a healthy and natural environment, contributing to building a fair, equal and sustainable society. (AMCC,2017)

### **2.1 AMCC origins (1987 – 2004)**

The current mission and vision synthesise the experience and life of the organization, whose origins are rooted in the popular revolution of the 1980s. This was during a time when the world reclaimed and harvested fruits from women's long history of struggle, whose huge involvement before, during and after the revolutionary process resulted in movement that pays tribute to that ancestral culture: "They became the socioeconomic base that made the survival of human groups possible, and, incidentally, were the driving force behind important evolutionary changes that is the civilization that we know today." (Pepe Rodriguez, 1999)

After the revolution, in 1987, women from the USA, with their own accumulated experiences, joined eight local women, to build a primary school in the municipality of Condega. This brigade was interested and thirsty to work in solidarity with Nicaraguan women, to put into practice their utopias in favourable territory and the local women were open to novelty and change, determined to discover their power to assert themselves, to grow, to open up. During this first building experience, it motivated the founders to get more experience – although often brief and insufficient - and to look for funds to build its own site. In various stages (1992 to 1997) they built over 370 square metres; a space that soon became inadequate for what the organization proposed in the future. However, the group "learned by doing": building its own premises, welding the gates and window grills, doing the electrical installation for the building and carpentry machinery, amongst others. It worked as a small training workshop, mainly for women with a focus on carpentry training and

production, integrating new women as they contacted the organisation and trained themselves. The gender workshops and reflection accompanied all the processes.



*Fig. 1/“Brigada compañeras” from USA with women from Condega, 1987, Condega – Nicaragua*

In 1998, Hurricane Mitch put AMCC to the test with its fury, presenting an opportunity which brought out the best in the women: first, they reacted to the emergency, and then they joined the reconstruction process. AMCC had the conditions ready to involve more than 25 women in different trades and more people at different stages, both builders and international volunteers, among others. From 1999 to 2001, AMCC built 32 houses and it managed other jobs in and outside of the municipality.

During the years, women of all ages have come together, with different expectations and interests: some need to obtain an income for their sustenance and that of their children, others to learn a trade with which to earn a living; there are those who are driven by curiosity to do something different; and others who need an exciting experience. Other women are trying to look for a way to find their own power to assert themselves, to acquire their own resources, both tangible and intangible, for their personal and collective growth and development, be visible in a public space that is generally monopolised by men. More than developing technical skills, the search is for self-recognition of their potential in a traditionally "masculine" field, which is highly valued by society.

## **2.2 Enhancing the capacities of young women (2005 – 2011)**

In 2005, the Technical Training School for Women was founded, accredited by the National Technological Institute - INATEC (official certification body in technical training), aimed at young women to sign up for basic technical courses (carpentry, electric welding, electrics) of a duration of one year. In 2007, the curriculum was expanded to include short specialisation courses, renewable and craft-based technologies (zinc welding, solar photovoltaic energy systems, and woodcarving). At

the same time, AMCC began to experiment and learn about improved adobe as a sustainable and appropriate building system, adobe being a local tradition.

In 2009, the gender workshops expanded to work with young people on issues of sexual and reproductive rights, and the group of young women, *Nací para Volar* (Born to Fly), was formed, which currently promotes activities with their contemporaries. A coordinating team within this group organises marches and seminars, training processes (workshops and talks) where young women express themselves freely; the contribution and intervention of the participants reflect their family, community, and social reality, the policies that the state implements and the development of their own proposals.

In 2011, the motto of "young women's capacity building" was chosen to face real life which revealed that what is needed are the material, political and cultural conditions to discover and exercise a new form of power: inclusive, liberating, creative, appropriate, and to encourage innovation and critical thinking.



*Fig.2/ Technical drawing class in basic carpentry course, 2006, Condega - Nicaragua.*

A percentage of these young women who come to AMCC through the Youth Initiatives programme, are then motivated to enrol on a technical course, in the Technical School programme, or vice versa. That is the intention of the AMCC, that this exchange between programmes makes it possible to achieve integral development processes with young people.



### **3. WOMEN IN BUILDING AND TECHNICAL TRADES**

As part of frantic and disorderly modern life, most women are doing their designated tasks, and others follow the path that has taken thousands of years to build, but really there is no time to enquire consciously: Who built this path? Moreover, why should I walk along it? For a woman in this globalized age, asking these types of questions evidences a reality that transcends countless generations that preceded them, where memory "naturalized" imposed knowledge. That makes it difficult for her to find that genetic memory in which she can embrace her female ancestors and reconnect herself with the mother earth, which is part of nature. The natural environment is separate from human beings, perceived as a soulless entity, treated as a commodity, a resource to be potentially exploited; although painful, is women's reality too. The revival of ancestral wisdom to give way to a more holistic vision of the environment requires a transformation where women's role is fundamental.

Women and men, who approach AMCC, mostly want to search for or share something. For girls, particularly in secondary school, it is a time in their lives where they find themselves in a dangerous cultural environment where beliefs, myths, and customs reinforce the subordination of women's bodies and lives. The models of family upbringing, power relations that are exercised particularly on young women, control, roles, social mandates and the power of the male / father figure together with social pressure at community level and in society means that girls have to decide to conform or take a critical position. There are many stigmas, indifference and lack of empathy about what happens to women. Those who achieve and can choose to break with tradition, some have families that are open and support them in their development. So to rediscover their abilities, change paradigms and dare to live from a more conscious perspective, in order to recover the holistic and natural vision, are all ways of coexisting and taking action that many women are putting into practice. For the AMCC, this takes it back to that first memorable women's encounter, in 1987.

#### **3.1 The methodological approach: learning by doing and popular education**

The idea of the Technical School was consolidated with the systematization of its experience, carried out in 2001, looking at the first ten years of the organization's life. This included an analysis of teaching and learning processes: "One of the most novel aspects of the AMCC proposal is the methodology to train women in non-traditional trades...This methodological conception, apart from allowing the incorporation of women into the trade, in terms of training, is also a combination of popular education methodology with other methods. They start from the premise of "learning by doing", applied to teaching and learning processes in the trades, and at the same time, the masculine character is demystified, from the generic point of view". (Marta Yllescas, 2001)



*Fig.3/ Welding graduate, 2008, Condega - Nicaragua.*

A staff training process followed, including the design of the courses themselves, the preparation of the curriculum, writing and designing teaching manuals and student books. The proposal was to offer integral technical training: the basic technical courses included complementary education (mathematics, natural and social sciences) serving as reinforcement for the girls who study the secondary level in parallel, also gender and small business administration modules.

"Simultaneously, women are reflecting on the theoretical aspects that support the patriarchal vision of the world and that restrict women to certain "feminine" roles, at the same time in practice, they go deeper into the experimentation of gender roles traditionally considered to be masculine " (Marta Yllescas, 2001).

Since 2012, when AMCC began incorporating earth building in its new premises, this methodology, when applied to the self-build processes in workshops and courses with young and adult students, has been further developed. The emphasis is on the integration of women with the goal of attracting 80% of women and 20% of men to sign up for courses, a way of discriminating positively to give women a chance. Some of the course graduates continue on site in requalification processes either in the natural building team or in the other trades.

There are young university students from engineering and architecture career courses who carry out their work experience at the AMCC, when there are jobs where they can put their knowledge into practice and experiment. The incorporation of people is a key to promoting active participation with the "learning by doing" methodology. These experiences are similar in the other trades: graduates can work on buildings that require carpentry work, electric welding, grid and solar photovoltaic

electrical installations, rainwater harvesting, among other conventional and innovated jobs. The specialisation in maintenance and repairs of an earth building, rendering and finishes are the subject matter of monthly workshops. People attracted to the artistic and creative part (murals and decorations) also get involved and this promotes multidisciplinary exchange.

The participation of young women in technical training is shown in a consolidated list of courses taught during the period 2012 – 16 (AMCC, 2017):

**21 specialist courses** (lasting 48 to 120 hours):

- 08 on Zinc Soldering (hand crafted silo manufacture),
- 04 on Improved Adobe,
- 04 on Natural Building,
- 03 on Solar Photovoltaic Energy Systems
- 02 on Electrical Installations,

254 young people and adults graduated from specialist courses, 55% women and 45% men; 26% were young women.

**Basic technical courses** (10 months of duration in two levels)

- Three on basic carpentry (levels 1 and 2).
- One introductory course (level 1) on electric welding.

51 young people graduated from basic technical (including complementary education and gender workshops), 68% were young women.

Some courses are run off the AMCC site in rural communities (zinc soldering) or in other parts of the country or region according to demand (to date natural building) with other groups and organisations.

#### **4. EARTH BUILDING AND SELF-BUILD, REVIVAL OF A LOCAL TRADITION**

In Central America, the use of earth as a building material dates back to pre-Columbian times and is a legacy that is part of the cultural identity. The northern region of Nicaragua, where AMCC works, is known for its earth construction tradition: "Of the total of homes currently built, 73% are made of adobe, especially in Nueva Segovia, Estelí, Madriz and part of Jinotega "(Dulce Maria Guillen, 2014).

AMCC uses natural resources that are available locally, carries out practical work that integrates knowledge and experimentation, using an intergenerational approach through self-build (inherited teaching methods); this enables access to exchange and fair trade, applied on a daily basis, putting into practice communal living that reconnects with a simple and ignored way of life.

Self-build for women is familiar, especially in earth building, because the methodological nature of its origins, its existence, in the same way that they have inherited the role of gatherers and propagators of culture, language and customs. Nor is it a coincidence that CATAL HÜYÜK in Anatolia (8000 years BC), known as one of the first cities in history, apart from discovering that it was constituted as an egalitarian, peaceful society, when the Mother Goddess was the main icon, and the material used in the buildings, was adobe.



*Fig.4/ Natural building students, in practical classes, 2015, AMCC*

This connection between women and earth and the correlation between their skills in creating and forming ideas, establishes a first bridge between women and building. The practice of working daily in a creative way with live material, such as earth and other natural materials, in various dimensions, which result in building appealing and comfortable places to share, is an empowering achievement.

AMCC in its current location shows that women's power and creativity in all their work on earth buildings, is attractive because of its beauty, versatility, economy and durability, contrary to class prejudices rooted in culture. Self-build courses on the new premises began with the renovation and first earth buildings, where the AMCC moved to in 2014, providing the basic conditions to project from and carry out all its activities on a suitable site. Reviving earth-building practices in a spacious and welcoming place, has meant that it attracts new people and the organisation has strengthened itself to be a recognised reference point in this discipline. Teaching and learning processes also incorporate practice rooted in local culture such as bartering and skill sharing with groups, teachers, students and volunteers, aiming at building an alternative economy and community.

Added to the challenge, the devaluing of crafts and of technical trades in general and the lack of entrepreneurial policies, limits people to set up their own businesses or make their own products. In addition, the mentality in Nicaraguan culture of being employed by someone, or to look for someone who does things for you, prevails. Although technical trade training is commonplace now in the education system, quality leaves much to be desired, opportunities and resources are lacking to experiment, or to get practical experience in a learned trade. In the universities, the

budgets are also restricted, there is little laboratory research and insufficient opportunities for internships. In the communities, there is often resistance to reviving the building tradition of adobe due to the degradation of earth building. There is little and false information circulating, and bad building practices have repercussions in associating poverty to having a house built of earth and there are no building regulations. However, labourers are available, although the lack of qualified personnel in this field for being a skill from the past, earth is still a commonly used building material in the north of the country.

Since 2015, AMCC has been incorporating into its master plan, proposals for ecological and alternative systems that respond to the responsible treatment of waste, diversification of areas, responsible use of resources, etc. Achieving the implementation of the first stage of rainwater harvesting, experimenting with live (or green) roofs, which in conjunction with the use of earth as an ecological building material and running buildings with solar photovoltaic energy has answered some conservation requirements. The implementation of any of these eco technologies in the AMCC facilities is always applied through teaching-learning processes where young people are involved, discover their own capabilities and show their valuable contribution to urgent social transformation. This is what the AMCC calls an integral education.



*Fig.5/ Installation and maintenance of solar photovoltaic energy systems course, 2016, AMCC.*

## **5. CONCLUSION**

The results obtained throughout its experience, and as set out in the new strategic planning 2018 - 22, AMCC is projecting itself as a technological and ecological youth centre, with its new theory of change, presented as follows:

Changes at the level of knowledge and thought:

- Ideological training processes (building new knowledge).
- Creating spaces of trust that allow the reconstruction of their mistreated self-esteem [of young women].
- Technical training processes (experimental spaces where making mistakes is part of learning, so that they can improve, feel included).
- Promoting the culture of reading and critical discussion as an important path for knowledge, an important antidote to face fears, prejudices of all genres and above all for personal self-realization.

Changes at the level of behaviour:

- AMCC staff and the same young women are models or references for other
- Young people in the processes of changing attitudes and using new skills.
- Participatory methodologies: Learning by doing, an activity is developed prior to each activity or course. This allows the young protagonists to organize, plan and implement activities.
- Activities that promote a sense of responsibility and identity. The annual youth camps have been for many young people, the only time in their lives without the protection and control of their mothers and fathers, to take responsibility for them, to talk about issues of their generation and to "go on an excursion" as they say themselves.
- Good practice implemented from the physical space of AMCC. There is an agricultural area with green and fruit areas, among others. Activities are recycling with wood and plastic, annual preparation of compost, volunteering on jobs as part of AMCC, collective cooking and catering, among others.

Changes at collective level:

- Preparation of research projects in their schools, with topics related to what they know. This implies putting themselves at the head of a student public [(youth leadership)] to argue their subject.
- Exchanges with same interest organizations and networks. In addition to generating a sense of identity and collective self-assessment, this favours initiatives that transcend local ones.
- Critical leadership, which is only possible with modelling/ [mentoring]
- Parallel to working with young people, AMCC works with the educational community (teachers and parents), the main and most important environment for young women in this stage of their life.

This dynamic and work philosophy of the AMCC aims at a sustainability proposal based on individual and collective contributions. The experience particularly of the last five years during the building of the new centre has made it possible to consider the future. During the next five years, it is proposed that the courses will be expanded to influence the improvement of earth building practices in the communities, particularly with builders who already work or want to work with this material. This is part of a proposal towards sustainability that develops critical

thinking, the search for autonomy to change consumerism and massive capitalism, where women are the main protagonists in these processes.



*Fig.6/ Interior view of Dormitory in model house built in earth, 2017, AMCC.*

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## **Biographic notes on main authors**

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